

Preliminary

[MS-OBPAS]: Office Broadcast Participant Service Specification

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Revision Summary

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Table of Contents

1.1	Glossary	5
1.2	References.....	6
1.2.1	Normative References.....	6
1.2.2	Informative References	7
1.3	Overview	7
1.4	Relationship to Other Protocols.....	7
1.5	Prerequisites/Preconditions	8
1.6	Applicability Statement.....	8
1.7	Versioning and Capability Negotiation.....	8
1.8	Vendor-Extensible Fields.....	8
1.9	Standards Assignments	8
2	Messages.....	9
2.1	Transport.....	9
2.2	Common Message Syntax	9
2.2.1	Namespaces	9
2.2.2	Messages	10
2.2.3	Elements.....	10
2.2.4	Complex Types	10
2.2.4.1	ArrayOfKeyValueOfstringstring	11
2.2.4.2	ArrayOfPPTBroadcastAnimationStepData	11
2.2.4.3	ArrayOfPPTBroadcastMediaStateData	12
2.2.4.4	EnumTypes	12
2.2.4.5	PPTBroadcastAnimationStepData	13
2.2.4.6	PPTBroadcastMediaStateData	13
2.2.4.7	PPTStateData.....	13
2.2.4.8	ServiceError.....	14
2.2.4.9	ServiceResult	15
2.2.4.10	WordStateData	15
2.2.5	Simple Types	15

2.2.5.1	BroadcastAppCapability	16
2.2.5.2	BroadcastDataKey	17
2.2.5.3	char.....	18
2.2.5.4	ClientActions.....	18
2.2.5.5	duration	19
2.2.5.6	guid.....	19
2.2.5.7	PPTMediaPlaybackState	19
2.2.5.8	PPTSlideShowState	20
2.2.5.9	ServiceErrorType	20
2.2.5.10	AppType	21
2.2.5.11	BroadcastState	21
2.2.6	Attributes.....	22
2.2.7	Groups.....	22
2.2.8	Attribute Groups	22
3	Protocol Details.....	23
3.1	Server Details	23
3.1.1	Abstract Data Model	24
3.1.2	Timers	24
3.1.3	Initialization	24
3.1.4	Message Processing Events and Sequencing Rules.....	24
3.1.4.1	BroadcastGetData.....	25
3.1.4.1.1	Messages	25
3.1.4.1.1.1	IParticipantService_BroadcastGetData_InputMessage	25
3.1.4.1.1.2	IParticipantService_BroadcastGetData_OutputMessage	25
3.1.4.1.2	Elements.....	26
3.1.4.1.2.1	BroadcastGetData.....	26
3.1.4.1.2.2	BroadcastGetDataResponse	26
3.1.4.1.3	Complex Types	27
3.1.4.1.3.1	BroadcastUser.....	27
3.1.4.1.4	Simple Types.....	28
3.1.4.1.5	Attributes.....	28
3.1.4.1.6	Groups.....	28
3.1.4.1.7	Attribute Groups	28
3.1.4.2	BroadcastJoinSession.....	28
3.1.4.2.1	Messages	28
3.1.4.2.1.1	IParticipantService_BroadcastJoinSession_InputMessage.....	29
3.1.4.2.1.2	IParticipantService_BroadcastJoinSession_OutputMessage.....	29
3.1.4.2.2	Elements.....	29
3.1.4.2.2.1	BroadcastJoinSession.....	29
3.1.4.2.2.2	BroadcastJoinSessionResponse.....	30
3.1.4.2.3	Complex Types	30
3.1.4.2.4	Simple Types.....	30
3.1.4.2.5	Attributes.....	30
3.1.4.2.6	Groups.....	30
3.1.4.2.7	Attribute Groups	30
3.1.4.3	BroadcastUnjoinSession.....	30
3.1.4.3.1	Messages	31
3.1.4.3.1.1	IParticipantService_BroadcastUnjoinSession_InputMessage	31
3.1.4.3.1.2	IParticipantService_BroadcastUnjoinSession_OutputMessage	31
3.1.4.3.2	Elements.....	31
3.1.4.3.2.1	BroadcastUnjoinSession	32
3.1.4.3.2.2	BroadcastUnjoinSessionResponse	32

3.1.4.3.3	Complex Types	32
3.1.4.3.4	Simple Types.....	32
3.1.4.3.5	Attributes.....	32
3.1.4.3.6	Groups.....	32
3.1.4.3.7	Attribute Groups	33
3.1.5	Timer Events	33
3.1.6	Other Local Events	33
4	Protocol Examples.....	34
4.1	Attendee Client Example.....	34
5	Security.....	37
5.1	Security Considerations for Implementers.....	37
5.2	Index of Security Parameters	37
6	Appendix A: Full WSDL	38
7	Appendix B: Full XML Schema	41
7.1	http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Interface.Data Schema.....	41
7.2	http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Pipe.Interface Schema	43
7.3	http://schemas.microsoft.com/2003/10/Serialization/Arrays Schema.....	44
7.4	http://schemas.microsoft.com/2003/10/Serialization/ Schema.....	45
7.5	http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastParticipantService/ Schema	46
8	Appendix C: Product Behavior	48
9	Change Tracking.....	49
10	Index	50

1 Introduction

This document specifies the Office Broadcast Participant Service Protocol, which enables a protocol client to retrieve information about the state of a document being shared on a protocol server.

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 RFC 2119. Sections 1.5 and 1.9 are also normative but cannot contain those terms. All other sections and examples in this specification are informative.

1.1 Glossary

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

Hypertext Transfer Protocol (HTTP)
Hypertext Transfer Protocol over Secure Sockets Layer (HTTPS)

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

broadcast session
presentation slide
Simple Object Access Protocol (SOAP)
slide show
SOAP action
SOAP body
SOAP fault
Uniform Resource Locator (URL)
Web Services Description Language (WSDL)
WSDL message
WSDL operation
XML namespace
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 Specifications documentation 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. Please check the archive site, <http://msdn2.microsoft.com/en-us/library/E4BD6494-06AD-4aed-9823-445E921C9624>, as an additional source.

[MS-OBPRS] Microsoft Corporation, "[Office Broadcast Presentation Service Specification](#)".

[MS-WOPI] Microsoft Corporation, "[Web Application Open Platform Interface 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>

[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>

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

[RFC4627] Crockford, D., "The application/json Media Type for Javascript Object Notation (JSON)", RFC 4627, July 2006, <http://www.ietf.org/rfc/rfc4627.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>

[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>

[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., 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/>

1.2.2 Informative References

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

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

1.3 Overview

When meeting remotely, it is useful to share the current 'view' of a document so others may follow along with the document sharer. To share this 'view' in real-time and allow attendees to follow along with the presenter as they move through the document, information regarding the presenter's current view of the document needs to be shared between the presenter and attendees.

This protocol enables a protocol client to send requests to a protocol server allowing the client to join an in-progress document **broadcast session**, and to retrieve data about the state of a broadcast session on the protocol server.

1.4 Relationship to Other Protocols

This protocol uses the **Simple Object Access Protocol (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 **Hypertext Transfer Protocol (HTTP)**, as described in [\[RFC2616\]](#), or **Hypertext Transfer Protocol over Secure Sockets Layer (HTTPS)**, as described in [\[RFC2818\]](#).

The following diagram shows the underlying messaging and transport stack used by the protocol:

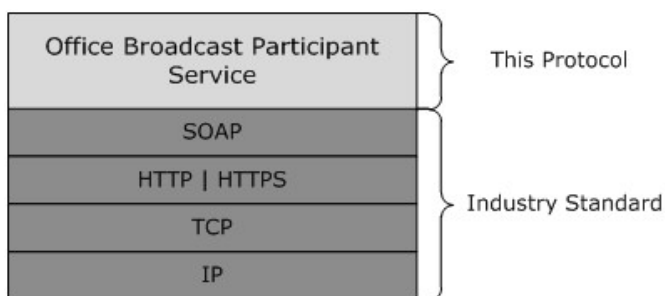


Figure 1: This protocol in relation to other protocols

This protocol works in conjunction with the Office Broadcast Presentation Service protocol as specified in [\[MS-OBPRS\]](#) and uses the Web Application Open Platform Interface protocol for file retrieval as specified in [\[MS-WOPI\]](#).

1.5 Prerequisites/Preconditions

This protocol operates between a protocol client and a protocol server that is identified by a URL that is known by protocol clients. The protocol server endpoint is formed by appending "/m/met/Participant.svc" to the **URL** of the site, for example:
`http://www.example.com/m/met/Participant.svc`

This protocol requires that a broadcast session be started and in progress prior to joining it. Broadcast sessions can be started using the Office Broadcast Presentation Service protocol as defined in [\[MS-OBPRS\]](#).

This protocol requires that files being used in broadcast sessions be identified and accessed as described in [\[MS-WOPI\]](#).

This protocol assumes that authentication has been performed by the underlying protocols.

1.6 Applicability Statement

This protocol is designed to join in-progress broadcast sessions on the protocol server and to retrieve broadcast session information on the protocol server.

1.7 Versioning and Capability Negotiation

This document covers versioning issues in the following areas:

- **Supported Transports** – This protocol uses multiple transports with SOAP as specified in section [2.1](#).

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 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**.

2.1 Transport

Protocol servers **MUST** support SOAP over HTTP. Protocol servers **SHOULD** additionally support SOAP over HTTPS for securing communication with clients.

Protocol messages **MUST** be formatted as specified either in [\[SOAP1.1\]](#) section 4 or in [\[SOAP1.2/1\]](#) section 5. Protocol server faults **MUST** be returned either using HTTP Status Codes, as specified in [\[RFC2616\]](#) section 10 or using **SOAP faults**, as specified in either [\[SOAP1.1\]](#) section 4.4 or in [\[SOAP1.2/1\]](#) section 5.4.

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.

Prefi x	Namespace URI	Reference
soap	http://schemas.xmlsoap.org/wsdl/soap/	[SOAP1.1]
tns	http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Interface.Data	
tns1	http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Pipe.Interface	
tns2	http://schemas.microsoft.com/2003/10/Serialization/Arrays	
tns3	http://schemas.microsoft.com/2003/10/Serialization/	
tns4	http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastParticipantService/	
tns5	http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastParticipantService/Imports	
wsa	http://www.w3.org/2006/05/addressing/wsdl	

Prefi x	Namespace URI	Reference
w		
wsdl	http://schemas.xmlsoap.org/wsdl/	[WSDL]
xs	http://www.w3.org/2001/XMLSchema	[XMLSCHEM A1] [XMLSCHEM A2]

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
ArrayOfKeyValueOfstringstring	A complex type that specifies a list of key/value pairs.
ArrayOfPPTBroadcastAnimationStepData	A complex type that specifies a list of PPTBroadcastAnimationStepData (section 2.2.4.5) elements. Each element in the list specifies a step in an animation timeline. Each entry in the list MUST have a unique value in its TimelineId (section 2.2.4.5) field.
ArrayOfPPTBroadcastMediaStateData	A complex type that specifies a list of PPTBroadcastMediaStateData (section 2.2.4.6) elements. Each element in the list specifies a state for a multimedia object. Each entry in the list MUST have a unique value in its MediaId field.
EnumTypes	This complex type is reserved and MUST be ignored.
PPTBroadcastAnimationStepData	A complex type that specifies a step in an animation timeline.
PPTBroadcastMediaStateData	A complex type that specifies a state for a multimedia object such as an embedded video clip.
PPTStateData	A complex type that specifies data about the state of a broadcast session of a presentation.
ServiceError	A complex type that specifies error information returned from the protocol server to a protocol client.
ServiceResult	A complex type that specifies the result of a protocol method.

Complex Type	Description
	The protocol server returns this type to the protocol client containing either a successful Result element or an Error element.
WordStateData	A complex type that specifies data about the state of a broadcast session of a document.

2.2.4.1 ArrayOfKeyValueOfstringstring

Namespace: <http://schemas.microsoft.com/2003/10/Serialization/Arrays>

A complex type that specifies a list of key/value pairs.

```
<xs:complexType name="ArrayOfKeyValueOfstringstring"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:sequence>
    <xs:element minOccurs="0" maxOccurs="unbounded" name="KeyValueOfstringstring">
      <xs:complexType>
        <xs:sequence>
          <xs:element name="Key" nillable="true" type="xs:string"/>
          <xs:element name="Value" nillable="true" type="xs:string"/>
        </xs:sequence>
      </xs:complexType>
    </xs:element>
  </xs:sequence>
</xs:complexType>
```

KeyValueOfstringstring: A key/value pair. This element **MUST** be present.

KeyValueOfstringstring.Key: An **xs:string** ([\[XMLSCHEMA2\]](#) section 3.2.1) element that specifies the key in a key/value pair. This element **MUST** be present.

KeyValueOfstringstring.Value: An **xs:string** ([\[XMLSCHEMA2\]](#) section 3.2.1) element that specifies the value in a key/value pair. This element **MUST** be present.

2.2.4.2 ArrayOfPPTBroadcastAnimationStepData

Namespace:

<http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Interface.Data>

A complex type that specifies a list of **PPTBroadcastAnimationStepData** (section [2.2.4.5](#)) elements. Each element in the list specifies a step in an animation timeline. Each entry in the list **MUST** have a unique value in its **TimelineId** (section [2.2.4.5](#)) field.

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

PPTBroadcastAnimationStepData: Specifies a **PPTBroadcastAnimationStepData** (section [2.2.4.5](#)) element. The element **MUST** be present.

2.2.4.3 ArrayOfPPTBroadcastMediaStateData

Namespace:

<http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Interface.Data>

A complex type that specifies a list of **PPTBroadcastMediaStateData** (section [2.2.4.6](#)) elements. Each element in the list specifies a state for a multimedia object. Each entry in the list **MUST** have a unique value in its **MediaId** field.

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

PPTBroadcastMediaStateData: Specifies a **PPTBroadcastMediaStateData** element. This element **MUST** be present.

2.2.4.4 EnumTypes

Namespace:

<http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Interface.Data>

This complex type is reserved and **MUST** be ignored.

```
<xs:complexType name="EnumTypes" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:sequence>
    <xs:element minOccurs="0" name="AppType" type="tns:AppType"/>
    <xs:element minOccurs="0" name="BroadcastAppCapability"
      type="tns:BroadcastAppCapability"/>
    <xs:element minOccurs="0" name="BroadcastDataKey" type="tns:BroadcastDataKey"/>
    <xs:element minOccurs="0" name="BroadcastState" type="tns:BroadcastState"/>
    <xs:element minOccurs="0" name="PPTMediaPlaybackState" type="tns:PPTMediaPlaybackState"/>
    <xs:element minOccurs="0" name="PPTSlideShowState" type="tns:PPTSlideShowState"/>
  </xs:sequence>
</xs:complexType>
```

AppType: This element is reserved and **MUST** be ignored.

BroadcastAppCapability: This element is reserved and **MUST** be ignored.

BroadcastDataKey: This element is reserved and **MUST** be ignored.

BroadcastState: This element is reserved and **MUST** be ignored.

PPTMediaPlaybackState: This element is reserved and **MUST** be ignored.

PPTSlideShowState: This element is reserved and **MUST** be ignored.

2.2.4.5 PPTBroadcastAnimationStepData

Namespace:

http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Interface.Data

A complex type that specifies a step in an animation timeline.

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

Step: An **xs:int** ([\[XMLSCHEMA2\]](#) section 3.3.17) element that specifies the step number in the animation timeline given by the **TimelineId** field. This element **MUST** be present.

TimelineId: An **xs:string** ([\[XMLSCHEMA2\]](#) section 3.2.1) element that specifies an identifier of the animation timeline. This element **MUST** be present.

2.2.4.6 PPTBroadcastMediaStateData

Namespace:

http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Interface.Data

A complex type that specifies a state for a multimedia object such as an embedded video clip.

```
<xs:complexType name="PPTBroadcastMediaStateData"
  xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:sequence>
    <xs:element minOccurs="0" name="MediaId" nillable="true" type="xs:string"/>
    <xs:element minOccurs="0" name="State" type="tns:PPTMediaPlaybackState"/>
  </xs:sequence>
</xs:complexType>
```

MediaId: An **xs:string** ([\[XMLSCHEMA2\]](#) section 3.2.1) element that specifies an identifier of the multimedia object. This element **MUST** be present.

State: A **PPTMediaPlaybackState** (section [2.2.5.7](#)) element that specifies the playback state of the multimedia object identified by the **MediaId** field. This element **MUST** be present.

2.2.4.7 PPTStateData

Namespace:

http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Interface.Data

A complex type that specifies data about the state of a broadcast session of a presentation.

```
<xs:complexType name="PPTStateData" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:sequence>
    <xs:element minOccurs="0" name="AnimationStepDataList" nillable="true"
      type="tns:ArrayOfPPTBroadcastAnimationStepData"/>
  </xs:sequence>
</xs:complexType>
```

```

    <xs:element minOccurs="0" name="MediaStateDataList" nillable="true"
type="tns:ArrayOfPPTBroadcastMediaStateData"/>
    <xs:element minOccurs="0" name="PPTSlideShowState" type="tns:PPTSlideShowState"/>
    <xs:element minOccurs="0" name="SlideId" type="xs:unsignedInt"/>
    <xs:element minOccurs="0" name="SlideIndex" type="xs:unsignedInt"/>
  </xs:sequence>
</xs:complexType>

```

AnimationStepDataList: An **ArrayOfPPTBroadcastAnimationStepData** (section [2.2.4.2](#)) element that specifies the state of each of the animation timelines. This element **MUST** be present.

MediaStateDataList: An **ArrayOfPPTBroadcastMediaStateData** (section [2.2.4.3](#)) element that specifies the state of each of the multimedia objects. This element **MUST** be present.

PPTSlideShowState: A **PPTSlideShowState** (section [2.2.5.8](#)) element that specifies the current state of the **slide show**. This element **MUST** be present.

SlideId: An **xs:unsignedInt** ([\[XMLSCHEMA2\]](#) section 3.3.22) element that specifies the identifier of the **presentation slide**. This element **MUST** be present.

SlideIndex: An **xs:unsignedInt** ([\[XMLSCHEMA2\]](#) section 3.3.22) element that specifies the zero-based ordered index of the presentation slide. This element **MUST** be present if **SlideId** is equal to 0. This element **MUST** be ignored if **SlideId** is not equal to 0.

2.2.4.8 ServiceError

Namespace:

<http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Pipe.Interface>

A complex type that specifies error information returned from the protocol server to a protocol client.

```

<xs:complexType name="ServiceError" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:sequence>
    <xs:element minOccurs="0" name="Message" nillable="true" type="xs:string"/>
    <xs:element minOccurs="0" name="RecommendedActions" type="tns1:ClientActions"/>
    <xs:element minOccurs="0" name="Title" nillable="true" type="xs:string"/>
    <xs:element minOccurs="0" name="Type" type="tns1:ServiceErrorType"/>
  </xs:sequence>
</xs:complexType>

```

Message: An **xs:string** ([\[XMLSCHEMA2\]](#) section 3.2.1) element that specifies the error message description. The string length **MUST** be greater than zero if the **Type** element has a value of **ApplicationError**. This element **MUST** be present.

RecommendedActions: This element is reserved and **MUST** be ignored.

Title: An **xs:string** ([\[XMLSCHEMA2\]](#) section 3.2.1) element that specifies the error title. The string length **MUST** be greater than zero if the **Type** element has a value of **ApplicationError**. This element **MUST** be present.

Type: A **ServiceErrorType** (section [2.2.5.9](#)) element that specifies the error type. This element **MUST** be present.

2.2.4.9 ServiceResult

Namespace:

http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Pipe.Interface

A complex type that specifies the result of a protocol method. The protocol server returns this type to the protocol client containing either a successful **Result** element or an **Error** element.

```
<xs:complexType name="ServiceResult" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:sequence>
    <xs:element minOccurs="0" name="Error" nillable="true" type="tnsl:ServiceError"/>
    <xs:element minOccurs="0" name="Result" nillable="true" type="xs:anyType"/>
  </xs:sequence>
</xs:complexType>
```

Error: An optional **ServiceError** (section 2.2.4.8) element that specifies an error result of a protocol message response. This element MUST NOT be present if the **Result** element is present.

Result: An optional **xs:anyType** ([XMLSCHEMA1] section 3.4.7) element that specifies a successful result of a protocol message response. This element MUST NOT be present if the **Error** element is present.

2.2.4.10 WordStateData

Namespace:

http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Interface.Data

A complex type that specifies data about the state of a broadcast session of a document.

```
<xs:complexType name="WordStateData" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:sequence>
    <xs:element minOccurs="0" name="Offset" type="xs:double"/>
    <xs:element minOccurs="0" name="Page" type="xs:int"/>
  </xs:sequence>
</xs:complexType>
```

Offset: An **xs:double** ([XMLSCHEMA2] section 3.2.5) element that specifies a percentage offset from the top of the page defined by the **Page** field. This element MUST be present.

Page: An **xs:int** ([XMLSCHEMA2] section 3.3.17) element that specifies the one-based ordered index of the current page within the set of all pages of the document. This element MUST be present.

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
AppType	A simple type that specifies an enumeration of all the possible broadcast session

Simple type	Description
	types.
BroadcastAppCapability	This simple type is reserved and MUST be ignored.
BroadcastDataKey	A simple type that specifies an enumeration of a set of keys to data stored in the protocol server for a given session.
BroadcastState	A simple type that specifies an enumeration of all the possible broadcast session states.
char	A simple type that is reserved. The protocol client and protocol server MUST NOT use this as the type of any element. The protocol client and protocol server MUST ignore it if receiving an element of this type.
ClientActions	A simple type that is reserved and MUST be ignored.
duration	A simple type that is reserved. The protocol client and protocol server MUST NOT use this as the type of any element. The protocol client and protocol server MUST ignore it if receiving an element of this type.
guid	A simple type that is reserved. The protocol client and protocol server MUST NOT use this as the type of any element. The protocol client and protocol server MUST ignore it if receiving an element of this type.
PPTMediaPlaybackState	A simple type that specifies an enumeration of the different states a multimedia object can be in.
PPTSlideShowState	A simple type that specifies an enumeration of all the possible slide show states.
ServiceErrorType	A simple type that specifies an enumeration of a set of protocol errors returned by the protocol server to the protocol client.

2.2.5.1 BroadcastAppCapability

Namespace:

<http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Interface.Data>

This simple type is reserved and MUST be ignored.

```
<xs:simpleType name="BroadcastAppCapability" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:restriction base="xs:string">
    <xs:enumeration value="SessionTimeout"/>
    <xs:enumeration value="SessionIdleTimeOut"/>
    <xs:enumeration value="SupportVideo"/>
    <xs:enumeration value="SupportAudio"/>
    <xs:enumeration value="SupportNotes"/>
    <xs:enumeration value="MediaExtensions"/>
    <xs:enumeration value="MaxMediaSize"/>
  </xs:restriction>
</xs:simpleType>
```

The following table specifies the allowable values for **BroadcastAppCapability**.

Value	Meaning
SessionTimeout	Reserved and MUST be ignored.
SessionIdleTimeOut	Reserved and MUST be ignored.
SupportVideo	Reserved and MUST be ignored.
SupportAudio	Reserved and MUST be ignored.
SupportNotes	Reserved and MUST be ignored.
MediaExtensions	Reserved and MUST be ignored.
MaxMediaSize	Reserved and MUST be ignored.

2.2.5.2 BroadcastDataKey

Namespace:

<http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Interface.Data>

A simple type that specifies an enumeration of a set of keys to data stored in the protocol server for a given session.

```
<xs:simpleType name="BroadcastDataKey" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:restriction base="xs:string">
    <xs:enumeration value="AppType"/>
    <xs:enumeration value="SequenceNumber"/>
    <xs:enumeration value="FileVersion"/>
    <xs:enumeration value="OriginalFileName"/>
    <xs:enumeration value="BroadcastState"/>
    <xs:enumeration value="AppSpecificStateData"/>
    <xs:enumeration value="NotesUrl"/>
    <xs:enumeration value="DataVersion"/>
  </xs:restriction>
</xs:simpleType>
```

The following table specifies the allowable values for **BroadcastDataKey**.

Value	Meaning
AppType	This key is used to specify an application type in the Key field of a KeyValueOfstringstring element in an ArrayOfKeyValueOfstringstring element (section 2.2.4.1).
SequenceNumber	This key is used to specify a monotonically increasing sequence number in the Key field of a KeyValueOfstringstring element in an ArrayOfKeyValueOfstringstring element.
FileVersion	This key is used to specify a monotonically increasing file version number in the Key field of a KeyValueOfstringstring element in an ArrayOfKeyValueOfstringstring element.
OriginalFileName	This key is used to specify the file name of the document being shared in the broadcast session in the Key field of a KeyValueOfstringstring element in an

Value	Meaning
	ArrayOfKeyValueOfstringstring element.
BroadcastState	This key is used to specify a BroadcastState (section 2.2.5.11) for the broadcast session in the Key field of a KeyValueOfstringstring element in an ArrayOfKeyValueOfstringstring element.
AppSpecificStateData	This key is used to specify application specific data for the broadcast session in the Key field of a KeyValueOfstringstring element in an ArrayOfKeyValueOfstringstring element.
NotesUrl	This key is used to specify the URL of the notes page linked to the document being broadcast in the Key field of a KeyValueOfstringstring element in an ArrayOfKeyValueOfstringstring element.
DataVersion	This key is used to specify a data version field in the Key field of a KeyValueOfstringstring element in an ArrayOfKeyValueOfstringstring element.

2.2.5.3 char

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

A simple type that is reserved. The protocol client and protocol server MUST NOT use this as the type of any element. The protocol client and protocol server MUST ignore it if receiving an element of this type.

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

2.2.5.4 ClientActions

Namespace:

<http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Pipe.Interface>

A simple type that is reserved and MUST be ignored.

```
<xs:simpleType name="ClientActions" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:list>
    <xs:simpleType>
      <xs:restriction base="xs:string">
        <xs:enumeration value="None"/>
        <xs:enumeration value="Dismiss"/>
        <xs:enumeration value="Close"/>
        <xs:enumeration value="OpenInClient"/>
        <xs:enumeration value="Refresh"/>
      </xs:restriction>
    </xs:simpleType>
  </xs:list>
</xs:simpleType>
```

The following table specifies the allowable values for **ClientActions**.

Value	Meaning
None	Reserved and MUST be ignored.
Dismiss	Reserved and MUST be ignored.
Close	Reserved and MUST be ignored.
OpenInClient	Reserved and MUST be ignored.
Refresh	Reserved and MUST be ignored.

2.2.5.5 duration

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

A simple type that is reserved. The protocol client and protocol server MUST NOT use this as the type of any element. The protocol client and protocol server MUST ignore it if receiving an element of this type.

```
<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*M)?(\d*(\.\d*)?S)?)?" />
    <xs:minInclusive value="-P10675199DT2H48M5.4775808S" />
    <xs:maxInclusive value="P10675199DT2H48M5.4775807S" />
  </xs:restriction>
</xs:simpleType>
```

2.2.5.6 guid

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

A simple type that is reserved. The protocol client and protocol server MUST NOT use this as the type of any element. The protocol client and protocol server MUST ignore it if receiving an element of this type.

```
<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>
```

2.2.5.7 PPTMediaPlaybackState

Namespace:

http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Interface.Data

A simple type that specifies an enumeration of the different states a multimedia object can be in.

```
<xs:simpleType name="PPTMediaPlaybackState" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Paused" />
  </xs:restriction>
</xs:simpleType>
```

```

    <xs:enumeration value="Playing"/>
    <xs:enumeration value="Stopped"/>
  </xs:restriction>
</xs:simpleType>

```

The following table specifies the allowable values for **PPTMediaPlaybackState**.

Value	Meaning
Paused	The multimedia object is in a paused state.
Playing	The multimedia object is in a playing state.
Stopped	The multimedia object is in a stopped state.

2.2.5.8 PPTSlideShowState

Namespace:

<http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Interface.Data>

A simple type that specifies an enumeration of all the possible slide show states.

```

<xs:simpleType name="PPTSlideShowState" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:restriction base="xs:string">
    <xs:enumeration value="BlackScreen"/>
    <xs:enumeration value="WhiteScreen"/>
    <xs:enumeration value="Normal"/>
    <xs:enumeration value="SlideShowEnded"/>
  </xs:restriction>
</xs:simpleType>

```

The following table specifies the allowable values for **PPTSlideShowState**.

Value	Meaning
BlackScreen	The slide show is displaying a black screen.
WhiteScreen	The slide show is displaying a white screen.
Normal	The slide show is displaying presentation slides.
SlideShowEnded	The slide show has ended.

2.2.5.9 ServiceErrorType

Namespace:

<http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Pipe.Interface>

A simple type that specifies an enumeration of a set of protocol errors returned by the protocol server to the protocol client.

```

<xs:simpleType name="ServiceErrorType" xmlns:xs="http://www.w3.org/2001/XMLSchema">

```

```

<xs:restriction base="xs:string">
  <xs:enumeration value="UnknownError"/>
  <xs:enumeration value="ApplicationError"/>
  <xs:enumeration value="Timeout"/>
  <xs:enumeration value="ServiceBusy"/>
  <xs:enumeration value="SessionFull"/>
</xs:restriction>
</xs:simpleType>

```

The following table specifies the allowable values for **ServiceErrorType**.

Value	Meaning
UnknownError	The protocol server encountered an unknown error.
ApplicationError	The protocol server encountered an application error.
Timeout	The protocol server timed out.
ServiceBusy	The protocol server is busy.
SessionFull	The protocol cannot allow more attendees to join a broadcast session.

2.2.5.10 AppType

Namespace:

<http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Interface.Data>

A simple type that specifies an enumeration of all the possible broadcast session types.

```

<xs:simpleType name="AppType" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:restriction base="xs:string">
    <xs:enumeration value="PPT"/>
    <xs:enumeration value="Word"/>
  </xs:restriction>
</xs:simpleType>

```

The following table specifies the allowable values for **AppType**.

Value	Meaning
PPT	The broadcast session is of a presentation.
Word	The broadcast session is of a document.

2.2.5.11 BroadcastState

Namespace:

<http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Interface.Data>

A simple type that specifies an enumeration of all the possible broadcast session states.

```

<xs:simpleType name="BroadcastState" xmlns:xs="http://www.w3.org/2001/XMLSchema">

```

```

<xs:restriction base="xs:string">
  <xs:enumeration value="BroadcastNotStartedYet"/>
  <xs:enumeration value="BroadcastStarted"/>
  <xs:enumeration value="BroadcastEnded"/>
</xs:restriction>
</xs:simpleType>

```

The following table specifies the allowable values for **BroadcastState**.

Value	Meaning
BroadcastNotStartedYet	The broadcast session has not started yet.
BroadcastStarted	The broadcast session has started but not ended yet.
BroadcastEnded	The broadcast session has ended.

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 that are made by the higher-layer protocol or application are passed directly to the transport, and the results that are returned by the transport are passed directly to the higher-layer protocol or application.

Except where specified, protocol clients SHOULD interpret Hypertext Transfer Protocol (HTTP) status codes that are returned by the protocol server as specified in [\[RFC2616\]](#), section 10.

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

This protocol allows protocol servers to perform implementation-specific authorization checks and to notify protocol clients of authorization faults by using either HTTP status codes or SOAP faults, as specified previously in this section.

3.1 Server Details

The following high-level sequence diagram illustrates the operation of the participant client protocol.

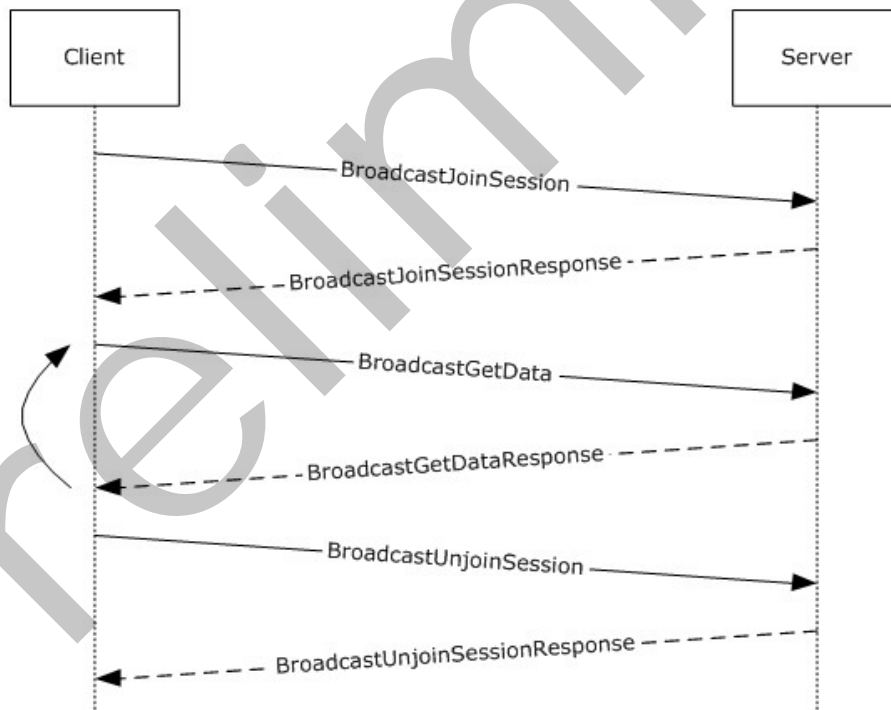


Figure 2: Office Broadcast Participant Service high-level sequence diagram for participant clients

The operation begins when a protocol client acting as broadcast session participant sends a **BroadcastJoinSession** (section 3.1.4.2) message. The server responds with a **BroadcastJoinSessionResponse** message indicating the results of the operation. If the join is successful, the protocol client sends one or more **BroadcastGetData** (section 3.1.4.1) messages, and the protocol server responds to each with a **BroadcastGetDataResponse** message containing the current state of the broadcast session. When the participant client wishes to leave the broadcast, the protocol client sends a **BroadcastUnjoinSession** (section 3.1.4.3) message and the protocol server responds with a **BroadcastUnjoinSessionResponse** message to acknowledge the request.

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.

Note that the abstract interface notation '(Public)' indicates that the abstract data model element can be directly accessed from outside this protocol.

SessionId (Public): An entity that represents a unique identifier for a broadcast session.

BroadcastState (Public): An entity that represents the state of the broadcast session.

AppSpecificStateData (Public): An entity that represents state specific to the application for which this protocol is being used.

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
BroadcastGetData	The BroadcastGetData operation is used by the protocol client to retrieve information about the current state of the broadcast session on the protocol server.
BroadcastJoinSession	The BroadcastJoinSession operation is used to join a protocol client to a broadcast session.
BroadcastUnjoinSession	The BroadcastUnjoinSession operation is used to disjoin a protocol client from a broadcast session.

3.1.4.1 BroadcastGetData

The **BroadcastGetData** operation is used by the protocol client to retrieve information about the current state of the broadcast session on the protocol server.

```
<wsdl:operation name="BroadcastGetData" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
  <wsdl:input
    wsaw:Action="http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastParticipantService/IParticipantService/BroadcastGetData"
    message="tns4:IParticipantService_BroadcastGetData_InputMessage"
    xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"/>
  <wsdl:output
    wsaw:Action="http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastParticipantService/IParticipantService/BroadcastGetDataResponse"
    message="tns4:IParticipantService_BroadcastGetData_OutputMessage"
    xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"/>
</wsdl:operation>
```

The protocol client sends a **BroadcastGetDataSoapIn** request message, and the protocol server MUST respond with a **BroadcastGetDataSoapOut** response message.

3.1.4.1.1 Messages

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

Message	Description
IParticipantService_BroadcastGetData_InputMessage	The request WSDL message for the BroadcastGetData WSDL operation .
IParticipantService_BroadcastGetData_OutputMessage	The response WSDL message for the BroadcastGetData WSDL operation.

3.1.4.1.1.1 IParticipantService_BroadcastGetData_InputMessage

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

The **SOAP action** value is:

```
http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastParticipantService/IParticipantService/BroadcastGetData
```

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

3.1.4.1.1.2 IParticipantService_BroadcastGetData_OutputMessage

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

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

3.1.4.1.2 Elements

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

Element	Description
BroadcastGetData	The input data for the BroadcastGetData WSDL operation.
BroadcastGetDataResponse	The result data for the BroadcastGetData WSDL operation.

3.1.4.1.2.1 BroadcastGetData

The input data for the **BroadcastGetData** WSDL operation.

```
<xs:element name="BroadcastGetData" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:complexType>
    <xs:sequence>
      <xs:element
        xmlns:tns="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Interface.Data" minOccurs="0" name="user" nillable="true" type="tns:BroadcastUser"/>
      <xs:element minOccurs="0" name="sequenceNumber" type="xs:int"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

user: A **BroadcastUser** (section [3.1.4.1.3.1](#)) element that is obtained by making a **BroadcastJoinSession** (section [3.1.4.2.2.1](#)) web method call. This element **MUST** be present.

sequenceNumber: An **xs:int** [\[XMLSCHEMA2\]](#) section 3.3.17 element that specifies the sequence number of the data returned by the previous **BroadcastGetData** (section [3.1.4.1.2.1](#)) operation, if any. A value of 0 **MUST** be passed if this is the first **BroadcastGetData** operation performed by the protocol client. A value of 0 **MAY** be passed at any time. This element **MUST** be present.

3.1.4.1.2.2 BroadcastGetDataResponse

The result data for the **BroadcastGetData** WSDL operation.

```
<xs:element name="BroadcastGetDataResponse" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:complexType>
    <xs:sequence>
      <xs:element
        xmlns:tns1="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Pipe.Interface" minOccurs="0" name="BroadcastGetDataResult" nillable="true"
        type="tns1:ServiceResult"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

BroadcastGetDataResult: A **ServiceResult** (section [2.2.4.9](#)) element that specifies the result of the operation. This element **MUST** be present.

If the **Error** child element of the **ServiceResult** element is present, the **Result** child element MUST NOT be present.

If the **Error** child element of the **ServiceResult** element is not present, the **Result** child element MUST follow the following specified behavior:

1. If the **sequenceNumber** parameter to the **BroadcastGetData** (section 3.1.4.1.2.1) operation is nonzero and is greater than or equal to the sequence number most recently received by the protocol server from an Office Broadcast Presentation Service [MS-OBPRS] protocol client, the **Result** child element MUST NOT be present. This indicates to the protocol client that the state data of the broadcast session has not changed.
2. In all other cases, the **Result** child element MUST be present and MUST be an **ArrayOfKeyValueOfStringString** (section 2.2.4.1) element. The **ArrayOfKeyValueOfStringString** contains **KeyValueOfStringString** child elements where the **Key** child element MUST be a **BroadcastDataKey** (section 2.2.5.2) enumeration value of type xs:string [XMLSCHEMA2] section 3.2.1. The **Value** child of a **KeyValueOfStringString** element MUST conform to the following table.

Key	Values
AppType	MUST be an AppType (section 2.2.5.1) element
SequenceNumber	MUST be an xs:int [XMLSCHEMA2] section 3.3.17 element.
FileVersion	MUST be an xs:int [XMLSCHEMA2] section 3.3.17 element.
OriginalFileName	MUST be an xs:string [XMLSCHEMA2] section 3.2.1 element
BroadcastState	MUST be a BroadcastState (section 2.2.5.8) element.
AppSpecificStateData	MUST be a JSON [RFC4627] serialization of a PPTStateData (section 2.2.4.7) element if the AppType is PPT or a JSON [RFC4627] serialization of a WordStateData (section 2.2.4.10) element if the AppType is Word .
NotesUrl	MUST be an xs:string [XMLSCHEMA2] section 3.2.1 element.
DataVersion	Unused - MUST be ignored

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
BroadcastUser	A complex type that specifies a user of a broadcast session.

3.1.4.1.3.1 BroadcastUser

Namespace:

http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Interface.Data

A complex type that specifies a user of a broadcast session.

```

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

```

SessionId: An **xs:string** [XMLSCHEMA2] section 3.2.1 element that specifies the identifier of the broadcast session on the protocol server. This element **MUST** be present.

UserToken: An **xs:string** [XMLSCHEMA2] section 3.2.1 element that specifies the identifier of a user of the broadcast session on the protocol server. This element **MUST** be present.

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.

3.1.4.2 BroadcastJoinSession

The **BroadcastJoinSession** operation is used to join a protocol client to a broadcast session.

```

<wsdl:operation name="BroadcastJoinSession" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
  <wsdl:input
    wsaw:Action="http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastParticipantService/IParticipantService/BroadcastJoinSession"
    message="tns4:IParticipantService_BroadcastJoinSession_InputMessage"
    xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"/>
  <wsdl:output
    wsaw:Action="http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastParticipantService/IParticipantService/BroadcastJoinSessionResponse"
    message="tns4:IParticipantService_BroadcastJoinSession_OutputMessage"
    xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"/>
</wsdl:operation>

```

The protocol client sends a **BroadcastJoinSessionSoapIn** request message, and the protocol server **MUST** respond with a **BroadcastJoinSessionSoapOut** response message.

3.1.4.2.1 Messages

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

Message	Description
IParticipantService_BroadcastJoinSession_InputMessage	The request WSDL message for the BroadcastJoinSession WSDL operation.
IParticipantService_BroadcastJoinSession_OutputMessage	The response WSDL message for the BroadcastJoinSession WSDL operation.

3.1.4.2.1.1 IParticipantService_BroadcastJoinSession_InputMessage

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

The SOAP action value is:

```
http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastParticipantService/
IParticipantService/BroadcastJoinSession
```

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

3.1.4.2.1.2 IParticipantService_BroadcastJoinSession_OutputMessage

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

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

3.1.4.2.2 Elements

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

Element	Description
BroadcastJoinSession	The input data for the BroadcastJoinSession WSDL operation.
BroadcastJoinSessionResponse	The result data for the BroadcastJoinSession WSDL operation.

3.1.4.2.2.1 BroadcastJoinSession

The input data for the **BroadcastJoinSession** WSDL operation.

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

sessionId: An **xs:string** [XMLSCHEMA2] section 3.2.1 element that specifies an identifier for the broadcast session. This identifier MUST conform to the pattern **WOPISrc=<source>&access_token=<token>**, where **<source>** is the **WOPISrc** parameter as

defined in [\[MS-WOPI\]](#) section 3.1.1.1.1.2.3.3, and **<token>** is the <token> parameter as defined in [\[MS-WOPI\]](#) section 2.2.2.

3.1.4.2.2.2 BroadcastJoinSessionResponse

The result data for the **BroadcastJoinSession** WSDL operation.

```
<xs:element name="BroadcastJoinSessionResponse" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:complexType>
    <xs:sequence>
      <xs:element
        xmlns:tns1="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Pipe.Interface" minOccurs="0" name="BroadcastJoinSessionResult" nillable="true"
        type="tns1:ServiceResult"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

BroadcastJoinSessionResult: A **ServiceResult** (section [2.2.4.9](#)) element that specifies the result of the operation. This element **MUST** be present. The **Result** child element **MUST** be a **BroadcastUser** (section [3.1.4.1.3.1](#)) if the **Error** child element is not present.

3.1.4.2.3 Complex Types

None.

3.1.4.2.4 Simple Types

None.

3.1.4.2.5 Attributes

None.

3.1.4.2.6 Groups

None.

3.1.4.2.7 Attribute Groups

None.

3.1.4.3 BroadcastUnjoinSession

The **BroadcastUnjoinSession** operation is used to disjoin a protocol client from a broadcast session.

```
<wsdl:operation name="BroadcastUnjoinSession" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
  <wsdl:input
    wsaw:Action="http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastParticipantService/IParticipantService/BroadcastUnjoinSession"
    message="tns4:IParticipantService_BroadcastUnjoinSession_InputMessage"
    xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"/>
```

```

    <wsdl:output
      wsaw:Action="http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastParticipantService/IParticipantService/BroadcastUnjoinSessionResponse"
      message="tns4:IParticipantService_BroadcastUnjoinSession_OutputMessage"
      xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"/>
    </wsdl:operation>

```

The protocol client sends a **BroadcastUnjoinSessionSoapIn** request message, and the protocol server MUST respond with a **BroadcastUnjoinSessionSoapOut** response message.

3.1.4.3.1 Messages

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

Message	Description
IParticipantService_BroadcastUnjoinSession_InputMessage	The request WSDL message for the BroadcastUnjoinSession WSDL operation.
IParticipantService_BroadcastUnjoinSession_OutputMessage	The response WSDL message for the BroadcastUnjoinSession WSDL operation.

3.1.4.3.1.1 IParticipantService_BroadcastUnjoinSession_InputMessage

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

The SOAP action value is:

```

http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastParticipantService/IParticipantService/BroadcastUnjoinSession

```

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

3.1.4.3.1.2 IParticipantService_BroadcastUnjoinSession_OutputMessage

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

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

3.1.4.3.2 Elements

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

Element	Description
BroadcastUnjoinSession	The input data for the BroadcastUnjoinSession WSDL operation.
BroadcastUnjoinSessionResponse	The result data for the BroadcastUnjoinSession WSDL operation.

3.1.4.3.2.1 BroadcastUnjoinSession

The input data for the **BroadcastUnjoinSession** WSDL operation.

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

sessionId: An **xs:string** [\[XMLSCHEMA2\]](#) section 3.2.1 element that specifies the broadcast session to disjoin from. This element **MUST** be present.

3.1.4.3.2.2 BroadcastUnjoinSessionResponse

The result data for the **BroadcastUnjoinSession** WSDL operation.

```
<xs:element name="BroadcastUnjoinSessionResponse"
  xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:complexType>
    <xs:sequence>
      <xs:element
        xmlns:tns1="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Pipe.Interface"
        minOccurs="0" name="BroadcastUnjoinSessionResult" nillable="true"
        type="tns1:ServiceResult"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

BroadcastUnjoinSessionResult: A **ServiceResult** (section [2.2.4.9](#)) element that specifies the result of the operation. This element **MUST** be present. If the **Result** child element is present, it **MUST** be ignored by the protocol client.

3.1.4.3.3 Complex Types

None.

3.1.4.3.4 Simple Types

None.

3.1.4.3.5 Attributes

None.

3.1.4.3.6 Groups

None.

3.1.4.3.7 Attribute Groups

None.

3.1.5 Timer Events

None.

3.1.6 Other Local Events

None.

4 Protocol Examples

The following examples contain sample interactions between protocol clients and protocol servers.

4.1 Attendee Client Example

The attendee protocol client begins by sending a request to the protocol server to join the broadcast session. The following **BroadcastJoinSessionSoapIn** (section [3.1.4.2](#)) message is sent to the protocol server:

```
<s:Envelope xmlns:s="http://schemas.xmlsoap.org/soap/envelope/">
  <s:Body>
    <BroadcastJoinSession
      xmlns="http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastParticipantService/">
      <sessionId>WOPIsrc=http://machinename/th/handler/wopi/files/anonymous~PPTTest.pptx&access_token=VAR</sessionId>
    </BroadcastJoinSession>
  </s:Body>
</s:Envelope>
```

The protocol server responds with a message to acknowledge the request and to provide host information and an identifier for the broadcast session to be used by the attendee protocol client for future requests. The following **BroadcastJoinSessionSoapOut** (section [3.1.4.2](#)) message is sent to the attendee protocol client:

```
<s:Envelope xmlns:s="http://schemas.xmlsoap.org/soap/envelope/">
  <s:Body>
    <BroadcastJoinSessionResponse
      xmlns="http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastParticipantService/">
      <BroadcastJoinSessionResult
        xmlns:a="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Pipe.Interface"
        xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <a:Error i:nil="true"/>
        <a:Result i:type="b:BroadcastUser"
          xmlns:b="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Interface.Data">
          <b:SessionId>WOPIsrc=http://machinename/th/handler/wopi/files/anonymous~PPTTest.pptx&access_token=VAR</b:SessionId>
          <b:UserToken>b5ea6891-bb86-4544-a74c-847ce4c2edee</b:UserToken>
        </a:Result>
        </BroadcastJoinSessionResult>
      </BroadcastJoinSessionResponse>
    </s:Body>
  </s:Envelope>
```

Next, the attendee protocol client requests information about the current state of the broadcast session from the protocol server. The following **BroadcastGetDataSoapIn** (section [3.1.4.1](#)) message is sent to the protocol server:

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

```

<BroadcastGetData
xmlns="http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastParticipantService/">
  <user
xmlns:a="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Interface.Data" xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
    <a:SessionId>WOPISrc=http://machinename/th/handler/wopi/files/anonymous~PPTTest.pptx&access_token=VAR</a:SessionId>
    <a:UserToken>b5ea6891-bb86-4544-a74c-847ce4c2edee</a:UserToken>
  </user>
  <sequenceNumber>0</sequenceNumber>
</BroadcastGetData>
</s:Body>
</s:Envelope>

```

The protocol server responds with information about the current state of the broadcast session. The following **BroadcastGetDataSoapOut** (section [3.1.4.1](#)) message is sent to the attendee protocol client:

```

<s:Envelope
xmlns:s="http://schemas.xmlsoap.org/soap/envelope/"><s:Body><BroadcastGetDataResponse
xmlns="http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastParticipantService/">
  <BroadcastGetDataResult
xmlns:a="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Pipe.Interface" xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
    <a:Error i:nil="true"/>
    <a:Result i:type="b:ArrayOfKeyValueOfstringstring"
xmlns:b="http://schemas.microsoft.com/2003/10/Serialization/Arrays">
      <b:KeyValueOfstringstring>
        <b:Key>AppType</b:Key>
        <b:Value>PPT</b:Value>
      </b:KeyValueOfstringstring>
      <b:KeyValueOfstringstring>
        <b:Key>BroadcastState</b:Key>
        <b:Value>BroadcastStarted</b:Value>
      </b:KeyValueOfstringstring>
      <b:KeyValueOfstringstring>
        <b:Key>SequenceNumber</b:Key>
        <b:Value>5</b:Value>
      </b:KeyValueOfstringstring>
      <b:KeyValueOfstringstring>
        <b:Key>FileVersion</b:Key>
        <b:Value>1</b:Value>
      </b:KeyValueOfstringstring>
      <b:KeyValueOfstringstring>
        <b:Key>OriginalFileName</b:Key>
        <b:Value>file.pptx</b:Value>
      </b:KeyValueOfstringstring>
      <b:KeyValueOfstringstring>
        <b:Key>NotesUrl</b:Key>
        <b:Value>http://url</b:Value>
      </b:KeyValueOfstringstring>
      <b:KeyValueOfstringstring>
        <b:Key>DataVersion</b:Key>
        <b:Value/>
      </b:KeyValueOfstringstring>
    </a:Result>
  </BroadcastGetDataResult>
</BroadcastGetDataResponse>
</s:Body>
</s:Envelope>

```

```

<b:KeyValueOfstringstring>
<b:Key>AppSpecificStateData</b:Key>
<b:Value>{"SlideId":258,"SlideIndex":0,"AnimationStepDataList":[{"TimelineId":"timeline_1","Step":1}, {"TimelineId":"timeline_2","Step":2}], "MediaStateDataList":[{"MediaId":"media_1","State":1}, {"MediaId":"media_2","State":0}], "PPTSlideShowState":2}</b:Value>
</b:KeyValueOfstringstring>
</a:Result>
</BroadcastGetDataResult>
</BroadcastGetDataResponse>
</s:Body>
</s:Envelope>

```

The attendee protocol client continues to send **BroadcastGetDataSoapIn** (section [3.1.4.1](#)) messages to request the latest state of the broadcast session.

Finally, the attendee protocol client disjoins from the broadcast session by sending the **BroadcastUnjoinSessionSoapIn** (section [3.1.4.3](#)) message to the protocol server:

```

<s:Envelope xmlns:s="http://schemas.xmlsoap.org/soap/envelope/">
<s:Body>
<BroadcastUnjoinSession
xmlns="http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastParticipantsService/">
<sessionId>WOPIsrc=http://machinename/th/handler/wopi/files/anonymous~PPTTest.pptx&access_token=VAR</sessionId>
</BroadcastUnjoinSession>
</s:Body>
</s:Envelope>

```

The protocol server responds by sending the **BroadcastUnjoinSessionSoapOut** (section [3.1.4.3](#)) message to the attendee protocol client:

```

<s:Envelope xmlns:s="http://schemas.xmlsoap.org/soap/envelope/">
<s:Body>
<BroadcastUnjoinSessionResponse
xmlns="http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastParticipantsService/">
<BroadcastUnjoinSessionResult
xmlns:a="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Pipe.Interface" xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
<a:Error i:nil="true"/>
<a:Result i:nil="true"/>
</BroadcastUnjoinSessionResult>
</BroadcastUnjoinSessionResponse>
</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 version="1.0"?>
<wsdl:definitions xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:tns4="http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastParticipantService/" xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"
name="ParticipantService"
targetNamespace="http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastParticipantService/" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
  <wsdl:types>
    <xs:schema
xmlns:tns5="http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastParticipantService/Imports"
targetNamespace="http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastParticipantService/Imports">
      <xs:import schemaLocation="http://www.example.com/m/met/participant.svc?xsd=xsd2"
namespace="http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastParticipantService/" />
      <xs:import schemaLocation="http://www.example.com/m/met/participant.svc?xsd=xsd0"
namespace="http://schemas.microsoft.com/2003/10/Serialization/" />
      <xs:import schemaLocation="http://www.example.com/m/met/participant.svc?xsd=xsd1"
namespace="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Interface.Data/" />
      <xs:import schemaLocation="http://www.example.com/m/met/participant.svc?xsd=xsd3"
namespace="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Pipe.Interface/" />
      <xs:import schemaLocation="http://www.example.com/m/met/participant.svc?xsd=xsd4"
namespace="http://schemas.microsoft.com/2003/10/Serialization/Arrays/" />
    </xs:schema>
  </wsdl:types>
  <wsdl:message name="IParticipantService_BroadcastJoinSession_InputMessage">
    <wsdl:part name="parameters" element="tns4:BroadcastJoinSession" />
  </wsdl:message>
  <wsdl:message name="IParticipantService_BroadcastJoinSession_OutputMessage">
    <wsdl:part name="parameters" element="tns4:BroadcastJoinSessionResponse" />
  </wsdl:message>
  <wsdl:message name="IParticipantService_BroadcastUnjoinSession_InputMessage">
    <wsdl:part name="parameters" element="tns4:BroadcastUnjoinSession" />
  </wsdl:message>
  <wsdl:message name="IParticipantService_BroadcastUnjoinSession_OutputMessage">
    <wsdl:part name="parameters" element="tns4:BroadcastUnjoinSessionResponse" />
  </wsdl:message>
  <wsdl:message name="IParticipantService_BroadcastGetData_InputMessage">
    <wsdl:part name="parameters" element="tns4:BroadcastGetData" />
  </wsdl:message>
  <wsdl:message name="IParticipantService_BroadcastGetData_OutputMessage">
    <wsdl:part name="parameters" element="tns4:BroadcastGetDataResponse" />
  </wsdl:message>
  <wsdl:portType name="IParticipantService">
    <wsdl:operation name="BroadcastJoinSession">
      <wsdl:input
wsaw:Action="http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastParticipantService/IParticipantService/BroadcastJoinSession"
message="tns4:IParticipantService_BroadcastJoinSession_InputMessage" />
      <wsdl:output
wsaw:Action="http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastPartic
```

```

    ipantService/IParticipantService/BroadcastJoinSessionResponse"
    message="tns4:IParticipantService_BroadcastJoinSession_OutputMessage"/>
  </wsdl:operation>
  <wsdl:operation name="BroadcastUnjoinSession">
    <wsdl:input
      wsaw:Action="http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastPartic
      ipantService/IParticipantService/BroadcastUnjoinSession"
      message="tns4:IParticipantService_BroadcastUnjoinSession_InputMessage"/>
    <wsdl:output
      wsaw:Action="http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastPartic
      ipantService/IParticipantService/BroadcastUnjoinSessionResponse"
      message="tns4:IParticipantService_BroadcastUnjoinSession_OutputMessage"/>
    </wsdl:operation>
    <wsdl:operation name="BroadcastGetData">
      <wsdl:input
        wsaw:Action="http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastPartic
        ipantService/IParticipantService/BroadcastGetData"
        message="tns4:IParticipantService_BroadcastGetData_InputMessage"/>
      <wsdl:output
        wsaw:Action="http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastPartic
        ipantService/IParticipantService/BroadcastGetDataResponse"
        message="tns4:IParticipantService_BroadcastGetData_OutputMessage"/>
      </wsdl:operation>
    </wsdl:portType>
    <wsdl:binding name="CustomBinding_IParticipantService" type="tns4:IParticipantService">
      <soap:binding transport="http://schemas.xmlsoap.org/soap/http"/>
      <wsdl:operation name="BroadcastJoinSession">
        <soap:operation
          soapAction="http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastPartici
          pantService/IParticipantService/BroadcastJoinSession" style="document"/>
        <wsdl:input>
          <soap:body use="literal"/>
        </wsdl:input>
        <wsdl:output>
          <soap:body use="literal"/>
        </wsdl:output>
      </wsdl:operation>
      <wsdl:operation name="BroadcastUnjoinSession">
        <soap:operation
          soapAction="http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastPartici
          pantService/IParticipantService/BroadcastUnjoinSession" style="document"/>
        <wsdl:input>
          <soap:body use="literal"/>
        </wsdl:input>
        <wsdl:output>
          <soap:body use="literal"/>
        </wsdl:output>
      </wsdl:operation>
      <wsdl:operation name="BroadcastGetData">
        <soap:operation
          soapAction="http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastPartici
          pantService/IParticipantService/BroadcastGetData" style="document"/>
        <wsdl:input>
          <soap:body use="literal"/>
        </wsdl:input>
        <wsdl:output>
          <soap:body use="literal"/>
        </wsdl:output>
      </wsdl:operation>
    </wsdl:binding>

```

</wsdl:definitions>

Preliminary

7 Appendix B: Full XML Schema

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

Schema name	Prefix	Section
http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Interface.Data	tns	7.1
http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Pipe.Interface	tns1	7.2
http://schemas.microsoft.com/2003/10/Serialization/Arrays	tns2	7.3
http://schemas.microsoft.com/2003/10/Serialization/	tns3	7.4
http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastParticipantService/	tns4	7.5

7.1

<http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Interface.Data> Schema

```
<?xml version="1.0"?>
<xs:schema
  xmlns:tns="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Interface.Data" elementFormDefault="qualified"
  targetNamespace="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Interface.Data" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:complexType name="BroadcastUser">
    <xs:sequence>
      <xs:element minOccurs="0" name="SessionId" nillable="true" type="xs:string"/>
      <xs:element minOccurs="0" name="UserToken" nillable="true" type="xs:string"/>
    </xs:sequence>
  </xs:complexType>
  <xs:element name="BroadcastUser" nillable="true" type="tns:BroadcastUser"/>
  <xs:complexType name="EnumTypes">
    <xs:sequence>
      <xs:element minOccurs="0" name="AppType" type="tns:AppType"/>
      <xs:element minOccurs="0" name="BroadcastAppCapability" type="tns:BroadcastAppCapability"/>
      <xs:element minOccurs="0" name="BroadcastDataKey" type="tns:BroadcastDataKey"/>
      <xs:element minOccurs="0" name="BroadcastState" type="tns:BroadcastState"/>
      <xs:element minOccurs="0" name="PPTMediaPlaybackState" type="tns:PPTMediaPlaybackState"/>
      <xs:element minOccurs="0" name="PPTSlideShowState" type="tns:PPTSlideShowState"/>
    </xs:sequence>
  </xs:complexType>
  <xs:element name="EnumTypes" nillable="true" type="tns:EnumTypes"/>
  <xs:simpleType name="AppType">
    <xs:restriction base="xs:string">
      <xs:enumeration value="PPT"/>
      <xs:enumeration value="Word"/>
    </xs:restriction>
  </xs:simpleType>
</xs:schema>
```

```

</xs:simpleType>
<xs:element name="AppType" nillable="true" type="tns:AppType"/>
<xs:simpleType name="BroadcastAppCapability">
  <xs:restriction base="xs:string">
    <xs:enumeration value="SessionTimeout"/>
    <xs:enumeration value="SessionIdleTimeOut"/>
    <xs:enumeration value="SupportVideo"/>
    <xs:enumeration value="SupportAudio"/>
    <xs:enumeration value="SupportNotes"/>
    <xs:enumeration value="MediaExtensions"/>
    <xs:enumeration value="MaxMediaSize"/>
  </xs:restriction>
</xs:simpleType>
<xs:element name="BroadcastAppCapability" nillable="true"
type="tns:BroadcastAppCapability"/>
<xs:simpleType name="BroadcastDataKey">
  <xs:restriction base="xs:string">
    <xs:enumeration value="AppType"/>
    <xs:enumeration value="SequenceNumber"/>
    <xs:enumeration value="FileVersion"/>
    <xs:enumeration value="OriginalFileName"/>
    <xs:enumeration value="BroadcastState"/>
    <xs:enumeration value="AppSpecificStateData"/>
    <xs:enumeration value="NotesUrl"/>
    <xs:enumeration value="DataVersion"/>
  </xs:restriction>
</xs:simpleType>
<xs:element name="BroadcastDataKey" nillable="true" type="tns:BroadcastDataKey"/>
<xs:simpleType name="BroadcastState">
  <xs:restriction base="xs:string">
    <xs:enumeration value="BroadcastNotStartedYet"/>
    <xs:enumeration value="BroadcastStarted"/>
    <xs:enumeration value="BroadcastEnded"/>
  </xs:restriction>
</xs:simpleType>
<xs:element name="BroadcastState" nillable="true" type="tns:BroadcastState"/>
<xs:simpleType name="PPTMediaPlaybackState">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Paused"/>
    <xs:enumeration value="Playing"/>
    <xs:enumeration value="Stopped"/>
  </xs:restriction>
</xs:simpleType>
<xs:element name="PPTMediaPlaybackState" nillable="true" type="tns:PPTMediaPlaybackState"/>
<xs:simpleType name="PPTSlideShowState">
  <xs:restriction base="xs:string">
    <xs:enumeration value="BlackScreen"/>
    <xs:enumeration value="WhiteScreen"/>
    <xs:enumeration value="Normal"/>
    <xs:enumeration value="SlideShowEnded"/>
  </xs:restriction>
</xs:simpleType>
<xs:element name="PPTSlideShowState" nillable="true" type="tns:PPTSlideShowState"/>
<xs:complexType name="PPTStateData">
  <xs:sequence>
    <xs:element minOccurs="0" name="AnimationStepDataList" nillable="true"
type="tns:ArrayOfPPTBroadcastAnimationStepData"/>

```

```

        <xs:element minOccurs="0" name="MediaStateDataList" nillable="true"
type="tns:ArrayOfPPTBroadcastMediaStateData"/>
        <xs:element minOccurs="0" name="PPTSlideShowState" type="tns:PPTSlideShowState"/>
        <xs:element minOccurs="0" name="SlideId" type="xs:unsignedInt"/>
        <xs:element minOccurs="0" name="SlideIndex" type="xs:unsignedInt"/>
    </xs:sequence>
</xs:complexType>
<xs:element name="PPTStateData" nillable="true" type="tns:PPTStateData"/>
<xs:complexType name="ArrayOfPPTBroadcastAnimationStepData">
    <xs:sequence>
        <xs:element minOccurs="0" maxOccurs="unbounded" name="PPTBroadcastAnimationStepData"
nillable="true" type="tns:PPTBroadcastAnimationStepData"/>
    </xs:sequence>
</xs:complexType>
<xs:element name="ArrayOfPPTBroadcastAnimationStepData" nillable="true"
type="tns:ArrayOfPPTBroadcastAnimationStepData"/>
<xs:complexType name="PPTBroadcastAnimationStepData">
    <xs:sequence>
        <xs:element minOccurs="0" name="Step" type="xs:int"/>
        <xs:element minOccurs="0" name="TimelineId" nillable="true" type="xs:string"/>
    </xs:sequence>
</xs:complexType>
<xs:element name="PPTBroadcastAnimationStepData" nillable="true"
type="tns:PPTBroadcastAnimationStepData"/>
<xs:complexType name="ArrayOfPPTBroadcastMediaStateData">
    <xs:sequence>
        <xs:element minOccurs="0" maxOccurs="unbounded" name="PPTBroadcastMediaStateData"
nillable="true" type="tns:PPTBroadcastMediaStateData"/>
    </xs:sequence>
</xs:complexType>
<xs:element name="ArrayOfPPTBroadcastMediaStateData" nillable="true"
type="tns:ArrayOfPPTBroadcastMediaStateData"/>
<xs:complexType name="PPTBroadcastMediaStateData">
    <xs:sequence>
        <xs:element minOccurs="0" name="MediaId" nillable="true" type="xs:string"/>
        <xs:element minOccurs="0" name="State" type="tns:PPTMediaPlaybackState"/>
    </xs:sequence>
</xs:complexType>
<xs:element name="PPTBroadcastMediaStateData" nillable="true"
type="tns:PPTBroadcastMediaStateData"/>
<xs:complexType name="WordStateData">
    <xs:sequence>
        <xs:element minOccurs="0" name="Offset" type="xs:double"/>
        <xs:element minOccurs="0" name="Page" type="xs:int"/>
    </xs:sequence>
</xs:complexType>
<xs:element name="WordStateData" nillable="true" type="tns:WordStateData"/>
</xs:schema>

```

7.2

<http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Pipe.Interface> Schema

```

<?xml version="1.0"?>
<xs:schema
xmlns:tns1="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Pipe.In

```

```

    interface" elementFormDefault="qualified"
    targetNamespace="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Pi
    pe.Interface" xmlns:xs="http://www.w3.org/2001/XMLSchema">
      <xs:import schemaLocation="http://www.example.com/m/met/participant.svc?xsd=xsd0"
      namespace="http://schemas.microsoft.com/2003/10/Serialization/" />
      <xs:complexType name="ServiceResult">
        <xs:sequence>
          <xs:element minOccurs="0" name="Error" nillable="true" type="tns1:ServiceError"/>
          <xs:element minOccurs="0" name="Result" nillable="true" type="xs:anyType"/>
        </xs:sequence>
      </xs:complexType>
      <xs:element name="ServiceResult" nillable="true" type="tns1:ServiceResult"/>
      <xs:complexType name="ServiceError">
        <xs:sequence>
          <xs:element minOccurs="0" name="Message" nillable="true" type="xs:string"/>
          <xs:element minOccurs="0" name="RecommendedActions" type="tns1:ClientActions"/>
          <xs:element minOccurs="0" name="Title" nillable="true" type="xs:string"/>
          <xs:element minOccurs="0" name="Type" type="tns1:ServiceErrorType"/>
        </xs:sequence>
      </xs:complexType>
      <xs:element name="ServiceError" nillable="true" type="tns1:ServiceError"/>
      <xs:simpleType name="ClientActions">
        <xs:list>
          <xs:simpleType>
            <xs:restriction base="xs:string">
              <xs:enumeration value="None"/>
              <xs:enumeration value="Dismiss"/>
              <xs:enumeration value="Close"/>
              <xs:enumeration value="OpenInClient"/>
              <xs:enumeration value="Refresh"/>
            </xs:restriction>
          </xs:simpleType>
        </xs:list>
      </xs:simpleType>
      <xs:element name="ClientActions" nillable="true" type="tns1:ClientActions"/>
      <xs:simpleType name="ServiceErrorType">
        <xs:restriction base="xs:string">
          <xs:enumeration value="UnknownError"/>
          <xs:enumeration value="ApplicationError"/>
          <xs:enumeration value="Timeout"/>
          <xs:enumeration value="ServiceBusy"/>
          <xs:enumeration value="SessionFull"/>
        </xs:restriction>
      </xs:simpleType>
      <xs:element name="ServiceErrorType" nillable="true" type="tns1:ServiceErrorType"/>
    </xs:schema>

```

7.3 http://schemas.microsoft.com/2003/10/Serialization/Arrays Schema

```

<?xml version="1.0"?>
<xs:schema xmlns:tns2="http://schemas.microsoft.com/2003/10/Serialization/Arrays"
  elementFormDefault="qualified"
  targetNamespace="http://schemas.microsoft.com/2003/10/Serialization/Arrays"
  xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:complexType name="ArrayOfKeyValueOfstringstring">
    <xs:sequence>
      <xs:element minOccurs="0" maxOccurs="unbounded" name="KeyValueOfstringstring">

```

```

<xs:complexType>
  <xs:sequence>
    <xs:element name="Key" nillable="true" type="xs:string"/>
    <xs:element name="Value" nillable="true" type="xs:string"/>
  </xs:sequence>
</xs:complexType>
</xs:element>
</xs:sequence>
</xs:complexType>
<xs:element name="ArrayOfKeyValueOfstringstring" nillable="true"
type="tns2:ArrayOfKeyValueOfstringstring"/>
</xs:schema>

```

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

```

<?xml version="1.0"?>
<xs:schema xmlns:tns3="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="tns3:char"/>
  <xs:simpleType name="char">
    <xs:restriction base="xs:int"/>
  </xs:simpleType>
  <xs:element name="duration" nillable="true" type="tns3: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="tns3: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:simpleType>
<xs:attribute name="FactoryType" type="xs:QName"/>
<xs:attribute name="Id" type="xs:ID"/>
<xs:attribute name="Ref" type="xs:IDREF"/>
</xs:schema>

```

7.5

http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastParticipantService/ Schema

```

<?xml version="1.0"?>
<xs:schema elementFormDefault="qualified"
targetNamespace="http://schemas.microsoft.com/office/Broadcast/Server/WebServices/BroadcastParticipantService/" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:import schemaLocation="http://www.example.com/m/met/participant.svc?xsd=xsd3"
namespace="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Pipe.Interface"/>
  <xs:import schemaLocation="http://www.example.com/m/met/participant.svc?xsd=xsd1"
namespace="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Interface.Data"/>
  <xs:element name="BroadcastJoinSession">
    <xs:complexType>
      <xs:sequence>
        <xs:element minOccurs="0" name="sessionId" nillable="true" type="xs:string"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
  <xs:element name="BroadcastJoinSessionResponse">
    <xs:complexType>
      <xs:sequence>
        <xs:element
xmlns:tns1="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Pipe.Interface" minOccurs="0" name="BroadcastJoinSessionResult" nillable="true"
type="tns1:ServiceResult"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
  <xs:element name="BroadcastUnjoinSession">
    <xs:complexType>
      <xs:sequence>
        <xs:element minOccurs="0" name="sessionId" nillable="true" type="xs:string"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
  <xs:element name="BroadcastUnjoinSessionResponse">
    <xs:complexType>
      <xs:sequence>
        <xs:element
xmlns:tns1="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Pipe.Interface" minOccurs="0" name="BroadcastUnjoinSessionResult" nillable="true"
type="tns1:ServiceResult"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
  <xs:element name="BroadcastGetData">
    <xs:complexType>

```

```

    <xs:sequence>
      <xs:element
xmlns:tns="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Interface.Data" minOccurs="0" name="user" nillable="true" type="tns:BroadcastUser"/>
      <xs:element minOccurs="0" name="sequenceNumber" type="xs:int"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
<xs:element name="BroadcastGetDataResponse">
  <xs:complexType>
    <xs:sequence>
      <xs:element
xmlns:tns1="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Broadcast.Pipe.Interface" minOccurs="0" name="BroadcastGetDataResult" nillable="true"
type="tns1:ServiceResult"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
</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® PowerPoint® 15 Technical Preview
- Microsoft® PowerPoint® Web App
- Microsoft® Word 15 Technical Preview
- Microsoft® Word Web App

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.

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

A

Abstract data model
 [server](#) 24
[Applicability](#) 8
[AppType simple type](#) 21
[ArrayOfKeyValueOfstringstring complex type](#) 11
[ArrayOfPPTBroadcastAnimationStepData complex type](#) 11
[ArrayOfPPTBroadcastMediaStateData complex type](#) 12
[Attribute groups](#) 22
[Attributes](#) 22

B

[BroadcastAppCapability simple type](#) 16
[BroadcastDataKey simple type](#) 17
[BroadcastState simple type](#) 21

C

[Capability negotiation](#) 8
[Change tracking](#) 49
[char simple type](#) 18
[ClientActions simple type](#) 18
[Complex types](#) 10
 [ArrayOfKeyValueOfstringstring](#) 11
 [ArrayOfPPTBroadcastAnimationStepData](#) 11
 [ArrayOfPPTBroadcastMediaStateData](#) 12
 [EnumTypes](#) 12
 [PPTBroadcastAnimationStepData](#) 13
 [PPTBroadcastMediaStateData](#) 13
 [PPTStateData](#) 13
 [ServiceError](#) 14
 [ServiceResult](#) 15
 [WordStateData](#) 15

D

Data model - abstract
 [server](#) 24
[duration simple type](#) 19

E

[EnumTypes complex type](#) 12
Events
 [local - server](#) 33
 [timer - server](#) 33

F

[Fields - vendor-extensible](#) 8
[Full WSDL](#) 38

G

[Glossary](#) 5
[Groups](#) 22
[guid simple type](#) 19

I

[Implementer - security considerations](#) 37
[Index of security parameters](#) 37
[Informative references](#) 7
Initialization
 [server](#) 24
[Introduction](#) 5

L

Local events
 [server](#) 33

M

Message processing
 [server](#) 24
Messages
 [AppType simple type](#) 21
 [ArrayOfKeyValueOfstringstring complex type](#) 11
 [ArrayOfPPTBroadcastAnimationStepData complex type](#) 11
 [ArrayOfPPTBroadcastMediaStateData complex type](#) 12
 [attribute groups](#) 22
 [attributes](#) 22
 [BroadcastAppCapability simple type](#) 16
 [BroadcastDataKey simple type](#) 17
 [BroadcastState simple type](#) 21
 [char simple type](#) 18
 [ClientActions simple type](#) 18
 [complex types](#) 10
 [duration simple type](#) 19
 [elements](#) 10
 [enumerated](#) 10
 [EnumTypes complex type](#) 12
 [groups](#) 22
 [guid simple type](#) 19
 [namespaces](#) 9
 [PPTBroadcastAnimationStepData complex type](#) 13
 [PPTBroadcastMediaStateData complex type](#) 13
 [PPTMediaPlaybackState simple type](#) 19
 [PPTSlideShowState simple type](#) 20
 [PPTStateData complex type](#) 13
 [ServiceError complex type](#) 14
 [ServiceErrorType simple type](#) 20
 [ServiceResult complex type](#) 15
 [simple types](#) 15
 [syntax](#) 9
 [transport](#) 9
 [WordStateData complex type](#) 15

N

[Namespaces](#) 9
[Normative references](#) 6

O

Operations
 [BroadcastGetData](#) 25
 [BroadcastJoinSession](#) 28
 [BroadcastUnjoinSession](#) 30
[Overview \(synopsis\)](#) 7

P

[Parameters - security index](#) 37
[PPTBroadcastAnimationStepData complex type](#) 13
[PPTBroadcastMediaStateData complex type](#) 13
[PPTMediaPlaybackState simple type](#) 19
[PPTSlideShowState simple type](#) 20
[PPTStateData complex type](#) 13
[Preconditions](#) 8
[Prerequisites](#) 8
[Product behavior](#) 48

R

[References](#) 6
 [informative](#) 7
 [normative](#) 6
[Relationship to other protocols](#) 7

S

Security
 [implementer considerations](#) 37
 [parameter index](#) 37
Sequencing rules
 [server](#) 24
Server
 [abstract data model](#) 24
 [BroadcastGetData operation](#) 25
 [BroadcastJoinSession operation](#) 28
 [BroadcastUnjoinSession operation](#) 30
 [initialization](#) 24
 [local events](#) 33
 [message processing](#) 24
 [sequencing rules](#) 24
 [timer events](#) 33
 [timers](#) 24
 [ServiceError complex type](#) 14
 [ServiceErrorType simple type](#) 20
 [ServiceResult complex type](#) 15
 [Simple types](#) 15
 [AppType](#) 21
 [BroadcastAppCapability](#) 16
 [BroadcastDataKey](#) 17
 [BroadcastState](#) 21
 [char](#) 18
 [ClientActions](#) 18
 [duration](#) 19
 [guid](#) 19

[PPTMediaPlaybackState](#) 19
 [PPTSlideShowState](#) 20
 [ServiceErrorType](#) 20
[Standards assignments](#) 8
Syntax
 [messages - overview](#) 9

T

Timer events
 [server](#) 33
Timers
 [server](#) 24
[Tracking changes](#) 49
[Transport](#) 9
Types
 [complex](#) 10
 [simple](#) 15

V

[Vendor-extensible fields](#) 8
[Versioning](#) 8

W

[WordStateData complex type](#) 15
[WSDL](#) 38