Week 13 - Platforms and GeoServer Introduction

Thus far we have concentrated on the client side of geospatial services oriented architectures in developing web interfaces based upon the Google Maps API, the OpenLayers javascript framework, and accessing data published using the OGC WMS, WFS, and WCS standards in desktop applications. Starting this week we begin our work on the server side - working with the GeoServer server platform to publish data through the OGC WMS, WFS, and WCS service standards. This work will demonstrate the ease with which you can share data using these standards, facilitating client use such as that that we have seen in our web site and desktop application work.

Expected Outcomes

By the end of this class, students should be able to:

- Place files within the server file system for integration into the GeoServer platform
- Create a GeoServer *Workspace*, *Store*, and *Layer* based upon those data
- Test those layers using the *Layer Preview* tools integrated into GeoServer

Key Concepts

By the end of this class, students should understand:

- The components of a map server platform and their relationship to each other
- The role of a geospatial server within a geospatial services oriented architecture
- The information required about data to successfully configure it for publication within GeoServer
- The stepwise process through which a dataset may be published using GeoServer

Reference Materials

- Lynda.com *Learn the Linux Command Line: The Basics* - particularly:
  - Introduction
  - 1. Command-Line Basics
  - 2. Files, Folders, and Permissions
- GeoServer Online Documentation: sections Introduction, Getting Started, and Web Administration Interface

Weekly Milestone - Linux Basics and GeoServer Data Import

Working on the Class Server

For the GeoServer portion of our work, you will be working on a Linux server that has been created for the class. While we won't be doing a lot of Linux work, some basic familiarity with moving around, copying files, and working with files is needed. The class server is running Ubuntu Linux which is a broadly deployed, well supported operating system and computing platform that has excellent support for many Open Source geospatial applications, including those that we will be using in this class.

The first set of exercises relate to learning some basics about working with the Linux Operating system, applicable just about any Linux server including the class server.

Review (but don't worry about memorizing) the following materials (in addition to watching the Lynda.com video tutorial sections listed above):

Webmonkey "Unix Guide"

Linux Command Line Cheatsheet

QUESTION 1 What command would you use to list the contents of a directory on a linux system?

QUESTION 2 What command would you use to read the "manual page" for a specific command?

Log into the class Linux server - geog485.unm.edu. *This is different from the address referenced in the below linked videos* The rest of the process is the same as demonstrated in the videos.

Windows: Open PuTTY on your computer and connect using the SSH protocol (see video demonstration)

Link to the YouTube video demonstration for Windows

Mac: Open the Terminal Application and connect using SSH (see video)

Link to the YouTube video demonstration for Mac OS X

Start a session on the class Linux server, which is located at at the hostname `geog485.unm.edu` (you will use your class server username and password to open the connection)

Task Use the `mkdir data` command to create a directory called `data` in your home directory (the directory that you are in when you login, and where you go when you type the `cd` command with no options).

Adding data to GeoServer

To add data to GeoServer you must have a file location on the server where data files must be stored and accessible by the GeoServer.

Task Change into the `data` directory that you created above using the `cd data` command.

Task Copy all of the data files located in the `data` directory in my `Week13Data` folder by executing the following command from *inside your* `data` *directory.*

cp -r /geodata/data/demo/week13data/* . (make sure to include final '.')

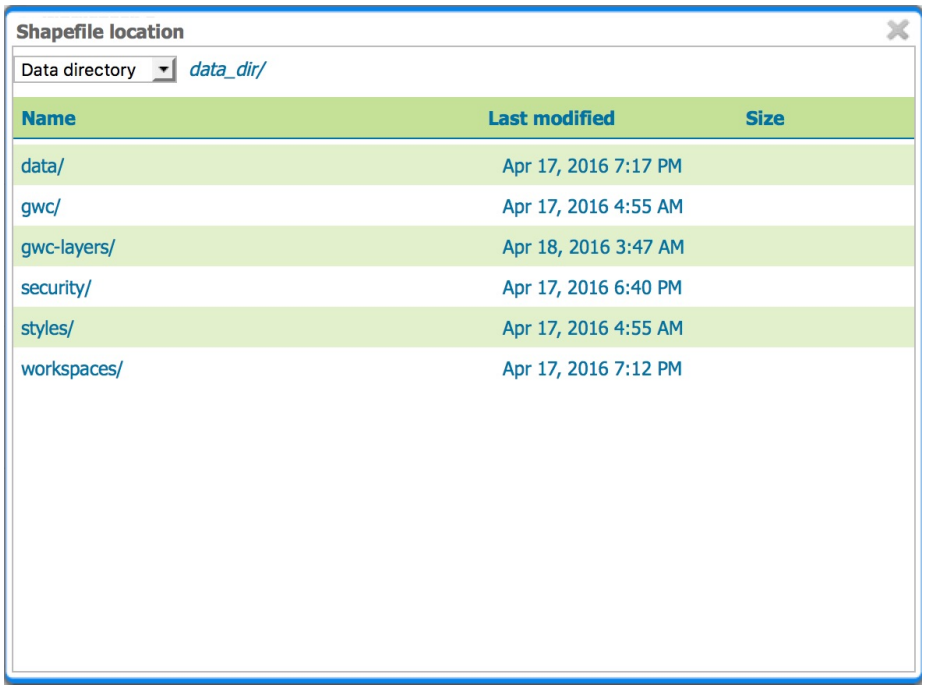
This will place a copy of these data files in your `data` directory

Task Log into the Geoserver on the class server (http://geog485.unm.edu:8080/geoserver/web/) using the username and password provided for the class server via email.

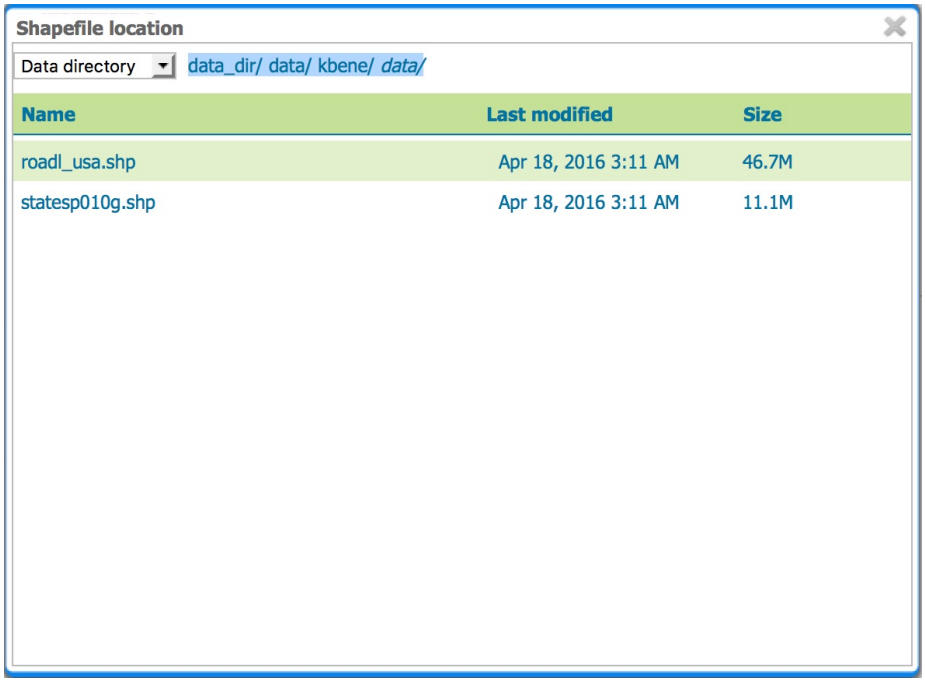
Create a new *store* for each of the datasets added to your `data` directory above. Assign the new store to the workspace that is named based on your username (e.g. `ws_<your user name>`. When specifying the the `Connection Parameters` for pointing to the file, the format is: `file:data/<your username>/data/<filename including any additional directories>` for example

`file:data/kbene/data/roadl_usa.shp`

You can also browse to the file by clicking on the "Browse …" link next to the location field, for example for a shapefile:



and navigating to your home directory (data_dir/data/<your username>/data) to see the data to select from.



Create a new *layer* for each of the *stores* added above. Here are some things to keep in mind:

You may need to designate the SRS for a layer if it can't be read directly from the dataset. Your specify the *designated* SRS using the standard EPSG:XXXX format.

The EPSG code for `GCS_North_American_1983` is EPSG:4269

Question 3 Preview each of your added layers, using the *Layer Preview* tool and the *Open Layers* option to display the data. Include screen grabs of the previews in your write-up.