# uDig Walkthrough I

uDig installation and introduction





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### I 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, <u>HydroloGIS</u> (Italy)
- Jesse Eichar, Camptocamp (Switzerland)
- Jody Garnett, LISAsoft (Australia)
- Mauricio Pazos (Spain)

uDig was originally started by <u>Refractions Research</u> in Canada with funding from <u>GeoConnections</u> 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 (<u>LGPL</u>) 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:

- <u>http://udig.refractions.net/files/tutorials/uDigCaseStudies.pdf</u>
- http://udig.refractions.net/gallery/

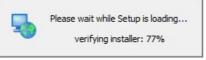
In addition to supporting an open source license, uDig is also offers an open development model with clear procedures allowing your team to take part.

## 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 2. installer DVD or flash drive.

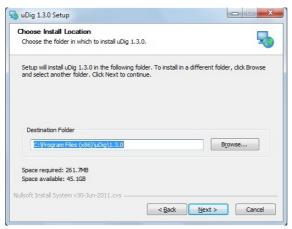
2. The installer will allow you to install uDig into the directory of your choice.



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



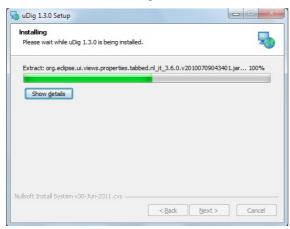
4. By default uDig will be installed into your Program Files directory.



5. Shortcuts will be created in your start menu.

😼 uDig 1.3.0 Setup	
Choose Start Menu Folder Choose a Start Menu folder for the uDig 1.3.0 shortcuts.	5
Select the Start Menu folder in which you would like to create the program can also enter a name to create a new folder.	's shortcuts. You
Accessories Administrative Tools Games Maintenance Startup Tablet PC	
Do not create shortcuts Nullsoft Install System v30-Jun-2011.cvs	Cancel

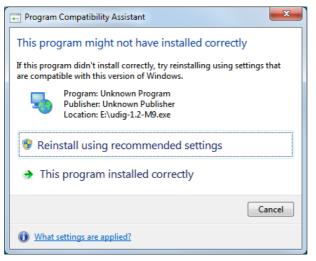
6. Please wait while uDig is installed.



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".



 If you are working in a corporate environment with a firewall please review the following page for details on proxy configuration. <u>http://udig.refractions.net/confluence/display/EN/Running+uDig</u>

### 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.

	🎭 uDig		
	File Edit Layer Map Data Window H	Help	
	Projects 🛛 🕹 🍣 🌄 🗖	C C C C C C C C C C C C C C C C C C C	" 🗖 🔚 Welcome 🛛 🛛 🏠 🗇 🗇 🗖 🗖
			Welcome to uDig
			Getting Started Access the introductory tutorial.
	Sa Layers № Bookmarks □		Official Website Check out the official uDig website.
		Gatalog ⊠ □ Web 🔗 Search 🔲 Table 🛛 🚵 💥 💆	° 🗖
		C Decoration	
'ou can return to			
he welcome			
creen at any			
ime using the			
lelp menu.			
-			

- 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.

Help Contents

**Tips and Tricks** Submit Log...

🔗 Find and Install... About uDig

### 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

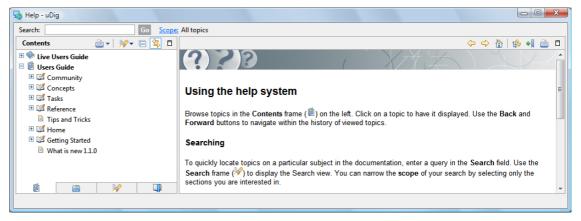
You can access
the tutorials
directly by
pressing "Getting
Started" on the
welcome screen.

-		-	
Help	>		
	Welcome		
0	Help Contents		
	Tips and Tricks Submit Issue		
*	Find and Install		
	About uDig		

2. The windows firewall will need to allow the help application to startup.

Windows Secur	ity Alert	×
💮 Windo	ws Firewal	II has blocked some features of this program
Windows Firewall ha		e features of Java(TM) Platform SE binary on all public, private
((	Name:	Java(TM) Platform SE binary
Ê	Publisher:	Sun Microsystems, Inc.
	Pat <u>h</u> :	C:\program files\udig\1.2-m9\udig\jre\bin\javaw.exe
Allow Java(TM) Plat	form SE binary	to communicate on these networks:
🔽 Domain netw	orks, such as a	a workplace network
Private networks, such as my home or work network		
Public networks, such as those in airports and coffee shops (not recommended because these networks often have little or no security)		
What are the risks	of allowing a pr	ogram through a firewall?
		Allow access Cancel

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**.



Bhow 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.

The Live Users Guide is a "wiki" allowing any member of the community to update the documentation.

#### 4.1 HELP CATEGORIES

You can access additional reference information in the following categories:

Getting Started

🗐 uDig User Guide	This section contains tutorials that will help users to familiarize
🗉 💷 Getting Started	themselves with UDIG and its user interface.
🗉 💷 Concepts	
🖽 💷 Tasks	At this time there is one tutorial available:
🗄 💷 Reference	
🖽 💷 FAQ	

#### Concepts

IDig User Guide Image: Image of the second seco	High-Level description of ideas, architecture. Provides background information to understand what is going on.
<ul> <li>Image: Concepts</li> <li>Im</li></ul>	Related concepts

#### • Tasks

Dig User Guide  Dig Getting Started  Dig Concepts  Dig Tasks  Dig Reference Dig FAQ	Task descriptions are step by step instructions for performing specific actions and tasks in the Workbench. For example, the Tasks section contains step by step instructions for connecting to a Web Map Server, and for adding a layer into a Map. ■ Related tasks
---	--

#### Reference

<ul> <li>uDig User Guide</li> <li>uB Getting Started</li> <li>uD Concepts</li> </ul>	Related reference
E III Tasks	<ul> <li>Views and editors</li> </ul>
🛨 💷 Reference	Menus
🖽 💷 FAQ	Toolbars
	Preferences

### 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.

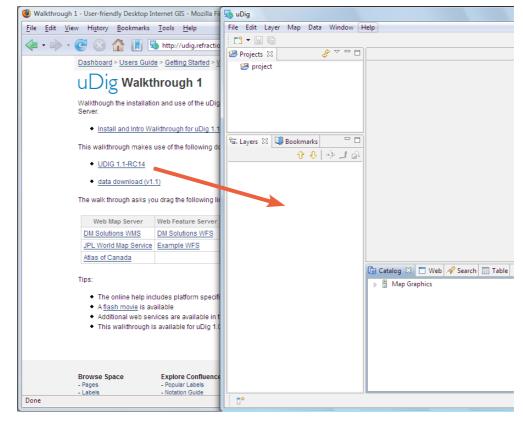
Shown below is a typical session of uDig with the Map, Projects, Layers, and Catalog views labeled. These views will be described further as we demonstrate their uses.

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😼 uDig			X
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	Bolzano	genfuit Szekszard Sze	Zoom Tools 👳
	Como Tribet	Zegreb	200m
😼 Layers 🛛 💷 Bookmarks 🛛 🗖 🗆	* Amen "Natora "Nationa		Pan Tools 🛛 🗠
û 🗘 🛈 🔟 🖓	Asti Parma Ferrara Rula Genoa Bologna		Pan 🕂 Pan
Scalebar	Pice Elorence San Marino	Zadar Zentra Sibenfik Sarejevo P	↔ Fixed Scale Pan (tiling)
re 10m admin 0 countries		Moster	💠 Scroll Pan Tool
NE2_HR_LC_SR_W_DR	* " "Perugia Bastia	- The Marine	* (tiling)
	L'Aquila	* "Podpule	
	Ajacelo + "Rome	" Dreith	idices Edit *
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			forning Selection Tools
			Info Tools
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	□- 🕞 Decoration		
	Active Region Graphic		
	🖶 🌐 Grid		
	in ∰ JGrass Raster Legend		
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	Processing Region		
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layer view		catalog view	V

### 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:
- <u>http://udig.refractions.net/confluence/display/EN/Walkthrough+1</u>
- 3. We are going to use the **DM Solutions WMS** link as shown below:
- For most browsers you can simply drag the link into the Layes view
- 1) Drag from the web browser does not support dragging layers please copy the link and then select the Layers view and paste.



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.

The latest version of Internet Explorer and Opera do not support dragging URLs into other application see the instructions for details on how to copy and paste URLs. 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.

To make selecting layers easier some WMS servers publish legend graphics.

Add Data  Resource Selection  Please select a resource.	+
GMap WMS Demo Server     GMap WMS Demo Server     GMap WMS Demo Server     GMap WMS Demo Server     Elevation/Bathymetry     Foreign Lands     P    Porks     D    Parks     D    Parks     D    Porvince     Federal Limit     P    Railroads     Roads     Ø    Cities     Grid  Resources Selected: 3	
< <u>B</u> ack Next >	inish Cancel

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.

😼 uDig	
File Edit Navigation Layer Map Data Window Help	
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▷ 🔽 Cities	Q. <b>⊕</b>
	Info
	Selection
	Other
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<ul> <li>✓ 册 Elevation/Bathymetry</li> <li>✓ 册 Parks</li> </ul>	
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1:81,260,876 🔻 NAD83Canada	
🕼 Catalog 🕸 🗖 Web 🔗 Search 🛄 Table	🚵 🗶 🗸 🗖
E GMap WMS Demo Server	•
GMap WMS Demo Server     GMap Cities	
⊞ Drainage	
Elevation/Bathymetry	=
renderin ⊞ Grid	g progress
H Parks	
Province     Railroads	-
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	gress view to and cancel)

monitor (and cancel) background processes such as rendering.

- 0 **-** X 🔚 uDig File Edit Navigation Layer Map Data Window Help  $\square \bullet \square \blacksquare \blacksquare \bullet \Rightarrow \Rightarrow \Rightarrow \square \bullet \square$ 🔗 🗸 🗖 🗖 📝 Cities 🔀 - -😕 Projects 🖾 😕 project 😳 Palette Þ Cities Q. \$ Info Selection Editing Create Feature Editing 🔁 Layers 🛛 🗖 AOI 💷 Bookm... 🖓 🗖 Other 순 🕂 🐽 🔟 🖧 Whitehorse Igaluit Yellowknife Elevation/Bathymetry V 🕀 Parks V 🕀 Cities St. John's Regina Charlottetown Quebec nipeg Ottawa Halifax Toronto Q\_Zoom 1:81,260,876 ▼ NAD83 ...Canada ~ - -📴 Catalog 🛛 🗖 Web 🛷 Search 🔳 Table 2 🗙 1 GMap WMS Demo Server I GMap WMS Demo Server E Cities Drainage Elevation/Bathymetry I Federal Limit Foreign Lands 🕀 Grid Parks Province 🗄 Railroads ∎⇔ Layer not rendered
- 6. When the layers are done rendering, the Map view will display the visible layers

- The mouse scroll <sup>7</sup>. wheel can be used to zoom in and out quickly regardless of the currently selected tool.
- Available tools change depending on the currently selected layer.

 Now that you have some data on screen try the navigation tools along the top of the tool palette.

**Zoom** (keyboard short cut "**z**") Click or drag the left button to zoom in, or right button to zoom out.

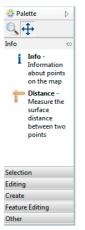
Pan (keyboard short cut "p") Click and drag to move the display.

8. The remaining tools are organised into drawers according to function.

You can open and close the drawers by clicking on their title. Drawers will close automatically as you switch between drawers. You can also pin a drawer open for easy access.

😳 Palette	$\triangleright$	
<b></b>		
Info	0	
i Info		
Distance		
Selection	0	
Box Selection	-	
Feature Selection		
Area of Intere Selection	est	
Editing		
Create		
Feature Editing		
Other		

9. You can right click on a drawer to customise the size of the icons used; and how much information you wish to see in the palette.



10. In addition to the palette the map has a toolbar along the top of the screen.

 $\gtrsim$  Extent: Press to show all layers enabled in the Layers View

11. The **Layers** view shows the order in which layers are drawn. Please select the **Elevation/Bathymetry** layer and use the **Move down** button from the Layer view toolbar to move this to the bottom of the list.

🔁 Layers 🛛	🗖 AOI 💷 B	ookm	- 0	
	<del>0</del> 0	] 🐽 ,	⊿ 🖧	
🔽 🕀 Elev	vation/Bathyme	ter		
🔽 🕀 Par	ks	Woves	the selec	ted layer down
🔽 🕀 Citi	es			

12. The order is now changed.

You can also drag layers up and down in the layer view to change the order.

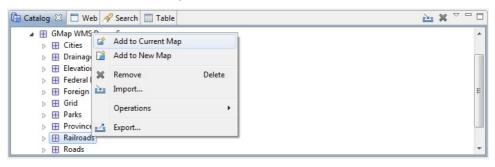
<sup>9</sup> ⊒- Layers	X 🗆	AOI	Q	Boo	km		
			Û	₽	•	Δ	R
✓ ±	Parks						
✓ 🕂	Cities						
	Elevati	on/Ba	thy	metr	Y		

## 7 Adding Layers from the Catalog View

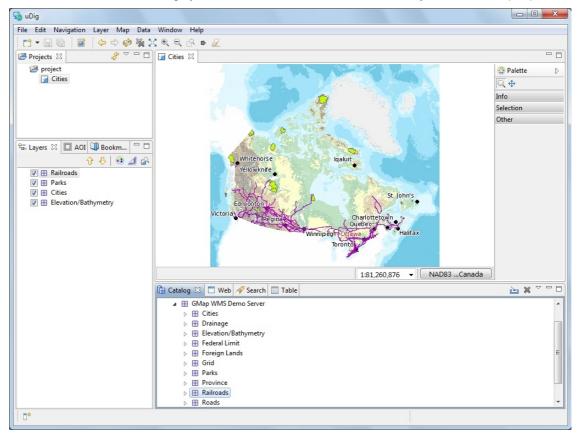
In this section you will learn how to add additional layers to your map from a previously connected data source (the DM Solutions WMS).

Adding a Layer from a previously connected WMS:

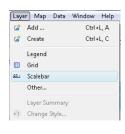
1. In the **Catalog** view of uDig expand the Catalog record for the **GMap WMS Demo Server** by clicking on the triangle beside the record. Right-click on **Railroads** and select **Add to Current Map**.



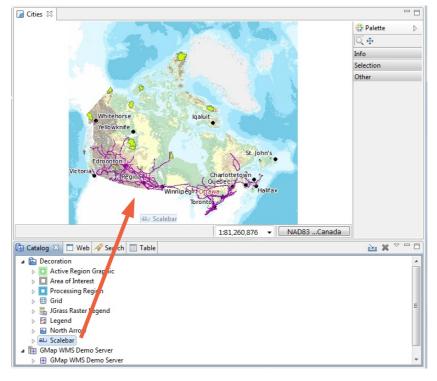
2. The new layer will appear in the **Layers** view, and it will automatically start to render. When it finishes rendering, you should see a new **Railroads** layer drawn as purple lines.



Decorations are also available directly from the Layer menu.



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



- 4. The Scalebar is added to the top left corner of your map.
- 5. You can now close the Map Editor using the small **x** next to the map name. Available maps including this one are shown in the **Projects** view.

### 8 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:

You instructor has placed the data directory on your 2. dvd – please copy this folder to your machine prior to use. 3

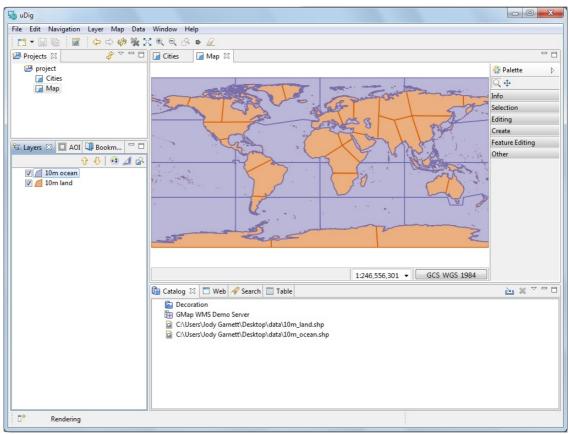
- You instructor has . <u>http://udig.refractions.net/confluence/display/EN/Walkthrough+1</u>
  - . Click on the data "data download" link and save the zip file to your local computer. At the time of writing the file was:

<u>http://udig.refractions.net/files/data/data\_1\_3.zip</u>

- 3. Unzip the download to create your **data** directory. The **7-Zip** application is recommended.
- 4. Create an empty Map by slecting **File > New > New Map** from the menubar.
  - 👆 uDig File Edit Navigation Layer Map Data Window Help 🔾 🗸 🚽 data 📬 🖬 📓 🗢 🗢 🏟 🍇 🛠 🔍 🔗 🕨 🖉 😞 🗢 🗖 🔐 Cities 🛛 🖓 Map 🕅 Organize 🔻 📄 Open Share with 🔻 New folder 😕 Projects 🛛 Name 😕 project Date m ☆ Favorites Cities 10m\_geography\_regions\_polys.shx 1/27/20 Map 🔚 Libraries 10m\_lakes.dbf 1/30/20 10m\_lakes.prj 1/26/20 Computer 10m\_lakes.qix 9/5/201 10m\_lakes.shp 1/30/20 Network 😘 Layers 🛛 🔲 AOI 🛄 Bookm... 🖓 🗖 10m\_lakes.shx 1/30/20 10m\_land.dbf 1/10/20 🕂 🕂 🔍 🔍 🖓 10m\_land.fix 12/1/20 📝 💋 10m land 10m land.pri 1/10/20 11/30/2 10m land.gix 10m\_land.shp 1/27/20 10m\_land.shx 10m\_ocean.dbf 1/10/20 10m\_ocean.fix 12/1/20 10m\_ocean.prj 1/10/20 10m\_ocean.qix 12/1/20 10m\_ocean.shp 1/27/20 10m\_land.shp Date modified: 1/27/2011 1:02 AM Date created: 12/5 📴 Catalog 🛛 🗖 Web 🔗 Search 🔲 Table SHP File Size: 6.36 MB Decoration GMap WMS Demo Server C:\Users\Jody Garnett\Desktop\data\10m\_land.shp ∎<
- 5. Drag and Drop the file **10m\_land.shp** onto your open **Map**

6. The map will take the size of the first file added to it; you can also see the file listed in the catalog in case you wish to use it on another map.

7. When working with uDig you will often find yourself combining information from several different sources. Try adding the **10m\_ocean.shp** shapfile to your map



## 9 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:

🚰 Catalog 🛛 🗖 Web 🔗 Search 🔲 Table	2	~
Decoration		
> 🏗 GMap WMS Demo Server		
Discription C:\Users\Jody Garnett\Desktop\data\10m_land.shp		
C:\Users\Jody Garnett\Desktop\data\10m_ocean.shp		

2. Select Other > Data and press Next.

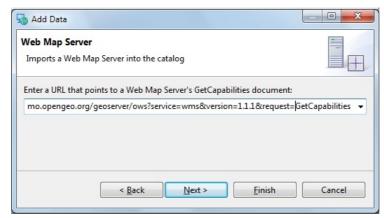
둸 Import	
Select Import a spatial data source into the catalog.	Ľ
Select an import source:	
type filter text	
<ul> <li>         Import to feature layer     </li> <li>         Other     </li> <li>         Data     </li> <li>         Import imagery folder as mosaic     </li> </ul>	
< <u>B</u> ack <u>N</u> ext > <u>F</u> inish	Cancel

- You can copy this URL from the walkthrough page.
- 3. Please choose Web Map Server from the list and press Next.

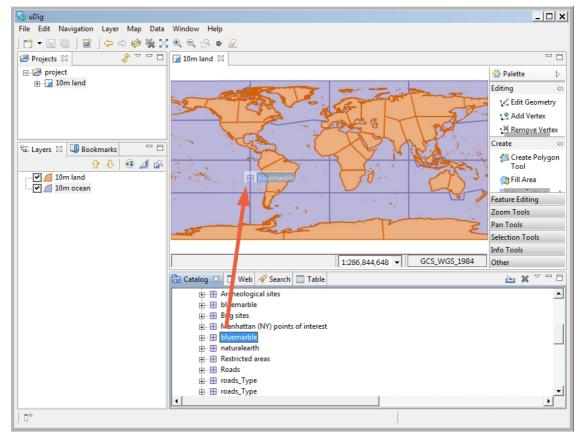
Data Sources	
Imports a Web Map Server into the catalog	
🕼 ArcSDE	
DB2	
🚰 DataStore	
🖬 Files	
💒 JGrass Workspace Wizard	
Map Decoration	
😚 MySQL host	
NASA WorldWind Configuration Files	
🚰 Oracle Spatial	
12 PostGIS	
🔣 Teradata	
Web Feature Server	
Web Map Server	
Web Map Server Tile Cache (WMSC)	
🎬 Web Map Tiles (OpenStreetMap, MapQuest Maps,)	

- 4. This time we are going to import an OpenGeo demo Web Map Server using the following Capabilities document:
- <u>http://demo.opengeo.org/geoserver/ows?service=wms&version=1.1.1&request=GetCapabilities</u>

5. You can copy and paste the URL into the provided field:



- 6. Press Finish to import the Web Map Server into the Catalog view.
- 7. Now that we have imported the WMS into the catalog we can add it to our Map. Please Drag and Drop the **bluemarble** layer directly onto **Map**



8. Earlier we used 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.

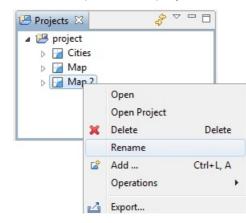


You can also try dragging a layer from the catalog view directly into the layer view.

### 10 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 "Natural Earth" and press **OK**.
- 4. In the Layer menu, select Add...
- 5. Choose Files from the provided list and press Next

😼 Add Data	- • ×
Data Sources	
Open one or more files	
ArcSDE	
DB2	
🚰 DataStore	
Files	
한 JGrass Workspace Wizard	
Map Decoration	
MySQL host	
III NASA WorldWind Configuration Files	
Cracle Spatial	
22 PostGIS	
Teradata	
Web Feature Server	
Web Map Server	
Web Map Server Tile Cache (WMSC)	
Web Map Tiles (OpenStreetMap, MapQuest Maps,)	
< <u>B</u> ack <u>Next &gt;</u> <u>F</u> inish	Cancel

6

You will need to hold down the control key when selecting multiple files.

3.	Select the following files from the data directory:
	10m_admin_0_countries.shp
	NE1_50M_SR_W.tif

😼 Open			×
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Organize 🔻 New fold	r	!≡ ▼	
📃 Desktop 🖍	Name	Date modified	Туре
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Organize       New folder       Image: Search data         Organize       New folder       Image: Search data         Image: Desktop       Image: Search data       Image: Search data       Image: Search data         Image: Desktop       Image: Search data       Image: Search data       Image: Search data       Image: Search data         Image: Desktop       Image: Search data       Image: Searc	10m_admin_1_states_provinces_shp.shp	1/27/2011 2:49 AM	SHP File
	SHP File		
	SHP File		
	10m_geography_regions_points.shp	1/27/2011 1:02 AM	SHP File
•	10m_geography_regions_polys.shp	1/27/2011 1:02 AM	SHP File
	10m_lakes.shp	1/30/2011 1:17 PM	SHP File
Image: Second	SHP File		
· Commuter	10m_ocean.shp	1/27/2011 1:02 AM	SHP File
	10m_populated_places_simple.shp	1/24/2011 3:09 AM	SHP File
_	10m_rivers_lake_centerlines.shp	1/27/2011 1:23 AM	SHP File
Image: Solution of the second seco			
💼 Network	NE1_50M_SR_W	12/17/2010 3:36 AM	TIFF image
· · · · · · · ·			
		+ 1.5 + 1.4 + 1.5 +	✓       ✓         Type       Type         SHP File       SHP File         SHP File       SH
State       Image: Search date         Organize       New folder       BEE       Image: Search date         Organize       New folder       BEE       Image: Search date         Organize       New folder       BEE       Image: Search date         Desktop       Name       Date modified       Type         Downloads       Name       Date modified       Type         Image: Downloads       Image: Search date       Image: Date modified       Type         Image: Downloads       Name       Date modified       Type         Image: Downloads       Name       Date modified       Type         Image: Downloads       Name       Date modified       Type         Image: Downloads       Image: Downloads       Name       Date modified       Type         Image: Downloads       Image: Downloads <thimage: downloads<="" th=""></thimage:>			
Image: Solution of the second seco			
			.11

7. Press Open and **both** layers will be added and rendered with a default style.

You may need to 8. The default style for the countries (named 10m admin 0 countries) layer is slightly choose zoom to area of interest from the map toolbar.

transparent so can see the base raster layer. 9. Right click on the countries layer and select Change Style

😼 Layers 🛛 💷 Bookr	narks 🗖 🗖	
Û	🗜 💽 ⊿ 🖧	
🛛 🚛 🗹 💋 10m admin 0 🤉	countries	
NE1_50M_SR_\	Copy	Ctrl+C
	💼 Paste	Ctrl+V
	💢 Delete	Delete
	🤨 Change Style	
	🔗 Zoom to Layer	
	Rename	
	Operations	•
	🛃 Export	
	Properties	

- 10. The Style Editor is arranged into a series of pages. Select the **Polygons** page from the list on the right; we will use this page to add labels to the countries layer.
- 11. Click the Labels tab on the Polygon page
- 12. Enable labels by checking the "enable/disable labelling" check box

pe filter text here Cache	Polygons					¢ •
Filter Lines	Rules list					
Points		group 0	Style Properties			
Polygons Simple Feature		derault rule	General Border		Filter	
Theme			enable/disabl	-		
XML			label	dummy	- none -	V
			opacity	100	- none -	-
			rotation	0	- none -	
	Style list		font		set font	
			font color			
			halo		0	Å
			- Vendor Option	s		
			max displacem	ent pixels		
			auto wrap pixel	s		
			space around p	vixels		
			ſ	Defeulte	Brunt	A
				Defaults	Revert	App

13. In the list to the far right of "label" choose "NAME"

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

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

- Attribute: **POP\_EST**
- Normalize: GDP\_MD\_EST

ype filter text he 🔻	Theme				→ <
Cache Filter Lines Polygons Simple Feature Theme XML	Blues: light to da BrBG: dark brown BrBG: light blue BuPu: light blue Corinne: The off	rk blue n to light to da to dark green to dark purple icial corinne la	-	<pre>&lt; NONE &gt; ScaleRank LabelRank </pre>	Else: HIDE V
	Dark2: darker ver	sion of Set 2	Defau	ilts Revert	Apply

These options will color the countries layer by population productivity.

You can

layer.

experiment with other settings, use the Set Font button to change to a lighter color that will show up against the WMS

- 16. 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

#### which are a ramp – Select the "light orange to dark red" palette

type filter text he 💌	Theme					-
Cache						
Filter	Attribute:	Clas	sses: Break:		Normalize:	Else:
Lines	POP_EST		▼ Quantile	-	GDP_MD_EST -	HIDE
Points			Show			
Polygons Simple Feature	Palette:		Shov	v: Sequer	ntial 🔻 🔘 📮 🤌	▫┛▯
Theme		P 11	1			
XML	Automation and a second	: light orange to dar ges: light to dark ora				
		ges: light purple to dark ora				
		Br: light vellow to or				
	<ul> <li></li> </ul>	SE IIONI VEIIOW IO DI	III			
	Outline	None T		Remove		
		None 🔻	Valuer	Incinove	J	
	Outline	Label	Values		J	
		Label -35353.53630.102	-35353.53630.102			
		Label				
		Label -35353.53630.102 30.10276.85	-35353.53630.102 30.10276.85			
		Label -35353.53630.102 30.10276.85 76.85175.76 175.76488.91	-35353.53630.102 30.10276.85 76.85175.76			
		Label -35353.53630.102 30.10276.85 76.85175.76 175.76488.91	-35353.53630.102 30.10276.85 76.85175.76 175.76488.91			
		Label -35353.53630.102 30.10276.85 76.85175.76 175.76488.91	-35353.53630.102 30.10276.85 76.85175.76 175.76488.91		1	
		Label -35353.53630.102 30.10276.85 76.85175.76 175.76488.91	-35353.53630.102 30.10276.85 76.85175.76 175.76488.91		Revert	

#### 17. Press the **OK** button

🔀 Natural Earth 🙁		- 8
Greenlar Canada United States Mexico Bollivia Argentina	Russia France Ukraine Kazakhstan Mongolia Turkey Iran China Libya India Mali Chad Angola Angola Antarctica	Palette       Imfo       Selection       Editing       Create       Feature Editing       Other
	1:247,074,595 - GCS WGS 1984	4

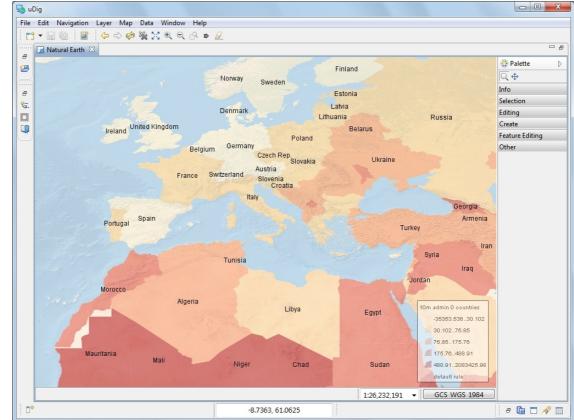
18. Open up the Layer menu and choose Legend

File Edit Navigation	Laye	r Map (	Data	Window	Help
	Ê	Add		Ctrl+	L, A
😕 Projects 🛛	Ľ	Create		Ctrl+	L, C
😕 project	•=	Legend			
📔 Cities 🚰 Map 🍞 Natural Earth	#	Grid			
	23	Scalebar			
		Other			
		Layer			•
	(1)	Change St	yle		

These options show palettes which are a ramp of color suitable for viewing by color blind people on either an LCD or CRT monitor.

- 👆 uDig File Edit Navigation Layer Map Data Window Help 📑 🛨 🔚 📓 💧 🗢 🤣 🎇 🎗 🍳 🔍 🗈 🖉 🛷 🗢 🗖 📔 Natural Earth 🖾 - 8 😕 Projects 🖾 12 project 🔅 Palette Þ Cities 0, 0 Map Natural Earth Greenland Info Russia Selection Canada France Ukraine Kazakhstan Mongolia Editing Turkey Iran United States China Create Mylar will fade out Libya Mexico Feature Editing India 🔂 Layers 🛛 🗖 AOI 🛄 Bookm... 🖓 🗖 2 all the layers ali Chad Nigeria 3 Other Ethi 순 🕹 💽 🗗 100 except for the one V 🗄 Toggles whether the selected layer should be focused or not. IOm admin 0 countries
   NE1\_50M\_SR\_W selected. = = 10m admin 0 countries Argentina -35353.536..30.102 30.102.76.85 *—* 76.85..175.76 175.76..488.9\* Antarctica 488.91..2083425.9 default rule 1:247,074,595 - GCS WGS 1984 📴 Catalog 🛛 🗖 Web 🛷 Search 🔲 Table 🔄 Decoration GMap WMS Demo Server DenGeo.org GeoServer Demo WMS C:\Users\Jody Garnett\Desktop\data\10m\_admin\_0\_countries.shp C:\Users\Jody Garnett\Desktop\data\10m land.shp C:\Users\Jody Garnett\Desktop\data\10m\_ocean.shp C:\Users\Jody Garnett\Desktop\data\NE1\_50M\_SR\_W.tif (geotiff) []≎
- 19. Press the Mylar button in the Layers View. Select each layer and observe the effect.

Your layer view is 20. Double click on the **Natural Earth** tab at the top of the screen to maximize the editor. still available on Use using the zoom tool to explore the world while the editor is maximized.



21. Double click on the "Map tab" at the top of the screen to restore the previous size.

still available on the left hand side of the screen.



Press the button to toggle the layer view on and off as needed. 22. You have a lot of flexibility in arranging views:

- · You can drag views into different locations along the edge of your map
- You can detach a view by dragging it completely out of the window
- You can right click on the view for more options including a slide out "fast" view.

The arrangement 23. More views are available using the menubar Window > Show Views

*of views is known as a perspective.* 24. You can use **Reset Perspective** from the **Window** menu to restore any views you accidentally close during experimentation.

uDig offers a couple of built in perspectives.

- 🔂 u	Dig			_ 🗆 🗙
File	Edit Navigation Layer Map Data	Window Help		
] 📬	- 🗌 🕼 🛛 🖀 🕽 🔶 📣 🎇 🔀	Open Perspective		
	🕝 10m land 🛛 🔀 Natural Earth 🔀	Show View		- 8
8	Ireland	Reset Perspective	Belarus	🕄 Palette 🛛 🗅
	United Kingdom Belgium	Close Perspective Close All Perspectives	The second se	Editing 🖒
e e	France Switz	Preferences	Ukraine Russia Moldova	र्⊈ Edit Geometry र्⊈ Add Vertex

### II Information Request

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

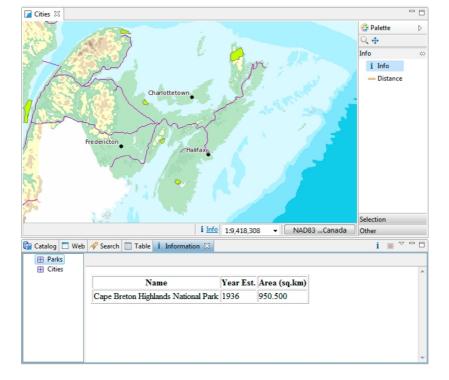
1. Let us open up our first map again, which was labeled Cities

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

- 8 - -😕 Projects 🔀 🛛 🔛 project Cities
   Map Open 🔀 Natu Open Project 💢 Delete Delete Rename Add ... Ctrl+L. A E\$ Operations 🛃 Export.. Properties
- 2. Let's **zoom** to somewhere interesting, such as a green park.
- 3. Change to the Info Tool (I) in the tool palette.

#### You can use the keyboard shortcut 'i' to choose the info tool

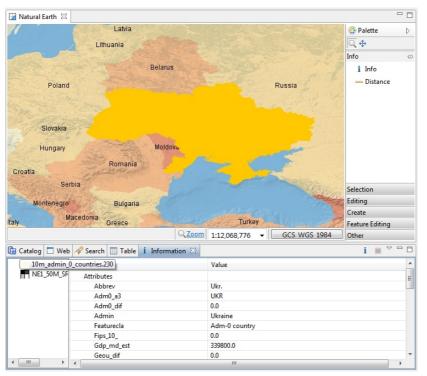
4. Click on a green park; and we can ask the WMS for more information.



- 5. The **Information** view is opened; showing information about the park layer at the location you clicked.
- 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.

7. Open your **Natural Earth** map and we can try the **Info** tool on feature and raster data.

Use the **Info** tool to click on a country; and then select **10m admin 0 countries** in the **Information** view. You will see the information view flash the country to remind you of the area you clicked.



- 8. You can use the **Information** view to explore the attributes of the country you clicked on however you cannot change the values here (we will cover editing in Walkthrough 2).
- 9. You can switch to requesting information on another layer on the **left pane**. Available information, if any, is displayed on the **right pane**.

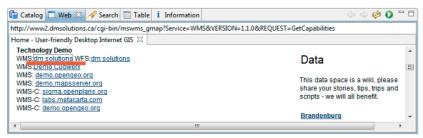
Try this by changing to the raster layer NE1\_50M\_SR\_W.

📴 Catalog 🗖 Wel	a 🔗 Search 🔲 Table 🗴 Information 🔀	i	$\bigtriangledown$	
10m_admin,     NE1_50M_SF				

#### 12 Web View

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

- 1. Create a **New Map**, and rename the map to be called Canada.
- 2. Press the tab for the Web view (located along the bottom of the window near Catalog).
- 3. Click on the WMS link for dm solutions.

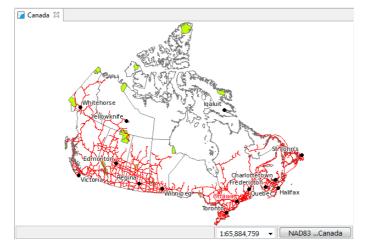


You can use the Web Catalog with your own website for easy spatial visualization.

4. The Add Layer wizard will open (uDig can recognize links to spatial content). Choose the **Parks**, **Provice**, **Roads** and **Cities** and press **Finish** 

Add Data	
Resource Selection	+ <b>P</b>
Please select a resource.	
GMap WMS Demo Server     GMap WMS Demo Server     GMap WMS Demo Server     GMap WMS Demo Server     D    Elevation/Bathymetry     D    Elevation/Bathymetry     D    Parks     D	
Resources Selected: 4	> <u>F</u> inish Cancel

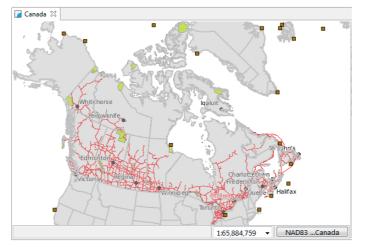
5. We will use this map in the next section.



## 13 Re-projection

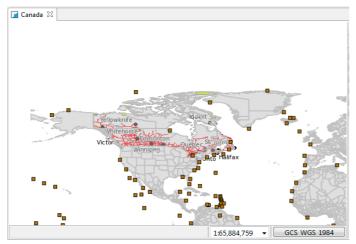
Since the world is not flat, maps are projected to line up with a Co-ordinate Reference System (CRS).

- 1. Open your **Canada** map from the previous section.
- 2. Add some additional shape files to the map:
  - 10m\_admin\_1\_states\_provinces\_shp.shp
  - 10m\_geography\_regions\_points.shp
- 3. The resulting map is taking information from a variety of different sources and reprojecting the data into a single display.



4. You can ask that the map change its projection to match a layer.

Rght click on **10m admin 1 states provinces shp** and use **Operation > Set Map Projection from Layer** to use this layers projection.



5. You can also choose the map coordinate reference system yourself.

6. Press the "GCS\_WGS\_1984" button to bring up the CRS Chooser.

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.

Coordinate Systems Standard CRS Custom CRS
Standard CRS Custom CRS
Coordinate Reference Systems:
4326
WGS 84 (4326)
Restore Defaults     Apply
OK Cancel

7. You can have a look at the formal definition of "EPSG:4326 by switching to the "Custom CRS" tab

The definition is	Preferences     Coordinate Systems	
provided in "Well Known Text" - you can use this format for your own custom CRS.		Coordinate Systems         Standard CRS         Custom CRS         Keywords:         Coordinate Reference System WKT:         GEOGCS["WGS 84",         DATUM["World Geodetic System 1984",         SPHEROID["WGS 84", 6378137.0, 298.257223563, AUTHORITY["EPSG", "7030"]         AUTHORITY["EPSG", "6326"]],         PRIMEM["Greenwich", 0.0, AUTHORITY["EPSG", "8901"]],         UNIT["degree", 0.017453292519943295],         AXIS["Geodetic longitude", EAST],         AXIS["Geodetic latitude", NORTH],         AUTHORITY["EPSG", "4326"]]         (         III         Restore Defaults
		OK Cancel

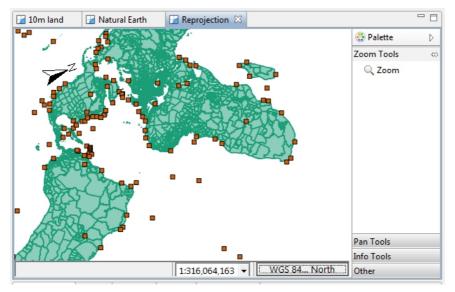
8. Press the **OK** button to change the coordinate reference system of your map.

You can also search by name, try typing in "WGS84" to list matching projections

### 14 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.



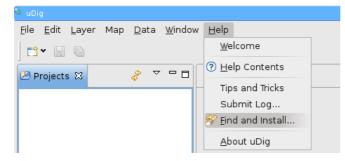
- There is more data available in the data directory have a look !
- Try right-clicking on a Layer there is plenty to do (try the operations menu).
- Does your organization publish any spatial information on the web?
- Try out the navigation tools such as Zoom and Pan (the Navigation menu lets you go 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?

#### **14.1 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

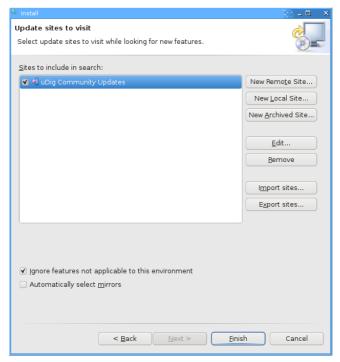
🤏 Install/Update	_ 🗆 🗙
Feature Updates Choose the way you want to search for features to install	
Search for <u>updates</u> of the currently installed features	
Select this option if you want to search for updates of the features you already installed.	have
Search for new features to install	
Select this option if you want to install new features from existing or new update Some sites may already be available. You can add new update site URLs to the	
< <u>B</u> ack <u>N</u> ext > <u>F</u> inish	Cancel

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

🧕 New L	pdate Site 😽 🚬 🗙
Name:	uDig Community Updates
URL:	://udig.refractions.net/update/1.2/community
	OK Cancel

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



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

5	Update Manager	800 - E	×
	Searching		
	Checking uDig Community Updates		
	checking abig community opdates		
	□ Always r <u>u</u> n in background		
	Run in <u>B</u> ackground Cancel	<u>D</u> etails >>	)

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

S Updates	- 🗆 🗡
Search Results Select features to install from the search result list.	
Select the features to install:	
💌 🖃 🖏 uDig Community Updates	Deselect All
🗸 🖃 💷 Axios Extensions for uDig	More Info
🗹 🏇 es.axios.udig.editingtools 1.3.0.201006141043	Properties
🔲 🖗 es.axios.udig.spatialoperations 1.3.0.201006141043	
<ul> <li>Image: Image of the second seco</li></ul>	Select Required
<ul> <li>IIII JGrass Import-Export tools</li> </ul>	<u>E</u> rror Details
Editing Tools: Split, Trim, Merge, Arc.	
1 of 5 selected.	
Show the latest version of a feature only	
Filter features included in other features on the list	
< <u>B</u> ack <u>N</u> ext > <u>Einish</u>	Cancel

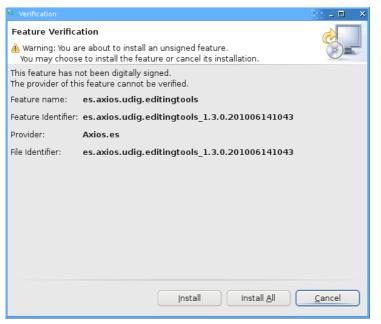
- 7. Check the latest *es.axios.udig.editingtools* version from the list and press **Next**.
- 8. Accept the terms in the license agreement and press Next.

🧕 Install	×
Feature License	
Some of the features have lic before proceeding with the ins	ense agreements that you need to accept stallation.
<ul> <li>es.axios.udig.editingtools</li> <li>es.axios.udig.editing</li></ul>	
< <u>B</u> a	ck Next > Einish Cancel

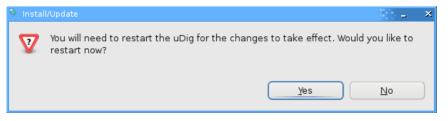
9. Finally confirm the installation location and press **Finish**.

🧕 Install					_ 🗆 🛛 🗙
Installation					
The following features location where the fea	will be installed. You o ature will be installed.	an select a f	eature and	change the	
Features to <u>i</u> nstall:					
Feature Name	Feature Version	Feature Siz	Installation	n Directory	
🖗 es.axios.udig.editi	1.3.0.201006141043	Unknown	/opt/udig-:	1.2-RC3.linux	.gtk.×86,
Install Location: /or	ot/udig-1.2-RC3.linux.g	+6 206		Change Loc	ation
install Location. 70	rijudig-1.2-NC5.iiildx.g	14.400		Change Loc	ation
Required space: Unki					
Free space: Unki	nown				
C	< <u>B</u> ack N	ext >	<u>F</u> inish	Ca	ancel

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.

🎦 Catalog 🗖 Web 🛷	Search 🛄 Table 🐹 Merge Tool 🛛		✓ % ▫⊏
Deletes the selected f	eatures (in source panel) and creates a new merged fe	eature	
(i) The result of geom	etry merge will be: Union		
Sources		Merge Feature	
Feature	Value	Property	Value
🗸 🔲 countries.134	=	the_geom	MULTIPOLYGON (((-91.66389465332031 -0.31611
the_geom	MULTIPOLYGON (((-91.66389465332031 -0.31611	FIPS_CNTRY	EC
FIPS_CNTRY	EC	GMI_CNTRY	ECU
GMI_CNTRY	ECU	ISO_2DIGIT	EC
✓ ISO_2DIGIT	EC	ISO_3DIGIT	ECU
✓ ISO_3DIGIT	ECU	Result geometry:	Union
~		l geometry.	Gillon

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:



#### **14.2 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 1. In the File menu, select New -> New Map.

😼 u	Dig				
File	Edit Navigation	Layer Ma	o Da	ta Window	Help
	New	+	Ê	New Layer	
	Close	Ctrl+W		New Map	
	Close All		1	New Project	
	Save	Ctrl+S		Other	

behind a firewall. 2. In the Projects view, right-click on Map and select Add.

😕 Projects 🛛		\$	~	📔 Ele
<ul> <li>▲ Elevation/Bathymetry</li> <li>▶ Mar</li> </ul>				
	×	Open Open Project Delete Rename	De	lete
🖫 Layers 🖾	<b>≧</b>	Add Operations	Ctrl +	L, A
	4	Export Properties		

3. Select **PostGIS** as the data source and click **Next**.

😼 Add Data	
Data Sources	2
Connect to a PostGIS Server.	B
ArcSDE	
DB2	
☐ 🛱 Files	
Map Decoration	
MySQL host	
📝 Oracle Spatial	
PostGIS	
Web Feature Server	
🛗 Web Map Server	
🔛 🔛 Web Map Server Tile Cache (WMSC)	
< Back Next > Finish	Cancel
	Cancel

behind a firewall please feel free to skip this section.

The online help does have some advice about "Running uDig" behind a firewall. 4. Enter the following connection information: Host: www.refractions.net Port: 5432 Username:demo Password:demo Store Password:check

Add Data			x
PostGIS Connect to a PostGIS	Server.	4	3
Previous Connections			•
Host:	www.refractions.net	Port:	5432
User Name:	demo		
Password:	••••		
Store Password			
Remove Connection			
	< Back Next > Einish	Canc	el

Once the connection information is entered press Next.

This page lists the databases available to the current user. The <u>www.refractions.net</u> 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

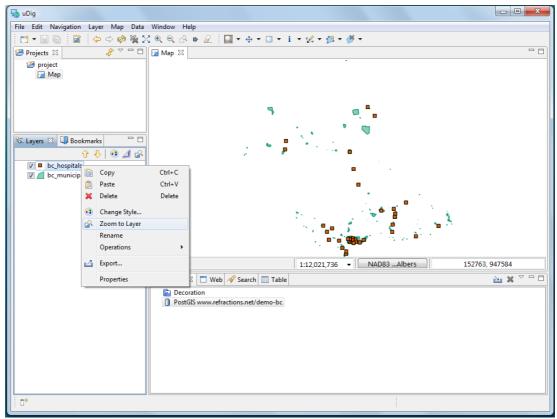
👆 Add Data				
Connection A You do not have permissions to access the list of all databases, Please enter the database to connect to				
Database demo-bc			-	
List Table Filter			Public Schema	
Table	Schema	Geometry Name	Geometry Type	
bc_border	public	the_geom	LINESTRING	
bc_hospitals	public	the_geom	POINT	
V bc_municipality	public	the_geom	POLYGON	
bc_pubs	public	the_geom	POINT	
bc_voting_areas	public	the_geom	MULTIPOLYGON	
< <u>B</u> ack <u>N</u> ext > <u>Finish</u> Cancel				

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.

😼 Add Data	
Resource Selection Please select a resource.	+
<ul> <li>PostGIS www.refractions.net/demo-bc</li> <li>public</li> <li>bc_border</li> <li>bc_hospitals</li> <li>bc_municipality</li> <li>bc_pubs</li> <li>bc_voting_areas</li> </ul>	
Resources Selected: 2          < Back	sh Cancel

- 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**



The map will now zoom in to show the extent of the bc\_hospitals layer.

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

Zoom to Layer is very useful when adding new layers that happen to be off screen or not visible at the current scale.

You can also

select Back on

the tool bar, a history of your position is kept similar to a web

browser.