

# [MS-FSSACFG]: Search Authorization Configuration File Format Specification

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# 1 Introduction

This document specifies two file formats used by the search authorization manager service and the search authorization worker component of the query processing service described in [\[MS-FSQ\]](#). The file formats are used to provide secure search capability to ensure that users view only the search results for which they are authorized. The User Store Configuration File Format is used to configure the search authorization worker component for each source of user objects and group objects. The Principal Aliaser Configuration File Format is used to configure the search authorization worker component for mapping user and group objects to other user and group objects.

## 1.1 Glossary

The following terms are defined in [\[MS-GLOS\]](#):

**group object**  
**security identifier (SID)**  
**user object**  
**UTF-8**

The following terms are defined in [\[MS-OFCGLOS\]](#):

**FAST Search Authorization (FSA)**  
**managed property**  
**principal aliaser**  
**principal aliaser identifier**  
**principal aliasing**  
**query processing**  
**security principal**  
**security principal identifier**  
**user name**  
**user security filter**  
**user store**  
**user store identifier**  
**XML principal aliaser**  
**XML schema**  
**XML Schema**

The following terms are specific to this document:

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

## 1.2 References

### 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. Please check the archive site, <http://msdn2.microsoft.com/en-us/library/E4BD6494-06AD-4aed-9823-445E921C9624>, as an additional source.

[MC-RegEx] Microsoft Corporation, "Regular Expression Language Elements", [http://msdn.microsoft.com/en-us/library/az24scfc\(VS.80\).aspx](http://msdn.microsoft.com/en-us/library/az24scfc(VS.80).aspx)

[MS-FSSADFF] Microsoft Corporation, "[Search Authorization Data File Format](#)", February 2010.

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

[XMLSCHEMA1] Thompson, H.S., Ed., Beech, D., Ed., Maloney, M., Ed., and Mendelsohn, N., Ed., "XML Schema Part 1: Structures", W3C Recommendation, May 2001, <http://www.w3.org/TR/2001/REC-xmlschema-1-20010502/>

[XMLSCHEMA2] Biron, P.V., Ed. and Malhotra, A., Ed., "XML Schema Part 2: Datatypes", W3C Recommendation, May 2001, <http://www.w3.org/TR/2001/REC-xmlschema-2-20010502/>

[XPATH] Clark, J. and DeRose, S., "XML Path Language (XPath), Version 1.0", W3C Recommendation, November 1999, <http://www.w3.org/TR/xpath>

## 1.2.2 Informative References

[LotusNotes] IBM, "Lotus Notes - Business email solution", <http://www-01.ibm.com/software/lotus/products/notes/>

[MS-FSO] Microsoft Corporation, "[FAST Search System Overview](#)", November 2009.

[MS-FSSAS] Microsoft Corporation, "[Search Authorization Synchronization Protocol Specification](#)", February 2010.

[MS-GLOS] Microsoft Corporation, "[Windows Protocols Master Glossary](#)", March 2007.

[MS-OFCGLOS] Microsoft Corporation, "[Microsoft Office Master Glossary](#)", June 2008.

## 1.3 Overview

Secure search ensures that only authorized search results are returned. This occurs in two phases. In the first phase, the customer's content repositories are traversed to create indexes. Authorization **managed properties** that identify the **user objects** and **group objects** which are granted or denied access are added to the indexes for each item.

In the second phase, a query comes from the user and the indexes quickly identify search results. In this phase, secure search consists of authenticating the user and rewriting the query so that the indexes return only authorized search results. The **query processing** service described in [\[MS-FSO\]](#) rewrites the query by intersecting the original query with the **user security filter**. The user security filter uses the authorization managed properties to limit the query results to items for which the user is authorized. It is generated by the **FAST Search Authorization (FSA)** worker component which is part of the query processing service.

The FSA worker component uses the groups with which the user object is associated to generate the user security filter. A **user store** is responsible for providing group membership information for its user objects. This document describes the user store configuration files that enable the FSA worker component to interact with the various kinds of user stores. The user store contains the groups that a user object belongs to, which enables the FSA worker component to create the user security filter.

Some users have identities in multiple user stores. For example, a claims user can have a corresponding account in a collaborative business application. To generate the user security filter, the FSA worker component requires the identities and group objects that are associated with the user object in all user stores. The **security principal identifier** is not necessarily the same in all user stores. The FSA worker component uses **principal aliasing** to map user objects and group objects from one user store into another.

**Principal aliasers** map user objects and group objects to other user stores. This document describes the principal aliaser configuration files that enable the FSA worker component to interact with the various kinds of principal aliasers. The principal aliasers describe the other user stores that are associated with a user object or group object, and this enables the FSA worker component to create the user security filter.

The user store and principal aliaser configuration file formats are XML files that share a common schema. There is one user store configuration file for each user store, and one principal aliaser configuration file for each principal aliaser. Much of the file content is identical. The parts that are the same are described in section 2.1. Section 2.2 describes the elements that are unique for the user store configuration file, and section 2.3 describes the elements that are unique for the principal aliaser configuration file. If an XML element or attribute is not described in section 2.2 or 2.3, respectively, then the protocol uses section 2.1.

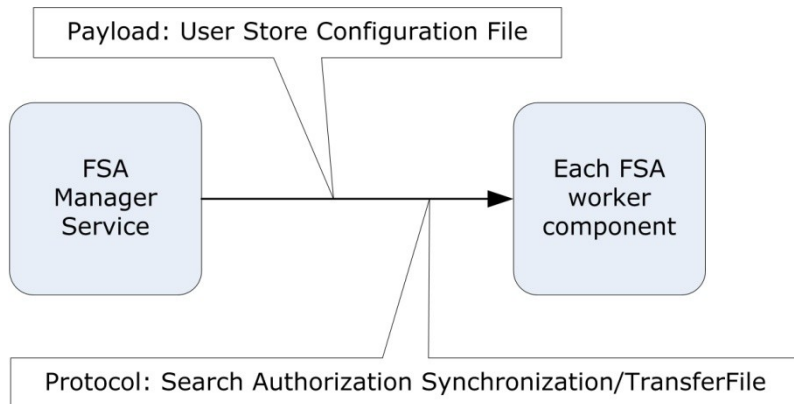
The difference between the two file formats are in the **type** elements. Section 2.2 describes the types of the **type** element in a user store configuration file. Section 2.3 describes the **type** elements in a principal aliaser configuration file. There are specific requirements for each type of **type** element. If a child element or attribute for a **type** element is not described in section 2.2, or 2.3, then the protocol uses section 2.1.

## 1.4 Relationship to Protocols and Other Structures

The user store configuration file format is not dependent on any other structure, nor is the principal aliaser configuration file format. Both file formats are used as payload in the Search Authorization Synchronization Protocol **TransferFile** message, as described in [MS-FSSAS] section 2.2.2.1. The FSA Managers Service is described in [MS-FSO]. The FSA worker component is part of the query processing service described in [MS-FSO].

### 1.4.1 User Store Configuration File Format

The following figure describes the relationship between the user store configuration file and the FSA components.

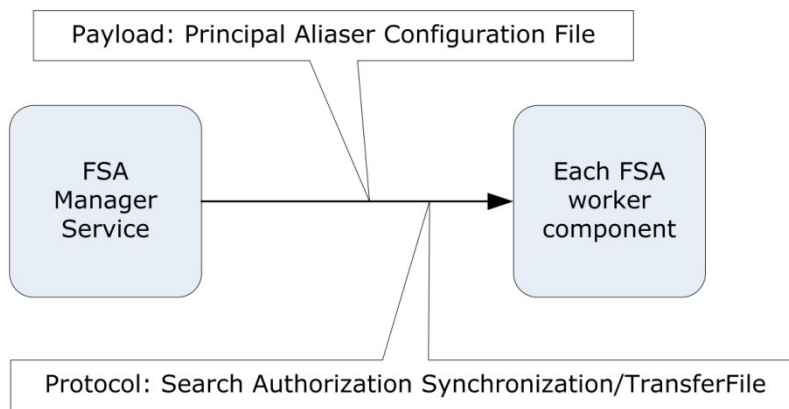


**Figure 1: Figure1: User store configuration file relationships**

### 1.4.2 Principal Aliaser Configuration File Format

The following figure describes the relationship between the principal aliaser configuration file and the FSA components.





**Figure 2: Principal aliaser configuration file relationships**

## 1.5 Applicability Statement

The file format specified in section 2.1 was designed to configure modules on the FSA worker component of the query processing service [MS-FSQ]. This document describes the two uses of that format, the user store (section 2.2) and principal aliaser (section 2.3) configuration file formats. Implementation-dependent methods are used to protect them at all times because they contain information relevant to application security.

### 1.5.1 User Store Configuration File Format

The user store configuration file format is applicable to accessing, modifying, or creating the configuration of a user store on the FSA worker component. A user store provides user and group information to the FSA worker component that is used to construct a user security filter.

### 1.5.2 Principal Aliaser Configuration File Format

The principal aliaser configuration file format is applicable to accessing, modifying, or creating the configuration of a principal aliaser on the FSA worker component of the query processing service. A principal aliaser specifies mappings of **security identifiers** between different user stores for the FSA worker component. The mappings are used to construct a user security filter.

## 1.6 Versioning and Localization

None.

## 1.7 Vendor-Extensible Fields

None.

## 2 Structures

Throughout this document, the xs namespace is <http://www.w3.org/2001/XMLSchema>. XPath notation is used to specify nested XML elements, as specified in [\[XPATH\]](#) section 2.

### 2.1 Common File Format

The user store (section [2.2](#)) and principal aliaser (section [2.3](#)) configuration files are valid standalone XML files that MUST use **UTF-8** encoding and the same schema.

The user store configuration and principal aliaser configuration files specify how to construct objects on the FSA worker component which is part of the query processing service [\[MS-FSQ\]](#). These objects are the configuration of the FSA worker component.

For more information about the full **XML Schema**, see section [5](#).

#### 2.1.1 Global Elements

##### 2.1.1.1 Configuration

A [CT\\_Configuration](#) element MUST be the root element of the user store configuration and principal aliaser configuration files. The following XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this element.

```
<xs:element name="configuration" type="CT_Configuration" />
```

#### 2.1.2 Complex Types

Throughout this section, XPath notation is used to specify nested XML elements, as specified in [\[XPATH\]](#) section 2.

##### 2.1.2.1 CT\_ConfigSections

Referenced by: [CT\\_Configuration](#), **configSections**

This complex type specifies the **configSections** element. The following XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xs:complexType name="CT_ConfigSections">
  <xs:sequence>
    <xs:element name="section" type="CT_Section" />
  </xs:sequence>
</xs:complexType>
```

*Child Elements:*

**section:** A **CT\_Section** element that specifies the element that contains the configuration and the type that processes it.

##### 2.1.2.2 CT\_Configuration

Referenced by: configuration

A complex type that specifies the **configuration** element. The **configuration** element is the root element of the user store configuration and principal aliaser configuration files. The following XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xs:complexType name="CT_Configuration">
  <xs:sequence>
    <xs:element name="configSections" type="CT_ConfigSections" />
    <xs:element name="unity" type="CT_Unity" />
  </xs:sequence>
</xs:complexType>
```

*Child Elements:*

**configSections:** A **CT\_ConfigSections** element that specifies elements that will follow it. The **configSections** element MUST contain exactly one **section** element. The **section** element specifies that a **unity** element follows the **configSections** element.

**unity:** A **CT\_Unity** element that specifies the configuration for a user store configuration or principal aliaser configuration file.

### 2.1.2.3 CT\_Constructor

*Referenced by:* [CT\\_TypeConfig](#), constructor

A complex type that specifies the **constructor** element. It is used to construct an object. It and its child elements MUST NOT be added unless they are contained the **type** element in specified in section [2.2](#) or [2.3](#). An **type** element in section [2.2](#) or [2.3](#) specifies the type/typeConfig/constructor/param elements. The order of the **param** elements MUST NOT be changed. The following XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xs:complexType name="CT_Constructor">
  <xs:sequence>
    <xs:element maxOccurs="unbounded" name="param" type="CT_Param" />
  </xs:sequence>
</xs:complexType>
```

*Child Elements:*

**param:** A [CT\\_Param](#) element that specifies the parameter used to construct the object.

### 2.1.2.4 CT\_Container

*Referenced by:* [CT\\_Containers](#), container

A complex type that specifies the **container** element. The following XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xs:complexType name="CT_Container">
  <xs:sequence>
    <xs:element name="types" type="CT_Types" />
    <xs:element name="instances" type="CT_Instances" />
  </xs:sequence>
</xs:complexType>
```

*Child Elements:*

**types:** A **CT\_Types** element that specifies the **type** elements that specify the construction of the **configuration** objects.

**instances:** A **CT\_Instances** element that MUST exist.

### 2.1.2.5 CT\_Containers

*Referenced by:* [CT\\_Unity](#), containers

A complex type that specifies the **containers** element. The following XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xs:complexType name="CT_Containers">
  <xs:sequence>
    <xs:element name="container" type="CT_Container" />
  </xs:sequence>
</xs:complexType>
```

*Child Elements:*

**container:** A [CT\\_Container](#) element.

### 2.1.2.6 CT\_Dependency

*Referenced by:* [CT\\_Param](#), [CT\\_Property](#), [CT\\_TypeConfig](#), **dependency**

A complex type that specifies the **dependency** element. This element specifies the complex type that is a child of a **param** or **property** element. The **CT\_Dependency** element specifies that the value of a **typeConfig**, **param**, or **property** element is specified in a **type** element. A **type** element in section [2.2](#) or [2.3](#) specifies the required elements that are referenced by the **name** attribute of the **dependency** element. The following XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xs:complexType name="CT_Dependency">
  <xs:attribute name="name" type="xs:string" use="optional" />
</xs:complexType>
```

*Attributes:*

**name :** An **xs:string** ([\[XMLSCHEMA2\]](#) section 3.2.1) attribute that specifies the **name** attribute of a **type** element.

### 2.1.2.7 CT\_Instances

*Referenced by:* [CT\\_Container](#), instances

A complex type that specifies an **instances** element. The following XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xs:complexType name="CT_Instances">
  <xs:sequence base="base" />
</xs:complexType>
```

### 2.1.2.8 CT\_Lifetime

Referenced by: CT\_Type, lifetime

A complex type that specifies a **lifetime** element. The following XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xs:complexType name="CT_Lifetime">
  <xs:attribute name="type" type="xs:string" use="required"
    fixed="singleton" />
</xs:complexType>
```

Attributes:

**type:** An **xs:string** ([\[XMLSCHEMA2\]](#) section 3.2.1) attribute that MUST be "singleton".

### 2.1.2.9 CT\_Param

Referenced by: [CT Constructor](#), param

A complex type that specifies a **param** element for constructing an object. A **type** element in section [2.2](#) or [2.3](#) specifies the type/typeConfig/constructor/param elements. The order of the **param** elements MUST NOT be changed. The following XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xs:complexType name="CT_Param">
  <xs:choice>
    <xs:element minOccurs="0" name="value" type="CT_Value" />
    <xs:element minOccurs="0" name="dependency" type="CT_Dependency" />
  </xs:choice>
  <xs:attribute name="name" type="xs:string" use="required" />
  <xs:attribute name="parameterType" type="xs:string" use="required" />
</xs:complexType>
```

Child Elements:

**value:** A [CT Value](#) element that specifies the value of the constructor parameter.

**dependency:** A [CT Dependency](#) element that specifies that a **constructor** parameter is another **type** element.

Attributes:

**name:** An **xs:string** ([\[XMLSCHEMA2\]](#) section 3.2.1) attribute that specifies the name of the **constructor** parameter.

**parameterType:** An **xs:string** ([\[XMLSCHEMA2\]](#) section 3.2.1) attribute that specifies the type of the **constructor** parameter. This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.

### 2.1.2.10 CT\_Property

Referenced by: [CT TypeConfig](#), property

A complex type that specifies a **property** element. The **type** element in section [2.2](#) or [2.3](#) specifies the type/typeConfig/property elements. The following XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xs:complexType name="CT_Property">
  <xs:sequence>
    <xs:element minOccurs="0" name="value" type="CT_Value" />
    <xs:element minOccurs="0" name="dependency" type="CT_Dependency" />
  </xs:sequence>
  <xs:attribute name="name" type="xs:string" use="required" />
  <xs:attribute name="propertyType" type="xs:string" use="required" />
</xs:complexType>
```

#### Child Elements:

**value:** A **CT\_Value** element that specifies the value of the **property** element.

**dependency:** A **CT\_Dependency** element that specifies that the **property** value is another **type** element.

#### Attributes:

**name:** An **xs:string** ([\[XMLSCHEMA2\]](#) section 3.2.1) attribute that specifies the name of the **property** element.

**propertyType:** An **xs:string** ([\[XMLSCHEMA2\]](#) section 3.2.1) attribute that specifies the type of the **property** value. This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.

### 2.1.2.11 CT\_Section

Referenced by: [CT\\_ConfigSections](#), section

A complex type that specifies the **section** element. The **section** element specifies the element that contains the configuration and the type that processes it. The following XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xs:complexType name="CT_Section">
  <xs:attribute name="name" type="xs:string" use="required" fixed="unity" />
  <xs:attribute name="type" type="xs:string" use="required" />
</xs:complexType>
```

#### Attributes:

**name:** An **xs:string** ([\[XMLSCHEMA2\]](#) section 3.2.1) attribute that MUST be "unity". The **name** attribute specifies the element that contains the configuration.

**type:** An **xs:string** ([\[XMLSCHEMA2\]](#) section 3.2.1) attribute that MUST be "Microsoft.Practices.Unity.Configuration.UnityConfigurationSection, Microsoft.Practices.Unity.Configuration, Version=1.2.0.0, Culture=neutral, PublicKeyToken=71e9bce111e9429c". This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed. The **type** attribute specifies the type that will process the **configuration** element specified by the **name** attribute.

### 2.1.2.12 CT\_Type

Referenced by: [CT\\_Types](#), **type**

A complex type that specifies a **type** element representing a configuration object. This element and its child elements contain configuration information specific to a user store or principal aliaser configuration file. Each configuration file contains multiple **type** elements. The **type** element in section [2.2](#) or [2.3](#) specifies the child elements and attribute values. The following XML Schema fragment specifies the contents of this complex type.

```
<xs:complexType name="CT_Type">
  <xs:sequence>
    <xs:element name="lifetime" type="CT_Lifetime" />
    <xs:element name="typeConfig" type="CT_TypeConfig" />
  </xs:sequence>
  <xs:attribute name="type" type="xs:string" use="required" />
  <xs:attribute name="name" type="xs:string" use="optional" />
  <xs:attribute name="mapTo" type="xs:string" use="optional" />
</xs:complexType>
```

*Child Elements:*

**lifetime:** A **CT\_Lifetime** element that specifies the lifetime of the **configuration** object.

**typeConfig:** A **CT\_TypeConfig** element that specifies creation of the **configuration** object.

*Attributes:*

**type:** A required **xs:string** ([\[XMLSCHEMA2\]](#) section 3.2.1) attribute that specifies the type of the **configuration** object. This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed. The **type** value is specified in sections [2.2](#) and [2.3](#).

**name:** An optional **xs:string** attribute that specifies the name of this **type** element. When required for a **type** element, **name** attributes are specified in sections [2.2](#) and [2.3](#).

**mapTo:** An optional **xs:string** ([\[XMLSCHEMA2\]](#) section 3.2.1) attribute that specifies a related type of the configuration object. This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed. When required for a **type** element, the **mapTo** attributes are specified in sections [2.2](#) and [2.3](#).

### 2.1.2.13 CT\_TypeAlias

Referenced by: [CT\\_TypeAliases](#), **typeAlias**

A complex type that specifies a **typeAlias** element. The following XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xs:complexType name="CT_TypeAlias">
  <xs:attribute name="alias" type="xs:string" use="required" />
  <xs:attribute name="type" type="xs:string" use="required" />
</xs:complexType>
```

*Attributes:*

**alias:** An **xs:string** ([\[XMLSCHEMA2\]](#) section 3.2.1) attribute that specifies an alternate name to use for a type.

**type:** An **xs:string** ([\[XMLSCHEMA2\]](#) section 3.2.1) attribute that specifies the type of the **type** alias. This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.

### 2.1.2.13.1 TypeAlias[1] Element

The first **typeAlias** element MUST contain the attributes specified in the following table.

Name	Description
<b>alias</b>	MUST be "singleton".
<b>type</b>	MUST be "Microsoft.Practices.Unity.ContainerControlledLifetimeManager,Microsoft.Practices.Unity,version=1.2.0.0,PublicKeyToken=71e9bce111e9429c". This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.

### 2.1.2.13.2 TypeAlias[2] Element

The second **typeAlias** element MUST contain the attributes specified in the following table.

Name	Description
<b>alias</b>	MUST be "ILog".
<b>type</b>	MUST be "Microsoft.SharePoint.Search.Extended.Security.Base.ILog,Microsoft.SharePoint.Search.Extended.Security.Base". This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.

### 2.1.2.14 CT\_TypeAliases

Referenced by: [CT\\_Unity](#), **typeAliases**

A complex **type** that specifies a **typeAliases** element. The following XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xs:complexType name="CT_TypeAliases">
  <xs:sequence>
    <xs:element maxOccurs="unbounded" name="typeAlias" type="CT_TypeAlias" />
  </xs:sequence>
</xs:complexType>
```

*Child Elements:*

**typeAlias:** A **CT\_TypeAlias** element.



### 2.1.2.15 CT\_TypeConfig

Referenced by: [CT\\_Type](#), [typeConfig](#)

A complex **type** that specifies a **typeConfig** element. The following XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xs:complexType name="CT_TypeConfig">
  <xs:choice>
    <xs:element minOccurs="0" maxOccurs="unbounded" name="dependency"
      type="CT_Dependency" />
    <xs:sequence>
      <xs:element minOccurs="0" name="constructor" type="CT_Constructor" />
      <xs:element minOccurs="0" maxOccurs="unbounded" name="property"
        type="CT_Property" />
    </xs:sequence>
  </xs:choice>
  <xs:attribute name="extensionType" type="xs:string" use="required" />
  <xs:attribute name="type" type="xs:string" use="optional" />
  <xs:attribute name="validateFunc" type="xs:string" use="optional" />
</xs:complexType>
```

*Child Elements:*

**dependency:** A **CT\_Dependency** element that specifies **dependency** elements that are contained by this **type** element.

**constructor:** A **CT\_Constructor** element that specifies construction of the **type** element.

**property:** A **CT\_Property** element that specifies properties of the **type** element.

**value:** A **CT\_Value** element that specifies the value of the **type** element.

*Attributes:*

**extensionType:** An **xs:string** ([\[XMLSCHEMA2\]](#) section 3.2.1) attribute that specifies an object to convert the **type** element into a configuration object. This attribute MUST be "Microsoft.Practices.Unity.Configuration.TypeInjectionElement,Microsoft.Practices.Unity.Configuration, version=1.2.0.0, PublicKeyToken=71e9bce111e9429c" unless specified otherwise for a particular **typeConfig** element in sections [2.2](#) or [2.3](#). This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.

**type:** An **xs:string** ([\[XMLSCHEMA2\]](#) section 3.2.1) attribute that specifies the type of the **configuration** object. This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed. The value of this attribute will be specified in sections [2.2](#) or [2.3](#).

**validateFunc:** An **xs:string** ([\[XMLSCHEMA2\]](#) section 3.2.1) attribute that specifies an object the validates the **configuration** object. This attribute MUST be omitted unless specified otherwise for a particular **typeConfig** element in sections [2.2](#) or [2.3](#).

### 2.1.2.16 CT\_Types

Referenced by: [CT\\_Container](#), [types](#)

A complex type that specifies a **types** element. The following XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xs:complexType name="CT_Types">
  <xs:sequence>
    <xs:element maxOccurs="unbounded" name="type" type="CT_Type" />
  </xs:sequence>
</xs:complexType>
```

*Child Elements:*

**type** : A **CT\_Type** element that specifies the construction of a **configuration** object.

### 2.1.2.17 CT\_Unity

Referenced by: [CT\\_Configuration](#), unity

A complex type that specifies a **unity** element. The following XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xs:complexType name="CT_Unity">
  <xs:sequence>
    <xs:element name="typeAliases" type="CT_TypeAliases" />
    <xs:element name="containers" type="CT_Containers" />
  </xs:sequence>
</xs:complexType>
```

*Child Elements:*

**typeAliases**: A **CT\_TypeAliases** element.

**containers**: A **CT\_Containers** element.

### 2.1.2.18 CT\_Value

Referenced by: [CT\\_Param](#), [CT\\_Property](#), [CT\\_TypeConfig](#), value

A complex type that specifies a **value** element which is the value of a **constructor** or **property** element. The following XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type. The attribute values are specified for each **type** element in sections [2.2](#) and [2.3](#).

```
<xs:complexType name="CT_Value">
  <xs:attribute name="value" type="xs:string" use="optional" />
  <xs:attribute name="type" type="xs:string" use="optional" />
  <xs:attribute name="typeConverter" type="xs:string" use="optional" />
</xs:complexType>
```

*Attributes:*

**value**: An **xs:string** ([\[XMLSCHEMA2\]](#) section 3.2.1) attribute that specifies the literal value.

**type**: An **xs:string** ([\[XMLSCHEMA2\]](#) section 3.2.1) attribute that specifies the type of the value. This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal

sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.

**typeConverter:** An **xs:string** ([XMLSCHEMA2](#) section 3.2.1) attribute that specifies the object used to convert the value into the required type. This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed. This attribute cannot be changed and MUST NOT be used unless it is specified as part of a **type** element in sections [2.2](#) and [2.3](#).

### 2.1.3 Simple Types

None.

## 2.2 User Store Configuration File Format

This section specifies how the elements and attributes specified in section [2.1](#) are modified and combined to create a user store configuration file.

### 2.2.1 Type Elements

This section specifies the types of **type** elements and associated child elements that are in a user store configuration file. Section [2.2.2](#) specifies how to combine them into a user store configuration file.

#### 2.2.1.1 Domain Type Element

This section specifies the differences between the domain **type** element and the **type** elements and child elements specified in section [2.1](#). All user store configuration files MUST contain a domain **type** element.

Throughout this section, XPath notation is used to specify nested XML elements, as specified in [XPATH](#) section 2. The paths are relative to the path named `"/configuration/unity/containers/container"`.

##### 2.2.1.1.1 Type Element

The **type** element MUST contain the attribute that is specified in the following table.

Attribute Name	Description
<b>type</b>	MUST be "Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary.System.Domain, Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary". This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.

##### 2.2.1.1.2 Param Element

The following table specifies the **param** child elements of the `type/typeConfig/constructor` element for a domain **type** element. All **name** and **parameterType** attributes associated with the **param** element MUST contain the specified values in the specified order. Each child element MUST contain the attributes that are specified in the following table.

Value of param name Attribute	Value of param parameterType Attribute	Child element
"logger"	"ILog"	MUST be a <b>dependency</b> element that contains no attributes.
"id"	"System.String"	MUST be a <b>value</b> element that contains a <b>value</b> attribute that specifies the <b>user store identifier</b> for the user store configuration file.
"description"	"System.String"	MUST be either a <b>value</b> element that contains no attributes, or a <b>value</b> element that contains a <b>value</b> attribute that specifies a short description of the user store.
"contentType"	"System.String"	MUST be a <b>value</b> element that contains a <b>value</b> attribute.  If the user store configuration file is for a claims user store, the <b>value</b> attribute MUST be "Claims" as specified in section <a href="#">2.2.2.1</a> .  If the user store configuration file is for a local cache user store, the <b>value</b> attribute MUST be "LotusNotes" as specified in section <a href="#">2.2.2.2</a> .
"preFilterGenerator"	MUST be "Microsoft.SharePoint.Search.Extended.Security.IPreFilterGenerator, Microsoft.SharePoint.Search.Extended.Security". This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.	MUST be a <b>dependency</b> element that contains a <b>name</b> attribute.  If the user store configuration file is for a claims user store, the <b>name</b> attribute MUST be "SimplePreFilterGenerator" (section <a href="#">2.2.2.1</a> ).  If the user store configuration file is for a local cache user store, the <b>name</b> attribute MUST be "LotusNotesPreFilterGenerator" (section <a href="#">2.2.2.2</a> ).

### 2.2.1.1.3 Property Element

The following table specifies the **property** child element of the type/typeConfig elements. All **property name** and **propertyType** attributes MUST be the values specified in the following table.

Value of name Attribute	Value of propertyType Attribute	Child element
"UserMonitor"	MUST be "Microsoft.SharePoint.Search.Extended.Security.IUserMonitor, Microsoft.SharePoint.Search.Extended.Security". This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.	MUST be a <b>dependency</b> element that contains a <b>name</b> attribute. If the user store configuration file is for a claims user store, the <b>name</b> attribute MUST be "ClaimsUserMonitor" (section <a href="#">2.2.2.1</a> ). If the user store configuration file is for a local cache user store, the <b>name</b> attribute MUST be "LocalCacheUserMonitor" (section <a href="#">2.2.2.2</a> ).

### 2.2.1.2 PreFilterGeneratorSimple Type Element

The PreFilterGeneratorSimple **type** element MUST be only in user store configuration files for claims user stores. This section specifies only the differences from the **type** elements and child elements specified in section [2.1](#).

Throughout this section, XPath notation is used to specify nested XML elements, as specified in [\[XPATH\]](#) section 2. The paths are relative to the path named "/configuration/unity/containers/container".

#### 2.2.1.2.1 Type Element

The **type** element MUST have the following attributes with the specified values.

Attribute Name	Description
<b>name</b>	MUST be "SimplePreFilterGenerator".
<b>type</b>	MUST be "Microsoft.SharePoint.Search.Extended.Security.IPreFilterGenerator, Microsoft.SharePoint.Search.Extended.Security". This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.
<b>mapTo</b>	MUST be "Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary.System.PreFilterGeneratorSimple, Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary". This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.

#### 2.2.1.2.2 Param Element

The following table specifies the **param** child element of the type/typeConfig/constructor elements for a PreFilterGeneratorSimple **type** element. All **name** and **parametertype** attributes associated

with the **param** element MUST contain the specified value. Each child element MUST contain the attributes that are specified in the following table.

Name Attribute	parameterType Attribute	Child element
"logger"	"ILog"	MUST be a <b>dependency</b> element that contains no attributes.

### 2.2.1.2.3 Property Element

The following table specifies the **property** child elements of the type/typeConfig elements. All **name** and **propertyType** attributes of the **typeConfig** element MUST contain the values specified in the following table. All child elements are **value** elements that contain **value** attributes whose value is specified in the following table.

Value of name Attribute	Value of propertyType Attribute	Child element value attribute
"AllowPrefix"	"System.String"	The <b>value</b> attribute MUST be "docacl:".
"DenyPrefix"	"System.String"	The <b>value</b> attribute MUST be "docacl:9".
"NonIndexableCharacterPattern"	"System.String"	If the user store configuration file is for a claims user store, the <b>value</b> attribute MUST be "[^a-z0-9]".
"NonIndexableCharacterHandling"	"System.String"	The <b>value</b> attribute MUST be "encode".
"NonIndexableCharacterEncodingPrefix"	"System.String"	The <b>value</b> attribute MUST be "3nc0dd".

### 2.2.1.3 LotusNotesPreFilterGenerator Type Element

This **type** element MUST be only in user store configuration files for local cache user stores. This section specifies only the differences between the elements and the **type** elements and child elements specified in section [2.1](#).

Throughout this section, XPath notation is used to specify nested XML elements, as specified in [\[XPATH\]](#) section 2. The paths are relative to the path named "/configuration/unity/containers/container".

#### 2.2.1.3.1 Type Element

The **type** element MUST contain the attributes specified in the following table.

Attribute Name	Description
<b>name</b>	MUST be "LotuseNotesPreFilterGenerator".
<b>type</b>	MUST be "Microsoft.SharePoint.Search.Extended.Security.IPreFilterGenerator,

Attribute Name	Description
	Microsoft.SharePoint.Search.Extended.Security". This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.
<b>mapTo</b>	MUST be "Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary.System.LotusNotesPreFilterGenerator, Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary". This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.

### 2.2.1.3.2 Param Element

This specifies the **param** child elements of the type/typeConfig/constructor elements for a LotusNotesPreFilterGenerator **type** element as described in [\[LotusNotes\]](#). All **name** and **parameterType** attributes associated with the **param** element MUST contain the specified values in the specified order. Each child element MUST be as specified in the following table.

Value of param name Attribute	Value of param parameterType Attribute	Child element
"logger"	"ILog"	MUST be a <b>dependency</b> element with no attributes.
"useDenyOnDefault"	"System.Boolean"	MUST be a <b>value</b> element with <b>value</b> and <b>type</b> attributes. The <b>type</b> attribute MUST be "System.Boolean". The <b>value</b> attribute MUST contain the value "true" if the user security filter denies user object access by default, "false" otherwise.
"useDocumentSecurity"	"System.Boolean"	MUST be a <b>value</b> element with <b>value</b> and <b>type</b> attributes. The <b>type</b> attribute MUST be "System.Boolean". The <b>value</b> attribute MUST contain the value "true" if the collaborative business applications protocol server was configured to use "document-level" security, as described in <a href="#">[LotusNotes]</a> . Otherwise, it MUST contain the value "false".
"useWildcardSecurity"	"System.Boolean"	MUST be a <b>value</b> element with <b>value</b> and <b>type</b> attributes. The <b>type</b> attribute MUST be "System.Boolean". The <b>value</b> attribute MUST be "true" if the collaborative business applications protocol server was configured to use "wild card" security, as described in <a href="#">[LotusNotes]</a> . Otherwise, it MUST contain the value "false".
"useViewSecurity"	"System.Boolean"	MUST be a <b>value</b> element with <b>value</b> and <b>type</b> attributes. The <b>type</b> attribute MUST be "System.Boolean". The <b>value</b> attribute MUST be "true" if the collaborative business applications protocol server was configured to use "view" security, as described

Value of param name Attribute	Value of param parameterType Attribute	Child element
		in <a href="#">[LotusNotes]</a> . Otherwise, it MUST contain the value "false".

### 2.2.1.3.3 Property Element

This specifies the **property** child element of the type/typeConfig elements. All **typeConfig** element **name** and **propertyType** attributes MUST be as specified. All child elements MUST be **value** elements that contain the **value** attribute specified in the following table.

Value of name Attribute	Value of propertyType Attribute	Child element value attribute
"AllowPrefix"	"System.String"	The <b>value</b> attribute MUST be "docacl:".
"DenyPrefix"	"System.String"	The <b>value</b> attribute MUST be "docacl:9".
"NonIndexableCharacterPattern"	"System.String"	The <b>value</b> attribute MUST be ".*".
"NonIndexableCharacterHandling"	"System.String"	The <b>value</b> attribute MUST be "encodeWithPrefix".
"NonIndexableCharacterEncodingPrefix"	"System.String"	The <b>value</b> attribute MUST be "3nc0dd".

### 2.2.1.4 LocalCacheUserMonitor Type Element

The LocalCacheUserMonitor **type** element MUST be only in user store configuration files for local cache user stores. This section specifies only the differences between these elements and the **type** elements and child elements specified in section [2.1](#).

Throughout this section, XPath notation is used to specify nested XML elements, as specified in [\[XPATH\]](#) section 2. The paths are relative to the path named `"/configuration/unity/containers/container"`.

#### 2.2.1.4.1 Type Element

The **type** element MUST contain the attributes that are specified in the following table.

Attribute Name	Description
<b>name</b>	MUST be "LocalCacheUserMonitor".
<b>type</b>	MUST be "Microsoft.SharePoint.Search.Extended.Security.IUserMonitor, Microsoft.SharePoint.Search.Extended.Security". This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.
<b>mapTo</b>	MUST be "Microsoft.SharePoint.Search.Extended.Security.Monitors.User.LocalCache.LocalCacheUserMonitor, Microsoft.SharePoint.Search.Extended.Security.Monitors.User.LocalCache". This attribute MUST



Attribute Name	Description
	ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.

#### 2.2.1.4.2 TypeConfig Element

The **typeConfig** element MUST contain the attributes that are specified in the following table.

Attribute Name	Description
<b>extensionType</b>	MUST be "Microsoft.SharePoint.Search.Extended.Security.Base.Unity.ValidatingTypeInjectionElement , Microsoft.SharePoint.Search.Extended.Security.Base". This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.
<b>validateFunc</b>	MUST be "Validate".

#### 2.2.1.4.3 Param Element

The following table specifies the param child elements of the type/typeConfig/constructor elements for a LocalCacheUserMonitor **type** element. All **name** and **parameterType** attributes associated with the **param** element MUST contain the specified values in the specified order. Each child element MUST be as specified in the following table.

Value of param name Attribute	Value of param parameterType Attribute	Child element
"log"	"ILog"	MUST be a <b>dependency</b> element with no attributes.
"largeFileStorage"	"System.String"	MUST be a <b>dependency</b> element whose <b>name</b> attribute contains "LargeStorePath".
"databaseFileName"	"System.String"	MUST be a <b>value</b> element whose <b>value</b> attribute contains the name of the local cache user store file name as specified in <a href="#">[MS-FSSADFF]</a> section 2.2.

#### 2.2.1.4.4 Property Element

This specifies the **property** child elements of the type/typeConfig elements. All **name** and **propertyType** attributes associated with the **typeConfig** element MUST be as specified in the following table.

Value of name Attribute	Value of propertyType Attribute	Child element
"Name"	"System.String"	MUST be a <b>value</b> element whose <b>value</b> attribute contains "LocalCacheUserMonitor".

Value of name Attribute	Value of propertyType Attribute	Child element
"InitialCapacity"	"System.Int32"	MUST be a <b>value</b> element with <b>value</b> and <b>type</b> attributes. The <b>type</b> attribute contains "System.Int32". The <b>value</b> attribute specifies the number of entity records in the initial fixed-length section of the database file, as specified for the <b>InitialCapacity</b> field in <a href="#">[MS-FSSADFF]</a> section 2.2.2.1.
"IDSize"	"System.Int32"	MUST be a <b>value</b> element with <b>value</b> and <b>type</b> attributes. The <b>type</b> attribute contains "System.Int32". The <b>value</b> attribute specifies the number of bytes to use to store a security principal identifier in the database file, as specified for the <b>IDLength</b> field in <a href="#">[MS-FSSADFF]</a> section 2.2.2.1.
"NameSize"	"System.Int32"	MUST be a <b>value</b> element with <b>value</b> and <b>type</b> attributes. The <b>type</b> attribute contains "System.Int32". The <b>value</b> attribute specifies the number of bytes to use to store a <b>security principal</b> alias in the database file, as specified for the <b>NameLength</b> field in <a href="#">[MS-FSSADFF]</a> section 2.2.2.1.
"MaxParents"	"System.Int32"	MUST be a <b>value</b> element with <b>value</b> and <b>type</b> attributes. The <b>type</b> attribute contains "System.Int32". The <b>value</b> attribute specifies the maximum number of nested parent security principals for a specific security principal, as specified for the <b>ParentCount</b> field in <a href="#">[MS-FSSADFF]</a> section 2.2.2.1.
"CaseSensitiveLookup"	"System.Boolean"	MUST be a <b>value</b> element with <b>value</b> and <b>type</b> attributes. The <b>type</b> attribute contains "System.Boolean". The <b>value</b> attribute MUST be "true" if security principal identifiers are case sensitive, "false" otherwise, as specified for the <b>CaseSensitiveLookup</b> field in <a href="#">[MS-FSSADFF]</a> section 2.2.2.1.

The following table specifies fields in the local cache user store file header ([\[MS-FSSADFF\]](#) section 2.2.2.1) that MUST have identical values in the corresponding **property** elements of a LocalCacheUserMonitor **type** element.

Header field in Local Cache User Store File	property element name attribute
InitialCapacity	InitialCapacity
IDLength	IDSize
NameLength	NameSize
ParentCount	MaxParents
CaseSensitiveLookup	CaseSenditiveLookup

### 2.2.1.5 ClaimsUserMonitor Type Element

The ClaimsUserMonitor **type** element MUST be only in user store configuration files for claims user stores. This section specifies only the differences between these elements and the **type** elements and child elements specified in section 2.1.

Throughout this section, XPath notation is used to specify nested XML elements, as specified in [XPATH] section 2. The paths are relative to the path named "/configuration/unity/containers/container".

#### 2.2.1.5.1 Type Element

The **type** element MUST contain the attributes that are specified in the following table.

Attribute Name	Description
<b>name</b>	MUST be "ClaimsUserMonitor".
<b>type</b>	MUST be "Microsoft.SharePoint.Search.Extended.Security.IUserMonitor, Microsoft.SharePoint.Search.Extended.Security". This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.
<b>mapTo</b>	MUST be "Microsoft.SharePoint.Search.Extended.Security.Monitors.User.Claims.ClaimsUserMonitor, Microsoft.SharePoint.Search.Extended.Security.Monitors.User.Claims". This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.

#### 2.2.1.5.2 Param Element

This specifies the **param** child elements of the type/typeConfig/constructor elements for a ClaimsUserMonitor **type** element. All **name** and **paramtertype** attributes associated with the **param** element MUST contain the specified values in the specified order. Each child element MUST be as specified in the following table.

Value of name Attribute	Value of parameterType Attribute	Child element
"log"	"ILog"	MUST be a <b>dependency</b> element with no attributes.
"manager"	MUST be "Microsoft.SharePoint.Search.Extended.Security.Monitors.User.Claims.ClaimsPrincipalReferenceService, Microsoft.SharePoint.Search.Extended.Security.Monitors.User.Claims". This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.	MUST be a <b>dependency</b> element whose <b>name</b> attribute contains the value "ClaimsPrincipalReferenceService"

Value of name Attribute	Value of parameterType Attribute	Child element
		e".
"issuer"	"System.String"	MUST contain the value "@ALL@" or the value that specifies the original issuer of the claim.

## 2.2.2 Standard User Store

There are two types of standard user store, the claims user store and the local cache user store. Differences between them are specified in the following sections.

### 2.2.2.1 Claims User Store

A claims user store configuration file MUST contain the following **type** elements:

- Domain **type** element (section [2.2.1.1](#)).
- PreFilterGeneratorSimple **type** element (section [2.2.1.2](#)).
- ClaimsUserMonitor **type** element (section [2.2.1.5](#)).

### 2.2.2.2 Local Cache User Store

A local cache user store configuration file MUST contain the following **type** elements:

- Domain **type** element (section [2.2.1.1](#)).
- LotusNotesPreFilterGenerator **type** element (section [2.2.1.3](#)).
- LocalCacheUserMonitor **type** element (section [2.2.1.4](#)).

## 2.3 Principal Aliaser Configuration File Format

This section specifies how the elements and attributes specified in section [2.1](#) are modified and combined to create a principal aliaser configuration file.

### 2.3.1 Type Elements

This section specifies the various kinds of **type** instances and child elements that are in a principal aliaser configuration file. Section [2.3.2](#) specifies how these instances are combined into a principal aliaser configuration file.

### 2.3.1.1 XMLPrincipalAliaser Type Element

The XMLPrincipalAliaser **type** element MUST be contained only in configuration files for **XML principal aliasers**. This section specifies only the differences between these elements and the **type** elements and child elements specified in section 2.1.

Throughout this section, XPath notation is used to specify nested XML elements, as specified in [XPATH] section 2. The paths are relative to the path named `"/configuration/unity/containers/container"`.

#### 2.3.1.1.1 Type Element

The **type** element MUST contain the attributes that are specified in the following table.

Attribute Name	Description
<b>type</b>	MUST be "Microsoft.SharePoint.Search.Extended.Security.IPrincipalAliaser, Microsoft.SharePoint.Search.Extended.Security". This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.
<b>mapTo</b>	MUST be "Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary.System.XMLPrincipalAliaser, Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary". This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.

#### 2.3.1.1.2 Param Element

This specifies the **param** child elements of the type/typeConfig/constructor elements for an XMLPrincipalAliaser **type** element. All **name** and **parameterType** attributes associated with the **param** element MUST contain the specified values in the specified order. Each child element MUST be as specified in the following table.

Value of param name Attribute	Value of param parameterType Attribute	Child element
"logger"	"ILog"	MUST be a <b>dependency</b> element with no attributes.
"id"	"System.String"	MUST be a <b>value</b> element that contains a <b>value</b> attribute that specifies the <b>principal aliaser identifier</b> for the principal aliaser configuration file.
"inputUserStore Id"	"System.String"	MUST be a <b>value</b> element that contains a <b>value</b> attribute that specifies the input user store identifier. The input user store identifier is the user store identifier of the user store that is input to the mapping. User objects in the input user store to user objects in one of the output user stores.
"outputUserStoreIds"	"System.String[]"	MUST be a <b>value</b> element that contains <b>value</b> , <b>type</b> and <b>typeConverter</b> attributes. The <b>value</b> attribute is a comma separated list of output user store identifiers.

Value of param name Attribute	Value of param parameterType Attribute	Child element
		<p>The <b>type</b> attribute MUST be "String.String[]".</p> <p>The <b>typeConverter</b> attribute MUST be "Microsoft.SharePoint.Search.Extended.Security.Base.Unity.CommaSeparatedStringArrayConverter, Microsoft.SharePoint.Search.Extended.Security.Base". The <b>typeConverter</b> attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.</p> <p>The output user store identifiers are the user store identifiers of the user stores that are the results of the mapping. User objects in the input user store are mapped to user objects in one of the output user stores.</p>
"xmlFileName"	"System.String"	<p>This <b>param</b> element MUST have no child elements if no file with security identifier mappings is available. If a file is available, this <b>param</b> element MUST contain one <b>value</b> element that contains a <b>value</b> attribute.</p> <p>The <b>value</b> attribute MUST be the name of the file that contains the security identifier mappings. This file format is specified in <a href="#">[MS-FSSADFF]</a> section 2.3.</p>
"dirPath"	"System.String"	MUST be a <b>dependency</b> element that contains a <b>name</b> attribute whose value is "EXECUTABLE_PATH_STR".

### 2.3.1.1.3 Property Element

This specifies the **property** child element of the **typeConfig** element. All **typeConfig name** and **propertyType** attributes MUST be as specified in the following table.

Value of property name Attribute	Value of property propertyType Attribute	Child element
"InputProperty"	"System.String"	<p>MUST be a <b>value</b> element that contains a <b>value</b> attribute that specifies the name of the <b>property</b> attribute of a security principal that is the input to the mapping.</p> <p>To map a security principal (user or group), the protocol uses the <b>property</b> attribute of the input security principal to select mappings in the XML principal aliaser mapping file (<a href="#">[MS-FSSADFF]</a> section 2.3).</p>

### 2.3.1.2 RegExPrincipalAliaser Type Element

The RegExPrincipalAliaser **type** element MUST be only in configuration files for regular expression principal aliasers. This section specifies only the differences between these elements and the **type** elements and child elements specified in section [2.1](#).

Throughout this section, XPath notation is used to specify nested XML elements, as specified in [\[XPATH\]](#) section 2. The paths are relative to the path named `"/configuration/unity/containers/container"`.

### 2.3.1.2.1 Type Element

The **type** element MUST contain attributes as specified in the following table.

Attribute Name	Description
<b>type</b>	MUST be "Microsoft.SharePoint.Search.Extended.Security.IPrincipalAliaser, Microsoft.SharePoint.Search.Extended.Security". This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.
<b>mapTo</b>	MUST be "Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary.System.RegExPrincipalAliaser, Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary". This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.

### 2.3.1.2.2 Param Element

This specifies the **param** child elements of the type/typeConfig/constructor elements for a RegExPrincipalAliaser **type** element. All **name** and **parameterType** attributes associated with the **param** element MUST contain the specified values in the specified order. Each **param** child element MUST be as specified in the following table.

Value of param name Attribute	Value of param parameterType Attribute	Child element
"logger"	"ILog"	MUST be a <b>dependency</b> element with no attributes.
"id"	"System.String"	MUST be a <b>value</b> element whose <b>value</b> attribute specifies the principal aliaser identifier for the principal aliaser configuration file.
"inputUserStoreId"	"System.String"	MUST be a <b>value</b> element that contains a <b>value</b> attribute that specifies the input user store identifier, which is the identifier of the user store that is input to the mapping. Users in the input user store are mapped to users in one of the output user stores.
"outputUserStoreIds"	"System.String[]"	MUST be a <b>value</b> element that contains <b>value</b> , <b>type</b> and <b>typeConverter</b> attributes. The <b>value</b> attribute specifies a comma separated list of output user store identifiers. The <b>type</b> attribute MUST be "String.String[]". The <b>typeConverter</b> attribute MUST be "Microsoft.SharePoint.Search.Extended.Security.Base.Unity.CommaSeparatedStrin

Value of param name Attribute	Value of param parameterType Attribute	Child element
		gArrayConverter, Microsoft.SharePoint.Search.Extended.Security.Base". The <b>typeConverter</b> attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.  The output user store identifiers are the user store identifiers of the user stores that are the output of the mapping. Users in the input user store are mapped to users in one of the output user stores.
"pattern Maps"	"System.Collections.Generic.List`1[[Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary.System.RegExPatternMap, Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary]]". This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.	MUST be a <b>dependency</b> element that contains a <b>name</b> attribute whose value is "RegExMap".

### 2.3.1.2.3 Property Element

This specifies the **property** child elements of the type/typeConfig**type** or **typeConfig** element. All **typeConfig** element **name** and **propertyType** attributes MUST be as specified in the following table.

Value of property name Attribute	Value of property propertyType Attribute	Child element
"CaseSensitive"	"System.Boolean"	MUST be a <b>value</b> element that contains a <b>value</b> attribute and a <b>type</b> attribute. The <b>value</b> attribute MUST contain "true" if pattern matching is case sensitive; "false" otherwise. The <b>type</b> attribute MUST be "System.Boolean".
"UnicodeCaseSensitive"	"System.Boolean"	MUST be a <b>value</b> element that contains a <b>value</b> attribute and a <b>type</b> attribute. The <b>value</b> attribute MUST be " true" if pattern matching is based on unicode case sensitive matching; "false" otherwise. The <b>type</b> attribute MUST be "System.Boolean".



### 2.3.1.3 RegExMap Type Element

The RegExMap **type** element MUST be only in configuration files for regular expression principal aliasers. This section specifies only the differences between these elements and the **type** elements and child elements specified in section 2.1.

The RegExMap **type** element specifies a list of RegExMapItem **type** elements using **dependency** elements. Each RegExMapItem **type** element specifies a different mapping of security principals using regular expressions.

Throughout this section, XPath notation is used to specify nested XML elements, as specified in [\[XPATH\]](#) section 2. The paths are relative to the path named `"/configuration/unity/containers/container"`.

#### 2.3.1.3.1 Type Element

The **type** element MUST contain the attributes as specified in the following table.

Attribute Name	Description
<b>name</b>	MUST be "RegExMap".
<b>type</b>	MUST be "System.Collections.Generic.IList`1[[Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary.System.RegExPatternMap, Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary]]". This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.
<b>mapTo</b>	MUST be "System.Collections.Generic.List`1[[Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary.System.RegExPatternMap, Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary]]". This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.

#### 2.3.1.3.2 TypeConfig Element

The **typeConfig** element MUST contain the attributes as specified in the following table.

Attribute Name	Attribute Value
<b>extensionType</b>	MUST be "Microsoft.SharePoint.Search.Extended.Security.Base.Unity.ListTypeExtension, Microsoft.SharePoint.Search.Extended.Security.Base". This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.
<b>type</b>	MUST be "Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary.System.RegExPatternMap, Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary". This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.

### 2.3.1.3.3 Dependency Element

The RegExMap **type** element MUST be associated with child **dependency** elements. The **name** attribute of each **dependency** element MUST be the **name** attribute of a RegExMapItem **type** element (section 2.3.1.4) in this file. Each RegExMapItem **type** element represents a mapping of security principals using the regular expressions in the RegExMapItem **type** element.

### 2.3.1.4 RegExMapItem Type Element

The RegExMapItem **type** element MUST be only in principal aliaser configuration files for regular expression principal aliasers. This section specifies only the differences between these elements and the **type** elements and child elements specified in section 2.1.

Each RegExMapItem **type** element specifies a different mapping of security principals using regular expressions. A file can contain multiple RegExMapItem **type** elements. Each RegExMapItem **type** element MUST have a unique **name** attribute which MUST be the value of exactly one **name** attribute in a **dependency** element of a RegExMap **type** element.

Throughout this section, XPath notation is used to specify nested XML elements, as specified in [XPATH] section 2. The paths are relative to the path named "/configuration/unity/containers/container".

#### 2.3.1.4.1 Type Element

The **type** element MUST contain the attributes as specified in the following table.

Attribute Name	Description
<b>name</b>	A unique identifier that MUST match the <b>name</b> attribute of a <b>dependency</b> element specified in section 2.3.1.3.3.
<b>type</b>	MUST be "Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary.System.RegExPatternMap, Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary". This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.
<b>mapTo</b>	MUST be "Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary.System.RegExPatternMap, Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary". This attribute MUST ignore leading and trailing whitespace, and it MUST also collapse internal sequences of whitespace into a single space. Whitespace characters are space, tab, carriage return, and linefeed.

#### 2.3.1.4.2 Param Element

This specifies the **param** child elements of the type/typeConfig/constructor elements for a RegExMapItem **type** element. All **name** and **parameterType** attributes associated with the **param** element MUST contain the specified values in the specified order. Each child element MUST be as specified in the following table.

Value of param name Attribute	Value of param parameterType Attribute	Child element
"log"	"ILog"	MUST be a <b>dependency</b> element with no attributes.

Value of param name Attribute	Value of param parameterType Attribute	Child element
"pattern"	"System.String"	MUST be a <b>value</b> element that contains a <b>value</b> attribute that specifies a regular expression pattern as specified in <a href="#">[MC-RegEx]</a> . The pattern determines whether the user object or group object is mapped to another user store. The regular expression pattern can contain regular expression capture substrings that are used in the <param name="mapToUsername"> element value.
"mapToUsername"	"System.String"	MUST be a <b>value</b> element that contains a <b>value</b> attribute that specifies the <b>user name</b> or group to which to map. The <b>value</b> attribute can contain regular expression capture substitutions using the syntax "\#" where # is the group capture index, as specified in <a href="#">[MC-RegEx]</a> .
"inputPropertyName"	"System.String"	MUST be a <b>value</b> element that contains a <b>value</b> attribute that specifies the name of the <b>property</b> attribute of a security principal that is input to the mapping. The regular expression pattern in the <param name="pattern"> element MUST be the same as the value of the input property of a security principal. The inputPropertyName MUST be one of the following: \$PRINCIPAL_REFERENCE_ID - The identifier of the user or group. This is the default. \$PRINCIPAL_REFERENCE_ALIAS - The alias of the user or group. Any other property of the user or group. Other properties that the input user store exposes are specified with the user store.

## 2.3.2 Standard Principal Aliaser

There are two types of standard principal aliaser, the XML principal aliaser and the regular expression principal aliaser. Differences them are specified in the following sections.

### 2.3.2.1 XML Principal Aliaser

An XML principal aliaser configuration file MUST contain only the XMLPrincipalAliaser **type** element (section [2.3.1.1](#)).

### 2.3.2.2 Regular Expression Principal Aliaser

A regular expression principal aliaser configuration file MUST contain the following **type** elements.

- One RegExPrincipalAliaser **type** element (section [2.3.1.2](#)).
- One RegExMap **type** element (section [2.3.1.3](#)).
- Any number of RegExMapItem **type** elements (section [2.3.1.4](#)).

## 3 Structure Examples

The examples in this section are annotated with XML comments, "<!--comment -->", within the files themselves.

### 3.1 User Store Configuration File Format

The following examples describe user store configuration formats.

#### 3.1.1 Claims User Store Configuration File

The following shows an example of a claims user store configuration file. The user store identifier of the user store is "clm" and the issuer is set to "@ALL@".

```
<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<!-- See section 2.1.7.1. -->
<configuration>
  <!-- See section 2.1.7.2. -->
  <configSections>
    <!-- See section 2.1.7.3. -->
    <section name="unity"
      type="Microsoft.Practices.Unity.Configuration.UnityConfigurationSection,
      Microsoft.Practices.Unity.Configuration, Version=1.2.0.0,
      Culture=neutral,
      PublicKeyToken=71e9bce111e9429c" />
  </configSections>
  <!-- See section 2.1.7.4. -->
  <unity>
    <!-- See section 2.1.7.5. -->
    <typeAliases>
      <!-- See section 2.1.7.6.1. -->
      <typeAlias alias="singleton"
        type="Microsoft.Practices.Unity.ContainerControlledLifetimeManager,
        Microsoft.Practices.Unity, version=1.2.0.0,
        PublicKeyToken=71e9bce111e9429c" />
      <!-- See section 2.1.7.6.2. -->
      <typeAlias alias="ILog"
        type="Microsoft.SharePoint.Search.Extended.Security.Base.ILog,
        Microsoft.SharePoint.Search.Extended.Security.Base" />
    </typeAliases>
    <!-- See section 2.1.7.7. -->
    <containers>
      <!-- See section 2.1.7.8. -->
      <container>
        <!-- See section 2.1.7.9. -->
        <types>
          <!-- See section 2.2.1.1. A Domain <type> element. -->
          <!-- See section 2.2.1.1.1. -->
          <type
            type="Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary.System.Domain,
            Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary">
            <!-- See section 2.1.7.11. The <lifetime> and <typeconfig>
            elements and their attributes are not specified in the Domain
            <type> element, so the common file format values in section 2.1
            are used. -->
            <lifetime type="singleton" />
            <!-- See section 2.1.2.13.1. -->

```

```

        <typeConfig
extensionType="Microsoft.Practices.Unity.Configuration.TypeInjectionElement,
Microsoft.Practices.Unity.Configuration, version=1.2.0.0,
PublicKeyToken=71e9bce111e9429c">
    <!-- See section 2.2.1.1.2. -->
    <constructor>
        <param name="logger" parameterType="ILog">
            <dependency />
        </param>
        <param name="id" parameterType="System.String">
            <!-- See section 2.2.1.1.2. As specified in the table, this
                line specifies the user store identifier. -->
            <value value="clm" />
        </param>
        <param name="description" parameterType="System.String">
            <!-- See section 2.2.1.1.2. As specified in the table, this
                line specifies a short description of the user store.
            -->
            <value value="description of claims user store" />
        </param>
        <param name="contentType" parameterType="System.String">
            <value value="Claims" />
        </param>
        <param name="preFilterGenerator"
parameterType="Microsoft.SharePoint.Search.Extended.Security.IPreFilterGenerator,
Microsoft.SharePoint.Search.Extended.Security">
            <dependency name="SimplePreFilterGenerator" />
        </param>
    </constructor>
    <!-- See section 2.2.1.1.3. -->
    <property name="UserMonitor"
propertyType="Microsoft.SharePoint.Search.Extended.Security.IUserMonitor,
Microsoft.SharePoint.Search.Extended.Security">
        <dependency name="ClaimsUserMonitor" />
    </property>
    </typeConfig>
</type>
<!-- See section 2.2.1.2. A PreFilterGeneratorSimple <type> element.
-->
<!-- See section 2.2.1.2.1. -->
<type name="SimplePreFilterGenerator"
type="Microsoft.SharePoint.Search.Extended.Security.IPreFilterGenerator,
Microsoft.SharePoint.Search.Extended.Security"
mapTo="Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary.System.PreFilterGeneratorsS
imple,
Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary">
    <!-- See section 2.1.7.11. The <lifetime> and <typeconfig>
        elements and their attributes are not specified in the
        PreFilterGeneratorSimple <type> element, so the common file
        format values in section 2.1 are used. -->
    <lifetime type="singleton" />
    <!-- See section 2.1.7.12. -->
    <typeConfig
extensionType="Microsoft.Practices.Unity.Configuration.TypeInjectionElement,
Microsoft.Practices.Unity.Configuration, version=1.2.0.0,
PublicKeyToken=71e9bce111e9429c">
        <!-- See section 2.2.1.2.2. -->
        <constructor>
            <param name="logger" parameterType="ILog">

```

```

        <dependency />
    </param>
</constructor>
<!-- See section 2.2.1.2.3. -->
<property name="AllowPrefix" propertyType="System.String">
    <value value="docacl:" />
</property>
<property name="DenyPrefix" propertyType="System.String">
    <value value="docacl:9" />
</property>
<property name="NonIndexableCharacterPattern"
    propertyType="System.String">
    <value value="[^\a-z0-9]" />
</property>
<property name="NonIndexableCharacterHandling"
    propertyType="System.String">
    <value value="encode" />
</property>
<property name="NonIndexableCharacterEncodingPrefix"
    propertyType="System.String">
    <value value="3nc0dd" />
</property>
</typeConfig>
</type>
<!-- See section 2.2.1.5. A ClaimsUserMonitor <type> element. -->
<!-- See section 2.2.1.5.1. -->
<type name="ClaimsUserMonitor"
    type="Microsoft.SharePoint.Search.Extended.Security.IUserMonitor,
    Microsoft.SharePoint.Search.Extended.Security"
mapTo="Microsoft.SharePoint.Search.Extended.Security.Monitors.User.Claims.ClaimsUserMonitor,
Microsoft.SharePoint.Search.Extended.Security.Monitors.User.Claims">
    <!-- See section 2.1.7.11. The <lifetime> and <typeconfig>
        elements and their attributes are not specified in the
        ClaimsUserMonitor <type> element, so the common file format
        values in section 2.1 are used. -->
    <lifetime type="singleton" />
    <!-- See section 2.1.7.12. -->
    <typeConfig
    extensionType="Microsoft.Practices.Unity.Configuration.TypeInjectionElement,
    Microsoft.Practices.Unity.Configuration, version=1.2.0.0,
    PublicKeyToken=71e9bce111e9429c">
    <!-- See section 2.2.1.5.2. -->
    <constructor>
        <param name="log" parameterType="ILog">
            <dependency />
        </param>
        <param name="manager"
parameterType="Microsoft.SharePoint.Search.Extended.Security.Monitors.User.Claims.ClaimsPrinc
ipalReferenceService,
Microsoft.SharePoint.Search.Extended.Security.Monitors.User.Claims">
            <dependency name="ClaimsPrincipalReferenceService" />
        </param>
        <param name="issuer" parameterType="System.String">
            <!-- See section 2.2.1.5.2. As specified in the table, this
                line specifies the claims original issuer. -->
            <value value="@ALL@" />
        </param>
    </constructor>
    </typeConfig>

```

```

        </type>
      </types>
      <!-- See section 2.1.7.18. -->
    </instances />
  </container>
</containers>
</unity>
</configuration>

```

### 3.1.2 Lotus Notes User Store Configuration File

The following is an example of a local cache user store configuration file.

```

<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<!-- See section 2.1.7.1. -->
<configuration>
  <!-- See section 2.1.7.2. -->
  <configSections>
    <!-- See section 2.1.7.3. -->
    <section name="unity"
      type="Microsoft.Practices.Unity.Configuration.UnityConfigurationSection,
      Microsoft.Practices.Unity.Configuration, Version=1.2.0.0,
      Culture=neutral,
      PublicKeyToken=71e9bce111e9429c" />
  </configSections>
  <!-- See section 2.1.7.4. -->
  <unity>
    <!-- See section 2.1.7.5. -->
    <typeAliases>
      <!-- See section 2.1.7.6.1. -->
      <typeAlias alias="singleton"
        type="Microsoft.Practices.Unity.ContainerControlledLifetimeManager,
        Microsoft.Practices.Unity, version=1.2.0.0,
        PublicKeyToken=71e9bce111e9429c" />
      <!-- See section 2.1.7.6.2. -->
      <typeAlias alias="ILog"
        type="Microsoft.SharePoint.Search.Extended.Security.Base.ILog,
        Microsoft.SharePoint.Search.Extended.Security.Base" />
    </typeAliases>
    <!-- See section 2.1.7.7. -->
    <containers>
      <!-- See section 2.1.7.8. -->
      <container>
        <!-- See section 2.1.7.9. -->
        <types>
          <!-- See section 2.2.1.1. A domain <type> element. -->
          <!-- See section 2.2.1.1.1. -->
          <type
            type="Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary.System.Domain,
            Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary">
            <!-- See section 2.1.7.11. The <lifetime> and <typeconfig>
              elements and their attributes are not specified in the Domain
              <type> element, so the common file format values in section 2.1
              are used. -->
            <lifetime type="singleton" />
            <!-- See section 2.1.7.12. -->
            <typeConfig

```

```

extensionType="Microsoft.Practices.Unity.Configuration.TypeInjectionElement,
Microsoft.Practices.Unity.Configuration, version=1.2.0.0,
PublicKeyToken=71e9bce111e9429c">
<!-- See section 2.2.1.1.2. -->
<constructor>
  <param name="logger" parameterType="ILog">
    <dependency />
  </param>
  <param name="id" parameterType="System.String">
    <!-- See section 2.2.1.1.2. As specified in the table, this
      line specifies the user store identifier. -->
    <value value="lts" />
  </param>
  <param name="description" parameterType="System.String">
    <!-- See section 2.2.1.1.2. As specified in the table, this
      line specifies a short description of the user store.
      In this example, no description is provided. -->
    <value />
  </param>
  <param name="contentType" parameterType="System.String">
    <value value="LotusNotes" />
  </param>
  <param name="preFilterGenerator"
parameterType="Microsoft.SharePoint.Search.Extended.Security.IPreFilterGenerator,
Microsoft.SharePoint.Search.Extended.Security">
    <dependency name="LotusNotesPreFilterGenerator" />
  </param>
</constructor>
<!-- See section 2.2.1.1.3. -->
<property name="UserMonitor"
propertyType="Microsoft.SharePoint.Search.Extended.Security.IUserMonitor,
Microsoft.SharePoint.Search.Extended.Security">
  <dependency name="LocalCacheUserMonitor" />
</property>
</typeConfig>
</type>
<!-- See section 2.2.1.3. A LotusNotesPreFilterGenerator <type>
  element. -->
<!-- See section 2.2.1.3.1. -->
<type name="LotusNotesPreFilterGenerator"
type="Microsoft.SharePoint.Search.Extended.Security.IPreFilterGenerator,
Microsoft.SharePoint.Search.Extended.Security"
mapTo="Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary.System.LotusNotesPreFilter
Generator,
Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary">
<!-- See section 2.1.7.11. The <lifetime> and <typeconfig>
  elements and their attributes are not specified in the
  PreFilterGeneratorSimple <type> element, so the common file
  format values in section 2.1 are used. -->
<lifetime type="singleton" />
<!-- See section 2.1.7.12. -->
<typeConfig
extensionType="Microsoft.Practices.Unity.Configuration.TypeInjectionElement,
Microsoft.Practices.Unity.Configuration, version=1.2.0.0,
PublicKeyToken=71e9bce111e9429c">
<!-- See section 2.2.1.3.2. -->
<constructor>
  <param name="logger" parameterType="ILog">
    <dependency />

```



```

</param>
<param name="useDenyOnDefault" parameterType="System.Boolean">
  <!-- See section 2.2.1.3.2. As specified in the table, this
        line specifies the user security filter denies
        by default. -->
  <value value="false" type="System.Boolean" />
</param>
<param name="useDocumentSecurity"
  parameterType="System.Boolean">
  <!-- See section 2.2.1.3.2. As specified in the table, this
        line specifies if the collaborative business application
        protocol server is configured to use "document-level"
        security. -->
  <value value="true" type="System.Boolean" />
</param>
<param name="useWildcardSecurity"
  parameterType="System.Boolean">
  <!-- See section 2.2.1.3.2. As specified in the table, this
        line specifies if the collaborative business application
        protocol server is configured to use "wild card"
        security. -->
  <value value="true" type="System.Boolean" />
</param>
<param name="useViewSecurity" parameterType="System.Boolean">
  <!-- See section 2.2.1.3.2. As specified in the table, this
        line specifies if the collaborative business application
        protocol server is configured to use "view" security. -->
  <value value="false" type="System.Boolean" />
</param>
</constructor>
<!-- See section 2.2.1.3.3. -->
<property name="AllowPrefix" propertyType="System.String">
  <value value="docacl:" />
</property>
<property name="DenyPrefix" propertyType="System.String">
  <value value="docacl:9" />
</property>
<property name="NonIndexableCharacterPattern"
  propertyType="System.String">
  <value value=".*" />
</property>
<property name="NonIndexableCharacterHandling"
  propertyType="System.String">
  <value value="encodeWithPrefix" />
</property>
<property name="NonIndexableCharacterEncodingPrefix"
  propertyType="System.String">
  <value value="3nc0dd" />
</property>
</typeConfig>
</type>
<!-- See section 2.2.1.4. A LocalCacheUserMonitor <type> element.
  -->
<!-- See section 2.2.1.4.1. -->
<type name="LocalCacheUserMonitor"
  type="Microsoft.SharePoint.Search.Extended.Security.IUserMonitor,
  Microsoft.SharePoint.Search.Extended.Security"
  mapTo="Microsoft.SharePoint.Search.Extended.Security.Monitors.User.LocalCache.LocalCacheUserM
  onitor,

```

```

Microsoft.SharePoint.Search.Extended.Security.Monitors.User.LocalCache">
  <!-- See section 2.1.7.11. The <lifetime> element and its
    attributes are not specified in the LocalCacheUserMonitor
    <type> element, so the common file format values in section 2.1
    are used. -->
  <lifetime type="singleton" />
  <!-- See section 2.2.1.4.2. The <typeConfig> element and its
    attributes are specified in the LocalCacheUserMonitor <type>
    element, so the LocalCacheUserMonitor TypeConfig values specified
    in 2.2.1.4.2 are used instead of the values in 2.1.2.13.1. -->
  <typeConfig
extensionType="Microsoft.SharePoint.Search.Extended.Security.Base.Unity.ValidatingTypeInjecti
onElement,
  Microsoft.SharePoint.Search.Extended.Security.Base"
  validateFunc="Validate">
  <!-- See section 2.2.1.4.3. -->
  <constructor>
    <param name="log" parameterType="ILog">
      <dependency />
    </param>
    <param name="largeFileStorage" parameterType="System.String">
      <dependency name="LargeStorePath" />
    </param>
    <param name="databaseFileName" parameterType="System.String">
      <!-- See section 2.2.1.4.3. As specified in the table, this
        line specifies the file name for the local cache storage
        file. -->
      <value value="lts.gum" />
    </param>
  </constructor>
  <!-- See section 2.2.1.4.3. -->
  <property name="Name" propertyType="System.String">
    <value value="LocalCacheUserMonitor" />
  </property>
  <property name="InitialCapacity" propertyType="System.Int32">
    <!-- See section 2.2.1.4.3. As specified in the table, this
      line specifies the initial capacity of the database file.
      -->
    <value value="5003" type="System.Int32" />
  </property>
  <property name="IDSize" propertyType="System.Int32">
    <!-- See section 2.2.1.4.3. As specified in the table, this
      line specifies the number of bytes for storing a
      security principal identifier. -->
    <value value="100" type="System.Int32" />
  </property>
  <property name="NameSize" propertyType="System.Int32">
    <!-- See section 2.2.1.4.3. As specified in the table, this
      line specifies the number of bytes for storing a
      security principal alias. -->
    <value value="150" type="System.Int32" />
  </property>
  <property name="MaxParents" propertyType="System.Int32">
    <!-- See section 2.2.1.4.3. As specified in the table, this
      line specifies the maximum number of nested parent
      security principals a specific security principal can have.
      -->
    <value value="500" type="System.Int32" />
  </property>

```

```

        <property name="CaseSensitiveLookup"
            propertyType="System.Boolean">
            <!-- See section 2.2.1.4.3. As specified in the table, this
                line specifies if security principal identifiers are case
                sensitive. -->
            <value value="true" type="System.Boolean" />
        </property>
    </typeConfig>
</type>
</types>
<!-- See section 2.1.7.18. -->
<instances />
</container>
</containers>
</unity>
</configuration>

```

## 3.2 Principal Aliaser Configuration File Format

### 3.2.1 XML Principal Aliaser Configuration File

The following shows an XML aliaser configuration file that maps from the dm1 user store to the dm2 and dm3 user stores. The name of the mapping file is "xml\_mappings\_c9e1879f-6d62-459a-9200-24224531efa3.xml", and it uses the default input property value "\$PRINCIPAL\_REFERENCE\_ID".

```

<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<!-- See section 2.1.7.1. -->
<configuration>
    <!-- See section 2.1.7.2. -->
    <configSections>
        <!-- See section 2.1.7.3. -->
        <section name="unity"
            type="Microsoft.Practices.Unity.Configuration.UnityConfigurationSection,
            Microsoft.Practices.Unity.Configuration, Version=1.2.0.0,
            Culture=neutral,
            PublicKeyToken=71e9bce11e9429c" />
    </configSections>
    <!-- See section 2.1.7.4. -->
    <unity>
        <!-- See section 2.1.7.5. -->
        <typeAliases>
            <!-- See section 2.1.7.6.1. -->
            <typeAlias alias="singleton"
                type="Microsoft.Practices.Unity.ContainerControlledLifetimeManager,
                Microsoft.Practices.Unity, version=1.2.0.0,
                PublicKeyToken=71e9bce11e9429c" />
            <!-- See section 2.1.7.6.2. -->
            <typeAlias alias="ILog"
                type="Microsoft.SharePoint.Search.Extended.Security.Base.ILog,
                Microsoft.SharePoint.Search.Extended.Security.Base" />
        </typeAliases>
        <!-- See section 2.1.7.7. -->
        <containers>
            <!-- See section 2.1.7.8. -->
            <container>
                <!-- See section 2.1.7.9. -->
            </types>

```

```

<!-- See section 2.3.1.1. An XMLPrincipalAliaser<type> element. -->
<!-- See section 2.3.1.1.1. -->
<type type="Microsoft.SharePoint.Search.Extended.Security.IPrincipalAliaser,
Microsoft.SharePoint.Search.Extended.Security"
mapTo="Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary.System.XMLPrincipalAliaser
,
Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary">
<!-- See section 2.1.7.11. The <lifetime> and <typeconfig>
elements and their attributes are not specified in the
XMLPrincipalAliaser <type> element, so the common file format
values in section 2.1 are used. -->
<lifetime type="singleton" />
<!-- See section 2.1.7.12. -->
<typeConfig
extensionType="Microsoft.Practices.Unity.Configuration.TypeInjectionElement,
Microsoft.Practices.Unity.Configuration, version=1.2.0.0,
PublicKeyToken=71e9bce111e9429c">
<!-- See section 2.3.1.1.2. -->
<constructor>
<param name="logger" parameterType="ILog">
<dependency />
</param>
<param name="id" parameterType="System.String">
<!-- See section 2.3.1.1.2. As specified in the table, this
line specifies the principal aliaser identifier. -->
<value value="xmlailaser2" />
</param>
<param name="inputUserStoreId" parameterType="System.String">
<!-- See section 2.3.1.1.2. As specified in the table, this
line specifies the input user store identifier. -->
<value value="dm1" />
</param>
<param name="outputUserStoreIds"
parameterType="System.String[]">
<!-- See section 2.3.1.1.2. As specified in the table, this
line specifies a list of output user store identifiers.
-->
<value value="dm2,dm3" type="System.String[]"
typeConverter="Microsoft.SharePoint.Search.Extended.Security.Base.Unity.CommaSeparatedStringA
rrayConverter,
Microsoft.SharePoint.Search.Extended.Security.Base" />
</param>
<param name="xmlFileName" parameterType="System.String">
<!-- See section 2.3.1.1.2. As specified in the table, this
line specifies the name of the XML principal aliaser
mapping file. -->
<value value="xml_mappings_c9e1879f-6d62-459a-9200-24224531efa3.xml" />
</param>
<param name="dirPath" parameterType="System.String">
<dependency name="EXECUTABLE_PATH_STR" />
</param>
</constructor>
<!-- See section 2.3.1.1.3. -->
<property name="InputProperty" propertyType="System.String">
<!-- See section 2.3.1.1.3. As specified in the table, this
line specifies the property of a security principal that
is the input to the mapping. -->
<value value="$PRINCIPAL_REFERENCE_ID" />
</property>

```

```

        </typeConfig>
    </type>
</types>
<!-- See section 2.1.7.18. -->
    <instances />
</container>
</containers>
</unity>
</configuration>

```

### 3.2.2 Regular Expression Principal Aliaser Configuration File

The following is an example of a principal alias configuration file which maps from the pri user store to the dm3 user store. It will do regular expression pattern matching to map the default input property matching "(.)(.+)" to the user name "\2\1". It will map "djones" to "jonesd".

```

<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<!-- See section 2.1.7.1. -->
<configuration>
    <!-- See section 2.1.7.2. -->
    <configSections>
        <!-- See section 2.1.7.3. -->
        <section name="unity"
            type="Microsoft.Practices.Unity.Configuration.UnityConfigurationSection,
            Microsoft.Practices.Unity.Configuration, Version=1.2.0.0,
            Culture=neutral,
            PublicKeyToken=71e9bce111e9429c" />
    </configSections>
    <!-- See section 2.1.7.4. -->
    <unity>
        <!-- See section 2.1.7.5. -->
        <typeAliases>
            <!-- See section 2.1.7.6.1. -->
            <typeAlias alias="singleton"
                type="Microsoft.Practices.Unity.ContainerControlledLifetimeManager,
                Microsoft.Practices.Unity, version=1.2.0.0,
                PublicKeyToken=71e9bce111e9429c" />
            <!-- See section 2.1.7.6.2. -->
            <typeAlias alias="ILog"
                type="Microsoft.SharePoint.Search.Extended.Security.Base.ILog,
                Microsoft.SharePoint.Search.Extended.Security.Base" />
        </typeAliases>
        <!-- See section 2.1.7.7. -->
        <containers>
            <!-- See section 2.1.7.8. -->
            <container>
                <!-- See section 2.1.7.9. -->
                <types>
                    <!-- See section 2.3.1.2. A RegExPrincipalAliaser <type>
                    element. -->
                    <!-- See section 2.3.1.2.1. -->
                    <type
                        type="Microsoft.SharePoint.Search.Extended.Security.IPrincipalAliaser,
                        Microsoft.SharePoint.Search.Extended.Security"
                        mapTo="Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary.System.RegExPrincipalAlias
                        er,
                            Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary">

```

```

<!-- See section 2.1.7.11. The <lifetime> and <typeconfig>
      elements and their attributes are not specified in the
      Domain <type> element, so the common file format values
      in section 2.1 are used. -->
<lifetime type="singleton" />
<!-- See section 2.1.7.12. -->
<typeConfig
extensionType="Microsoft.Practices.Unity.Configuration.TypeInjectionElement,
      Microsoft.Practices.Unity.Configuration,
      version=1.2.0.0, PublicKeyToken=71e9bcell11e9429c">
<!-- See section 2.3.1.2.2. -->
<constructor>
  <param name="logger" parameterType="ILog">
    <dependency />
  </param>
  <param name="id" parameterType="System.String">
    <!-- See section 2.3.1.2.2. As specified in the table,
          this line specifies the principal aliaser identifier.
          -->
    <value value="priToDm3RegEx" />
  </param>
  <param name="inputUserStoreId" parameterType="System.String">
    <!-- See section 2.3.1.2.2. As specified in the table, this
          line specifies the input user store identifier. -->
    <value value="pri" />
  </param>
  <param name="outputUserStoreIds"
        parameterType="System.String[]">
    <!-- See section 2.3.1.2.2. As specified in the table, this
          line specifies the list of output
          user store identifiers. -->
    <value value="dm3" type="System.String[]"
typeConverter="Microsoft.SharePoint.Search.Extended.Security.Base.Unity.
      CommaSeparatedStringArrayConverter,
      Microsoft.SharePoint.Search.Extended.Security.Base" />
  </param>
  <param name="patternMaps"
parameterType="System.Collections.Generic.List`1[[Microsoft.SharePoint.Search.Extended.Security.
      WorkerLibrary.System.RegExPatternMap,
      Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary]]">
    <dependency name="RegExMap" />
  </param>
</constructor>
<!-- See section 2.3.1.2.3. -->
<property name="CaseSensitive" propertyType="System.Boolean">
  <!-- See section 2.3.1.2.3. As specified in the table, this
        line specifies if the pattern matching is case sensitive.
        -->
  <value value="true" type="System.Boolean" />
</property>
<property name="UnicodeCaseSensitive" propertyType="System.Boolean">
  <!-- See section 2.3.1.2.3. As specified in the table, this
        line specifies if the pattern matching is Unicode case
        sensitive. -->
  <value value="true" type="System.Boolean" />
</property>
</typeConfig>
</type>
<!-- See section 2.3.1.3. A RegExMap <type> element. -->

```

```

    <!-- See section 2.3.1.3.1. -->
    <type name="RegExMap"
type="System.Collections.Generic.IList`1[[Microsoft.SharePoint.Search.
Extended.Security.WorkerLibrary.System.RegExPatternMap,
Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary]]"
mapTo="System.Collections.Generic.List`1[[Microsoft.SharePoint.Search.Extended.Security.Worke
rLibrary.System.RegExPatternMap,
Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary]]">
    <!-- See section 2.1.7.11. The <lifetime> element and its
attributes are not specified in the RegExMap <type> element,
so the specified common file format values in section 2.1 are
used. -->
    <lifetime type="singleton" />
    <!-- See section 2.3.1.3.2. The <typeConfig> element and its
attributes are specified in the RegExMap <type> element, so
the RegExMap TypeConfig Element values specified in 2.3.1.3.2 are
used instead of the CT_Lifetime element values in 2.1.2.13.1. -->
    <typeConfig
extensionType="Microsoft.SharePoint.Search.Extended.Security.Base.Unity.ListTypeExtension,
Microsoft.SharePoint.Search.Extended.Security.Base"
type="Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary.System.RegExPatternMap,
Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary">
        <!-- See section 2.3.1.3.3. The name attribute here matches the
name attribute in the following RegExMapItem <type> element.
-->
        <dependency name="RegExMapItem0" />
    </typeConfig>
</type>
<!-- See section 2.3.1.4. A RegExMapItem <type> element. -->
<!-- See section 2.3.1.4.1. -->
<type name="RegExMapItem0"
type="Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary.System.RegExPatternMap,
Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary"
mapTo="Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary.System.RegExPatternMap,
Microsoft.SharePoint.Search.Extended.Security.WorkerLibrary">
    <!-- See section 2.1.7.11. The <lifetime> and <typeconfig>
elements and their attributes are not specified in the
RegExMapItem <type> element, so the common file format values
in section 2.1 are used. -->
    <lifetime type="singleton" />
    <!-- See section 2.1.7.12. -->
    <typeConfig
extensionType="Microsoft.Practices.Unity.Configuration.TypeInjectionElement,
Microsoft.Practices.Unity.Configuration, version=1.2.0.0,
PublicKeyToken=71e9bce111e9429c">
    <!-- See section 2.3.1.4.2. -->
    <constructor>
        <param name="log" parameterType="ILog">
            <dependency />
        </param>
        <param name="pattern" parameterType="System.String">
            <!-- See section 2.3.1.4.2. As specified in the table, this
line specifies a regular expression pattern to match.
In this example, the first character is put into group
1 and the remaining characters are put into group2. -->
            <value value="(.) (.+)" />
        </param>
        <param name="mapToUsername" parameterType="System.String">
            <!-- See section 2.3.1.4.2. As specified in the table, this

```

```
        line specifies the output of the mapping. In this
        example, the output is group2 followed by group 1. It
        will turn "djones" into "jonesd". -->
        <value value="\2\1" />
    </param>
    <param name="inputPropertyName" parameterType="System.String">
        <!-- See section 2.3.1.4.2. As specified in the table, this
        line specifies the property of a security principal
        that is the input to the mapping. -->
        <value value="$PRINCIPAL_REFERENCE_ID" />
    </param>
</constructor>
</typeConfig>
</type>
</types>
<!-- See section 2.1.7.18 -->
<instances />
</container>
</containers>
</unity>
</configuration>
```



## **4 Security Considerations**

### **4.1 User Store Configuration File Format**

A user store configuration file contains the security sensitive information. The implementation that uses the file will secure it at all times.

### **4.2 Principal Aliaser Configuration File Format**

A principal aliaser configuration file contains the security sensitive information. The implementation that uses the file will secure it at all times.

## 5 Appendix A: Full XML Schemas

For ease of implementation, this section provides the full **XML schema** is provided here. The user store configuration and the principal aliaser configuration file formats have the same schema.

```
<?xml version="1.0" encoding="utf-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">

  <xs:complexType name="CT_ConfigSections">
    <xs:sequence>
      <xs:element name="section" type="CT_Section" />
    </xs:sequence>
  </xs:complexType>

  <xs:complexType name="CT_Configuration">
    <xs:sequence>
      <xs:element name="configSections" type="CT_ConfigSections" />
      <xs:element name="unity" type="CT_Unity" />
    </xs:sequence>
  </xs:complexType>

  <xs:complexType name="CT_Constructor">
    <xs:sequence>
      <xs:element maxOccurs="unbounded" name="param" type="CT_Param" />
    </xs:sequence>
  </xs:complexType>

  <xs:complexType name="CT_Container">
    <xs:sequence>
      <xs:element name="types" type="CT_Types" />
      <xs:element name="instances" type="CT_Instances" />
    </xs:sequence>
  </xs:complexType>

  <xs:complexType name="CT_Containers">
    <xs:sequence>
      <xs:element name="container" type="CT_Container" />
    </xs:sequence>
  </xs:complexType>

  <xs:complexType name="CT_Dependency">
    <xs:attribute name="name" type="xs:string" use="optional" />
  </xs:complexType>

  <xs:complexType name="CT_Instances">
  </xs:complexType>

  <xs:complexType name="CT_Lifetime">
    <xs:attribute name="type" type="xs:string" use="required"
      fixed="singleton" />
  </xs:complexType>

  <xs:complexType name="CT_Param">
    <xs:choice>
      <xs:element minOccurs="0" name="value" type="CT_Value" />
      <xs:element minOccurs="0" name="dependency" type="CT_Dependency" />
    </xs:choice>
    <xs:attribute name="name" type="xs:string" use="required" />
  </xs:complexType>
```

```

    <xs:attribute name="parameterType" type="xs:string" use="required" />
</xs:complexType>

<xs:complexType name="CT_Property">
  <xs:sequence>
    <xs:element minOccurs="0" name="value" type="CT_Value" />
    <xs:element minOccurs="0" name="dependency" type="CT_Dependency" />
  </xs:sequence>
  <xs:attribute name="name" type="xs:string" use="required" />
  <xs:attribute name="propertyType" type="xs:string" use="required" />
</xs:complexType>

<xs:complexType name="CT_Section">
  <xs:attribute name="name" type="xs:string" use="required" fixed="unity" />
  <xs:attribute name="type" type="xs:string" use="required" />
</xs:complexType>

<xs:complexType name="CT_Type">
  <xs:sequence>
    <xs:element name="lifetime" type="CT_Lifetime" />
    <xs:element name="typeConfig" type="CT_TypeConfig" />
  </xs:sequence>
  <xs:attribute name="type" type="xs:string" use="required" />
  <xs:attribute name="name" type="xs:string" use="optional" />
  <xs:attribute name="mapTo" type="xs:string" use="optional" />
</xs:complexType>

<xs:complexType name="CT_TypeAlias">
  <xs:attribute name="alias" type="xs:string" use="required" />
  <xs:attribute name="type" type="xs:string" use="required" />
</xs:complexType>

<xs:complexType name="CT_TypeAliases">
  <xs:sequence>
    <xs:element maxOccurs="unbounded" name="typeAlias" type="CT_TypeAlias" />
  </xs:sequence>
</xs:complexType>

<xs:complexType name="CT_TypeConfig">
  <xs:choice>
    <xs:element minOccurs="0" maxOccurs="unbounded" name="dependency"
      type="CT_Dependency" />
    <xs:element minOccurs="0" maxOccurs="unbounded" name="value"
      type="CT_Value" />
  <xs:sequence>
    <xs:element minOccurs="0" name="constructor" type="CT_Constructor" />
    <xs:element minOccurs="0" maxOccurs="unbounded" name="property"
      type="CT_Property" />
  </xs:sequence>
</xs:choice>
  <xs:attribute name="extensionType" type="xs:string" use="required" />
  <xs:attribute name="type" type="xs:string" use="optional" />
  <xs:attribute name="validateFunc" type="xs:string" use="optional" />
</xs:complexType>

<xs:complexType name="CT_Types">
  <xs:sequence>
    <xs:element maxOccurs="unbounded" name="type" type="CT_Type" />
  </xs:sequence>

```

```
</xs:complexType>

<xs:complexType name="CT_Unity">
  <xs:sequence>
    <xs:element name="typeAliases" type="CT_TypeAliases" />
    <xs:element name="containers" type="CT_Containers" />
  </xs:sequence>
</xs:complexType>

<xs:complexType name="CT_Value">
  <xs:attribute name="value" type="xs:string" use="optional" />
  <xs:attribute name="type" type="xs:string" use="optional" />
  <xs:attribute name="typeConverter" type="xs:string" use="optional" />
</xs:complexType>

  <xs:element name="configuration" type="CT_Configuration" />
</xs:schema>
```

## 6 Appendix B: Product Behavior

The information in this specification is applicable to the following Microsoft products or supplemental software. References to product versions include released service packs:

- Microsoft® FAST™ Search Server 2010

Exceptions, if any, are noted below. If a service pack or Quick Fix Engineering (QFE) number appears with the product version, behavior changed in that service pack or QFE. The new behavior also applies to subsequent service packs of the product unless otherwise specified. If a product edition appears with the product version, behavior is different in that product edition.

Unless otherwise specified, any statement of optional behavior in this specification that is prescribed using the terms SHOULD or SHOULD NOT implies product behavior in accordance with the SHOULD or SHOULD NOT prescription. Unless otherwise specified, the term MAY implies that the product does not follow the prescription.

## 7 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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