

```

6      <!      <meta content="text/html; charset=iso-8859-1" />
7      <!      <meta http-equiv="content-type" content="text/html; charset=iso-8859-1" />
8      <!      <title>WebCGM 2.1 - WebCGM Concepts</title>
9      <!
10     <link href="WebCGM21.css" rel="stylesheet" type="text/css" />
11     <!
12     <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1" />
13     <title>WebCGM 2.0 - WebCGM Concepts</title>
15     <link href="OASIS_Specification_Template_v1-0.css" rel="stylesheet"
16     type="text/css" />
19     <link rel="stylesheet" type="text/css" href="http://www.w3.org/StyleSheets/TR/W3C-
20     <!--link href="OASIS_Specification_Template_v1-0.css" rel="stylesheet"
21     type="text/css" /-->
22     <link href="WebCGM20.css" rel="stylesheet" type="text/css" />
23     <link rel="stylesheet" type="text/css"
24     href="http://www.w3.org/StyleSheets/TR/W3C-REC" />
27     <!--href="WebCGM21-Intro.html">Back to Introduction</a> | <a
28     href="WebCGM21-IC.html">On to Intelligent Content</a></p>
29     <!--href="WebCGM20-Intro.html">Back to Introduction</a> | <a
30     href="WebCGM20-IC.html">On to Intelligent Content</a></p>
31     <!--<h3>WebCGM 2.1 &mdash; WebCGM Concepts</h3>
32     <!--<h3>WebCGM 2.0 &mdash; WebCGM Concepts</h3>
(37)    <!--<div class="boxit">
(38)    <!--<h3>Contents</h3>
(39)    <!--<ul>
40     <!--<li><a href="WebCGM20-Concepts.html#webcgm_2_1">2.1 The structure of a
41     WebCGM</a></li>
42     <!--<li><a href="WebCGM20-Concepts.html#webcgm_2_2">2.2 Picture content and
43     usage</a></li>
44     <!--<li><a href="WebCGM20-Concepts.html#webcgm_2_3">2.3 Intelligence &mdash;
45     Objects, Layers, Hyperlinks, Metadata</a></li>
46     <!--<li><a href="WebCGM20-Concepts.html#webcgm_2_4">2.4 Encodings</a></li>
47     <!--<li><a href="WebCGM20-Concepts.html#webcgm_2_5">2.5 Graphical content of
48     WebCGM</a></li>
49     <!--<li><a href="WebCGM20-Concepts.html#webcgm-concepts-XCF">2.6 WebCGM XML
50     Companion File (XCF)</a></li>
51     <!--<li><a href="WebCGM20-Concepts.html#webcgm-concepts-DOM">2.7 WebCGM
52     Document Object Model (DOM)</a></li>
53     <!--</ul>
54     <!--</div>
55     <!--<div class="boxit">
56     <!--<h3>Contents</h3>
57     <!--<ul>
58     <!--<li><a href="WebCGM21-Concepts.html#webcgm_2_1">2.1 The structure of a
59     WebCGM</a></li>
60     <!--<li><a href="WebCGM21-Concepts.html#webcgm_2_2">2.2 Picture content and
61     usage</a></li>
62     <!--<li><a href="WebCGM21-Concepts.html#webcgm_2_3">2.3 Intelligence &mdash;
63     Objects, Layers, Hyperlinks, Metadata</a></li>
64     <!--<li><a href="WebCGM21-Concepts.html#webcgm_2_4">2.4 Encodings</a></li>
65     <!--<li><a href="WebCGM21-Concepts.html#webcgm_2_5">2.5 Graphical content of
66     WebCGM</a></li>
67     <!--<li><a href="WebCGM21-Concepts.html#webcgm-concepts-XCF">2.6 WebCGM XML
68     Companion File (XCF)</a></li>
69     <!--<li><a href="WebCGM21-Concepts.html#webcgm-concepts-DOM">2.7 WebCGM
70     Document Object Model (DOM)</a></li>
71     <!--</ul>
72     <!--</div>
73     <!--<p>A WebCGM 2.1 instance, as shown in Figure 1, consists of a single
74     <p>A WebCGM 2.0 instance, as shown in Figure 1, consists of a single
75     and background color. Because WebCGM 2.1 allows only a single picture per
76     and background color. Because WebCGM 2.0 allows only a single picture per
77     not seem useful. However, because a WebCGM 2.1 metafile must be a valid ISO
78     not seem useful. However, because a WebCGM 2.0 metafile must be a valid ISO
85     <p><a id="_904470553" name="_904470553">WebCGM 2.1 also contains a purely

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109      <p><a id="_904470553" name="_904470553">WebCGM 2.0 also defines a purely
      <! permits the use of popular raster compression methods &mdash; ITU-T Group 4,
      <! permits the use of popular raster compression methods &mdash; CCITT group 4,
111      <! content embedded within the picture.</p>
112      <!
113      <! <p>For information about scaling of WebCGM pictures in Web documents, see
114      <! section <a href="WebCGM21-IC.html#webcbgm_3_4">"WebCGM and the
115      <! <code>object</code> element</a>".</p>
      <! content embedded within the picture. For information about scaling of WebCGM
      <! pictures in Web documents, see section <a
      <! href="WebCGM20-IC.html#webcbgm_3_4">"WebCGM and the <code>object</code>
      <! element</a>".</p>
120      <! model of the <a href="WebCGM21-Intro.html#ref-ISO-CGM">ISO CGM standard</a>,
      <! model of the <a href="WebCGM20-Intro.html#ref-ISO-CGM">ISO CGM standard</a>,
125      <! rendered later. In the <a href="WebCGM21-Intro.html#ref-ISO-CGM">ISO CGM
      <! rendered later. In the <a href="WebCGM20-Intro.html#ref-ISO-CGM">ISO CGM
129      <! href="WebCGM21-Intro.html#ref-ISO-registry">registered extension</a> for
      <! href="WebCGM20-Intro.html#ref-ISO-registry">registered extension</a> for
131      <! href="WebCGM21-Intro.html#ref-ISO-registry">registered</a> color models
      <! href="WebCGM20-Intro.html#ref-ISO-registry">registered</a> color models
159      <! href="WebCGM21-Profile.html#webcbgm_6_5_T_16_19">T.16.19</a>).</p>
      <! href="WebCGM20-Profile.html#webcbgm_6_5_T_16_19">T.16.19</a>).</p>
166      <! href="WebCGM21-Intro.html#ref-ISO-registry">registered Escape 45</a> other
      <! href="WebCGM20-Intro.html#ref-ISO-registry">registered Escape 45</a> other
171      <! rendering. No temporary canvas is created. It is identical to the case of no
      <! rendering. No temporary canvas are created. It is identical to the case of no
184      <! <p>Conceptually, a CGM picture's background is handled as follows. When a
      <! picture's canvas is first created in the compositing model of <a
186      <! href="#webcbgm_2_2_2">section 2.2.2</a>, it is initialized to transparent
187      <! black (0,0,0,0). Before the drawing of the first foreground primitives, the
188      <! canvas is then filled per the equations in section 2.2.2 with the
189      <! <em>effective background color</em> of the metafile.</p>
190      <!
191      <! <p>In metafiles that use the RGB-alpha color model, the effective background
192      <! color may be directly set in the Picture Descriptor to any valid (r,g,b,a),
193      <! including transparent black (0,0,0,0). In RGB metafiles, the same effects may
194      <! be achieved by including the registered Escape 45 (alpha transparency)
195      <! element in the Picture Descriptor, which is then combined with the defined
196      <! RGB background color to achieve any valid (r,g,b,a) effective background
197      <! color.</p>
198      <! <!--
201      <! (see section <a href="WebCGM21-IC.html#webcbgm_3_4">"WebCGM and the
      <! (see section <a href="WebCGM20-IC.html#webcbgm_3_4">"WebCGM and the
203      <! href="WebCGM21-Intro.html#ref-ISO-registry">registered Escape 45</a> (alpha
      <! href="WebCGM20-Intro.html#ref-ISO-registry">registered Escape 45</a> (alpha
206      <! -->
220      <! 'subpara'. WebCGM allows a fifth group type, 'grnode', as a convenience for
221      <! authoring tools to preserve their graphical grouping functions. The detailed
222      <! normative syntax and semantics of the group types, including viewer behavior,
223      <! is defined in <a href="WebCGM21-IC.html">Chapter 3</a> and in the <a
224      <! href="WebCGM21-Profile.html">PPF</a>. Below is a brief conceptual summary.</p>
      <! 'subpara'. WebCGM 2.0 allows a fifth group type, 'grnode', as a convenience
      <! for authoring tools to preserve their graphical grouping functions. The
      <! detailed normative syntax and semantics of the group types, including viewer
      <! behavior, is defined in <a href="WebCGM20-IC.html">Chapter 3</a> and in the
      <! <a href="WebCGM20-Profile.html">PPF</a>. Below is a brief conceptual
      <! summary.</p>
232      <! <p>Chapter 3 normatively defines the detailed content model for version 4
233      <! elements in WebCGM using EBNF notation. See section, <a
234      <! href="WebCGM21-IC.html#webcbgm_3_3">"WebCGM Content Model"</a>, for an
235      <! informative (non-normative), all-at-once presentation of the content model
236      <! using XML DTD notation.</p>
      <! <p>Throughout Chapter 3, WebCGM normatively defines a detailed content model
      <! for the V4 content in the form of an "XML fragment". See section, <a
      <! href="WebCGM20-IC.html#webcbgm_3_3">"WebCGM Content Model"</a>, for an
      <! informative (non-normative), all-at-once presentation of the content
      <! model.</p>
244      <! href="WebCGM21-IC.html#webcbgm_3_2_1">detailed normative syntax and

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1> href="WebCGM20-IC.html#webcgm_3_2_1">detailed normative syntax and
248 <li><a href="WebCGM21-IC.html#webcgm_3_2_1_1">grobject</a> &mdash;
1> <li><a href="WebCGM20-IC.html#webcgm_3_2_1_1">grobject</a> &mdash;
251 <li><a href="WebCGM21-IC.html#webcgm_3_2_1_2">layer</a> &mdash; an APS type
1> <li><a href="WebCGM20-IC.html#webcgm_3_2_1_2">layer</a> &mdash; an APS type
254 <li><a href="WebCGM21-IC.html#webcgm_3_2_1_3">para</a> &mdash; (paragraph)
1> <li><a href="WebCGM20-IC.html#webcgm_3_2_1_3">para</a> &mdash; (paragraph)
258 <li><a href="WebCGM21-IC.html#webcgm_3_2_1_4">subpara</a> &mdash; may be
1> <li><a href="WebCGM20-IC.html#webcgm_3_2_1_4">subpara</a> &mdash; may be
265 <p>WebCGM does allow one other group type for the convenience of authoring
266 <p>tools:</p>
1> <p>WebCGM 2.0 does allow one other group type for the convenience of
1> authoring tools:</p>
268 <li><a href="WebCGM21-IC.html#webcgm_grnode">grnode</a> &mdash; may be used
1> <li><a href="WebCGM20-IC.html#webcgm_grnode">grnode</a> &mdash; may be used
274 <p>Note that 'grnode' was not present in WebCGM 1.0, but was added to WebCGM
1> <p>Note. 'Grnode' was not present in WebCGM 1.0, but has been added to WebCGM
276 <li>'grnode' ("graphical node") APS allows illustration authoring tools to
277 <li>preserve in the WebCGM metafile instance the graphical groupings that are
278 <li>often used by such tools.</p>
1> 'grnode' ("graphical node") APS allows for preservation in the WebCGM
1> metafile instance of the graphical grouping facilities that are typical in
1> illustration authoring tools.</p>
283 <li>defined in the <a href="WebCGM21-XCF.html"><cite>XML Companion
1> defined in the <a href="WebCGM20-XCF.html"><cite>XML Companion
309 href="WebCGM21-IC.html#webcgm_3_1_2_4"><em>object behavior</em> keywords</a>
1> href="WebCGM20-IC.html#webcgm_3_1_2_4"><em>object behavior</em> keywords</a>
311 <li>href="WebCGM21-IC.html#webcgm_3_2_2">APS Attributes</a> on the object
1> href="WebCGM20-IC.html#webcgm_3_2_2">APS Attributes</a> on the object
320 <li>href="WebCGM21-IC.html#webcgm_3_2_2">detailed normative syntax and
1> href="WebCGM20-IC.html#webcgm_3_2_2">detailed normative syntax and
324 <li><a href="WebCGM21-IC.html#webcgm_3_2_2_1">region</a> &mdash; defines a
1> <li><a href="WebCGM20-IC.html#webcgm_3_2_2_1">region</a> &mdash; defines a
327 <li><a href="WebCGM21-IC.html#webcgm_3_2_2_2">viewcontext</a> &mdash;
1> <li><a href="WebCGM20-IC.html#webcgm_3_2_2_2">viewcontext</a> &mdash;
330 <li><a href="WebCGM21-IC.html#webcgm_3_2_2_3">linkuri</a> &mdash; defines a
1> <li><a href="WebCGM20-IC.html#webcgm_3_2_2_3">linkuri</a> &mdash; defines a
336 <li><a href="WebCGM21-IC.html#webcgm_3_2_2_4">layername</a> &mdash; the
1> <li><a href="WebCGM20-IC.html#webcgm_3_2_2_4">layername</a> &mdash; the
338 <li><a href="WebCGM21-IC.html#webcgm_3_2_2_5">layerdesc</a> &mdash;
1> <li><a href="WebCGM20-IC.html#webcgm_3_2_2_5">layerdesc</a> &mdash;
340 <li><a href="WebCGM21-IC.html#webcgm_3_2_2_6">screentip</a> &mdash; a
1> <li><a href="WebCGM20-IC.html#webcgm_3_2_2_6">screentip</a> &mdash; a
343 <li><a href="WebCGM21-IC.html#webcgm_3_2_2_7">name</a> &mdash; a "common
344 <li>name" attribute to be associated with an object, that gives a useful
345 <li>search handle or way of defining searchable subtypes of the object type;
346 <li>also allows a group of same-name objects to be a link target.</li>
347 <li><a href="WebCGM21-IC.html#webcgm_3_2_2_8">content</a> &mdash; an
1> <li><a href="WebCGM20-IC.html#webcgm_3_2_2_7">name</a> &mdash; a "common
1> name" attribute to be associated with object, that gives a useful search
1> handle or way of defining searchable subtypes of the object type; also
1> allows a group of same-name objects to be a link target.</li>
1> <li><a href="WebCGM20-IC.html#webcgm_3_2_2_8">content</a> &mdash; an
352 <li><a href="WebCGM21-IC.html#webcgm_visibility">visibility</a> &mdash; the
1> <li><a href="WebCGM20-IC.html#webcgm_visibility">visibility</a> &mdash; the
354 <li>and also disables its eligibility to be picked (invisible objects are
355 <li>ineligible for picking).</li>
356 <li><a href="WebCGM21-IC.html#webcgm_interactivity">interactivity</a>
1> and also potentially disables its eligibility to be picked (invisible
1> objects are ineligible for picking).</li>
1> <li><a href="WebCGM20-IC.html#webcgm_interactivity">interactivity</a>
366 <li>the <a href="WebCGM21-XCF.html"><cite>XML Companion File</cite></a> chapter
1> the <a href="WebCGM20-XCF.html"><cite>XML Companion File</cite></a> chapter
372 <li>href="WebCGM21-IC.html#webcgm_3_2">(Chapter 3)</a> in this specification. The
373 <li>structure and relationships of the intelligent content are illustrated in the
374 <li>following diagrams. In the following, "picbody" is not a specific WebCGM
1> href="WebCGM20-IC.html#webcgm_3_2">(Chapter 3)</a> in this specification. The
1> structure and relationships of the intelligence content are illustrated in

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!> the following diagrams. In the following, "picbody" is not a specific WebCGM
389 <! <strong>Figure 2a. WebCGM File Structure - picbody</strong></caption>
!> <strong>Figure 2a. WebCGM File Structure - PICBODY</strong></caption>
402 <! <strong>Figure 2b. WebCGM File Structure - layer</strong></caption>
!> <strong>Figure 2b. WebCGM File Structure - LAYER</strong></caption>
414 <! <strong>Figure 2c. WebCGM File Structure - grobject</strong></caption>
!> <strong>Figure 2c. WebCGM File Structure - GROBJECT</strong></caption>
427 <! <strong>Figure 2d. WebCGM File Structure - para</strong></caption>
!> <strong>Figure 2d. WebCGM File Structure - PARA</strong></caption>
439 <! <strong>Figure 2e. WebCGM File Structure - subpara</strong></caption>
!> <strong>Figure 2e. WebCGM File Structure - SUBPARA</strong></caption>
452 <! <strong>Figure 2f. WebCGM File Structure - grnode</strong></caption>
!> <strong>Figure 2f. WebCGM File Structure - GRNODE</strong></caption>
465 <! <strong>Figure 2g. WebCGM File Structure - gdata</strong></caption>
!> <strong>Figure 2g. WebCGM File Structure - GDATA</strong></caption>
489 <! href="WebCGM21-IC.html#webcgm_3_2_1_1">grobject</a>', '<a
490 <! href="WebCGM21-IC.html#webcgm_3_2_1_3">para</a>', and '<a
491 <! href="WebCGM21-IC.html#webcgm_3_2_1_4">subpara</a>') to WebCGM graphic files,
!> href="WebCGM20-IC.html#webcgm_3_2_1_1">grobject</a>', '<a
!> href="WebCGM20-IC.html#webcgm_3_2_1_3">para</a>', and '<a
!> href="WebCGM20-IC.html#webcgm_3_2_1_4">subpara</a>') to WebCGM graphic files,
496 <! href="WebCGM21-IC.html#webcgm_3_2_2_3">linkuri</a>' APS Attribute elements
!> href="WebCGM20-IC.html#webcgm_3_2_2_3">linkuri</a>' APS Attribute elements
499 <! href="WebCGM21-Intro.html#RFC3987">RFC 3987</a>, and is described in the
!> href="WebCGM20-Intro.html#RFC3987">RFC 3987</a>, and is described in the
501 <! href="WebCGM21-IC.html#webcgm_3_1_1">fragment syntax subsections</a>.</p>
!> href="WebCGM20-IC.html#webcgm_3_1_1">fragment syntax subsections</a>.</p>
504 <! href="WebCGM21-IC.html#webcgm_3_2_2_3">linkuri</a>' APS attribute instances,
!> href="WebCGM20-IC.html#webcgm_3_2_2_3">linkuri</a>' APS attribute instances,
511 <! "<a href="WebCGM21-IC.html#webcgm_3_1_1">fragment syntax</a>" for addressing
!> "<a href="WebCGM20-IC.html#webcgm_3_1_1">fragment syntax</a>" for addressing
516 <! <p>&lt;base-IRI&gt;#&lt;pict-part&gt;.&lt;obj-part&gt;</p>
!> <p>&lt;base-URL&gt;#&lt;pict-part&gt;.&lt;obj-part&gt;</p>
521 <! With the WebCGM restriction of one picture per metafile (since WebCGM version
522 <! 2.0), the &lt;pict-part&gt; is not useful anymore, but is maintained in the
523 <! syntax for backward compatibility with WebCGM 1.0 metafiles and WebCGM 1.0
524 <! implementations.</p>
!> With the WebCGM 2.0 restriction of one picture per metafile, the
!> &lt;pict-part&gt; is not useful in purely 2.0 environments, but is maintained
!> in the syntax for backward compatibility with WebCGM 1.0 metafiles and WebCGM
!> 1.0 implementations.</p>
531 <! &lt;base-IRI&gt;#&lt;string&gt; unambiguously identifies the object (APS)
!> &lt;base-URL&gt;#&lt;string&gt; unambiguously identifies the object (APS)
533 <! metafile pointed to by "&lt;base-IRI&gt;".</p>
!> metafile pointed to by "&lt;base-URL&gt;".</p>
535 <! <p>See the <a href="WebCGM21-IC.html#webcgm_3_1">normative specifications of
!> <p>See the <a href="WebCGM20-IC.html#webcgm_3_1">normative specifications of
547 <! <p>HTTP/1.1 allows for compressed data to be passed from server to client,
548 <! which can result in significant file size reduction. WebCGM data may be
549 <! compressed for transmission using gzip compression. It is recommended that <a
550 <! href="WebCGM21-Intro.html#ref-RFC1952">gzip-compressed</a> WebCGM files have
551 <! the extension ".cgz" (all lowercase) on all platforms.</p>
552 <!
560 <! <p>The WebCGM <a href="WebCGM21-Profile.html">Profile Pro-forma (PPF)</a>,
!> <p>The WebCGM <a href="WebCGM20-Profile.html">Profile Pro-forma (PPF)</a>,
573 <! <p>WebCGM includes most of the significant graphical drawing primitives of
574 <! CGM:1999.</p>
!> <p>WebCGM 2.0 includes most of the significant of the graphical drawing
!> primitives of CGM:1999.</p>
611 <! The popular Web compression formats of ITU-T Group 4, PNG, and JPEG
!> The popular Web compression formats of CCITT Group 4, PNG, and JPEG
617 <! <p>In CGM:1999 but excluded from the present version of WebCGM are:</p>
!> <p>In CGM:1999 but excluded from WebCGM 2.0 are:</p>
625 <! into CGM pictures of "symbols". Symbols are defined in an external Symbol
626 <! Library, which itself is a CGM. (Polysymbol was in WebCGM 1.0, but
627 <! removed due to non-use.)</li>
!> into CGM pictures of "symbols", which are defined in an external Symbol
!> Library (which itself is a CGM).</li>

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657 <!      actually gives control not just of rotation, but skewness and aspect
!>      actually give control not just of rotation, but skewness and aspect
660 <!      <li>WebCGM also supports the Generalized Text Path capability (text on
!>      <li>WebCGM 2.0 also supports the Generalized Text Path capability (text on
674 <! WebCGM.</p>
!> WebCGM 2.0.</p>
684 <!      (Protection Region Indicator) 'shield'.</li>
!>      (Protection Region Indicator) 'shield'.
!>      <p></p>
!>      </li>
687 <!      <p>There are some CGM Version 3 attribute and control elements for which it
688 <!      is desirable to override the default value in CGM:1999, when an explicit
689 <!      definition of the value is not present in the CGM file. This would also allow
690 <!      definition of the rendering behavior of CGM Version 1 and Version 2 files,
691 <!      where those attribute and control elements are not allowed, as well as allow
692 <!      definition in CGM Version 3 files where the elements are not declared.</p>
693 <!
694 <!      <p>This is accomplished in WebCGM using a standard XML DTD to encode the
695 <!      allowable elements and their values in an XML instance. Examples and more
696 <!      details can be found in the WebCGM chapter on <a
697 <!      href="WebCGM21-Config.html">Application Configurable Items</a>.</p>
703 <!      primitives completely opaquely on top of earlier primitives. Several notions
704 <!      of transparency are supported in WebCGM. See <a href="#webcgm_2_2_2">section
705 <!      2.2.2</a> and <a href="#webcgm_2_2_3">2.2.3</a> for discussion of the CGM
706 <!      drawing model and transparency options.</p>
!>      primitives completely opaquely on top of earlier primitives. Two notions of
!>      transparency are supported in WebCGM 2.0:</p>
!>      <ul>
!>      <li>First, a WebCGM picture can be placed with transparent background via
!>      the TRANSPARENT parameter of the OBJECT tag.</li>
!>      <li>Second, per-element and per-pixel translucency (on a continuum between
!>      fully opaque and fully transparent) can be defined via an
!>      alpha-transparency Escape element specified in the ISO Register of
!>      Graphical Items.</li>
!>      </ul>
730 <!      encoding</a> ("character set" in the now-archaic terminology of the original
!>      encoding</a> ("character set" in the archaic terminology of the original
737 <!      <p>In order to facilitate font interchange, WebCGM defines a format to
738 <!      specify the mapping of font names during the import process.</p>
739 <!
740 <!      <p>This mapping is accomplished in WebCGM using standard XML DTD. Examples
741 <!      and more details can be found in the WebCGM chapter on <a
742 <!      href="WebCGM21-Config.html">Application Configurable Items.</a></p>
743 <!
747 <!      <p>The XML Companion File (XCF) component of WebCGM was added in the WebCGM
748 <!      2.0 release. The WebCGM XCF provides a standard way to externalize metadata
749 <!      from a WebCGM instance, while maintaining a tight binding of that metadata to
750 <!      objects (APSSs) in the WebCGM instance.</p>
!>      <p>The WebCGM XML Companion File (XCF) is a new significant new component of
!>      WebCGM, forecast in 1.0 and added in the 2.0 upgrade. The WebCGM XCF provides
!>      a standard way to externalize metadata from a WebCGM instance, while
!>      maintaining a tight binding of that metadata to objects (APSSs) in the WebCGM
!>      instance.</p>
760 <!      href="WebCGM21-DOM.html#L32886">Relationship with XML companion
!>      href="WebCGM20-DOM.html#L32886">Relationship with XML companion
766 <!      href="WebCGM21-XCF.html#structure">Structure overview</a>" in the XCF
!>      href="WebCGM20-XCF.html#structure">Structure overview</a>" in the XCF
771 <!      href="WebCGM21-XCF.html"><cite>WebCGM XML Companion File</cite> (XCF)</a>
!>      href="WebCGM20-XCF.html"><cite>WebCGM XML Companion File</cite> (XCF)</a>
776 <!      WebCGM, as well as applications of WebCGM. In particular, this allows
!>      WebCGM 2.0, as well as applications of WebCGM 2.0. In particular, this allows
778 <!      href="WebCGM21-XCF.html">normative XCF definition</a> for details.</p>
!>      href="WebCGM20-XCF.html">normative XCF definition</a> for details.</p>
783 <!      section, <cite><a href="WebCGM21-DOM.html#L32886">Relationship with XML
!>      section, <cite><a href="WebCGM20-DOM.html#L32886">Relationship with XML
791 <!      <p>The Document Object Model (DOM) component of WebCGM was added in the
792 <!      WebCGM 2.0 release. An interface for programmatic access to WebCGM contents
793 <!      and structure, as well as facilities to manipulate a standardized WebCGM XML

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794 <!-- Companion File, were perhaps the strongest driving requirements for the
795 WebCGM 2.0 release. Virtually all of the WebCGM viewer and user agent
!> <p>An interface for programmatic access to WebCGM contents and structure, as
!> well as facilities to manipulate a standardized WebCGM XML Companion File,
!> were perhaps the strongest driving requirements for the upgrade of WebCGM 1.0
!> to WebCGM 2.0. Virtually all of the WebCGM viewer and user agent
797 <!-- programming interface (API) for such functionality.</p>
!> programming interface (API) for such functionality. Such an interface is part
!> of a Document Object Model (DOM) for WebCGM.</p>
802 <!-- href="WebCGM21-Intro.html#dom-l3-core">XML DOM Level 3</a>, or the DOM of the
803 <!-- <a href="WebCGM21-Intro.html#svg11">SVG 1.1</a> Recommendation, the WebCGM
804 <!-- DOM has limited scope. A full DOM would support query and discovery of all
805 <!-- objects and entities in a target content (graphic) instance, right down to
806 <!-- the leaf nodes of the structure tree. It would also support symmetric,
807 <!-- detailed modification and manipulation capabilities for changing the
808 <!-- object.</p>
!> href="http://www.w3.org/TR/2004/REC-DOM-Level-3-Core-20040407/">XML DOM Level
!> 3</a>, or the DOM of the <a href="http://www.w3.org/TR/SVG11/">SVG 1.1</a>
!> Recommendation, the WebCGM DOM has limited scope. A full DOM would support
!> query and discovery of all objects and entities in a target content (graphic)
!> instance, right down to the leaf nodes of the structure tree. It would also
!> support symmetric, detailed modification and manipulation capabilities for
!> changing the object.</p>
819 <!-- provides functionality to support query and discovery of the structure of a
820 <!-- WebCGM, enumeration of its graphical objects, extraction of associated
821 <!-- metadata (e.g., hyperlinking data) from documents, and finally provides users
822 <!-- with <em>standard</em> ways to add more interactivity to WebCGM documents
823 <!-- than was previously possible.</p>
!> therefore provides the functionality to query and discover the structure of a
!> WebCGM, enumerate its graphical objects, extract associated metadata (e.g.,
!> hyperlinking data) from documents, and finally provides users with
!> <em>standard</em> ways to add more interactivity to WebCGM documents than was
!> possible in WebCGM 1.0.</p>
826 <!-- application of standard <a href="WebCGM21-XCF.html">WebCGM XML Companion
!> application of standard <a href="WebCGM20-XCF.html">WebCGM XML Companion
830 <!-- number of useful capabilities. Collectively, the <cite><a
831 <!-- href="WebCGM21-Intro.html#webcgm-20-rqts">WebCGM 2.0 Requirements</a></cite>
832 <!-- and the <a href="WebCGM21-Intro.html#webcgm-21-rqts"><cite>WebCGM 2.1
833 <!-- Requirements</cite></a> documents give details about the in-scope and
834 <!-- out-of-scope capabilities of WebCGM DOM.</p>
!> number of useful capabilities -- see the <cite><a
!> href="http://www.cgmopen.org/technical/WebCGM_20_Requirements.html">WebCGM
!> 2.0 Requirements</a></cite> for details about the in-scope and out-of-scope
!> capabilities of WebCGM DOM.</p>

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