

How to create a Styled Layer Description File

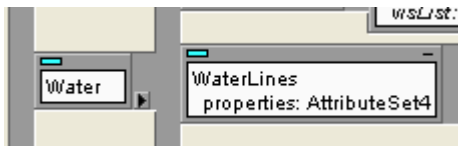
SLD is an XML schema which is defined by the Open Geospatial Consortium to define the appearance of Map layers. It defines the rendering of vector and raster data. It is independent from the geometry but not from the type of the geometry. But since 2007 it only describes the protocol to tell the WMS (Web Map Service) which rule of description should be used. The main description rules are now defined in a Symbol Encoding Specification. For more information about the standards of the Open Geospatial Consortium go to <http://www.opengeospatial.org/>. Important for creating a SLD-file is that you know the content and architecture of the map configuration file which is used.

The content of a SLD file:

All SLD files have to begin with the declaring of the namespaces:

```
<?xml version="1.0" encoding="UTF-8"?>
<slid:StyledLayerDescriptor xmlns:se="http://www.opengis.net/se"
xmlns:slid="http://www.opengis.net/slid"
xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:ogc="http://www.opengis.net/ogc" xmlns:gml="http://www.opengis.net/gml"
xmlns:cab="http://www.carmeta.com/cab" version="1.1.0">
```

The name has to be the name of the layer in the configuration file which you want to present.



```
<slid:NamedLayer>
```

You have to write the whole "path of the configuration tree" of the layer:

```
<se:Name>View0/Water/WaterLines</se:Name>
```

Please note that all layers which you want to present have the attribute "SpaceWeb" set to true, otherwise they won't be visible! The style itself is set in the "Rule" here you define how the symbols, lines, polygons, points etc. shall appear.

For example a simple description how a line shall be drawn (comments are written in green above each setting):

Here you set the type of the visualizer (line, polygon, point):

```
<se:LineStyleVisualizer>
```

```
<se:Stroke>
```

The color of the line :

```
<se:SvgParameter name="stroke">#FE9A2E</se:SvgParameter>
```

With which opacity the line shall be drawn (0.0 to 1.0):

```
<se:SvgParameter name="stroke-opacity">1.0</se:SvgParameter>
```

The width of the line:

```
<se:SvgParameter name="stroke-width">0.1</se:SvgParameter>
```

```
</se:Stroke>
```

```
</se:LineStyleVisualizer>
```

It works the same for polygons, points etc. but when you want to set the description of labels you need to take the attribute name for writing the "rule":

The name of the layer, the same as above:

```
<se: Name>View0/Labels</se: Name>
  <sl d: UserStyle>
    <se: Name>DefaultStyl er</se: Name>
    <se: Title>DefaultStyl er</se: Title>
    <se: Abstract></se: Abstract>
    <se: FeatureTypeStyle>
      <sl d: Name>name</sl d: Name>
      <sl d: Title>title</sl d: Title>
      <sl d: Abstract>abstract</sl d: Abstract>
      <sl d: FeatureTypeName>basemap_centerline</sl d: FeatureTypeName>
      <se: Rule>
        <sl d: Name>rule06</sl d: Name>
        <sl d: Title>street</sl d: Title>
        <sl d: Abstract>Abstract</sl d: Abstract>
        <sl d: MinScaleDenominator>30000. 0</sl d: MinScaleDenominator>
        <sl d: MaxScaleDenominator>45000. 0</sl d: MaxScaleDenominator>
      </se: Rule>
    </se: FeatureTypeStyle>
  </sl d: UserStyle>
```

```
<se: TextSymbolizer>
```

The attribute name of the label you want to describe:

```
<se: Label >POI_NAME</se: Label >
  <se: Fill >
    <se: SvgParameter name="fill" >#61380B</se: SvgParameter>
    <se: SvgParameter name="fill-opacity" >1. 0</se: SvgParameter>
  </se: Fill >
  <se: Font>
    <se: SvgParameter name="font-family" >Ari al </se: SvgParameter>
    <se: SvgParameter name="font-size" >15</se: SvgParameter>
    <se: SvgParameter name="font-weight" >normal </se: SvgParameter>
    <se: SvgParameter name="font-style" >normal </se: SvgParameter>
  </se: Font>
  <se: LabelPlacement>
  <se: PointPlacement>
  <se: Displacement>
    <se: DisplacementX>5</se: DisplacementX>
    <se: DisplacementY>-5</se: DisplacementY>
  </se: Displacement>
  <se: Rotation>0</se: Rotation>
</se: PointPlacement>
</se: LabelPlacement>
```

Below you can see a more complicated extract of an SLD file:

```
<?xml version="1.0" encoding="UTF-8"?>
<sl d: StyledLayerDescriptor xmlns:se="http://www.opengis.net/se"
xml ns: sl d="http://www.opengis.net/sld" xml ns: xli nk="http://www.w3.org/1999/xlink"
xml ns: ogc="et/gmhttp://www.opengis.net/ogc" xml ns: gml="http://www.opengis.nl"
xml ns: cab="http://www.carmenta.com/cab" version="1.1.0">
  <sl d: NamedLayer>
    <se: Name>View0/Water/WaterLines</se: Name>
    <sl d: UserStyle>
      <se: Name>DefaultStyl er</se: Name>
      <se: Title>DefaultStyl er</se: Title>
      <se: Abstract></se: Abstract>
      <se: FeatureTypeStyle>
        <sl d: Name>name</sl d: Name>
        <sl d: Title>title</sl d: Title>
        <sl d: Abstract>abstract</sl d: Abstract>
        <sl d: FeatureTypeName>basemap_centerline</sl d: FeatureTypeName>
        <se: Rule>
          <sl d: Name>rule02</sl d: Name>
          <sl d: Title>street</sl d: Title>
          <sl d: Abstract>Abstract</sl d: Abstract>
        </se: Rule>
      </se: FeatureTypeStyle>
    </sl d: UserStyle>
    <se: LineSymbolizer>
      <se: Stroke>
        <se: SvgParameter name="stroke">#0000ff</se: SvgParameter>
        <se: SvgParameter name="stroke-opacity">0.3</se: SvgParameter>
        <se: SvgParameter name="stroke-width">4</se: SvgParameter>
        <se: SvgParameter name="stroke-linejoin">round</se: SvgParameter>
        <se: SvgParameter name="stroke-linecap">round</se: SvgParameter>
      </se: Stroke>
    </se: LineSymbolizer>

    <se: LineSymbolizer>
      <se: Stroke>
        <se: SvgParameter name="stroke">#87CEFA</se: SvgParameter>
        <se: SvgParameter name="stroke-opacity">0.8</se: SvgParameter>
        <se: SvgParameter name="stroke-width">2</se: SvgParameter>
        <se: SvgParameter name="stroke-linejoin">round</se: SvgParameter>
        <se: SvgParameter name="stroke-linecap">round</se: SvgParameter>
      </se: Stroke>
    </se: LineSymbolizer>

  </sl d: NamedLayer>
</sl d: NamedLayer>
```

```
<sl d: NamedLayer>
  <se: Name>View0/LandUse</se: Name>
  <sl d: UserStyle>
    <se: Name>DefaultStyl er</se: Name>
    <se: Title>DefaultStyl er</se: Title>
    <se: Abstract></se: Abstract>
    <se: FeatureTypeStyle>
      <sl d: Name>name</sl d: Name>
      <sl d: Title>title</sl d: Title>
      <sl d: Abstract>abstract</sl d: Abstract>
      <sl d: FeatureTypeName>basemap_centerline</sl d: FeatureTypeName>
      <se: Rule>

      <se: PolygonSymbolizer>
        <se: Fill>
          <se: SvgParameter name="fill">#94E67F</se: SvgParameter>
          <se: SvgParameter name="fill-opacity">0.5</se: SvgParameter>
        </se: Fill>

      </se: PolygonSymbolizer>
    </se: Rule>
  </se: FeatureTypeStyle>
</sl d: UserStyle>
</sl d: NamedLayer>
<sl d: NamedLayer>
```

In the following paragraph we will create a basic SLD file, that shall draw the Major Highways with a width of 3 pixels, opacity of 80 percent and the color should be black.

```
<?xml version="1.0" encoding="UTF-8"?>
  <sl d: Styl edLayerDescr iptor xml ns: se="http://www.opengis.net/se"
    xml ns: sl d="http://www.opengis.net/sl d"
    xml ns: xl ink="http://www.w3.org/1999/xl ink"
    xml ns: ogc="et/gmhttp://www.opengis.net/ogc" xml ns: gml ="http://www.opengis.nl "
    xml ns: cab="http://www.carmenta.com/cab" versi on="1. 1. 0">
  <se: Name>Vie w0/Roads/Maj orHi ghwaysForegroun d</se: Name>
    <sl d: UserStyl e>
      <se: Name>Defaul tStyl er</se: Name>
      <se: Ti tl e>Defaul tStyl er</se: Ti tl e>
      <se: Abstr act></se: Abstr act>
      <se: FeatureTypeStyl e>
        <sl d: Name>name</sl d: Name>
        <sl d: Ti tl e>ti tl e</sl d: Ti tl e>
        <sl d: Abstr act>abstr act</sl d: Abstr act>
        <sl d: FeatureTypeName>basemap_centerl ine</sl d: FeatureTypeName>
        <se: Rul e>
          <sl d: Name>rul e05</sl d: Name>
          <sl d: Ti tl e>street</sl d: Ti tl e>
          <sl d: Abstr act>Abstr act</sl d: Abstr act>
          <se: Li neSymbol i zer>
            <se: Stroke>
              <se: SvcParameter name="stroke">#000000</se: SvcParameter>
              <se: SvcParameter name="stroke-opaci ty">0. 8</se: SvcParameter>
              <se: SvcParameter name="stroke-wi dth">3</se: SvcParameter>
            </se: Stroke>
          </se: Li neSymbol i zer>
        </sl d: Styl edLayerDescr iptor>
```

To load this SLD to a map, you have to implement on your index page an "addAttribute" function which adds the SLD file you chose in a selectBox to the current view.

```
function load()
{
  var selectBox=document.getElementById("choose");

  var layer = map.getAllLayers();
  if (selectBox.selectedIndex == 0)
  {
    layer[0].removeAttribute("SLD");
  }
  else
  {
    layer[0].addAttribute("SLD", location.href +
    selectBox[selectBox.selectedIndex].text);
  }

  map.refresh(true);
}
```