# Installing WaterOneFlow for PHP Web Services on WampServer

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## How to use this tutorial:

For trial of WaterOneFlow for PHP (WOF for PHP) Web Services on a local computer without Internet Connection

For customizing the WOF for PHP, making changes in the source code and testing the effect of your changes before deployment on a public web server.

**What is WOF for PHP?**

WOF for PHP is a software that can run on a Web Server and that publishes hydrological observations that are stored in the ODM MySQL database in the standard WaterML format. This enables your data to be registered in the HIS Central catalogue. After publishing, the data and all related metadata (citation information) can be accessed by any user with internet connection through HydroExcel and HydroDesktop analysis tools.

**What is WampServer?**

WAMP (Windows Apache+MySQL+PHP) is a popular free software for testing dynamic web pages and web applications on a local computer with Microsoft Windows operating system.

**Files used in this tutorial:**

WOF\_PHP\_2.1.zip contains the web site of the web services

WOF\_PHP\_2.1\_Database.zip contains files for creating a sample database schema and adding sample data.

**Step 1: Install WampServer**

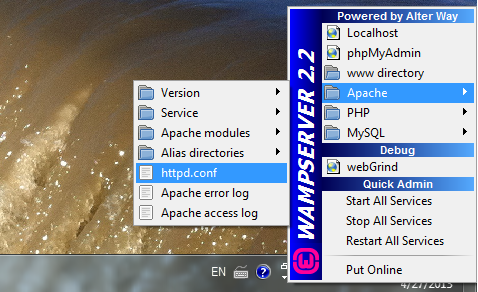
Go to the website www.wampserver.com, download and install it. Specify the local directory for websites (for example C:\wamp\www\).

**Step 2: Change WampServer localhost port number** (if you have IIS installed)

Change “Localhost” server port number for WAMP: This step is required if you have the IIS (Internet Information Services) or Skype installed. This is because in that case IIS already uses the <http://localhost/> address. If you don’t have IIS or Skype then you can skip to **Step 3**.

Start WAMP Server by going to Start – Programs – WAMPServer – Start WAMPServer.

Click on the “W” icon in the Windows task bar. Select Apache – httpd.conf



Change the line in httpd.conf

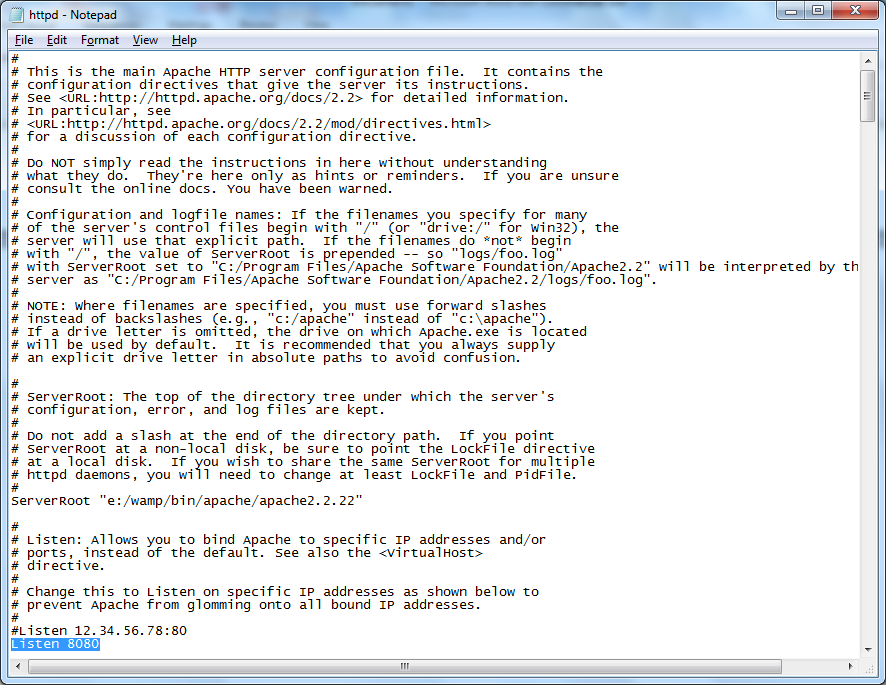
Listen 80

To:

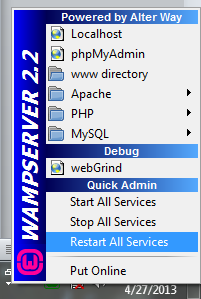
Listen 8080

After changing the line, save changes in the httpd.conf file.

This is the httpd.conf file. After doing the change, go to File – Save.

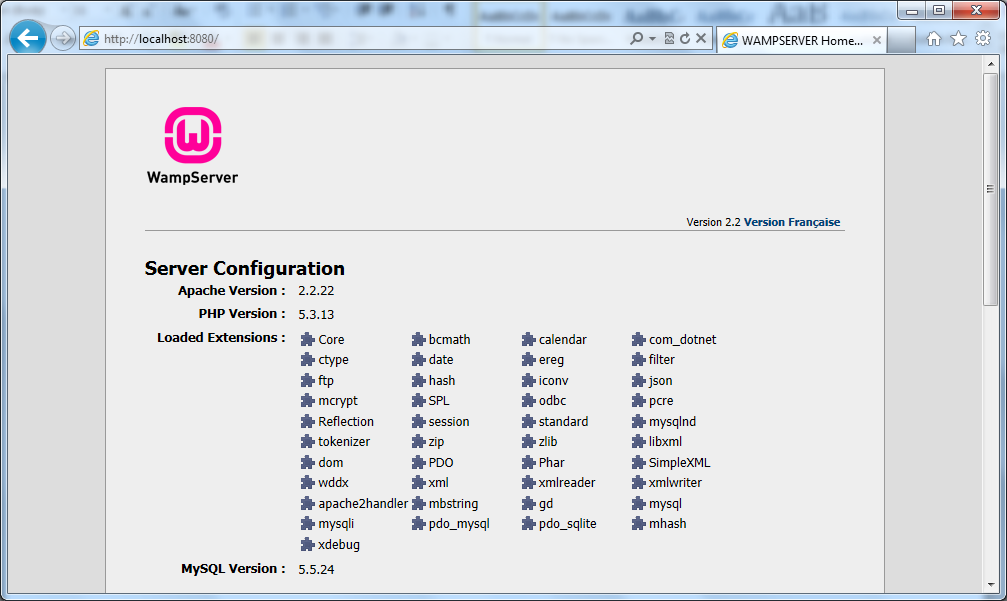


After saving the change, click the **WampServer** icon in the Windows Task Bar and select **Restart All Services**.



**Step 3 Test if WampServer is Running**

In your web browser (Internet Explorer) write <http://localhost:8080> in the address bar. If WAMP is installed correctly then you should see the following web page:



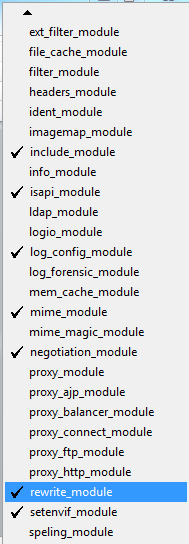
The page shows the Apache Version (2.2.22), PHP Version (5.3.13) and MySQL Database Version (5.5.24)

**Step 4 Enable the rewrite module**

The web services use a special module (mod\_rewrite) for changing the file extension of the web services from .php to .asmx. To enable mod\_rewrite:

In Windows task bar select WampServer – Apache – Apache Modules.

Check the checkbox **rewrite\_module**.



**Step 5 Create a new empty MySQL database**

In Internet Explorer go to <http://localhost:8080/phpmyadmin>

In the top toolbar select **databases**

Select Create new database

Enter the database name: **odmdata** and database collation: **utf8\_unicode\_ci** and click **Create**.

**Step 6 Create a new MySQL database user**

Click on the database **odmdata**.

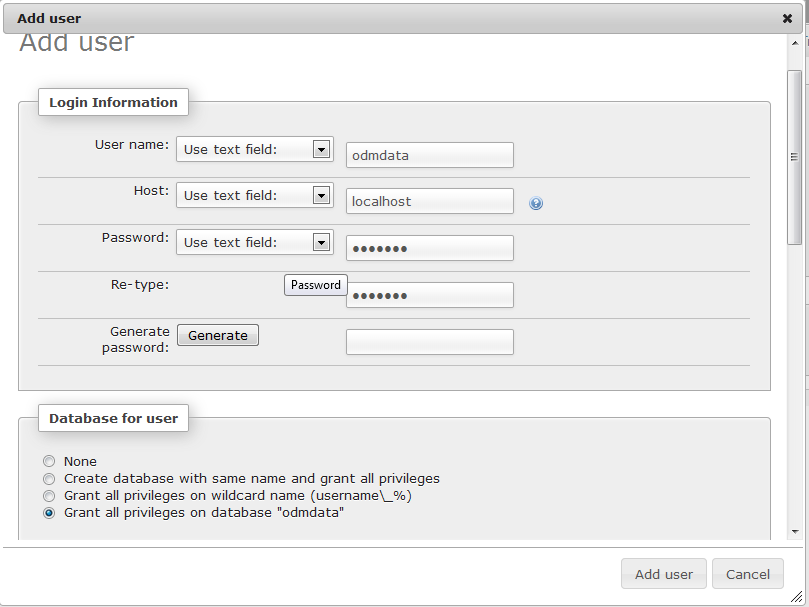
In the top panel click on **Privileges**

Click on **Add User**.

Enter the user information:

* User name: **odmdata**
* Host: **localhost**
* Password: **odmdata**
* Re-type: **odmdata**
* **Grant all privileges on database odmdata**.

Click **Add user**.



**Step 6 Import the ODM Database Schema**

In phpmyadmin go to **Databases**.

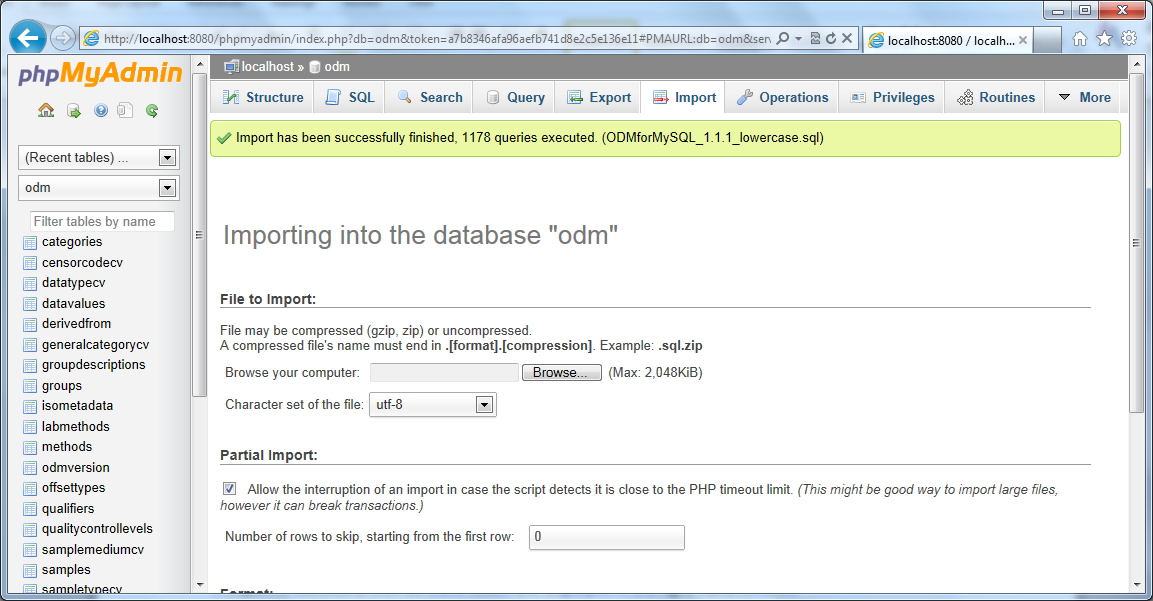
Select the database **odmdata**.

Select **Import**.

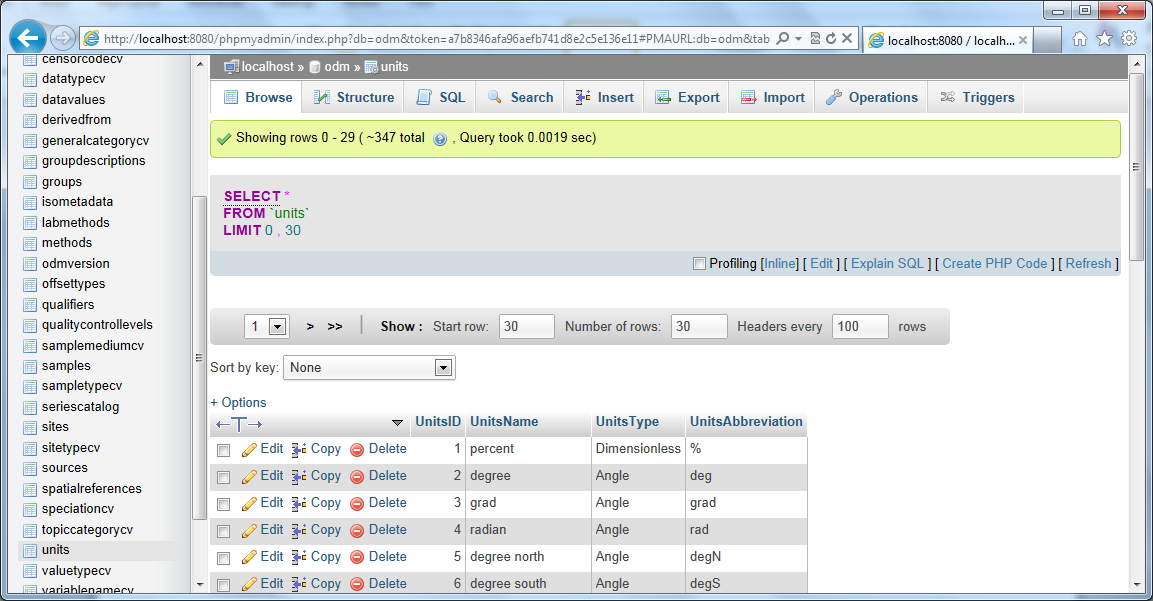
Click on browse… and select the text file **ODMforMySQL\_1.1.1.sql**.

Click **GO**.

If import is successful then all ODM tables are displayed in the right-hand column.



Check content of the tables: For example the table **units** has the default unit names and abbreviations included:



**Step 7 Add Sample Data to the Database:**

In phpmyadmin go to **Databases**.

Select the database **odmdata**.

Select **Import**.

select the file **LittleBear1.1.1\_MySQL\_metadata.sql**

(Note: This sample data is selected from the Little Bear River experimental watershed (Horsburgh et al 2012)

Click **Go**.

The sites, variables, methods, sources, offset types, samples, lab methods and other data are imported to the database.

**Step 8 Import Data Values to Database from CSV files**

Unzip the file **LittleBear1.1.1\_MySQL\_DataValues.zip**

In phpmyadmin go to **Databases**.

Select the database **odmdata**.

Click on the table **datavalues**.

Select **Import**.

Select the file **series\_001.csv**.

Click **Go**.

Repeat the steps for more files. In each file are the data values for one time series (combination of site, variable, method, source and QualityControlLevel). For testing purposes it is sufficient to import one or two files for example series\_001.csv and series\_002.csv.

**Step 8 Setup the Web Services**

In Windows task bar go to **WampServer** – **www directory**. The directory is opened in Windows Explorer.

Copy the file WaterOneFlow\_PHP\_2.1.zip to the WampServer www directory.

Unzip the file and rename the unzipped directory to **wof.**

Go to the **services** subfolder of the wof folder.

Edit the file **services\_config.php** and change the file as follows:

//MySql Database Configuration Settings

define("DATABASE\_HOST", "localhost"); //for example define("DATABASE\_HOST", "your\_database\_host");

define("DATABASE\_USERNAME", "odmdata"); //for example define("DATABASE\_USERNAME", "your\_database\_username");

define("DATABASE\_NAME", "odmdata"); //for example define("DATABASE\_NAME", "your\_database\_name");

define("DATABASE\_PASSWORD", "odmdata"); //for example define("DATABASE\_PASSWORD", "your\_database\_password");

//Service code Settings

define("SERVICE\_CODE", "odmdata");

**Step 9 Test the Web Services in Browser**

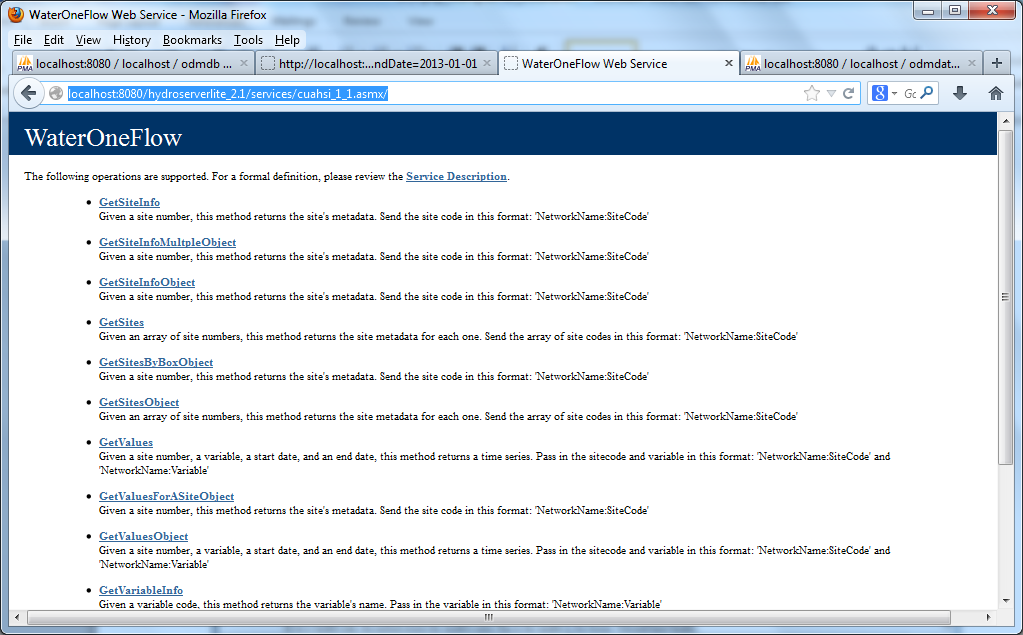
In Internet Explorer go to <http://localhost:8080/wof/services/>

You should see the initial web services page.



Click on Web Service Test Page.

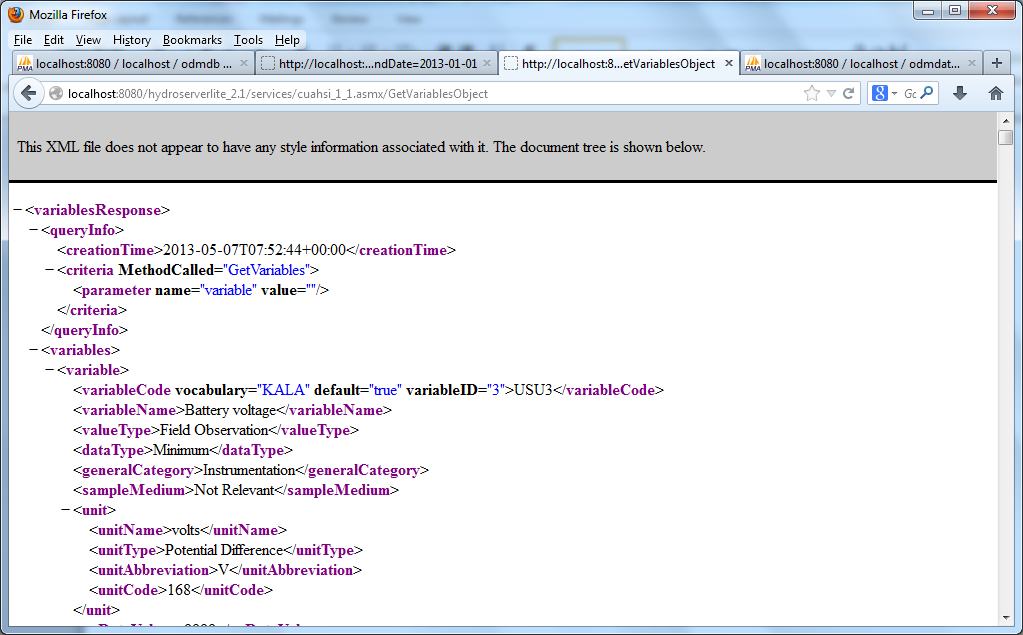
This will go to URL like: <http://localhost:8080/wof/services/cuahsi_1_1.asmx>



Test the web service method:

[http:/localhost:8080/wof/services/cuahsi\_1\_1.asmx/GetVariablesObject](http://localhost:8080/wof/services/cuahsi_1_1.asmx/GetVariablesObject)

Browser will show the XML file with the variables in the database.



**Step 10 Access the Web Services in HydroDesktop**

Install HydroDesktop from <http://hydrodesktop.codeplex.com>

Select New Project – North America

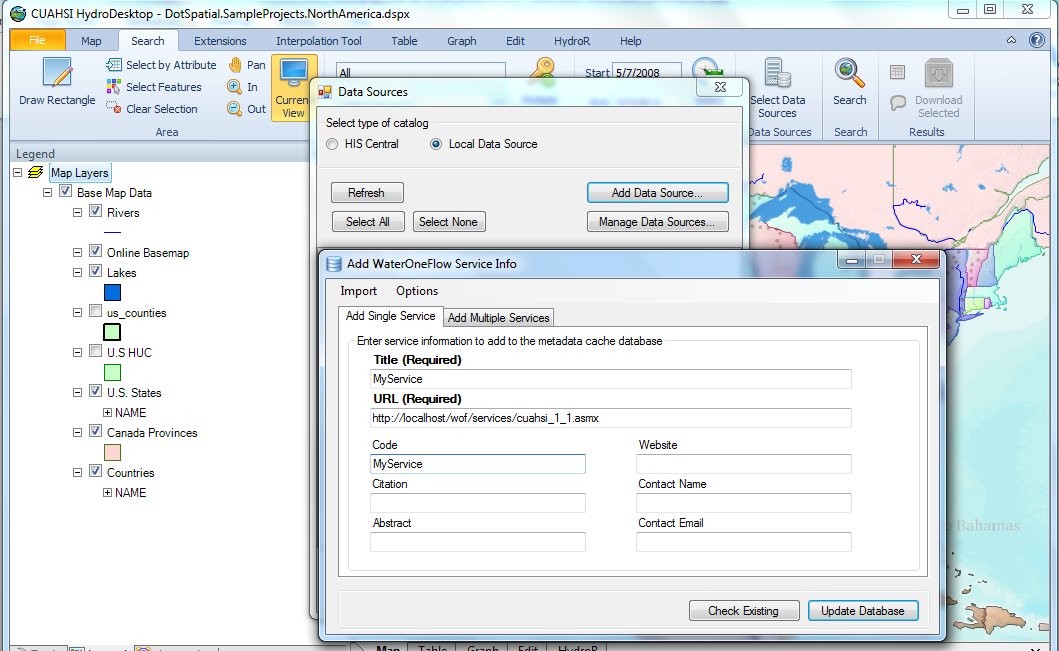
Go to **Search tab**

Click on **Data Sources**

Select **Local Data Source**

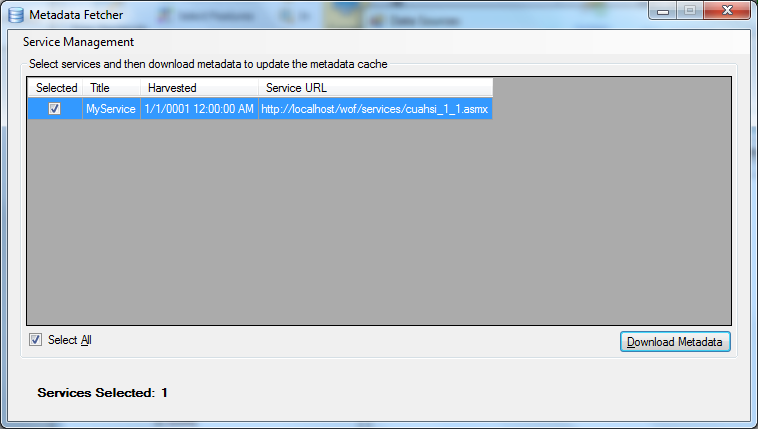
Click **Add Data Source**

Enter name: **MyService** , url: <http://localhost:8080/wof/services/cuahsi_1_1.asmx> and Code: **MyService**



Click **Update Database**

In the next window Select All and click Download Metadata.



HydroDesktop retrieves the site and variable metadata information from the service.

In Search tab go to Data Sources.

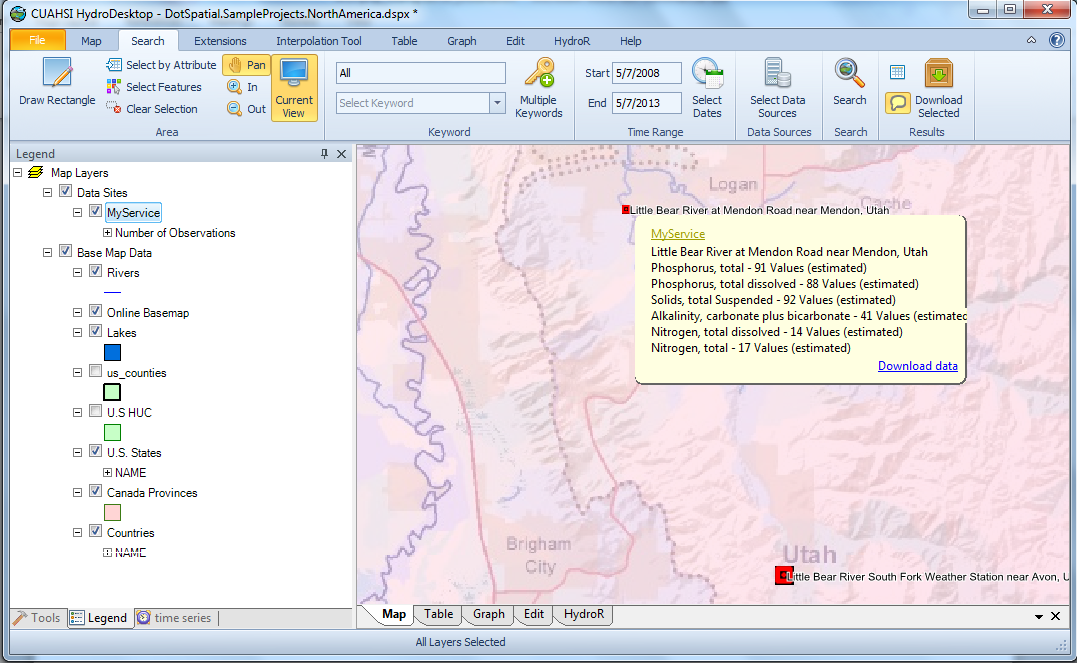
Select again Local Data Source.

In Search tab use the **In** button to zoom to the Utah State region.

In Search tab click Search.

The sites are added to the map

(If you didn’t import all data values files in step 8, only one site might be displayed)



Click Download data to download the data values and show in HydroDesktop graph:

