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Creating virtual hosts on Apache

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This tutorial is intended for use only in a local testing environment on Windows. For a production server, please refer to the [official documentation](#) on the Apache site. These instructions have been updated for Apache ٢.٤ and later.

A common problem with setting up virtual hosts in a local testing environment is getting the following message when accessing a virtual host:

- **Forbidden**
  You don't have permission to access /index.php on this server.

Because of the permissions issue, I recommend creating a top-level folder to hold all virtual hosts. The following instructions assume that all virtual hosts are located in a folder called `C:\vhosts`.

NOTE: Security restrictions on Windows Vista and Windows ٧ (and presumably Windows ٨) prevent you from saving edits to the files referred to in these instructions, even if you are logged in as an administrator. To get around this restriction, open Notepad or your script editor from the Start menu by right-clicking the program name and selecting "Run as Administrator" from the context menu. Then open the relevant files by using File > Open inside the program you have just launched. By default, Notepad shows only files with a `.txt` file name extension, so you need to select the option to view All Files (*.*) in the Open dialog box. You can then save the files normally after editing them. (If you're using [XAMPP](#), this restriction applies only to steps ٢–٤.)

١. Create a subfolder inside `C:\vhosts` for each virtual host that you want to add to your Apache server.

٢. Open `C:\WINDOWS\system٣٢\drivers\etc\hosts` in Notepad or a script editor. Look for the following line at the bottom:

```
١٢٧.٠.٠.١    localhost
```

٣. On a separate line, enter ١٢٧.٠.٠.١, followed by some space and the name of the virtual host you want to register. For instance, to set up a virtual host called `phpdw`, enter the following:

```
١٢٧.٠.٠.١    phpdw
```

٤. Add any further virtual hosts, each one on a separate line and pointing to the same IP address (١٢٧.٠.٠.١). Save the `hosts` file, and close it.

٥. Open the main Apache configuration file, `httpd.conf`, in a text editor. It's in the Apache `conf` folder. If you're using XAMPP, the file is located at `C:\xampp\apache \conf\httpd.conf`. Scroll down to the Supplemental configuration section at the end, and locate the following section (around line ٥٠٠):

```
#Virtual hosts #Include conf/extra/httpd-vhosts.conf
```

٦. Remove the # from the beginning of the second line so the section now looks like this:

```
#Virtual hosts Include conf/extra/httpd-vhosts.conf
```

٧. Save `httpd.conf` and close it.

٨. Open `extra\httpd-vhosts.conf` in Notepad or a text editor. If you're using XAMPP, the location is `C:\xampp\apache\conf\extra\httpd-vhosts.conf`. The main section looks like this:

```
13  # You may use the command line option '-S' to verify your virtual host
14  # configuration.
15
16  #
17  # Use name-based virtual hosting.
18  #
19  NameVirtualHost *:80
20
21  #
22  # VirtualHost example:
23  # Almost any Apache directive may go into a VirtualHost container.
24  # The first VirtualHost section is used for all requests that do not
25  # match a ServerName or ServerAlias in any <VirtualHost> block.
26  #
27  <VirtualHost *:80>
28      ServerAdmin webmaster@dummy-host.home
29      DocumentRoot /www/docs/dummy-host.home
30      ServerName dummy-host.home
31      ServerAlias www.dummy-host.home
32      ErrorLog logs/dummy-host.home-error_log
33      CustomLog logs/dummy-host.home-access_log common
34  </VirtualHost>
35
36  <VirtualHost *:80>
37      ServerAdmin webmaster@dummy-host2.home
38      DocumentRoot /www/docs/dummy-host2.home
39      ServerName dummy-host2.home
40      ErrorLog logs/dummy-host2.home-error_log
41      CustomLog logs/dummy-host2.home-access_log common
42  </VirtualHost>
```

Note: In XAMPP, all lines are commented out. You must remove the hash mark from the beginning of the line that contains the following directive:

```
NameVirtualHost *.٨٠
```

٩. Position your cursor in the blank space shown on line ١٥ in the preceding screenshot, and insert the following three lines of code:

```
<Directory C:/vhosts>   Require all granted </Directory>
```

This sets the correct permissions for the folder that contains the sites you want to treat as virtual hosts. (Note: Older versions of Apache used `Allow from all`. This has changed in Apache ٢.٤.)

If you chose a location other than `C:\vhosts` as the top-level folder, replace the pathname in the first line. The pathname must use forward slashes in place of the Windows convention of backward slashes. Also surround the pathname in quotes if it contains any spaces.

As long as all your virtual hosts are in subfolders of this top-level folder, this directive sets the correct permissions for all of them. However, if they are in different top-level folders, create a separate `<Directory>` directive for each one.

١٠. The code shown on lines ٢٧ through ٤٢ in the preceding screenshot shows examples of how to define virtual hosts (in XAMPP, they're commented out). It shows all the commands that can be used, but only `DocumentRoot` and `ServerName` are required.

When you enable virtual hosting, Apache disables the main server root, so the first definition needs to reproduce the original server root. You then add each new virtual host within a pair of `<VirtualHost>` tags, using the location of the site's web files as the value for `DocumentRoot`, and the name of the virtual host for `ServerName`. Again, use forward slashes, and if the path contains any spaces, enclose the whole path in quotes. If your server root is located, like mine, at `C:\htdocs`, and you are adding `phpdw` as a virtual host in `C:\vhosts`, change the code shown on lines ٢٧ through ٤٢ so they look like this (in XAMPP, just add these new directives at the bottom of the file, and set the `DocumentRoot` for `localhost` to `C:/xampp/htdocs`):

```
<VirtualHost *:٨٠>   DocumentRoot c:/htdocs   ServerName localhost
</VirtualHost> <VirtualHost *:٨٠>   DocumentRoot c:/vhosts/phpdw   ServerName
phpdw </VirtualHost>
```

١١. Save `httpd-vhosts.conf`, and restart Apache. All sites in the server root will continue to be accessible through `http://localhost/sitename/`. Anything in a virtual host will be accessible through a direct address, such as `http://phpdw/`.

١٢. If you still have difficulty accessing your virtual hosts, make sure that you have added `index.php` to the `DirectoryIndex` directive in `httpd.conf`.

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