

[MS-FSCDCFG]: Component Distribution Configuration File Format

Intellectual Property Rights Notice for Open Specifications Documentation

- **Technical Documentation.** Microsoft publishes Open Specifications documentation for protocols, file formats, languages, standards as well as overviews of the interaction among each of these technologies.
- **Copyrights.** This documentation is covered by Microsoft copyrights. Regardless of any other terms that are contained in the terms of use for the Microsoft website that hosts this documentation, you may make copies of it in order to develop implementations of the technologies described in the Open Specifications and may distribute portions of it in your implementations using these technologies or your documentation as necessary to properly document the implementation. You may also distribute in your implementation, with or without modification, any schema, IDL's, or code samples that are included in the documentation. This permission also applies to any documents that are referenced in the Open Specifications.
- **No Trade Secrets.** Microsoft does not claim any trade secret rights in this documentation.
- **Patents.** Microsoft has patents that may cover your implementations of the technologies described in the Open Specifications. Neither this notice nor Microsoft's delivery of the documentation grants any licenses under those or any other Microsoft patents. However, a given Open Specification may be covered by Microsoft [Open Specification Promise](#) or the [Community Promise](#). If you would prefer a written license, or if the technologies described in the Open Specifications are not covered by the Open Specifications Promise or Community Promise, as applicable, patent licenses are available by contacting iplg@microsoft.com.
- **Trademarks.** The names of companies and products contained in this documentation may be covered by trademarks or similar intellectual property rights. This notice does not grant any licenses under those rights.
- **Fictitious Names.** The example companies, organizations, products, domain names, e-mail addresses, logos, people, places, and events depicted in this documentation are fictitious. No association with any real company, organization, product, domain name, email address, logo, person, place, or event is intended or should be inferred.

Reservation of Rights. All other rights are reserved, and this notice does not grant any rights other than specifically described above, whether by implication, estoppel, or otherwise.

Tools. The Open Specifications do not require the use of Microsoft programming tools or programming environments in order for you to develop an implementation. If you have access to Microsoft programming tools and environments you are free to take advantage of them. Certain Open Specifications are intended for use in conjunction with publicly available standard specifications and network programming art, and assumes that the reader either is familiar with the aforementioned material or has immediate access to it.

Revision Summary

Date	Revision History	Revision Class	Comments
11/06/2009	0.1	Major	Initial Availability
02/19/2010	1.0	Minor	Updated the technical content
03/31/2010	1.01	Editorial	Revised and edited the technical content
04/30/2010	1.02	Editorial	Revised and edited the technical content
06/07/2010	1.03	Editorial	Revised and edited the technical content
06/29/2010	1.04	Editorial	Changed language and formatting in the technical content.
07/23/2010	1.04	No change	No changes to the meaning, language, or formatting of the technical content.
09/27/2010	1.04	No change	No changes to the meaning, language, or formatting of the technical content.
11/15/2010	1.04	No change	No changes to the meaning, language, or formatting of the technical content.
12/17/2010	1.04	No change	No changes to the meaning, language, or formatting of the technical content.
03/18/2011	1.04	No change	No changes to the meaning, language, or formatting of the technical content.
06/10/2011	1.04	No change	No changes to the meaning, language, or formatting of the technical content.
01/20/2012	1.5	Minor	Clarified the meaning of the technical content.
04/11/2012	1.5	No change	No changes to the meaning, language, or formatting of the technical content.
07/16/2012	1.5	No change	No changes to the meaning, language, or formatting of the technical content.

Table of Contents

1	Introduction	4
1.1	Glossary	4
1.2	References	4
1.2.1	Normative References	5
1.2.2	Informative References	5
1.3	Structure Overview (Synopsis)	5
1.4	Relationship to Protocols and Other Structures	5
1.5	Applicability Statement	6
1.6	Versioning and Localization	6
1.7	Vendor-Extensible Fields	6
2	Structures	7
2.1	Global Elements	7
2.1.1	deployment	7
2.2	Global Attributes	7
2.3	Complex Types	7
2.3.1	CT_deployment	7
2.3.2	CT_host	8
2.3.3	CT_admin	9
2.3.4	CT_content-distributor	9
2.3.5	CT_indexing-dispatcher	10
2.3.6	CT_document-processor	10
2.3.7	CT_crawler	10
2.3.8	CT_webanalyzer	11
2.3.9	CT_searchengine	12
2.3.10	CT_query	13
2.3.11	CT_custom	13
2.3.12	CT_searchcluster	13
2.3.13	CT_row	13
2.4	Simple Types	14
2.4.1	ST_crawler-role	14
2.4.2	ST_index	14
3	Structure Examples	16
3.1	Single Node	16
3.2	Multiple Nodes	16
4	Security Considerations	18
5	Appendix A: Complete XML Schema	19
6	Appendix B: Product Behavior	22
7	Change Tracking	23
8	Index	24

1 Introduction

This document specifies the Component Distribution Configuration File Format. This file format contains detailed structure information that specifies how a search service application is distributed over multiple search service application nodes. One or more services will run on each node in the search service application.

Sections 1.7 and 2 of this specification are normative and can contain the terms MAY, SHOULD, MUST, MUST NOT, and SHOULD NOT as defined in RFC 2119. All other sections and examples in this specification are informative.

1.1 Glossary

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

**fully qualified domain name (FQDN)
Hypertext Transfer Protocol over Secure Sockets Layer (HTTPS)
service**

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

**administration component
connection string
content distributor
duplicate server
hyperlink
index column
indexer row
indexing component
indexing connector
indexing dispatcher
indexing node
link processing component
multinode scheduler
node scheduler
query matching component
query processing
search clickthrough
search row
search service application
Web analyzer
Web crawler
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

References to Microsoft Open Specifications documentation do not include a publishing year because links are to the latest version of the technical documents, which are updated frequently. References to other documents include a publishing year when one is available.

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. 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.

[MS-FSWASDS] Microsoft Corporation, "[WebAnalyzer/SPRel Data Serving Protocol Specification](#)".

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

1.2.2 Informative References

[MS-FSCMW] Microsoft Corporation, "[Configuration Middleware Protocol Specification](#)".

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

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

[MS-OFGLGLOS] Microsoft Corporation, "[Microsoft Office Master Glossary](#)".

1.3 Structure Overview (Synopsis)

This file format represents the layout of nodes and **services** in a **search service application**. Each search service application has one Component Distribution Configuration file.

The purpose of this file format is to enable central control over search service application nodes and services in an installation. Each node in a search service application can read the Component Distribution Configuration file and determine the services that run locally. In addition, each node can also determine the location of other services with which it needs to communicate. An administrator can reconfigure the search service application by adding or removing nodes or services in the Component Distribution Configuration file.

1.4 Relationship to Protocols and Other Structures

The following figure provides a high level overview of the services and protocols that are related to this file format. See [\[MS-FSO\]](#) for more information about the services and protocols listed in the following figure.

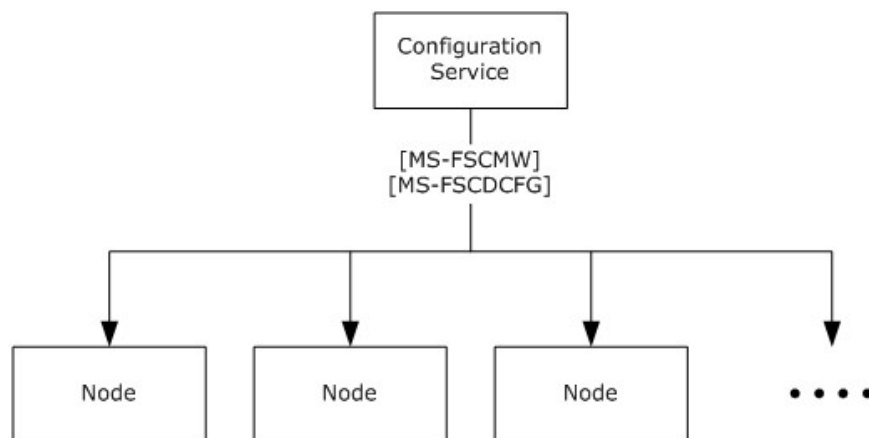


Figure 1: Service and protocol relationship

The Component Distribution Configuration file format specifies the return value of a call to the `load_config_file` method, using the parameters `modulename="deployment"` and `filepath="deployment.xml"`, as described in [\[MS-FSCMW\]](#). This file format specifies all nodes and their respective services in a search service application.

An administrator creates the Component Distribution Configuration file on the node where the administration component runs. All other nodes in the search service application download and interpret the configuration file, reconfigure the nodes, and start and stop services based on the information in the configuration file.

1.5 Applicability Statement

This document specifies an XML-based file format that represents nodes and their respective services in a search service application. All content is represented as text. The file format is applicable for all search service applications that use the same search service application components and services, as described in [\[MS-FSO\]](#).

1.6 Versioning and Localization

None.

1.7 Vendor-Extensible Fields

None.

2 Structures

2.1 Global Elements

2.1.1 deployment

This element contains all nodes and their respective services in the search service application.

```
<xs:element name="deployment" type="CT_deployment" />
```

2.2 Global Attributes

None.

2.3 Complex Types

2.3.1 CT_deployment

This complex type contains all nodes and their respective services in the search service application.

```
<xs:complexType name="CT_deployment">
  <xs:sequence minOccurs="1" maxOccurs="unbounded">
    <xs:element name="instanceid" minOccurs="1" maxOccurs="1"
      type="xs:string" />
    <xs:element name="connector-databaseconnectionstring" minOccurs="1"
      maxOccurs="1" type="xs:string" />
    <xs:element name="host" type="CT_host" minOccurs="1"
      maxOccurs="unbounded" />
    <xs:element name="searchcluster" type="CT_searchcluster"
      minOccurs="1" maxOccurs="1" />
  </xs:sequence>
  <xs:attribute name="version" use="optional" type="xs:int" />
  <xs:attribute name="modifiedBy" use="optional" type="xs:string" />
  <xs:attribute name="modifiedTime" use="optional" type="xs:dateTime" />
  <xs:attribute name="comment" use="optional" type="xs:string" /> </xs:complexType>
```

Referenced by

deployment

Child Elements:

instanceId: Represents an identifier for the search service application. There are no specific requirements for the format of the **instanceId** element.

connector-databaseconnectionstring: **Indexing connectors** SHOULD [<1>](#) use a **connection string** to a database to specify information. The connection string, if used, MUST follow the specified format
"jdbc:sqlserver://[serverName[*instanceName*][:portNumber]];DatabaseName=[databaseName]".

The following table describes specifications for the preceding connection string.

Format text	Description
jdbc:sqlserver://	Required and constant. This is referred to as the sub-protocol.
serverName	Optional. This is the address of the server to which to connect. This MUST be a fully qualified domain name (FQDN) .
instanceName	Optional. This is the instance to connect to on serverName . If this is not specified, the protocol client makes a connection to the default instance.
portNumber	Optional. This is the port to connect to on serverName .
databaseName	Required. This is the name of the database to which the string will connect.

host: A **CT_host** element that specifies a node and its services.

searchcluster: A **CT_searchcluster** element that specifies how the **query matching components** and **indexing components** are distributed within the search service application.

Attributes

Name	Description
comment	A textual comment by the author of the Component Distribution Configuration file.
modifiedby	The name of the person that edited the Component Distribution Configuration file.
modifiedTime	The date and time of the last update to the Component Distribution Configuration file.
version	The current version of the Component Distribution Configuration file.

2.3.2 CT_host

This complex type represents a node in the search service application. This element contains all services that MUST run on the node.

```
<xs:complexType name="CT_host">
  <xs:all>
    <xs:element name="admin" type="CT_admin" minOccurs="0"
      maxOccurs="1" />
    <xs:element name="content-distributor" type="CT_content-distributor" minOccurs="0"
      maxOccurs="1" />
    <xs:element name="indexing-dispatcher" type="CT_indexing-dispatcher" minOccurs="0"
      maxOccurs="1" />
    <xs:element name="document-processor" type="CT_document-processor" minOccurs="0"
      maxOccurs="1" />
    <xs:element name="crawler" type="CT_crawler" minOccurs="0"
      maxOccurs="1" />
    <xs:element name="webanalyzer" type="CT_webanalyzer" minOccurs="0" maxOccurs="1" />
    <xs:element name="searchengine" type="CT_searchengine" minOccurs="0" maxOccurs="1" />
    <xs:element name="query" type="CT_query" minOccurs="0"
      maxOccurs="1" />
    <xs:element name="custom" type="CT_custom" minOccurs="0"
      maxOccurs="1" />
  </xs:all>
  <xs:attribute name="name" type="xs:string" use="required" />
  <xs:attribute name="useadminservicehttps" type="xs:boolean" use="optional"
    default="false" />
</xs:complexType>
```



```
</xs:complexType>
```

Referenced by
CT_deployment

Child Elements

admin: A **CT_admin** element. The **admin** element MUST be specified exactly once in the Component Distribution Configuration file because there can only be one **administration component** in the search service application.

content-distributor: A **CT_content-distributor** element.

indexing-dispatcher: A **CT_indexing-dispatcher** element.

document-processor: A **CT_document-processor** element.

crawler: A **CT_crawler** element.

webanalyzer: A **CT_webanalyzer** element.

searchengine: A **CT_searchengine** element.

query: A **CT_query** element.

custom: A **CT_custom** element.

Attributes

Name	Description
name	The FQDN of the node.
useadminservicehttps	A Boolean value that is set to true if services on this node MUST use HTTPS when communicating with the administration component.

2.3.3 CT_admin

This complex type represents the administration component. See [\[MS-FSO\]](#) for more information.

```
<xs:complexType name="CT_admin" />
```

Referenced by
CT_host

2.3.4 CT_content-distributor

This complex type represents the content distributor component.

```
<xs:complexType name="CT_content-distributor">  
  <xs:attribute name="id" use="optional" type="xs:int" default="1" />  
</xs:complexType>
```

See [\[MS-FSQ\]](#) for more information.

Referenced by
CT_host

Attributes

Name	Description
id	A unique identifier of the content distributor component. The identifier MUST be unique for each content-distributor element in the Component Distribution Configuration file.

2.3.5 CT_indexing-dispatcher

This complex type represents the **indexing dispatcher**.

```
<xs:complexType name="CT_indexing-dispatcher" />
```

See [\[MS-FSQ\]](#) for more information.

Referenced by
CT_host

2.3.6 CT_document-processor

This complex type represents an item processing component.

```
<xs:complexType name="CT_document-processor">  
  <xs:attribute name="processes" use="optional" type="xs:int" default="1" />  
</xs:complexType>
```

See [\[MS-FSQ\]](#) for more information.

Referenced by
CT_host

Attributes

Name	Description
processes	The number of item processing components on the current node.

2.3.7 CT_crawler

This complex type represents the **Web crawler**.

```
<xs:complexType name="CT_crawler">  
  <xs:attribute name="role" type="ST_crawler-role" />  
</xs:complexType>
```

```

    <xs:attribute name="multi-node-scheduler" use="optional" type="xs:boolean"
    default="false"/>
    <xs:attribute name="node-scheduler" use="optional" type="xs:boolean"
    default="false"/>
    <xs:attribute name="duplicate-server" use="optional" type="xs:boolean" default="false"/>
    <xs:attribute name="duplicate-server-replica-host" use="optional"
    type="xs:string"/>
    <xs:attribute name="duplicate-server-replica" use="optional"
    type="xs:boolean" default="false"/>
</xs:complexType>

```

See [\[MS-FSO\]](#) for more information.

Referenced by
CT_host

Attributes

Name	Description
role	Specifies whether the Web crawler is distributed between several nodes, or if it is contained within one node. The value MUST be of type ST_crawler-role .
multi-node-scheduler	A Boolean value that is set to true if a multinode scheduler runs on the current node. Only one crawler element MUST exist in the Component Distribution Configuration file that has this attribute set to true .
node-scheduler	A Boolean value that is set to true if a node scheduler runs on the current node.
duplicate-server	A Boolean value that is set to true if a duplicate server component runs on the current node.
duplicate-server-replica	A Boolean value that is set to true if a duplicate server replica component runs on the current node.
duplicate-server-replica-host	Specifies the FQDN of the duplicate server replica component node. This value MUST be specified if the duplicate-server attribute is set to true .

2.3.8 CT_webanalyzer

This complex type represents the **Web analyzer**.

```

<xs:complexType name="CT_webanalyzer">
  <xs:attribute name="server" use="required" type="xs:boolean" />
  <xs:attribute name="lookup-db" use="required" type="xs:boolean" />
  <xs:attribute name="link-processing" use="required" type="xs:boolean" />
  <xs:attribute name="max-targets" use="optional" type="xs:int" />
  <xs:attribute name="redundant-lookup" use="optional" type="xs:boolean" />
</xs:complexType>

```

See [\[MS-FSO\]](#) for more information.

Referenced by
CT_host

Attributes

Name	Description
server	A Boolean value that MUST be true if the current node runs the Web analyzer component. There MUST only be one webanalyzer element in the Component Distribution Configuration file with the server attribute set to true .
lookup-db	A Boolean value that MUST be true if the current node runs the lookup database component.
link-processing	A Boolean value that MUST be true if the current node runs the link processing component .
max-targets	This value specifies the number of parallel operations that the link processing component can run , where one operation is one process. The number is per analysis type, so if both search clickthrough and hyperlink analysis are running, the actual number of processes running at the same time could be twice as high as the max-target value. This number MUST be at least 1.
redundant-lookup	A Boolean that specifies if the lookup database components are to run in fault tolerant mode or not. If true then all lookup database components MUST run both a primary lookup database and a backup lookup database. See [MS-FSWASDS] for more details.

2.3.9 CT_searchengine

This complex type represents the indexing component and query matching component.

```
<xs:complexType name="CT_searchengine">
  <xs:attribute name="row" type="xs:int" use="required" />
  <xs:attribute name="column" type="xs:int" use="required" />
</xs:complexType>
```

See [\[MS-FSQ\]](#) for more information.

Referenced by
CT_host

This complex type has a **row** attribute that MUST be equal to the **id** attribute of a **row** element. The **row** element determines whether or not the indexing component and the query matching component MUST run on all nodes in a specific **search row**, as specified in section [2.3.13](#).

Attributes

Name	Description
row	Specifies the row number of the query matching component and indexing component. This value MUST be equal to the id attribute of a row element, as specified in section 2.3.13 .
column	Specifies the index column number of the query matching component and indexing component. Index column numbers MUST be zero based, meaning that the first index column

Name	Description
	number MUST be 0, and for each additional index column, the index column number MUST be incremented by 1.

2.3.10 CT_query

This complex type represents the **query processing** component.

```
<xs:complexType name="CT_query"/>
```

See [\[MS-FSQ\]](#) for more information.

Referenced by
CT_host

2.3.11 CT_custom

This complex type is not currently used.

Referenced by
CT_host

```
<xs:complexType name="CT_custom">
  <xs:attribute name="ref" type="xs:string" use="required" />
</xs:complexType>
```

2.3.12 CT_searchcluster

This complex type specifies how the query matching component and indexing components are distributed in the system.

```
<xs:complexType name="CT_searchcluster">
  <xs:sequence>
    <xs:element name="row" type="CT_row" minOccurs="1" maxOccurs="unbounded" />
  </xs:sequence>
</xs:complexType>
```

Referenced by
CT_deployment

Child Elements

row: A **CT_row** element that represents a search row and **indexer row**.

2.3.13 CT_row

This complex type represents a search row and indexer row over which the query matching components and indexing components are distributed.

```

<xs:complexType name="CT_row">
  <xs:attribute name="id" type="xs:int" use="required" />
  <xs:attribute name="index" type="ST_index" use="required" />
  <xs:attribute name="search" type="xs:boolean" use="required" />
</xs:complexType>

```

Referenced by
CT_searchcluster

The attributes of this complex type specify the type of search and indexing that **MUST** run on all nodes in the row.

Attributes

Name	Description
id	Specifies the row number of this row. The id attribute of the first row MUST be 0, and for each additional row, the id attribute MUST be incremented by 1.
index	Specifies the type of indexing component on this row. The value MUST be of type ST_index.
search	A Boolean value that MUST be true if the query matching component runs on all nodes in this row.

2.4 Simple Types

2.4.1 ST_crawler-role

This simple type specifies whether the Web crawler is distributed between several nodes, or it is contained within one node.

```

<xs:simpleType name="ST_crawler-role">
  <xs:restriction base="xs:string">
    <xs:enumeration value="single"></xs:enumeration>
    <xs:enumeration value="multi"></xs:enumeration>
  </xs:restriction>
</xs:simpleType>

```

The value **MUST** be "single" if the Web crawler is contained within one node, or it **MUST** be "multi" if it is distributed between several nodes.

Referenced by
CT_crawler

2.4.2 ST_index

This simple type specifies the type of indexing component on an indexer row.

```

<xs:simpleType name="ST_index">
  <xs:restriction base="xs:string">
    <xs:enumeration value="primary"></xs:enumeration>
    <xs:enumeration value="secondary"></xs:enumeration>
  </xs:restriction>
</xs:simpleType>

```

```
<xs:enumeration value="none"></xs:enumeration>
</xs:restriction>
</xs:simpleType>
```

Referenced by
CT_row

The **ST_index** simple type MUST be one of the values that is described in the following table.

Value	Description
primary	The indexing nodes on this row are main indexers.
secondary	The indexing nodes on this row are backup indexers.
none	There is no indexing on nodes in this row.

3 Structure Examples

3.1 Single Node

The following example illustrates a Component Distribution Configuration file that represents a search service application running on only one node.

```
<?xml version="1.0" encoding="utf-8" ?>
<deployment version="14" modifiedBy="system" modifiedTime=""
  comment=""
  xmlns="http://www.microsoft.com/enterprisesearch"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation=
    "http://www.microsoft.com/enterprisesearch deployment.xsd">

  <instanceid>FAST-tfcsyw</instanceid>

  <connector-databaseconnectionstring>
    <![CDATA[jdbc:sqlserver://localhost\sqlexpress:1433;
      DatabaseName=TestDatabase]]>
  </connector-databaseconnectionstring>

  <host name="mymachine.domain.com">
    <admin />
    <document-processor />
    <content-distributor />
    <indexing-dispatcher />
    <crawler role="single" />
    <webanalyzer server="true" max-targets="4"
      link-processing="true" lookup-db="true" />
    <searchengine row="0" column="0" />
    <query />
  </host>

  <searchcluster>
    <row id="0" index="primary" search="true" />
  </searchcluster>
</deployment>
```

3.2 Multiple Nodes

The following example illustrates a Component Distribution Configuration file that represents a search service application over two nodes. The first node contains only the administration component. The second node contains all other services.

```
<?xml version="1.0" encoding="utf-8" ?>
<deployment version="14" modifiedBy="system" modifiedTime="" comment=""
  xmlns="http://www.microsoft.com/enterprisesearch"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation=
    "http://www.microsoft.com/enterprisesearch deployment.xsd">

  <instanceid>FAST-tfcsyw</instanceid>

  <connector-databaseconnectionstring>
```



```
<![CDATA[jdbc:sqlserver://mymachine.domain.com\sqlexpress:1433;
    DatabaseName=TestDatabase]]>
</connector-databaseconnectionstring>

<host name="mymachine.domain.com">
  <admin />
</host>

<host name="myothermachine.domain.com">
  <document-processor />
  <content-distributor />
  <indexing-dispatcher />
  <crawler role="single" />
  <webanalyzer server="true" max-targets="4" link-processing="true"
    lookup-db="true" />
  <searchengine row="0" column="0" />
  <query />
</host>

<searchcluster>
  <row id="0" index="primary" search="true" />
</searchcluster>

</deployment>
```

4 Security Considerations

None.

5 Appendix A: Complete XML Schema

The following **XML schema** specifies the Component Distribution Configuration file format.

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema targetNamespace="http://www.microsoft.com/enterprisesearch"
  elementFormDefault="qualified"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns="http://www.microsoft.com/enterprisesearch">

  <!-- ***** Global elements ***** -->

  <xs:element name="deployment" type="CT_deployment" />

  <!-- ***** Simple types ***** -->

  <xs:simpleType name="ST_crawler-role">
    <xs:restriction base="xs:string">
      <xs:enumeration value="single"></xs:enumeration>
      <xs:enumeration value="multi"></xs:enumeration>
    </xs:restriction>
  </xs:simpleType>

  <xs:simpleType name="ST_index">
    <xs:restriction base="xs:string">
      <xs:enumeration value="primary"></xs:enumeration>
      <xs:enumeration value="secondary"></xs:enumeration>
      <xs:enumeration value="none"></xs:enumeration>
    </xs:restriction>
  </xs:simpleType>

  <!-- ***** Complex types ***** -->

  <xs:complexType name="CT_deployment">
    <xs:sequence minOccurs="1" maxOccurs="unbounded">
      <xs:element name="instanceid" minOccurs="1" maxOccurs="1" type="xs:string" />
      <xs:element name="connector-databaseconnectionstring" minOccurs="1"
        maxOccurs="1" type="xs:string" />
      <xs:element name="host" type="CT_host" minOccurs="1" maxOccurs="unbounded" />
      <xs:element name="searchcluster" type="CT_searchcluster" minOccurs="1"
        maxOccurs="1" />
    </xs:sequence>
    <xs:attribute name="version" use="optional" type="xs:int" />
    <xs:attribute name="modifiedBy" use="optional" type="xs:string" />
    <xs:attribute name="modifiedTime" use="optional" type="xs:dateTime" />
    <xs:attribute name="comment" use="optional" type="xs:string" />
  </xs:complexType>

  <xs:complexType name="CT_host">
    <xs:all>
      <xs:element name="admin" type="CT_admin" minOccurs="0" maxOccurs="1" />
      <xs:element name="content-distributor" type="CT_content-distributor"
        minOccurs="0" maxOccurs="1" />
      <xs:element name="indexing-dispatcher" type="CT_indexing-dispatcher"
        minOccurs="0" maxOccurs="1" />
      <xs:element name="document-processor" type="CT_document-processor"
        minOccurs="0" maxOccurs="1" />
    </xs:all>
  </xs:complexType>

```

```

    <xs:element name="crawler" type="CT_crawler" minOccurs="0" maxOccurs="1" />
    <xs:element name="webanalyzer" type="CT_webanalyzer" minOccurs="0"
      maxOccurs="1" />
    <xs:element name="searchengine" type="CT_searchengine" minOccurs="0"
      maxOccurs="1" />
    <xs:element name="query" type="CT_query" minOccurs="0" maxOccurs="1" />
    <xs:element name="custom" type="CT_custom" minOccurs="0" maxOccurs="1" />
  </xs:all>
  <xs:attribute name="name" type="xs:string" use="required" />
  <xs:attribute name="useadminservicehttps" type="xs:boolean" use="optional"
default="false" />
</xs:complexType>

<xs:complexType name="CT_admin" />

<xs:complexType name="CT_content-distributor">
  <xs:attribute name="id" use="optional" type="xs:int" default="1" />
</xs:complexType>

<xs:complexType name="CT_indexing-dispatcher" />

<xs:complexType name="CT_document-processor">
  <xs:attribute name="processes" use="optional" type="xs:int" default="1" />
</xs:complexType>

<xs:complexType name="CT_crawler">
  <xs:attribute name="role" type="ST_crawler-role" />
  <xs:attribute name="multi-node-scheduler" use="optional" type="xs:boolean"
default="false"/>
  <xs:attribute name="node-scheduler" use="optional" type="xs:boolean"
default="false"/>
  <xs:attribute name="duplicate-server" use="optional" type="xs:boolean"
default="false"/>
  <xs:attribute name="duplicate-server-replica-host" use="optional"
type="xs:string"/>
  <xs:attribute name="duplicate-server-replica" use="optional" type="xs:boolean"
default="false"/>
</xs:complexType>

<xs:complexType name="CT_webanalyzer">
  <xs:attribute name="server" use="required" type="xs:boolean" />
  <xs:attribute name="lookup-db" use="required" type="xs:boolean" />
  <xs:attribute name="link-processing" use="required" type="xs:boolean" />
  <xs:attribute name="max-targets" use="optional" type="xs:int" />
  <xs:attribute name="redundant-lookup" use="optional" type="xs:boolean" />
</xs:complexType>

<xs:complexType name="CT_searchengine">
  <xs:attribute name="row" type="xs:int" use="required" />
  <xs:attribute name="column" type="xs:int" use="required" />
</xs:complexType>

<xs:complexType name="CT_query" />

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

<xs:complexType name="CT_searchcluster">

```

```
<xs:sequence>
  <xs:element name="row" type="CT_row" minOccurs="1" maxOccurs="unbounded" />
</xs:sequence>
</xs:complexType>

<xs:complexType name="CT_row">
  <xs:attribute name="id" type="xs:int" use="required" />
  <xs:attribute name="index" type="ST_index" use="required" />
  <xs:attribute name="search" type="xs:boolean" use="required" />
</xs:complexType>

</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.

[<1> Section 2.3.1:](#) The connection string should be to a SQL Server database.

7 Change Tracking

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

8 Index

A

[Applicability](#) 6

C

[Change tracking](#) 23

[Complete XML schema](#) 19

Complex types

[CT_admin](#) 9

[CT_content-distributor](#) 9

[CT_crawler](#) 10

[CT_custom](#) 13

[CT_deployment](#) 7

[CT_document-processor](#) 10

[CT_host](#) 8

[CT_indexing-dispatcher](#) 10

[CT_query](#) 13

[CT_row](#) 13

[CT_searchcluster](#) 13

[CT_searchengine](#) 12

[CT_webanalyzer](#) 11

[CT_admin complex type](#) 9

[CT_content-distributor complex type](#) 9

[CT_crawler complex type](#) 10

[CT_custom complex type](#) 13

[CT_deployment complex type](#) 7

[CT_document-processor complex type](#) 10

[CT_host complex type](#) 8

[CT_indexing-dispatcher complex type](#) 10

[CT_query complex type](#) 13

[CT_row complex type](#) 13

[CT_searchcluster complex type](#) 13

[CT_searchengine complex type](#) 12

[CT_webanalyzer complex type](#) 11

D

[deployment global element](#) 7

Details

[CT_admin complex type](#) 9

[CT_content-distributor complex type](#) 9

[CT_crawler complex type](#) 10

[CT_custom complex type](#) 13

[CT_deployment complex type](#) 7

[CT_document-processor complex type](#) 10

[CT_host complex type](#) 8

[CT_indexing-dispatcher complex type](#) 10

[CT_query complex type](#) 13

[CT_row complex type](#) 13

[CT_searchcluster complex type](#) 13

[CT_searchengine complex type](#) 12

[CT_webanalyzer complex type](#) 11

[deployment global element](#) 7

[global attributes structure](#) 7

[ST_crawler-role simple type](#) 14

[ST_index simple type](#) 14

E

Examples

[Multiple Nodes](#) 16

[Single Node](#) 16

F

[Fields - vendor-extensible](#) 6

G

[global attributes structure](#) 7

Global elements

[deployment](#) 7

[Glossary](#) 4

I

[Implementer - security considerations](#) 18

[Informative references](#) 5

[Introduction](#) 4

L

[Localization](#) 6

M

[Multiple Nodes example](#) 16

N

[Normative references](#) 5

O

[Overview \(synopsis\)](#) 5

P

[Product behavior](#) 22

R

[References](#) 4

[informative](#) 5

[normative](#) 5

[Relationship to protocols and other structures](#) 5

S

Schema

[complete XML](#) 19

[Security - implementer considerations](#) 18

Simple types

[ST_crawler-role](#) 14

[ST_index](#) 14

[Single Node example](#) 16

[ST_crawler-role simple type](#) 14

[ST_index simple type](#) 14

Structures
[global attributes](#) 7

T

[Tracking changes](#) 23

V

[Vendor-extensible fields](#) 6

[Versioning](#) 6

X

XML schema
[complete](#) 19