# VuFind installation for standalone catalog

## Required files

Download VuFind: https://vufind.org/vufind/downloads.html (these instructions and files are written for 7.0.1)
Download XAMPP: https://www.apachefriends.org/download.html (these instructions and files are written for XAMPP 7.2.33 64-bit)
Download the Java JDK: https://www.oracle.com/java/technologies/downloads/ (these instructions and files are written for Java 8)

## Background

These instructions detail how to set up a Windows laptop to have a standalone, non-networked version of VuFind containing an export of Marc records from your Alma catalog. Network access is required for the initial harvest of records via OAI-PMH, but after that initial harvest VuFind can run without any network access.

It is possible to update the VuFind index later on from files on a USB drive or other external device (instructions for that are not included here. Contact the author for more information).

We utilize this method to provide a searchable library catalog to incarcerated students who are prohibited from having any networked devices.

Modifications are made to VuFind's schema and displays to accommodate for the lack of real-time availability information and to remove features that require network access.

This setup is not perfect, but it does get the job done!

## How to set up VuFind

### Resources

VuFind installation instructions for Windows: https://vufind.org/wiki/installation:windows (also included at the end of this document)

These instructions assume you will install on a Windows PC.

You may find it helpful to install 7zip and notepad++ temporarily to help with the edits and file transfers. You can uninstall them after everything is completed.

# Instructions

1. Download XAMPP https://www.apachefriends.org/download.html (I used XAMPP version 7.2.33 64) , then run the downloaded executable and install to C:\xampp
2. Download VuFind from https://vufind.org/vufind/downloads.html. (The default VuFind installation instructions are also included at the end of this document. I installed the 7.0.1 zip version) UnZip the vufind files to c:\vufind.
3. Install the Java JDK. For VuFind 7 you will need the Java 8 version. If you use a later version of the JDK you will receive an error when starting solr and need to make file code to remove unsupported parameters.
4. Edit Windows **system** environment variables:
   a. PATH - add  C:\xampp\php\ to system PATH
   b. JAVA_HOME – point it to the java install dir. Probably C:\Program Files\Java\jdk-18, but depends on java version.
   c. VUFIND_HOME = c:\vufind
   d. VUFIND_LOCAL_DIR = c:\vufind\local
5. Restart system
6. Start the XAMPP config panel and configure these components as per vufind installation instructions:
      i. **C:\xampp\apache\conf\httpd.conf** -
         ```
         LoadModule rewrite_module modules/mod_rewrite.so
         ```
         [uncomment this line if needed]
         Directoryindex entry must include index.php
      ii. C:\xampp\php\php.ini
         extension=xsl  [uncomment this line]
         extension=intl  [uncomment this line]
         display_errors=Off  [change this from On to Off if needed]
7. Use XAMPP control panel to start mysql and apache
8. Set mysql root password to from command line: c:\xampp\mysql\bin\mysqladmin.exe -u root password *<new root password>*
9. Install vufind. Open a command prompt and run these commands:
         cd \vufind
         php install.php
   When prompted with questions, accept all defaults except for "what module name would you like to use? [your custom code]" put in "wes"
10. Customize Apache's C:\xampp\apache\conf\httpd.conf  to add this line at bottom:
         Include c:/vufind/local/httpd-vufind.conf
11. Use XAMPP control panel to restart apache
12. From command prompt window, start solr.
         cd \vufind
         solr start

Don't close the command prompt window after starting it.
13. Test that you can access each of these:
    a. apache http://localhost
    b. solr http://localhost:8983/solr
    c. vufind http://localhost/vufind
14. Launch http://localhost/vufind/Install/Home to finish the vufind configuration setup.
    a. Click each "fix" next to red row to configure it. Use the Auto Configure breadcrumb to return to the configuration screen after each fix.
    b. On the SQL fix row: create a password for the vufind sql user. For root user enter the root password that you chose earlier.
    c. On the ILS fix row: when prompted to pick an ILS driver, pick the "NoILS" connector. The ILS row will still show failed after fixing this one, that's ok.
15. Get customized files from https://github.com/lstethers/vufind-localonly/tree/main/vufind and place these files in the matching directory structure within in your c:\vufind\ folder
16. You must locally customize the following files after copying them in from github. Look for comments starting with VUFINDLOCALONLY in file which details the customizations to make.

| File | Lines to modify | Relevant documentation |
|------|----------------|------------------------|
| C:\vufind\local\config\vufind\<br><br>config.ini | Line 35 – name of your catalog<br>Line 644 – your mysql database login info | VuFind Configuration |
| C:\vufind\local\config\vufind\<br><br>NoILS.ini | Lines 38-51 – map holdings fields in your exported MARC records to VuFind fields | VuFind ILS Drivers |
| C:\vufind\local\harvest\<br><br>oai.ini | Must be completely customized with your OAI-PMH server and set information. | VuFind OAI-PMH Harvesting |
| C:\vufind\local\import\translation_maps\<br><br>static_location_map.properties | Must be completely customized to map your location codes to location display names. | SolrMarc: customizing translation maps |
| C:\vufind\local\import\<br><br>marc_local.properties | Lines 11-13 – customize with your institution information.<br>Optionally customize the remainder of the file with your MARC record fields if different than what I have defined. | VuFind: Marc Records |
| C:\vufind\themes\bootprint3\images\<br><br>vufind_logo.png | You may wish to substitute your own logo here. | |

# Set up Alma OAI Export

## Resources

Alma OAI-PMH setup:
https://knowledge.exlibrisgroup.com/Alma/Product_Documentation/010Alma_Online_Help_(English)/090Integrations_with_External_Systems/030Resource_Management/060Setting_Up_OAI_Integration
Alma Publishing and inventory enrichment:
https://knowledge.exlibrisgroup.com/Alma/Product_Documentation/010Alma_Online_Help_(English)/040Resource_Management/075Publishing_Profiles/020Publishing_and_Inventory_Enrichment_(General_Publishing)
Powerpoint presentation: Making the Alma Repository Available via OAI (PPT file)

## Instructions

1. Follow Alma OAI-PMH setup instructions linked above to set up an OAI integration profile (or use the existing OAI-PMH profile if you already have one.
   a. Ensure that the OAI integration profile Metadata Prefixes has marc21 enabled
   b. Ensure that the OAI integration profile Allowed IPs table includes the IP address of the PC where you have installed VuFind
   c. Make note of the Repository Base URL – you will need this later.
2. Create title-level set or sets of records that you wish to make available to VuFind via OAI-PMH.
3. Follow Alma Publishing and inventory enrichment instructions linked above to create a publishing profile which will publish the set(s) to OAI-PMH.  Ensure you make the following selections:
   a. Publishing protocol: OAI
   b. Publish on: Bibliographic Level
   c. Set spec:  <you will need this name later on, so note it down>

   ***For physical materials sets:***
   d. Data enrichment tab - Physical holdings enrichment:
      i. Add holdings information: checked
      ii. Add inventory enrichment – here you can choose to add any holdings-level information into the record.  You will want to include library and location information if you want that available in VuFind.

## Physical Holdings Enrichment

Add Holdings information ☑

➕ Add inventory enrichment ▾   ⚙

| | Holdings Tag | Holdings Subfield | Bib Tag | Bib Subfield | |
|---|---|---|---|---|---|
| 1.. | 852 | a | 852 | a | ⋯ |
| 2.. | 852 | b | 852 | b | ⋯ |
| 3.. | 852 | c | 852 | c | ⋯ |
| 4.. | 852 | h | 852 | h | ⋯ |
| 5.. | 852 | i | 852 | i | ⋯ |
| 6.. | 866 | a | 866 | a | ⋯ |

e.  Data enrichment tab - Physical items enrichment:
   i.  Add items information: *checked*
   ii.  Repeatable field – specify a 9xx field in which to place item-level information. In my example we have used field 954
   iii.  For each of the item-level fields that you want to export to VuFind, indicate the subfield in which to place it.

## Physical Items Enrichment

Add Items Information ☑

| Field | Value | Field | Value |
|---|---|---|---|
| Repeatable field * | 954 | | |
| Item PID subfield | a | Barcode subfield | b |
| Copy ID subfield | c | Material type subfield | d |
| Item Policy subField | e | Item status subfield | f |
| Provenance subfield | g | Is Magnetic subfield | h |
| Enumeration A subfield | i | Enumeration B subfield | j |
| Chronology I subfield | k | Chronology J subfield | l |
| Description subfield | m | Process type subfield | n |
| Permanent library subfield | o | Permanent location subfield | p |
| Current library subfield | q | Current location subfield | r |
| Call Number type subfield | s | Call number subfield | t |
| Item Call number type subField | | Item call number subfield | |
| Temporary Call number type subField | | Temporary call number subfield | |

*For electronic materials sets:*
   f.  Data enrichment tab - Electronic inventory enrichment & Collection enrichment: specify a field to export: if desired, specify a repeatable field and subfields to contain any of the information you wish to export at the portfolio or collection level.

**Note**: you must edit VuFind's C:\Users\lstethers\Documents\GitHub\vufind-localonly\vufind\local\import\marc_local.properties to tell VuFind what Marc fields to map to VuFind fields.

4.  Use the row-level menu on each publishing profile to Run the profile.
5.  Once the profile has finished running, it is ready to harvest via OAI-PMH.
6.  Test that you can connect to the OAI-PMH feed and view the set you have created. You can do so by querying your OAI PM feed in a browser (from a computer that is listed in the Allowed IPs on the OAI-PMH integration profile.)

    The URL will consist of your Alma OAI repository base URL + OAI-PMH verb + OAI parameters.

    For example, to list what OAI sets Alma is publishing:
    https://xxx.alma.exlibrisgroup.com/view/oai/INSTCODE/request?verb=ListSets

    To list the identifiers in a set named *print_books*:
    https://xxx.alma.exlibrisgroup.com/view/oai/INSTCODE/request?verb=ListIdentifiers&metadataPrefix=marc21&set=print_books

    To see the contents of a record with identifier `oai:alma.INSTID:991404443903768`

    https://xxx.alma.exlibrisgroup.com/view/oai/INSTCODE/request?verb=GetRecord&metadataPrefix=marc21&identifier=oai:alma.INSTID:991404443903768

# Harvest Alma Records to files on the VuFind PC

## Resources

VuFind OAI-PMH harvesting: https://vufind.org/wiki/indexing:oai-pmh

## Instructions

1.  Ensure you have your c:\vufind\local\harvest\oai.ini file configured to harvest from Alma.
2.  On the vufind PC, start a Command Prompt window
3.  Run the OAI-PMH harvest from the command prompt:

       cd \vufind\harvest

       php harvest_oai.php

4. Confirm files were harvested to C:\vufind\local\harvest\*<subdirectory for each of the oai.ini stanzas>*
5. Make sure solr is still running. From the command prompt:

       solr status

6. Import the harvested files to solr/vufind from each subdirectory you harvested to. From the command prompt:
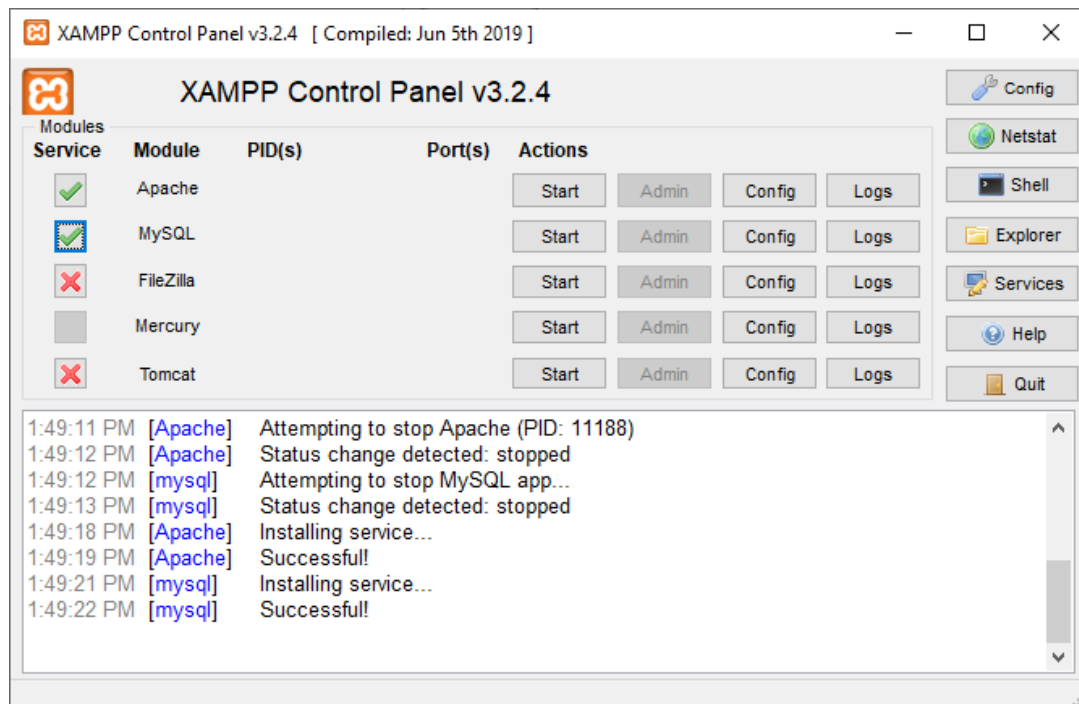
       c:\vufind\harvest\batch-import-marc.bat  *<subdirectoryname>*

Note that this import may take a really long time to run -- import a small subset of files first, confirm they are displaying how you want them to in VuFind, then process the remainder of the files.
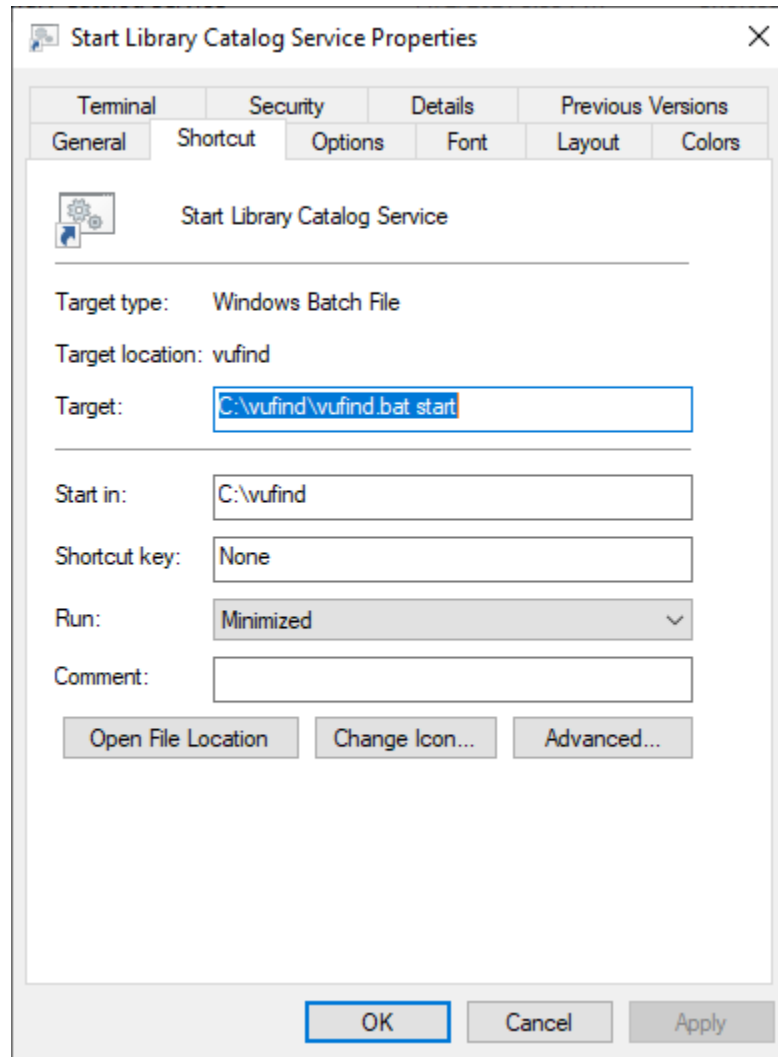
# Set up services to start automatically

## Intructions

1. Set XAMPP services to start up automatically on reboot
   a. Start XAMPP using Run as Administrator option
   b. Stop the services if they are running
   c. Click the Service checkbox to the left of each service you want to start automatically
   d. Reboot to ensure they start

2. Set up Vufind's solr to start automatically for all users upon login:
   a. Make a shortcut that looks like this:



   b. Move the shortcut into C:\programdata\microsoft\windows\start menu\programs\startup

3. Reboot and make sure the services have started

# Create desktop shortcuts

## Instructions

1. Create a shortcut to access VuFind: http://localhost/vufind/
2. Create a shortcut for the user to launch VuFind's solr (as described in previous section) in case it gets closed or stops running.

# Default VuFind installation instructions

The below installation instructions were downloaded from
[https://vufind.org/wiki/installation:windows](https://vufind.org/wiki/installation:windows) on 2023.05.24.

They are included here as a reference for VuFind version 7.x.

# Installation

**These instructions assume that you are installing your MySQL database on the same server as VuFind itself and that you are using an installation path of c:\vufind**

## Requirements

To satisfy VuFind's dependencies, make sure you install the software versions recommended on the requirements page. You may use other versions at your own risk.

These instructions assume that you are installing all software components separately. Many developers use XAMPP [http://www.apachefriends.org/en/xampp-windows.html] to install Apache, MySQL and PHP as a bundle. XAMPP should not be used in a production environment, but it may save some time for a test server – however, it works differently than separate component installation, so watch for XAMPP-related notes as you read.

## Installation Procedure

### 1. Download VuFind

Extract the VuFind source – you can download it here [http://vufind.org/downloads.php]. The .zip format is usually the most convenient option for use in Windows. These instructions assume that you use a target path of c:/vufind.

### 2. Install the Apache HTTP Server

You can download the server here [http://httpd.apache.org/download.cgi]. Typical installation options found in the install wizard should work fine.

Make sure that the mod_rewrite module is activated – edit the Apache configuration file (something like c:\Program Files\Apache Software Foundation\Apache#.#\conf\httpd.conf, easily available in Apache's Start Menu group under Apache HTTP Server, Configure Apache Server) and check that this line is uncommented (doesn't have a # in front of it):

```
LoadModule rewrite_module modules/mod_rewrite.so
```

Also make sure that the DirectoryIndex command includes index.php. It should like something like this:

```
DirectoryIndex index.html index.php
```

*IMPORTANT: If your VuFind instance will include records with slashes in their IDs, you need to add "AllowEncodedSlashes on" to the appropriate <VirtualHost> section of your Apache configuration!*

## 3. Install MySQL

You can download the database from here [http://dev.mysql.com/downloads/mysql/5.0.html#downloads]. You should be able to get by with the default options of a typical installation found in the wizard. If you set a root password (a good idea), be sure to take note of it.

**Troubleshooting libmysql.dll**

One important piece of the MySQL installation is the library file, libmysql.dll. If Windows cannot find this file, you may get errors about a missing database driver when you try to view pages in VuFind. Depending on which operating system/software versions you end up using, you may not have to do anything special to make this work. However, if you run into trouble after completing the other steps of the VuFind installation process, try these options:

1.) Make sure that libmysql.dll is in your PHP directory and that your PHP directory is included in your system path (as described below in the Java JDK step).

2.) If libmysql.dll is not in your PHP directory, it may be in your MySQL directory (usually something like C:\Program Files\MySQL\MySQL Server 5.0\bin). It may help to add this directory to your system path as well. Warning: If the file is in BOTH your PHP *AND* MySQL directories, the PHP version is probably the correct one, and using the MySQL version may cause problems. In some scenarios, you may actually need to REMOVE the MySQL directory from your path to solve this problem.

3.) As a last resort, you may try copying libmySQL.dll to your c:\windows\system32 folder. THIS IS NOT RECOMMENDED, as it may make future upgrading more difficult.

## 4. Install PHP

**Install**

You can download PHP here [http://windows.php.net/download/]. Choose the thread safe version unless you have a specific reason to use the non-thread safe version.

⚠ Pay attention to which version of Apache you downloaded – PHP and Apache will integrate better if they are built for the same architecture (32-bit vs. 64-bit) using the same compiler. For example, if you downloaded a 32-bit (x86) version of Apache, you should not try to install a 64-bit (x64) version of PHP.

When prompted, choose the appropriate version of Apache and provide your configuration directory (i.e. c:\Program Files\Apache Software Foundation\Apache#.#\conf\); if you get an error message, don't panic – you can manually correct it later (see notes under the VuFind configuration step below).

When you reach the "Choose Items to Install" stage of the install process, be sure to install PEAR (found under Extras) and these extensions (found under PHP / Extensions):

- GD2 (optional, but recommended for best cover image display)
- Internationalization (intl)
- LDAP (optional)
- Multi-Byte String (optional, but recommended)
- MySQLi
- PDO (with MySQL)
- XSL

**Set up Environment**

Make sure that your Windows PATH environment variable includes the location of PHP (this location was specified during installation). This will allow you to type "php" from any command prompt in order to run scripts. For details on modifying environment variables, see Appendix: Editing Environment Variables.

**Notes**

- Don't panic if you forget to add a component on your first installation. You can always run the installer again to update your installation with additional modules.
- It is possible that PHP will install some extensions without all of the necessary library files. If this happens, starting up PHP will lead to a series of pop-up alerts. To fix the problem, simply edit the php.ini file (usually found in c:\Program Files\PHP\, and also available via Start Menu shortcut) and comment out (by putting a semi-colon in front) the offending modules (found in lines like extension=php_*.dll). If you actually need some of the affected modules, you may have to track down copies of the missing files; Google searches for error messages are usually helpful for this.
- If you are using XAMPP instead of separate components, the installation process won't ask you about extensions. Instead, you will have to manually uncomment the relevant lines in your php.ini file.
- If you are a Voyager library, you will also need to install the PHP OCI Driver for Oracle – see this page for detailed instructions.

## 5. Install the Java JDK

Next install JDK (the Java Development Kit) on the server – VuFind's searching back-end and MARC indexing tools rely on Java. Note that some VuFind components may be able to run using only the JRE (Java Runtime Environment), but the JDK is strongly recommended, and required for proper MARC indexing after release 3.1.

You can download the JDK here [http://java.sun.com/javase/downloads/?intcmp=1281]. You should be able to use all the default installation options.

Set a system environment variable named JAVA_HOME pointing to the path to your Java installation (probably something like c:\Program Files\Java\jdk1.x.y_z). For details on how to do this, see Appendix: Editing Environment Variables.

## 6. Run VuFind Installation Script

The groundwork is set, so you can now run VuFind's install script to set up your basic configuration. To run the script, just follow these steps:

- Go to Start>Run and enter "cmd" with no quotes (to get to a command prompt).
  - In Windows 7, there is no "Run" option – just start typing in the search box. You may need to right-click on the "cmd" command and run as administrator to ensure that everything gets installed with appropriate permissions.
- Switch to your VuFind directory (i.e. "cd c:\vufind").
- Type "php install.php" (without the quotes) and hit Enter.

You will be prompted for several details; you can accept the defaults for now – you can run the installer again later if you need to make changes.

## 7. Configure VuFind

**Set up Environment Variables**

The final output of the install script from the last step will tell you to set up VUFIND_HOME and VUFIND_LOCAL_DIR environment variables. If you are not sure how to do this, see Appendix: Editing Environment Variables.

**Linking VuFind to Apache**

Edit the Apache configuration file (something like c:\Program Files\Apache Software Foundation\Apache#.#\conf\httpd.conf, easily available in Apache's Start Menu group under Apache HTTP Server, Configure Apache Server) and add:

```
Include c:/vufind/local/httpd-vufind.conf
```

(Be sure to adjust the path if your file is located somewhere other than c:/vufind/local).

Once the configuration files are edited, you need to restart Apache for them to take effect – you can do this from the Start menu under Apache HTTP Server, Control Apache Server, Restart.

In order to properly handle network timeouts you should modify PHP's maximum execution time and default socket timeout settings. You can do this either in the webserver's php.ini or by adding the following lines to the http-vufind.conf file:

```
php_value default_socket_timeout 25
php_value max_execution_time 30
```

You can choose lower or higher values (both in seconds) depending on your environment. The socket timeout should always be lower than the max execution time. **This is 100% windows specific** – the time to connect to a remote host (default_socket_timeout) counts towards the maximum time a PHP script is allowed to run. On *nix platforms it does not.

**Troubleshooting Apache**

System-specific configuration issues may prevent things from working at this point. A misconfiguration may prevent Apache from starting or may give you "Forbidden" errors when you try to access VuFind. This section contains some tips on resolving any problems.

If your PHP installation was unable to automatically add PHP to the Apache configuration, you may need to add these lines to your Apache configuration, somewhere above the "Include" that loads http-vufind.conf:

```
LoadModule php5_module "c:\Program Files\PHP\php5apache2_2.dll"
AddType application/x-httpd-php .php
PHPIniDir "c:\Program Files\PHP\"
```

(note that you may need to substitute a slightly different path to PHP depending on your Windows version – in Windows 7, it will be "c:\Program Files (x86)\PHP\")

It is often helpful when troubleshooting to look at the Apache logs – you can find these in the Start menu under Apache HTTP Server, Review Server Log Files.

mike_beccaria (Jun 09) : *Add "Options All" to the httpd-vufind.conf file if you are getting an "access Denied" on the homepage and a "Directory index forbidden by option directive" error in the apache error.log.*

demiankatz (Jul 09) : *if the PHP install added multiple PHPIniDir and LoadModule entries to the bottom of httpd.conf and this is preventing Apache from starting, comment out the duplicate ones and leave only the first pair intact.*

**Configuring Solr**

Starting with VuFind 3.0, no special Solr configuration should be necessary for the software to run correctly in Windows. If you encounter problems in VuFind 2.x or earlier, it may be necessary to edit the various solrconfig.xml files under VuFind's Solr directory to change relative paths to absolute paths.

## 8. Start Solr

Now that VuFind is installed and basic configuration is complete, you can start the Solr server running. See the Starting and Stopping Solr page for details.

## 9. Final Configuration

Open a web browser, and browse to this URL:

`http://your-server-name/vufind/Install/Home`

(Replace "your-server-name" with the address you wish to use to access VuFind; replace "vufind" with your custom base path if you changed the default setting during installation).

**Troubleshooting**

If you see a blank white screen, something is wrong.

- Check your Apache error log for messages – see Troubleshooting Apache above.
- If that does not help, try editing c:/vufind/local/httpd_vufind.conf and uncommenting the "SetEnv VUFIND_ENV development" line – after an Apache restart, this will put VuFind into development mode (which will display more detailed error messages if the code is capable of running).

If you are still stuck, try one of the mailing lists on the support page [http://vufind.org/support.php].

**Auto-Configuration**

If installation was successful, you should now see an Auto Configure screen.

Some items on the list will be marked "Failed" with "Fix" links next to them.

Click on each Fix link in turn and follow the on-screen instructions.

After an issue is successfully resolved, you can click the "Auto Configure" breadcrumb to go back to the main list and proceed to the next problem.

Notes:

- To set up VuFind's database, you will need to have the root password you set when installing MySQL.

**Locking Down Configurations**

Once all configuration issues are successfully resolved, you will see a "Disable Auto Configuration" link on the "Auto Configure" page. Click this to prevent future access to the install script. If you need access again in the future, you can re-enable it by manually editing your config.ini file.

## 10. Import Records

Import bib records using the instructions on the indexing page.

## Appendix: General Notes

If you are using VuFind's Wikipedia author information module (which is turned on by default), you may run into problems unless you increase Apache's heap size setting. For more details, see the VUFIND-630 [http://vufind.org/jira/browse/VUFIND-630] JIRA ticket.

## Appendix: Editing Environment Variables

These instructions will help you edit Windows environment variables:

**Windows XP or earlier**

- Open Control Panel
- Go to System (available in Classic View under XP)
- Advanced tab
- Environment Variables

**Windows Vista/7**

- Open Start Menu
- Right click "Computer" or "My Computer"
- Click Properties
- Click "Advanced system settings"

- Click "Environment Variables"

**All versions (after following version-specific instructions above)**

- In the lower box marked System variables, click on New if you need to create a variable
- To modify an existing variable, double-click on it in the user variables box