

[MS-PWVRCS]: PowerPoint Web Viewer Rendered Content Structure Specification

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Revision Summary

Date	Revision History	Revision Class	Comments
07/13/2009	0.1	Major	Initial Availability
08/28/2009	0.2	Editorial	Revised and edited the technical content

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1 Introduction

This document specifies the PowerPoint Web Viewer Rendered Content Structure, which is used by a protocol server to send **presentation** content to a protocol client through the PowerPoint Web Viewer Presentation Data Protocol Specification [\[MS-PWVPDP\]](#).

1.1 Glossary

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

hyperlink
main master slide
presentation
presentation slide
shape
slide
slide layout
slide show
ToolTip
URI (Uniform Resource Identifier)
URL (Uniform Resource Locator)

The following terms are specific to this document:

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

1.2 References

1.2.1 Normative References

We conduct frequent surveys of the normative references to assure their continued availability. If you have any issue with finding a normative reference, please contact dochelp@microsoft.com. 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-PWVPDP] Microsoft Corporation, "[PowerPoint Web Viewer Presentation Data Protocol Specification](#)", July 2009.

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

[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>

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

1.3 Structure Overview (Synopsis)

A presentation consists of **slides**, **shapes**, pictures, and other content. A protocol client can use the PowerPoint Web Viewer Presentation Data Protocol Specification [\[MS-PWVPDP\]](#) to request specific pieces of presentation content stored on a protocol server. This structure specifies a set of data types that enable the transfer of such presentation content. It also specifies data types that encapsulate error information that enable the protocol server to signal the protocol client that is unable to serve specific requests.

1.4 Relationship to Protocols and Other Structures

This structure is used by the PowerPoint Web Viewer Presentation Data Protocol Specification [\[MS-PWVPDP\]](#).

1.5 Applicability Statement

This structure is applicable to the communication specified in the PowerPoint Web Viewer Presentation Data Protocol Specification [\[MS-PWVPDP\]](#).

1.6 Versioning and Localization

This document covers versioning issues in the following areas:

- **Structure Versions:** This structure specifies the only version of the PowerPoint Web Viewer Rendered Content Structure
- **Localization:** This structure specifies no locale-specific processes or data.

1.7 Vendor-Extensible Fields

None.

2 Structures

2.1 Global Elements

2.1.1 errorInfo

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

A [CT_ErrorInfo](#) element that specifies the information of a [CT_Error](#). MUST be ignored.

```
<xsd:element name="errorInfo" type="CT_ErrorInfo"/>
```

2.1.2 presSI

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

A [CT_PresentationShowInfo](#) element that specifies the information for showing a presentation.

```
<xsd:element name="presSI" type="CT_PresentationShowInfo"/>
```

2.1.3 sld

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

A [CT_SlideShowInfo](#) element that specifies the information for showing a **presentation slide**.

```
<xsd:element name="sld" type="CT_SlideShowInfo"/>
```

2.2 Global Attributes

None.

2.3 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
CT_SlideLayoutInfo	A complex type that specifies layout information for a presentation slide.
CT_LayoutPosition	A complex type that specifies a two dimensional position.
CT_Image	A complex type that specifies an image.
CT_NotesResource	A complex type that specifies notes content.
CT_Resource	A complex type that specifies a resource for a presentation slide.
CT_Error	Reserved. MUST be ignored.

Complex Type	Description
CT_ErrorList	Reserved. MUST be ignored.
CT_ErrorInfo	Reserved. MUST be ignored.
CT_ResourceEntry	A complex type that specifies a resource description.
CT_ResourceCatalog	A complex type that specifies a set of resources as a sequence of CT_ResourceEntry elements.
CT_MotionPathMoveCmd	A complex type that specifies the next point of a motion path.
CT_MotionPathLineCmd	A complex type that specifies a linear segment of a motion path.
CT_MotionPathCurveCmd	A complex type that specifies a curved segment of a motion path.
CT_MotionPath	A complex type that specifies a motion path.
CT_Rectangle	A complex type that specifies a rectangle.
CT_Hyperlink	A complex type that specifies a hyperlink .
CT_Action	A complex type that specifies information about a slide navigation action.
CT_InteractiveAnimUse	A complex type that specifies information about an animation trigger.
CT_ClickTargetContainer	A complex type that specifies click behaviors for a shape.
CT_AnimTiming	A complex type that specifies timing information for an animation.
CT_AnimIteration	A complex type that specifies timing information for the individual regions of an animation.
CT_GenericImageRegion	A complex type that specifies the image region for a single image relative to a larger image cluster.
CT_ImageRegionUse	A complex type that specifies an image region along with its layout position.
CT_ImageRegionUseList	A complex type that specifies a list of CT_ImageRegionUse elements.
CT_ImageGraph	A complex type that specifies information about images that are required to display an animation, consisting of the primary image and an optional list of image variations.
CT_ImageBackground	A complex type that specifies the image region for a background image relative to a larger image cluster.
CT_SolidFill	A complex type that specifies the information for a solid fill.
CT_BackgroundDesc	A complex type that specifies the background appearance of a presentation slide.
CT_AnimRepeatOption	A complex type that specifies the animation repeat settings for an animation.
CT_ScaleBy	A complex type that specifies the scale factors for animations that use scale effects.
CT_Anim	A complex type that specifies a shape animation.
CT_Transition	A complex type that specifies a slide transition.

Complex Type	Description
CT_Shape	A complex type that specifies a shape object.
CT_ShapeList	A complex type that specifies a list of CT_Shape elements.
CT_AnimList	A complex type that specifies a list of animations.
CT_AnimSeqContainer	A complex type that specifies a series of animation sequences.
CT_SlideShowTimings	A complex type that specifies timing information for a slide show.
CT_Slide	A complex type that specifies a presentation slide.
CT_SlideEntry	A complex type that specifies the basic information of a presentation slide.
CT_SlideEntryList	A complex type that specifies a list of CT_SlideEntry elements.
CT_EmptyType	A complex type that represents an empty type.
CT_IndexRange	A complex type that specifies a zero-based index range of a list.
CT_CustomShow	A complex type that specifies a custom slide show in the form of a sequence of ST_SlideId elements.
CT_ShowProperties	A complex type that specifies the slides that will be shown in a slide show .
CT_PresentationShowInfo	A complex type that specifies the detailed information for showing a presentation.
CT_SlideShowInfo	A complex type that specifies detailed information for showing a presentation slide.

2.3.1 CT_SlideLayoutInfo

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_Slide](#)

A complex type that specifies layout information for a presentation slide.

Attributes:

masterId : An [ST_SlideMasterId](#) attribute that specifies the identifier for the **main master slide**.

layoutId : An [ST_SlideLayoutId](#) attribute that specifies the identifier for the **slide layout**.

fTitleLayout : An xsd:boolean [\[XMLSCHEMA2\]](#) section 3.2.2 attribute that specifies whether this slide uses a layout with one title and one subtitle placeholder.

```
<xsd:complexType name="CT_SlideLayoutInfo">
  <xsd:attribute name="masterId" type="ST_SlideMasterId" use="required"/>
  <xsd:attribute name="layoutId" type="ST_SlideLayoutId" use="required"/>
  <xsd:attribute name="fTitleLayout" type="xsd:boolean" use="required"/>
</xsd:complexType>
```

2.3.2 CT_LayoutPosition

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_ImageRegionUse](#), [CT_Shape](#)

A complex type that specifies a two dimensional position.

Attributes:

x : An [ST_Coordinate32](#) attribute that specifies the x coordinate, in pixels, of the position.

y : An [ST_Coordinate32](#) attribute that specifies the y coordinate, in pixels, of the position.

```
<xsd:complexType name="CT_LayoutPosition">
  <xsd:attribute name="x" type="ST_Coordinate32" use="required"/>
  <xsd:attribute name="y" type="ST_Coordinate32" use="required"/>
</xsd:complexType>
```

2.3.3 CT_Image

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_Resource](#)

A complex type that specifies an image.

Attributes:

id : An [ST_GenericResourceId](#) attribute that specifies a unique identifier for an image.

src : An [ST_ResourceUrl](#) attribute that specifies the source path **URL** of the image. This attribute's contents SHOULD use the HTTP [\[RFC2616\]](#) and HTTPS [\[RFC2818\]](#) protocols.

```
<xsd:complexType name="CT_Image">
  <xsd:attribute name="id" type="ST_GenericResourceId" use="required"/>
  <xsd:attribute name="src" type="ST_ResourceUrl" use="required"/>
</xsd:complexType>
```

2.3.4 CT_NotesResource

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_Resource](#)

A complex type that specifies notes content.

Attributes:

id : An [ST_GenericResourceId](#) attribute that specifies a unique identifier for the notes content.

storeId : A [xsd:string](#) [\[XMLSCHEMA2\]](#) 3.2.1 attribute that specifies a unique file name identifier for the notes content. It MUST use a file extension of ".html".

```
<xsd:complexType name="CT_NotesResource">
```

```

<xsd:attribute name="id" type="ST_GenericResourceId" use="required"/>
<xsd:attribute name="storeId" type="xsd:string" use="required"/>
</xsd:complexType>

```

2.3.5 CT_Resource

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

A complex type that specifies a resource for a presentation slide.

Child Elements:

img : A [CT_Image](#) element that specifies an image resource.

notes : A [CT_NotesResource](#) element that specifies a notes content resource.

```

<xsd:complexType name="CT_Resource">
  <xsd:sequence>
    <xsd:element name="img" type="CT_Image" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element name="notes" type="CT_NotesResource" minOccurs="0" maxOccurs="unbounded"/>
  </xsd:sequence>
</xsd:complexType>

```

2.3.6 CT_Error

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_ErrorList](#), [CT_ErrorInfo](#)

Reserved. MUST be ignored.

Child Elements:

p : MUST be ignored.

Attributes:

id : MUST be ignored.

```

<xsd:complexType name="CT_Error">
  <xsd:sequence>
    <xsd:element name="p" type="xsd:string" minOccurs="0" maxOccurs="unbounded"/>
  </xsd:sequence>
  <xsd:attribute name="id" type="xsd:unsignedInt" use="required"/>
</xsd:complexType>

```

2.3.7 CT_ErrorList

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_SlideShowInfo](#)

Reserved. MUST be ignored.

Child Elements:

err : MUST be ignored.

```
<xsd:complexType name="CT_ErrorList">
  <xsd:sequence>
    <xsd:element name="err" type="CT_Error" minOccurs="0" maxOccurs="unbounded"/>
  </xsd:sequence>
</xsd:complexType>
```

2.3.8 CT_ErrorInfo

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [errorInfo](#)

Reserved. MUST be ignored.

Child Elements:

err : MUST be ignored.

Attributes:

schmVer : MUST be ignored.

```
<xsd:complexType name="CT_ErrorInfo">
  <xsd:sequence>
    <xsd:element name="err" type="CT_Error" minOccurs="1" maxOccurs="1"/>
  </xsd:sequence>
  <xsd:attribute name="schmVer" type="xsd:unsignedInt" use="required"/>
</xsd:complexType>
```

2.3.9 CT_ResourceEntry

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_ResourceCatalog](#)

A complex type that specifies a resource description.

Attributes:

id : An [ST_GenericResourceId](#) attribute that specifies the unique identifier of the resource description.

name : A `xsd:string` [\[XMLSCHEMA2\] 3.2.1](#) attribute that specifies the name of the resource description. The name MUST have a file name extension and the file name extension SHOULD be a valid image file type.

```
<xsd:complexType name="CT_ResourceEntry">
  <xsd:attribute name="id" type="ST_GenericResourceId" use="required"/>
  <xsd:attribute name="name" type="xsd:string" use="required"/>
</xsd:complexType>
```

2.3.10 CT_ResourceCatalog

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_Slide](#)

A complex type that specifies a set of resources as a sequence of [CT_ResourceEntry](#) elements.

Child Elements:

img : A CT_ResourceEntry element that specifies an image.

html : A CT_ResourceEntry element that specifies the source path URL of the image. This element's contents SHOULD use the HTTP [\[RFC2616\]](#) and HTTPS [\[RFC2818\]](#) protocols.

```
<xsd:complexType name="CT_ResourceCatalog">
  <xsd:sequence>
    <xsd:element name="img" type="CT_ResourceEntry" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element name="html" type="CT_ResourceEntry" minOccurs="0" maxOccurs="unbounded"/>
  </xsd:sequence>
</xsd:complexType>
```

2.3.11 CT_MotionPathMoveCmd

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_MotionPath](#)

A complex type that specifies the next point of a motion path.

Attributes:

x : An [ST_Coordinate32](#) attribute that specifies the x coordinate, in pixels, of the point.

y : An ST_Coordinate32 attribute that specifies the y coordinate, in pixels, of the point.

```
<xsd:complexType name="CT_MotionPathMoveCmd">
  <xsd:attribute name="x" type="ST_Coordinate32" use="required"/>
  <xsd:attribute name="y" type="ST_Coordinate32" use="required"/>
</xsd:complexType>
```

2.3.12 CT_MotionPathLineCmd

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_MotionPath](#)

A complex type that specifies a linear segment of a motion path.

Attributes:

x : An [ST_Coordinate32](#) attribute that specifies the x coordinate, in pixels, of the segment's endpoint.

y : An ST_Coordinate32 attribute that specifies the y coordinate, in pixels, of the segment's endpoint.

```

<xsd:complexType name="CT_MotionPathLineCmd">
  <xsd:attribute name="x" type="ST_Coordinate32" use="required"/>
  <xsd:attribute name="y" type="ST_Coordinate32" use="required"/>
</xsd:complexType>

```

2.3.13 CT_MotionPathCurveCmd

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_MotionPath](#)

A complex type that specifies a curved segment of a motion path. The curve is described as a Bezier curve with three control points.

Attributes:

x1 : An [ST_Coordinate32](#) attribute that specifies the x coordinate, in pixels, of the first control point for the segment.

y1 : An [ST_Coordinate32](#) attribute that specifies the y coordinate, in pixels, of the first control point for the segment.

x2 : An [ST_Coordinate32](#) attribute that specifies the x coordinate, in pixels, of the second control point for the segment.

y2 : An [ST_Coordinate32](#) attribute that specifies the y coordinate, in pixels, of the second control point for the segment.

x3 : An [ST_Coordinate32](#) attribute that specifies the x coordinate, in pixels, of the third control point for the segment.

y3 : An [ST_Coordinate32](#) attribute that specifies the y coordinate, in pixels, of the third control point for the segment.

```

<xsd:complexType name="CT_MotionPathCurveCmd">
  <xsd:attribute name="x1" type="ST_Coordinate32" use="required"/>
  <xsd:attribute name="y1" type="ST_Coordinate32" use="required"/>
  <xsd:attribute name="x2" type="ST_Coordinate32" use="required"/>
  <xsd:attribute name="y2" type="ST_Coordinate32" use="required"/>
  <xsd:attribute name="x3" type="ST_Coordinate32" use="required"/>
  <xsd:attribute name="y3" type="ST_Coordinate32" use="required"/>
</xsd:complexType>

```

2.3.14 CT_MotionPath

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_Anim](#)

A complex type that specifies a motion path.

Child Elements:

mv : A [CT_MotionPathMoveCmd](#) element that specifies the next point of the motion path.

ln : A [CT_MotionPathLineCmd](#) element that specifies a linear segment of the motion path.

cv : A [CT_MotionPathCurveCmd](#) element that specifies a curve segment of the motion path.

Attributes:

rev : An optional `xsd:boolean` [\[XMLSCHEMA2\]](#) section 3.2.2 attribute that specifies whether the motion path is reversed.

```
<xsd:complexType name="CT_MotionPath">
  <xsd:choice minOccurs="0" maxOccurs="unbounded">
    <xsd:element name="mv" type="CT_MotionPathMoveCmd"/>
    <xsd:element name="ln" type="CT_MotionPathLineCmd"/>
    <xsd:element name="cv" type="CT_MotionPathCurveCmd"/>
  </xsd:choice>
  <xsd:attribute name="rev" type="xsd:boolean" use="optional" default="false"/>
</xsd:complexType>
```

2.3.15 CT_Rectangle

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_Hyperlink](#), [CT_Action](#), [CT_InteractiveAnimUse](#)

A complex type that specifies a rectangle.

Attributes:

l : An [ST_Coordinate32](#) attribute that specifies the x coordinate of the upper-left corner of the rectangle, in pixels.

t : An [ST_Coordinate32](#) attribute that specifies the y coordinate of the upper-left corner of the rectangle, in pixels.

w : An [ST_PositiveCoordinate32](#) attribute that specifies the width of the rectangle, in pixels.

h : An [ST_PositiveCoordinate32](#) attribute that specifies height of the rectangle, in pixels.

```
<xsd:complexType name="CT_Rectangle">
  <xsd:attribute name="l" type="ST_Coordinate32" use="required"/>
  <xsd:attribute name="t" type="ST_Coordinate32" use="required"/>
  <xsd:attribute name="w" type="ST_PositiveCoordinate32" use="required"/>
  <xsd:attribute name="h" type="ST_PositiveCoordinate32" use="required"/>
</xsd:complexType>
```

2.3.16 CT_Hyperlink

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_ClickTargetContainer](#)

A complex type that specifies a hyperlink.

Child Elements:

rct : A [CT_Rectangle](#) element that specifies the hit test region for this hyperlink.

Attributes:

url : An xsd:string [\[XMLSCHEMA2\]](#) section 3.2.1 attribute that specifies the target URL for the hyperlink.

tip : An optional xsd:string [\[XMLSCHEMA2\]](#) section 3.2.1 attribute that specifies the text content for the hyperlink's **ToolTip**.

```
<xsd:complexType name="CT_Hyperlink">
  <xsd:sequence>
    <xsd:element name="rct" type="CT_Rectangle" minOccurs="1" maxOccurs="1"/>
  </xsd:sequence>
  <xsd:attribute name="url" type="xsd:string" use="required"/>
  <xsd:attribute name="tip" type="xsd:string" use="optional" default=""/>
</xsd:complexType>
```

2.3.17 CT_Action

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_ClickTargetContainer](#)

A complex type that specifies information about a slide navigation action.

Child Elements:

rct : A [CT_Rectangle](#) element that specifies the hit test region that triggers this action.

Attributes:

sldId : An [ST_SlideId](#) attribute that specifies the identifier of the target presentation slide that is associated with this action.

```
<xsd:complexType name="CT_Action">
  <xsd:sequence>
    <xsd:element name="rct" type="CT_Rectangle" minOccurs="1" maxOccurs="1"/>
  </xsd:sequence>
  <xsd:attribute name="sldId" type="ST_SlideId" use="required"/>
</xsd:complexType>
```

2.3.18 CT_InteractiveAnimUse

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_ClickTargetContainer](#)

A complex type that specifies information about an animation trigger.

Child Elements:

rct : A [CT_Rectangle](#) element that specifies the hit test region that triggers the animation.

Attributes:

seqId : An [ST_AnimSeqId](#) attribute that specifies the identifier of the animation timeline that is triggered when the hit test region is clicked.

```

<xsd:complexType name="CT_InteractiveAnimUse">
  <xsd:sequence>
    <xsd:element name="rct" type="CT_Rectangle" minOccurs="1" maxOccurs="1"/>
  </xsd:sequence>
  <xsd:attribute name="seqId" type="ST_AnimSeqId" use="required"/>
</xsd:complexType>

```

2.3.19 CT_ClickTargetContainer

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_Shape](#)

A complex type that specifies click behaviors for a shape.

Child Elements:

hlnk : A [CT_Hyperlink](#) element that specifies an external hyperlink click target.

actn : A [CT_Action](#) element that specifies a click target that navigates to another presentation slide in the presentation.

anim : A [CT_InteractiveAnimUse](#) element that specifies an animation timeline trigger.

```

<xsd:complexType name="CT_ClickTargetContainer">
  <xsd:choice minOccurs="0" maxOccurs="unbounded">
    <xsd:element name="hlnk" type="CT_Hyperlink"/>
    <xsd:element name="actn" type="CT_Action"/>
    <xsd:element name="anim" type="CT_InteractiveAnimUse"/>
  </xsd:choice>
</xsd:complexType>

```

2.3.20 CT_AnimTiming

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_Anim](#)

A complex type that specifies timing information for an animation.

Attributes:

st : An optional [ST_AnimStart](#) attribute that specifies how the animation start time is determined.

off : An optional [ST_TimeOffset](#) attribute that specifies the time offset, in milliseconds, of the start of the animation.

spd : An optional [ST_AnimSpeed](#) attribute that specifies information about the duration of the animation, in milliseconds.

```

<xsd:complexType name="CT_AnimTiming">
  <xsd:attribute name="st" type="ST_AnimStart" use="optional" default="c"/>
  <xsd:attribute name="off" type="ST_TimeOffset" use="optional" default="0"/>
  <xsd:attribute name="spd" type="ST_AnimSpeed" use="optional" default="def"/>
</xsd:complexType>

```

2.3.21 CT_AnimIteration

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_Anim](#)

A complex type that specifies timing information for the individual regions of an animation.

Attributes:

interval : A [ST_NonNegativeCoordinate32](#) attribute that specifies the time, in milliseconds, between each animation region's start time.

reversed : An `xsd:boolean` [\[XMLSCHEMA2\]](#) section 3.2.2 attribute that specifies whether the animation regions play back in reverse order.

```
<xsd:complexType name="CT_AnimIteration">
  <xsd:attribute name="interval" type="ST_NonNegativeCoordinate32" use="required"/>
  <xsd:attribute name="reversed" type="xsd:boolean" use="optional" default="false"/>
</xsd:complexType>
```

2.3.22 CT_GenericImageRegion

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_ImageRegionUse](#), [CT_Shape](#), [CT_Slide](#)

A complex type that specifies the image region for a single image relative to a larger image cluster.

Attributes:

imgID : An [ST_GenericResourceId](#) attribute that specifies the identifier for this image region.

x : An [ST_NonNegativeCoordinate32](#) attribute that specifies the x coordinate, in pixels, of the upper-left corner of the image region.

y : An [ST_NonNegativeCoordinate32](#) attribute that specifies the y coordinate, in pixels, of the upper-left corner of the image region.

w : An [ST_PositiveCoordinate32](#) attribute that specifies the width, in pixels, of the image region.

h : An [ST_PositiveCoordinate32](#) attribute that specifies the height, in pixels, of the image region.

```
<xsd:complexType name="CT_GenericImageRegion">
  <xsd:attributeGroup ref="AG_GenericImageRegion"/>
</xsd:complexType>
```

2.3.23 CT_ImageRegionUse

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_ImageRegionUseList](#), [CT_ImageGraph](#)

A complex type that specifies an image region along with its layout position.

Child Elements:

reg : A [CT_GenericImageRegion](#) element that specifies source information about the individual image relative to a larger image cluster.

pos : A [CT_LayoutPosition](#) element that specifies the location for the image.

```
<xsd:complexType name="CT_ImageRegionUse">
  <xsd:sequence>
    <xsd:element name="reg" type="CT_GenericImageRegion"/>
    <xsd:element name="pos" type="CT_LayoutPosition"/>
  </xsd:sequence>
</xsd:complexType>
```

2.3.24 CT_ImageRegionUseList

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_ImageGraph](#), [CT_Shape](#)

A complex type that specifies a list of [CT_ImageRegionUse](#) elements.

Child Elements:

imgUse : A [CT_ImageRegionUse](#) element that specifies a single image region and layout.

```
<xsd:complexType name="CT_ImageRegionUseList">
  <xsd:sequence>
    <xsd:element name="imgUse" type="CT_ImageRegionUse" minOccurs="0" maxOccurs="unbounded"/>
  </xsd:sequence>
</xsd:complexType>
```

2.3.25 CT_ImageGraph

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_Anim](#)

A complex type that specifies information about images that are required to display an animation, consisting of the primary image and an optional list of image variations.

Child Elements:

base : A [CT_ImageRegionUse](#) element that specifies the image region and position for the primary image in the image graph.

children : A [CT_ImageRegionUseList](#) element that specifies a list of images and regions for the individual image variations in the image graph.

```
<xsd:complexType name="CT_ImageGraph">
  <xsd:sequence>
    <xsd:element name="base" type="CT_ImageRegionUse"/>
    <xsd:element name="children" type="CT_ImageRegionUseList" minOccurs="0" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
```

2.3.26 CT_ImageBackground

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_BackgroundDesc](#)

A complex type that specifies the image region for a background image relative to a larger image cluster.

Attributes:

imgID : An [ST_GenericResourceId](#) attribute that specifies the identifier for this image region.

x : An [ST_NonNegativeCoordinate32](#) attribute that specifies the x coordinate, in pixels, of the upper-left corner of the image region.

y : An [ST_NonNegativeCoordinate32](#) attribute that specifies the y coordinate, in pixels, of the upper-left corner of the image region.

w : An [ST_PositiveCoordinate32](#) attribute that specifies the width, in pixels, of the image region.

h : An [ST_PositiveCoordinate32](#) attribute that specifies the height, in pixels, of the image region.

```
<xsd:complexType name="CT_ImageBackground">
  <xsd:attributeGroup ref="AG_GenericImageRegion"/>
</xsd:complexType>
```

2.3.27 CT_SolidFill

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_BackgroundDesc](#)

A complex type that specifies the information for a solid fill.

Attributes:

clr : An [ST_RGBColor](#) attribute that specifies the fill color.

transp : An optional [ST_Transparency](#) attribute that specifies the amount of transparency, in percent, of the fill color.

```
<xsd:complexType name="CT_SolidFill">
  <xsd:attribute name="clr" type="ST_RGBColor" use="required"/>
  <xsd:attribute name="transp" type="ST_Transparency" use="optional" default="0"/>
</xsd:complexType>
```

2.3.28 CT_BackgroundDesc

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_Slide](#)

A complex type that specifies the background appearance of a presentation slide.

Child Elements:

img : An [CT_ImageBackground](#) element that specifies the image to use for the background.

clrFill : An [CT_SolidFill](#) element that specifies the color fill to use for the background.

```
<xsd:complexType name="CT_BackgroundDesc">
  <xsd:choice minOccurs="1" maxOccurs="1">
    <xsd:element name="img" type="CT_ImageBackground"/>
    <xsd:element name="clrFill" type="CT_SolidFill"/>
  </xsd:choice>
</xsd:complexType>
```

2.3.29 CT_AnimRepeatOption

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_Anim](#)

A complex type that specifies the animation repeat settings for an animation.

Attributes:

type : An [ST_AnimRepeatType](#) attribute that specifies how this animation repeats.

count : An optional [ST_NonNegativeCoordinate32](#) attribute that specifies the number of repeats for this animation.

```
<xsd:complexType name="CT_AnimRepeatOption">
  <xsd:attribute name="type" type="ST_AnimRepeatType" use="required"/>
  <xsd:attribute name="count" type="ST_NonNegativeCoordinate32" use="optional" default="0"/>
</xsd:complexType>
```

2.3.30 CT_ScaleBy

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_Anim](#)

A complex type that specifies the scale factors for animations that use scale effects.

Attributes:

x : An [ST_NonNegativeCoordinate32](#) attribute that specifies the x scale factor, in percentage of original size, for the animation.

y : An [ST_NonNegativeCoordinate32](#) attribute that specifies the y scale factor, in percentage of original size, for the animation.

```
<xsd:complexType name="CT_ScaleBy">
  <xsd:attribute name="x" type="ST_NonNegativeCoordinate32" use="required"/>
  <xsd:attribute name="y" type="ST_NonNegativeCoordinate32" use="required"/>
</xsd:complexType>
```

2.3.31 CT_Anim

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_AnimList](#)

A complex type that specifies a shape animation.

Child Elements:

timing : A [CT_AnimTiming](#) element that specifies the timing information for this animation.

mp : An optional [CT_MotionPath](#) element that specifies the motion path to be used for this animation.

empImgs : An optional [CT_ImageGraph](#) element that specifies image information to be used by this animation.

scaleBy : An optional [CT_ScaleBy](#) element that specifies scale information to be used by this animation.

repeat : An optional [CT_AnimRepeatOption](#) element that specifies repeat information to be used by this animation.

iter : An optional [CT_AnimIteration](#) element that specifies child element timing information to be used by this animation.

Attributes:

sp : An [ST_ShapeId](#) attribute that specifies the identifier of the shape to which this animation applies.

effectType : An [ST_EffectType](#) attribute that specifies the type of animation effect for this animation.

effectId : An [ST_EffectId](#) attribute that specifies the animation effect for this animation.

dir : An optional [ST_EffectDir](#) attribute that specifies the variant of an animation effect for this animation.

autoRev : An optional xsd:boolean [\[XMLSCHEMA2\]](#) section 3.2.2 attribute that specifies whether this animation automatically plays in reverse after the initial animation.

rewind : An optional xsd:boolean [\[XMLSCHEMA2\]](#) section 3.2.2 attribute that specifies whether the shape returns to its original position when the animation has finished.

rotAng : An optional [ST_Coordinate32](#) attribute that specifies the rotation amount, in degrees, by which the shape rotates, for animations that use a rotate component.

transp : An optional [ST_Transparency](#) attribute that specifies the amount of transparency, in percent, to apply to the shape for animations that use a transparency component.

hideAfter : An optional [ST_HideAfterAnimType](#) attribute that specifies the behavior to apply to the shape once the animation ends.

```
<xsd:complexType name="CT_Anim">
  <xsd:sequence>
    <xsd:element name="timing" type="CT_AnimTiming"/>
  </xsd:sequence>
</xsd:complexType>
```

```

<xsd:element name="mp" type="CT_MotionPath" minOccurs="0" maxOccurs="1"/>
<xsd:element name="empImgs" type="CT_ImageGraph" minOccurs="0" maxOccurs="1"/>
<xsd:element name="scaleBy" type="CT_ScaleBy" minOccurs="0" maxOccurs="1"/>
<xsd:element name="repeat" type="CT_AnimRepeatOption" minOccurs="0" maxOccurs="1"/>
<xsd:element name="iter" type="CT_AnimIteration" minOccurs="0" maxOccurs="1"/>
</xsd:sequence>
<xsd:attribute name="sp" type="ST_ShapeId" use="required"/>
<xsd:attribute name="effectType" type="ST_EffectType" use="required"/>
<xsd:attribute name="effectId" type="ST_EffectId" use="required"/>
<xsd:attribute name="dir" type="ST_EffectDir" use="optional" default="0"/>
<xsd:attribute name="autoRev" type="xsd:boolean" use="optional" default="false"/>
<xsd:attribute name="rewind" type="xsd:boolean" use="optional" default="false"/>
<xsd:attribute name="rotAng" type="ST_Coordinate32" use="optional" default="0"/>
<xsd:attribute name="transp" type="ST_Transparency" use="optional" default="0"/>
<xsd:attribute name="hideAfter" type="ST_HideAfterAnimType" use="optional" default="non"/>
</xsd:complexType>

```

2.3.32 CT_Transition

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_Slide](#)

A complex type that specifies a slide transition.

Attributes:

type : An `xsd:unsignedByte` [\[XMLSCHEMA2\] 3.3.24](#) attribute that specifies the type of the transition.

Value	Meaning
0x00	The transition is a cut transition. A cut transition immediately changes to the next slide with no visual effect between slides. If the dir attribute equals the value 0x01, the cut transition first transitions to a black slide before transitioning to the next presentation slide. If the dir attribute does not equal the value 0x01, the cut transition transitions directly to the next presentation slide.
0x06	The transition is a fade through black transition which fades to a black slide before fading to the next presentation slide.
All Other Values	The transition is a fade to the next presentation slide.

dur : An [ST_NonNegativeCoordinate32](#) attribute that specifies the duration of the transition.

dir : An `xsd:unsignedByte` [\[XMLSCHEMA2\] 3.3.24](#) attribute that specifies whether a cut transition is used. If the value of the **type** attribute is not 0x00, this attribute MUST be ignored.

```

<xsd:complexType name="CT_Transition">
  <xsd:attribute name="type" type="xsd:unsignedByte" use="required"/>
  <xsd:attribute name="dur" type="ST_NonNegativeCoordinate32" use="required"/>
  <xsd:attribute name="dir" type="xsd:unsignedByte" use="required"/>
</xsd:complexType>

```

2.3.33 CT_Shape

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_ShapeList](#)

A complex type that specifies a shape object.

Child Elements:

reg : A [CT_GenericImageRegion](#) element that specifies the region of the shape.

pos : A [CT_LayoutPosition](#) element that specifies the position of the shape.

children : A [CT_ImageRegionUseList](#) element that specifies the children of the shape.

clkTgts : A [CT_ClickTargetContainer](#) element that specifies the click target of the shape.

Attributes:

id : An [ST_ShapeId](#) attribute that specifies the unique identifier of the shape.

bgSp : Reserved. MUST be ignored.

```
<xsd:complexType name="CT_Shape">
  <xsd:sequence>
    <xsd:element name="reg" type="CT_GenericImageRegion" minOccurs="1"/>
    <xsd:element name="pos" type="CT_LayoutPosition"/>
    <xsd:element name="children" type="CT_ImageRegionUseList" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="clkTgts" type="CT_ClickTargetContainer" minOccurs="0" maxOccurs="1"/>
  </xsd:sequence>
  <xsd:attribute name="id" type="ST_ShapeId" use="required"/>
  <xsd:attribute name="bgSp" type="xsd:boolean" use="optional" default="false"/>
</xsd:complexType>
```

2.3.34 CT_ShapeList

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_Slide](#)

A complex type that specifies a list of [CT_Shape](#) elements.

Child Elements:

sp : An element that specifies a CT_Shape.

```
<xsd:complexType name="CT_ShapeList">
  <xsd:sequence>
    <xsd:element name="sp" type="CT_Shape" minOccurs="0" maxOccurs="unbounded"/>
  </xsd:sequence>
</xsd:complexType>
```

2.3.35 CT_AnimList

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_AnimSeqContainer](#), [CT_Slide](#)

A complex type that specifies a list of animations.

Child Elements:

anim : A [CT_Anim](#) element that specifies an animation.

Attributes:

id : An [ST_AnimSeqId](#) attribute that specifies the unique identifier of the list.

```
<xsd:complexType name="CT_AnimList">
  <xsd:sequence>
    <xsd:element name="anim" type="CT_Anim" minOccurs="0" maxOccurs="unbounded"/>
  </xsd:sequence>
  <xsd:attribute name="id" type="ST_AnimSeqId" use="required"/>
</xsd:complexType>
```

2.3.36 CT_AnimSeqContainer

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_Slide](#)

A complex type that specifies a series of animation sequences.

Child Elements:

animSeq : A [CT_AnimList](#) element that specifies a list of animations.

```
<xsd:complexType name="CT_AnimSeqContainer">
  <xsd:sequence>
    <xsd:element name="animSeq" type="CT_AnimList" minOccurs="0" maxOccurs="unbounded"/>
  </xsd:sequence>
</xsd:complexType>
```

2.3.37 CT_SlideShowTimings

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_Slide](#)

A complex type that specifies timing information for a slide show.

Attributes:

clickTimes : Reserved. MUST be ignored.

autoAdv : An optional `xsd:boolean` [\[XMLSCHEMA2\] 3.2.2](#) attribute that specifies whether a presentation slide will automatically advance when viewed in a slide show.

autoAdvTime : An optional [ST_NonNegativeCoordinate32](#) attribute that specifies the timing, in milliseconds, at which the slide show automatically advances.

manualAdv : An optional xsd:boolean [\[XMLSCHEMA2\]](#) 3.2.2 attribute that specifies whether the user can manually advance.

```
<xsd:complexType name="CT_SlideShowTimings">
  <xsd:attribute name="clickTimes" type="xsd:string" use="optional" default=""/>
  <xsd:attribute name="autoAdv" type="xsd:boolean" use="optional" default="false"/>
  <xsd:attribute name="autoAdvTime" type="ST_NonNegativeCoordinate32" use="optional"
  default="0"/>
  <xsd:attribute name="manualAdv" type="xsd:boolean" use="optional" default="true"/>
</xsd:complexType>
```

2.3.38 CT_Slide

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_SlideShowInfo](#)

A complex type that specifies a presentation slide.

Child Elements:

bgReg : A [CT_GenericImageRegion](#) element that specifies the background region of the presentation slide.

bg : A [CT_BackgroundDesc](#) element that specifies the background appearance of the presentation slide.

spLst : A [CT_ShapeList](#) element that specifies the shapes that are included in the presentation slide.

trans : A [CT_Transition](#) element that specifies the slide transition.

animLst : A [CT_AnimList](#) element that specifies the list of animations of the presentation slide.

animSeqs : A [CT_AnimSeqContainer](#) element that specifies a series of animation sequences.

ssTimes : A [CT_SlideShowTimings](#) element that specifies timing information for a slide show.

layoutInfo : A [CT_SlideLayoutInfo](#) element that specifies the layout information for the presentation slide.

resCat : A [CT_ResourceCatalog](#) element that specifies a set of resources that are in the presentation slide.

Attributes:

id : An [ST_SlideId](#) attribute that specifies a unique identifier for the presentation slide.

title : An optional xsd:string [\[XMLSCHEMA2\]](#) attribute that specifies the title of the presentation slide.

notesId : An optional [ST_GenericResourceId](#) attribute that specifies a unique identifier for the notes contents of the presentation slide.

hidden : An optional xsd:boolean [\[XMLSCHEMA2\]](#) 3.2.2 attribute that specifies whether the presentation slide is hidden.

```
<xsd:complexType name="CT_Slide">
```

```

<xsd:sequence>
  <xsd:element name="bgReg" type="CT_GenericImageRegion" minOccurs="0" maxOccurs="1"/>
  <xsd:element name="bg" type="CT_BackgroundDesc" minOccurs="0" maxOccurs="1"/>
  <xsd:element name="spLst" type="CT_ShapeList" minOccurs="0" maxOccurs="1"/>
  <xsd:element name="trans" type="CT_Transition" minOccurs="0" maxOccurs="1"/>
  <xsd:element name="animLst" type="CT_AnimList" minOccurs="0" maxOccurs="1"/>
  <xsd:element name="animSeqs" type="CT_AnimSeqContainer" minOccurs="0" maxOccurs="1"/>
  <xsd:element name="ssTimes" type="CT_SlideShowTimings" minOccurs="0" maxOccurs="1"/>
  <xsd:element name="layoutInfo" type="CT_SlideLayoutInfo" minOccurs="0" maxOccurs="1"/>
  <xsd:element name="resCat" type="CT_ResourceCatalog" minOccurs="1" maxOccurs="1"/>
</xsd:sequence>
<xsd:attribute name="id" type="ST_SlideId" use="required"/>
<xsd:attribute name="title" type="xsd:string" use="optional" default=""/>
<xsd:attribute name="notesId" type="ST_GenericResourceId" use="optional" default=""/>
<xsd:attribute name="hidden" type="xsd:boolean" use="optional" default="false"/>
</xsd:complexType>

```

2.3.39 CT_SlideEntry

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_SlideEntryList](#)

A complex type that specifies the basic information of a presentation slide.

Attributes:

title : An optional `xsd:string` [\[XMLSCHEMA2\]](#) 3.2.1 attribute that specifies the title of the presentation slide.

id : An [ST_SlideId](#) attribute that specifies the unique identifier of the presentation slide.

sldInfo : A `xsd:string` [\[XMLSCHEMA2\]](#) 3.2.1 attribute that specifies a name that uniquely refers to detailed information of the presentation slide in the presentation.

```

<xsd:complexType name="CT_SlideEntry">
  <xsd:attribute name="title" type="xsd:string" use="optional" default=""/>
  <xsd:attribute name="id" type="ST_SlideId" use="required"/>
  <xsd:attribute name="sldInfo" type="xsd:string" use="required"/>
</xsd:complexType>

```

2.3.40 CT_SlideEntryList

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_PresentationShowInfo](#)

A complex type that specifies a list of [CT_SlideEntry](#) elements.

Child Elements:

sld : An element that specifies a `CT_SlideEntry`.

```

<xsd:complexType name="CT_SlideEntryList">
  <xsd:sequence>

```

```

        <xsd:element name="sld" type="CT_SlideEntry" minOccurs="0" maxOccurs="unbounded"/>
    </xsd:sequence>
</xsd:complexType>

```

2.3.41 CT_EmptyType

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_ShowProperties](#)

A complex type that represents an empty type. MAY be used where no specific element needs to be present.

```

<xsd:complexType name="CT_EmptyType"/>

```

2.3.42 CT_IndexRange

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_ShowProperties](#)

A complex type that specifies a zero-based index range of a list.

Attributes:

st : An xsd:unsignedInt [\[XMLSCHEMA2\]](#) section 3.3.22 attribute that specifies the inclusive start index of the range.

end : An xsd:unsignedInt [\[XMLSCHEMA2\]](#) section 3.3.22 attribute that specifies the non-inclusive end index of the range.

```

<xsd:complexType name="CT_IndexRange">
    <xsd:attribute name="st" type="xsd:unsignedInt" use="required"/>
    <xsd:attribute name="end" type="xsd:unsignedInt" use="required"/>
</xsd:complexType>

```

2.3.43 CT_CustomShow

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_ShowProperties](#)

A complex type that specifies a custom slide show in the form of a sequence of [ST_SlideId](#) elements.

Child Elements:

s : An element that specifies a ST_SlideId.

```

<xsd:complexType name="CT_CustomShow">
    <xsd:sequence>
        <xsd:element name="s" type="ST_SlideId" minOccurs="0" maxOccurs="unbounded"/>
    </xsd:sequence>

```

</xsd:complexType>

2.3.44 CT_ShowProperties

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_PresentationShowInfo](#)

A complex type that specifies the slides that will be shown in a slide show.

Child Elements:

all : A [CT_EmptyType](#) element that specifies that all slides will be shown.

rng : A [CT_IndexRange](#) element that specifies the range of the slides that will be shown. The range MUST be contained within the presentation's range.

cus : A [CT_CustomShow](#) element that specifies a custom slide show. Only slides in the corresponding custom show will be shown. All slides within the custom show MUST be within the presentation.

```
<xsd:complexType name="CT_ShowProperties">
  <xsd:choice minOccurs="1" maxOccurs="1">
    <xsd:element name="all" type="CT_EmptyType"/>
    <xsd:element name="rng" type="CT_IndexRange"/>
    <xsd:element name="cus" type="CT_CustomShow"/>
  </xsd:choice>
</xsd:complexType>
```

2.3.45 CT_PresentationShowInfo

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [presSI](#)

A complex type that specifies the detailed information for showing a presentation.

Child Elements:

sldLst : A [CT_SlideEntryList](#) element that specifies complex type that specifies a list of slide entries.

showPr : A [CT_ShowProperties](#) element that specifies the presentation slides that will be shown.

Attributes:

w : An [ST_PositiveCoordinate32](#) attribute that specifies the width of a presentation in pixels.

h : An [ST_PositiveCoordinate32](#) attribute that specifies the height of a presentation in pixels.

rtl : Reserved. MUST be ignored.

schmVer : An [xsd:unsignedInt](#) [\[XMLSCHEMA2\]](#) 3.3.22 attribute that specifies the schema version of the presentation.

```
<xsd:complexType name="CT_PresentationShowInfo">
```

```

<xsd:sequence>
  <xsd:element name="sldLst" type="CT_SlideEntryList" minOccurs="1" maxOccurs="1"/>
  <xsd:element name="showPr" type="CT_ShowProperties" minOccurs="1" maxOccurs="1"/>
</xsd:sequence>
<xsd:attribute name="w" type="ST_PositiveCoordinate32" use="required"/>
<xsd:attribute name="h" type="ST_PositiveCoordinate32" use="required"/>
<xsd:attribute name="rtl" type="xsd:boolean" use="required"/>
<xsd:attribute name="schmVer" type="xsd:unsignedInt" use="required"/>
</xsd:complexType>

```

2.3.46 CT_SlideShowInfo

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [sld](#)

A complex type that specifies detailed information for showing a presentation slide.

Child Elements:

sld : A [CT_Slide](#) element that specifies a unique identifier that refers to a presentation slide.

errLst : Reserved. MUST be ignored.

Attributes:

schmVer : An `xsd:unsignedInt` [\[XMLSCHEMA2\]](#) 3.3.22 attribute that specifies the schema version.

```

<xsd:complexType name="CT_SlideShowInfo">
  <xsd:sequence>
    <xsd:element name="sld" type="CT_Slide" minOccurs="1" maxOccurs="1"/>
    <xsd:element name="errLst" type="CT_ErrorList" minOccurs="0" maxOccurs="1"/>
  </xsd:sequence>
  <xsd:attribute name="schmVer" type="xsd:unsignedInt" use="required"/>
</xsd:complexType>

```

2.4 Simple Types

2.4.1 ST_SlideId

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_Action](#), [CT_Slide](#), [CT_SlideEntry](#), [CT_CustomShow](#)

A simple type that specifies an identifier for the presentation slide. This simple type's contents are a restriction of the `xs:unsignedInt` [\[XMLSCHEMA2\]](#) section 3.3.22 datatype. This simple type also specifies the following restrictions:

- It MUST have a maximum value of less than 2147483648 and it MUST have a minimum value of greater than or equal to 256.

```

<xsd:simpleType name="ST_SlideId">
  <xsd:restriction base="xsd:unsignedInt">
    <xsd:minInclusive value="256"/>
    <xsd:maxExclusive value="2147483648"/>
  </xsd:restriction>
</xsd:simpleType>

```

```
</xsd:restriction>
</xsd:simpleType>
```

2.4.2 ST_SlideLayoutId

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_SlideLayoutInfo](#)

A simple type that specifies an identifier for the slide layout. This simple type's contents are a restriction of the xs:unsignedInt [XMLSCHEMA2] section 3.3.22 datatype. This simple type also specifies the following restrictions:

- It MUST have a minimum value of greater than or equal to 2147483648.

```
<xsd:simpleType name="ST_SlideLayoutId">
  <xsd:restriction base="xsd:unsignedInt">
    <xsd:minInclusive value="2147483648"/>
  </xsd:restriction>
</xsd:simpleType>
```

2.4.3 ST_SlideMasterId

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_SlideLayoutInfo](#)

A simple type that specifies an identifier for the main master slide. This simple type's contents are a restriction of the xs:unsignedInt [XMLSCHEMA2] section 3.3.22 datatype. This simple type also specifies the following restrictions:

- It MUST have a minimum value of greater than or equal to 2147483648.

```
<xsd:simpleType name="ST_SlideMasterId">
  <xsd:restriction base="xsd:unsignedInt">
    <xsd:minInclusive value="2147483648"/>
  </xsd:restriction>
</xsd:simpleType>
```

2.4.4 ST_ShapeId

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_Anim](#), [CT_Shape](#)

A simple type that specifies the identifier of a shape on a presentation slide. This simple type's contents are a restriction of the xs:unsignedInt [XMLSCHEMA2] section 3.3.22 datatype.

```
<xsd:simpleType name="ST_ShapeId">
  <xsd:restriction base="xsd:unsignedInt"/>
</xsd:simpleType>
```

2.4.5 ST_GenericResourceId

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_Image](#), [CT_NotesResource](#), [CT_ResourceEntry](#), [CT_GenericImageRegion](#), [CT_ImageBackground](#), [CT_Slide](#)

A simple type that specifies the identifier of a resource in a presentation. This simple type's contents are a restriction of the xs:string [\[XMLSCHEMA2\]](#) section 3.2.1 datatype.

```
<xsd:simpleType name="ST_GenericResourceId">
  <xsd:restriction base="xsd:string"/>
</xsd:simpleType>
```

2.4.6 ST_Coordinate32

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_LayoutPosition](#), [CT_MotionPathMoveCmd](#), [CT_MotionPathLineCmd](#), [CT_MotionPathCurveCmd](#), [CT_Rectangle](#), [CT_AnimIteration](#), [CT_GenericImageRegion](#), [CT_ImageBackground](#), [CT_AnimRepeatOption](#), [CT_ScaleBy](#), [CT_Anim](#), [CT_Transition](#), [CT_SlideShowTimings](#), [CT_PresentationShowInfo](#)

A simple type that specifies a coordinate, which can be used for measurements or spacing. This simple type's contents are a restriction of the xs:int [\[XMLSCHEMA2\]](#) section 3.3.22 datatype.

```
<xsd:simpleType name="ST_Coordinate32">
  <xsd:restriction base="xsd:int"/>
</xsd:simpleType>
```

2.4.7 ST_NonNegativeCoordinate32

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_AnimIteration](#), [CT_GenericImageRegion](#), [CT_ImageBackground](#), [CT_AnimRepeatOption](#), [CT_ScaleBy](#), [CT_Transition](#), [CT_SlideShowTimings](#)

A simple type that specifies a non-negative coordinate, which can be used for measurements or spacing. This simple type's contents are a restriction of the [ST_Coordinate32](#) datatype. This simple type also specifies the following restrictions:

- It MUST have a minimum value of greater than or equal to 0.

```
<xsd:simpleType name="ST_NonNegativeCoordinate32">
  <xsd:restriction base="ST_Coordinate32">
    <xsd:minInclusive value="0"/>
  </xsd:restriction>
</xsd:simpleType>
```

2.4.8 ST_PositiveCoordinate32

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_Rectangle](#), [CT_GenericImageRegion](#), [CT_ImageBackground](#), [CT_PresentationShowInfo](#)

A simple type that specifies a positive coordinate, which can be used for measurements or spacing. This simple type's contents are a restriction of the [ST_Coordinate32](#) datatype. This simple type also specifies the following restrictions:

- It MUST have a minimum value of greater than or equal to 1.

```
<xsd:simpleType name="ST_PositiveCoordinate32">
  <xsd:restriction base="ST_Coordinate32">
    <xsd:minInclusive value="1"/>
  </xsd:restriction>
</xsd:simpleType>
```

2.4.9 ST_RGBColor

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_SolidFill](#)

A simple type that specifies a color using the red, green, and blue RGB color model. Each of the red, green, and blue color values, from 0 through 255, is encoded as two hexadecimal digits. Red, green, and blue is expressed as sequence of hex digits, RRGGBB.

This simple type's contents are a restriction of the `xsd:hexBinary` [\[XMLSCHEMA2\]](#) section 3.2.15 datatype. This simple type also specifies the following restrictions:

- It MUST have a length of exactly 6 hexadecimal digits.

```
<xsd:simpleType name="ST_RGBColor">
  <xsd:restriction base="xsd:hexBinary">
    <xsd:length value="3"/>
  </xsd:restriction>
</xsd:simpleType>
```

2.4.10 ST_ResourceUri

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_Image](#)

A simple type that specifies the **URI (Uniform Resource Identifier)** of a resource. This simple type's contents are a restriction of the `xsd:anyUri` [\[XMLSCHEMA2\]](#) section 3.2.17 datatype. This simple type's contents SHOULD use the HTTP [\[RFC2616\]](#) and HTTPS [\[RFC2818\]](#) protocols.

```
<xsd:simpleType name="ST_ResourceUri">
  <xsd:restriction base="xsd:anyURI"/>
</xsd:simpleType>
```

2.4.11 ST_Transparency

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_SolidFill](#), [CT_Anim](#)

A simple type that specifies the amount of transparency as a percentage value. This simple type's contents are a restriction of the `xsd:unsignedByte` [XMLSCHEMA2] section 3.3.24 datatype. This simple type also specifies the following restrictions:

- It MUST have a value of less than or equal to 100.

```
<xsd:simpleType name="ST_Transparency">
  <xsd:restriction base="xsd:unsignedByte">
    <xsd:maxInclusive value="100"/>
  </xsd:restriction>
</xsd:simpleType>
```

2.4.12 ST_EffectType

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_Anim](#)

A simple type that specifies the type of animation effect for a shape. This simple type's contents are a restriction of the `xsd:token` [XMLSCHEMA2] section 3.3.2 datatype. It MUST be a value from the following table:

Value	Meaning
entr	The animation is an entrance animation.
exit	The animation is an exit animation.
emph	The animation is an emphasis animation.
path	The animation is a motion animation.

```
<xsd:simpleType name="ST_EffectType">
  <xsd:restriction base="xsd:token">
    <xsd:enumeration value="entr"/>
    <xsd:enumeration value="exit"/>
    <xsd:enumeration value="emph"/>
    <xsd:enumeration value="path"/>
  </xsd:restriction>
</xsd:simpleType>
```

2.4.13 ST_AnimRepeatType

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_AnimRepeatOption](#)

A simple type that specifies how an animation effect should be repeated for a shape. This simple type's contents are a restriction of the `xsd:token` [XMLSCHEMA2] section 3.3.2 datatype. It MUST be a value from the following table:

Value	Meaning
cnt	The animation effect should be repeated a specific number of times.
clk	The animation effect should be repeated until the next click.
sld	The animation effect should be repeated until the end of the current presentation slide.

```

<xsd:simpleType name="ST_AnimRepeatType">
  <xsd:restriction base="xsd:token">
    <xsd:enumeration value="cnt"/>
    <xsd:enumeration value="clk"/>
    <xsd:enumeration value="sld"/>
  </xsd:restriction>
</xsd:simpleType>

```

2.4.14 ST_HideAfterAnimType

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_Anim](#)

A simple type that specifies if and when an animated shape should be hidden after the animation effect ends. This simple type's content are a restriction of the `xsd:token` [XMLSCHEMA2] section 3.3.2 datatype. It MUST be a value from the following table:

Value	Meaning
non	Do not hide the object after the animation effect ends.
imm	Hide the object immediately after the animation effect ends.
clk	Hide the object on the click following the animation effect.

```

<xsd:simpleType name="ST_HideAfterAnimType">
  <xsd:restriction base="xsd:token">
    <xsd:enumeration value="non"/>
    <xsd:enumeration value="imm"/>
    <xsd:enumeration value="clk"/>
  </xsd:restriction>
</xsd:simpleType>

```

2.4.15 ST_EffectId

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_Anim](#)

A simple type that specifies the identifier of an animation effect for a shape. This simple type's contents are a restriction of the `xsd:unsignedInt` [XMLSCHEMA2] section 3.3.22 datatype.

```

<xsd:simpleType name="ST_EffectId">
  <xsd:restriction base="xsd:unsignedInt"/>
</xsd:simpleType>

```

2.4.16 ST_EffectDir

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_Anim](#)

A simple type that specifies the variant of an animation effect for a shape. This simple type's contents are a restriction of the `xsd:int` [XMLSCHEMA2] section 3.3.17 datatype.

```
<xsd:simpleType name="ST_EffectDir">
  <xsd:restriction base="xsd:int"/>
</xsd:simpleType>
```

2.4.17 ST_TimeOffset

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_AnimTiming](#)

A simple type that specifies the time delay, in milliseconds, before an animation starts. This simple type's contents are a restriction of the `xsd:int` [XMLSCHEMA2] section 3.3.17 datatype. This simple type also specifies the following restrictions:

- It MUST be greater than or equal to zero.

```
<xsd:simpleType name="ST_TimeOffset">
  <xsd:restriction base="xsd:int"/>
</xsd:simpleType>
```

2.4.18 ST_AnimSpeed

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_AnimTiming](#)

A simple type that specifies the duration of an animation effect. This simple type's contents are a restriction of the `xsd:string` [XMLSCHEMA2] section 3.2.1 datatype. It MUST be a value from the following table:

Value	Meaning
def	The animation effect uses the default duration for its type.
clk	The animation effect lasts until the next click.
sld	The animation effect lasts until the end of the presentation slide.
The regular expression pattern: [0-9]+	The animation effect duration is the integer value, in milliseconds, represented by the string in base-10 form.

```
<xsd:simpleType name="ST_AnimSpeed">
  <xsd:restriction base="xsd:string">
    <xsd:pattern value="def|clk|sld|([0-9]+)/">
  </xsd:restriction>
</xsd:simpleType>
```

2.4.19 ST_AnimStart

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_AnimTiming](#)

A simple type that specifies when an animation starts. This simple type's contents are a restriction of the `xsd:string` [XMLSCHEMA2] section 3.2.1 datatype. It MUST be a value from the following table:

Value	Meaning
c	The animation starts on click.
w	The animation starts when the previous animation in the animation sequence starts.
a	The animation starts after the previous animation in the animation sequence ends.

```
<xsd:simpleType name="ST_AnimStart">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="c"/>
    <xsd:enumeration value="w"/>
    <xsd:enumeration value="a"/>
  </xsd:restriction>
</xsd:simpleType>
```

2.4.20 ST_AnimChildren

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Reserved. MUST NOT be used.

Value	Meaning
all	MUST be ignored.
child	MUST be ignored.

```
<xsd:simpleType name="ST_AnimChildren">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="all"/>
    <xsd:enumeration value="child"/>
  </xsd:restriction>
</xsd:simpleType>
```

2.4.21 ST_AnimSeqId

Target namespace: <http://schemas.microsoft.com/server/powerpoint/2009/main>

Referenced by: [CT_InteractiveAnimUse](#), [CT_AnimList](#)

A simple type that specifies the identifier of an animation sequence. This simple type's contents are a restriction of the `xsd:unsignedInt` [XMLSCHEMA2] section 3.3.22 datatype.

```
<xsd:simpleType name="ST_AnimSeqId">
  <xsd:restriction base="xsd:unsignedInt"/>
```

</xsd:simpleType>

Preliminary

3 Structure Examples

The following sections provide structure examples of the different data types of the PowerPoint Web Viewer Rendered Content Structure. These examples are illustrative of the preceding specification and do not cover all possible structure usage scenarios. They are not intended to replace the preceding specification but rather to clarify and enhance it.

3.1 Presentation Example

This sample [CT_PresentationShowInfo](#) specifies a presentation.

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<pres w="800" h="600" rtl="0" schmVer="0">
  <sldLst>
    <sld title="Sample Presentation" id="261" sldInfo="105.sldInfo.xml" />
    <sld title="Sample Shape" id="262" sldInfo="106.sldInfo.xml" />
    <sld title="Sample Transition" id="259" sldInfo="103.sldInfo.xml" />
    <sld title="Sample Animation" id="263" sldInfo="107.sldInfo.xml" />
  </sldLst>
  <showPr>
    <all />
  </showPr>
</pres>
```

The **w** and **h** attributes specify that the width and height of the presentation slides are 800 pixels and 600 pixels respectively.

The contained **sldLst** element specifies a list of 4 [CT_SlideEntry](#) elements, each of which specifies an individual presentation slide.

3.2 Slide Example

This sample [CT_SlideShowInfo](#) specifies a presentation slide.

```
<?xml version="1.0" encoding="utf-8" ?>
<sld xsi="http://www.w3.org/2001/XMLSchema-instance" xsd="http://www.w3.org/2001/XMLSchema"
schmVer="0">
  <sld id="261">
    <bg>
      <clrFill clr="FFFFFF" />
    </bg>
    <animLst id="0" />
  </sld>
</sld>
```

The contained **bg** element specifies the background of the slide. The **clrFill** element specifies the background is a color while its **clr** attribute specifies the color is white.

3.3 Shapes Example

This sample [CT_ShapeList](#) specifies a list of shapes for a presentation slide. The contained [CT_Shape](#) elements specify details about the individual shapes.

```

<spLst>
  <sp id="3">
    <reg imgID="S6_1" x="208" y="0" w="724" h="110" />
    <pos x="38" y="22" />
  </sp>
  <sp id="4">
    <reg imgID="S6_1" x="0" y="0" w="206" h="193" />
    <pos x="290" y="243" />
  </sp>
</spLst>

```

For the first shape, the **imgID** attribute of the **reg** element specifies the identifier "S6_1" for the image cluster. This matches the **id** attribute of one of the [CT Image](#) resources, which specifies further details about the image cluster.

The **x**, **y**, **w**, and **h** attributes of the **reg** element specify the region of the image cluster to use for the shape. The x and y co-ordinates of the upper left corner of the region are 208 and 0 pixels and its width and height are 724 and 110 pixels.

3.4 Animations Example

This sample [CT AnimList](#) specifies a list of animation effects for shapes on a presentation slide. The contained [CT Anim](#) elements specify details about the individual animation effects.

```

<animLst id="0">
  <anim sp="4" effectType="entr" effectId="1">
    <timing st="w" spd="1" />
  </anim>
  <anim sp="6" effectType="entr" effectId="1">
    <timing st="c" spd="1" />
  </anim>
  <anim sp="6" effectType="path" effectId="35">
    <timing st="w" spd="500" />
    <mp>
      <mv x="0" y="0" />
      <ln x="-200" y="0" />
    </mp>
  </anim>
</animLst>

```

For the first animation, the **id** attribute specifies the animation effect is for shape 4. The **effectType** and **effectId** attributes specify this is an entrance animation that causes the shape to appear on the slide. The **st** and **spd** attributes of the contained **timing** element specify the animation starts with the previous animation or slide transition and its duration is 1 millisecond.

For the second animation, the **id** attribute specifies the animation is for shape 6. The **effectType** and **effectId** attributes specify this is an entrance animation that causes the shape to appear on the slide. The **st** and **spd** attributes of the contained **timing** element specify the animation starts on the click following the previous animation and its duration is 1 millisecond.

For the third animation, the **id** attribute specifies the animation is for shape 6. The **effectType** attribute specifies this is a motion path animation. The **effectId** attribute is ignored. The **st** and **spd** attributes of the contained **timing** element specify the animation starts with the previous animation and its duration is 500 milliseconds.

The **mp** element specifies the motion path. The **x** and **y** attributes of the contained **mv** element specify the x and y co-ordinates of the starting point of the motion path are 0 and 0 pixels, relative to the current position of the shape. The **ln** element specifies a linear segment of the motion path. Its **x** and **y** attributes specify the x and y co-ordinates of the endpoint of the linear segment are -200 and 0 pixels, relative to the position of the shape prior to the linear segment.

4 Security Considerations

None.

5 Appendix A: Product Behavior

The information in this specification is applicable to the following product versions. References to product versions include released service packs.

- Microsoft® PowerPoint® Web Access Technical Preview
- Microsoft® PowerPoint® Web Access

Exceptions, if any, are noted below. If a service pack number appears with the product version, behavior changed in that service pack. The new behavior also applies to subsequent service packs of the product unless otherwise specified.

Unless otherwise specified, any statement of optional behavior in this specification 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 product does not follow the prescription.

6 Change Tracking

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

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