uDig Walkthrough 1

uDig installation and introduction

Table of Contents

1 Introduction

Welcome to the User-friendly Internet Desktop GIS (uDig) application!

uDig is collaborative effort brought together by a diverse project management committee from organizations across the world:

• Andrea Antonello, HydroloGIS (Italy)

• Jesse Eichar, Camptocamp (Switzerland)

• Jody Garnett, LISAsoft (Australia)

• Mauricio Pazos Spain)

uDig was originally started by Refractions Research in Canada with funding from GeoConnections Canada.

uDig is intended to be used in conjunction with your existing investment in spatial information. We are of the opinion that data (your data) is what is important. To that end we support a wide range of formats, compatibility with a range of spatial databases and accessing of information services such as WMS and WFS. This information is combined with excellent desktop integration.

The use of an open source license (LGPL) allows the uDig project to be used by your organization with no per seat license. Any fixes you make to the core uDig codebase; do have to be passed on to your users. May we recommend submitting a patch as an easy way to accomplish this goal.

For more information and a selection of case studies:

• http://udig.refractions.net/files/tutorials/uDigCaseStudies.pdf

• http://udig.refractions.net/gallery/

In addition to supporting an open source license, uDig is also offers an open development model with clear procedures allowing your team to take part.

2 Installing and Running The uDig Application

In this section, you will install and run the Eclipse Application, which will be used for viewing map information.

Windows install:
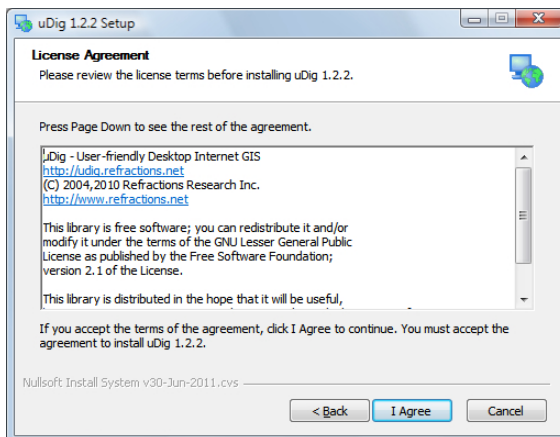
1. Double-click the installer.
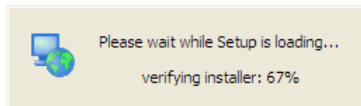
If you are in a workshop your instructor has included the uDig installer DVD or flash drive.

2. The installer will allow you to install uDig into the directory of your choice.
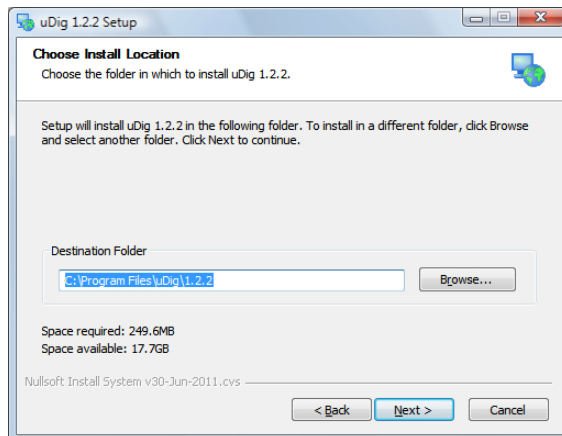

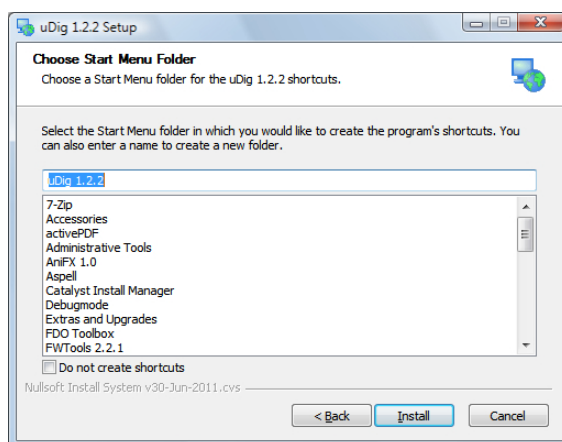3. We have a number of license agreements to click through.

uDig is released with a business friendly LGPL license.

ECW/JP2 support is freely available to desktop applications.
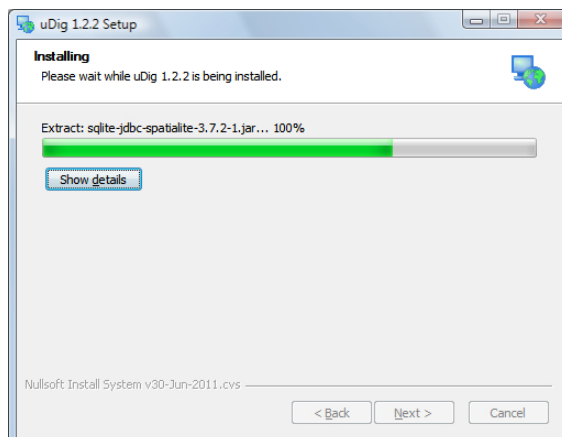
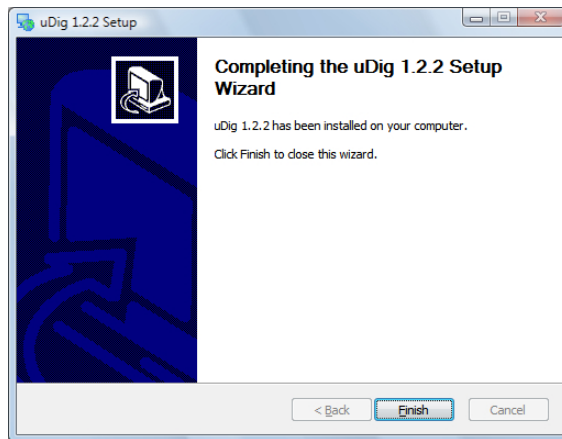4. By default uDig will be installed into your Program Files directory.

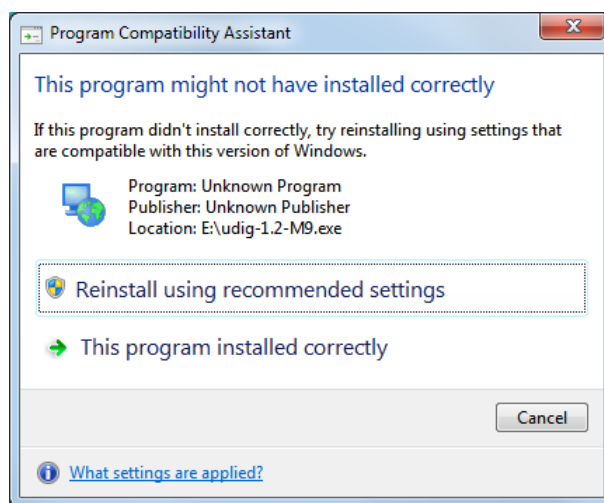5. Shortcuts will be created in your start menu.

6. Please wait while uDig is installed.

7. Congratulations you have installed uDig!

- We have a known issue telling Windows 7 that the installation was successful. Please click "This program installed correctly".
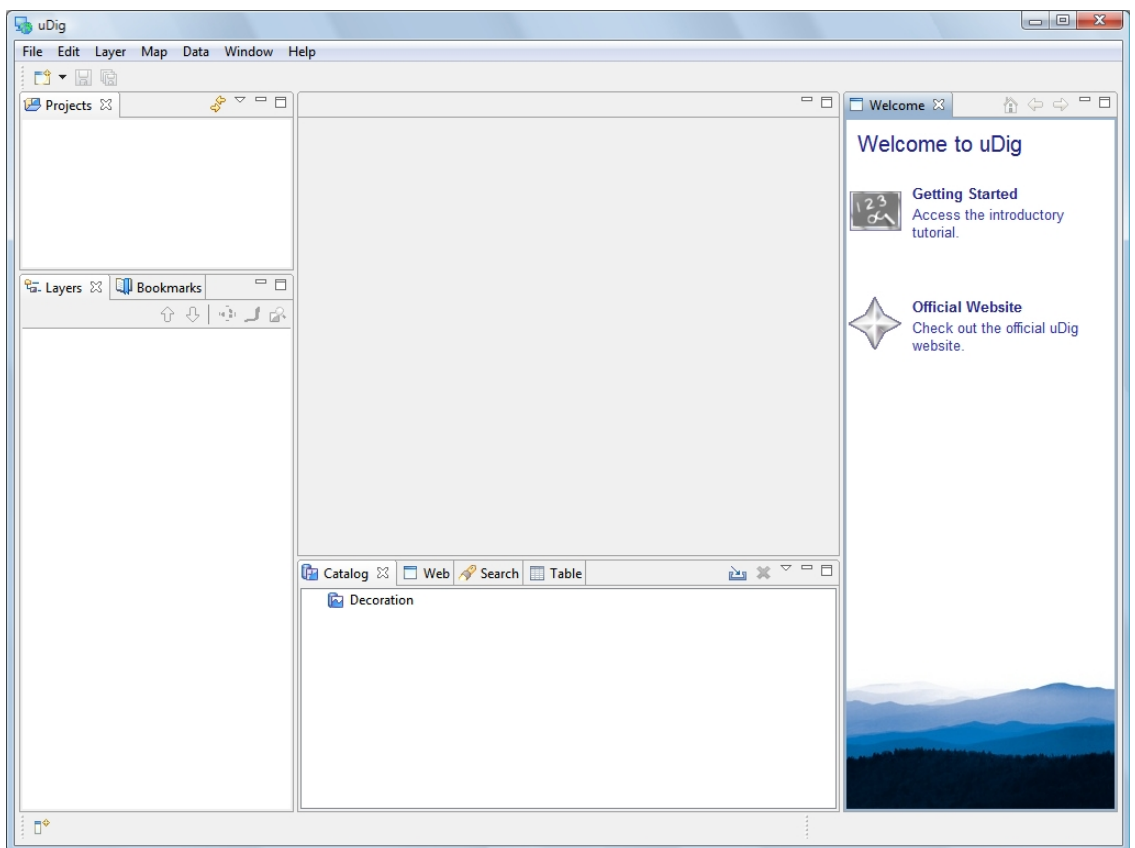
3 Welcome

Now that everything is installed we can start up the application for the first time.
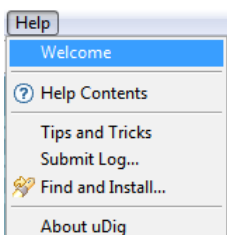
1. After completing the installation, run the uDig application from the Windows **Start->Programs** menu.

2. Initially you are presented with the uDig workbench. The uDig workbench consists of a number of panels called **views**.

You can return to the welcome screen at any time using the Help menu.


3. The **Welcome view** runs along the right hand side of the screen. This view contains:

- a link to the **Getting Started** tutorial from the online documentation. We cover the use of the online documentation in the next section

- a link to the **Official Website**

4. To close the **welcome view** click the **x** next word welcome.
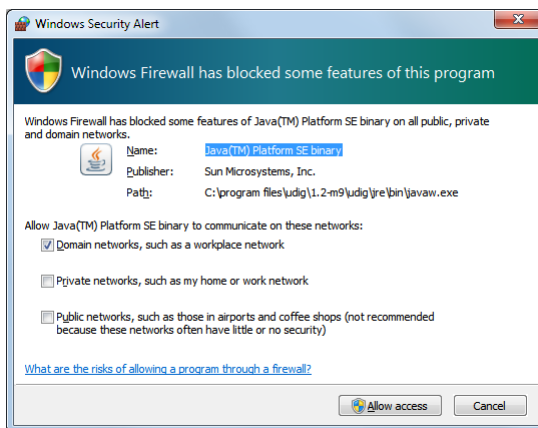
4 Online Documentation and Tutorials

In this section you will open up the online tutorial, and access reference information.

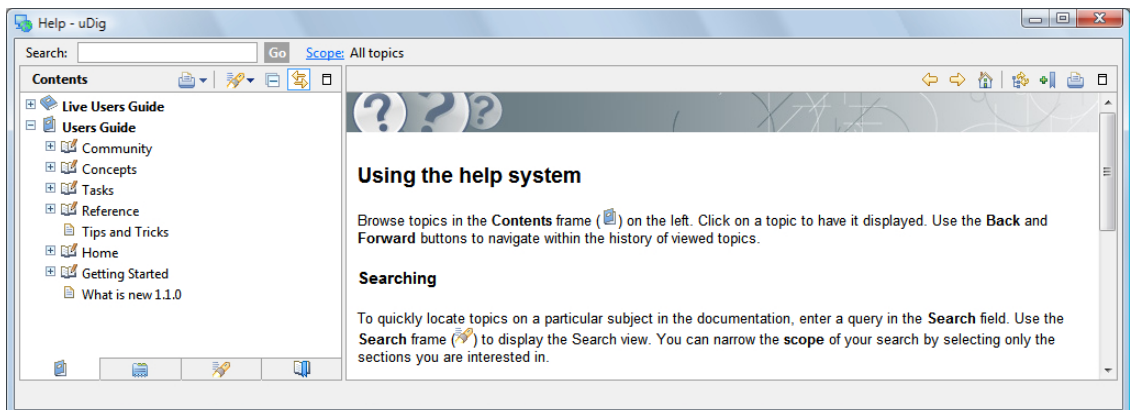1. Open up the **Help menu** and select **Help Contents**
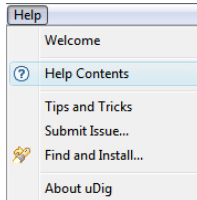
2. The windows firewall will need to allow the help application to startup.

3. This will bring up the online help system; the help system is a web application that makes use of a **Contents** view to allow you to navigate between **Pages**.

 Show in Table of Contents find your place in the table of contents

4. The Contents view organizes Pages into Books. The following books are included with the uDig application

- **User Guide**

- **Live User Guide** – live access to the uDig web site

   Additional books may be available depending on the community plug-ins you have installed.

4.1 HELP CATEGORIES

You can access additional reference information in the following categories:

- Getting Started

- Concepts

- Tasks

- Reference

5 The Workbench

Before we start playing with maps, let's take a look at the default layout of the uDig workbench and what some of the key components are.

Shown below is a typical session of uDig with the Map, Projects, Layers, and Catalog views labeled. These views will be described further as we demonstrate their uses.
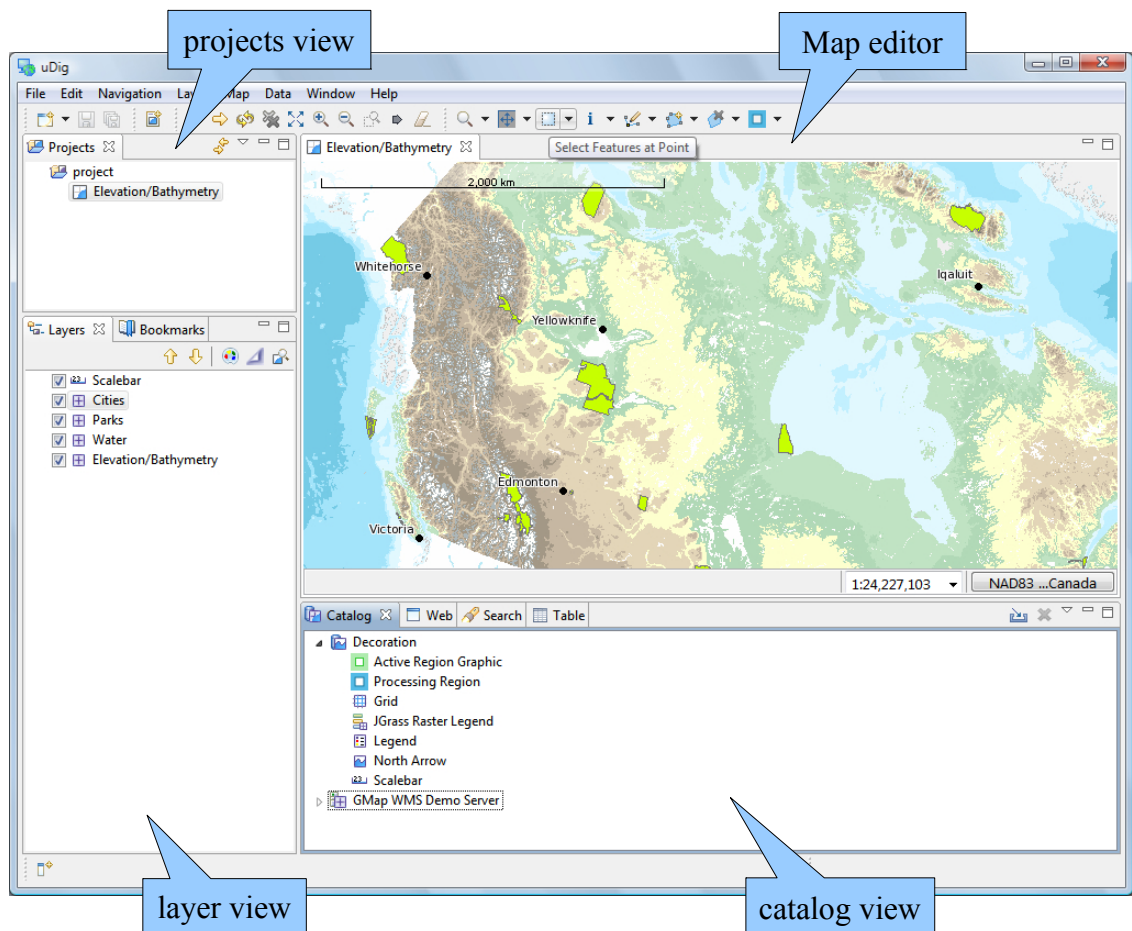
6 Connecting to a Web Map Server

In this section you will learn how to drag and drop a Web Map Server (WMS) link into uDig for the purpose of viewing its layers.

1. There are many ways to load map data into uDig, including drag and drop. To drag a Web Map Server (WMS) link into uDig, open up a web browser.

2. Please connect to the Walkthrough 1 page with your web browser:

- http://udig.refractions.net/confluence/display/EN/Walkthrough+1

3. Click and drag the DM Solutions WMS link from the web page onto the Map Editor on the left, and drop it there.

If working with your windows maximized:
1) Drag from the web browser
2) Hover on the uDig application in the windows task bar to switch applications
3) Drop into the Map Editor.
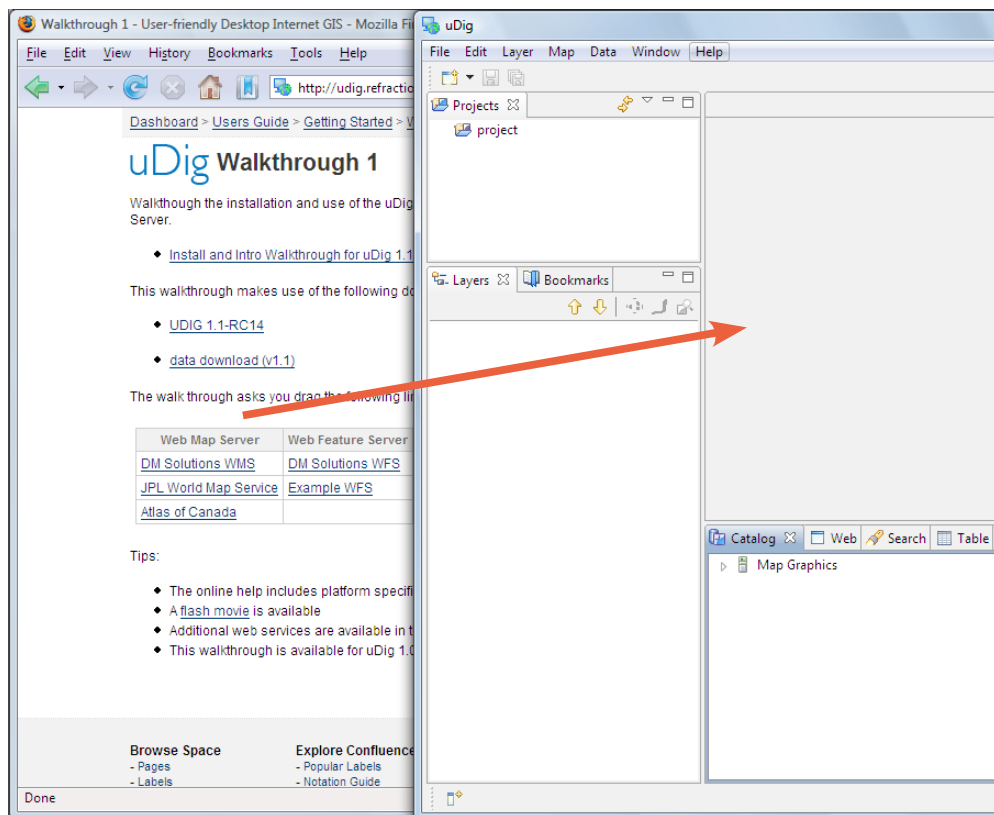
4. The **Add Layers** wizard will appear asking you what layers from this WMS you want to show in your map. Select **Elevation/Bathymetry, Parks, Cities** and press the **Finish** button.
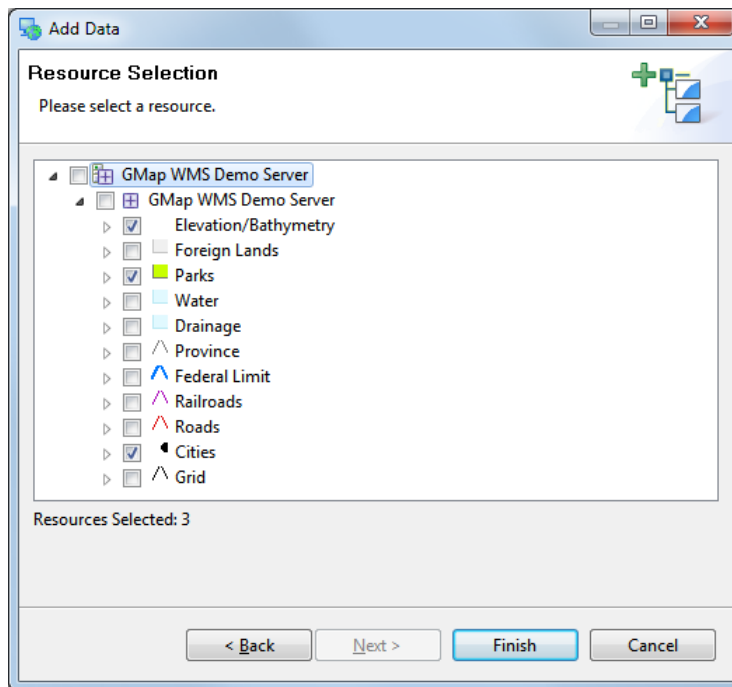
5. The map layers will now **render** in the Map view. Notice the bottom right corner of the uDig Application will display a **processing notice** while it is requesting and drawing the layers.
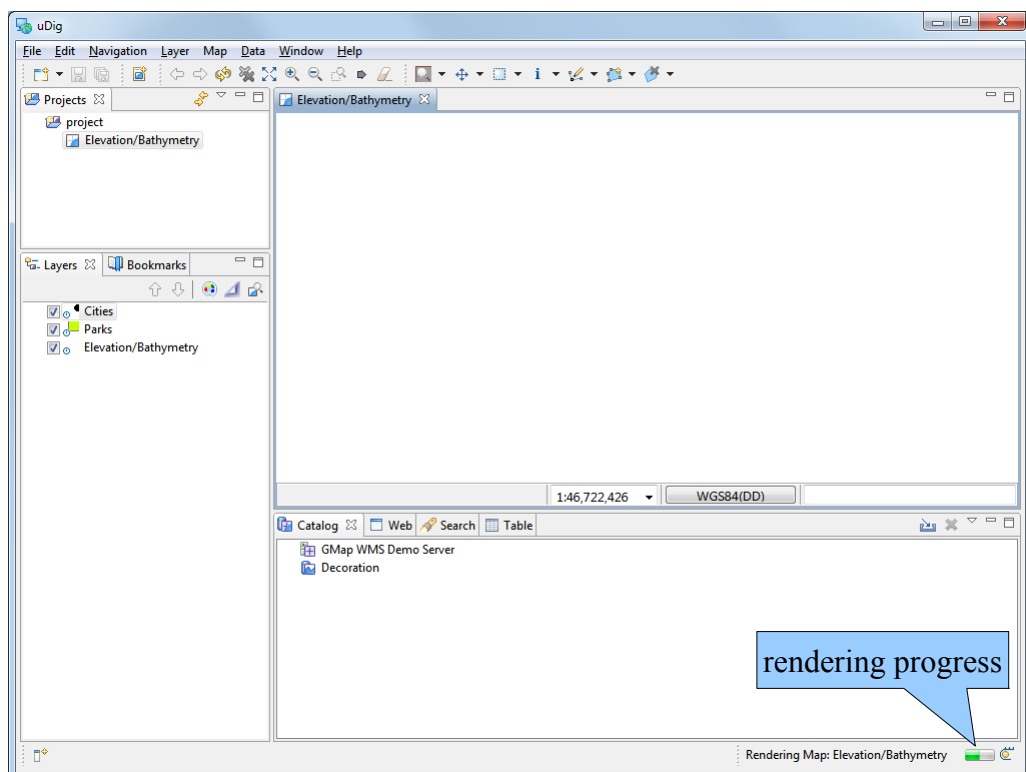
You can press on the button next to the progress monitor to watch detailed information (and cancel) rendering requests.

6. When the layers are done rendering, the **Map** view will display the visible layers
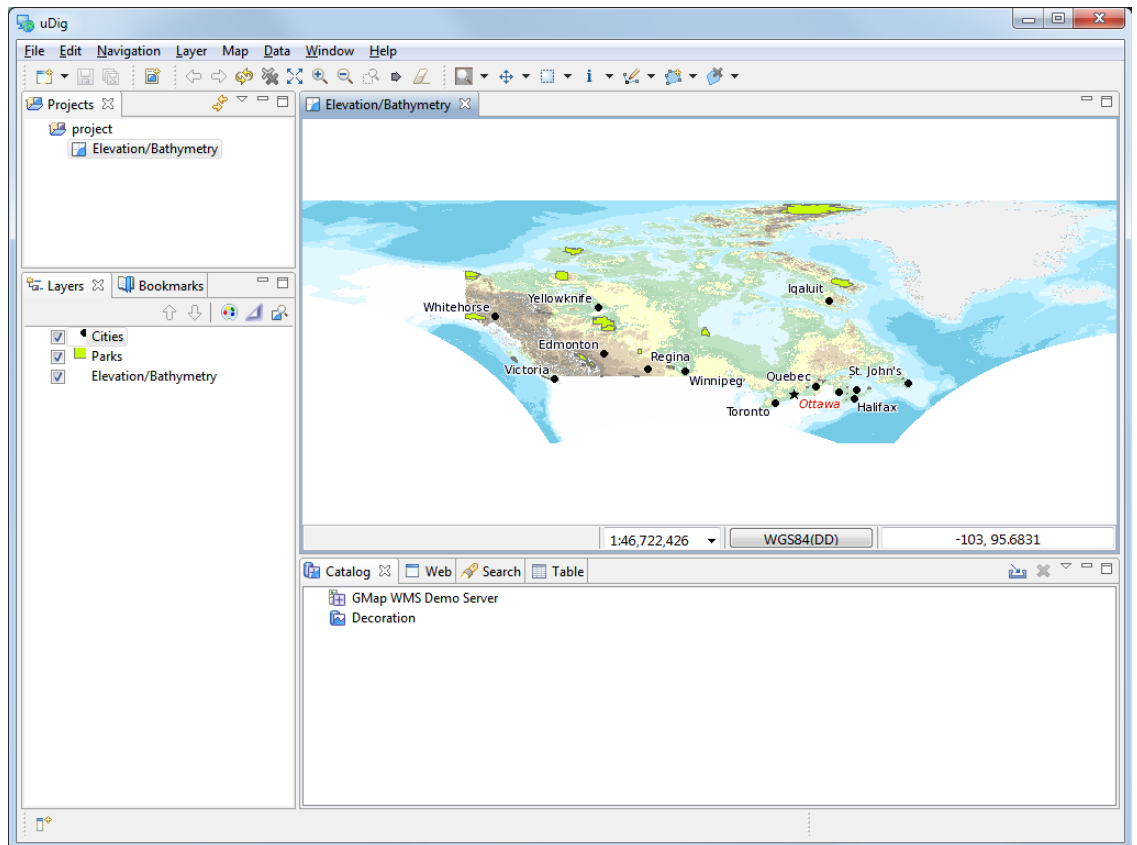
7. Now that you have some data on screen try the following tools:

– Zoom Tool: (keyboard short cut Z)
    Click or drag the left button to zoom in, or right button to zoom out.

– Pan Tool: (keyboard short cut P)
    Click and drag to move the display.

– Extent Tool: Press to show all layers enabled in the Layers View

8. The **Layers** view shows the order in which layers are drawn. Please select the **Cities** layer and press the **Move up** button from the Layer view toolbar.
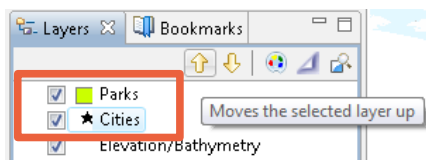
9. The order is now changed.
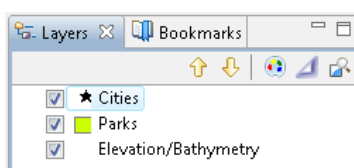
7 Adding Layers from the Catalog View

In this section you will learn how to add additional layers to your map from a previously connected data source (the DM Solutions WMS).

Adding a Layer from a previously connected WMS:

1. In the **Catalog** view of uDig expand the Catalog record for the **DM Solutions' WMS Demo Server** by clicking on the triangle beside the record. Right-click on **Railroads** and select **Add to Current Map**.
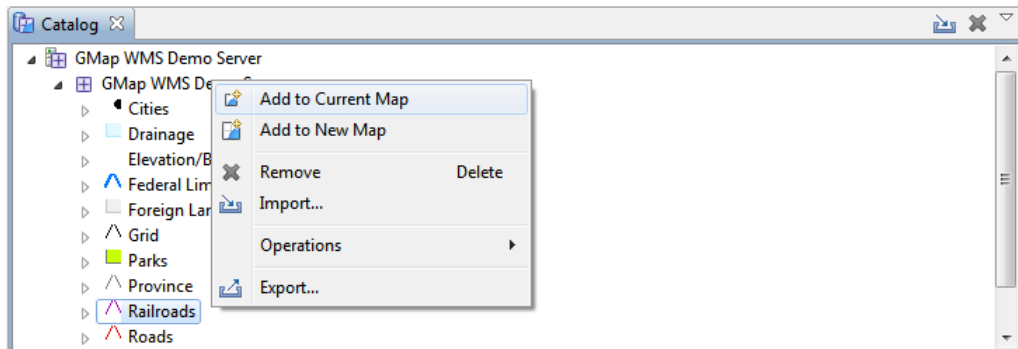
2. The new layer will appear in the **Layers** view, and it will automatically start to render. When it finishes rendering, you should see a new borders layer drawn as purple lines.
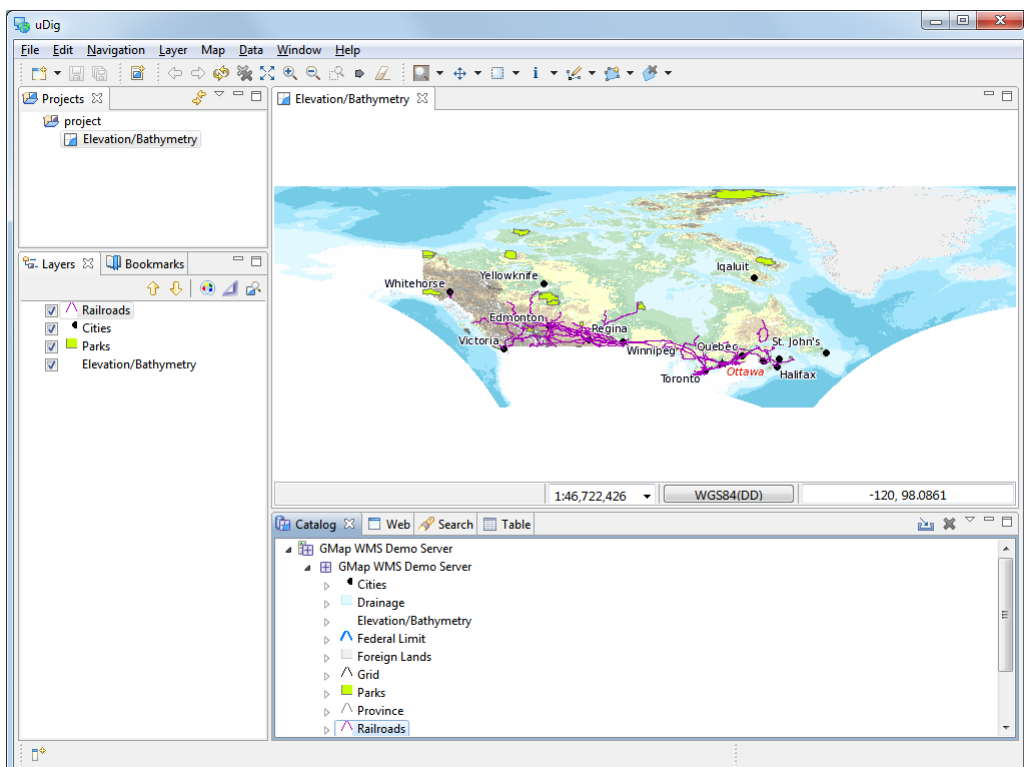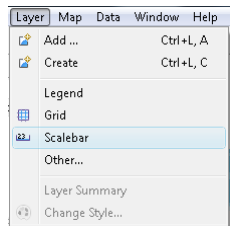
3. The catalog also comes equipped with a built in service called "Decoration". Select **Decoration > Scalebar** in the Catalog view and drag this layer onto the Map
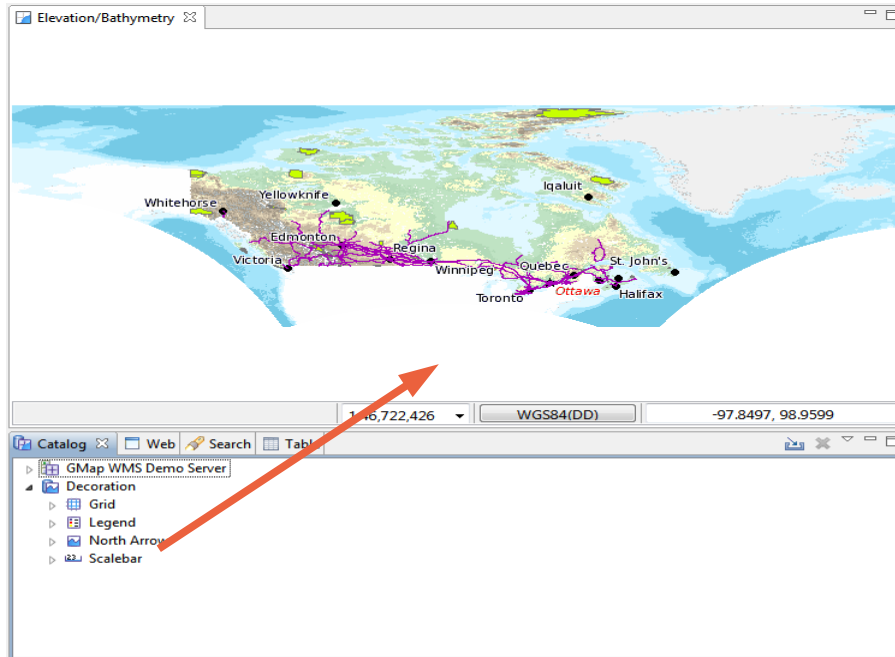
8 Adding a Layer from PostGIS

This section shows how you can add a Layer from a PostGIS table. PostGIS is an extension to the popular open source PostgreSQL database. uDig handles other databases like Oracle and DB2 in a similar manner:

If you are trapped behind a firewall please feel free to skip this section.

The online help does have some advice about "Runnin uDig" behind a firewall.

1. In the File menu, select **New -> New Map**.
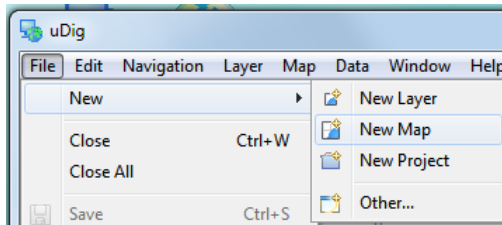
2. In the **Projects** view, right-click on **Map** and select **Add**.
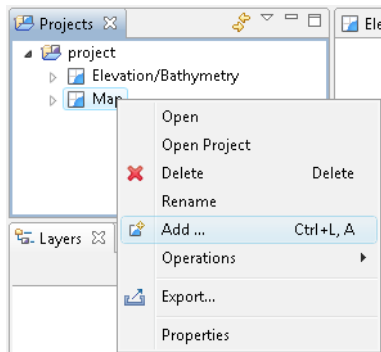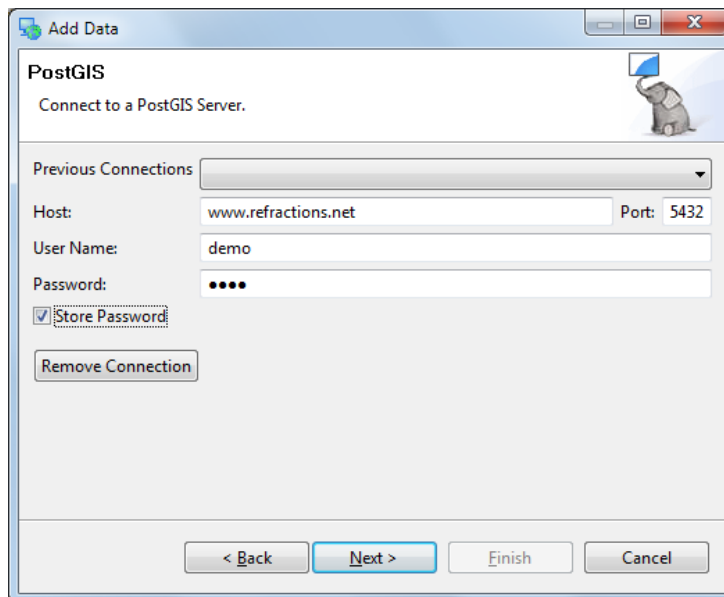
3. Select **PostGIS** as the data source and click **Next**.
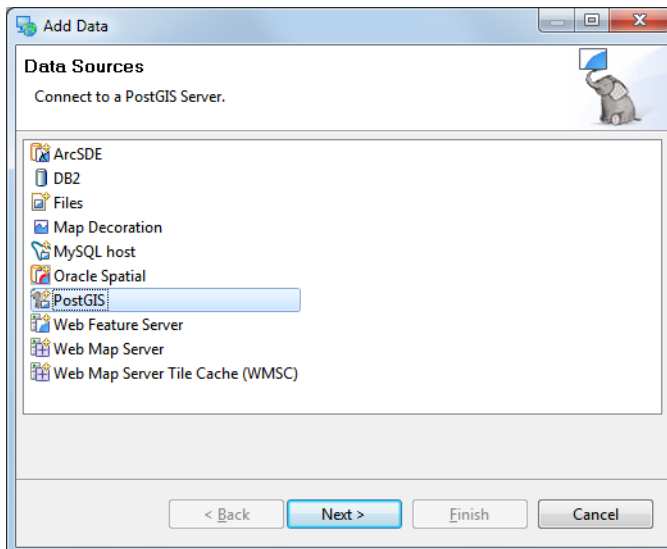
4. Enter the following connection information:
   Host: www.refractions.net
   Port: 5432
   Username: demo
   Password: demo
   Store Password: check
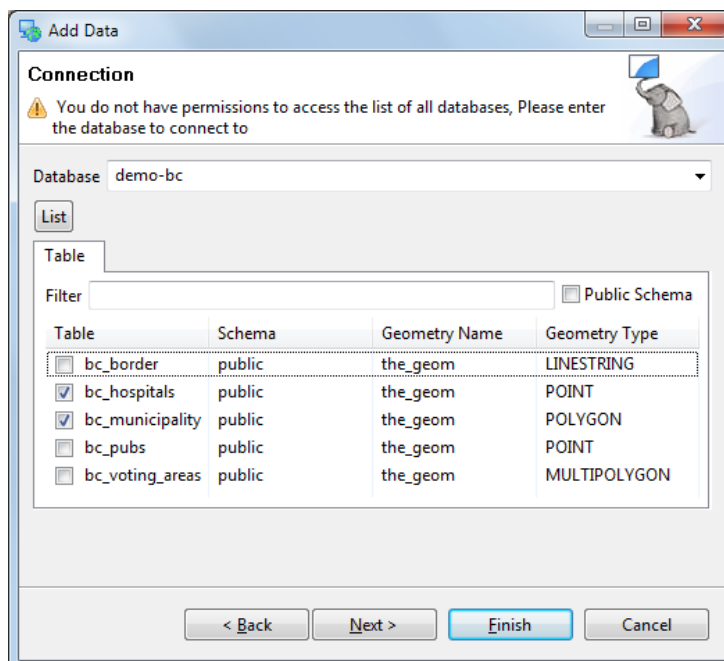
Once the connection information is entered press **Next**.

5. This page lists the databases available to the current user. The www.refractions.net does not publish a public list – so rather then choose from a nice easy list we are going to have to enter in "demo-bc" by hand.
   Database: demo-bc

6. We can now press the List button to list the available tables. Please choose **bc_hospitals** and **bc_municipality** and press **Next**.

7. The resource collection page confirms that **bc_hospitals** and **bc_municipality** are published as spacial layers. We can press **Finish** to add these layers to our Map.
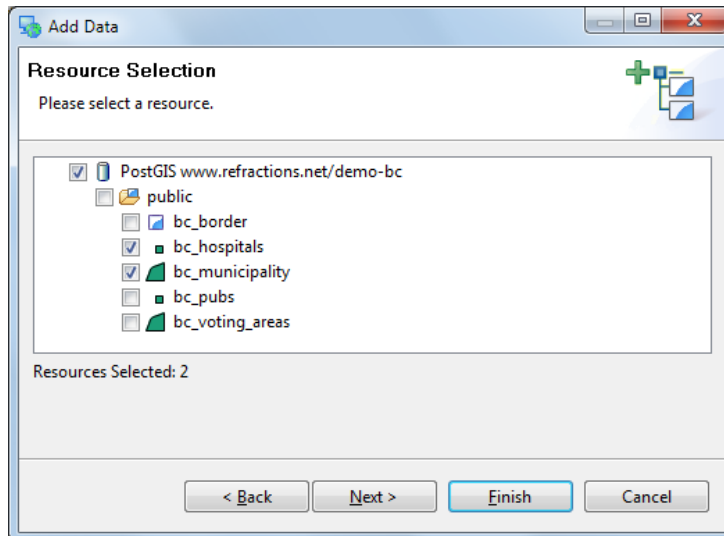
8. It may take a short while to fully render since you are zoomed out so far.

9. Head on over the the **Layer** view and right click on **bc_hospitals** layer in order to choose **Zoom to Layer**

Zoom to Layer is very useful when adding new layers that happen to be off screen or not visible at the current scale.
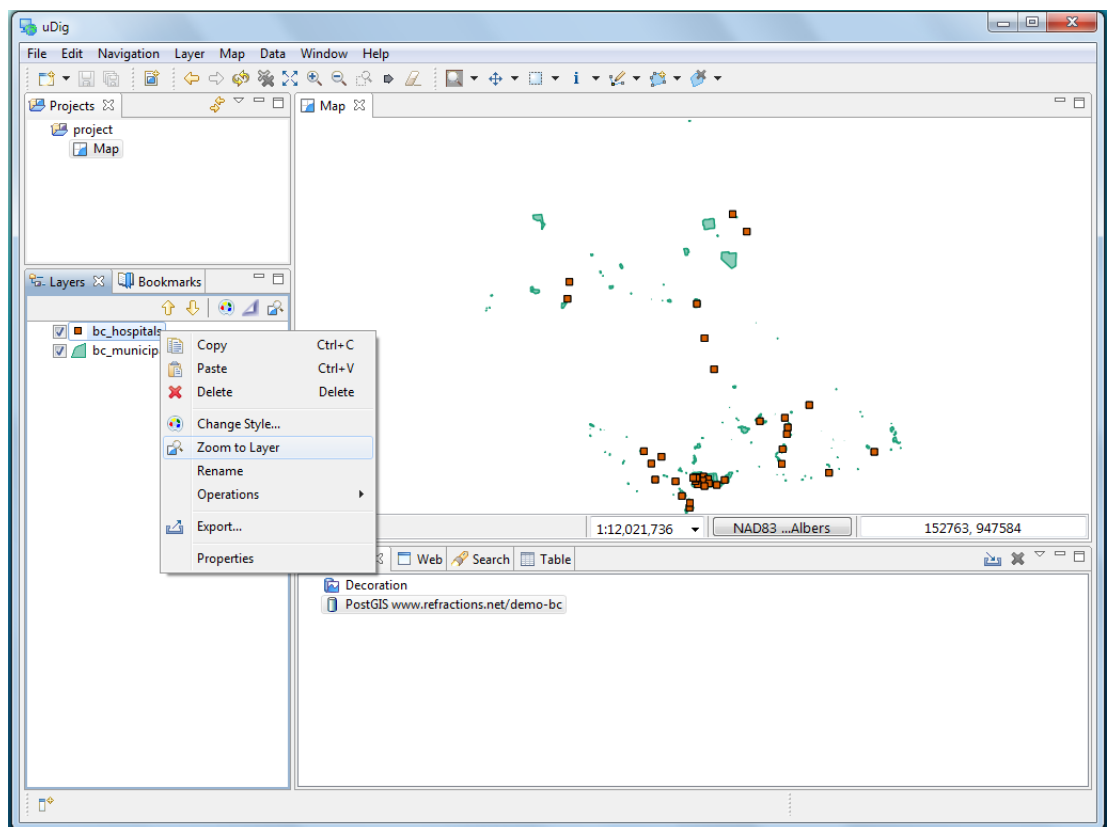
The map will now zoom in to show the extent of the bc_hospitals layer.

You can also select Back on the tool bar, a history of your position is kept similar to a web browser.

10. You can return to your previous position in the world by selecting Back in the Navigation menu.

9 Working with Files

You can work directly with files from the file system:

1. Please connect to the Walkthrough 1 page with your web browser:

- http://udig.refractions.net/confluence/display/EN/Walkthrough+1

2. Click on the data "data download" link and save the zip file to your local computer. At the time of writing the file was:

- http://udig.refractions.net/files/data/data_1_2.zip

3. Unzip the download to create your **data** directory. The **7-Zip** application is recommended.

4. Drag and Drop the file **bc_border.shp** onto your open **Map5**
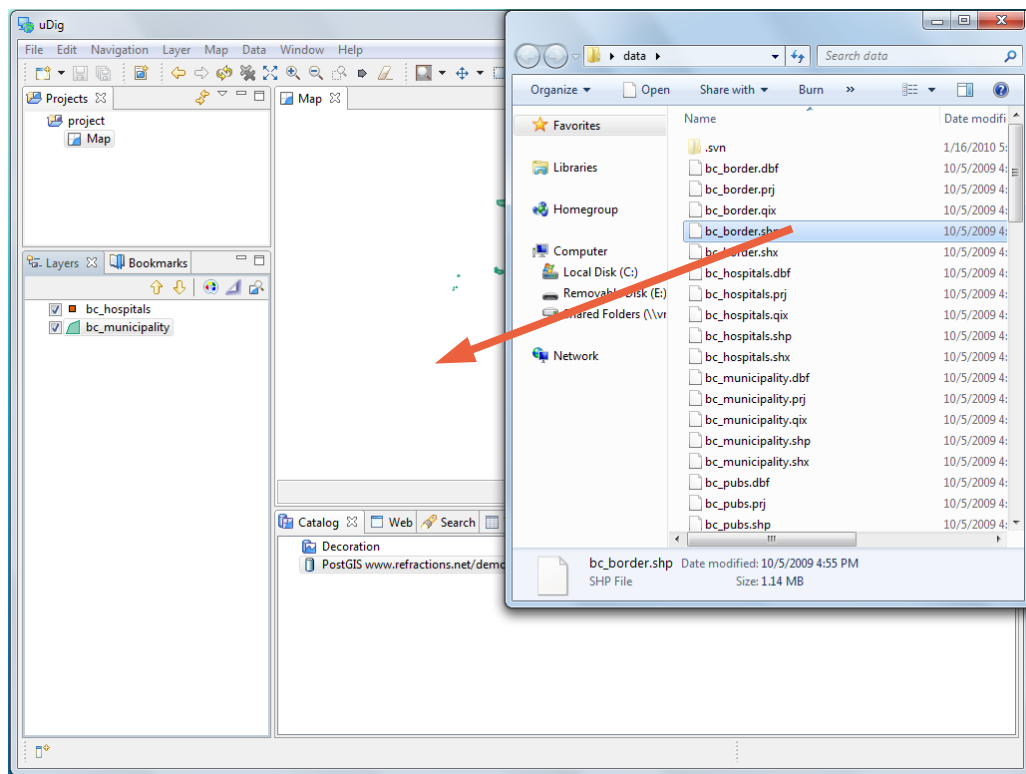
5. This provides a bit of context for your PostGIS layers. When working with uDig you will often find yourself combining information from several different sources.

10 Import Directly to The Catalog

Earlier we learned how to work with content from the Catalog view, in this section we will import content directly into the catalog.

1. On the **Catalog View** please press the Import button:
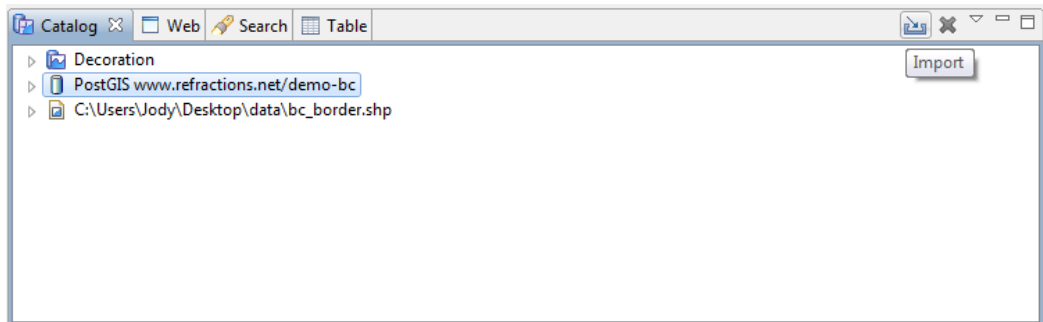
2. Select **Data** and press **Next**.
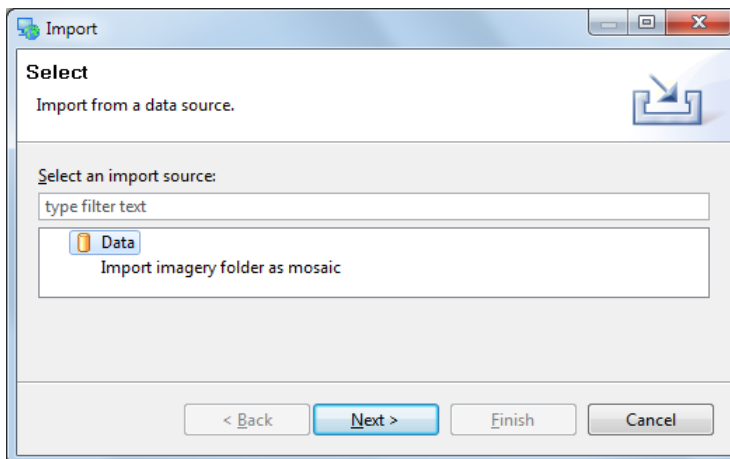
3. Please choose **Web Map Server** from the list and press **Next**.

4. This time we are going to import the JPL World Map Service from the following Capabilities document:

• http://wms.jpl.nasa.gov/wms.cgi?Service=WMS&Version=1.1.1&Request=GetCapabilities

5. Press **Finish** to import the Web Map Server into the Catalog view.

You can copy this URL from the walkthrough page.
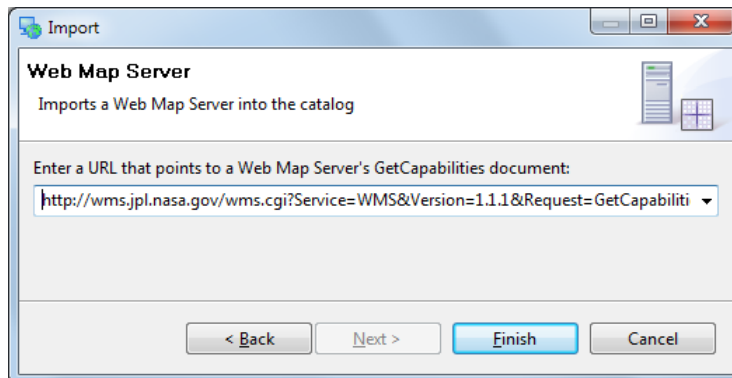
6. Now that we have imported the WMS into the catalog we can add it to our Map. Please Drag and Drop the **Blue Marble, Global MODIS derived image** layer directly onto **Map**

You can also try dragging a layer from the catalog view directly into the layer view.
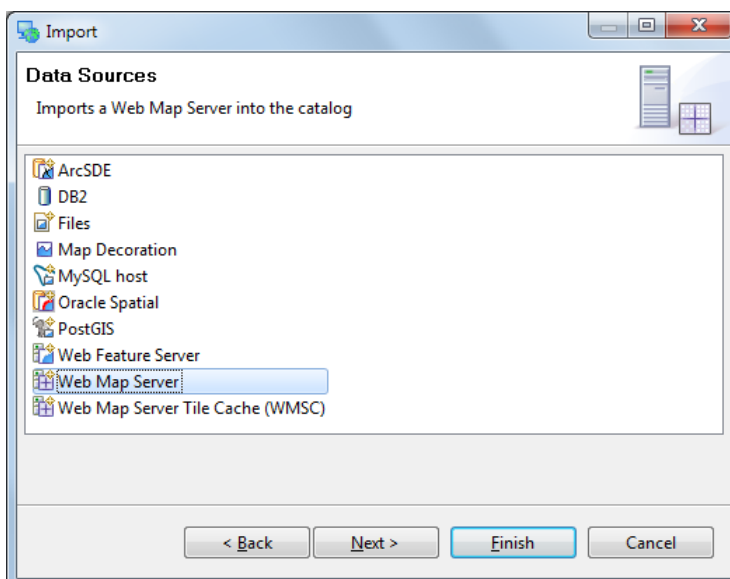

The JPL server is very busy; if the layer does not render you can look for a warning in the status bar. You may try another layer or the downloaded bluemarble.tif
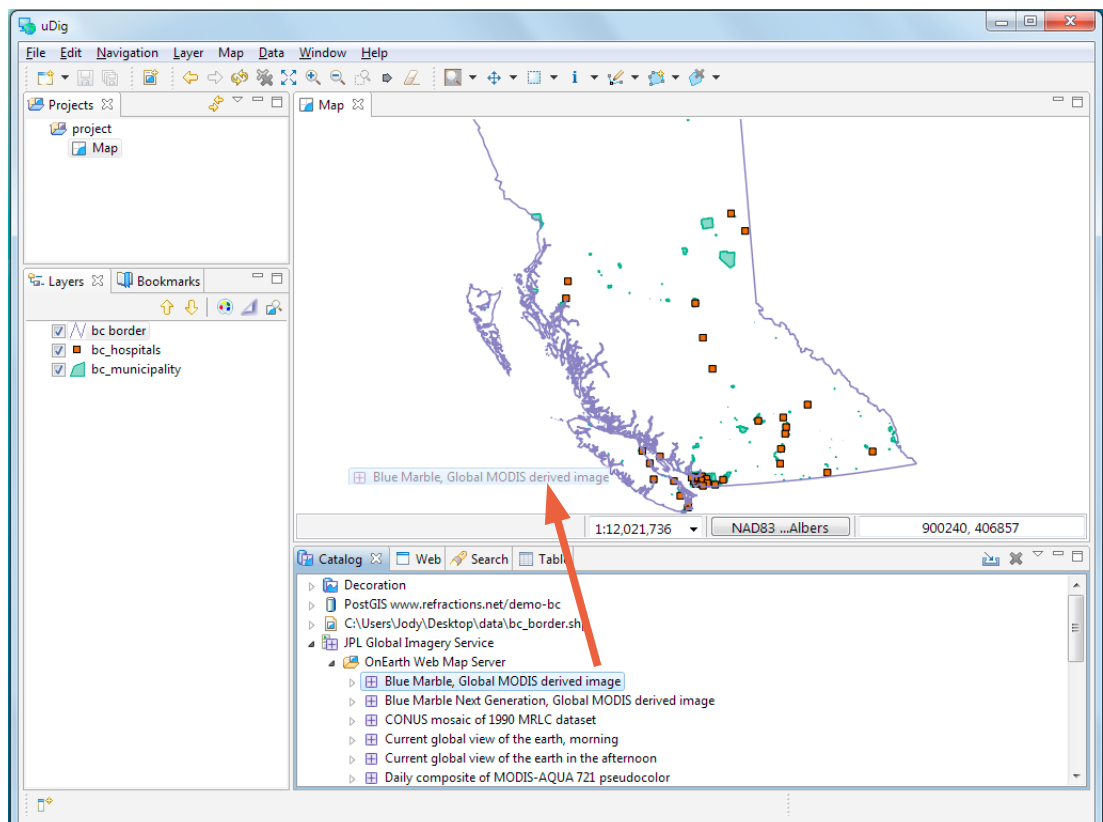
7. Earlier we used the the layer view to reorder using the up and down buttons, this time we will drag the layers into the right order. Select the **Blue Marble** layer in the layer view and drag it to the bottom of the list.
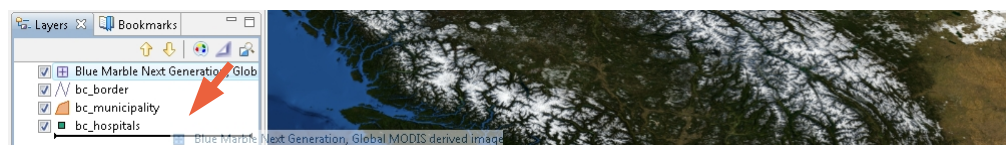
11 Themed Data

Some data contains attributes we may use to thematically style a layer. In this section we will create a "Styled Layer Descriptor" (SLD) with the uDig **SLD Editor** in order to interpret these attributes:

1. Create a new map using **File > New > New Map**

2. Select "Map 2" in the project view, and right click to choose **Rename**.
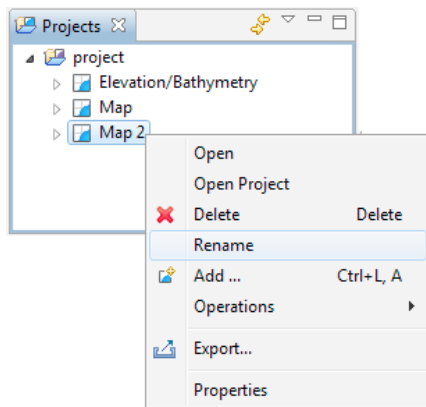
3. Enter the name "Blue Marble" and press **OK**.

4. In the **Layer** menu, select **Add…**

5. Choose **Files** from the provided list and press **Next**
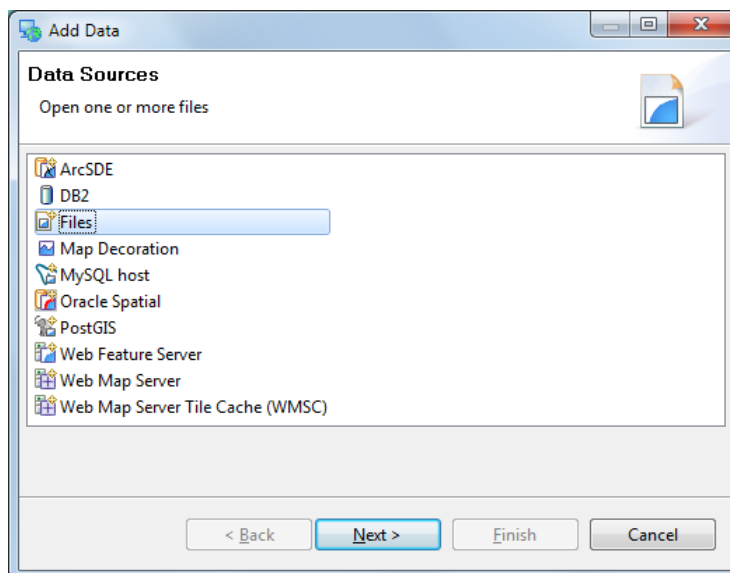
You will need to hold down the control key when selecting multiple files.

6. Select the following files from the data directory:
   bluemarble.tif
   countries.shp
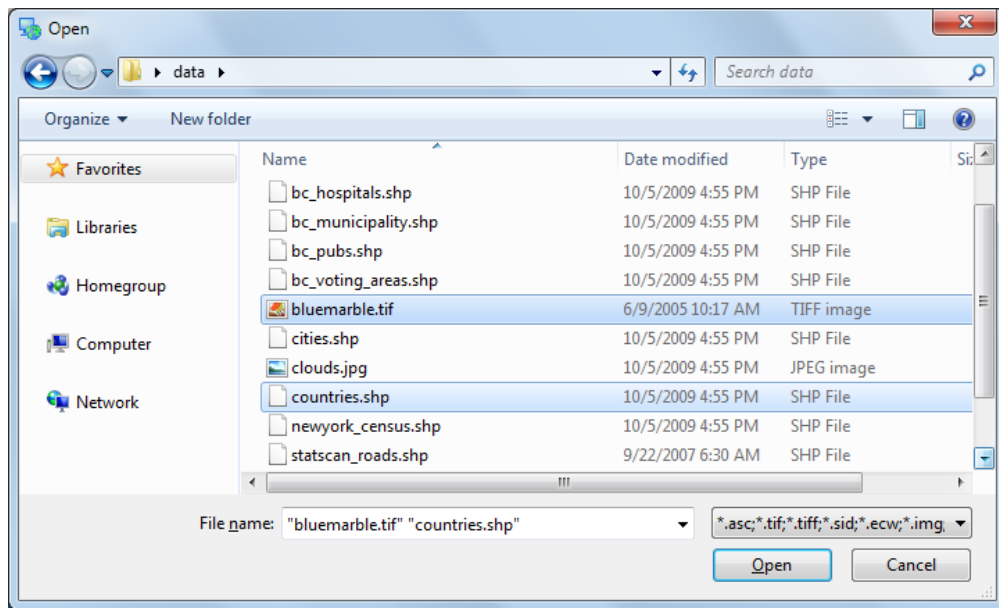
7. Press Open and **both** layers will be added and rendered with a default style.

8. The default style for the **countries** layer is slightly transparent so can see the base raster layer.

9. Right click on the **countries** layer and select **Change Style**
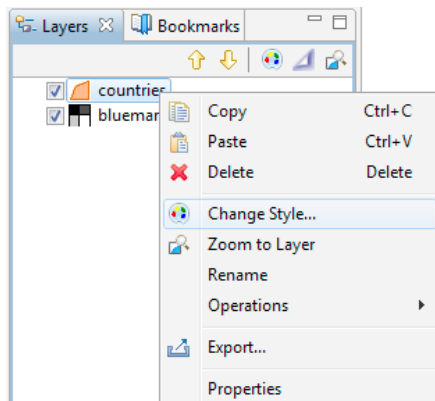
10. The Style Editor is arranged into a series of pages, you can use the **Simple** style page to add labels to the countries **layer.**

– Check the box next to Label

– Choose **"CNTRY_NAME"** from the list.
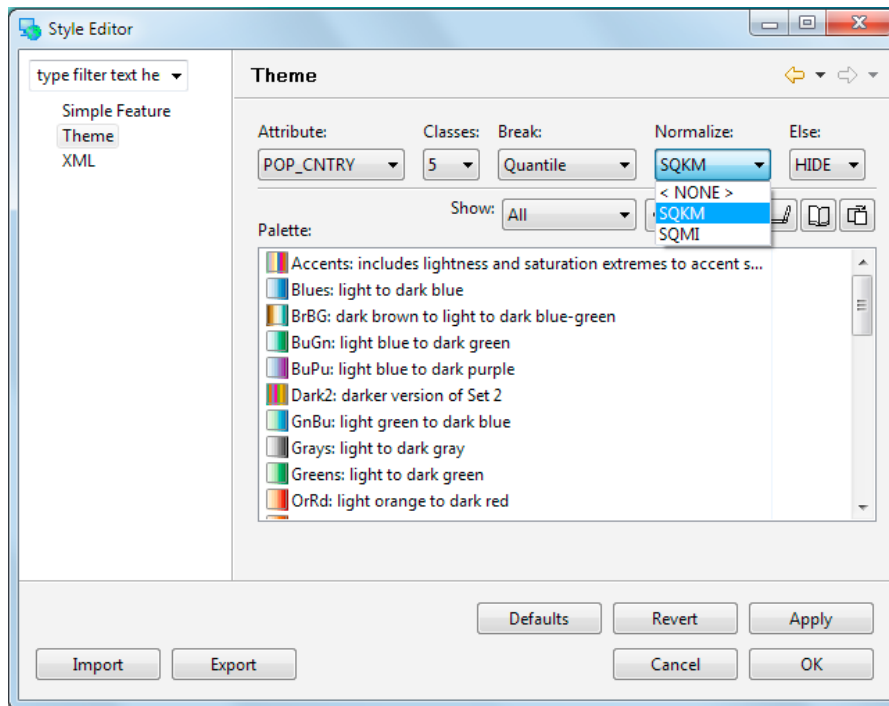
You can experiment with other settings, use the Set Font button to change to a lighter color that will show up against the WMS layer.
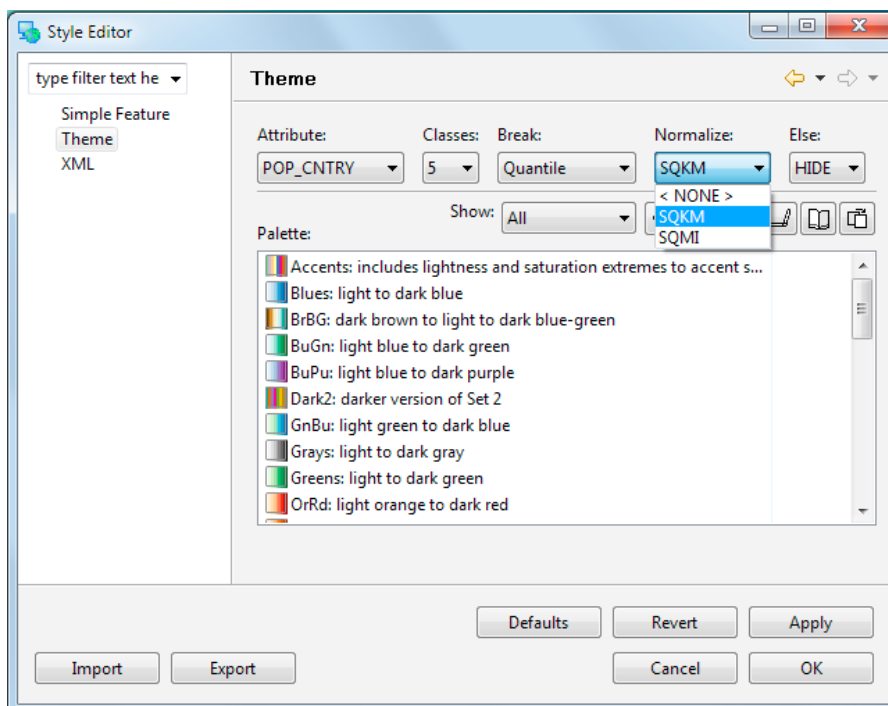

11. You can press the **Apply** button to see what your map will look like with labels.

12. Please switch to the **Theme** style page and select the following options:

• Attribute: POP_CNTRY

These options will color the countries layer by population density.

• Normalize: SQKM

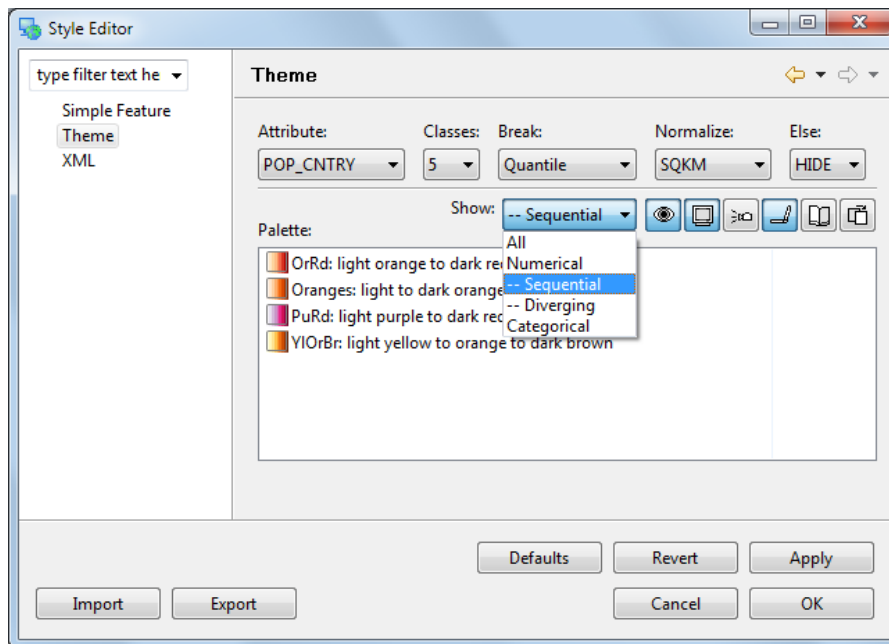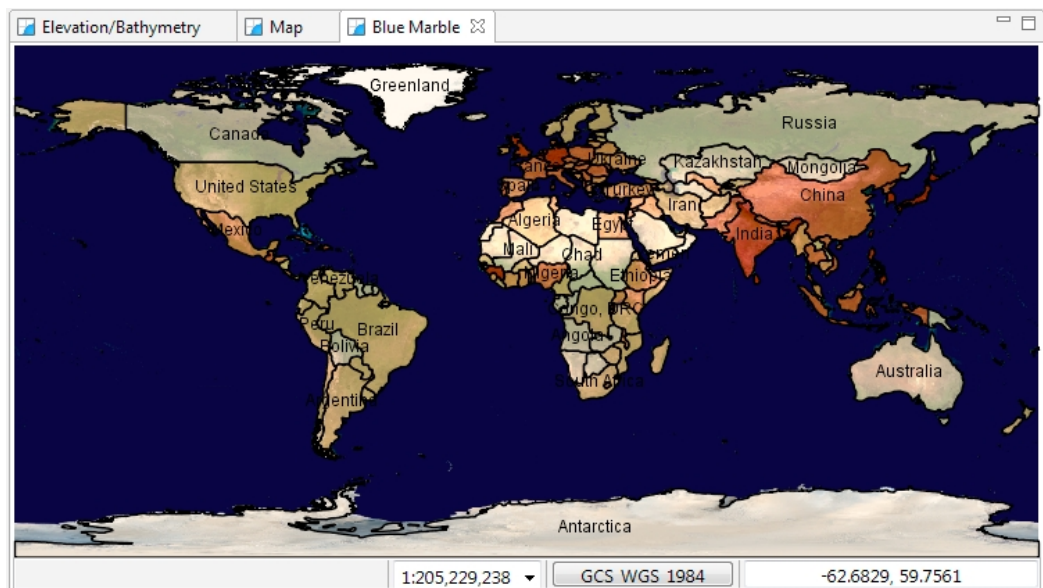13. Filter the available colour palettes to show a subset of those available:

– Changing from show "**All**" to show "**Sequential**"

– Press the **Colour-blind, LCD** and **CRT** buttons

– Select the "**light orange to dark red**" palette
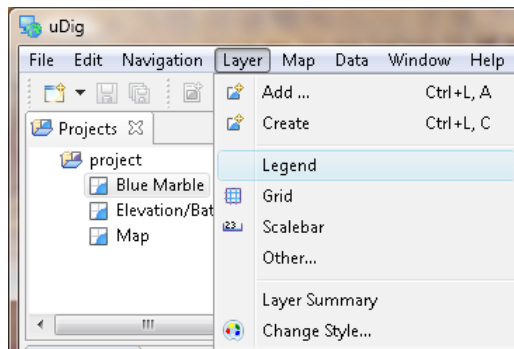
These options show palettes which are a ramp of color suitable for viewing by color blind people on either an LCD or CRT monitor.

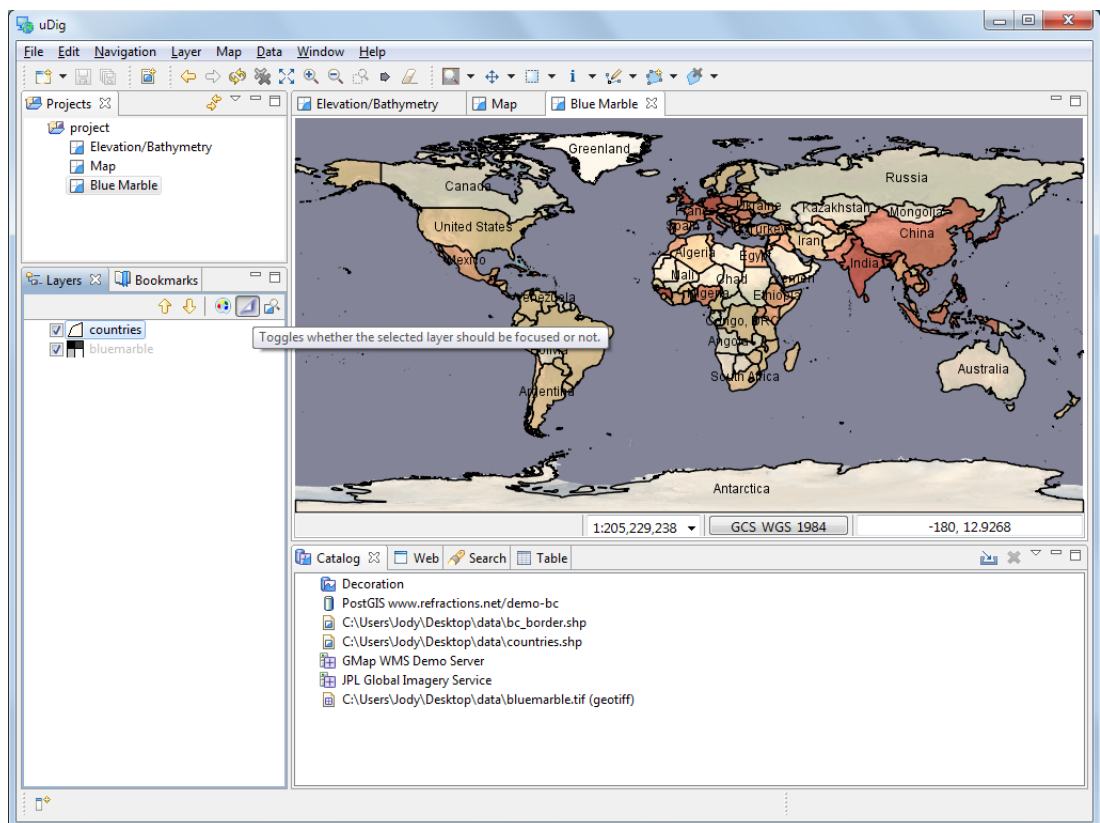14. Press the **OK** button

15. Open up the **Layer** menu and choose **Legend**

16. Press the **Mylar** button in the **Layers View**. Select each layer and observe the effect.

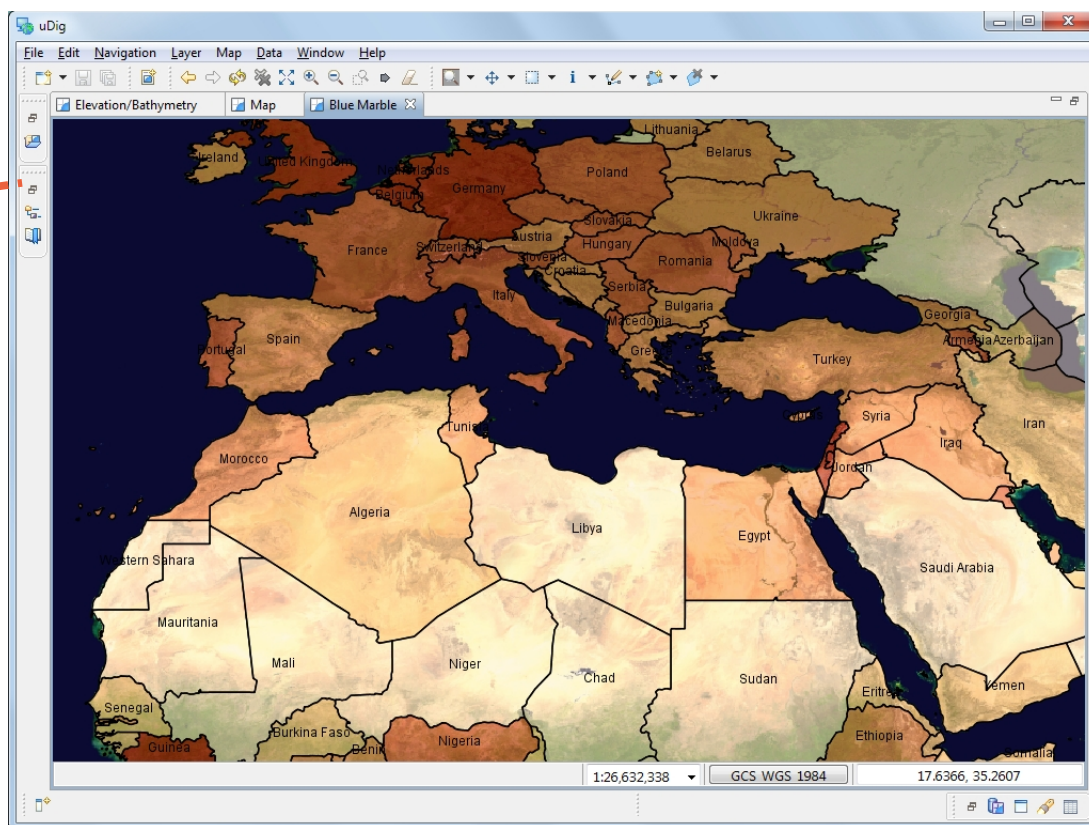*Mylar will fade out all the layers except for the one selected.*

Your layer view is still available on the left hand side of the screen.

Press the button to toggle the layer view on and off as needed.

17. Double click on the **Blue Marble** tab at the top of the screen to maximize the editor. Use using the zoom tool to explore the world while the editor is maximized.

18. Double click on the "Map tab" at the top of the screen to restore the previous size. You can use **Reset Perspective** from the **Window** menu to restore any views you accidentally close during experimentation.
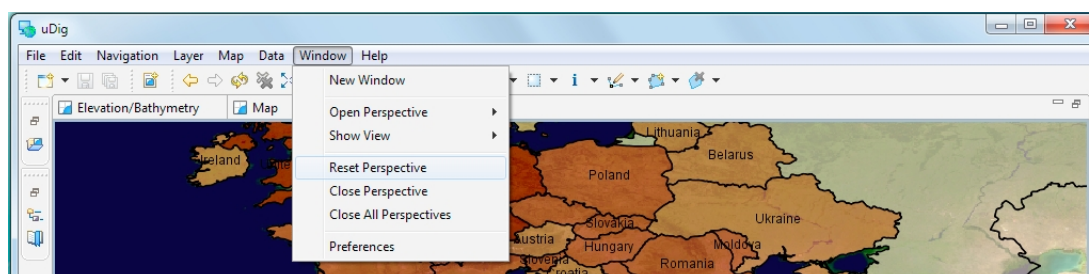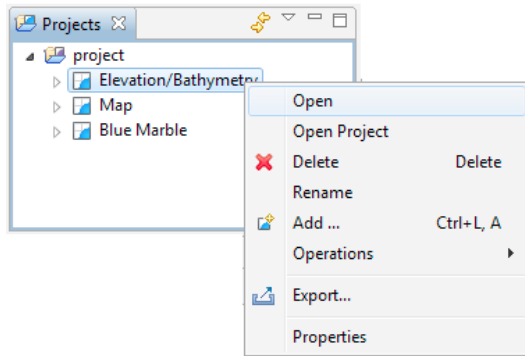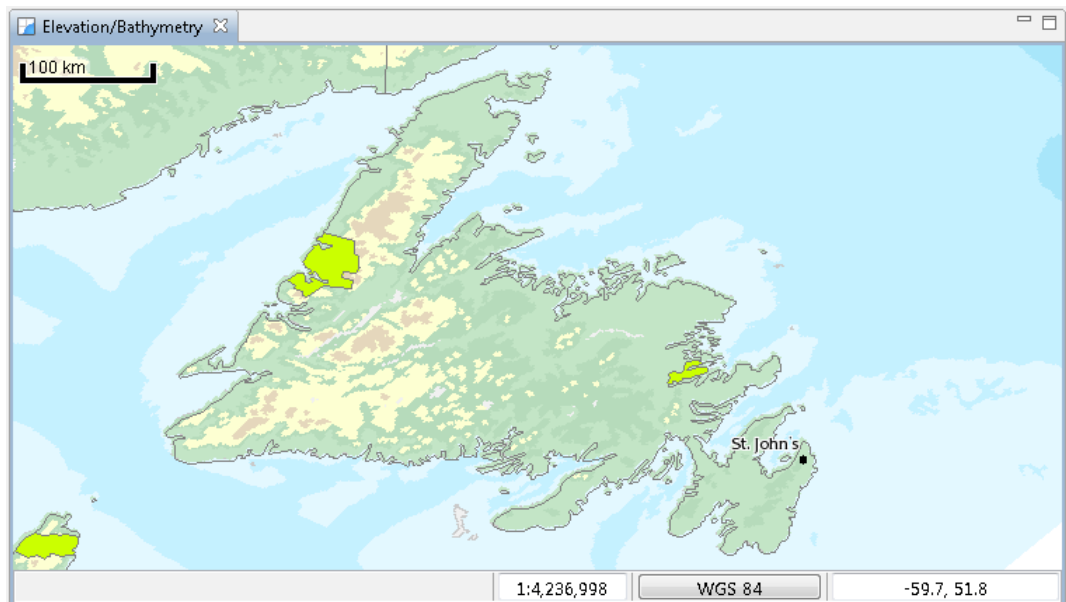
12 Information Request

In this section, you will learn how to use the Information Tool.

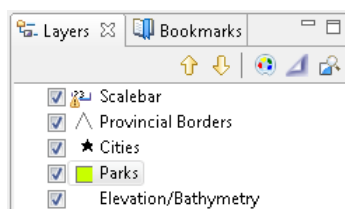1. Let us open up our first map again, which was labeled **Elevation/Bathymetry**

You can also double click on a Map to open it.

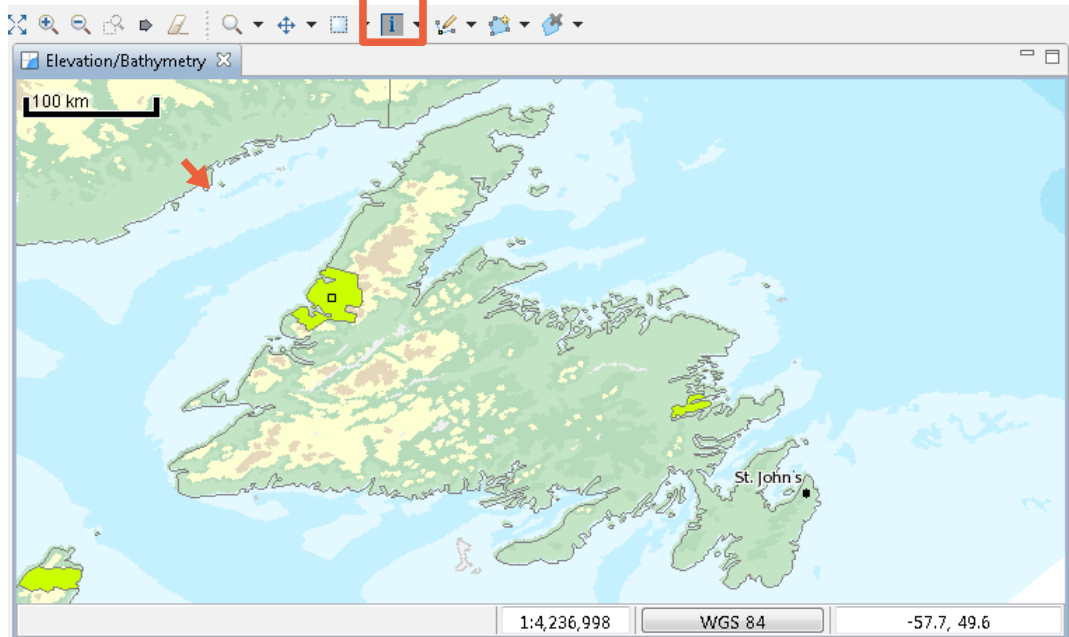2. Let's **zoom** to somewhere interesting, like a green park.

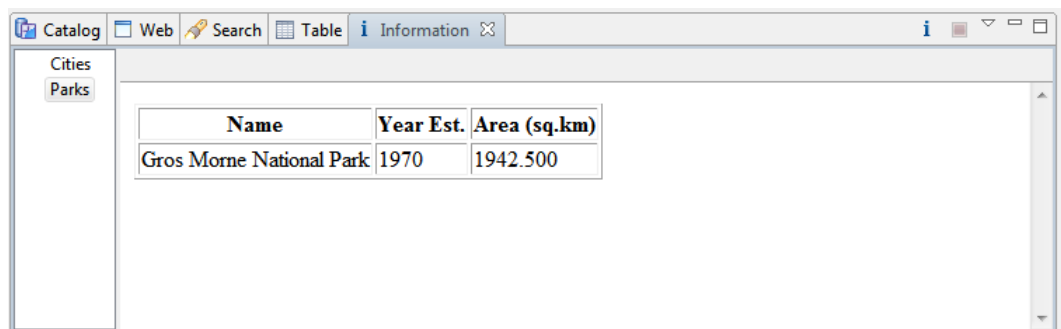3. Select the **Parks** layer in the layer view

4. Change to the **Info Tool** in the tool bar, and click on a Park.

5. The **Information View** is brought into focus, showing information about the park layer at the location you clicked.

6. You can switch to requesting information on another layer on the **left pane**. Available information, if any, is displayed on the **right pane**.

7. Not all Web Map Servers support the "GetFeatureInfo" operation; as such information may not be available for all layers. The application uses a normal browser to display HTML content; you can drag the view out of the workbench if you find you need more elbowroom.

13 Web View

In this section you will learn how to use the embedded web browser:

1. Create a **New Map**, and press the tab for the **Web** view (located along the bottom of the window near Catalog).

2. Click on the WMS link for **dm solutions**.

You can use the Web Catalog with your own website for easy spatial visualization.
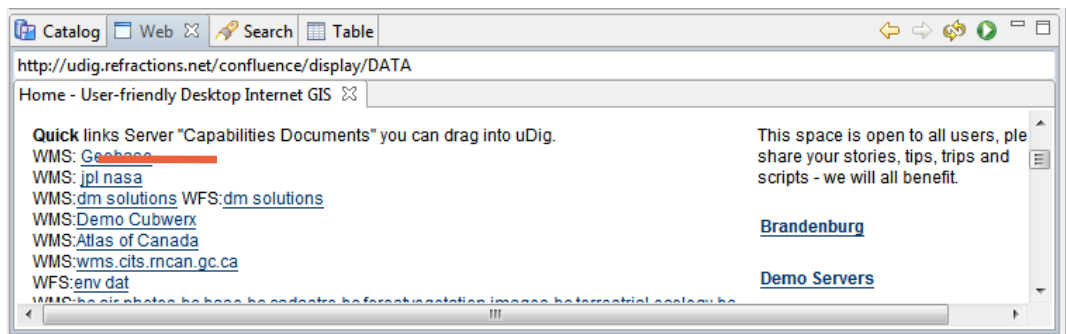
3. The Add Layer wizard will open (uDig can recognize links to spatial content). Choose the **Parks, Provice, Roads** and **Cities** and press **Finish**
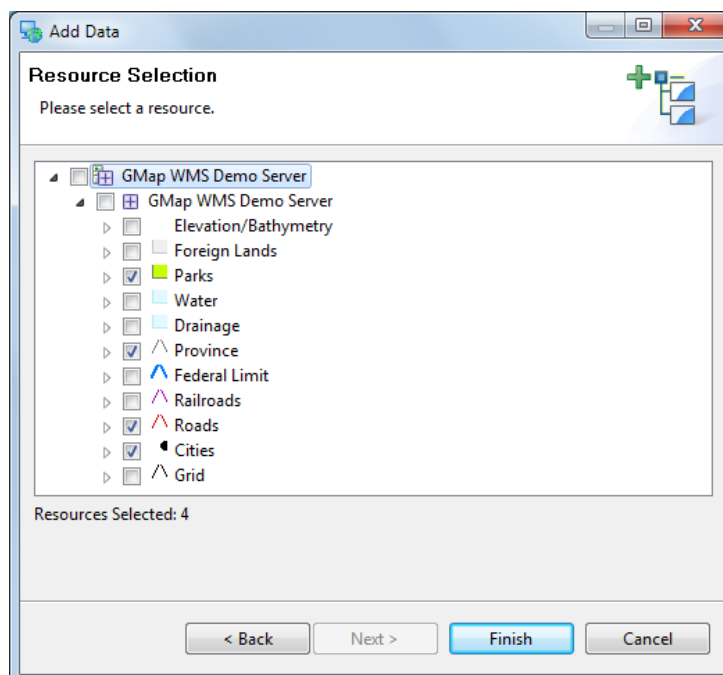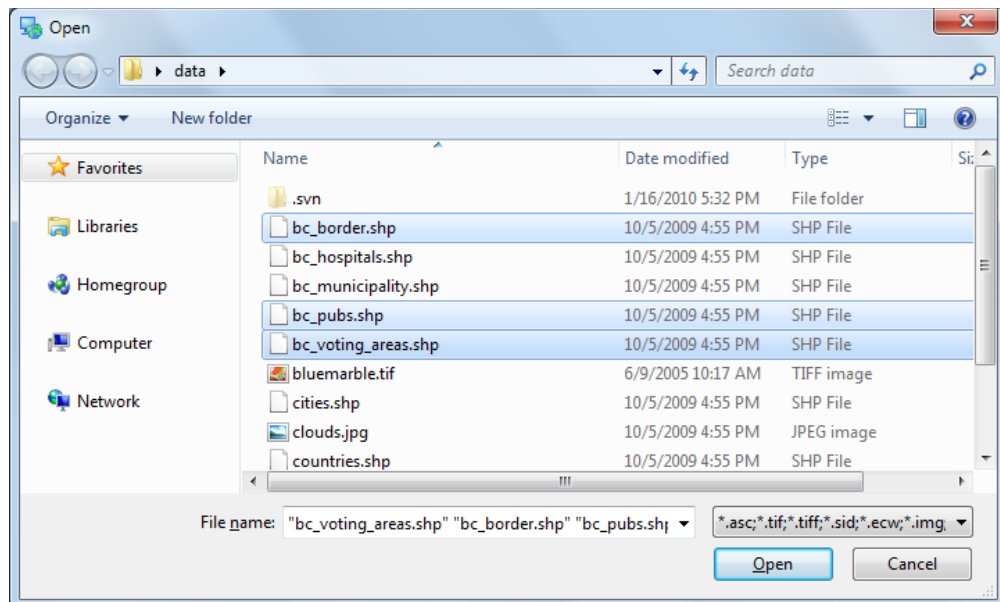
14 Re-projection

Since the world is not flat, maps are projected to line up with a Co-ordinate Reference System (CRS).

1. Create a new map using the bc_border, and bc_pubs shapefile and bc_voting areas shapefiles.

2. The map will take on the coordinate reference system of the added layers. You can right click on bc_border and use **Operation > Set Map Projection from Layer** to use "BC Albers" - this is an equal area projection.
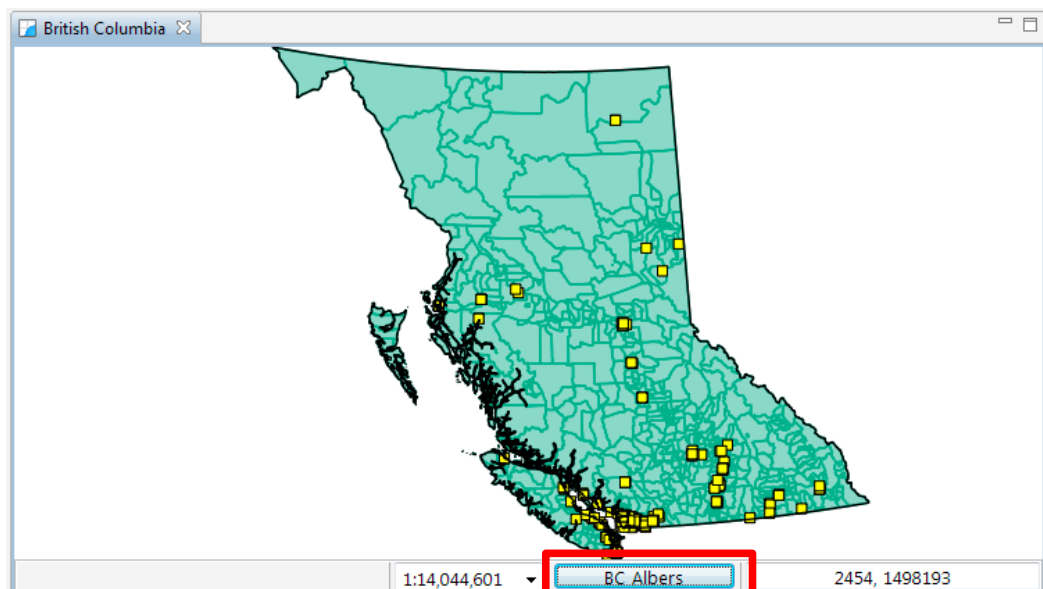
3. Press the "BC Albers" button to bring up the CRS Chooser.

4. This brings up the a preference page allowing you to change the Coordinate Reference System for your map. Please enter in **4326** and press enter to re-project the map to the "World Geodetic System 1984" CRS commonly used to represent lat/lon information.

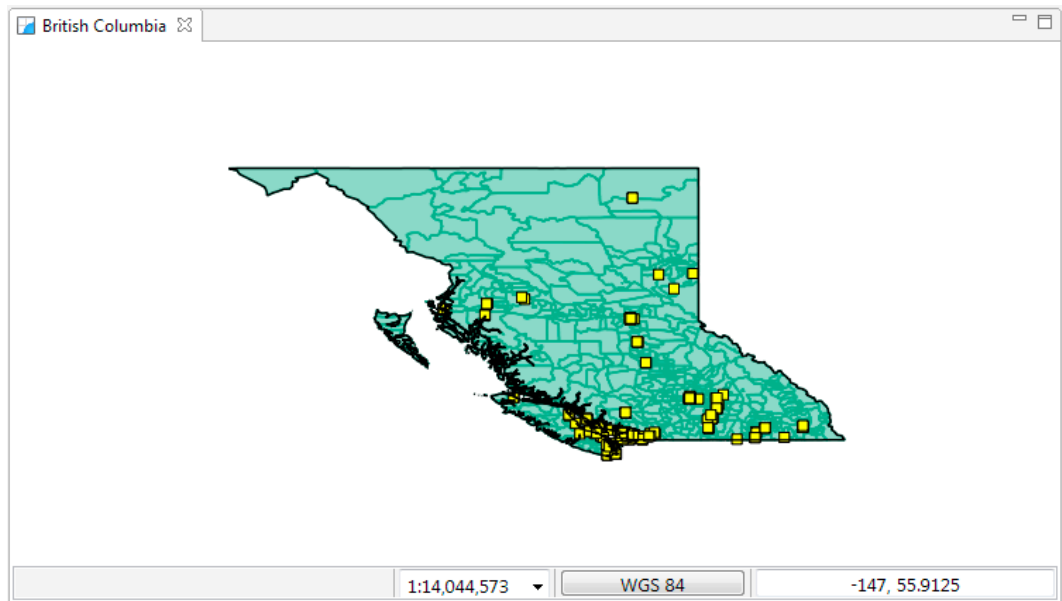*You can also search by name, try typing in "WGS84" to list matching projections*
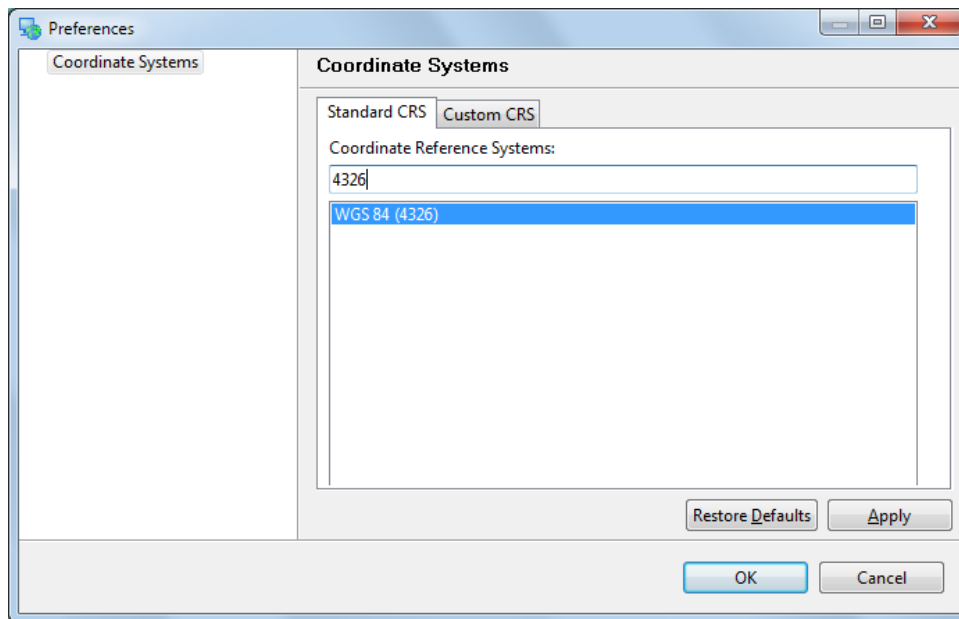
5. You can have a look at the formal definition of "EPSG:4326 by switching to the "Custom CRS" tab

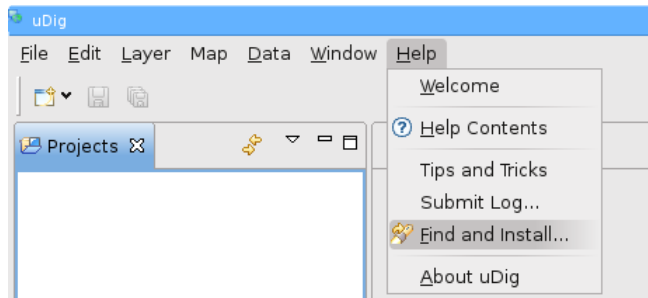*The definition is provided in "Well Known Text" - you can use this format for your own custom CRS.*
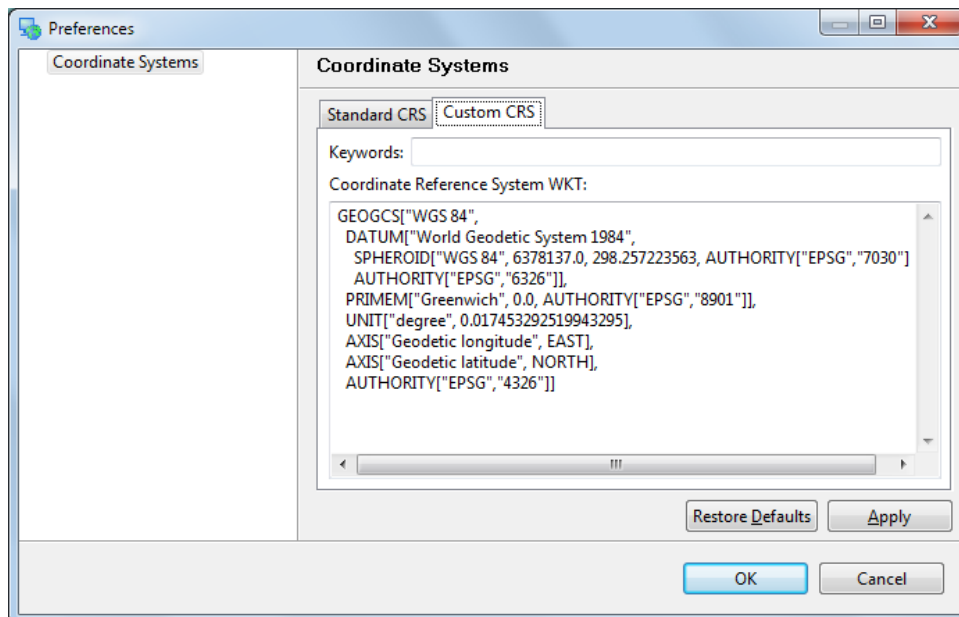
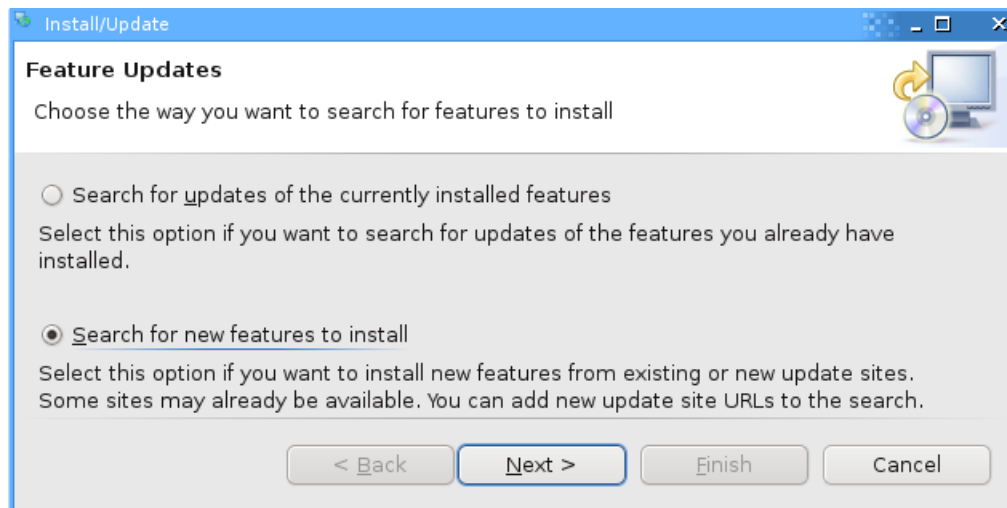6. Press the **OK** button to change the coordinate reference system of your map.

15 Community

One of the nice things about uDig is the ease to download and install additional plug-ins provided by the developer community.
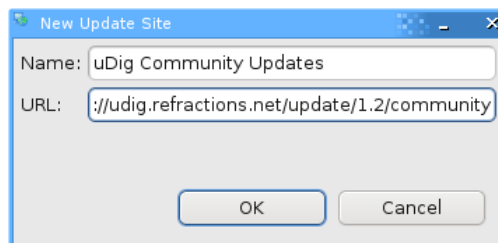
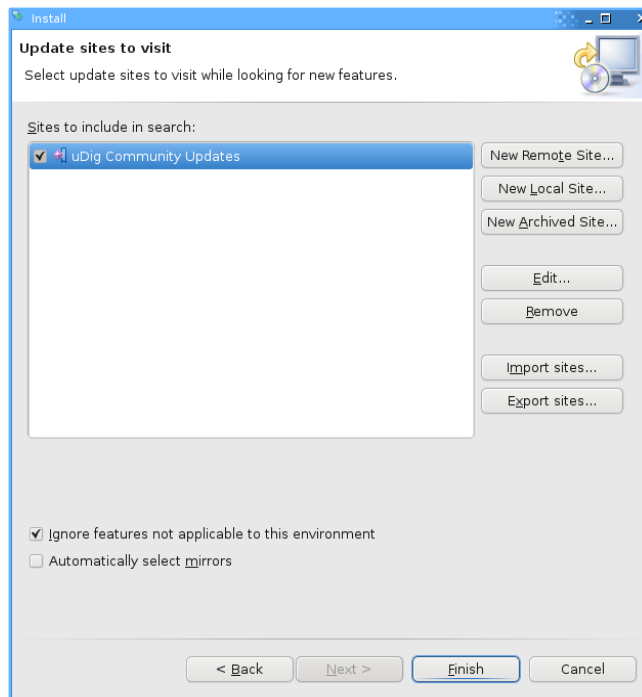1. Open up **Help** > **Find and Install**
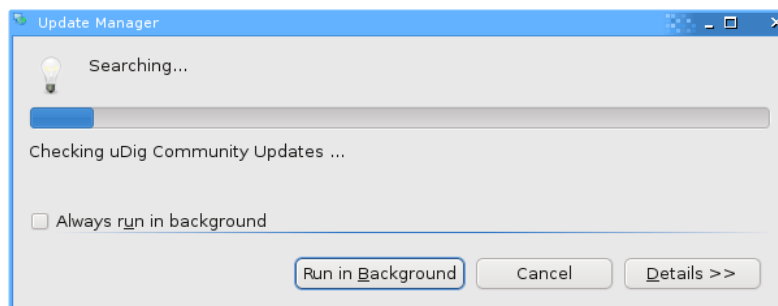

2. Select **Search for New Features to Install** and press **Next**

3. Press the **New Remote Site** button and type the following parameters:
   Name: uDig Community Updates
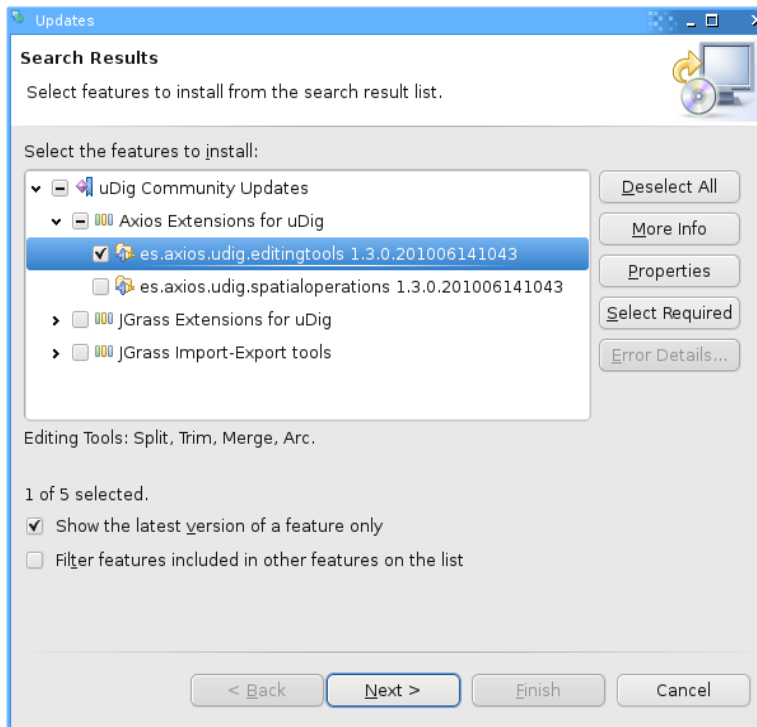   **URL:** http://udig.refractions.net/update/1.2/community

4. Check the new **uDig Community Updates** option and press **Finish**
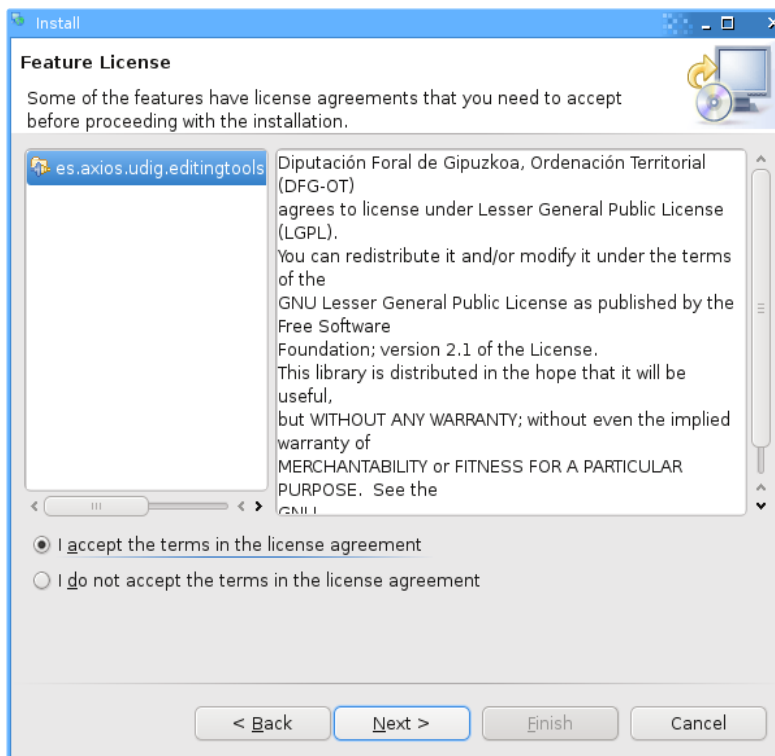

5. Please wait while the program checks the update site for new features.

6. Once the program finishes getting the complete list of plug-ins, you will see something like this:
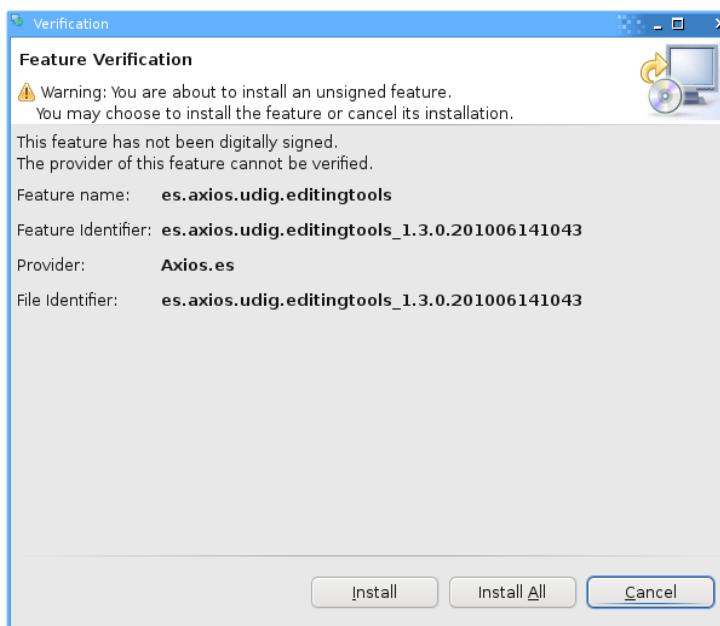

7. Check the latest *es.axios.udig.editingtools* version from the list and press **Next**.

8. Accept the terms in the license agreement and press **Next**.
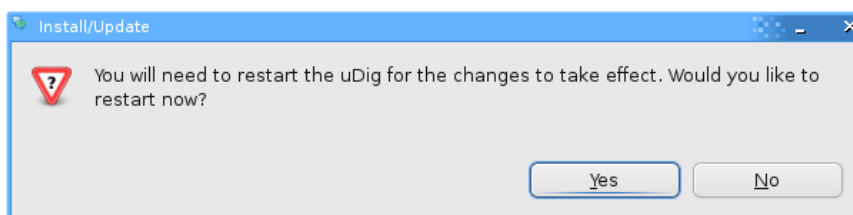
9. Finally confirm the installation location and press **Finish**.
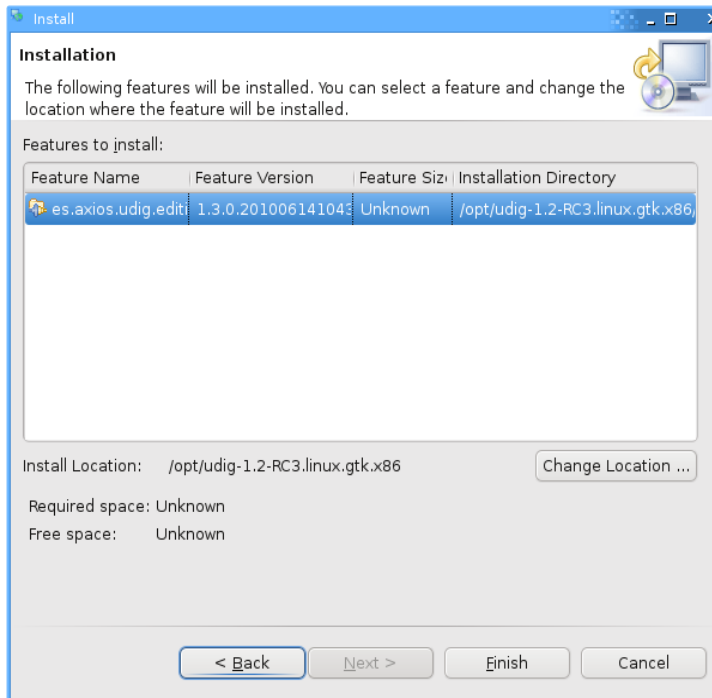
10. Many of the community features have not been formally signed, please click **Install All** when presented with a warning.
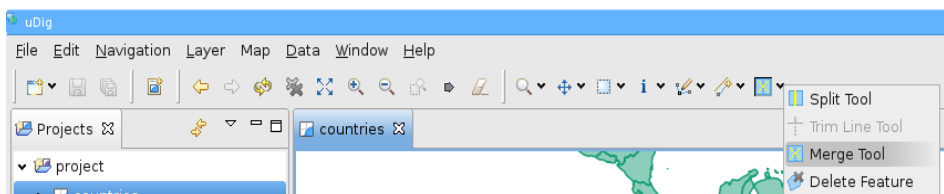

11. You will need to **Restart** uDig when the installation finishes.

12. You may have noticed some new options in the toolbar. We are going to test the **Merge** feature.
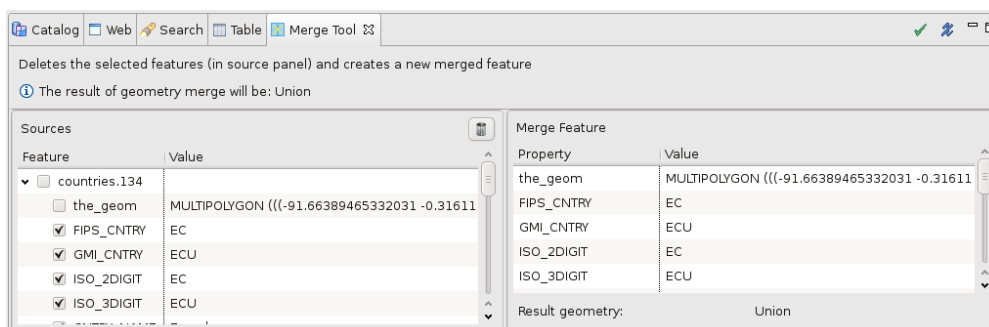
13. Load a test layer, like *countries*, and select the **Merge** option as shown below.

14. Select some features in your layer.
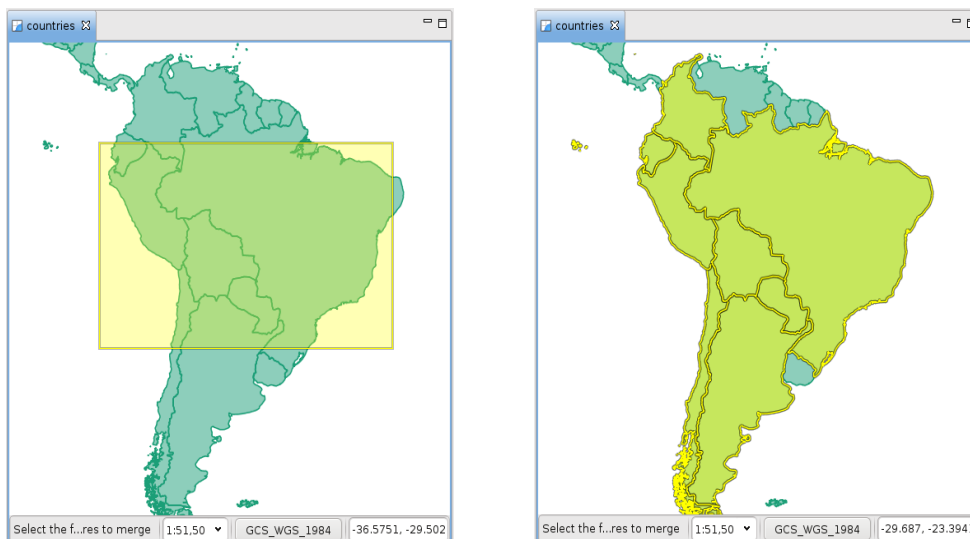
15. A new View called **Merge Tool** will appear in the lower box.

16. Click on the **green check** on the upper-right corner of the **Merge Tool** view to run the merge of the features. The result will be something like this:

16 What to do Next?

Congratulations you have finished the first walkthrough. This is just the start of what uDig can do!

- Try out the north arrow – change projections in order to see how it works.
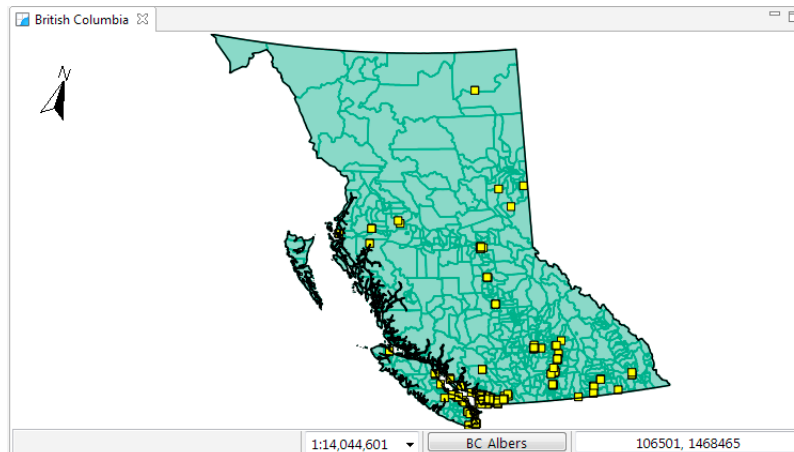
- There is more data available in the data directory - have a look !

- Try right-clicking on a Layer – there is plenty to do (try the operations menu).

- Does your organization publish any spatial information on the web?

- Try out the navigation tools such as Zoom and Pan (the Navigation menu lets you go back to previous locations like a web browser).

- Advanced: Use the **Style Editor** to switch automatically from the bluemarble.tiff to the JPL Web Map Server blue marble layer. Switching based on scale allows for performance when zoomed out, while still providing full resolution blue marble imagery from NASA when you are closer.

- Advanced: Open the **Style Editor**, have a look at the **Advanced** (**XML**) page and see what you make of it.

Perhaps you have an idea for the tool you always wanted?