

# WebCGM and SVG: A Comparison

Chris **Lilley** <chris@w3.org>

Dieter **Weidenbrück** <dieter@itedo.com>

## Abstract

WebCGM and SVG have been discussed for some time as the upcoming standards for vector graphics on the Web. Now that more and more products have become available for these formats, users want to know about the differences between them. This session compares the formats technically and shows the benefits of either format. It also serves as an introduction to the graphics track, which will provide more information about WebCGM and SVG.

### *Addressing the Need*

- CGM Open
- SVG Working Group of W3C

### *The Requirements*

- Scalable
- Efficient
- Revisable
- Object-addressable
- Integratable w/ other Web content

### *WebCGM*

- Cooperation of CGM Open and W3C (World Wide Web Consortium)
- Technical work was conducted by CGM specialists

- Based on ATA profile GREXCHANGE 2.4
- Changes and extensions for web usage
- Additional definition of meta data

#### *WebCGM Overview*

- Rich format for raster and vector elements
- Fully developed and structured format
- Compact binary encoding for complex technical graphics
- Increasing support by software developers and end users
- Supported by CGM Open
- Conformance and test procedures

#### *Status of WebCGM*

- W3C recommendation since January 1999
- First *interoperability demo* at the XML show in Granada in April 1999
- First products have been released

#### *SVG*

- Scalable Vector Graphics
- Work group of W3C

#### *SVG Overview*

- XML tagset, stylable (by style sheets), integrated in and dependent on various other XML standards

- Creative graphics and design
- Integrated, dynamic and animated web sites
- SVG Test Suite available

#### *Status SVG*

- Candidate Recommendation
- Final version in January 2001
- Support by various software vendors already announced
- First products released

#### *WebCGM and SVG - Common Geometry*

- Lines, polylines, polygons
- Rectangles, circles, ellipses, arcs
- Graphical text
- Closed figures and compound lines
- Polysymbols/Markers
- Smooth curves -- Piece-wise Bezier
- Raster images -- PNG, jpeg
- Clipping

#### *WebCGM and SVG: Simple geometry*

SVG:

```
<svg width="400" height="400">
  <g style="fill:none; stroke:green">
    <line x1="100" y1="300" x2="300" y2="100"
```

```
        style="stroke-width:5" />
    </g>
</svg>
```

CGM (text encoded):

```
BEGMF 'sample.cgm' ;
...
  BEGPIC 'Picture 1';
  VDCEXT 0,400 400,0;
  ...
  BEGPICBODY;
  ...
  LINECOLR 5;LINEWIDTH 0.5;LINETYPE 1;
  LINE 100,300 300,100;
  ENDPIC;
ENDMF;
```

*WebCGM and SVG: Text*

- All text is Unicode
- graphical text
- non-graphical text, e.g. screentips
- font descriptors
  - CGM: basic 13 PostScript fonts
  - other fonts with font properties allowed
  - SVG: no predefined font, can define own fonts

*WebCGM and SVG: Hyperlinking*

- Simple hyperlinks

```
BEGAPS 'myID1' 'grobect' STLIST;
  APSATTR 'name' "14 1 'myObj1'";
  APSATTR 'linkuri' "14 3 'sample.cgm#id(myObj)' 'Click to
display obj1' '";
```

```
BEGAPSBODY;  
  POLYGON 30,50 70,50 70,15 30,15 30,50;  
ENDAPS;  
<g>  
  <desc>'Click to display obj1'</desc>  
  <a id='s12-1myObj1'  
xlink:href='sample.svg#xpointer(id(myObj))'>  
    <polygon points='30,50 70,50 70,15 30,15 30,50' />  
  </a>  
</g>
```

- [Link to view context](#)

### *WebCGM and SVG: Other Links*

- [Link to symbols](#)
- [Link to gradients, filters, fonts, animation in SVG](#)

### *WebCGM & SVG compared*

- WebCGM:
  - Profile of an established ISO standard
  - Communication and exchange in existing customer networks
  - Binary encoding, completely defined, "self contained"
  - No proprietary data
- SVG:
  - Complete new concept, from "scratch"
  - Creative graphics and design
  - Integrated, dynamic, animated web pages

- xml-coded, stylable, dependent on other files,  
e.g. style sheets
- Inclusion of any proprietary extensions possible in a different namespace

### *Comparison: WebCGM & SVG*

- Overlap in functionality
  - WebCGM => SVG, conversion without losses
  - SVG => WebCGM, potentially very lossy

### *Do SVG and WebCGM compete?*

*No.*

### *Why not?*

- SVG is suitable for high quality, creative graphics
  - color requirements
  - text / font requirements
  - animation
  - filter effects
- WebCGM is suitable for technical graphics with long life cycle
  - complexity / size requirements
  - re-authoring capabilities
  - interoperability requirements (lots of data exchange)

- Compliance with industry standards (ATA, CALS)

*So what?*

- For a lot of files, SVG will be the better solution.
- For a lot of files, WebCGM will be the better solution
- Expectations:
  - Both formats will coexist and complement each other

*Things to watch out for*

- Before you convert all of your files to SVG and/or WebCGM:
  - wait for final implementations
  - watch out for restrictions when using files in current web browsers

## **Biography**

**Chris Lilley**

Graphics Activity Lead

W3C

France

Email: [chris@w3.org](mailto:chris@w3.org)

*Chris Lilley* - Chris Lilley has been working with the Web since 1993 and has been a member of the W3C technical staff since 1996. He is Graphics Activity lead and also chairs two W3C working groups: CSS and SVG. Chris was co-editor of the CSS2 specification and has also contributed to the HTML 2.0, HTML 4.0, CSS1, PNG, and WebCGM specifications. He is based in the South of France.

**Dieter Weidenbrück**

CEO

ITEDO Software

Germany

Email: [dieter@itedo.com](mailto:dieter@itedo.com)

*Dieter Weidenbrück* - Dieter Weidenbrück is the founder and President of ITEDO Software, the manufacturer of the Technical Illustration package IsoDraw. He is the primary architect of the IsoDraw software program. Dieter Weidenbrück has developed a considerable experience in the field of documentation standards and is actively participating in standardization efforts concerning technical illustration. He is one of the authors of the WebCGM Recommendation. He serves as the current Chairman of the CGM Open Consortium.