

## [MS-XMLSS]:

# Microsoft XML Schema (Part 1: Structures) Standards Support Document

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## Revision Summary

Date	Revision History	Revision Class	Comments
9/8/2010	0.1	New	Released new document.
10/13/2010	0.2	Minor	Clarified the meaning of the technical content.
2/10/2011	1.0	None	Introduced no new technical or language changes.
2/15/2012	2.0	Major	Significantly changed the technical content.
7/25/2012	2.1	Minor	Clarified the meaning of the technical content.
6/26/2013	3.0	Major	Significantly changed the technical content.
3/31/2014	3.0	None	No changes to the meaning, language, or formatting of the technical content.
1/22/2015	4.0	Major	Updated for new product version.
7/7/2015	4.1	Minor	Clarified the meaning of the technical content.
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# 1 Introduction

This document describes the level of support provided by Microsoft XML Core Services (MSXML) 6.0 for *XML Schema Part 1: Structures Second Edition* [W3C-XSS], published on 28 October, 2004.

MSXML6 supports *XML Schema Part 1: Structures Second Edition* [W3C-XSS] using the *Extensible Markup Language (XML) 1.0 (Fourth Edition)* [XML], W3C Recommendation 16 August 2006, edited in place 29 September 2006.

By way of MSXML6, Microsoft web browsers support *XML Schema Part 1: Structures Second Edition* [W3C-XSS].

The [W3C-XSS] specification may contain guidance for authors of webpages and browser users, in addition to user agents (browser applications). Statements found in this document apply only to normative requirements in the specification targeted to user agents, not those targeted to authors.

## 1.1 Glossary

**MAY, SHOULD, MUST, SHOULD NOT, MUST NOT:** These terms (in all caps) are used as defined in [RFC2119]. All statements of optional behavior use either MAY, SHOULD, or SHOULD NOT.

## 1.2 References

Links to a document in the Microsoft Open Specifications library point to the correct section in the most recently published version of the referenced document. However, because individual documents in the library are not updated at the same time, the section numbers in the documents may not match. You can confirm the correct section numbering by checking the [Errata](#).

### 1.2.1 Normative References

We conduct frequent surveys of the normative references to assure their continued availability. If you have any issue with finding a normative reference, please contact [dochelp@microsoft.com](mailto:dochelp@microsoft.com). We will assist you in finding the relevant information.

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997, <http://www.rfc-editor.org/rfc/rfc2119.txt>

[W3C-XSS] World Wide Web Consortium, "XML Schema Part 1: Structures Second Edition", W3C Recommendation 28 October 2004, <http://www.w3.org/TR/2004/REC-xmlschema-1-20041028/>

### 1.2.2 Informative References

None.

## 1.3 Microsoft Implementations

Throughout this document, Microsoft XML Core Services (MSXML) 6.0 is referred to as *MSXML6*.

MSXML6 implements the [W3C-XSS] specification.

The following Microsoft products implement some portion of the [W3C-XSS] specification, by way of MSXML6:

- Windows Internet Explorer 9
- Windows Internet Explorer 10

- Internet Explorer 11
- Internet Explorer 11 for Windows 10

In addition, each version of Windows Internet Explorer implements multiple document modes, which can vary individually in their support of the standard. The following table lists the document modes in each browser version that support the [W3C-XSS] specification.

Browser version	Document modes supported
Internet Explorer 9	IE9 Mode
Internet Explorer 10	IE9 Mode IE10 Mode
Internet Explorer 11	IE9 Mode IE10 Mode IE11 Mode
Internet Explorer 11 for Windows 10	IE9 Mode IE10 Mode IE11 Mode

## 1.4 Standards Support Requirements

To conform to [W3C-XSS], a user agent must implement all required portions of the specification. Any optional portions that have been implemented must also be implemented as described by the specification. Normative language is usually used to define both required and optional portions. (For more information, see [RFC2119].)

## 1.5 Notation

The following notations are used in this document to differentiate between notes of clarification, variation from the specification, and extension points.

Notation	Explanation
C####	Identifies a clarification of ambiguity in the target specification. This includes imprecise statements, omitted information, discrepancies, and errata. This does not include data formatting clarifications.
V####	Identifies an intended point of variability in the target specification such as the use of MAY, SHOULD, or RECOMMENDED. (See [RFC2119].) This does not include extensibility points.
E####	Identifies extensibility points (such as optional implementation-specific data) in the target specification, which can impair interoperability.

For document mode and browser version notation, see section 1.3.

## 2 Standards Support Statements

This section contains all variations and clarifications for the Microsoft implementation of [\[W3C-XSS\]](#).

- Section [2.1](#) describes normative variations from the MUST requirements of the specification.
- Section [2.2](#) describes clarifications of the MAY and SHOULD requirements.
- Section [2.3](#) considers error handling aspects of the implementation.
- Section [2.4](#) considers security aspects of the implementation.

### 2.1 Normative Variations

The following subsections describe normative variations from the MUST requirements of [\[W3C-XSS\]](#).

#### 2.1.1 [W3C-XSS] Section 3.3.1, The Element Declaration Schema Component

V0001:

The specification states:

```
{value constraint} establishes a default or fixed value for an element. If
default is specified, and if the element being 'validated' is empty, then the
canonical form of the supplied constraint value becomes the [schema normalized
value] of the 'validated' element in the 'post-schema-validation infoset'. If
fixed is specified, then the element's content must either be empty, in which
case fixed behaves as default, or its value must match the supplied constraint
value.
```

MSXML6

If an element that is being validated includes a **{value constraint}** value that is specified as default and the element is empty, the default value is not supplied.

#### 2.1.2 [W3C-XSS] Section 3.3.4, Element Declaration Validation Rules

V0002:

The specification states:

```
4 If there is an attribute information item among the element information item's
[attributes] whose [namespace name] is identical to
http://www.w3.org/2001/XMLSchema-instance and whose [local name] is type ...

4.2 The 'local name' and 'namespace name' (as defined in QName Interpretation
($3.15.3)), of the 'actual value' of that attribute information item must resolve
to a type definition, as defined in QName resolution (Instance) ($3.15.4) -
[Definition:] call this type definition the local type definition;
```

MSXML6

An attribute information item that does not resolve to a valid type does not cause an error.

### 2.1.3 [W3C-XSS] Section 3.4.6, Constraints on Complex Type Definition Schema Components

V0003:

The specification states:

Schema Component Constraint: Derivation Valid (Extension)

If the {derivation method} is extension, the appropriate case among the following must be true:

1 If the {base type definition} is a complex type definition, then all of the following must be true:

1.1 The {final} of the {base type definition} must not contain extension.

1.2 Its {attribute uses} must be a subset of the {attribute uses} of the complex type definition itself, that is, for every attribute use in the {attribute uses} of the {base type definition}, there must be an attribute use in the {attribute uses} of the complex type definition itself whose {attribute declaration} has the same {name}, {target namespace} and {type definition} as its attribute declaration.

1.3 If it has an {attribute wildcard}, the complex type definition must also have one, and the base type definition's {attribute wildcard}'s {namespace constraint} must be a subset of the complex type definition's {attribute wildcard}'s {namespace constraint}, as defined by Wildcard Subset (§3.10.6).

MSXML6

The **{namespace constraint}** property of the base type definition's **{attribute wildcard}** property is not required to be a subset of the **{namespace constraint}** of the complex type definition's **{attribute wildcard}** property.

The **{attribute uses}** property of the base type definition is not required to be a subset of the **{attribute uses}** property of the complex type definition.

V0004:

The specification states:

2 If the {base type definition} is a simple type definition, then all of the following must be true:

2.1 The {content type} must be the same simple type definition.

2.2 The {final} of the {base type definition} must not contain extension.

MSXML6

A **{final}** property of a simple type definition may have a value of extension.

### 2.1.4 [W3C-XSS] Section 3.10.6, Constraints on Wildcard Schema Components

V0005:

The specification states:

For a wildcard's {namespace constraint} value to be the intensional union of two other such values (call them O1 and O2): the appropriate case among the following must be true:

1 If O1 and O2 are the same value, then that value must be the value.

2 If either O1 or O2 is any, then any must be the value.

3 If both O1 and O2 are sets of (namespace names or `·absent·`), then the union of those sets must be the value.

4 If the two are negations of different values (namespace names or `·absent·`), then a pair of not and `·absent·` must be the value.

## MSXML6

When a wildcard's **{namespace constraint}** value is the union of two values (O1 and O2), if either O1 or O2 is `any`, the value is not always `any`.

### 2.1.5 [W3C-XSS] Section 3.11.4, Identity-constraint Definition Validation Rules

V0006:

The specification states:

4 [Definition:] Call the subset of the `·target node set·` for which all the `{fields}` evaluate to a node-set with exactly one member which is an element or attribute node with a simple type the qualified node set...

4.2 If the `{identity-constraint category}` is `key`, then all of the following must be true: ...

4.2.3 No element member of the `·key-sequence·` of any member of the `·qualified node set·` was assessed as `·valid·` by reference to an element declaration whose `{nillable}` is `true`.

## MSXML6

If an element of the key sequence of a qualified node set has a **{nillable}** attribute of value `true`, it can be valid.

### 2.1.6 [W3C-XSS] Section 3.14.4, Simple Type Definition Validation Rules

V0007:

The specification states:

Validation Rule: String Valid

For a string to be locally `·valid·` with respect to a simple type definition all of the following must be true:

1 It is schema-valid with respect to that definition as defined by Datatype Valid in [XML Schemas: Datatypes].

2 The appropriate case among the following must be true:

2.1 If The definition is ENTITY or is validly derived from ENTITY given the empty set, as defined in Type Derivation OK (Simple) (§3.14.6), then the string must be a `·declared entity name·`.

2.2 If The definition is ENTITIES or is validly derived from ENTITIES given the empty set, as defined in Type Derivation OK (Simple) (§3.14.6), then every whitespace-delimited substring of the string must be a `·declared entity name·`.

2.3 otherwise no further condition applies.

## MSXML6



Schema validation does not use the **ENTITY** attribute, so all statements that refer to **ENTITY** or the **ENTITIES** attribute are ignored.

### 2.1.7 [W3C-XSS] Section 3.14.6, Constraints on Simple Type Definition Schema Components

V0008:

The specification states:

```
3 If the {variety} is union, then all of the following must be true:
3.1 The {member type definitions} must all have {variety} of atomic or list...
```

*MSXML6*

A simple type with a **{variety}** value of `union` can include a simple type with a **{variety}** value of `union`.

### 2.1.8 [W3C-XSS] Section 4.2.3, References to schema components across namespaces

V0009:

The specification states:

```
Note: Since both the namespace and schemaLocation [attribute] are optional,
a bare <import/> information item is allowed. This simply allows unqualified
reference to foreign components with no target namespace without giving
any hints as to where to find them.
```

*MSXML6*

An unqualified reference results in an invalid schema document.

## 2.2 Clarifications

The following subsections describe clarifications of the MAY and SHOULD requirements of [\[W3C-XSS\]](#).

### 2.2.1 [W3C-XSS] Section 2.1, Overview of XML Schema

V0010:

The specification states:

```
[Definition:] We refer to the augmented infoset which results from conformant processing as
defined in this specification as the post-schema-validation infoset, or PSVI.
```

*MSXML6*

No APIs are exposed for the post-schema-validation infoset (PSVI) so it cannot be tested. The internal implementation of PSVI may or may not conform to the specification. All features that depend on the PSVI should be tested separately.

## 2.2.2 [W3C-XSS] Section 3.8.4, Model Group Validation Rules

V0011:

The specification states:

Nothing in the above should be understood as ruling out groups whose {particles} is empty: although no sequence can be `valid` with respect to such a group whose {compositor} is choice, the empty sequence is `valid` with respect to empty groups whose {compositor} is sequence or all.

MSXML6

An empty group that has a **{compositor}** property with a value of choice can be valid.

## 2.2.3 [W3C-XSS] Section 3.8.6, Constraints on Model Group Schema Components

V0012:

The specification states:

Schema Component Constraint: Element Declarations Consistent

If the {particles} contains, either directly, indirectly (that is, within the {particles} of a contained model group, recursively) or `implicitly` two or more element declaration particles with the same {name} and {target namespace}, then all their type definitions must be the same top-level definition, that is, all of the following must be true:

- 1 all their {type definition}s must have a non-`absent` {name}.
- 2 all their {type definition}s must have the same {name}.
- 3 all their {type definition}s must have the same {target namespace}.

MSXML6

If a model group implicitly contains an element declaration that has the same **{name}** and **{target namespace}** properties with a directly contained element declaration, it does not cause an error.

## 2.2.4 [W3C-XSS] Section 4.1, Layer 1: Summary of the Schema-validity Assessment Core

C0001:

The specification states:

Processors have the option to assemble (and perhaps to optimize or pre-compile) the entire schema prior to the start of an `assessment` episode, or to gather the schema lazily as individual components are required. In all cases it is required that:

- The processor succeed in locating the `schema components` transitively required to complete an `assessment` (note that components derived from `schema documents` can be integrated with components obtained through other means);
- no definition or declaration changes once it has been established;
- if the processor chooses to acquire declarations and definitions dynamically, that there be no side effects of such dynamic acquisition that would cause the results of `assessment` to differ from that which would have been obtained from the same schema components acquired in bulk.

MSXML6

The **SchemaCache** object does not acquire declarations and definitions dynamically.

C0002:

The specification states:

Note: the assessment core is defined in terms of schema components at the abstract level, and no mention is made of the schema definition syntax (i.e. <schema>). Although many processors will acquire schemas in this format, others may operate on compiled representations, on a programmatic representation as exposed in some programming language, etc.

MSXML6

The **SchemaCache** object does not operate on compiled representations or on a programmatic representation. **SchemaCache** acquires schemas only in **schema** document format.

### 2.3 Error Handling

There are no additional error handling considerations.

### 2.4 Security

There are no additional security considerations.

### **3 Change Tracking**

No table of changes is available. The document is either new or has had no changes since its last release.

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