
**Information technology — Coding of
audio-visual objects —**

Part 20:

**Lightweight Application Scene
Representation (LAsE_R) and Simple
Aggregation Format (SAF)**

AMENDMENT 1: LAsE_R extensions

Technologies de l'information — Codage des objets audiovisuels —

*Partie 20: Représentation de scène d'application allégée (LAsE_R) et
format d'agrégation simple (SAF)*

AMENDEMENT 1: Extensions LAsE_R

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

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Amendment 1 to ISO/IEC 14496-20:2006 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

This corrected version of ISO/IEC 14496-20:2006/Amd.1:2008 incorporates the following corrections: a change to the title of the amendment and the provision of updated electronic attachments relevant to LAsEr.

Information technology — Coding of audio-visual objects —

Part 20:

Lightweight Application Scene Representation (LAsER) and Simple Aggregation Format (SAF)

AMENDMENT 1: LAsER extensions

Replace all occurrences of the word “browser” with “LAsER engine”.

In Clause 2, add the following references:

ISO/IEC 9899:1990, *Information technology — Programming Languages C*

ISO/IEC 14882, *Programming languages — C++*

ISO/IEC 16262:2002, *Information technology — ECMAScript language specification*

IETF BCP 13, *RFC 4288 on Multipurpose Internet Mail Extensions (MIME) Part Four: Registration Procedures*

IETF RFC 3023, XML Media Types, M. Murata, S. St.Laurent, D. Kohn, January 2001, <http://www.ietf.org/rfc/rfc3023.txt>

IETF RFC 3986, Uniform Resource Identifiers (URI): Generic Syntax, T. Berners-Lee, R. Fielding, L. Masinter, January 2005, <http://www.ietf.org/rfc/rfc3986.txt>

Add the following definition of waiting tree to clause 3:

waiting tree

separate tree defined in addition to the scene tree

NOTE The compositor and renderer have no knowledge of the waiting tree, thus objects in the waiting tree are neither composited nor rendered.

Add the following subclause to Clause 5:

5.2 LAsER Systems Decoder Model

5.2.1 Introduction

The purpose of the LAsER Systems decoder model is to provide an abstract view of the behaviour of the terminal complying with this International Standard. It may be used by the sender to predict how the receiving terminal will behave in terms of buffer management and synchronization when decoding data received in the

form of elementary streams. The LAsER systems decoder model includes a timing model and a buffer model. The LAsER systems decoder model specifies:

1. the conceptual interface for accessing data streams (Delivery Layer),
2. decoding buffers for coded data for each elementary stream,
3. the behavior of elementary stream decoders,
4. composition memory for decoded data from each decoder, and
5. the output behavior of composition memory towards the compositor.

Each elementary stream is attached to one single decoding buffer.

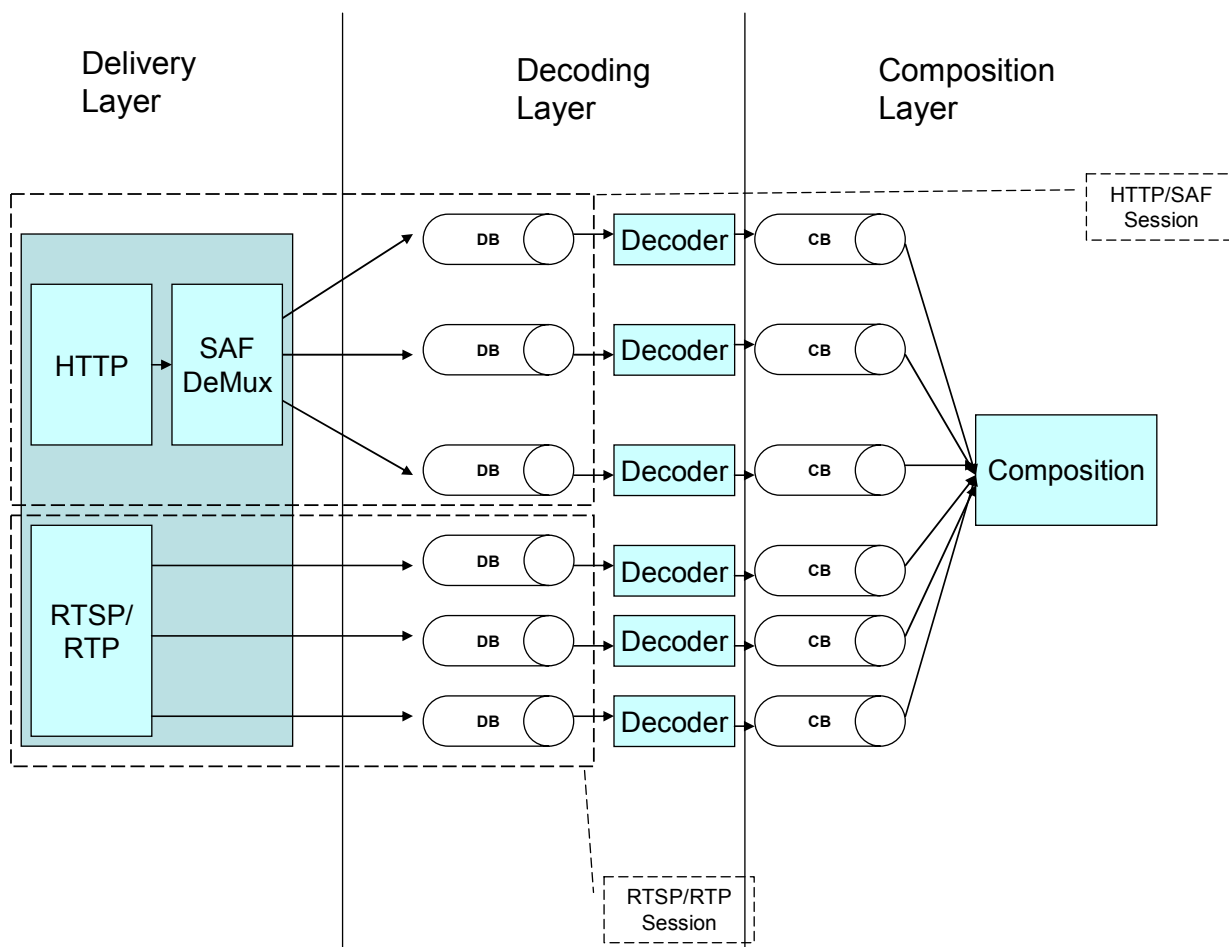


Figure AMD1.1 – LAsER Systems Decoder Model

The definition in ISO/IEC 14496-1 of Access Unit, Decoding Buffer(DB), elementary stream (ES), Decoder (CU) and Composition Unit apply.

5.2.2 Decoder Model

The decoder model as specified in ISO/IEC 14496-1:2004 subclause 7.4.1 applies.

5.2.3 Decoding Buffer

The needed decoding buffer size is known by the sending terminal and conveyed to the receiving terminal as specified in 7.6. The size of the decoding buffer is measured in bytes. The decoding buffer is filled at the rate given by the maximum bit rate for this elementary stream while data is available and with a zero rate otherwise. The maximum bit rate is conveyed by the sending terminal as a part of the decoder configuration information during the set up phase for each elementary stream (see 7.6).

5.2.4 Decoder model with grouped streams

This decoder model may be enhanced when used for group of multiple elementary streams.

In such case, only one composition buffer for the group of streams is used for composition.

When such streams are grouped, and when the setup of multiple decoding chains are available, it is possible, although not mandatory, not to decode all streams at a time.

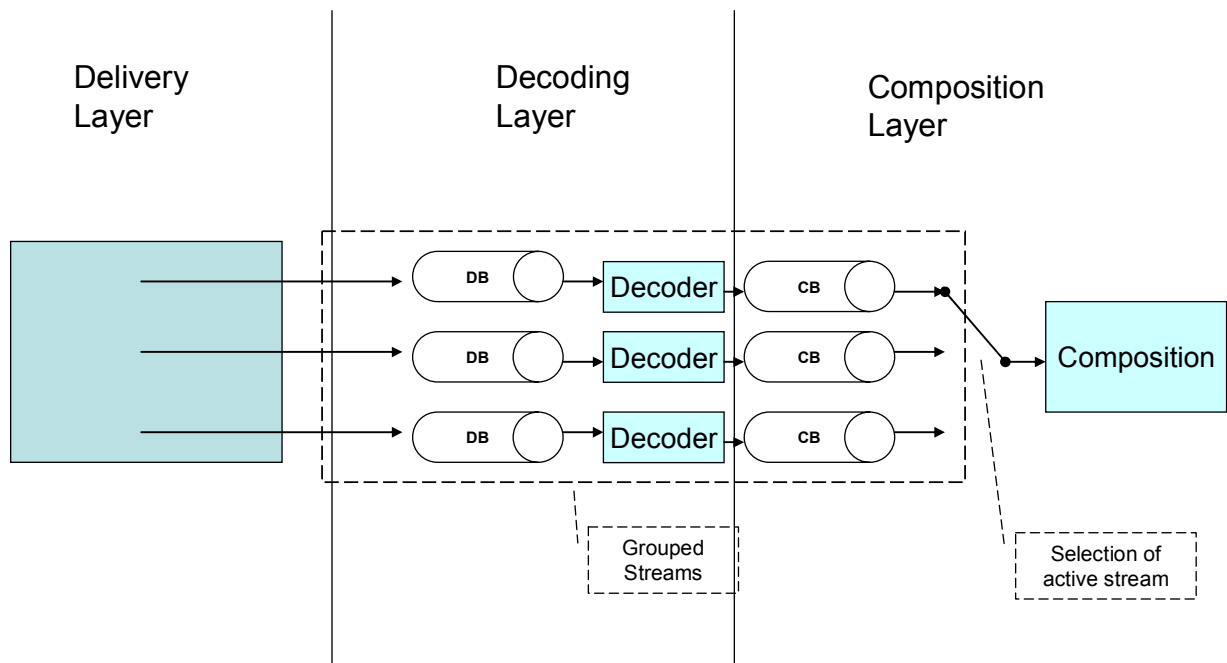


Figure AMD1.2 – Stream grouping with specified System Decoder Model (multiple decoders)

It is indeed expected that multiple decoders may not be available in lightweight terminals or that some delivery scenarios do not allow for having all streams available at the same time (e.g. in broadcast scenarios, the delivery layer could only tune in to one of the streams). The usage of new information about this grouping enables a smart usage of buffers and decoders.

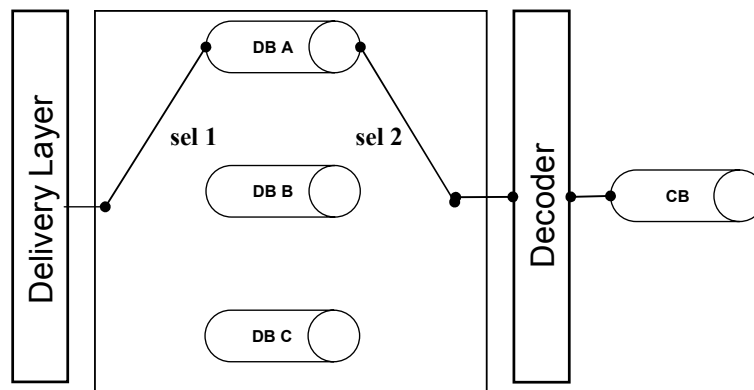


Figure AMD1.3 – Broadcast example of streams grouping, showing a potential optimization using a single decoder.

When only a subset of the group of streams can be accessed at a time (e.g. broadcast scenario depicted above), the selection of the active stream corresponds to a request for the corresponding streams. Nevertheless, the buffer model for stream grouping does not assume immediate reception of data after such request and therefore the active decoding buffer may continue to be used by the decoder up to the moment at which data is available for the newly available stream. In this case the decoding buffer associated to the newly connected stream can be associated with the decoder. At this point the terminal may discard any remaining access units in the previous decoding buffer.

Add the following text to subclause 6.2.1 Scene Tree, at the end:

The API defined in Appendix A of [2] with IDL definitions in Appendix B of the same document can be used to access the LAsER scene tree from programming languages such as ECMA-Script [ISO/IEC 16262], Java [5], C [ISO/IEC 9899:1990] or C++ [ISO/IEC 14882:2002].

Replace subclause 6.5 with:

6.5. Events

6.5.1. Purposes of events

As in SVG, LAsER defines events following the XML Event specification [6]. The events defined in LAsER relate to the management of the network session and decoding chains (including decoding buffers). The events defined in the following subclauses can be used by elements in the scene such as script elements being associated, through the listener element, in order to respond to such events.

Note : For instance, in a progressive download scenario, the "buffering" event could be listened by a script in order to trigger a text indicating that content will be played shortly.

```
...
<ev:listener handler="#myscript" event="LAsERBuffering">
<script id="myscript">
  <lsl:Replace ref="#text" attributeName="visibility" value="visible">
</script>
<text id="text" visibility="hidden">Content is being buffered</text>
...
```

In the previous example, the LAsERBuffering event is being listened to by a script "myscript". When the event is launched by the browser, the visibility attribute of the text element is set to "visible".

These events are launched by the LAsER browser either at the "Network" Layer of the browser in which case, the scope of these events is the session or at the decoding chain level, in which case the events are at the stream level.

NOTE a session is identified by a unique url and streams are identified by a streamID.

6.5.2. Events imported from SVG Tiny

The list of supported events with their properties is given in Table AMD1.1.

Table AMD1.2 – List of supported events from SVGT1.2

Event name	Namespace	Description	Bubble	Canc.
"focusin" or "DOMFocusIn"	http://www.w3.org/2001/xml-events	As defined in subclause 13.2 of [2].	Yes	No
"focusout" or "DOMFocusOut"	http://www.w3.org/2001/xml-events	As defined in subclause 13.2 of [2].	Yes	No
"activate" or "DOMActivate"	http://www.w3.org/2001/xml-events	As defined in subclause 13.2 of [2].	Yes	Yes
"click"	http://www.w3.org/2001/xml-events	As defined in subclause 13.2 of [2].	Yes	Yes
"mousedown"	http://www.w3.org/2001/xml-events	As defined in subclause 13.2 of [2].	Yes	Yes
"mouseup"	http://www.w3.org/2001/xml-events	As defined in subclause 13.2 of [2].	Yes	Yes
"mouseover"	http://www.w3.org/2001/xml-events	As defined in subclause 13.2 of [2].	Yes	Yes
"mouseout"	http://www.w3.org/2001/xml-events	As defined in subclause 13.2 of [2].	Yes	Yes
"mousemove"	http://www.w3.org/2001/xml-events	As defined in subclause 13.2 of [2].	Yes	No
"load" (or deprecated "SVGLoad")	http://www.w3.org/2001/xml-events	As defined in subclause 13.2 of [2].	No	No
"resize" (or deprecated "SVGResize")	http://www.w3.org/2001/xml-events	As defined in subclause 13.2 of [2].	Yes	No
"scroll" (or deprecated "SVGScroll")	http://www.w3.org/2001/xml-events	As defined in subclause 13.2 of [2].	Yes	No
"zoom" (or deprecated "SVGZoom")	http://www.w3.org/2001/xml-events	As defined in subclause 13.2 of [2].	Yes	No
"beginEvent"	http://www.w3.org/2001/xml-events	As defined in subclause 13.2 of [2].	Yes	No
"endEvent"	http://www.w3.org/2001/xml-events	As defined in subclause 13.2 of [2].	Yes	No
"repeatEvent"	http://www.w3.org/2001/xml-events	As defined in subclause 13.2 of [2].	Yes	No
"keyup"	http://www.w3.org/2001/xml-events	As defined in subclause 13.2 of [2].	No	No
"keydown"	http://www.w3.org/2001/xml-events	As defined in subclause 13.2 of [2].	No	No
"textInput"	http://www.w3.org/2001/xml-events	As defined in subclause 13.2 of [2].	No	No
"mouseWheel"	http://www.w3.org/2001/xml-events	As defined in subclause 13.2 of [2].	No	No
"timer"	http://www.w3.org/2001/xml-events	As defined in subclause 13.2 of [2].	No	No
"preload"	http://www.w3.org/2000/svg	As defined in subclause 13.2 of [2].	No	No
"loadProgress"	http://www.w3.org/2000/svg	As defined in subclause 13.2 of [2].	No	No
"postLoad"	http://www.w3.org/2000/svg	As defined in subclause 13.2 of [2].	No	No
"connectionConnected"	http://www.w3.org/2000/svg	As defined in subclause 13.2 of [2].	No	No
"connectionClosed"	http://www.w3.org/2000/svg	As defined in subclause 13.2 of [2].	No	No
"connectionError"	http://www.w3.org/2000/svg	As defined in subclause 13.2 of [2].	No	No
"connectionDataSent"	http://www.w3.org/2000/svg	As defined in subclause 13.2 of [2].	No	No
"connectionDataReceived"	http://www.w3.org/2000/svg	As defined in subclause 13.2 of [2].	No	No

6.5.3. Pseudo-events

Pseudo-events are shortcuts created by combinations of other events. Their definition follows:

Table AMD1.3 – List of pseudo-events

Event name	Namespace	Description	Bubble	Canc.
"accessKey(keyCode)"	http://www.w3.org/2000/svg	The key keyCode has been pressed, as defined in subclause 16.2.7 of [2]. This pseudo-event is triggered immediately by a listener on keydown placed on the document node.	No	No
"longAccessKey(keyCode)"	urn:mpeg:mpeg4:laser:2005	This pseudo-event is a combination of a listener on keydown and a listener on keyup placed on the document node; this pseudo-event is triggered if after a system-defined time A after the keydown event, no keyup event has happened.	No	No
"repeatKey(keyCode)"	urn:mpeg:mpeg4:laser:2005	This pseudo-event is a combination of a listener on keydown and a listener on keyup placed on the document node; this pseudo-event is triggered after a system-defined time B after the keydown event, repeatedly every system-defined period C, until a keyup event happens.	No	No
"shortAccessKey(keyCode)"	urn:mpeg:mpeg4:laser:2005	This pseudo-event is a combination of a listener on keydown and a listener on keyup placed on the document node; this pseudo-event is triggered if a keyup event happens after a time shorter than A after the keydown event. This is exclusive of longAccessKey(k).	No	No

6.5.4. LAsER Events

LAsER defines the following events:

Table AMD1.4 – List of LAsER events

Event name	Namespace	Description	Bubble	Canc.
"pause"	urn:mpeg:mpeg4:laser:2005	Freezes the clock of the timed object they are sent to, and have no effect on non timed objects.	No	No
"play"	urn:mpeg:mpeg4:laser:2005	Starts or resumes the clock of the timed object they are sent to, and have no effect on non timed objects.	No	No
"pausedEvent"	urn:mpeg:mpeg4:laser:2005	Occurs when a Timed Element is paused	Yes	No
"resumedEvent"	urn:mpeg:mpeg4:laser:2005	Occurs when a Timed Element is resumed	Yes	No
"activatedEvent"	urn:mpeg:mpeg4:laser:2005	Occurs when an element is activated, either as the result of an Activate command or a change in an active attribute to the value true, applied to it or to one of its ancestors.	No	No
"deactivatedEvent"	urn:mpeg:mpeg4:laser:2005	Occurs when an element is deactivated, either as the result of a Deactivate command or a change in an active attribute to the value false, applied to it or to one of its ancestors.	No	No
"screenOrientation0"	urn:mpeg:mpeg4:laser:2005	The screen orientation has changed to typical 'landscape' orientation (LAsEREvent)	No	No
"screenOrientation90"	urn:mpeg:mpeg4:laser:2005	The screen orientation has changed to typical 'portrait' orientation (LAsEREvent)	No	No
"screenOrientation180"	urn:mpeg:mpeg4:laser:2005	The screen orientation has changed to inverted 'landscape' orientation (LAsEREvent)	No	No
"screenOrientation270"	urn:mpeg:mpeg4:laser:2005	The screen orientation has changed to inverted 'portrait' orientation (LAsEREvent)	No	No
"stop"	urn:mpeg:mpeg4:laser:2005	Upon receiving such an event, a timed element behaves as if the uDOM method endElement() was called. (LAsEREvent)	No	No

Example:

Typical usage for screen orientation events is to have a animation triggered by one of these events, the animation changing the position/rotation of a group of scene elements to match the new screen orientation:

```
<animateTransform begin="lsr:screenOrientation90" to="..." xlink:href="#object1"
dur="1s"/>
<animateTransform begin="urn:mpeg:mpeg4:laser:2005:screenOrientation90" to="..."
xlink:href="#object2" dur="1s"/>
<animateTransform begin="urn:mpeg:mpeg4:laser:2005:screenOrientation90" to="..."
xlink:href="#object3" dur="1s"/>
...
<animateTransform begin="urn:mpeg:mpeg4:laser:2005:screenOrientation0" to="..."
xlink:href="#object1" dur="1s"/>
<animateTransform begin="urn:mpeg:mpeg4:laser:2005:screenOrientation0" to="..."
xlink:href="#object2" dur="1s"/>
<animateTransform begin="urn:mpeg:mpeg4:laser:2005:screenOrientation0" to="..."
xlink:href="#object3" dur="1s"/>
...
```

6.5.5. General IDL definition of LAsER events.

```
interface LAsEREvent : events::Event {};
```

All LAsER specific events are prefixed with LAsER.

6.5.6. IDL Events definitions

6.5.6.1 ExternalValueEvent

```
interface ExternalValueEvent : LAsEREvent {
    readonly attribute float absoluteValue;
    readonly attribute boolean computableAsFraction;
    readonly attribute float fraction;
};
```

No defined constants

Attributes

- **absoluteValue:** This value represent the status of a resource of any kind, e.g. the remaining battery time.
- **computableAsFraction:** This value indicates whether a fraction can be computed from the absoluteValue.
- **fraction:** This value shall be between 0 and 1 inclusively and represent the status of the resource, e.g. the fraction of remaining battery time over operation time when fully charged.

No defined methods

Example: The following event could be defined:

"batteryState"	urn:example:X	Received by the document at system-dependent intervals and informs about the fraction of battery charge remaining. (ExternalValueEvent)	No	No
----------------	---------------	---	----	----

and used as follows:

```
<svg viewBox="0 0 1000 1000" baseProfile="tiny" id="root"
  xmlns="http://www.w3.org/2000/svg" version="1.1"
  xmlns:xlink="http://www.w3.org/1999/xlink"
  xmlns:X="urn:example:X">
  <rect width="100" height="100" stroke="blue"
    stroke-width="1">
    <animateColor id="myBatteryAnim" attributeName="fill"
      begin="indefinite" from="red" to="blue"
      dur="indefinite">
  </rect>
  <ev:listener observer="root" event="X:batteryState"
    handler="#myBatteryAnim">
</svg>
```

Add the following text to 6.7.1 before “The following restrictions apply to all commands”:

- **Activate**: to transfer an element from the waiting tree to the scene tree
- **Deactivate**: to transfer an element from the scene tree to the waiting tree
- **ReleaseResource**: to instruct the LAsER engine that a resource (typically media stream) will no longer be used in the scene and may therefore be reclaimed.

Add the following text at the end of subclause 6.7.1:

A separate DOM tree is defined in addition to the scene tree: the waiting tree. The compositor and renderer have no knowledge of the waiting tree, thus objects in the waiting tree are neither composited nor rendered. The LAsER Commands are extended to search for elements first in the scene tree, then in the waiting tree if the elements are not found in the scene tree. The commands Activate and Deactivate are defined to operate on the waiting tree.

NOTE Elements placed in the waiting tree can be updated but are not accessible from the scene tree. A use element pointing to an element placed into the waiting tree behaves as if the referred element did not exist, i.e. nothing is rendered. Deactivating / activating a subtree with listeners may imply unregistering / registering the listeners observing elements not in the waiting tree.

Example:

```
<!-- Module 1 -->
<g id="module1">
  <rect x="0" y="10" width="176" height="20" fill="green"/>
  <text x="88" y="25" text-anchor="middle">Press FIRE</text>
  <ev:listener event="accessKey(FIRE)" handler="#go1"/>
  <ev:listener event="foo.click" handler="#go3"/>
  <animate xlink:href="#foo" .../>
  ...
</g>

<!-- Module 2 -->
<g id="module2">
  <rect x="0" y="10" width="176" height="20" fill="lime"/>
  <text x="88" y="25" text-anchor="middle">Press FIRE</text>
  <ev:listener event="accessKey(FIRE)" handler="#go2"/>
  <ev:listener event="foo.click" handler="#go4"/>
  <animate xlink:href="#foo" .../>
  ...
</g>
```

```

<g id="foo">
    ...
</g>

<!-- Modules aggregation and control -->
<lsr:conditional begin="0;accessKey(1)">
    <lsr:Deactivate ref="#module2"/>
    <lsr:Activate ref="#module1"/>
</lsr:conditional>
<lsr:conditional begin="accessKey(2)">
    <lsr:Deactivate ref="#module1"/>
    <lsr:Activate ref="#module2"/>
</lsr:conditional>

```

This simple example shows 2 independent modules. Since they use both the FIRE key, they cannot be both “active” at the same time. The two conditionals at the end implement very simply an exclusive activation of the two modules.

Add the following text at end of 6.7.10.1 (Save Command) Semantics:

Only attributes of elements identified by string IDs can be saved and restored reliably across scenes.

Attributes referencing elements by ID can only be saved and restored reliably across scenes if they hold a string ID.

In subclause 6.7.11.2, add a bullet:

- **intvalue2**: this attribute defines the second int value of the event.

In subclause 6.7.11.2, replace the table with:

Name of event	Attribute of event	Attribute of SendEvent
TimeEvent	detail	intvalue
UIEvent	detail	intvalue
WheelEvent	wheelDelta	intvalue
MouseEvent	screenX	<i>not carried</i>
	screenY	<i>not carried</i>
	clientX	pointvalue
	clientY	pointvalue
	button	intvalue
TextEvent	data	stringvalue
KeyEvent	keyIdentifier	when used with accessKey, longAccessKey, shortAccessKey and repeatKey, the key identifier follows the event name, e.g. accessKey(LEFT); with other key events, use stringvalue when unknown keyIdentifier, otherwise use intvalue with LAsER-defined keyIdentifier
ProgressEvent	lengthComputable	<i>not carried, the LAsER engine shall set this value to true if the value total is present</i>
	loaded	intvalue
	total	invalue2

After subclause 6.7.11, add the following subclauses:

6.7.12 Activate

6.7.12.1 Semantics

The Activate command reverses the effect of the Deactivate command, i.e. it restores the target element from the waiting tree to the scene tree. From the DOM point of view, the effect on the element is that the `Isr:ghost` element is replaced by the element, e.g. using a DOM `replaceChild`.

Note – The `Isr:ghost` element may have been transferred to the waiting tree as part of a Activate command applied to one of its ancestors.

6.7.12.2 Attributes

- **ref**: the id of the element which shall be restored from the waiting tree to the scene tree.

6.7.13 Deactivate

6.7.13.1 Semantics

The Deactivate command takes an element and places it into the waiting tree, so that it can be restored later to the scene tree by a Activate command. From the DOM point of view, the effect on the element is:

- the element is replaced by an `Isr:ghost` element, e.g. using a DOM `replaceChild`, regardless of whether the element is in the scene tree or in the waiting tree. Note: the element could already be in the waiting tree if one of its ancestors has been placed in the waiting tree.
- the element is placed in the waiting tree.

NOTE The `Isr:ghost` element is never encoded nor transmitted nor rendered.

6.7.13.2 Attributes

- **ref**: the id of the element which shall be placed in the waiting tree.

6.7.14 ReleaseResource

6.7.14.1 Semantics

The ReleaseResource command instructs the LAsER engine that the indicated resource will no longer be used in the scene. All associated LAsER engine resources (memory, I/O) may be reclaimed. All scene elements that may be referencing this resource behave as if they pointed at a non available resource.

6.7.14.2 Attributes

- **ref**: this attribute defines the resource which may be discarded. It may be a stream ID or any other URI.

In subclause 6.8.1, replace sentence:

The list of possible attributes for an element is given in the summary table in subclause 6.8.53.

with:

The list of possible attributes for an element is given in the summary table in subclause 6.9.

Add to subclause 6.8.4.1:

When an animate element is not active and it receives an ExternalValueEvent, then the element sets the animation target attribute value as if the animation progress was at the fraction contained in the ExternalValueEvent.

When an animate element is not active and it receives a ProgressEvent which has lengthComputable=true, then the element sets the animation target attribute value as if the animation progress was at the fraction loaded over total.

Add to subclause 6.8.5.1:

When an animateColor element is not active and it receives an ExternalValueEvent, then the element sets the animation target attribute value as if the animation progress was at the fraction contained in the ExternalValueEvent.

When an animateColor element is not active and it receives a ProgressEvent which has lengthComputable=true, then the element sets the animation target attribute value as if the animation progress was at the fraction loaded over total.

Add to subclause 6.8.6.1:

When an animateMotion element is not active and it receives an ExternalValueEvent, then the element sets the animation target attribute value as if the animation progress was at the fraction contained in the ExternalValueEvent.

When an animateMotion element is not active and it receives a ProgressEvent which has lengthComputable=true, then the element sets the animation target attribute value as if the animation progress was at the fraction loaded over total.

Add to subclause 6.8.7.1:

When an animateTransform element is not active and it receives an ExternalValueEvent, then the element sets the animation target attribute value as if the animation progress was at the fraction contained in the ExternalValueEvent.

When an animateTransform element is not active and it receives a ProgressEvent which has lengthComputable=true, then the element sets the animation target attribute value as if the animation progress was at the fraction loaded over total.

Add to subclause 6.8.10.1:

The children of the conditional element are not accessible through DOM or LAsER Commands.

Add to subclause 6.8.28.2:

- **width:** the width of the clipping rectangle. This can also be accessed through the x component of the size field. This attribute is animatable but not inheritable.
- **height:** the height of the clipping rectangle. This can also be accessed through the y component of the size field. This attribute is animatable but not inheritable.
- **x:** the horizontal coordinate of the center of the clipping rectangle. This attribute is animatable but not inheritable.
- **y:** the vertical coordinate of the center of the clipping rectangle. This attribute is animatable but not inheritable.

At the end of subclause 6.8.30.1 Semantics (of LAsER selector), add the following text:

In the following, N is the number of children of the selector element. The *choice* attribute determines the actual rendering mode:

1. *choice* ≥ 0 & *choice* $< N$: only the child of index *choice* is displayed, i.e. is “on” while the other children are “off”. The “off” children are neither composed nor rendered. animate* elements and conditionals in the tree below “off” children are inactive.
2. *choice* == none | *choice* $\geq N$: nothing is displayed. All children are “off”, i.e. neither composed nor rendered. animate* elements and conditionals in the tree below “off” children are inactive.
3. *in all other cases*: all the children are displayed at (0,0) of the local coordinate system without clipping.

In case 1. and 2., when a child changes from “off” to “on”, its children with begin attributes get activated; when a child changes from “on” to “off”, its children with end attributes get stopped.

At the end of subclause 6.8.34.2 Attributes (of svg), add the following text:

- **lsr:fullscreen**: the attribute ‘lsr:fullscreen’ is defined on the <svg> element to hint that the LAsER scene should be rendered on the entire screen. The attribute can take two values “true” or “false”, with false (normal rendering) being the default value. With the attribute set to true the LAsER UE should negotiate the rendering area with its parent UE and get as large part of the screen as possible for the LAsER rendering area. The attribute is neither animatable nor inheritable.

At the end of subclause 6.8.35 SVGT11 switch, add the following text:

This specification defines four extension strings in order to allow the use of the switch element to control the initial layout of a scene according to the screen orientation:

- orient0 for typical ‘landscape’ orientation
- orient90 for typical ‘portrait’ orientation
- orient180
- orient270

An example of usage is:

```
<switch>
  <g requiredExtensions="orient90">
    ... layout for portrait ...
  </g>
  <g requiredExtensions="orient0">
    ... layout for landscape...
  </g>
</switch>
```

After subclause 6.8.40, add the following subclauses:

6.8.41 AnimateScroll

6.8.41.1 Semantics

The purpose of this element is to allow to:

- scroll a set of objects of unknown size, inside a clipping rectangle.
- define the speed of the scrolling in terms of clip size, not in terms of the objects size
- define the bounds of scrolling precisely, according to the actual size of the objects

- define the beginning and ending conditions (screen full or empty of the objects)
- define automatic and manual scrolling (continuous scrolling, page advance on action...), and allow a combination of automatic and manual
- define scroll stops (for manual scrolling) by page (size of viewport) or by object markers

The `animateScroll` element is designed in a manner similar to SMIL/SVG `animate*` elements. It works in combination with a clipping region (`lsr:rectClip` element). Scrolling can be automatic or manual (e.g. triggered by key events). The scrolling effect is obtained by a translation applied to all children of the `lsr:rectClip` element. Multiple `animateScroll` and `setScroll` elements acting on the same objects combine in the same way as multiple `animateTransform` elements with `additive="sum"`.

Each frame where it is active, `animateScroll` does:

- if the element or one of its attributes has changed, recompute the element size
- depending on the parameters, compute the new position of the scrolled objects

The direction attribute of `animateScroll` is not sensitive to rotation.

Example 1: Plain vanilla

```
<lsr:rectClip id="t1" size="120 20">
  <text...>Que j'aime à faire apprendre ce nombre utile au sage. Immortel
  Archimède, toi de qui Syracuse garde encore la mémoire.</text>
</lsr:rectClip>
<animateScroll xlink:href="#t1" direction="left" speed="2"
  delayAtStart="1" delayAtEnd="1" begin="3"
  repeatDur="indefinite"/>
```

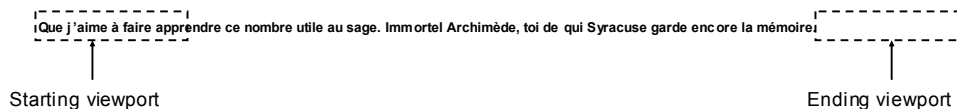


Figure AMD1.4 – Start and end states of Example 1

Example 2: Start and end conditions

```
<lsr:rectClip id="t1" size="120 20">
  <text...>Que j'aime à faire apprendre ce nombre utile au sage. Immortel
  Archimède, toi de qui Syracuse garde encore la mémoire.</text>
</lsr:rectClip>
<animateScroll xlink:href="#t1" direction="left" speed="2"
  delayAtStart="1" delayAtEnd="1" begin="3"
  repeatDur="indefinite" from="100 0" to="100 0"/>
```

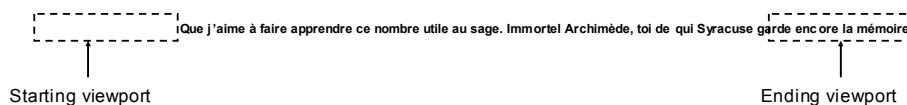


Figure AMD1.5 – Start and end states of Example 2

The units of the `from` and `to` attributes are percents of the clip size. When the direction is "left", `from="100 0"` means that the object is initially 100% of clip with to the right of the clip, which means right outside of the clip. `to="100 0"` means that the scrolled objects are, at the end of the animation, one clip width further to the left than the default leading edge of the clipping zone in the scrolling direction.

Example 3: Manual mode

```
<lsr:rectClip id="t1" size="120 20">
  <text...>Que j'aime à faire apprendre ce nombre utile au sage. <tspan
id="t2"/>Immortel Archimède, toi de qui Syracuse garde encore la mémoire.</text>
</lsr:rectClip>
<setScroll xlink:href="#t1" increment="100 0" begin="accessKey(RIGHT)"/>
<setScroll xlink:href="#t1" increment="-100 0" begin="accessKey(LEFT)"/>
<setScroll xlink:href="#t1" to="#t2" begin="accessKey(2)"/>
```

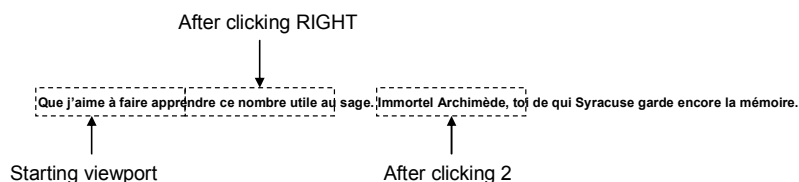


Figure AMD1.6 – Start, interactive and end states of Example 3

Example 4: Mixed mode

```
<lsr:rectClip id="t1" size="120 20">
  <text...>Que j'aime à faire apprendre ce nombre utile au sage. <tspan
id="t2">Immortel Archimède,</tspan> toi de qui Syracuse garde encore la
mémoire.</text>
</lsr:rectClip>
<animateScroll xlink:href="#t1" begin="0;accessKey(0)" repeatDur="indefinite"
direction="left" speed="3" delayAtStart="1" delayAtEnd="1"
end="accessKey(2);accessKey(RIGHT);accessKey(LEFT)"/>
<setScroll xlink:href="#t1" increment="100 0" begin="accessKey(RIGHT)"/>
<setScroll xlink:href="#t1" increment="-100 0" begin="accessKey(LEFT)"/>
<setScroll xlink:href="#t1" to="#t2" begin="accessKey(2)"/>
```

The above sample has one scrolling to the left in 3 seconds per clip width with 1s waiting at each end, and looping indefinitely, unless the user presses a key. Pressing RIGHT or LEFT move the text by one page (one clip width) left or right. Pressing 2 goes to “Immortel”. Pressing 0 resumes the automatic scrolling.

6.8.41.2 Attributes

- **xlink:href:** this attribute specifies the ID of an `lsr:rectClip` element containing the scrolled objects. In the absence of this attribute, this element does not have any effect.
Animatable: no. Inheritable: no.
- **by:** this attribute specifies the relative translation and consists in 2 values, expressed in percents of the clip size. The default value is 0 0. In case of repeated scrolling, this functions as an `animateTransform` with `accumulate="sum"`.
Animatable: no. Inheritable: no.
- **from:** this attribute specifies the starting position for the scrolling and consists in either 2 values, expressed in percents of the clip size, or in an element ID. The default value is 0 0, for the leading edge of the clipping zone in the scrolling direction. When `from` is an ID, it shall be the ID of a child of the scrolled object; the scrolling shall start with the leading edge of the object matching the leading edge of the clipping rectangle, according to the scrolling direction. `from` defines the minimum position of the clip.
Animatable: no. Inheritable: no.
- **to:** this attribute specifies the end of scrolling position and consists in either 2 values, expressed in percents of the clip size, or in an element ID. The default value is 0 0, for the leading edge of the clipping zone in the scrolling direction. When `to` is an ID, it shall be the ID of a child of the scrolled object; the scrolling shall end with the trailing edge of the object matching the trailing edge of the clipping rectangle,

according to the scrolling direction. to defines the maximum position of the clip.

Animatable: no. Inheritable: no.

- delayAtStart: this attribute specifies the delay between the start of a cycle and the beginning of the movement. The default value is 0 for no delay.
Animatable: no. Inheritable: no.
- delayAtEnd: this attribute specifies the delay between the end of the movement and the end of the cycle (and the restart of the cycle if the animation is looping). The default value is 0 for no delay.
Animatable: no. Inheritable: no.
- direction: this enumeration specifies the scrolling direction: up, down, left, right. For example, “up” means that the automatic scrolling move the scrolled objects toward the negative Ys. The default value is left.
Animatable: no. Inheritable: no.
- speed: this attribute expresses the time to scroll one page (or size of clipping zone) of text. It is exclusive from dur/end. The default value is 0 for no scrolling at all.
Animatable: no. Inheritable: no.
- begin: this attribute specifies the beginning of the animation, in a similar manner as for the other animate* elements. The default value is indefinite.
Animatable: no. Inheritable: no.
- dur: this attribute specifies the duration of the animation, including possible values of delayAtStart and delayAtEnd. The value of dur, if specified, shall be greater than delayAtStart+delayAtEnd. The default value is 0 for no scrolling.
Animatable: no. Inheritable: no.
- end: the difference between the value of begin and end specifies the duration of the animation, including possible values of delayAtStart and delayAtEnd. The value of end, if specified, shall be greater than begin+delayAtStart+delayAtEnd. The default value is indefinite.
Animatable: no. Inheritable: no.
- restart: this attribute specifies the restartability of the animation, in a similar manner as for the other animate* elements. The default value is always.
Animatable: no. Inheritable: no.
- repeatCount: this attribute specifies the repeatability of the animation, in a similar manner as for the other animate* elements. The default value is 0 for no repetition.
Animatable: no. Inheritable: no.
- repeatDur: this attribute specifies the repeatability of the animation, in a similar manner as for the other animate* elements. The default value is 0 for no repetition.
Animatable: no. Inheritable: no.
- fill: this attribute specifies whether the text returns to its initial position before the animation (remove) or keeps its last position (freeze). The default value is freeze.
Animatable: no. Inheritable: no.

6.8.42 SMIL animation

6.8.42.1 Semantics

The **SMIL animation** element is specified in subclause 7.3.1 of [W3C SMIL2]. Neither local IDs nor global IDs are shared between the main scene containing the animation element and the subscene referred by the animation element.

6.8.42.2 Attributes

- **clipBegin**: this attribute is defined in subclause 7.5.1 of [SMIL2]. The value represents a normal play time. The value of clipBegin is taken into account when the media element is activated. The play time of some streams cannot be controlled, and under these circumstances, this attribute has no effect. This attribute is not animatable and not inheritable.

- **clipEnd**: this attribute is defined in subclause 7.5.1 of [SMIL2]. The value represents a normal play time. The play time of some streams cannot be controlled, and under these circumstances, this attribute has no effect. This attribute is not animatable and not inheritable.
- **syncReference**: this attribute holds a reference to the stream whose clock acts as a clock reference for the stream referred to by this element. This attribute is not animatable and not inheritable.
- **syncBehavior**: this attribute is defined in subclause 6.3.1 of [SMIL2]. This attribute is not animatable and not inheritable.
- **syncTolerance**: this attribute is defined in subclause 6.3.1 of [SMIL2]. This attribute is not animatable and not inheritable.

6.8.43 SVG T1.1 font

The **SVG T1.1 font** element is specified in subclause 20.3 of [W3C SVG11]

6.8.44 SVG T1.1 font-face

The **SVG T1.1 font-face** element is specified in subclause 20.8.3 of [W3C SVG11]

6.8.45 SVG T1.1 font-face-src

The **SVG T1.1 font-face-src** element is specified in subclause 20.8.3 of [W3C SVG11]

6.8.46 SVG T1.1 font-face-uri

The **SVG T1.1 font-face-uri** element is specified in subclause 20.8.3 of [W3C SVG11]

6.8.47 SVG T1.1 font-face-name

The **SVG T1.1 font-face-name** element is specified in subclause 20.8.3 of [W3C SVG11]

6.8.48 SVG T1.1 glyph

The **SVG T1.1 glyph** element is specified in subclause 20.4 of [W3C SVG11]

6.8.49 SVG T1.1 missing-glyph

The **SVG T1.1 missing-glyph** element is specified in subclause 20.5 of [W3C SVG11]

6.8.50 SVG T1.1 hkern

The **SVG T1.1 hkern** element is specified in subclause 20.7 of [W3C SVG11]

6.8.51 LAsER setScroll

6.8.51.1 Semantics

The setScroll element is a simplified animateScroll. Examples are provided in the animateScroll subclause.

6.8.51.2 Attributes

- **xlink:href**: this attribute specifies the ID of an `lscr:rectClip` element containing the scrolled objects. In the absence of this attribute, this element does not have any effect.
Animatable: no. Inheritable: no.

- **increment:** this attribute specifies the relative translation and consists in 2 values, expressed in percents of the clip size. The scrolling increment is applied as many times as the element has been activated. The default value is 0 0.
Animatable: no. Inheritable: no.
- **to:** this attribute specifies an absolute scrolling position and consists in either 2 values, expressed in percents of the clip size, or in an element ID. The default value is 0 0, for the leading edge of the clipping zone in the scrolling direction. When to is an ID, it shall be the ID of a child of the scrolled object; the scrolled objects shall be placed such that the leading edge of the scrolled objects match the leading edge of the clipping rectangle, according to the scrolling direction.
Animatable: no. Inheritable: no.
- **direction:** this enumeration specifies the scrolling direction: up, down, left, right. For example, "up" means that the automatic scrolling moves the scrolled objects toward the negative Ys. The default value is left.
Animatable: no. Inheritable: no.
- **begin:** this attribute specifies the beginning of the animation, in a similar manner as for the other `animate*` elements. The default value is indefinite.
Animatable: no. Inheritable: no.

6.8.52 LAsER StreamSource

6.8.52.1 Semantics

The purpose of StreamSource is to first make available at the scene level information about the state of media chains (e.g. buffering, availability for rendering ...) and secondly to give hints for potential resource optimization like, for instance, usage of a single hardware decoder, smooth transition during rendering without silence or black screens, ads display during channel switching.

The 'streamSource' element manages a set of streams, it does not actually have any display/rendering functionality. Instead, it keeps available an up-to-date pixel or audio buffer that can be used, and thus displayed by one or more video elements. As such, streamSource makes a pixel/audio buffer available to video/audio elements.

If any of the elements (in the source attribute) in the streamSource element is an audiovisual element containing both audio and video, two buffers (for audio and video respectively) shall be made available for all elements referring to the streamSource.

In such case,

- the pixel buffer associated to the streamSource when an audio only stream is active will represent a black buffer, the size of which will be defined by the width and height elements. Children of the streamSource element may define the default buffer in that case.
- the audio buffer associated to the streamSource when an video only stream is active will render as silence. Children of the streamSource element may define a default audio clip in that case.

The 'streamSource' element is able to trigger events such as the availability of the desired stream.

6.8.52.2 Attributes

- **sources :** is an array of references to stream sources
- **sourceIndex :** is the current active video source. On loading of the scene or when changing the sourceIndex, the browser shall connect to the session defined by the url corresponding to sourceIndex, this is source[i]
- **width, height :** default pixel buffer size
- **mode :** is one of "replace", "useOld", "keepOld", "playList".

- The value "replace" indicates that the composition buffer associated to the stream should be immediately replaced when sourceIndex is changed.
- The value "useOld" means that the previous stream will be decoded till the stream pointed by sourceIndex is ready which means that data will start to be available for composition for the stream pointed by sourceIndex. This implies that decoding and rendering of the previous stream will occur up to the moment at which the first composition buffer is made available.
- With "keepOld"¹ the same behaviour as from "useOld" is expected, furthermore the previous video stream source is kept open.
- The value "playList" indicates that the different sources will be played in sequence. In this case, it is possible to append a "repeat" and/or "shuffle" modes such as "playList, repeat, shuffle". This modes repeat and shuffle allow respectively to cycle through sources and to shuffle the sources.

6.8.53 LAsER updates

6.8.53.1 Semantics

The LAsER updates element provides a link to a source of scene updates. The value of the xlink:href attribute defines the location of the updates to be applied to the current scene. The updates element is a timed element providing stream playback control.

6.8.53.2 Attributes

All SMIL timing attributes defined in [2] subclause 16.2.7 are defined for this element, except the "fill" attribute.

- **clipBegin**: this attribute is defined in subclause 7.5.1 of [SMIL2]. The value represents a normal play time. The value of clipBegin is taken into account when the media element is activated. The play time of some streams cannot be controlled, and under these circumstances, this attribute has no effect. This attribute is not animatable and not inheritable.
- **clipEnd**: this attribute is defined in subclause 7.5.1 of [SMIL2]. The value represents a normal play time. The play time of some streams cannot be controlled, and under these circumstances, this attribute has no effect. This attribute is not animatable and not inheritable.
- **xlink:href**: this attribute specifies the location of the stream of updates. In the absence of this attribute, this element does not have any effect. This attribute is not animatable and not inheritable.
- **syncReference**: this attribute holds a reference to the stream whose clock acts as a clock reference for the stream referred to by this element. This attribute is not animatable and not inheritable.
- **security**: this attribute controls the type of allowed updates in the referenced stream. The referenced stream may contain a complete scene (for example, LAsER starting with a NewScene command) or a scene segment (for example, LAsER starting with any other command than NewScene or RefreshScene). Allowed values for the security attribute are *any*, *complete* or *segment*. The value *any* does not restrict the type of updates in the referenced stream: this is the default value. The value *complete* restricts the updates in the referenced stream to be a complete scene: the current scene may be discarded upon activation of the hyperlink. The value *segment* restricts the updates in the referenced stream to be a scene segment: any command replacing or refreshing the entire scene (for example LAsER NewScene/RefreshScene) shall be ignored. This attribute is not animatable and not inheritable.
- **flow**: this attribute controls the behavior of the referenced stream of updates. Allowed values are *parent* and *new*. The name of the attribute refers to the "flow of information", which comprises incoming commands and media. The value *parent* means that the referenced stream shall replace the flow of information from which this a element originated. The value *new* means that the referenced stream shall be processed in parallel with existing flows of information. Note – the LAsER engine may manage transport connections according to this information. This attribute is not animatable and not inheritable.

¹ This richer functionality allows for coming back to the previous channel but would suppose to keep two streams open (i.e. in a DVB-H case to synchronise two bursts).

Renumber subclause 6.8.41 Summary of Possible Attributes per Element to 6.9.

In subclause 6.9 Summary of Possible Attributes per Element, replace the table with:

Element name	Attributes
a	audio-level color color-rendering display display-align externalResourcesRequired fill fill-opacity fill-rule nav-right nav-next nav-up nav-up-right nav-up-left nav-prev nav-down nav-down-right nav-down-left nav-left focusable font-family font-size font-style font-variant font-weight image-rendering line-increment lsr:rotation lsr:scale lsr:translation pointer-events requiredExtensions requiredFeatures requiredFormats shape-rendering solid-color solid-opacity stop-color stop-opacity stroke stroke-dasharray stroke-dashoffset stroke-linecap stroke-linejoin stroke-miterlimit stroke-opacity stroke-width systemLanguage target text-anchor text-rendering transform vector-effect viewport-fill viewport-fill-opacity visibility xlink:actuate xlink:arcrole xlink:href xlink:role xlink:show xlink:title xlink:type
animate	accumulate additive attributeName begin by calcMode class dur enabled end fill from id keySplines keyTimes max min repeatCount repeatDur restart to values xlink:actuate xlink:arcrole xlink:href xlink:role xlink:show xlink:title xlink:type xml:base xml:lang xml:space
animateColor	accumulate additive attributeName begin by calcMode class dur enabled end fill from id keySplines keyTimes max min repeatCount repeatDur restart to values xlink:actuate xlink:arcrole xlink:href xlink:role xlink:show xlink:title xlink:type xml:base xml:lang xml:space
animateMotion	accumulate additive attributeName begin by calcMode class dur enabled end fill from id keyPoints keySplines keyTimes max min path repeatCount repeatDur restart rotate to values xlink:actuate xlink:arcrole xlink:href xlink:role xlink:show xlink:title xlink:type xml:base xml:lang xml:space
lsr:animateScroll	id class xml:base xml:lang xml:space xlink:href xlink:title xlink:type xlink:role xlink:arcrole xlink:actuate xlink:show by from to delayAtStart delayAtEnd speed direction begin dur end fill restart repeatCount repeatDur
animateTransform	accumulate additive attributeName begin by calcMode class dur enabled end fill from id keySplines keyTimes max min repeatCount repeatDur restart to type values xlink:actuate xlink:arcrole xlink:href xlink:role xlink:show xlink:title xlink:type xml:base xml:lang xml:space
animation	id class xml:base xml:lang xml:space requiredFeatures requiredExtensions systemLanguage requiredFormats requiredFonts audio-level display image-rendering pointer-events shape-rendering text-rendering viewport-fill viewport-fill-opacity visibility lsr:rotation lsr:scale lsr:translation transform xlink:href xlink:title xlink:type xlink:role xlink:arcrole xlink:actuate xlink:show nav-right nav-next nav-up nav-up-right nav-up-left nav-prev nav-down nav-down-right nav-down-left nav-left focusable fill focushighlight width height x y externalResourcesRequired begin end dur min max restart repeatCount repeatDur syncBehavior syncTolerance syncMaster preserveAspectRatio type lsr:syncReference lsr:clipBegin lsr:clipEnd initialVisibility
audio	audio-level begin class dur end externalResourcesRequired id lsr:syncReference repeatCount repeatDur requiredExtensions requiredFeatures requiredFormats syncBehavior syncTolerance systemLanguage type xlink:actuate xlink:arcrole xlink:href xlink:role xlink:show xlink:title xlink:type xml:base xml:lang xml:space type
circle	audio-level class color color-rendering cx cy display display-align fill fill-opacity fill-rule nav-right nav-next nav-up nav-up-right nav-up-left nav-prev nav-down nav-down-right nav-down-left nav-left focusable font-family font-size font-style font-weight font-variant id image-rendering line-increment lsr:rotation lsr:scale lsr:translation pointer-events r requiredExtensions requiredFeatures requiredFormats shape-rendering solid-color solid-opacity stop-color stop-opacity stroke stroke-dasharray stroke-dashoffset stroke-linecap stroke-linejoin stroke-miterlimit stroke-opacity stroke-width systemLanguage text-anchor text-rendering transform vector-effect viewport-fill viewport-fill-opacity visibility xml:base xml:lang xml:space

Element name	Attributes
Isr:conditional	id class begin enabled externalResourcesRequired xlink:href xlink:title xlink:type xlink:role xlink:arcrole xlink:actuate xlink:show xml:base xml:lang xml:space
Isr:cursorManager	id class xml:base xml:lang xml:space xlink:href xlink:title xlink:type xlink:role xlink:arcrole xlink:actuate xlink:show x y
defs	audio-level class color color-rendering display display-align fill fill-opacity fill-rule font-family font-size font-style font-variant font-weight id image-rendering line-increment pointer-events shape-rendering solid-color solid-opacity stop-color stop-opacity stroke stroke-dasharray stroke-dashoffset stroke-linecap stroke-linejoin stroke-miterlimit stroke-opacity stroke-width text-anchor text-rendering vector-effect viewport-fill viewport-fill-opacity visibility xml:base xml:lang xml:space
desc	class id xml:base xml:lang xml:space
ellipse	audio-level class color color-rendering cx cy display display-align fill fill-opacity fill-rule nav-right nav-next nav-up nav-up-right nav-up-left nav-prev nav-down nav-down-right nav-down-left nav-left focusable font-family font-size font-style font-variant font-weight id image-rendering line-increment Isr:rotation Isr:scale Isr:translation pointer-events requiredExtensions requiredFeatures requiredFormats rx ry shape-rendering solid-color solid-opacity stop-color stop-opacity stroke stroke-dasharray stroke-dashoffset stroke-linecap stroke-linejoin stroke-miterlimit stroke-opacity stroke-width systemLanguage text-anchor text-rendering transform vector-effect viewport-fill viewport-fill-opacity visibility xml:base xml:lang xml:space
font	id class xml:base xml:lang xml:space externalResourcesRequired horiz-adv-x horiz-origin-x
font-face	id class xml:base xml:lang xml:space accent-height alphabetic ascent bbox cap-height descent externalResourcesRequired font-family font-stretch font-style font-variant font-weight hanging ideographic mathematical overline-position overline-thickness panose-1 slope stemh stemv strikethrough-position strikethrough-thickness underline-position underline-thickness unicode-range units-per-em widths x-height
font-face-src	id class xml:base xml:lang xml:space
font-face-uri	id class xml:base xml:lang xml:space externalResourcesRequired xlink:href xlink:title xlink:type xlink:role xlink:arcrole xlink:actuate xlink:show
foreignObject	audio-level class color color-rendering display display-align externalResourcesRequired fill fill-opacity fill-rule nav-right nav-next nav-up nav-up-right nav-up-left nav-prev nav-down nav-down-right nav-down-left nav-left focusable font-family font-size font-style font-variant font-weight height id image-rendering line-increment pointer-events requiredExtensions requiredFeatures requiredFormats shape-rendering solid-color solid-opacity stop-color stop-opacity stroke stroke-dasharray stroke-dashoffset stroke-linecap stroke-linejoin stroke-miterlimit stroke-opacity stroke-width systemLanguage text-anchor text-rendering vector-effect viewport-fill viewport-fill-opacity visibility width x xml:base xml:lang xml:space y
g	id class xml:base xml:lang xml:space audio-level color color-rendering display display-align fill fill-opacity fill-rule font-family font-size font-style text-decoration font-weight font-variant image-rendering line-increment pointer-events shape-rendering solid-color solid-opacity stop-color stop-opacity stroke stroke-dasharray stroke-dashoffset stroke-linecap stroke-linejoin stroke-miterlimit stroke-opacity stroke-width text-anchor text-rendering viewport-fill viewport-fill-opacity vector-effect visibility Isr:rotation Isr:scale Isr:translation transform requiredFeatures requiredExtensions systemLanguage requiredFormats requiredFonts nav-right nav-next nav-up nav-up-right nav-up-left nav-prev nav-down nav-down-right nav-down-left nav-left focusable focusHighlight externalResourcesRequired
glyph	id class xml:base xml:lang xml:space arabic-form d glyph-name horiz-adv-x lang unicode externalResourceRequired xlink:href xlink:title xlink:type xlink:role xlink:arcrole xlink:actuate xlink:show
hkern	id class xml:base xml:lang xml:space g1 g2 k u1 u2

Element name	Attributes
image	class display externalResourcesRequired nav-right nav-next nav-up nav-up-right nav-up-left nav-prev nav-down nav-down-right nav-down-left nav-left focusable height id lsr:rotation lsr:scale lsr:translation opacity pointer-events requiredExtensions requiredFeatures requiredFormats systemLanguage transform transformBehavior type visibility width x xlink:actuate xlink:arcrole xlink:href xlink:role xlink:show xlink:title xlink:type xml:base xml:lang xml:space y type preserveAspectRatio viewport-fill viewport-fill-opacity
line	audio-level class color color-rendering display display-align fill fill-opacity fill-rule nav-right nav-next nav-up nav-up-right nav-up-left nav-prev nav-down nav-down-right nav-down-left nav-left focusable font-family font-size font-style font-variant font-weight id image-rendering line-increment lsr:rotation lsr:scale lsr:translation pointer-events requiredExtensions requiredFeatures requiredFormats shape-rendering solid-color solid-opacity stop-color stop-opacity stroke stroke-dasharray stroke-dashoffset stroke-linecap stroke-linejoin stroke-miterlimit stroke-opacity stroke-width systemLanguage text-anchor text-rendering transform vector-effect viewport-fill viewport-fill-opacity visibility x1 x2 xml:base xml:lang xml:space y1 y2
linearGradient	audio-level class color color-rendering display display-align fill fill-opacity fill-rule font-family font-size font-style font-variant font-weight gradient-units id image-rendering line-increment pointer-events shape-rendering solid-color solid-opacity stop-color stop-opacity stroke stroke-dasharray stroke-dashoffset stroke-linecap stroke-linejoin stroke-miterlimit stroke-opacity stroke-width text-anchor text-rendering vector-effect viewport-fill viewport-fill-opacity visibility x1 x2 xml:base xml:lang xml:space y1 y2
ev:listener	id enabled event handler observer phase propagate defaultAction target
metadata	class id xml:base xml:lang xml:space
missing-glyph	id class xml:base xml:lang xml:space d horiz-adv x
mpath	class id xlink:actuate xlink:arcrole xlink:href xlink:role xlink:show xlink:title xlink:type xml:base xml:lang xml:space
path	audio-level class color color-rendering d display display-align fill fill-opacity fill-rule nav-right nav-next nav-up nav-up-right nav-up-left nav-prev nav-down nav-down-right nav-down-left nav-left focusable font-family font-size font-style font-variant font-weight id image-rendering line-increment lsr:rotation lsr:scale lsr:translation pathLength pointer-events requiredExtensions requiredFeatures requiredFormats shape-rendering solid-color solid-opacity stop-color stop-opacity stroke stroke-dasharray stroke-dashoffset stroke-linecap stroke-linejoin stroke-miterlimit stroke-opacity stroke-width systemLanguage text-anchor text-rendering transform vector-effect viewport-fill viewport-fill-opacity visibility xml:base xml:lang xml:space
polygon	audio-level class color color-rendering display display-align fill fill-opacity fill-rule nav-right nav-next nav-up nav-up-right nav-up-left nav-prev nav-down nav-down-right nav-down-left nav-left focusable font-family font-size font-style font-variant font-weight id image-rendering line-increment lsr:rotation lsr:scale lsr:translation pointer-events points requiredExtensions requiredFeatures requiredFormats shape-rendering solid-color solid-opacity stop-color stop-opacity stroke stroke-dasharray stroke-dashoffset stroke-linecap stroke-linejoin stroke-miterlimit stroke-opacity stroke-width systemLanguage text-anchor text-rendering transform vector-effect viewport-fill viewport-fill-opacity visibility xml:base xml:lang xml:space
polyline	audio-level class color color-rendering display display-align fill fill-opacity fill-rule nav-right nav-next nav-up nav-up-right nav-up-left nav-prev nav-down nav-down-right nav-down-left nav-left focusable font-family font-size font-style font-variant font-weight id image-rendering line-increment lsr:rotation lsr:scale lsr:translation pointer-events points requiredExtensions requiredFeatures requiredFormats shape-rendering solid-color solid-opacity stop-color stop-opacity stroke stroke-dasharray stroke-dashoffset stroke-linecap stroke-linejoin stroke-miterlimit stroke-opacity stroke-width systemLanguage text-anchor text-rendering transform vector-effect viewport-fill viewport-fill-opacity visibility xml:base xml:lang xml:space

Element name	Attributes
radialGradient	audio-level class color color-rendering cx cy display display-align fill fill-opacity fill-rule font-family font-size font-style font-variant font-weight gradient-units id image-rendering line-increment pointer-events r shape-rendering solid-color solid-opacity stop-color stop-opacity stroke stroke-dasharray stroke-dashoffset stroke-linecap stroke-linejoin stroke-miterlimit stroke-opacity stroke-width text-anchor text-rendering vector-effect viewport-fill viewport-fill-opacity visibility xml:base xml:lang xml:space
rect	audio-level class color color-rendering display display-align fill fill-opacity fill-rule nav-right nav-next nav-up nav-up-right nav-up-left nav-prev nav-down nav-down-right nav-down-left nav-left focusable font-family font-size font-style font-variant font-weight height id image-rendering line-increment lsr:rotation lsr:scale lsr:translation pointer-events requiredExtensions requiredFeatures requiredFormats rx ry shape-rendering solid-color solid-opacity stop-color stop-opacity stroke stroke-dasharray stroke-dashoffset stroke-linecap stroke-linejoin stroke-miterlimit stroke-opacity stroke-width systemLanguage text-anchor text-rendering transform vector-effect viewport-fill viewport-fill-opacity visibility width x xml:base xml:lang xml:space y
lsr:rectClip	id class xml:base xml:lang xml:space audio-level color color-rendering display display-align fill fill-opacity fill-rule font-family font-size font-style text-decoration font-weight font-variant image-rendering line-increment pointer-events shape-rendering solid-color solid-opacity stop-color stop-opacity stroke stroke-dasharray stroke-dashoffset stroke-linecap stroke-linejoin stroke-miterlimit stroke-opacity stroke-width text-anchor text-rendering viewport-fill viewport-fill-opacity vector-effect visibility lsr:rotation lsr:scale lsr:translation transform requiredFeatures requiredExtensions systemLanguage requiredFormats requiredFonts nav-right nav-next nav-up nav-up-right nav-up-left nav-prev nav-down nav-down-right nav-down-left nav-left focusable focusHighlight externalResourcesRequired size width height x y
script	begin class enabled externalResourcesRequired id type xlink:actuate xlink:arcrole xlink:href xlink:role xlink:show xlink:title xlink:type xml:base xml:lang xml:space type
lsr:selector	id class xml:base xml:lang xml:space audio-level color color-rendering display display-align fill fill-opacity fill-rule font-family font-size font-style text-decoration font-weight font-variant image-rendering line-increment pointer-events shape-rendering solid-color solid-opacity stop-color stop-opacity stroke stroke-dasharray stroke-dashoffset stroke-linecap stroke-linejoin stroke-miterlimit stroke-opacity stroke-width text-anchor text-rendering viewport-fill viewport-fill-opacity vector-effect visibility lsr:rotation lsr:scale lsr:translation transform requiredFeatures requiredExtensions systemLanguage requiredFormats requiredFonts nav-right nav-next nav-up nav-up-right nav-up-left nav-prev nav-down nav-down-right nav-down-left nav-left focusable focusHighlight externalResourcesRequired choice
set	attributeName begin class dur enabled end fill id max min repeatCount repeatDur restart to xlink:actuate xlink:arcrole xlink:href xlink:role xlink:show xlink:title xlink:type xml:base xml:lang xml:space
lsr:setScroll	id class xml:base xml:lang xml:space begin increment to direction xlink:actuate xlink:arcrole xlink:href xlink:role xlink:show xlink:title xlink:type
lsr:simpleLayout	id class xml:base xml:lang xml:space audio-level color color-rendering display display-align fill fill-opacity fill-rule font-family font-size font-style text-decoration font-weight font-variant image-rendering line-increment pointer-events shape-rendering solid-color solid-opacity stop-color stop-opacity stroke stroke-dasharray stroke-dashoffset stroke-linecap stroke-linejoin stroke-miterlimit stroke-opacity stroke-width text-anchor text-rendering viewport-fill viewport-fill-opacity vector-effect visibility lsr:rotation lsr:scale lsr:translation transform requiredFeatures requiredExtensions systemLanguage requiredFormats requiredFonts nav-right nav-next nav-up nav-up-right nav-up-left nav-prev nav-down nav-down-right nav-down-left nav-left focusable focusHighlight externalResourcesRequired size
stop	audio-level class color color-rendering display display-align fill fill-opacity fill-rule font-family font-size font-style font-variant font-weight id image-rendering line-increment offset pointer-events shape-rendering solid-color solid-opacity stop-color stop-opacity stroke stroke-dasharray stroke-dashoffset stroke-linecap stroke-linejoin stroke-miterlimit stroke-opacity stroke-width text-anchor text-rendering vector-effect viewport-fill viewport-fill-opacity visibility xml:base xml:lang xml:space

Element name	Attributes
streamSource	id class xml:base xml:lang xml:space sources sourceIndex width height mode
svg	audio-level baseProfile class color color-rendering contentScriptType display display-align externalResourcesRequired fill fill-opacity fill-rule font-family font-size font-style font-variant font-weight height id image-rendering line-increment playbackOrder pointer-events preserveAspectRatio shape-rendering snapshotTime solid-color solid-opacity stop-color stop-opacity stroke stroke-dasharray stroke-dashoffset stroke-linecap stroke-linejoin stroke-miterlimit stroke-opacity stroke-width syncBehaviorDefault syncToleranceDefault text-anchor text-rendering timeLineBegin vector-effect version viewBox viewport-fill viewport-fill-opacity visibility width xml:base xml:lang xml:space zoomAndPan
switch	audio-level class color color-rendering display display-align externalResourcesRequired fill fill-opacity fill-rule nav-right nav-next nav-up nav-up-right nav-up-left nav-prev nav-down nav-down-right nav-down-left nav-left focusable font-family font-size font-style font-variant font-weight id image-rendering line-increment lsr:rotation lsr:scale lsr:translation pointer-events requiredExtensions requiredFeatures requiredFormats shape-rendering solid-color solid-opacity stop-color stop-opacity stroke stroke-dasharray stroke-dashoffset stroke-linecap stroke-linejoin stroke-miterlimit stroke-opacity stroke-width systemLanguage text-anchor text-rendering transform vector-effect viewport-fill viewport-fill-opacity visibility xml:base xml:lang xml:space
text	audio-level color color-rendering display display-align editable fill fill-opacity fill-rule nav-right nav-next nav-up nav-up-right nav-up-left nav-prev nav-down nav-down-right nav-down-left nav-left focusable font-family font-size font-style font-variant font-weight image-rendering line-increment lsr:rotation lsr:scale lsr:translation pointer-events requiredExtensions requiredFeatures requiredFormats rotate shape-rendering solid-color solid-opacity stop-color stop-opacity stroke stroke-dasharray stroke-dashoffset stroke-linecap stroke-linejoin stroke-miterlimit stroke-opacity stroke-width systemLanguage text-anchor text-rendering transform vector-effect viewport-fill viewport-fill-opacity visibility x y
title	class id xml:base xml:lang xml:space
tspan	audio-level class color color-rendering display display-align fill fill-opacity fill-rule nav-right nav-next nav-up nav-up-right nav-up-left nav-prev nav-down nav-down-right nav-down-left nav-left focusable font-family font-size font-style font-variant font-weight id image-rendering line-increment pointer-events requiredExtensions requiredFeatures requiredFormats shape-rendering solid-color solid-opacity stop-color stop-opacity stroke stroke-dasharray stroke-dashoffset stroke-linecap stroke-linejoin stroke-miterlimit stroke-opacity stroke-width systemLanguage text-anchor text-rendering vector-effect viewport-fill viewport-fill-opacity visibility xml:base xml:lang xml:space
updates	externalResourcesRequired requiredExtensions requiredFeatures requiredFormats systemLanguage xlink:actuate xlink:arcrole xlink:href xlink:role xlink:show xlink:title xlink:type begin class dur end id lsr:syncReference repeatCount repeatDur syncBehavior syncTolerance type xml:base xml:lang xml:space clipBegin clipEnd security flow
use	audio-level class color color-rendering display display-align externalResourcesRequired fill fill-opacity fill-rule nav-right nav-next nav-up nav-up-right nav-up-left nav-prev nav-down nav-down-right nav-down-left nav-left focusable font-family font-size font-style font-variant font-weight id image-rendering line-increment lsr:rotation lsr:scale lsr:translation overflow pointer-events requiredExtensions requiredFeatures requiredFormats shape-rendering solid-color solid-opacity stop-color stop-opacity stroke stroke-dasharray stroke-dashoffset stroke-linecap stroke-linejoin stroke-miterlimit stroke-opacity stroke-width systemLanguage text-anchor text-rendering transform vector-effect viewport-fill viewport-fill-opacity visibility x xlink:actuate xlink:arcrole xlink:href xlink:role xlink:show xlink:title xlink:type xml:base xml:lang xml:space y
video	audio-level begin display dur end externalResourcesRequired fullscreen nav-right nav-next nav-up nav-up-right nav-up-left nav-prev nav-down nav-down-right nav-down-left nav-left focusable height lsr:rotation lsr:scale lsr:syncReference lsr:translation overlay pointer-events repeatCount repeatDur requiredExtensions requiredFeatures requiredFormats syncBehavior syncTolerance systemLanguage transform transformBehavior type visibility width x xlink:actuate xlink:arcrole xlink:href xlink:role xlink:show xlink:title xlink:type y type preserveAspectRatio viewport-fill viewport-fill-opacity

After subclause 6.9, add the following subclause:

6.10 Addition to the uDOM API

6.10.1 Parsing of an encoded XML element

6.10.1.1 Syntax

```
Node parseLASerBinaryElement(in sequence<octet> data, in Document contextDoc);
```

6.10.1.2 Semantics

Given a chunk of binary data and a Document object, parse the binary data as a LASer element and return a Node representing it. If the binary data is not well-formed, this method must return a `null` value.

The format of the `sequence<octet> data` parameter is: one LASerHeader followed by a byte-aligned encoded object of class `updatable_elements` as defined in clause 12.

6.10.2 Trait access extensions

The following table adds to the table in A.8.12 of [SVGT1.2]. It contains trait access rules for DIMS extensions.

Attribute	Trait Getter	Trait Setter	Default Values	Description
fullscreen	getTraitNS[true false]	setTraitNS[true false]	false	Available on <video> and <svg> elements
x	getFloatTraitNS	setFloatTraitNS	0.0f	Origin x of the <rectClip>
y	getFloatTraitNS	setFloatTraitNS	0.0f	Origin y of the <rectClip>
width	getFloatTraitNS	setFloatTraitNS	0.0f	Width of the clipping region defined by <rectClip>
height	getFloatTraitNS	setFloatTraitNS	0.0f	Height of the clipping region defined by <rectClip>

6.10.3 Description of getFloatTraitNS and setFloatTraitNS methods

float getFloatTraitNS(in DOMString namespaceURI, in DOMString name) raises(DOMException);

- Same as `getFloatTrait`, but for namespaced traits. Parameter name must be a non-qualified trait name, i.e. without prefix.

Parameters:

`namespaceURI` - the namespaceURI of the trait to retrieve.

`name` - the name of the trait to retrieve.

Return Value:

the trait value as float.

Exceptions:

DOMException - with error code `NOT_SUPPORTED_ERR` if the requested trait is not supported on this element or null.

DOMException - with error code `TYPE_MISMATCH_ERR` if requested trait's computed value cannot be converted to a float.

**void setFloatTraitNS(in DOMString namespaceURI, in DOMString name, in float value)
raises(DOMException);**

Same as setFloatTrait, but for namespaced traits. Parameter name must be a non-qualified trait name, i.e. without prefix.

Parameters:

namespaceURI - the namespaceURI of the trait to be set.

name - the name of the trait to be set.

value - the value of the trait to be set as float.

Exceptions:

DOMException - with error code NOT_SUPPORTED_ERR if the requested trait is not supported on this element or null.

DOMException - with error code TYPE_MISMATCH_ERR if the requested trait's value cannot be specified as a float (for e.g. NaN)

DOMException - with error code INVALID_ACCESS_ERR if the input value is an invalid value for the given trait or null.

In clause 7, replace Table 8 with:

Value	Type of access unit payload	Data in payload
0x00	Reserved	-
0x01	TransientStreamHeader	A SimpleDecoderConfigDescriptor
0x02	NonTransientStreamHeader	A SimpleDecoderConfigDescriptor
0x03	EndofStream	(no data)
0x04	AccessUnit	An Access Unit
0x05	EndOfSAFSession	(no data)
0x06	CacheUnit	A cache object
0x07	RemoteStreamHeader	An url and a SimpleDecoderConfigDescriptor
0x08	GroupDescriptor	-
0x09	FirstFragmentUnit	The first Fragment of an Access Unit
0x0A	FragmentUnit	A Fragment of an Access Unit (not the first fragment)
0x0B	SAFConfiguration	A safConfiguration object
0x0C	StopCache	-
0x0D ~ 0x0F	Reserved	-

At the end of 7.11 EndOfSAFSession, add the following text:

When a Saf Session is closed (either by *EndOfSAFSession*, or by other means), all streams that have a String streamID shall not be discarded.

After subclause 7.12, add the following subclauses:

7.13 GroupingDescriptor

7.13.1 Syntax

```
class groupingDescriptor {  
    bit(8) number_of_elements;  
    for (int i=0 ; i<number_of_element ; i++) {  
        bit(12) streamID;  
    }  
}
```

7.13.2 Semantics

number_of_elements – number of elements in this group

streamID – a streamID of elementary stream grouped into a single decoder

This descriptor signals grouping of elementary streams to use more than one decoder buffers for a single decoder to improve switching behaviours between the elementary streams in the same group. The terminal shall continuously receive elementary streams referred by this descriptor and fill the decoding buffers. No more than one stream referred by this descriptor shall be decoded at the same time. This may require allocation of more than one decoding buffer for a single decoder. Note: When this descriptor is used, even though the decoder buffers are not connected to the decoder, the AU is removed from the decoder buffer when the DTS is arrived.

7.14 SAF Fragment Unit

The fragment unit is a specialized SAF Extended Access Unit. accessUnitLength of this packet shall be zero.

7.14.1 Syntax

```
class safFU {  
    bit(4) accessUnitType;  
    bit(12) streamID;  
    bit(16) payloadLength;  
    bit(8) fragmentSeqNum;  
    byte(8)[payloadLength-1] payload;  
}
```

7.14.2 Semantics

accessUnitType – the value of this field shall be 10

streamID – same as in 7.5.2.

payloadLength – the length of the data part of the access unit.

fragmentSeqNum – the fragment sequence number on 8 bits, possibly wrapping.

payload – the data part of the access unit. The size of the payload is signalled by the payloadLength field in the packet header as specified in 7.4.

7.15 SAF First Fragment Unit

The first fragment unit is a specialized SAF Extended Access Unit. `accessUnitLength` of this packet must be zero.

7.15.1 Syntax

```
class safFFU {
    bit(4) accessUnitType;
    bit(12) streamID;
    bit(16) payloadLength;
    bit(4) carriedAccessUnitType;
    bit(4) reserved;
    bit(32) totalLengthOfAccessUnit;
    byte(8)[payloadLength-5] payload;
}
```

7.15.2 Semantics

`accessUnitType` – the value of this field shall be 9

`streamID` – the reference of the media stream this AU belongs to.

`carriedAccessUnitType` – an indication about the type of the access unit whose fragment is carried in the payload. Detailed values of `accessUnitType` and the data corresponding to each type are defined in Table 8.

`totalLengthOfAccessUnit` – the length of the access unit, which shall be equal to the accumulated length of the fragments.

`payload` – the data part of the access unit. The size of the payload is signalled by the `payloadLength` field in the packet header as specified in 7.4.

7.16 SAF Configuration

7.16.1 Syntax

```
class safConfiguration {
    bit(1) add;
    bit(1) cacheThisSession;
    bit(1) hasMainStreamID;
    bit(1) hasStreamDependencies;
    if (add == 0 && hasMainStreamID == 1) {
        bit(12) mainStreamID;
    } else {
        bit(4) reserved = 0;
    }
    if (hasStreamDependencies) {
        uint(16) sd_count;
        for (int i = 0; i < sd_count; i++) {
            bit(12) streamID;
            bit(12) dependsOnStreamID;
        }
    }
    // globalStreamTable: external or internal global streamID references
    uint(8) count;
    for (int i = 0; i < count; i++) {
```

```

    bit(12) localStreamIdForThisGlobal[[i]];
    bit(12) globalNameLength;
    byte[globalNameLength] globalName[[i]];
}
if (cacheThisSession == 1) {
    bit(1) permanent;
    bit(31) validity;
    unit(16) urlLength;
    byte[urlLength] cacheURL;
}
byte[accessUnitLength - sizeof(previous elements)] extensionData;
}

```

7.16.2 Semantics

add – if set to 1, this packet defines an addition to the previous SAF Configuration. If set to 0, the current global stream table is reset and the global stream table defined in this packet becomes the current global stream table. Existing stream dependencies shall not be re-assigned, either when appending a new configuration or when redefining it.

cacheThisSession – if set, the current session should be cached. If the connection is closed before the arrival of a stopCache instruction, nothing is stored in cache.

permanent – if true, the cached session shall be kept, if the terminal has enough resources, after the end of the application for a duration stored in the validity field.

validity – the validity period of this cached session expressed in seconds

urlLength – if non-zero, the cacheURL field contains a string of length urlLength which is the URL at which the current session should be cached. If zero, the original URL of the current session should be used for caching. Note: the presence of a URL should be the exception.

cacheURL – the URL to be used for the caching of this session.

mainStreamID – in cases where there are multiple scene streams, the mainstreamed allows the author to specify which is the main stream. In the absence of a SAF Configuration packet, the main stream ID is 0.

streamID – stream ID for which a coding dependency is being specified.

dependsOnStreamID – ID of the stream upon which the specified stream is dependent.

localStreamIdForThisGlobal – defines the number used as stream ID for the stream whose name is **globalName**.

globalName – defines the name of the global stream, which is the identifier used for reference across SAF session boundaries.

7.17 Stop Cache

7.17.1 Syntax

```

class stopCache {
}

```

7.17.2 Semantics

When this packet arrives, any caching of the current session ends.

At the end of subclause 8, add this subclause:

8.4. LAsER Core

8.4.1. Applications

Rich-media services on mid- and lower-end embedded devices.

The purpose of LAsER Core is to allow J2ME implementations of LAsER. One specific feature of Core is that the implementation does **not** need to implement 2 trees, one DOM tree and one composition tree, or otherwise keep the memory of the decoded value for each attribute.

8.4.2. List of Tools/Functionalities

8.4.2.1. video element

The attribute **transformBehavior** shall be restricted to values “pinned | pinned90 | pinned180 | pinned270”.

The attribute **overlay** shall be restricted to values “top”.

8.4.2.2. stroking

The attributes **stroke-linecap** and **stroke-linejoin** are restricted to the value “butt” and “miter” respectively.

The attributes **stroke-miterlimit**, **stroke-dasharray** and **stroke-dashoffset** are forbidden.

8.4.2.3. inheritance

Attributes with a possible value of “inherit” are only allowed on objects which use their value directly, not on objects that pass the value to their children. The “inherit” value is forbidden.

Hints such as *-rendering are only allowed on the root svg.

pointer-events is only allowed on the root svg.

level 1: pointer-events is limited to values bounding-box and none.

8.4.2.4. animation

For elements **animate**, **animateColor**, **animateTransform** and **animateMotion**, the following restrictions apply:

- the value of the attribute **fill** is restricted to “freeze”,
- the value of the attribute **additive** is restricted to “replace”,
- the value of **calcMode** is restricted to “linear” or “discrete”, but on **animateMotion**,
- either attribute **from** or **values** must be specified.

The value of restart is restricted to “***always***”.

Any content requiring the restoration of a DOM value of an attribute after it has been animated is non conformant. In other words, authors shall make sure that, e.g. when deleting an animation or replacing an xlink:href of an animation element, any previously animated value is made irrelevant by any appropriate mean (e.g. deletion of the target element, replacement of the animated value, etc).

8.4.2.5. xlink and xml

Attributes xml:base, xml:lang, xml:space, xlink:title, xlink:type, xlink:role, xlink:arcrole, xlink:actuate and xlink:show are forbidden.

8.4.2.6. LAsER Commands

color-rendering, shape-rendering, text-rendering, image-rendering, attributeName are not updatable.

Update of attributes from timed elements are restricted in the following manner:

- accumulate, additive, attributeName, by, calcMode, dur, fill, from, id, keyPoints, keySplines, keyTimes, max, min, path, repeatCount, repeatDur, restart, to, values, xlink:actuate, xlink:arcrole, xlink:href, xlink:role, xlink:show, xlink:title, xlink:type, xml:base cannot be updated
- begin, end, clipBegin and clipEnd may be updated

8.4.2.7. uDOM

uDOM is not mandatory in LAsER Core profile

8.4.2.8. Navigation

The events focusin and focusout are not supported. The attribute focusable, focusHighlight and nav-* are not supported.

8.4.2.9. text

The attributes x and y of text can only take single values, not lists of coordinates.

The attribute xml:space is mandatory with value “preserve” on text and tspan.

The possible children for text are restricted to: tspan.

8.4.2.10. Units

Only % and px are allowed as length units in LAsER Core.

8.4.2.11. transform

The ref() construct is not allowed in transform attribute values.

8.4.2.12. System Paint Servers

System paint servers are not allowed.

8.4.2.13. Events

The following events are not allowed: DOMFocusIn, DOMFocusOut, click, keydown, keyup, resize, scroll, zoom, rotate, timer, connection*.

8.4.2.14. SMIL hyperlinking

Hyperlinks to an element, whether timed or not, are not allowed.

8.4.2.15. use

The xlink:href attribute of the use element is restricted to designating the ID of an element of the current scene. More complex URLs are not part of LAsER Core.

8.4.3. Comparison with existing profiles and object types

LAsER Core is a superset of LAsER mini

8.4.4. Profile definition

This table defines the allowed elements in the profile and the list of their possible attributes, possibly with restrictions when listed in bold.

Element name	Attributes
a	id display transform xlink:href
animate	id lsr:enabled begin end dur repeatCount repeatDur restart="always" attributeName fill="freeze" to xlink:href(no replace) from by values calcMode="discrete linear" keyTimes additive="replace" accumulate
animateColor	id lsr:enabled begin end dur repeatCount repeatDur restart="always" attributeName fill="freeze" to xlink:href(no replace) from by values calcMode="discrete linear" keyTimes additive="replace" accumulate
animateMotion	id path keyPoints rotate lsr:enabled begin end dur repeatCount repeatDur restart="always" fill="freeze" to xlink:href(no replace) from by values calcMode="discrete linear paced" keyTimes additive="replace" accumulate
lsl:animateScroll	id xml:base xlink:href(no replace) by from(no id) to (no id) delayAtStart delayAtEnd speed direction begin dur end fill="freeze" restart repeatCount repeatDur
animateTransform	id type lsr:enabled begin end dur repeatCount repeatDur restart="always" attributeName fill="freeze" to xlink:href(no replace) from by values calcMode="discrete linear" keyTimes additive="replace" accumulate
audio	id begin end clipBegin clipEnd repeatCount repeatDur audio-level xlink:href
circle	id cx cy r display fill fill-opacity fill-rule stroke stroke-opacity stroke-width transform vector-effect
conditional	id begin type lsr:enabled
lsl:cursorManager	id x y xlink:href
defs	id
desc	id
ellipse	id rx ry cx cy display fill fill-opacity fill-rule stroke stroke-opacity stroke-width transform vector-effect
foreignObject	id width height x y viewport-fill viewport-fill-opacity display
g	id display transform
image	id width height x y transformBehavior(no geometric) display transform xlink:href
line	id x1 y1 x2 y2 display stroke stroke-opacity stroke-width transform vector-effect
ev:listener	id lsr:enabled event observer handler propagate defaultAction target
metadata	id
mpath	id xlink:href
path	id d display fill fill-opacity fill-rule stroke stroke-opacity stroke-width transform vector-effect
polygon	id points display fill fill-opacity fill-rule stroke stroke-opacity stroke-width transform vector-effect
polyline	id points display fill fill-opacity fill-rule stroke stroke-opacity stroke-width transform vector-effect
rect	id width height x y rx ry display fill fill-opacity fill-rule stroke stroke-opacity stroke-width transform vector-effect
lsl:rectClip	id size display transform
lsl:selector	id choice display transform
set	id lsr:enabled begin end dur repeatCount repeatDur restart="always" attributeName fill="freeze" to xlink:href(no replace)

lsr:setScroll	id begin increment to direction xlink:href(no replace) xml:base
lsr:simpleLayout	id delta display transform
svg	id width height viewBox preserveAspectRatio zoomAndPan="disable" viewport-fill viewport-fill-opacity display pointer-events color-rendering shape-rendering image-rendering text-rendering
text	id display fill fill-opacity fill-rule font-family font-size font-style font-weight stroke stroke-opacity stroke-width text-anchor editable x y transform text-decoration xml:space="preserve"
title	id
tspan	id display fill fill-opacity fill-rule font-family font-size font-style font-weight stroke stroke-opacity stroke-width text-decoration xml:space="preserve"
use	id overflow x y display transform xlink:href
lsr:updates	begin clipBegin clipEnd end flow xlink:href id repeatCount repeatDur security lsr:syncReference
video	id begin display end clipBegin clipEnd repeatCount repeatDur audio-level xlink:href width height x y overlay="top" lsr:fullscreen transformBehavior(no geometric) transform

8.4.5. Level definitions

Level 0: only one scene stream active at a time

Add attached files as electronic attachments and add the following text at the end of clause 11:

- LAsERML/saf2.xsd: (normative) documents the syntax of an XML equivalent to the SAF binary syntax for use in LAsER conformance and reference software activities
- LAsERML/laser-datatypes2.xsd: (normative) documents all datatypes used in the other schemas
- LAsERML/laser2.xsd: (normative) documents the XML syntax of LAsER Commands for use in LAsER conformance and reference software activities
- LAsERML/svg2.xsd: (normative) documents the XML syntax of the common part between SVG and LAsER; it is not intended to validate SVGT documents; this is for use in LAsER conformance and reference software activities
- sdl_amd1.txt: (normative) documented in the next subclause

In subclause 12.1.3, replace table 10 with:

codePoint	privateDataContainer	extConfiguration
	<i>defines encoding</i>	<i>defines configuration for</i>
0	anyXML as defined in 12.2.3.20	not used
1	opaque binary data	opaque binary data
2	ISO/IEC 23001-1 encoding	ISO/IEC 23001-1 compliant decoderInit
3-7	reserved for ISO use	reserved for ISO use
8-15	to be defined by RA	to be defined by RA

Add the following text to subclause 12.1.3:

If codePoint 2 is used, then the data is ISO/IEC 23001-1 compliant private extensions. Decoders not compliant with the signalled ISO/IEC 23001-1 private extension (identified by the namespace) are not mandated to decode this private extension data and may skip it.

The following sentences ONLY apply for decoders compliant with both ISO/IEC 23001-1 and ISO/IEC 14496-20 :

If no decoderInit signalled in LAsERHeader, then the decoderInit is defined in subclause 13.5. If decoderInit is signalled then:

- decoderInit is a compatible extension of the one defined in subclause 13.5.
- the extensionIDBits of LAsERHeader correspond to the number of bits that shall be used for coding the total number of schemas declared in the decoderInit.
- The attached 'encoding' schemas shall be used for the configuration of ISO/IEC 23001-1 (encoding schemas are normative).
- The Classification scheme and type codec association described in subclause 13.3 shall be used(classification schemes and association are normative)
- The transformation process between the validation schema and the encoding schemas are described informatively in clause 13.

Replace subclause 12.2 with:

12.2 Binary Syntax

12.2.1 Main Structure

```

class element_a {
    bit(1) has_id;
    if(has_id) {
        attr_custom_ID id;
    }
    bit(1) has_rare;
    if(has_rare) {
        attr_custom_rare rare;
    }
    bit(1) has_fill;
    if(has_fill) {
        attr_custom_paint fill;
    }
    bit(1) has_stroke;
    if(has_stroke) {
        attr_custom_paint stroke;
    }
    bit(1) externalResourcesRequired;
    bit(1) has_target;
    if(has_target) {
        attr_custom_byteAlignedString target;
    }
    bit(1) has_href;
    if(has_href) {
        attr_custom_anyURI href;
    }
    bit(1) has_attr_any;
    if(has_attr_any) {
        attr_any any;
    }
    object_content child0;
}

class privateAttributeContainer {
    bit(4) codePoint;
    switch(codePoint){
        case 0:
            privateAnyXMLAttribute anyXML;
            break;
        case 1:
            privateOpaqueAttribute opaque;
            break;
        case 2:
            attr_any reserved;
            break;
        default:
            attr_custom_extension ext;
            break;
    }
}

class elements {
    bit(6) ch4;
    switch(ch4){
        case 0:
            element_a a;
            break;
    }
}

```

```

case 1:
    element_animate animate;
    break;
case 2:
    element_animate animateColor;
    break;
case 3:
    element_animateMotion animateMotion;
    break;
case 4:
    element_animateTransform animateTransform;
    break;
case 5:
    element_audio audio;
    break;
case 6:
    element_circle circle;
    break;
case 7:
    element_defs defs;
    break;
case 8:
    element_desc_metadata_title desc;
    break;
case 9:
    element_ellipse ellipse;
    break;
case 10:
    element_foreignObject foreignObject;
    break;
case 11:
    element_g g;
    break;
case 12:
    element_image image;
    break;
case 13:
    element_line line;
    break;
case 14:
    element_linearGradient linearGradient;
    break;
case 15:
    element_desc_metadata_title metadata;
    break;
case 16:
    element_mpath mpath;
    break;
case 17:
    element_path path;
    break;
case 18:
    element_polygon polygon;
    break;

```

```

case 19:
    element_polygon polyline;
    break;
case 20:
    element_radialGradient radialGradient;
    break;
case 21:
    element_rect rect;
    break;
case 22:
    element_sameg sameg;
    break;
case 23:
    element_sameline sameline;
    break;
case 24:
    element_samepath samepath;
    break;
case 25:
    element_samepathfill samepathfill;
    break;
case 26:
    element_samepolygon samepolygon;
    break;
case 27:
    element_samepolygonfill samepolygonfill;
    break;
case 28:
    element_samepolygonstroke samepolygonstroke;
    break;
case 29:
    element_samepolygon samepolyline;
    break;
case 30:
    element_samepolygonfill samepolylinefill;
    break;
case 31:
    element_samepolygonstroke samepolylinestroke;
    break;
case 32:
    element_samerect samerect;
    break;
case 33:
    element_samerectfill samerectfill;
    break;
case 34:
    element_sametext sametext;
    break;
case 35:
    element_sametextfill sametextfill;
    break;
case 36:
    element_sameuse sameuse;
    break;
case 37:
    element_script script;
    break;
case 38:
    element_set set;
    break;

```

```

    case 39:
        element_stop stop;
        break;
    case 40:
        element_switch switch;
        break;
    case 41:
        element_text text;
        break;
    case 42:
        element_desc_metaData_title title;
        break;
    case 43:
        element_tspan tspan;
        break;
    case 44:
        element_use use;
        break;
    case 45:
        element_video video;
        break;
    case 46:
        element_listener listener;
        break;
    case 47:
        element_conditional conditional;
        break;
    case 48:
        element_cursorManager cursorManager;
        break;
    case 49:
        element_any extElement;
        break;
    case 50:
        privateElementContainer privateElementContainer;
        break;
    case 51:
        element_rectClip rectClip;
        break;
    case 52:
        element_selector selector;
        break;
    case 53:
        element_simpleLayout simpleLayout;
        break;
    case 54:
        attr_custom_byteAlignedString textContent;
        break;
}
}
class element_animate {
    bit(1) has_id;
    if(has_id) {
        attr_custom_ID id;
    }
    bit(1) has_rare;
    if(has_rare) {
        attr_custom_rare rare;
    }
    bit(1) has_attributeName;

```

```

if(has_attributeName) {
    attr_AttributeName attributeName;
}
bit(1) has_accumulate;
if(has_accumulate) {
    attr_accumulate accumulate;
}
bit(1) has_additive;
if(has_additive) {
    attr_additive additive;
}
bit(1) has_by;
if(has_by) {
    attr_custom_AnimatedValue by;
}
bit(1) has_calcMode;
if(has_calcMode) {
    attr_calcMode calcMode;
}
bit(1) has_from;
if(has_from) {
    attr_custom_AnimatedValue from;
}
bit(1) has_keySplines;
if(has_keySplines) {
    attr_custom_fraction12List keySplines;
}
bit(1) has_keyTimes;
if(has_keyTimes) {
    attr_custom_fraction12List keyTimes;
}
bit(1) has_values;
if(has_values) {
    attr_custom_AnimatedValues values;
}
bit(1) has_attributeType;
if(has_attributeType) {
    attr_attributeType attributeType;
}
bit(1) has_begin;
if(has_begin) {
    attr_smil_times begin;
}
bit(1) has_dur;
if(has_dur) {
    attr_time dur;
}
bit(1) has_fill;
if(has_fill) {
    attr_animFill fill;
}
bit(1) has_repeatCount;
if(has_repeatCount) {
    attr_repeatCount repeatCount;
}
bit(1) has_repeatDur;
if(has_repeatDur) {
    attr_repeatDur repeatDur;
}
bit(1) has_restart;

```