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Maps are already important on the Web. Not only that, they have established patterns, both in the services they consume and the user interfaces by which they are presented. They are a perfect standardization opportunity for the Web platform community.

A new standard can't expect to displace existing content. It must work with content as found, to the degree possible. MapML explicitly tries to not re-invent the wheel, but to encode location by reference wherever possible. Also, new Web mapping sites with simple requirements should be simple to create, with both existing and new content. Further, MapML is based on existing standards.



MapML has been designed in the style of HTML, with the objective being seamless integration into HTML (much as is happening with SVG) and with backwards compatibility at front of mind.



Maps

Maps on the Web Platform: Paving the cow paths



MapML represents map tiles, images and geographic features as <tile>, <image> and <feature> elements, with appropriate and specific content models.

```
<mapml>
  <head>
    <title>Static MapML document example</title>
    <meta name="zoom" content="2">
    <meta name="projection" content="CBMTILE">
    <link rel="license" href="..." title="Open Government Licence - Canada"/>
  </head>
  <body>
    <tile row="10" col="10" src="https://.../MapServer/tile/2/10/10">
... <!-- more tiles, features, and image content here --!>
  </body>
</mapml>
```



OpenStreetMap



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To accommodate the important map pan/zoom state transitions used in dynamic Web maps, HTML form techniques are augmented, in the guise of the <extent> element. This element represents a vital shared understanding between the map client and server, which together with an extended subset of HTML <input> and <link> types enables dynamic map interactivity without script support.

```
<mapml>
  <head>
    <title>Extent-based MapML document</title>
    <link rel="license" href="..." title="Open Government Licence - Canada"/>
  </head>
  <body>
    <extent units="OSMTILE">
      <input name="z" type="zoom" value="15" min="0" max="15">
      <input name="y" type="location" units="tilematrix" axis="row">
      <input name="x" type="location" units="tilematrix" axis="column">
      <link rel="tile" tref="https://.../MapServer/tile/{z}/{y}/{x}"/>
    </extent>
  </body>
</mapml>
```

There are several key benefits for the Web platform and society, foreseen through co-development of this proposal:

- 1) The Web is for everyone. Everyone can make and use maps and location on the Web. Children / beginners need not wait until they have mastered HTML, CSS and JavaScript and associated frameworks before being able to create and use maps. Being part of HTML means that maps, geography and the Web are learned from the beginning and society can “use the platform” for teaching kids not only about the platform, but also about the world that we live in.
- 2) Discovery. MapML surfacing in the <map> element’s proposed location attributes (lat,lon,zoom) means that Web pages are inherently georeferenced, and can be indexed and discovered by location. Further, because MapML is inherently crawlable, linked Web map resources can also be indexed, enhancing discovery.
- 3) Accessibility. The browser can represent where objects are in the world, and in consequence can show / tell you if you are near / far from an object represented on a Web site.

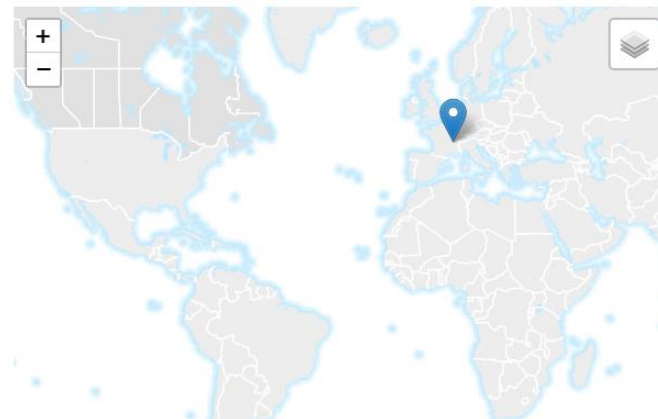
Maps in HTML

In light of the importance of maps on the Web, MapML is a proposal from the geospatial information (standards) community to the Web (standards) community to work together. In short, we propose that (something like) the following become part of the Web platform

```
<map zoom="2" lat="59.8" lon="-53.2" width="600"
      height="400"
      controls>
  <layer label="Canada Base Map"
        src="https://www.example.org/canada.mapml
        checked></layer>
  <layer label="W3C Developers Meetup" checked>
    <feature>
      <properties><span>Le «meetup» des developpeurs
        W3C à l'université de Lyon</span>
      </properties>
      <geometry><point>
        <coordinates>4.8375893 45.7495911</coordinates>
      </point></geometry>
    </feature>
  </layer>
</map>
```

MapML by reference

MapML in HTML



Maps4HTML | Leaflet | Canada Base Map © Natural Resources Canada, © Université de Lyon

- 4) Backwards compatible / progressive enhancement. This new capability fits naturally with the architecture of the Web, which allows any Web site to represent any concept or object, and with the Web’s discovery mechanism (search). To represent a physical object you do not have to own that object to, say, put a beacon on it to represent its location. You simply type up / copy-and-paste its representation into your Web page.

Last, but not least:

- 5) Synergy (h/t Bruce Lawson) MapML will work seamlessly with existing Web standards HTML, SVG, CSS and JavaScript. The MapML community will join forces with the Web community, making both communities, and in consequence the Web platform, stronger together.



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