[MS-APPMWSP]:
SharePoint App Management Web Service Protocol

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Revision Summary

Date	Revision History	Revision Class	Comments
01/20/2012	0.1	New	Released new document.
04/11/2012	0.1	No change	No changes to the meaning, language, or formatting of the technical content.
07/16/2012	0.1	No change	No changes to the meaning, language, or formatting of the technical content.
09/12/2012	0.1	No change	No changes to the meaning, language, or formatting of the technical content.
10/08/2012	1.0	Major	Significantly changed the technical content.
02/11/2013	1.0	No change	No changes to the meaning, language, or formatting of the technical content.
07/30/2013	1.0	No change	No changes to the meaning, language, or formatting of the technical content.
11/18/2013	1.0	No change	No changes to the meaning, language, or formatting of the technical content.
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07/31/2014	1.0	No change	No changes to the meaning, language, or formatting of the technical content.

Table of Contents

1 Introduction

The SharePoint App Management Web Service Protocol enables protocol clients to retrieve connection information for a set of databases.

Sections 1.8, 2, and 3 of this specification are normative and can contain the terms MAY, SHOULD, MUST, MUST NOT, and SHOULD NOT as defined in [RFC2119]. Sections 1.5 and 1.9 are also normative but does not contain those terms. All other sections and examples in this specification are informative.

1.1 Glossary

The following terms are defined in [MS-GLOS]:

GUID
Hypertext Transfer Protocol (HTTP)
Hypertext Transfer Protocol over Secure Sockets Layer (HTTPS)
SOAP
SOAP action
SOAP body
SOAP fault
Unicode
XML namespace

The following terms are defined in [MS-OFCGLOS]:

connection string
data range
endpoint
Uniform Resource Identifier (URI)
Web Services Description Language (WSDL)
WSDL message
WSDL operation
XML namespace prefix
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 Specification documents do not include a publishing year because links are to the latest version of the 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.

[ISO/IEC9075-2:2008] ISO/IEC, "Information technology -- Database languages -- SQL -- Part 2: Foundation", (SQL/Foundation), http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=38640

[MS-SPSTWS] Microsoft Corporation, "SharePoint Security Token Service Web Service Protocol".

[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

[RFC2616] Fielding, R., Gettys, J., Mogul, J., et al., "Hypertext Transfer Protocol -- HTTP/1.1", RFC 2616, June 1999, http://www.ietf.org/rfc/rfc2616.txt

[SOAP1.1] Box, D., Ehnebuske, D., Kakivaya, G., et al., "Simple Object Access Protocol (SOAP) 1.1", May 2000, http://www.w3.org/TR/2000/NOTE-SOAP-20000508/

[SOAP1.2/1] Gudgin, M., Hadley, M., Mendelsohn, N., Moreau, J., and Nielsen, H.F., "SOAP Version 1.2 Part 1: Messaging Framework", W3C Recommendation, June 2003, http://www.w3.org/TR/2003/REC-soap12-part1-20030624

[WSDL] Christensen, E., Curbera, F., Meredith, G., and Weerawarana, S., "Web Services Description Language (WSDL) 1.1", W3C Note, March 2001, http://www.w3.org/TR/2001/NOTE-wsdl-20010315

[XMLNS] Bray, T., Hollander, D., Layman, A., et al., Eds., "Namespaces in XML 1.0 (Third Edition)", W3C Recommendation, December 2009, http://www.w3.org/TR/2009/REC-xml-names-20091208/

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

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

1.2.2   Informative References

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

[MS-OFCGLOS] Microsoft Corporation, "Microsoft Office Master Glossary".

[MS-SPTWS] Microsoft Corporation, "Service Platform Topology Web Service Protocol".

[RFC2818] Rescorla, E., "HTTP Over TLS", RFC 2818, May 2000, http://www.ietf.org/rfc/rfc2818.txt

[SOAP1.2/2] Gudgin, M., Hadley, M., Mendelsohn, N., Moreau, J., and Nielsen, H.F., "SOAP Version 1.2 Part 2: Adjuncts", W3C Recommendation, June 2003, http://www.w3.org/TR/2003/REC-soap12-part2-20030624

1.3   Overview

This protocol enables a protocol client to retrieve the mapping of a set of **data ranges** to a set of databases. It allows the protocol client to retrieve a set of data ranges that the protocol server maintains and the corresponding database **connection strings**, as well as a flag for each database indicating whether the database is cloud-based.

1.4   Relationship to Other Protocols

This protocol uses the **SOAP** message protocol for formatting request and response messages, as described in [SOAP1.1], [SOAP1.2/1] and [SOAP1.2/2]. It transmits those messages by using

HTTP, as described in [RFC2616], or **Hypertext Transfer Protocol over Secure Sockets Layer (HTTPS)**, as described in [RFC2818].
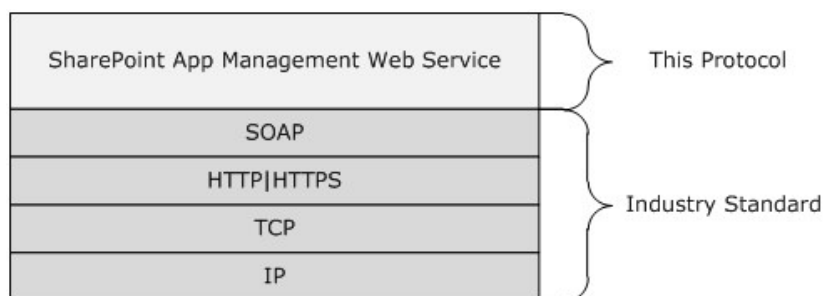

Figure 1: This protocol in relation to other protocols

1.5   Prerequisites/Preconditions

This protocol operates against a protocol server that exposes one or more **endpoint (4) Uniform Resource Identifiers (URIs)** that are known by protocol clients. The endpoint (4) URI of the protocol server and the transport that is used by the protocol server are either known by the protocol client or obtained by using the discovery mechanism that is described in [MS-SPTWS].

The protocol client obtains the requisite **ApplicationClassId** and **ApplicationVersion** values and the endpoint (4) URI of the protocol server that provides the discovery mechanism, as described in [MS-SPTWS], by means that are independent of either protocol.

This protocol requires the protocol client to have appropriate permission to call the methods on the protocol server.

The protocol client implements the token-based security mechanisms that are required by the protocol server and related security protocols, as described in [MS-SPSTWS].

1.6   Applicability Statement

This protocol is intended for use by protocol clients and protocol servers that are connected by high-bandwidth, low-latency network connections.

1.7   Versioning and Capability Negotiation

This document covers versioning issues in the following areas:

Supported Transports: This protocol can be implemented by using transports that support sending SOAP messages, as described in section 2.1.

Protocol Versions: This protocol is not versioned.

Capability Negotiation: This protocol does not support version negotiation.

1.8   Vendor-Extensible Fields

None.

1.9   Standards Assignments

None.

2 Messages

In the following sections, the schema definition might be less restrictive than the processing rules imposed by the protocol. The WSDL in this specification matches the WSDL that shipped with the product and provides a base description of the schema. The text that introduces the WSDL specifies additional restrictions that reflect actual Microsoft product behavior. For example, the schema definition might allow for an element to be empty, null, or not present but the behavior of the protocol as specified restricts the same elements to being non-empty, not null and present.

2.1 Transport

Protocol servers MUST support SOAP over HTTP or HTTPS.

All protocol messages MUST be transported by using HTTP bindings at the transport level.

Protocol messages MUST be formatted as specified in [SOAP1.2/1] section 5. Protocol server faults MUST be returned by using either HTTP status codes, as specified in [RFC2616] section 10, or **SOAP faults**, as specified in [SOAP1.2/1] section 5.4.

If the HTTPS transport is used, a server certificate MUST be deployed.

This protocol MAY transmit an additional SOAP header, the **ServiceContext** header, as specified in [MS-SPSTWS].

This protocol does not define any means for activating a protocol server or protocol client. The protocol server MUST be configured and begin listening in an implementation-specific way. In addition, the protocol client MUST know the format and transport that is used by the protocol server, for example, the SOAP format over an HTTP transport.

2.2 Common Message Syntax

This section contains common definitions that are used by this protocol. The syntax of the definitions uses **XML schema**, as specified in [XMLSCHEMA1] and [XMLSCHEMA2], and **WSDL**, as specified in [WSDL].

2.2.1 Namespaces

This specification defines and references various **XML namespaces** using the mechanisms specified in [XMLNS]. Although this specification associates a specific **XML namespace prefix** for each XML namespace that is used, the choice of any particular XML namespace prefix is implementation-specific and not significant for interoperability.

Prefix	Namespace URI	Reference
soap	http://schemas.xmlsoap.org/wsdl/soap/	[SOAP1.1]
tns	http://schemas.microsoft.com/2003/10/Serialization/	
tns1	http://schemas.microsoft.com/sharepoint/soap/	
tns2	http://schemas.microsoft.com/sharepoint/soap/Imports	
wsaw	http://www.w3.org/2006/05/addressing/wsdl	
wsdl	http://schemas.xmlsoap.org/wsdl/	[WSDL]

Prefix	Namespace URI	Reference
xs	http://www.w3.org/2001/XMLSchema	[XMLSCHEMA1]
		[XMLSCHEMA2]

2.2.2 Messages

This specification does not define any common **WSDL message** definitions.

2.2.3 Elements

This specification does not define any common XML schema element definitions.

2.2.4 Complex Types

The following table summarizes the set of common XML schema complex type definitions defined by this specification. XML schema complex type definitions that are specific to a particular operation are described with the operation.

Complex type	Description
AppManagementServiceFault	The **AppManagementServiceFault** complex type contains information about a protocol-server-side error. This complex type MUST be formatted as a SOAP fault, as specified in [SOAP1.2/1] section 5.4.

2.2.4.1 AppManagementServiceFault

Namespace: http://schemas.microsoft.com/sharepoint/soap/

The **AppManagementServiceFault** complex type contains information about a protocol-server-side error. This complex type MUST be formatted as a SOAP fault, as specified in [SOAP1.2/1] section 5.4.

```
<xs:complexType name="AppManagementServiceFault" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:sequence>
    <xs:element minOccurs="0" name="Message" nillable="true" type="xs:string"/>
  </xs:sequence>
</xs:complexType>
```

Message: Specifies the message that describes the protocol-server-side error.

2.2.5 Simple Types

The following table summarizes the set of common XML schema simple type definitions defined by this specification. XML schema simple type definitions that are specific to a particular operation are described with the operation.

Simple type	Description
char	The **char** simple type is a **Unicode** character value.
duration	The **duration** simple type represents a duration of time.

Simple type	Description
guid	The **guid** simple type is a **GUID**.

2.2.5.1   char

Namespace: http://schemas.microsoft.com/2003/10/Serialization/

The **char** simple type is a Unicode character value.

```
<xs:simpleType name="char" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:restriction base="xs:int"/>
</xs:simpleType>
```

2.2.5.2   duration

Namespace: http://schemas.microsoft.com/2003/10/Serialization/

The **duration** simple type represents a duration of time.

```
<xs:simpleType name="duration" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:restriction base="xs:duration">
    <xs:pattern value="\-?P(\d*D)?(T(\d*H)?(\d*M)?(\d*(\.\d*)?S)?)?"/>
    <xs:minInclusive value="-P10675199DT2H48M5.4775808S"/>
    <xs:maxInclusive value="P10675199DT2H48M5.4775807S"/>
  </xs:restriction>
</xs:simpleType>
```

2.2.5.3   guid

Namespace: http://schemas.microsoft.com/2003/10/Serialization/

The **guid** simple type is a GUID.

```
<xs:simpleType name="guid" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:restriction base="xs:string">
    <xs:pattern value="[\da-fA-F]{8}-[\da-fA-F]{4}-[\da-fA-F]{4}-[\da-fA-F]{4}-[\da-fA-
F]{12}"/>
  </xs:restriction>
</xs:simpleType>
```

2.2.6   Attributes

This specification does not define any common XML schema attribute definitions.

2.2.7   Groups

This specification does not define any common XML schema group definitions.

2.2.8   Attribute Groups

This specification does not define any common XML schema attribute group definitions.

3 Protocol Details

In the following sections, the schema definition might differ from the processing rules imposed by the protocol. The WSDL in this specification matches the WSDL that shipped with the product and provides a base description of the schema. The text that introduces the WSDL might specify differences that reflect actual Microsoft product behavior. For example, the schema definition might allow for an element to be **empty**, **null**, or **not present** but the behavior of the protocol as specified restricts the same elements to being **non-empty**, **not null**, and **present**.

The client side of this protocol is simply a pass-through. That is, no additional timers or other state is required on the client side of this protocol. Calls made by the higher-layer protocol or application are passed directly to the transport, and the results returned by the transport are passed directly back to the higher-layer protocol or application.

Except where specified, protocol clients SHOULD interpret HTTP status codes returned by the protocol server as specified in [RFC2616], section 10, Status Code Definitions.

This protocol enables protocol servers to notify protocol clients of application-level faults by using SOAP faults. Except where specified, these SOAP faults are not significant for interoperability, and protocol clients can interpret them in an implementation-specific manner.

3.1 IAppManagementServiceApplication Server Details

3.1.1 Abstract Data Model

This section describes a conceptual model of possible data organization that an implementation maintains to participate in this protocol. The described organization is provided to facilitate the explanation of how the protocol behaves. This document does not mandate that implementations adhere to this model as long as their external behavior is consistent with that described in this document.

The protocol server maintains a set of data ranges such that there is no overlap between any two data ranges. Data range 1 with start point s1 and end point e1 is defined as not having overlap with the data range 2 with start point s2 and end point e2, if e2 ≤s1 or s2 ≥ e1. The comparison operators ≤ and ≥ have the same meaning as the binary value comparison defined in [ISO/IEC9075-2:2008]. Also, the protocol server maintains a mapping between these data ranges and a set of databases.

3.1.2 Timers

None.

3.1.3 Initialization

None.

3.1.4 Message Processing Events and Sequencing Rules

The following table summarizes the list of operations as defined by this specification.

Operation	Description
GetAppManagementDatabaseMap	This operation retrieves the mapping of data ranges to a set of databases.

3.1.4.1 GetAppManagementDatabaseMap

This operation retrieves the mapping of data ranges to a set of databases.

The following is the WSDL port type specification of the **GetAppManagementDatabaseMap WSDL operation**.

```
<wsdl:operation name="GetAppManagementDatabaseMap"
xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
  <wsdl:input
wsaw:Action="http://schemas.microsoft.com/sharepoint/soap/IAppManagementServiceApplication/Ge
tAppManagementDatabaseMap"
message="tns1:IAppManagementServiceApplication_GetAppManagementDatabaseMap_InputMessage"
xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"/>
  <wsdl:output
wsaw:Action="http://schemas.microsoft.com/sharepoint/soap/IAppManagementServiceApplication/Ge
tAppManagementDatabaseMapResponse"
message="tns1:IAppManagementServiceApplication_GetAppManagementDatabaseMap_OutputMessage"
xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"/>
  <wsdl:fault
wsaw:Action="http://schemas.microsoft.com/sharepoint/soap/IAppManagementServiceApplication/Ge
tAppManagementDatabaseMapAppManagementServiceFaultFault"
name="AppManagementServiceFaultFault"
message="tns1:IAppManagementServiceApplication_GetAppManagementDatabaseMap_AppManagementServi
ceFaultFault_FaultMessage" xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"/>
</wsdl:operation>
```

The protocol client sends an
IAppManagementServiceApplication_GetAppManagementDatabaseMap_InputMessage
(section 3.1.4.1.1.1) request WSDL message and the protocol server MUST respond with an
IAppManagementServiceApplication_GetAppManagementDatabaseMap_OutputMessage
(section 3.1.4.1.1.2) response WSDL message, as follows:

1. The protocol server MUST respond with a SOAP fault containing the complex type
   AppManagementServiceFault if any data range violates the implementation-specific integrity
   constraints.

2. Otherwise, the protocol server MUST return the mapping of the data range to the databases.

3.1.4.1.1 Messages

The following table summarizes the set of WSDL message definitions that are specific to this
operation.

Message	Description
IAppManagementServiceApplication_GetAppManagementDatabaseMap_InputMessage	The request WSDL message for the **GetAppManagementDatabaseMap** WSDL operation.
IAppManagementServiceApplication_GetAppManagementDatabaseMap_OutputMessage	The response WSDL message for the **GetAppManagementDatabaseMap** WSDL operation.

3.1.4.1.1.1 IAppManagementServiceApplication_GetAppManagementDatabaseMap_InputMessage

The request WSDL message for the **GetAppManagementDatabaseMap** WSDL operation.

The **SOAP action** value is:

```
http://schemas.microsoft.com/sharepoint/soap/IAppManagementServiceApplication/GetAppManagementDatabaseMap
```

The **SOAP body** contains the **GetAppManagementDatabaseMap** element.

3.1.4.1.1.2 IAppManagementServiceApplication_GetAppManagementDatabaseMap_OutputMessage

The response WSDL message for the **GetAppManagementDatabaseMap** WSDL operation.

The SOAP body contains the **GetAppManagementDatabaseMapResponse** element.

3.1.4.1.2 Elements

The following table summarizes the XML schema element definitions that are specific to this operation.

Element	Description
GetAppManagementDatabaseMap	The input data for the **GetAppManagementDatabaseMap** WSDL operation.
GetAppManagementDatabaseMapResponse	The result data for the **GetAppManagementDatabaseMap** WSDL operation.

3.1.4.1.2.1 GetAppManagementDatabaseMap

The **GetAppManagementDatabaseMap** element specifies the input data for the **GetAppManagementDatabaseMap** WSDL operation.

```
<xs:element name="GetAppManagementDatabaseMap" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:complexType>
    <xs:sequence/>
  </xs:complexType>
</xs:element>
```

3.1.4.1.2.2 GetAppManagementDatabaseMapResponse

The **GetAppManagementDatabaseMapResponse** element specifies the result data for the **GetAppManagementDatabaseMap** WSDL operation.

```
<xs:element name="GetAppManagementDatabaseMapResponse"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:complexType>
```

```
    <xs:sequence>
      <xs:element minOccurs="0" name="GetAppManagementDatabaseMapResult" nillable="true"
  type="tns1:ArrayOfAppMngMapEntryData"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

GetAppManagementDatabaseMapResult: The mapping of the data ranges to the databases.

3.1.4.1.3   Complex Types

The following table summarizes the XML schema complex type definitions that are specific to this operation.

Complex type	Description
AppMngMapEntryData	An entry that represents the mapping from a data range to a database.
ArrayOfAppMngMapEntryData	The mapping between a set of data ranges to a set of databases.

3.1.4.1.3.1   ArrayOfAppMngMapEntryData

Namespace: http://schemas.microsoft.com/sharepoint/soap/

The mapping from a set of data ranges to a set of databases.

```
<xs:complexType name="ArrayOfAppMngMapEntryData" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:sequence>
    <xs:element minOccurs="0" maxOccurs="unbounded" name="AppMngMapEntryData" nillable="true"
type="tns1:AppMngMapEntryData"/>
  </xs:sequence>
</xs:complexType>
```

AppMngMapEntryData: An entry that represents the mapping from a data range to a database.

3.1.4.1.3.2   AppMngMapEntryData

Namespace: http://schemas.microsoft.com/sharepoint/soap/

The mapping from a data range to a database.

```
<xs:complexType name="AppMngMapEntryData" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:sequence>
    <xs:element minOccurs="0" name="CompositeKeyEnd" nillable="true" type="xs:base64Binary"/>
    <xs:element minOccurs="0" name="CompositeKeyStart" nillable="true"
type="xs:base64Binary"/>
    <xs:element minOccurs="0" name="ConnectionString" nillable="true" type="xs:string"/>
    <xs:element minOccurs="0" name="IsSqlAzure" type="xs:boolean"/>
  </xs:sequence>
</xs:complexType>
```

CompositeKeyEnd: The end point of a data range.

CompositeKeyStart: The start point of a data range.

ConnectionString: The connection string to the database that the data range is mapped to.

IsSqlAzure: A flag that indicates whether the database is a cloud-based database<1>.

3.1.4.1.4 Simple Types

None.

3.1.4.1.5 Attributes

None.

3.1.4.1.6 Groups

None.

3.1.4.1.7 Attribute Groups

None.

3.1.5 Timer Events

None.

3.1.6 Other Local Events

None.

4   Protocol Examples

To retrieve the mapping of the set of data ranges to the set of databases maintained by a protocol server, a protocol client constructs the following message:

```
<s:Envelope xmlns:s="http://schemas.xmlsoap.org/soap/envelope/">

 <s:Body>

 <GetAppManagementDatabaseMap xmlns="http://schemas.microsoft.com/sharepoint/soap/"/>

 </s:Body>

</s:Envelope>
```

The protocol server then responds with the following:

```
<s:Envelope xmlns:s="http://schemas.xmlsoap.org/soap/envelope/">

 <s:Body>

 <GetAppManagementDatabaseMapResponse
xmlns="http://schemas.microsoft.com/sharepoint/soap/">

 <GetAppManagementDatabaseMapResult xmlns:i="http://www.w3.org/2001/XMLSchema-
instance">

 <AppMngMapEntryData>

 <CompositeKeyEnd i:nil="true"/>

 <CompositeKeyStart>AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA</CompositeKeyStart>

 <ConnectionString>Data Source=ContosoDBServer;Initial
Catalog=appmanagement;Integrated Security=True;Enlist=False;Pooling=True;Max Pool
Size=100;Connect Timeout=15</ConnectionString>

 <IsSqlAzure>false</IsSqlAzure>

 </AppMngMapEntryData>

 </GetAppManagementDatabaseMapResult>

 </GetAppManagementDatabaseMapResponse>

 </s:Body>

</s:Envelope>
```

5 Security

5.1 Security Considerations for Implementers

None.

5.2 Index of Security Parameters

None.

6   Appendix A: Full WSDL

For ease of implementation, the full WSDL is provided in this appendix.

```xml
<?xml version="1.0"?>
<wsdl:definitions xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:tns1="http://schemas.microsoft.com/sharepoint/soap/"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"
targetNamespace="http://schemas.microsoft.com/sharepoint/soap/"
xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
  <wsdl:types>
    <xs:schema xmlns:tns2="http://schemas.microsoft.com/sharepoint/soap/Imports"
targetNamespace="http://schemas.microsoft.com/sharepoint/soap/Imports">
      <xs:import namespace="http://schemas.microsoft.com/2003/10/Serialization/"/>
      <xs:import namespace="http://schemas.microsoft.com/sharepoint/soap/"/>
    </xs:schema>
  </wsdl:types>
  <wsdl:portType name="IAppManagementServiceApplication">
    <wsdl:operation name="GetAppManagementDatabaseMap">
      <wsdl:input
wsaw:Action="http://schemas.microsoft.com/sharepoint/soap/IAppManagementServiceApplication/Ge
tAppManagementDatabaseMap"
message="tns1:IAppManagementServiceApplication_GetAppManagementDatabaseMap_InputMessage"/>
      <wsdl:output
wsaw:Action="http://schemas.microsoft.com/sharepoint/soap/IAppManagementServiceApplication/Ge
tAppManagementDatabaseMapResponse"
message="tns1:IAppManagementServiceApplication_GetAppManagementDatabaseMap_OutputMessage"/>
      <wsdl:fault
wsaw:Action="http://schemas.microsoft.com/sharepoint/soap/IAppManagementServiceApplication/Ge
tAppManagementDatabaseMapAppManagementServiceFaultFault"
name="AppManagementServiceFaultFault"
message="tns1:IAppManagementServiceApplication_GetAppManagementDatabaseMap_AppManagementServi
ceFaultFault_FaultMessage"/>
    </wsdl:operation>
  </wsdl:portType>
  <wsdl:binding name="DefaultBinding_IAppManagementServiceApplication"
type="tns1:IAppManagementServiceApplication">
    <soap:binding transport="http://schemas.xmlsoap.org/soap/http"/>
    <wsdl:operation name="GetAppManagementDatabaseMap">
      <soap:operation
soapAction="http://schemas.microsoft.com/sharepoint/soap/IAppManagementServiceApplication/Get
AppManagementDatabaseMap" style="document"/>
      <wsdl:input>
        <soap:body use="literal"/>
      </wsdl:input>
      <wsdl:output>
        <soap:body use="literal"/>
      </wsdl:output>
      <wsdl:fault name="AppManagementServiceFaultFault">
        <soap:fault use="literal" name="AppManagementServiceFaultFault" namespace=""/>
      </wsdl:fault>
    </wsdl:operation>
  </wsdl:binding>
  <wsdl:message
name="IAppManagementServiceApplication_GetAppManagementDatabaseMap_AppManagementServiceFaultF
ault_FaultMessage">
    <wsdl:part name="detail" element="tns1:AppManagementServiceFault"/>
  </wsdl:message>
```

```
   <wsdl:message
name="IAppManagementServiceApplication_GetAppManagementDatabaseMap_InputMessage">
     <wsdl:part name="parameters" element="tns1:GetAppManagementDatabaseMap"/>
   </wsdl:message>
   <wsdl:message
name="IAppManagementServiceApplication_GetAppManagementDatabaseMap_OutputMessage">
     <wsdl:part name="parameters" element="tns1:GetAppManagementDatabaseMapResponse"/>
   </wsdl:message>
</wsdl:definitions>
```

7 Appendix B: Full XML Schema

Schema name	Prefix	Section
http://schemas.microsoft.com/2003/10/Serialization/	tns	7.1
http://schemas.microsoft.com/sharepoint/soap/	tns1	7.2

For ease of implementation, the following sections provide the full XML schema for this protocol.

7.1 http://schemas.microsoft.com/2003/10/Serialization/ Schema

```
<?xml version="1.0"?>
<xs:schema xmlns:tns="http://schemas.microsoft.com/2003/10/Serialization/"
attributeFormDefault="qualified" elementFormDefault="qualified"
targetNamespace="http://schemas.microsoft.com/2003/10/Serialization/"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:element name="anyType" nillable="true" type="xs:anyType"/>
  <xs:element name="anyURI" nillable="true" type="xs:anyURI"/>
  <xs:element name="base64Binary" nillable="true" type="xs:base64Binary"/>
  <xs:element name="boolean" nillable="true" type="xs:boolean"/>
  <xs:element name="byte" nillable="true" type="xs:byte"/>
  <xs:element name="dateTime" nillable="true" type="xs:dateTime"/>
  <xs:element name="decimal" nillable="true" type="xs:decimal"/>
  <xs:element name="double" nillable="true" type="xs:double"/>
  <xs:element name="float" nillable="true" type="xs:float"/>
  <xs:element name="int" nillable="true" type="xs:int"/>
  <xs:element name="long" nillable="true" type="xs:long"/>
  <xs:element name="QName" nillable="true" type="xs:QName"/>
  <xs:element name="short" nillable="true" type="xs:short"/>
  <xs:element name="string" nillable="true" type="xs:string"/>
  <xs:element name="unsignedByte" nillable="true" type="xs:unsignedByte"/>
  <xs:element name="unsignedInt" nillable="true" type="xs:unsignedInt"/>
  <xs:element name="unsignedLong" nillable="true" type="xs:unsignedLong"/>
  <xs:element name="unsignedShort" nillable="true" type="xs:unsignedShort"/>
  <xs:element name="char" nillable="true" type="tns:char"/>
  <xs:simpleType name="char">
    <xs:restriction base="xs:int"/>
  </xs:simpleType>
  <xs:element name="duration" nillable="true" type="tns:duration"/>
  <xs:simpleType name="duration">
    <xs:restriction base="xs:duration">
      <xs:pattern value="\-?P(\d*D)?(T(\d*H)?(\d*M)?(\d*(\.\d*)?S)?)?"/>
      <xs:minInclusive value="-P10675199DT2H48M5.4775808S"/>
      <xs:maxInclusive value="P10675199DT2H48M5.4775807S"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:element name="guid" nillable="true" type="tns:guid"/>
  <xs:simpleType name="guid">
    <xs:restriction base="xs:string">
      <xs:pattern value="[\da-fA-F]{8}-[\da-fA-F]{4}-[\da-fA-F]{4}-[\da-fA-F]{4}-[\da-fA-
F]{12}"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:attribute name="FactoryType" type="xs:QName"/>
  <xs:attribute name="Id" type="xs:ID"/>
  <xs:attribute name="Ref" type="xs:IDREF"/>
```

```
        </xs:schema>
```

7.2 http://schemas.microsoft.com/sharepoint/soap/ Schema

```xml
<?xml version="1.0"?>
<xs:schema xmlns:tns1="http://schemas.microsoft.com/sharepoint/soap/"
elementFormDefault="qualified"
targetNamespace="http://schemas.microsoft.com/sharepoint/soap/"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:element name="GetAppManagementDatabaseMap">
    <xs:complexType>
      <xs:sequence/>
    </xs:complexType>
  </xs:element>
  <xs:element name="GetAppManagementDatabaseMapResponse">
    <xs:complexType>
      <xs:sequence>
        <xs:element minOccurs="0" name="GetAppManagementDatabaseMapResult" nillable="true"
type="tns1:ArrayOfAppMngMapEntryData"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
  <xs:complexType name="ArrayOfAppMngMapEntryData">
    <xs:sequence>
      <xs:element minOccurs="0" maxOccurs="unbounded" name="AppMngMapEntryData"
nillable="true" type="tns1:AppMngMapEntryData"/>
    </xs:sequence>
  </xs:complexType>
  <xs:element name="ArrayOfAppMngMapEntryData" nillable="true"
type="tns1:ArrayOfAppMngMapEntryData"/>
  <xs:complexType name="AppMngMapEntryData">
    <xs:sequence>
      <xs:element minOccurs="0" name="CompositeKeyEnd" nillable="true"
type="xs:base64Binary"/>
      <xs:element minOccurs="0" name="CompositeKeyStart" nillable="true"
type="xs:base64Binary"/>
      <xs:element minOccurs="0" name="ConnectionString" nillable="true" type="xs:string"/>
      <xs:element minOccurs="0" name="IsSqlAzure" type="xs:boolean"/>
    </xs:sequence>
  </xs:complexType>
  <xs:element name="AppMngMapEntryData" nillable="true" type="tns1:AppMngMapEntryData"/>
  <xs:complexType name="AppManagementServiceFault">
    <xs:sequence>
      <xs:element minOccurs="0" name="Message" nillable="true" type="xs:string"/>
    </xs:sequence>
  </xs:complexType>
  <xs:element name="AppManagementServiceFault" nillable="true"
type="tns1:AppManagementServiceFault"/>
</xs:schema>
```

8   Appendix C: 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 SharePoint Foundation 2013

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 3.1.4.1.3.2: On SharePoint Foundation 2013, this flag indicates if the database is a SQL Azure database.

9 Change Tracking

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

10 Index