

# UNESCO-IHE Institute for Water Education











Publishing data using Geoserver and GeoNode Tutorial.

Name:Mark de Blois Upande Ltd Email:mark@upande.com September 2016.

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# Learning Objective

After this tutorial you will be able to:

 Interact with Geoserver and Geonode while at the same time publish data on both platforms.

## 1. Introduction

This tutorial is meant to guide you through the steps of publishing data. The first part involves publishing data with Geoserver while the second part is publishing data with Geonode.

**Note:**This tutorial assumes that Geoserver and Geonode are running on <a href="http://http://192.81.212.100:8080/geoserver/web">http://http://192.81.212.100:8080/geoserver/web</a> and <a href="http://http://192.81.212.100">http://http://192.81.212.100</a> Respectively.

# 2. Publishing data with Geoserver

This step walks through the process of publishing a Shapefile with GeoServer.

-								
	Lay	er Preview		Search         Common Formats       All Formats         OpenLayers KML       Select one         OpenLayers KML GML       Select one         OpenLayers KML GML       Select one				
	List of	ers configured in GeoServer and provides previews in various formats for each.						
Ŀ	<<	< 1 > >> Results 1 to 19 (out of 19 items)		Search				
	Туре	Name	Title	<b>Common Formats</b>	All Formats			
		geonode:geonode_mnt_benin	MNT Bénin SRTM 90m v4	OpenLayers KML	Select one			
	ш	geonode:benin_zones_urbaine	benin_zones_urbaine	OpenLayers KML GML	Select one •			
	M	geonode:ben_adm0_3	ben_adm0_3	OpenLayers KML GML	Select one <			
	٠	geonode:benin_cities	benin_cities	OpenLayers KML GML	Select one <			
	ж	geonode:lacs	lacs	OpenLayers KML GML	Select one			
	ш	geonode:oueme_delimitation_automatique_final	Delimitation automatique du bassin versant de Ouémé	OpenLayers KML GML	Select one			
	H	geonode:ben_adm2	ben_adm2	OpenLayers KML GML	Select one			
	Ш	geonode:ben_adm0_2	Limites administratives du Bénin	OpenLayers KML GML	Select one -			
-	И	geonode:benin_rivers	benin_rivers	OpenLayers KML GML	Select one -			
	И	geonode:reseau2	reseau2	OpenLayers KML GML	Select one			

Figure 1.0: Layer Preview page

## 2.1 Getting Started

1. Copy the file benin\_rivers.zip from the USB stick to the exercise folder. This archive contains a Shapefile of rivers for Benin that will be used during in this tutorial.

2. Unzip the benin\_rivers.zip. The extracted folder benin\_rivers contains the following four files:

benin\_rivers.shp benin\_rivers.shx benin\_rivers.dbf benin\_rivers.prj

#. Move the benin\_rivers folder into :/usr/share/geoserver/data/, where

<:/usr/share/geoserver/data/>is the root of the GeoServer data directory.

# 2.2 Create a New Workspace

The first step is to create a workspace for the Shapefile. A workspace is a container used to group similar layers together.

1. In a web browser in the VM navigate to http://192.81.212.100:8080/geoserver/web.

- 2. Log into GeoServer username:admin password:geoserver.
- 3. Navigate to Data →Workspaces

	Logged in as admin.	Logout
Workspaces		
Manage GeoServer workspaces		
<< $<$ $1$ > >> Results 1 to 1 (out of 1 items)	Search	
Workspace Name	Default	
geonode	A.	
<< ( ) >>> Results 1 to 1 (out of 1 items)		

#### Figure 1.1:*Workspace page*

4. To create a new workspace click the *Add new workspace* button. You will be prompted to enter a workspace Name and Namespace URI.

Figure 1.2: Configure a New Workspace

5. Enter the Name as benin\_rivers and the Namespace URI as http://www.geonode.org/benin\_rivers. A workspace name is an identifier describing your project. It must not exceed ten characters or contain spaces. A Namespace URI (Uniform Resource Identifier) is typically a URL associated with your project, perhaps with an added trailing identifier indicating the workspace.

6. Click the *Submit* button. The benin\_rivers workspace will be added to the Workspaces list.

New Workspace	
Configure a new workspace	
Name benin_rivers	
http://www.geonode.org/	
The namespace uri associated with this workspace  Default Workspace  Submit Cancel	

Figure 1.3: New Workspace

## 2.3 Create a Data Store

1. Navigate to *Data* → *Stores*.

2. In order to add the benin\_rivers Shapefile, you need to create a new Store. Click on the *Add new store* button. You will be redirected to a list of the



data sources supported by GeoServer. Figure 1.4: *Data sources* 

3. Select *Shapefile-ESRI(tm) Shapefiles (.shp)*. The New Vector Data Source page will display.

4. Begin by configuring the Basic Store Info. Select the workspace benin\_rivers from the drop down menu. Enter the Data Source Name as Benin Rivers and enter a brief Description.

5. Under Connection Parameters specify the location URL of the Shapefile as file:data/benin\_rivers/benin\_rivers.shp.

ρ	dd a new vector data source
s	Shapefile
E	SRI(tm) Shapefiles (*.shp)
E	Basic Store Info
V	Norkspace *
[	benin_rivers 💌
0	Data Source Name *
1	Benin Rivers
C	Description
6	Rivers in Benin
	Shareful location *
1	Browse
C	)BF charset
	ISO-8859-1
	Create spatial index if missing/outdated
	Use memory mapped buffers (Disable on Windows)
J	
	Cache and reuse memory maps (Requires use memory mapped puriers to be enabled)

#### Figure 1.5: Basic Store Info and Connection Parameters

6. Click *Save*. You will be redirected to the New Layer chooser page in order to configure the benin\_rivers layer.

## 2.4 Create a Layer

1. On the New Layer chooser page, select the layer benin\_rivers.

2. The Edit Layer page defines the Data and Publishing parameters for a layer. Enter a short Title and an Abstract for the benin\_rivers layer.

Edit	Layer			a for the current layer Caching				
Edit layer	data and publish	ning						
geon	ode:ber	in_rivers	5					
Configure	the resource an	d publishing infor	mation for the cu	rent layer				
Data	Publishing	Dimensions	Tile Caching					
Basic R	esource Info	,						
Name								
benin_rive	rs							
🗹 Enabl	ed							
Adver	tised							
Title	-							
Abstract	15							
No abstrac	t provided							
Keywoi	ds							
Current K	eywords							
features								

Figure 1.6: Basic Resource Information

3. Generate the layer's bounding boxes by clicking the *Compute from data* and then *Compute from Native bounds*.

	_		

	_				
Bounding	Boxes				
Min X	Min Y	Max X	Max Y		
0.8906066235	651: 6.35930500000000	3.60096504620473	12.417423198442;	1	1
Compute from	n data				
Lat/Lon Bou	nding Box				
Min X	Min Y	Max X	Max Y		
0.8906066235	651: 6.3593050000000	3.60096504620473	12.417423198442;		
Compute from	n native bounds				
Curved ge	ometries control				
🗌 Linear ge	ometries can contain	circular arcs			
Linearization	tolerance (useful on	ly if your data co	ntains curved as		ometries)
	tolerance (userul on	iy ii your data co	intains cuiveu get		inetries)
reature Ty	/pe Details				
Property	Туре	•			Nillable
the_geom	Multi	LineString			true
dissolve	Strin	9			true
scalerank	Dout	ole			true
featurecla	Strin	g			true

Figure 1.7: Generate Bounding Boxes

4. Set the layer's style by switching to the Publishing tab.

5. Select the line style from the Default Style drop down list.

6. Finalize the layer configuration by scrolling to the bottom of the page and clicking Save.

benin_rivers	-
Additional Styles	
Available Styles	
ben_adm0_3 ben_adm1 ben_adm2 benin_cities benin_cities_1 benin_rivers benin_zones_urbaine cours_eau_igip_polyline geonode_mnt_benin lacs	
Default Rendering Buffer	
Default WMS Path	

## 2.5 Preview the Layer

1. In order to verify that the benin\_rivers layer is published correctly you can preview the layer. Navigate to the Layer Preview screen and find the geonode:benin\_rivers layer.

2. Click on the OpenLayers link in the Common Formats column.

3. Success! An OpenLayers map loads in a new page and displays the Shapefile data with the default line style. You can use the Preview Map to zoom and pan around the dataset, as well as display the attributes of features.

	-			Logged in	n as admin. 🧕 Logout
	Lay	er Preview			
ŀ	List of	all layers configured in GeoServer and provides prev	iews in various formats for each.		
Ŀ	<<	< 1 > >> Results 1 to 19 (out of 19 items)	[	🔍 Search	
	Туре	Name	Title	Common Formats	All Formats
		geonode:geonode_mnt_benin	MNT Bénin SRTM 90m v4	OpenLayers KML	Select one
	H	geonode:benin_zones_urbaine	benin_zones_urbaine	OpenLayers KML GML	Select one
	H	geonode:ben_adm0_3	ben_adm0_3	OpenLayers KML GML	Select one
	•	geonode:benin_cities	benin_cities	OpenLayers KML GML	Select one
	H	geonode:lacs	lacs	OpenLayers KML GML	Select one
	ж	geonode:oueme_delimitation_automatique_final	Delimitation automatique du bassin versant de Ouémé	OpenLayers KML GML	Select one
	H	geonode:ben_adm2	ben_adm2	OpenLayers KML GML	Select one
	H	geonode:ben_adm0_2	Limites administratives du Bénin	OpenLayers KML GML	Select one
	И	geonode:benin_rivers	benin_rivers	OpenLayers KML GML	Select one
	И	geonode:reseau2	reseau2	OpenLayers KML GML	Select one

Figure 1.9: Layer Preview



Figure 1.10: Preview map of benin\_rivers

# 3. Publishing data with Geonode

This second part involves steps of publishing a map with Geonode.

## 3.1 Adding layers

1. Click the *Maps* link on the top toolbar. This will bring up the list of maps.

SNIEAU Benin Layers	Maps Documents People Groups Search Q	<b>O</b> admin
Explore Maps		Create a New Map
Cart	Total: 11	1\$~
Add resources through the "Add to cart" buttons.	Test	-
Filters Cle	A HansVanDerKwast 🖻 31Aug2016 💿 0 🖓	•0 •0
Search by text		
KEYWORDS     OWNERS     Date	réseau routier de cotonou         copie de la ville de cotonou et son réseau routier         ▲ Alexandre       15 Sep 2015       256       0	★ 0 ♀ View Map

Figure 1.11: Maps page

- 2. Click the Create a New Map button.
- 3. A map composition interface will display.

#### SNIEAU Benin Layers Maps Documents People Search (U) admin Map + 🖨 Print 🚯 Identify 🕅 Ouery 🦵 Measure + 😿 Edit + Maps / This map is currently unsave LAYERS 0.0 % / 中华人民 共和国 Overlays Base Maps Algiérie \XX-580 Google Satellit ödörösési i Béafrika ngola Zambi

#### Publishing data using GeoServer(2.7.4) and GeoNode(2.4)

#### Figure 1.12: Create maps interface

In this interface there is a toolbar, layer list, and map window. The map window contains the OpenStreetMap layer by default. Also Google satellite, Google hybrid, Google terrain and Google roadmap base maps have been added.

4. Click on the New Layers button and select Add Layers.



Figure 1.13: Add layers link.

5. Select ben\_adm1 layer by clicking the top entry. Click *Add Layers* to add the layer to the map.

1000 km 1 : 69885143

	SNIEAU B	enin
🕅 Map 🗸 🖨 Print 🛛 Identi	fy 🕅 Query 🥅 Measure	- CEdit
LAYERS » AVAILABLE LAY	ERS	0 <del>4</del>
View available data from:		
Title	ld	- ≮ → Kayws
+ ben_adm0	geonode:ben	
+ Limites administratives	geonode:ben	
+ ben_adm0_1_1	geonode:ben	V
+ Limites administrative	geonode:ben	100
+ ben_adm0_3	geonode:ben	K
+ ben_adm0_4	geonode:ben	of:
+ ben_adm1	geonode:ben	Kissidouge
+ ben_adm2	geonode:ben	JJ J-
+ benin_cities	geonode:benin	17
+ benin_cities_1	geonode:benin	6/77
+ benin_rivers	geonode:benin	- Com
+ benin_rivers_1	geonode:benin	rovia Libe
+ benin_zones_urbaine	geonode:benin	
+ cours_eau_igip_polyl	geonode:cours	
+ MNT Bénin SRTM 90	aeonode:aeon	
	Add layers Done	© OpenSt

Figure 1.14: Selecting layers.

6. The layer will be added to the map. Click *Done* (right next to *Add Layers* at the bottom) to return to the main layer list.

#### Publishing data using GeoServer(2.7.4) and GeoNode(2.4)



Figure 1.15: Layer added to the map

## 3.2 Saving map

7. Click on the Map button in the toolbar, and select Save Map.



Figure 1.16: Save map link

8. Enter a title and abstract for your map.

	About this Map >
u u	Title:
	Benin Administration Boundaries
Ko	Abstract:
5 Sal	boundaries.
te c	Save as Copy Save Cancel
amo Oi gnoa (	ussoukro Abengourou Region umé Amoya Jacobo Region Kotoridua Lomé Divo Lagunes Western Asamankese

Figure 1.17: Save map dialog

9. Click Save.

## 3.3 Publishing the map

10. Make any final adjustments to the map composition as desired, including zoom and pan settings.



Figure 1.18: Adjusting map composition

11. Click the Map button in the toolbar, and then click Publish Map.



Figure 1.19: Publish map link

12. The title and abstract as previously created should still be there. Make any adjustments as necessary, and click *Save*.

13. A new dialog will appear with instructions on how to embed this map in a webpage, including a code snippet. You can adjust the parameters as necessary.



Figure 1.20: Map publishing options

Your map is now published and can now be shared.