

MapServer kezdő tanfolyam

Összeállította: Siki Zoltán



MapGuide OS



MapServer



GeoServer



MapServer történelem

- A fejlesztés a Minesotai Egyetem (UMN) távérzékelési laboratóriumában kezdődött
- ForNet projekt keretében a NASA finanszírozta
- 1994. Első verzió, CGI program, C/C++
- 1999. óta nyílt forráskódú
- 2000. Windows változat
- 2005. OSGeo hivatalos projekt
- 2011. TinyOWS és MapCache integráció
- 2012. MapServer bundle
- 2017. 7.0.6 változat



Alapfogalmak

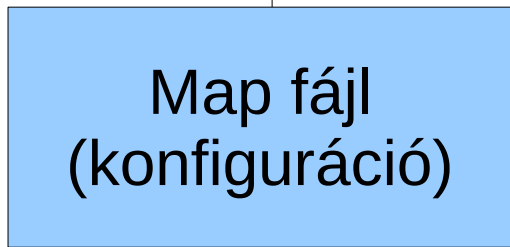
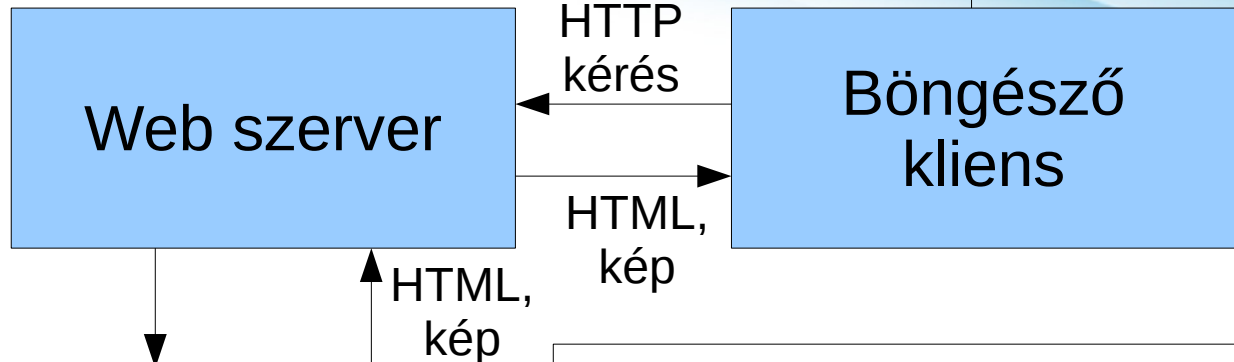
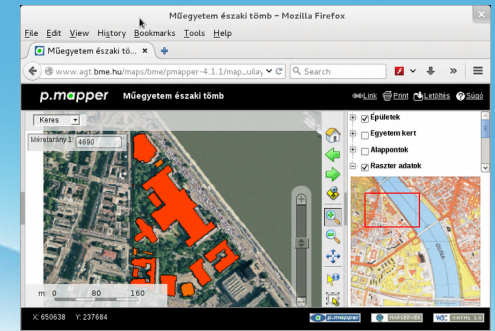
- Web server, Document root
- CGI – Common Gateway Interface, FastCGI
- HTTP – Hyper Text Transfer Protocol
- HTML Hyper Text Markup Language, HTML Űrlap (Form)
- URL – Universal Resource Locator
- WMS/WFS/WMTS/WFS-T/WPS



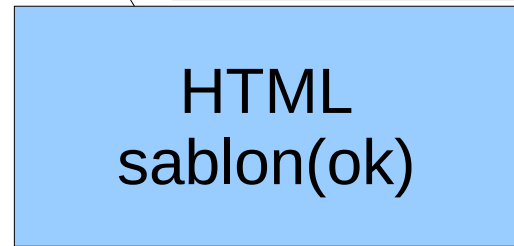
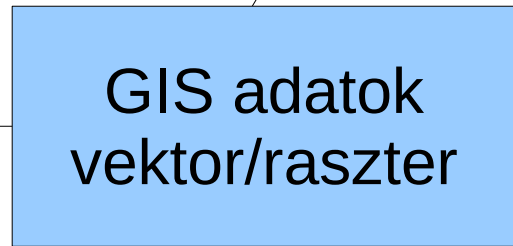
Térkép szerver

```
MAP
EXTENT 465638 79800 851291 313008
IMAGETYPE "png"
NAME "QGIS-MAP"
SHAPEPATH "/home/user/mo"
SIZE 600 600
STATUS ON
UNITS METERS

OUTPUTFORMAT
NAME "png"
MIMETYPE "image/png"
DRIVER "AGG/PNG"
...
```



```
...
<h4 align="center">(c) BME-GEOD Geo4All Lab</h4>
<form name="mform" action="/cgi-bin/mapserv"
method="GET">
<input type="hidden" name="map" value="[map]">
<input type="hidden" name="imgext"
value="[mapext]">
<input type="hidden" name="map_web_template"
value="minta_sablon.html">
...
```



<http://mapserver.org/>



Telepítés/használat

Windows:

- OSGeo4W telepítő –
Express Web-GIS Install
vagy
Advanced Install
- MS4W telepítő

<https://trac.osgeo.org/osgeo4w/>



<http://ms4w.com/>



<http://live.osgeo.org>



Linux:

- OSGeo Live DVD vagy pendrive
(telepítés nélkül)
- Bináris csomagok

```
sudo apt-get install mapserver-cgi mapserver-utils  
vagy  
yum install mapserver-cgi mapserver-utils
```



MapServer
open source web mapping



Térkép szerver

Telepítés ellenőrzése böngészőből:

<http://localhost/cgi-bin/mapserv>

Válasz:

No query information to decode. QUERY_STRING is set, but empty.

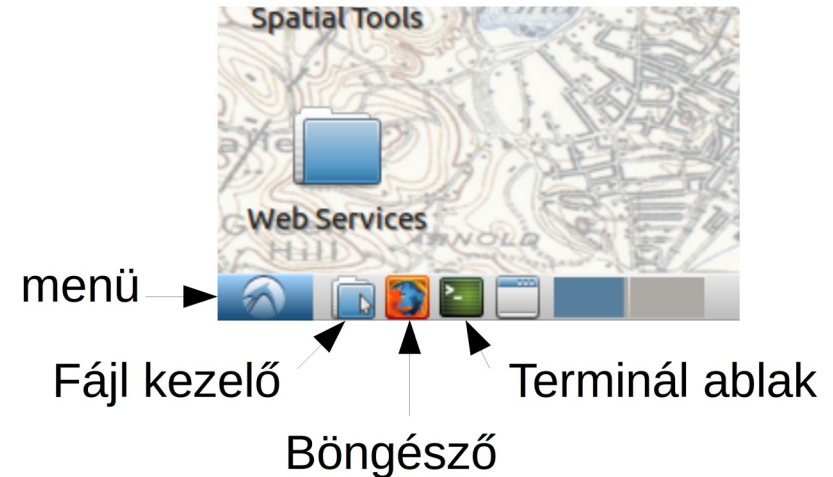
Windows-on
mapserv.exe!

Saját munka könyvtár
(OSGeo-Live környezet/Ubuntu):

```
cd /var/www/html
sudo mkdir mo
sudo chown user:user mo
ls -ld mo
```

```
mapserv -v
```

vagy



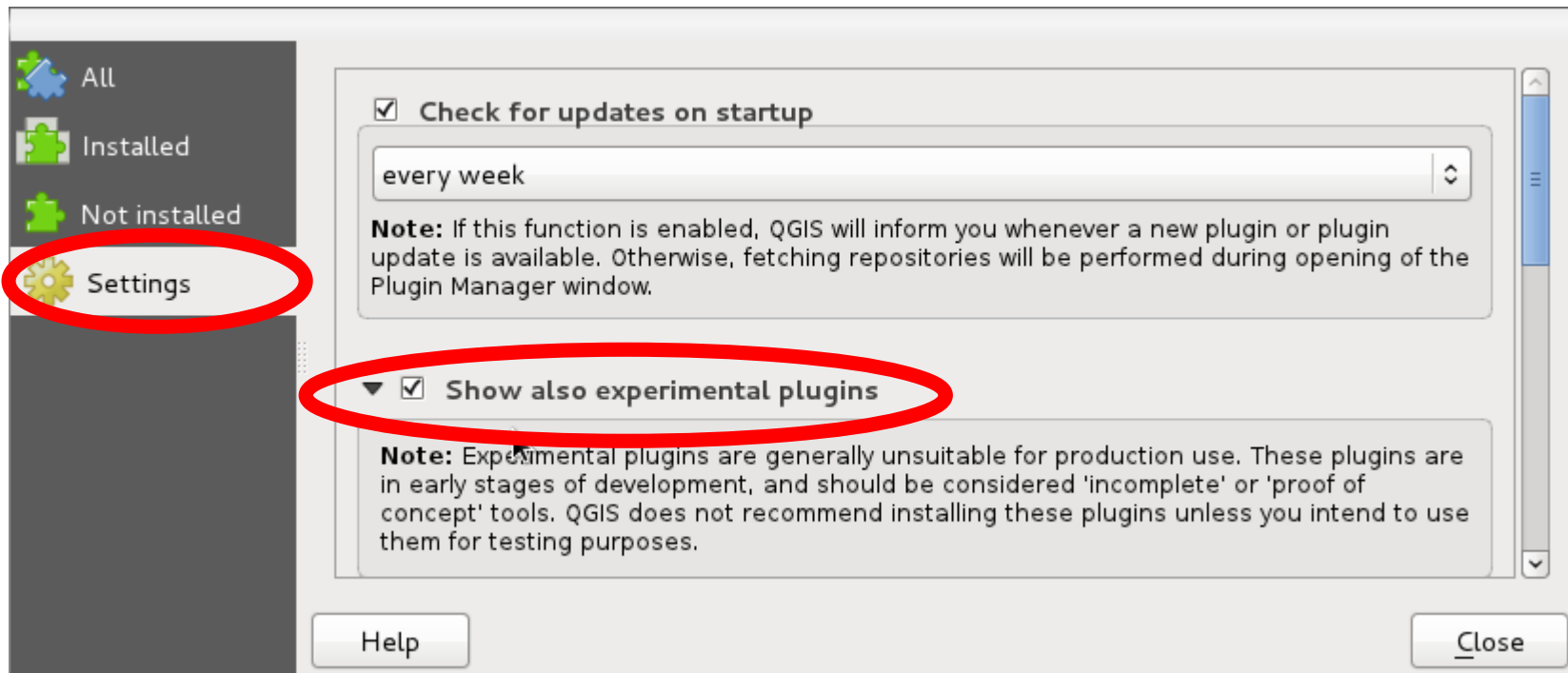
```
MapServer version 7.0.6 OUTPUT=PNG OUTPUT=JPEG OUTPUT=KML SUPPORTS=PROJ
SUPPORTS=AGG SUPPORTS=FREETYPE SUPPORTS=CAIRO SUPPORTS=SVG_SYMBOLS
SUPPORTS=RSVG SUPPORTS=ICONV SUPPORTS=FRIBIDI SUPPORTS=WMS_SERVER
SUPPORTS=WMS_CLIENT SUPPORTS=WFS_SERVER SUPPORTS=WFS_CLIENT
SUPPORTS=WCS_SERVER SUPPORTS=SOS_SERVER SUPPORTS=FASTCGI
SUPPORTS=THREADS SUPPORTS=GEOS INPUT=JPEG INPUT=POSTGIS
INPUT=OGR INPUT=GDAL INPUT=SHAPEFILE
```



Map fájl létrehozás

1. Szövegszerkesztővel (Notepad++, leafpad, stb.) *Profiknak*
2. QGIS RT MapServer Exporter modul *QGIS-hez*
3. MapMint *Kényelmes*
4. Mappyfile *Python*

RT MapServer Exporter telepítése (QGIS)



RT MapServer telepítés folytatás

This screenshot shows the QGIS Plugin Manager interface. The left sidebar has 'All' selected. The search bar contains 'RT M'. In the list of plugins, 'RT MapServer Exporter' is highlighted. The main panel displays the details for 'RT MapServer Exporter', including a warning that it is experimental and a description: 'Export QGIS project to MapFile. Developed with funding from Regione Toscana-SITA.' The 'Install plugin' button is highlighted.

All

Search RT M

- Installed
- Not installed
- Settings

- Bulk vector export
- Bulk vector export
- RT MapServer Exporter**

This plugin is experimental

RT MapServer Exporter

Export QGIS project to MapFile.
Developed with funding from Regione Toscana-SITA.

This plugin helps to export a QGIS Project as

Upgrade all

Install plugin

Help

Close

This screenshot shows the QGIS Plugin Manager interface after the 'RT MapServer Exporter' plugin has been selected. The left sidebar has 'All' selected. The search bar contains 'RT M'. In the list of plugins, 'RT MapServer Exporter' is checked. The main panel displays the details for 'RT MapServer Exporter', including a warning that it is experimental and a description: 'Export QGIS project to MapFile. Developed with funding from Regione Toscana-SITA.' The 'Uninstall plugin' and 'Reinstall plugin' buttons are visible.

All

Search RT M

- Installed
- Not installed
- Settings

- Bulk vector export
- Bulk vector export
- RT MapServer Exporter**

This plugin is experimental

RT MapServer Exporter

Export QGIS project to MapFile.
Developed with funding from Regione Toscana-SITA.

Upgrade all

Uninstall plugin

Reinstall plugin



QGIS előkészítés

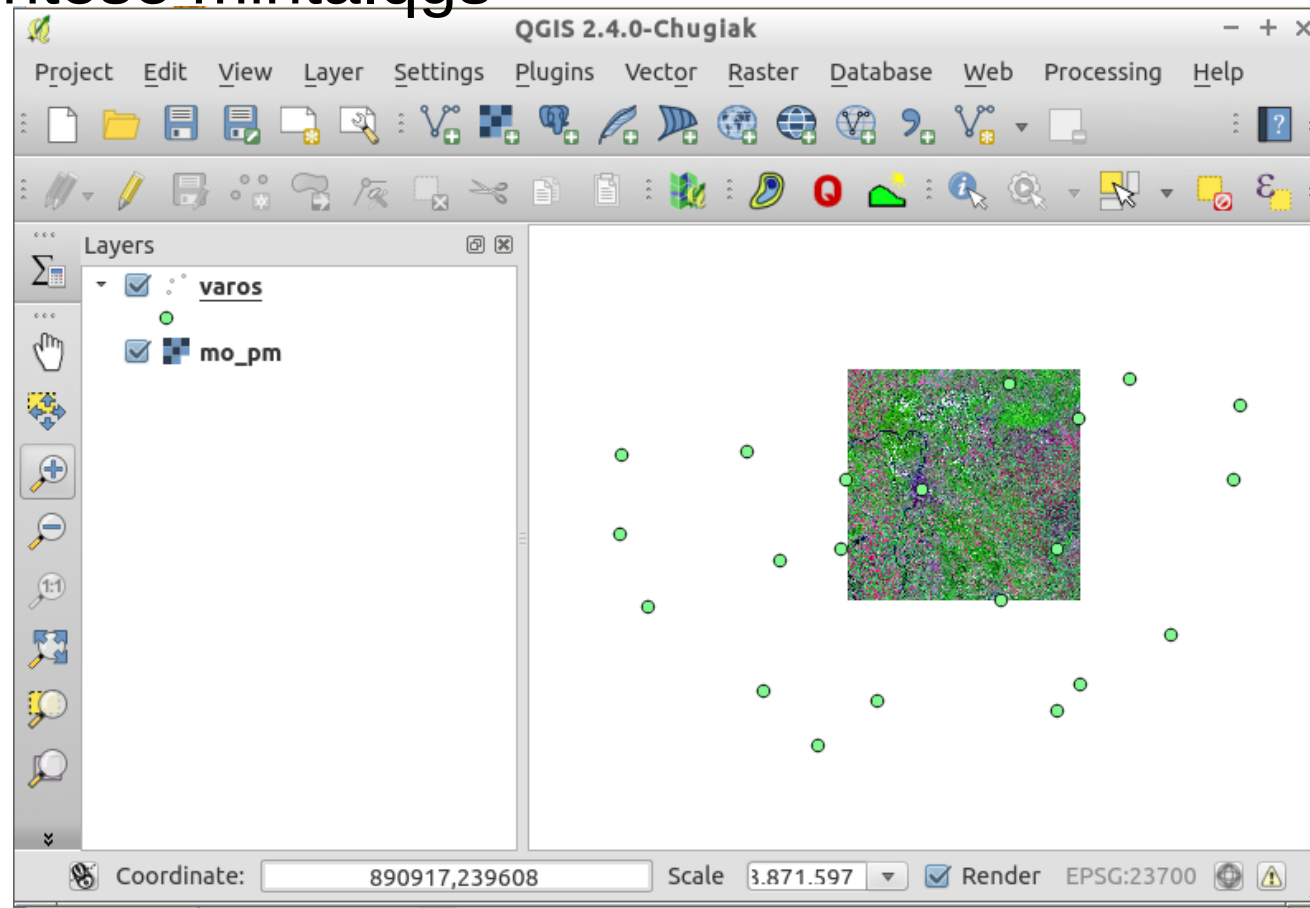
Adatok letöltése: <http://www.geod.bme.hu/php/browse.php?/foss>
mo.zip kibontása (/home/user/mo könyvtárba)

```
cd mo
```

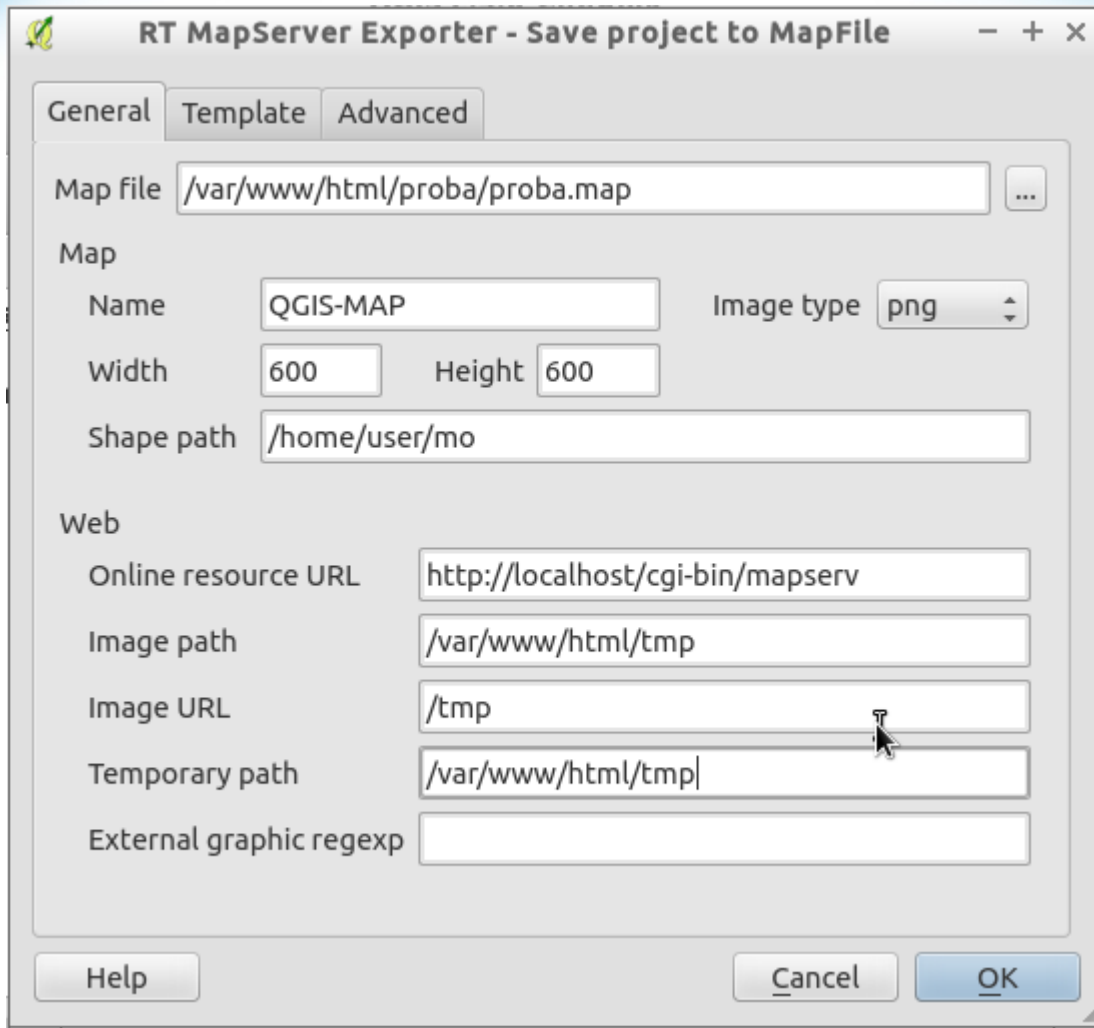
```
unzip ../Downloads/mo.zip vagy fájl kezelővel
```

QGIS projekt létrehozása: varos.shp és mo_pm.tif rétegek

Projekt mentése minta.qgs



MapServer Export



RT MapServer Exporter - Save project to MapFile

General Template Advanced

Map file

Map

Name Image type

Width Height

Shape path

Web

Online resource URL

Image path

Image URL

Temporary path

External graphic regexp

Help Cancel OK

Mentés előtt

```
sudo mkdir /var/www/html/proba  
chown user:user /var/www/html/proba
```

Map fájl módosítása (leafpad)

```
cd /var/www/html/proba  
leafpad proba.map  
...
```

Map fájl ellenőrzése

<http://mappyfile.geographicka.net>

Kész map fájl:

<http://www.agt.bme.hu/gis/mapserver/proba.map>

Kipróbálás Mapserver segédprogrammal

```
shp2img -m minta.map -o minta.png -l "varos mo_pm"
```



Map fájl kipróbálása böngészőből

CGI MapServer

<http://localhost/cgi-bin/mapserv?map=/var/www/html/proba/proba.map&mode=map&layer=varos>

CGI MapServer + OpenLayers sablon

http://localhost/cgi-bin/mapserv?map=/var/www/html/proba/proba.map&mode=browse&template=openlayers&layer=varos&layer=mo_pm

Paraméterek

map – map fájl elérési útja (abszolút)

mode – map/browse/legend/reference/query/...

layer – rétegnév a map fájlból (több is)

template – html sablon



HTML sablon

```
<!-- MapServer Template -->
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/transitional.dtd">
<html>
<head>
<title>MapServer sablon minta</title>
</head>
<body>
MapServer Template Sample<br>
<form method="GET" action="[program]">
<input type="hidden" name="map" value="[map]">
<input type="hidden" name="imgext" value="[mapext]">
<input type="hidden" name="imgxy" value="149.5 199.5">
<input type="hidden" name="program" value="[program]">
<input type="hidden" name="htmlroot" value="[htmlroot]">
<input type="hidden" name="map_web" value="[map_web]">
<table border=0 cellpadding=5>
<tr>
<td align=center>
<input type="image" name="img" src="[img]"
style="border:0;width:300;height:400">
<br>

</td>
<td valign=top>
<b>Map Controls</b><br>
Set your zoom option:<br>
<select name="zoom" size="1">
<option value="2" [zoom_2_select]> Zoom in 2 times
<option value="1" [zoom_1_select]> Recenter Map
<option value="-2" [zoom_-2_select]> Zoom out 2 times
</select>
<br>
<b>Legend</b><br>
<br><br><br><br>
<input type="image" name="ref" src="[ref]"
style="border:0;width:150;height:150">
</td>
</tr>
</table>
</form>
</body>
</html>
```



Map fájl bővítése - új réteg



Map fájl bővítése - címkék



Szabványos szolgáltatások WMS

WMS szerver:

<http://localhost/cgi-bin/mapserv?map=/var/www/html/proba/proba.map&SERVICE=WMS&VERSION=1.3.0&REQUEST=GetCapabilities>

<http://localhost/cgi-bin/mapserv?map=/var/www/html/proba/proba.map&SERVICE=WMS&VERSION=1.3.0&REQUEST=GetMap&LAYERS=varos&CRS=epsg:23700&BBOX=465000,79800,851000,313000&format=png&width=500&height=500>



Szabványos szolgáltatások WFS



WMS használata QGIS-ből

The screenshot shows the QGIS 2.4.0-Chugiak interface. The main window displays the 'Add Layer(s) from a WM(T)S Server' dialog box. In this dialog, the 'New' button is circled in red. A sub-dialog box titled 'Create a new WMS connection' is open, showing the following details:

- Name:** proba
- URL:** `γ/mapserv?map=/var/www/html/proba/proba.map`
- User name:** (empty field)
- Password:** (empty field)
- Referer:** (empty field)
- DPI-Mode:** all
- Ignore GetMap/GetTile URI reported in capabilities
- Ignore GetFeatureInfo URI reported in capabilities
- Ignore axis orientation (WMS 1.3/WMTS)
- Invert axis orientation
- Smooth pixmap transform

The 'OK' button at the bottom right of the sub-dialog is also circled in red. The main dialog also shows a 'Connect' button and a table with columns 'ID' and 'Name'. The status bar at the bottom indicates 'Updated local data sources', 'Coordinate: [empty]', 'Scale 1:13', 'Render', 'EPSG:23700', and the system tray shows 'HU', '23:19', and a power icon.

OpenLayers – WMS szerver

```
<html>
<head>
  <meta charset='utf-8' />
  <title>Minta</title>
  <script type='text/javascript' src='/openlayers/OpenLayers.js'></script>
  <script defer="defer" type="text/javascript">
var map;
function init() {
  map = new OpenLayers.Map('map',
    {projection: 'EPSG:23700',
      maxExtent: new OpenLayers.Bounds(424000 41000 940000 361000), units: 'm'});

  var varos = new OpenLayers.Layer.WMS('varos', 'http://localhost/cgi-bin/mapserv?
map=/var/www/html/proba/proba.map&version=1.3.0',{layers: 'varos'});
  map.addLayer(varos);
  map.zoomToMaxExtent();
}
</script>
</head>
<body onload='init();'>
  <div style="width:100%; height:100%" id="map"></div>
</body>
</html>
```



OpenLayers

```
<html>
<head>
  <meta charset='utf-8' />
  <title>Minta</title>
  <script type='text/javascript' src='/openlayers/OpenLayers.js'></script>
  <script defer="defer" type="text/javascript">
var map;
function init() {
  map = new OpenLayers.Map('map',
    {projection: 'EPSG:23700',
      maxExtent: new OpenLayers.Bounds(424000,41000,940000,361000), units: 'm'});
  map.addControl(new OpenLayers.Control.LayerSwitcher());
  map.addControl(new OpenLayers.Control.OverviewMap());
  map.addControl(new OpenLayers.Control.KeyboardDefaults());
  map.addControl(new OpenLayers.Control.ScaleLine({
    MaxWidth: 200, bottomOutUnits: "", bottomInUnits: ""
  }));

  var varos = new OpenLayers.Layer.WMS('varos', 'http://localhost/cgi-bin/mapserv?
map=/var/www/html/proba/proba.map&version=1.3.0',{layers: 'varos'}, {transitionEffect: 'resize'});
  map.addLayer(varos);
  map.zoomToMaxExtent();
}
</script>
```

...

