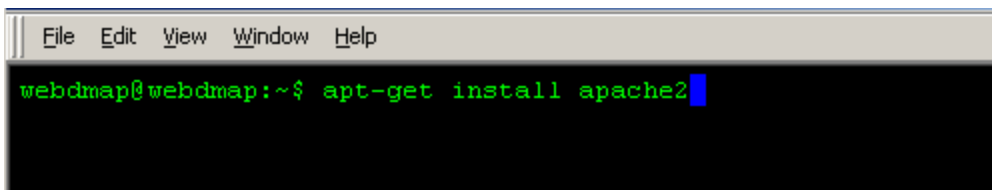


WebDMAP v4.0: Installation Guide (updated: 11/25/2009)

This installation guide has been written for Ubuntu 9.10 Server AMD64. The installation procedure will work for dedicated and virtual hosts. The default username for the virtual machine is webdmap and the password is wdm2009. The same password is used for all services installed on the virtual machine (i.e. postgres and the default webdmap user).

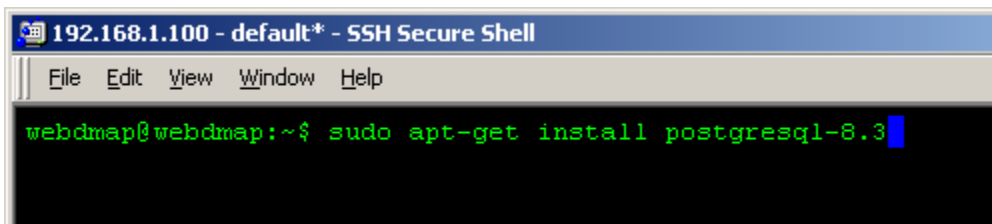
Software Install

1. (Optional) Install OpenSSH server
2. Install Apache webserver



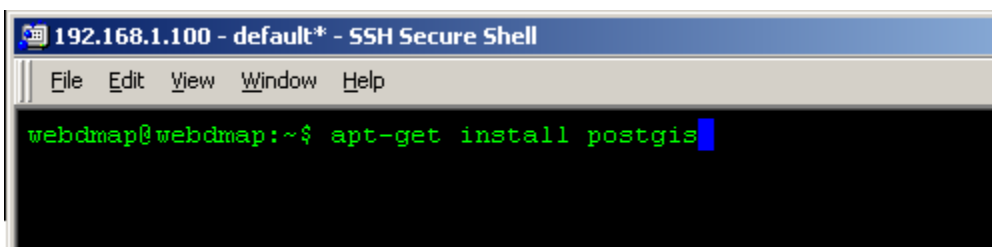
```
File Edit View Window Help
webdmap@webdmap:~$ apt-get install apache2
```

3. Install PostgreSQL 8.3 (Note the version. PostGIS libs for 8.4 not available yet.)

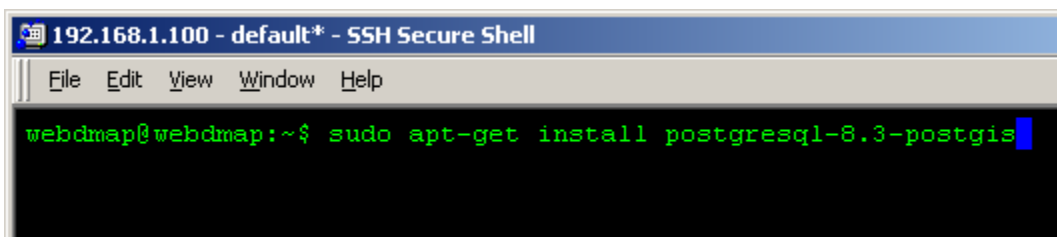


```
192.168.1.100 - default* - SSH Secure Shell
File Edit View Window Help
webdmap@webdmap:~$ sudo apt-get install postgresql-8.3
```

4. Install PostGIS (Version 1.3.5 – latest available on Ubuntu repositories.)

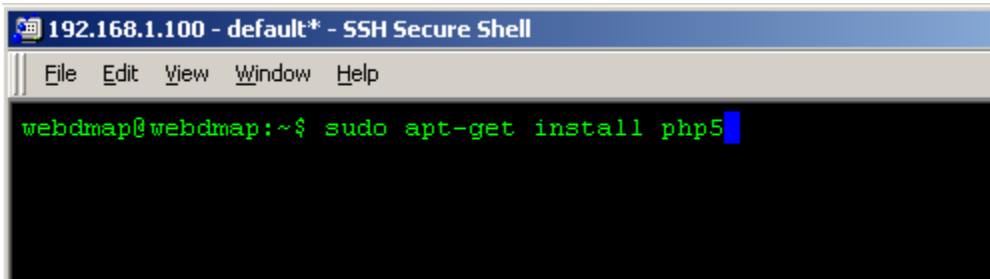


```
192.168.1.100 - default* - SSH Secure Shell
File Edit View Window Help
webdmap@webdmap:~$ apt-get install postgis
```



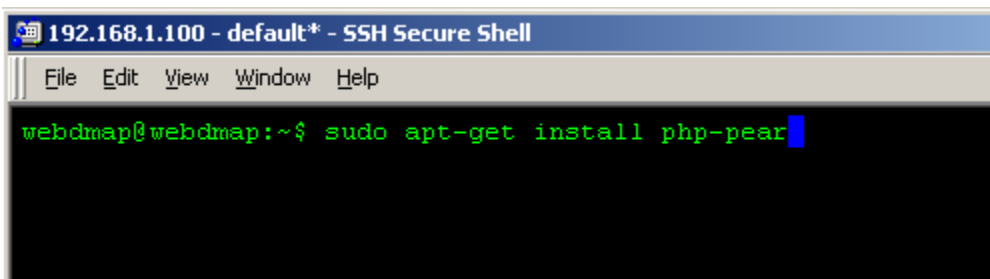
```
192.168.1.100 - default* - SSH Secure Shell
File Edit View Window Help
webdmap@webdmap:~$ sudo apt-get install postgresql-8.3-postgis
```

5. Install PHP5



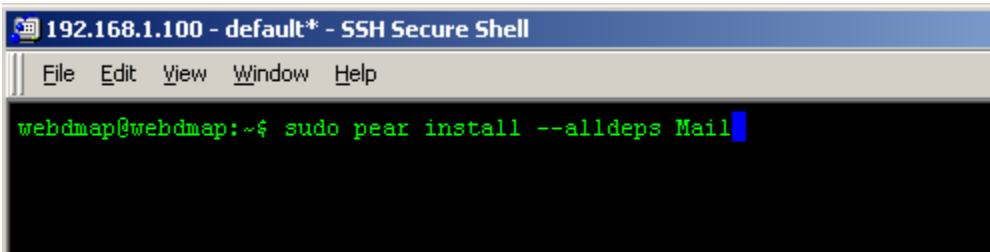
```
192.168.1.100 - default* - SSH Secure Shell
File Edit View Window Help
webdmap@webdmap:~$ sudo apt-get install php5
```

6. Install PHP-PEAR



```
192.168.1.100 - default* - SSH Secure Shell
File Edit View Window Help
webdmap@webdmap:~$ sudo apt-get install php-pear
```

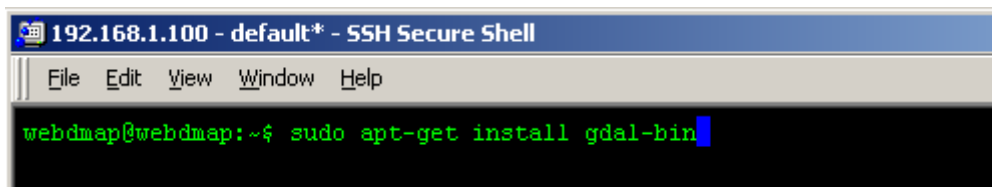
7. Install Mail Factory for PHP5



```
192.168.1.100 - default* - SSH Secure Shell
File Edit View Window Help
webdmap@webdmap:~$ sudo pear install --alldeps Mail
```

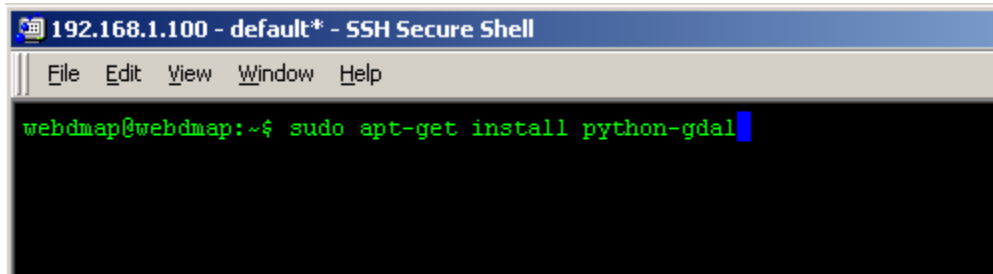
8. Install GDAL 1.6 Libraries (Note: the version is important. See <http://help.maptiler.org/betatest/> for help if the default Ubuntu repositories do not have the latest version)

a. Install gdal-bin



```
192.168.1.100 - default* - SSH Secure Shell
File Edit View Window Help
webdmap@webdmap:~$ sudo apt-get install gdal-bin
```

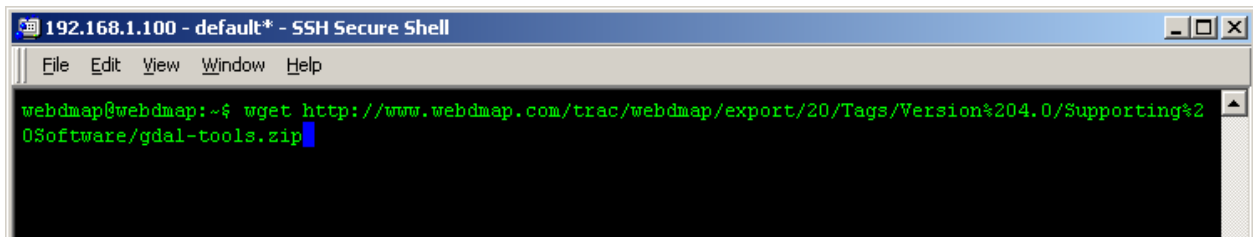
b. Install python-gdal



```
192.168.1.100 - default* - SSH Secure Shell
File Edit View Window Help
webdmap@webdmap:~$ sudo apt-get install python-gdal
```

9. Install GDAL-based DEM Utilities (see <http://www.perrygeo.net/wordpress/?p=7>)

a. Download scripts



```
192.168.1.100 - default* - SSH Secure Shell
File Edit View Window Help
webdmap@webdmap:~$ wget http://www.webdmap.com/trac/webdmap/export/20/Tags/Version%204.0/Supporting%20Software/gdal-tools.zip
```

Download file from:

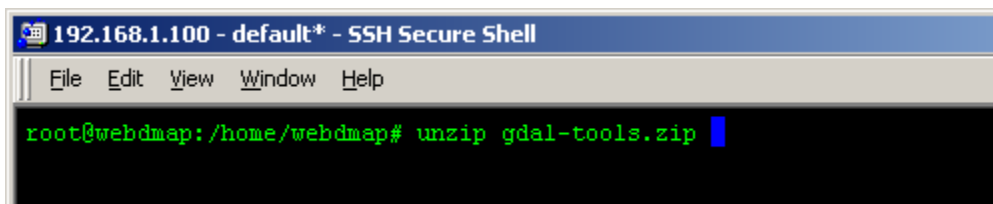
<http://www.webdmap.com/trac/webdmap/export/20/Tags/Version%204.0/Supporting%20Software/gdal-tools.zip>

(You can copy this link from <http://www.webdmap.com> → Tags → Version 4.0 → Supporting Software → gdal_tools.zip).

These tools were downloaded from: <http://www.perrygeo.net/wordpress/?p=7>

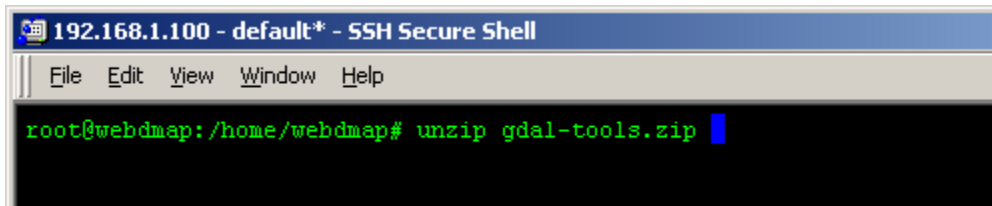
b. Compile scripts

Shell to SU mode. Unzip gdal-tools.zip.



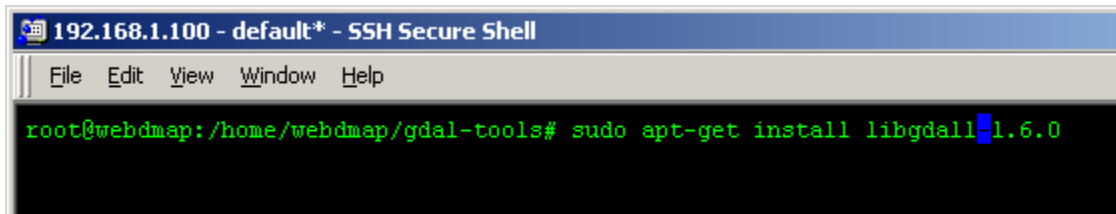
```
192.168.1.100 - default* - SSH Secure Shell
File Edit View Window Help
root@webdmap:/home/webdmap# unzip gdal-tools.zip
```

Install g++ if it is not already installed



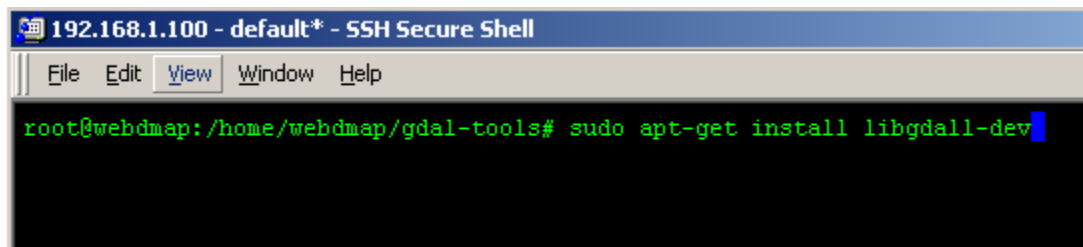
```
192.168.1.100 - default* - SSH Secure Shell
File Edit View Window Help
root@webdmap:/home/webdmap# unzip gdal-tools.zip
```

Install libgdal-1.6.0 (note: version is important. See step 8). Also note the l and 1 – as in libgdall-1.6.0.



```
192.168.1.100 - default* - SSH Secure Shell
File Edit View Window Help
root@webdmap:/home/webdmap/gdal-tools# sudo apt-get install libgdall-1.6.0
```

Install libgdall-dev (note the l1) {RETURN TO THIS STEP IF THE COMPILE FAILS → SKIP FOR NOW}



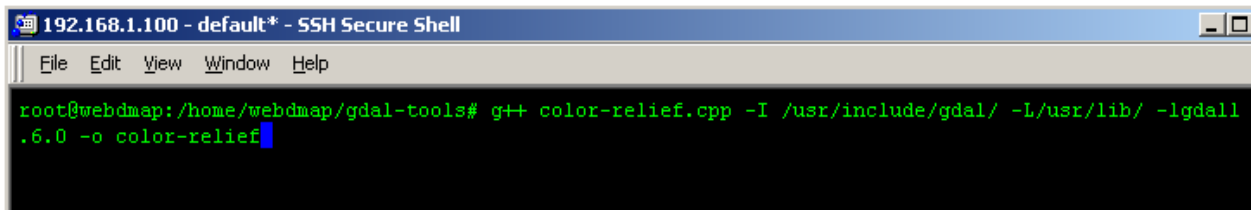
```
192.168.1.100 - default* - SSH Secure Shell
File Edit View Window Help
root@webdmap:/home/webdmap/gdal-tools# sudo apt-get install libgdall-dev
```

IMPORTANT → Open color-relief.cpp and move the line *using namespace std;* above the line *#include "stringtok.h"*



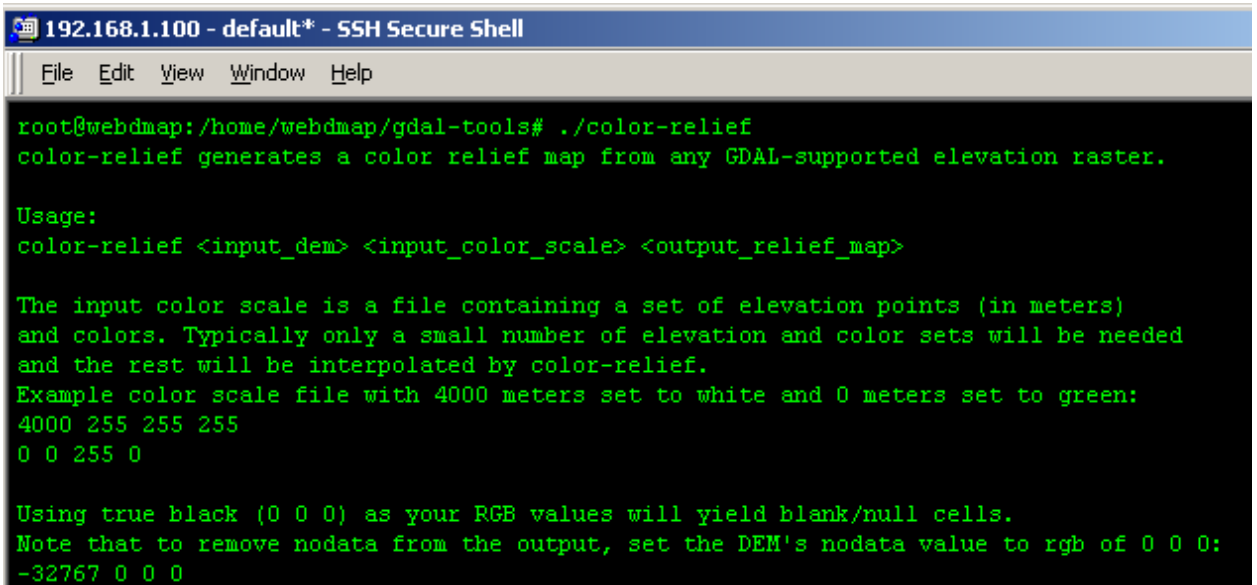
```
#include <iostream>
#include <stdlib.h>
#include <fstream>
#include <list>
#include "gdal_priv.h"
using namespace std;
#include "stringtok.h"
struct SColor
{
```

Now, you are ready to compile! Use `g++ color-relief.cpp -I /usr/include/gdal/ -L/usr/lib/ -lgdal1.6.0 -o color-relief`



```
192.168.1.100 - default* - SSH Secure Shell
File Edit View Window Help
root@webdmap:/home/webdmap/gdal-tools# g++ color-relief.cpp -I /usr/include/gdal/ -L/usr/lib/ -lgdal1.6.0 -o color-relief
```

c. Test color-relief



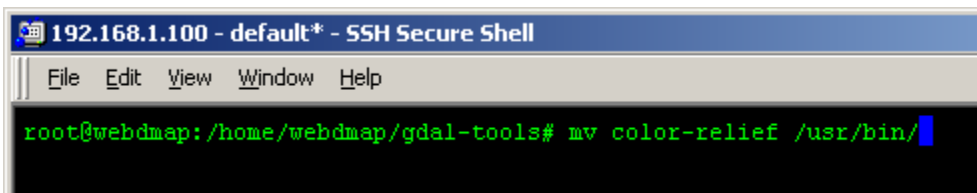
```
192.168.1.100 - default* - SSH Secure Shell
File Edit View Window Help
root@webdmap:/home/webdmap/gdal-tools# ./color-relief
color-relief generates a color relief map from any GDAL-supported elevation raster.

Usage:
color-relief <input_dem> <input_color_scale> <output_relief_map>

The input color scale is a file containing a set of elevation points (in meters)
and colors. Typically only a small number of elevation and color sets will be needed
and the rest will be interpolated by color-relief.
Example color scale file with 4000 meters set to white and 0 meters set to green:
4000 255 255 255
0 0 255 0

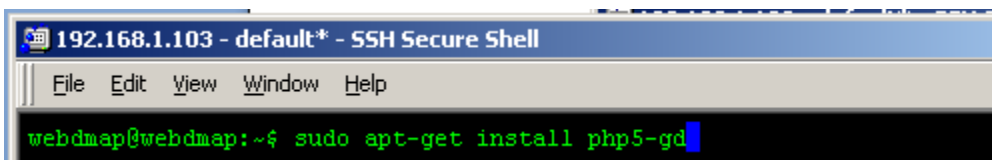
Using true black (0 0 0) as your RGB values will yield blank/null cells.
Note that to remove nodata from the output, set the DEM's nodata value to rgb of 0 0 0:
-32767 0 0 0
```

d. Move to /usr/bin folder



```
192.168.1.100 - default* - SSH Secure Shell
File Edit View Window Help
root@webdmap:/home/webdmap/gdal-tools# mv color-relief /usr/bin/
```

10. Install php5-gd library

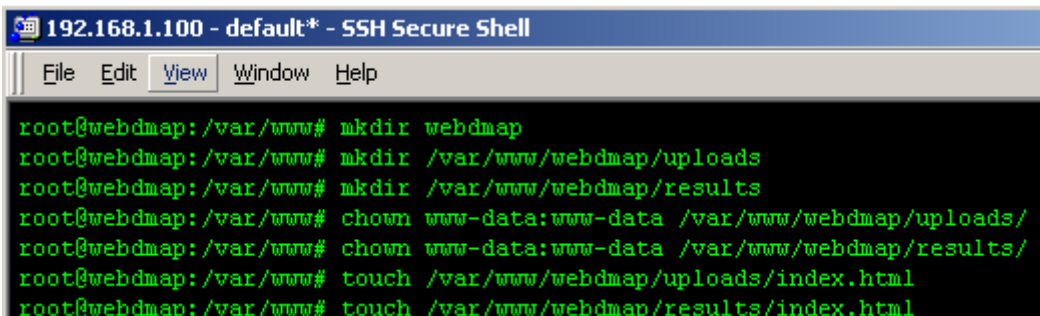


```
192.168.1.103 - default* - SSH Secure Shell
File Edit View Window Help
webdmap@webdmap:~$ sudo apt-get install php5-gd
```

Configure Software

1. Configure Web Directories

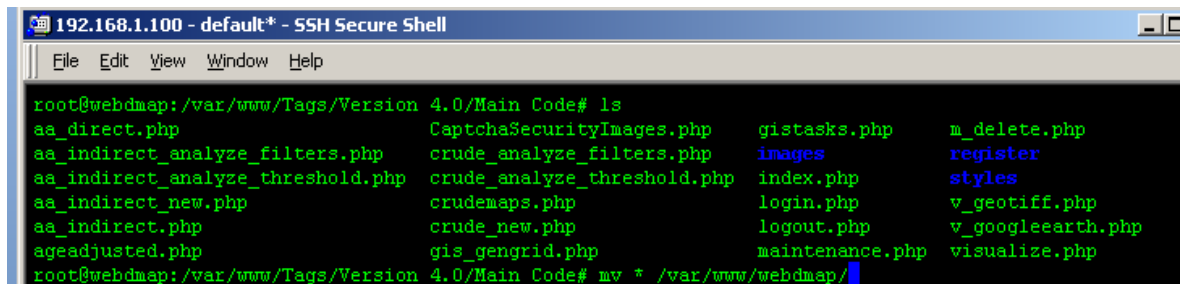
- a. Create directory webdmap under `/var/www`
- b. Create directory uploads under `/var/www/webdmap`
- c. Create directory results under `/var/www/webdmap`
- d. Change owner on uploads and results
 - i. `cd /var/www/webdmap`
 - ii. `chown www-data:www-data -R uploads/`
 - iii. `chown www-data:www-data -R results/`
- e. Create blank index pages under uploads and results
 - i. `cd /var/www/webdmap/uploads`
 - ii. `touch index.html`
 - iii. `cd /var/www/webdmap/results`
 - iv. `touch index.html`



```
192.168.1.100 - default* - SSH Secure Shell
File Edit View Window Help
root@webdmap:/var/www# mkdir webdmap
root@webdmap:/var/www# mkdir /var/www/webdmap/uploads
root@webdmap:/var/www# mkdir /var/www/webdmap/results
root@webdmap:/var/www# chown www-data:www-data /var/www/webdmap/uploads/
root@webdmap:/var/www# chown www-data:www-data /var/www/webdmap/results/
root@webdmap:/var/www# touch /var/www/webdmap/uploads/index.html
root@webdmap:/var/www# touch /var/www/webdmap/results/index.html
```

- f. Download and unzip webdmap files from <http://www.webdmap.com/trac/webdmap/changeset/20/Tags/Version%204.0?oldpath=%2F&format=zip>
- g. Move everything from the *Main Code* (Tags → Version 4.0 → Main Code) folder to `/var/www/webdmap`

`mv * /var/www/webdmap`

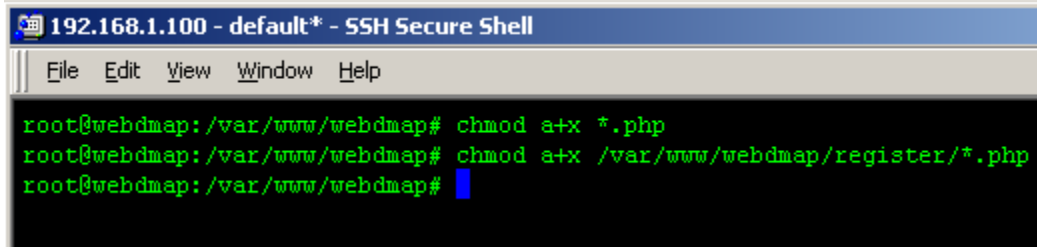


```
192.168.1.100 - default* - SSH Secure Shell
File Edit View Window Help
root@webdmap:/var/www/Tags/Version 4.0/Main Code# ls
aa_direct.php          CaptchaSecurityImages.php  gistasks.php           m_delete.php
aa_indirect_analyze_filters.php  crude_analyze_filters.php  images                 register
aa_indirect_analyze_threshold.php  crude_analyze_threshold.php  index.php              styles
aa_indirect_new.php          crudemaps.php              login.php              v_geotiff.php
aa_indirect.php             crude_new.php              logout.php             v_googleearth.php
ageadjusted.php           gis_gengrid.php           maintenance.php        visualize.php
root@webdmap:/var/www/Tags/Version 4.0/Main Code# mv * /var/www/webdmap/
```

- h. Change directory to `/var/www/webdmap`. Change permissions:

```
chmod a+x *.php
```

```
chmod a+x /var/www/webdmap/register/*.php
```



The screenshot shows an SSH terminal window titled "192.168.1.100 - default* - SSH Secure Shell". The terminal displays the following commands and their output:

```
root@webdmap:/var/www/webdmap# chmod a+x *.php
root@webdmap:/var/www/webdmap# chmod a+x /var/www/webdmap/register/*.php
root@webdmap:/var/www/webdmap#
```

- i. Modify the headers for all the php scripts. Remember to modify registration.php (under `/var/www/webdmap/register.php`).

Please make note of the postgres password that you use here. You'll have to use the same password in the next step.

2. Configure PostgreSQL and PostGIS

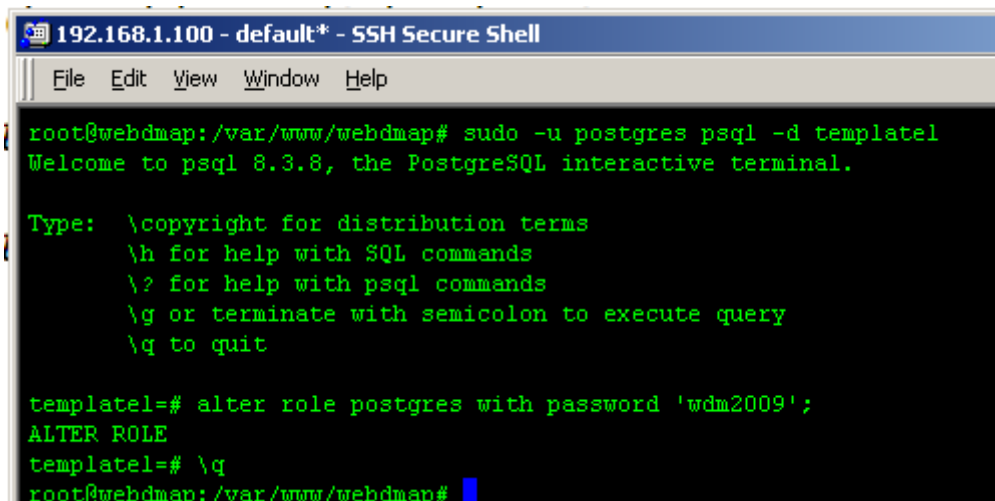
- a. Setup postgres admin password

```
sudo -u postgres psql -d template1
```

```
alter role postgres with password 'wdm2009';
```

```
\q
```

Note: password is `wdm2009`. This is the default password for the WebDMAP VM. Use no more than 8 characters here.



The screenshot shows an SSH terminal window titled "192.168.1.100 - default* - SSH Secure Shell". The terminal displays the following commands and their output:

```
root@webdmap:/var/www/webdmap# sudo -u postgres psql -d template1
Welcome to psql 8.3.8, the PostgreSQL interactive terminal.

Type:  \copyright for distribution terms
       \h for help with SQL commands
       \? for help with psql commands
       \g or terminate with semicolon to execute query
       \q to quit

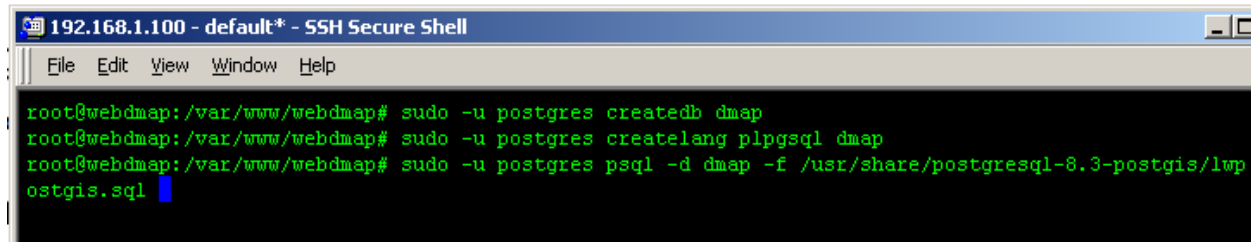
templatel=# alter role postgres with password 'wdm2009';
ALTER ROLE
templatel=# \q
root@webdmap:/var/www/webdmap#
```

b. Setup database dmap and install spatial extensions

```
sudo -u postgres createdb dmap
```

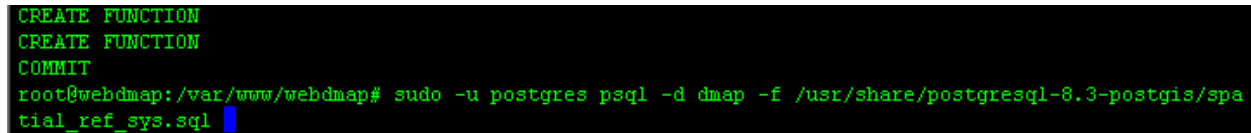
```
sudo -u postgres createlang plpgsql dmap
```

```
sudo -u postgres psql -d dmap -f /usr/share/postgresql-8.3-postgis/lwpostgis.sql
```



```
192.168.1.100 - default* - SSH Secure Shell
File Edit View Window Help
root@webdmap:/var/www/webdmap# sudo -u postgres createdb dmap
root@webdmap:/var/www/webdmap# sudo -u postgres createlang plpgsql dmap
root@webdmap:/var/www/webdmap# sudo -u postgres psql -d dmap -f /usr/share/postgresql-8.3-postgis/lwpostgis.sql
```

```
sudo -u postgres psql -d dmap -f /usr/share/postgresql-8.3-postgis/spatial_ref_sys.sql
```



```
CREATE FUNCTION
CREATE FUNCTION
COMMIT
root@webdmap:/var/www/webdmap# sudo -u postgres psql -d dmap -f /usr/share/postgresql-8.3-postgis/spatial_ref_sys.sql
```

Note that the order of the above commands is important

c. Install webdmap database functions

Change back to the Tags download directory (this is what you downloaded in step 1f of this section). Change to the Database Functions directory.

Install the SQL scripts in the following order:

```
sudo -u postgres psql -d dmap -f types.sql
```

```
sudo -u postgres psql -d dmap -f calculate_filtersizes.sql
```

```
sudo -u postgres psql -d dmap -f computeratefilters.sql
```

```
sudo -u postgres psql -d dmap -f computeweight_indirect.sql
```

```
sudo -u postgres psql -d dmap -f computegrid_quad.sql
```

```
sudo -u postgres psql -d dmap -f computegrid_reg.sql
```

```
sudo -u postgres psql -d dmap -f computerates_direct.sql
```

```
sudo -u postgres psql -d dmap -f subtotal.sql
```

```
sudo -u postgres psql -d dmap -f computerate.sql
```

```
sudo -u postgres psql -d dmap -f users.sql
```

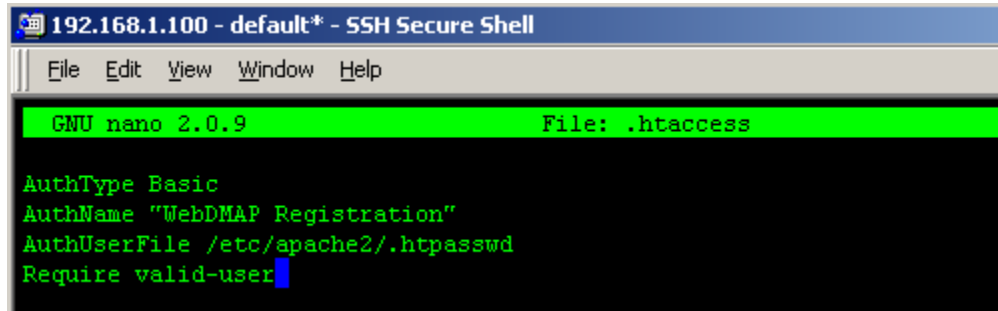
If you get an error → STOP!

3. Setup Apache2

- a. Create .htaccess file in /var/www/webdmap/register

```
cd /var/www/webdmap/register  
nano .htaccess
```

enter the details as shown below:

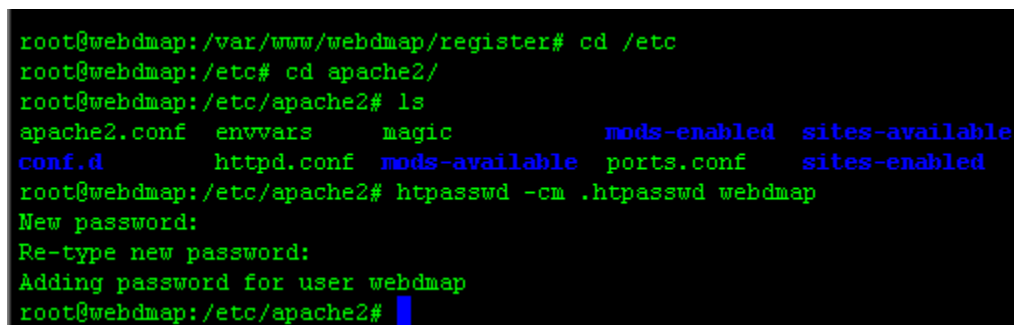


```
192.168.1.100 - default* - SSH Secure Shell  
File Edit View Window Help  
GNU nano 2.0.9 File: .htaccess  
AuthType Basic  
AuthName "WebDMap Registration"  
AuthUserFile /etc/apache2/.htpasswd  
Require valid-user
```

- b. Create .htpasswd under /etc/apache2

```
cd /etc/apache2  
htpasswd -cm .htpasswd webdmap
```

(enter wdm2009 as the password)

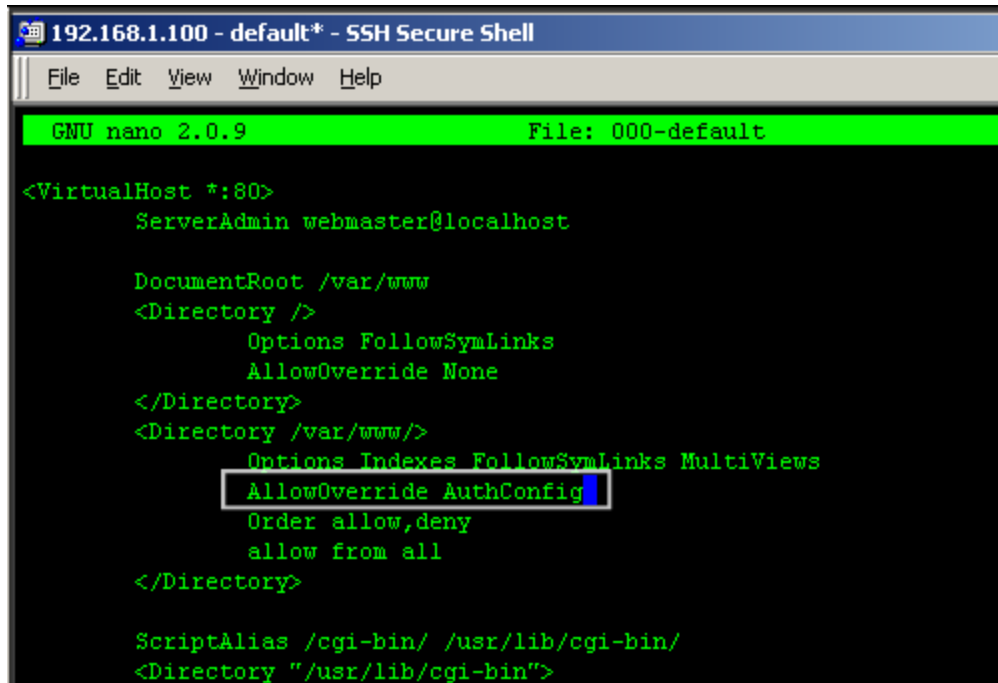


```
root@webdmap:/var/www/webdmap/register# cd /etc  
root@webdmap:/etc# cd apache2/  
root@webdmap:/etc/apache2# ls  
apache2.conf  envvars      magic          mods-enabled  sites-available  
conf.d        httpd.conf   mods-available ports.conf     sites-enabled  
root@webdmap:/etc/apache2# htpasswd -cm .htpasswd webdmap  
New password:  
Re-type new password:  
Adding password for user webdmap  
root@webdmap:/etc/apache2#
```

- c. Set AuthConfig directive

```
cd /etc/apache2/sites-enabled/  
nano 000-default
```

Change AllowOverride to AuthConfig as shown in the image below.



```
192.168.1.100 - default* - SSH Secure Shell
File Edit View Window Help
GNU nano 2.0.9 File: 000-default

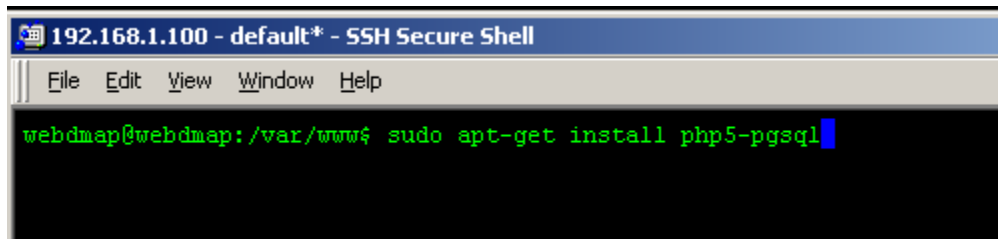
<VirtualHost *:80>
    ServerAdmin webmaster@localhost

    DocumentRoot /var/www
    <Directory />
        Options FollowSymLinks
        AllowOverride None
    </Directory>
    <Directory /var/www/>
        Options Indexes FollowSymLinks MultiViews
        AllowOverride AuthConfig
        Order allow,deny
        allow from all
    </Directory>

    ScriptAlias /cgi-bin/ /usr/lib/cgi-bin/
    <Directory "/usr/lib/cgi-bin">
```

d. Setup PHP PgSQL lib

```
sudo apt-get install php5-pgsql
```

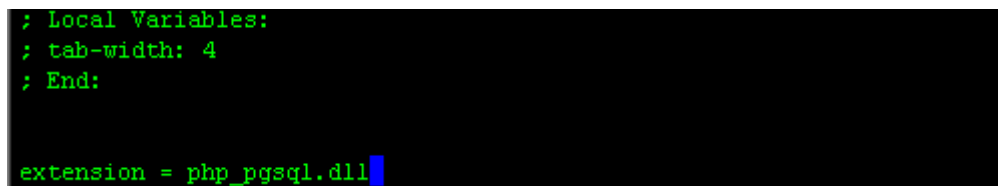


```
192.168.1.100 - default* - SSH Secure Shell
File Edit View Window Help

webdmap@webdmap:/var/www$ sudo apt-get install php5-pgsql
```

e. You may need to edit php.ini under /etc/php5/apache2 and add the following line:

```
cd /etc/php5/apache2
nano php5.ini
extension = php_pgsql.dll
```



```
; Local Variables:
; tab-width: 4
; End:

extension = php_pgsql.dll
```

```
/etc/init.d/apache2 restart
```

4. Final steps

Adding a new user to WebDMAP

- a. Open a web browser to <http://hostname/webdmap/register>*
- b. Login with the username and password you created in section 3b on page 9
- c. Create a username and password (password must be ≤ 8 characters). The user accounts and user directories are automatically created. However, you must manually add the user to `.htpasswd` under `/etc/apache2` {`sudo htpasswd -m .htpasswd username`}

* to access this page, you will need to login with the username and password created in section 3b on page 9 of this manual. Users once created will only have access to their own projects and their own output files. Users will have to be manually deleted.