THE MAPML PROPOSAL - PART ONE

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W3C/OGC Joint Workshop Series on Maps for the Web
w3.org/2020/maps/
Preface

- MapML is the MVP of markup to support maps, like `<video>` etc.
- Why `<map>`? Need a declarative, semantic entry point for maps in HTML for various reasons:
  - Ethical: learn maps & geography through standards, least common denominator: HTML
  - Performance: rendering spatial content is demanding. Script is killing the mobile web, and maps are especially timely for mobile users. So, build maps into the rendering engine of browsers.
  - Ethics: Need to define and standardize what “accessibility” means in real life for maps and map users. It’s clear that like the Web, maps are for everyone, so let’s make that experience better and standard.
  - Improve the ROI on spatial information: establish an organic non-metadata approach for spatially indexing the Web so that everyone can benefit via search engine implementation.
  - HTML Design Principles are a framework to guide discussion
  - Progressive enhancement, graceful degradation are key design values
Agenda

Part 1

• The key elements: <map>, <layer> and <extent>
• Tiled Coordinate Reference Systems and Zoom Levels
The `<map>` element

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <title>Canada Base Map</title>
</head>
<body>
  <map projection="OSMTILE" zoom="4" lat="53" lon="91" controls controlslist="nofullscreen">
    <layer label="Canada Base Map" checked src="…"></layer>
    <layer label="Canada Weather Map">…inline content…</layer>
  </map>
</body>
</html>
```

- A small set of ‘projection’ values is defined. The default, if unspecified, is ‘OSMTILE’, which corresponds with Web Mercator.
- Required lat / lon numeric attributes designate the starting location.
- Required zoom integer-valued attribute defines the map scale.
- Boolean ‘controls’ attribute turns controls on / off. Controls are created by default in a closed shadow root, (like `<video>`) controlslist attribute can prune the set of native controls provided.
The `<layer>` element

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <title>Canada Base Map</title>
</head>
<body>
  <map projection="OSMTILE" zoom="4" lat="53" lon="-91" controls>
    <layer label="Canada Base Map" hidden checked src="..." />
    <layer label="Canada Weather Map" checked hidden>...inline content...</layer>
  </map>
</body>
</html>
```

- A 'hidden' layer is not shown in the layer control, but is rendered on the map.
- A layer has a text label attribute.
- A 'checked' layer renders on the map.
- Layers are children of the `<map>` element only, and do not nest.
- Layers can have inline light DOM content OR a `src` attribute pointing to content (processing similar to `<img src="an.svg"`)
The `<extent>` element

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <title>Canada Base Map</title>
</head>
<body>
  <map projection="OSMTILE" zoom="4" lat="53" lon="-91" control="layer">
    <layer label="Canada Base Map" checked>
      <extent units="OSMTILE">
        <input name="z" type="zoom" />
        <input name="y" type="location" units="tilematrix" axis="row" />
        <input name="x" type="location" units="tilematrix" axis="column" />
        <link rel="tile" tref="https://.../GEOM_3857/{z}/{y}/{x}/" />
        <link rel="tile" tref="https://.../TXT_3857/{z}/{y}/{x}/" />
      </extent>
    </layer>
  </map>
</body>
</html>
```
Tiled coordinate reference systems

OSMTILE Tiled Coordinate Reference System, zoom=1
Zoom levels

A “pixel” at zoom = 0

156543.0339 m
THANK YOU! MERCI!

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