

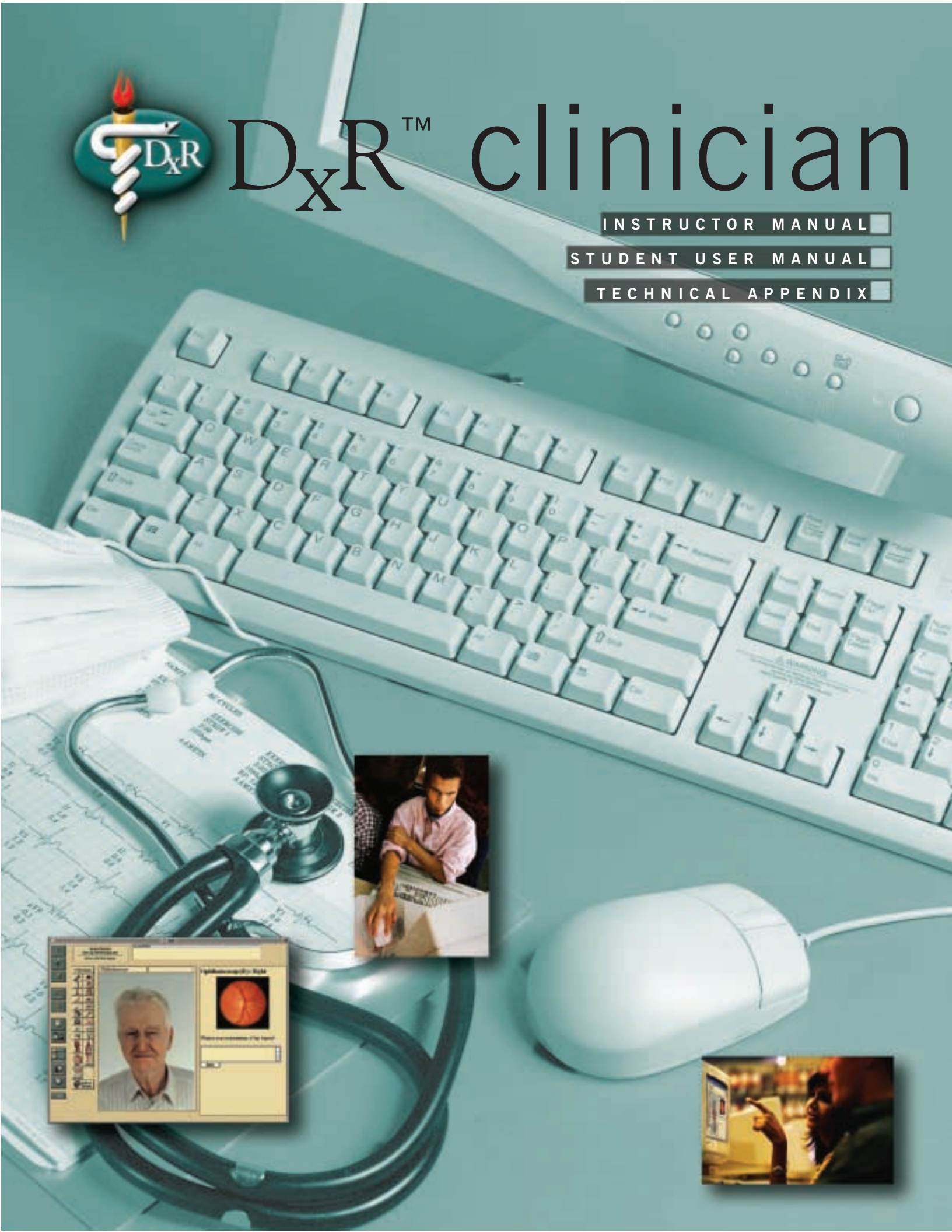


# DxR™ clinician

INSTRUCTOR MANUAL

STUDENT USER MANUAL

TECHNICAL APPENDIX



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## Browser Requirements

Cookies and Javascript must be enabled. Your browser must also have the Apple QuickTime® 5.0.2 or greater plug-in installed. The following browsers are compatible with this program.

- Internet Explorer® 6.x or greater
- Firefox® 1.5 or greater
- Safari® 3.1 or greater

## Screen Size and Monitor Resolution

DxR Clinician requires a minimum monitor resolution of 1024 x 768 pixels. If your monitor is not set for 1024 x 768 pixels or higher resolution, portions of your screen may be cut off and a warning message will appear when you try to log in to the case. Your monitor must also be set display at least 16 bit color (thousands of colors).

## Sound

We strongly recommend using headphones (rather than speakers) to listen to heart and breath sounds in the case studies.

## Uploading Your Media Files to the Server

### Acceptable File Types

Instructors may want to attach their own media files to a case or cases. These files must first be uploaded to a server. File types that are acceptable for upload include the graphics and audio file types listed to the right.

#### Graphics:

Formats: .jpg (.jpeg), .gif, .mov, .png

#### Audio files:

Format: .mp3

### Uploading and Adding Media Files

Open the Management Utility, select a directory and the case that you want to edit, and then enter the Edit Case Data function. Navigate to the portion of the case and to the specific item to which you want to add a media file. Scroll down to the Media section of the edit screen.

To upload a media file from your computer to the server:

1. Click Add New Media.
2. Make sure your media file meets the specifications listed above.
3. Click Browse and then navigate to the file that you wish to upload.
4. Click Upload File.

Once the file is uploaded, it will appear in the Available Media List.

**Note: Once a file is successfully uploaded, it can't be removed by anyone but your system administrator.**

To add a media file once it's been added to the Available Media List:

1. From the Edit screen, click Available Media List.
2. Select the media file that you want to add to this item. If you aren't sure if you've selected the correct item, click Preview Media.
3. When you have selected the media file that you wish to insert, click Add.
4. Close the window and return to the Edit screen.

## Server-Side System Requirements & Installation Instructions

This guide is intended for the system administrator/web master/IT person who will be overseeing the installation of the program on your server.

### Overview

The CD contains digital versions of the program's documentation, the source files for the program and for the cases that your school ordered, and dxrSetup.pl, an executable that will install the program's common files and will create waiting rooms and install cases into those waiting rooms.

You start by decompressing and copying the Diagnostic\_Reasoning directory from the CD to a part of your hard drive where the setup program will be able to find it.

### System Requirements

#### Server Side

- Web server capable of serving HTML 2.0 or higher and executing Perl cgi scripts. Although others may also be compatible, DxR Development Group, Inc. supports the following web servers:

- Apache® HTTP Server (hosted on Linux® and Mac OSX)
- Internet Information Server (IIS) (Windows® 2003/2008)

NOTE: If your web server or operating system is not listed here, you may encounter issues hosting DxR Clinician. We offer a website hosting service. Contact DxR Development Group at (800) 453-8040 for pricing.

- Perl 5.8 is required. DxR recommends ActivePerl™ <http://www.activestate.com/> for Windows servers.
- Required Perl Modules:
  - DBI (Database independent interface for Perl)
  - DBD mysql (MySQL driver for the Perl5 Database Interface [DBI])
- MySQL 4.1 or greater <http://www.mysql.com/>

NOTE: Most distributions include the required applications, check your distributor's documentation for details.

DxR Clinician has been successfully installed on many Unix-type servers running Apache, and on Windows 2003 and 2008 server running IIS. It should install and run on any Unix-type machine that has Apache and the supported version of Perl listed above. While we support the use of Windows 2003 and Windows 2008 and IIS, we recommend a Unix-type system running Apache for maximum performance, stability, reliability, and security. If your operating system of choice is not one of those mentioned here, we offer several options, including hosting your site on our servers. Contact DxR Development Group at (800) 453-8040 for pricing.

DxR Clinician requires an average of two (2) megabytes of hard drive space per installation of each case on the server. Total space requirements will vary depending on the number of cases and number of copies installed.

## Installing MySQL™

To run DxR Clinician, you must have MySQL installed and running properly on your server. MySQL is available at the following Internet address:

[www.mysql.com](http://www.mysql.com)

1. Follow the links to the downloads page and select MySQL version 4.1 or greater (production release only).
2. Follow the installation instructions.

## Installing ActivePerl (Windows Users Only)

Locate ActivePerl at the following website and follow the steps below.

[www.activestate.com](http://www.activestate.com).

1. Follow the links to the download page. Download ActivePerl 5.8.8.
2. When you begin the installation process, you will encounter an Install shield. Answer "yes" to all the questions in order to keep the ActivePerl default settings.

## Installing the Necessary Perl Modules

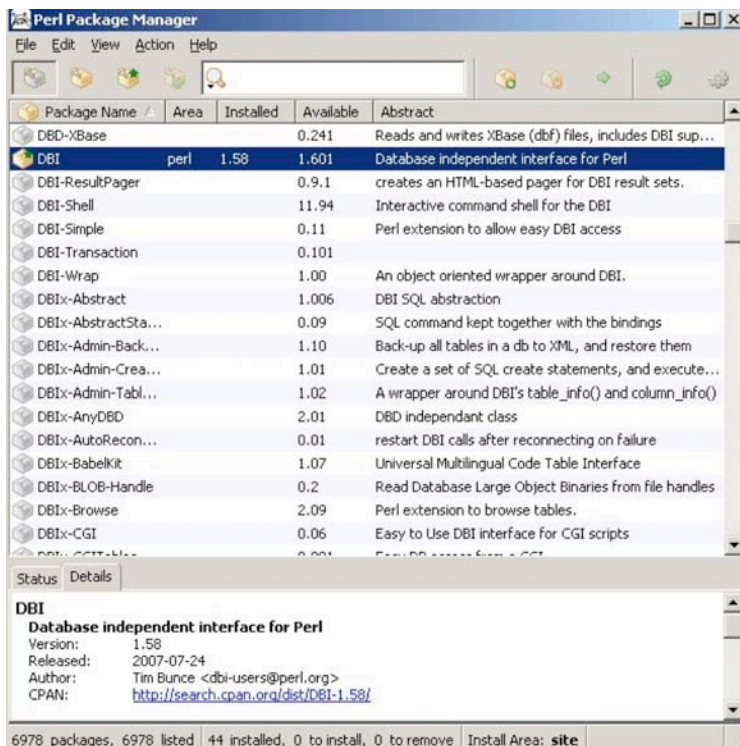
After installing ActiveState Perl, install the packages for DBI and DBD-mysql using one of these methods.

1. You can install these modules by opening the Perl Package Manager (shown below), marking the packages for DBI and DBD-mysql for installation and then clicking the Run Marked Actions button.

Start Menu > All Programs > Active Perl > Perl Package Manager

2. You can also install the required modules from a Command Prompt with the following commands:

```
ppm install DBI
ppm install DBD-mysql
```



## Installing DxR Clinician Under Apache

Below is an example setup of DxR Clinician served by the Apache Web Server. The Apache Web Server is included with nearly every distribution of Linux® and Unix®. Some distributions provide a graphical user interface (GUI) to aid in configuration while others do not. Also, many distributions have modified file hierarchies and configuration files. Therefore, if you are unfamiliar with the process of setting up a web site, we recommended you consult your distributions documentation before proceeding.

### Preparation

1. Determine where your DocumentRoot is located. (In our example below we have used /var/www/)
2. Uncompress the DxR Clinician archive in that location. Listing the contents of the directory one should see:

```
drwxr-xr-x 4 owner group    4096 2008-02-08 15:40 Diagnostic_Reasoning/  
-rw-r--r-- 1 owner group 47810560 2008-02-08 15:40 Diagnostic_Reasoning.zip
```

3. If you are already using a cgi-bin directory on this server, move the contents of the cgi-bin to it.

```
$ mv cgi-bin/DxRSetup your_cgi-bin/DxRSetup
```

4. Remove the archive (Diagnostic\_Reasoning.zip).
5. Change the file ownership to the User and Group of the Apache Web Server.
6. Change the file permissions to 775 for all files. (Including the DocumentRoot itself.)

## Apache Web Server Configuration

1. Determine if you are serving sites using Name-based Virtual Hosts or IP-based Virtual Hosts.  
[reference: <http://httpd.apache.org/docs/2.0/vhosts/> or <http://httpd.apache.org/docs/1.3/vhosts/index.html>]
- 1a. If you are using Name-based Virtual Hosts set the NameVirtualHost directive.
2. Create a Virtual Host for your DxR Clinician site. The following VirtualHost configuration location is based on the distribution of Linux that you are using. It is recommended that you follow your distributions conventions on location of VirtualHosts. (In the example below we will assume that your DocumentRoot is /var/www/)

```
<VirtualHost ADDRESS>
    ServerName dxr.your_school.edu
    ServerAdmin webmaster@your_school.edu

    DocumentRoot /var/www/
    DirectoryIndex index.html
    <Directory />
        Options FollowSymLinks
        AllowOverride None
    </Directory>
    <Directory /var/www/>
        Options FollowSymLinks MultiViews
        AllowOverride None
        Order allow,deny
        allow from all
    </Directory>

    ScriptAlias /cgi-bin/ /var/www/cgi-bin/
    <Directory "/var/www/cgi-bin">
        AllowOverride None
        Options +ExecCGI -MultiViews +SymLinksIfOwnerMatch
        Order allow,deny
        Allow from all
    </Directory>

    ErrorLog /var/log/apache/error.log

    LogLevel warn

    CustomLog /var/log/apache2/access.log combined
    ServerSignature On
</VirtualHost>
```

3. Start, or restart, the Web Server. If the web server started properly you may now begin setting up DxR Clinician. It is highly recommended, but not required to complete the Clinician setup, that you secure the DxR Management (see the next section). If the web server fails to start, check your error logs. Generally there will be a helpful explanation of what went wrong.

### Related Web Sites:

Apache HTTP Server Project [<http://httpd.apache.org/>] - Get the Apache Web server and find helpful documentation.

## Securing DxR Management

Your site includes the DxR Management tool, which allows instructors to rebuild the patient databases, allow or deny access to the cases, download student records and edit case data. We strongly recommend restricting access to this part of the site, using the `htpasswd` utility of Apache. The first time you run the `dxrSetup.pl` program it will create the DxR Management section of your site, which will be located at: `your-site/DxR/DxRManag`. Therefore the Apache configuration file entry to restrict access to this portion of the site will be something like:

```
<Directory /var/www/dxr/DxR/DxRManag>
    AllowOverride AuthConfig FileInfo Indexes Limit Options
    AuthUserFile /etc/access/.dxr
    AuthName "servername"
    AuthType Basic
    require user admin instructor
</Directory>
<Directory /var/www/cgi-bin/DxRSetup>
    AllowOverride AuthConfig FileInfo Indexes Limit Options
    AuthUserFile /etc/access/.dxr
    AuthName "servername"
    AuthType Basic
    require user admin instructor
</Directory>
```

The command `htpasswd -c /etc/access/.dxr admin` will create the invisible file `“dxr”`, and then prompt you for a password for the user `“admin”`. To add the second user, `“instructor”`, use the command `htpasswd /etc/access/.dxr instructor`, leaving out the `“-c”` option. You will again be prompted for a password.

# Web Server Configuration IIS

## 1. Creating the Directory Structure (Optional)

Use this option only if you don't want to use your default IIS website. At right is a diagram of the required structure:

Full Path Equivalent: X:\FOO\DXRROOT\cgi-bin\

X is the drive you're installing the product to. FOO is a 'buffer' folder. It is needed to enable the setup script to select the website's root directory properly. You can name it whatever you wish. DXRROOT will be the root directory of the website. This is the folder that will be listed as the Home Directory in IIS.

cgi-bin will be the CGI folder for the website. Do not link this folder to the original cgi-bin in WWWROOT.



Figure 1. Directory Structure.

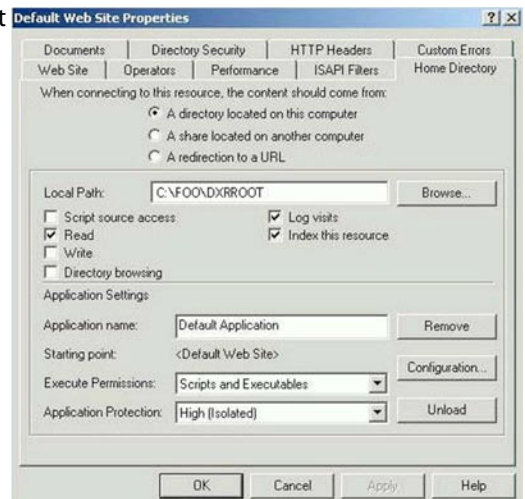
## 2. Creating and Configuring the IIS Website

Start up the IIS Management Console, and if you are not using the default website, use the Action Menu to create a new web site. The wizard will allow you to choose a name, home directory, port, initial permissions, and the IP address to use.

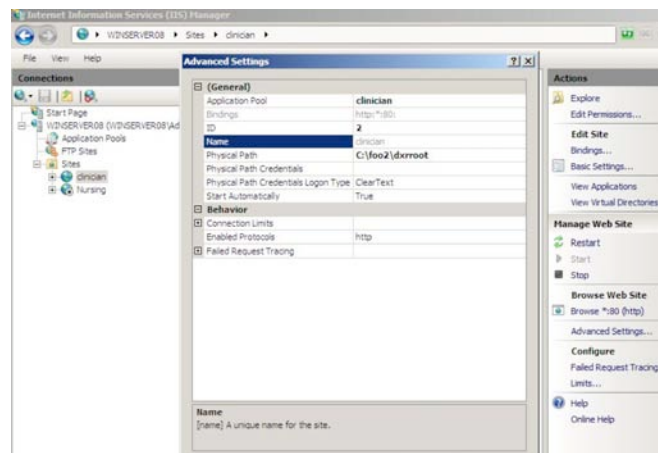
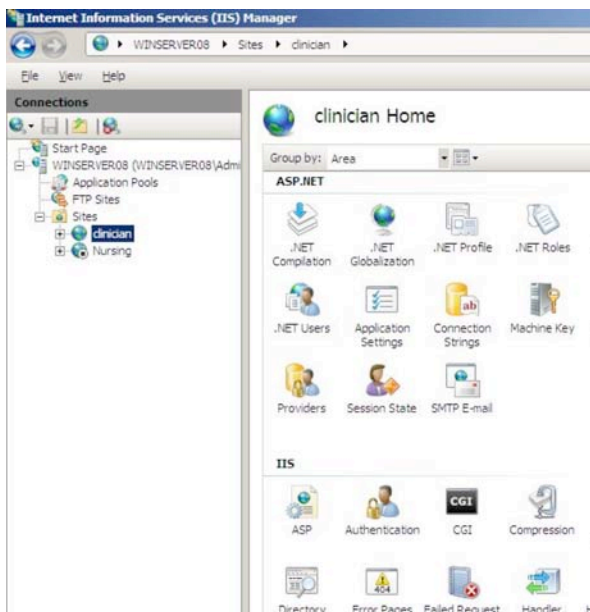
You can name the site whatever you wish. If you created a new directory in Step 1, the Home Directory will be X:\FOO\DXRROOT. The default port is 80. Unless you absolutely must change it, leave it at 80. The initial permissions will be Read. The IP address will most likely be the IP address of the machine.

Next, highlight and right-click on the desired website to bring up its context menu, then select Properties. Click the Home Directory tab. You will see a screen similar to what you see in these figures.

Figure 2. Home Directory information on Windows 2003 Server



Figures 3 & 4. Home directory information on Windows 2008 Server

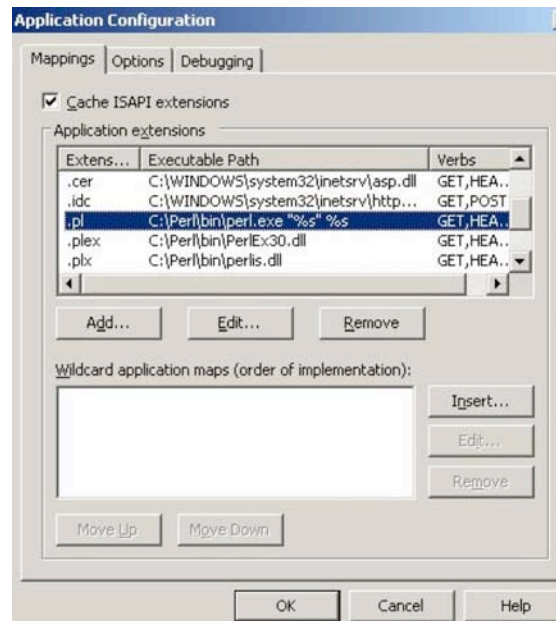
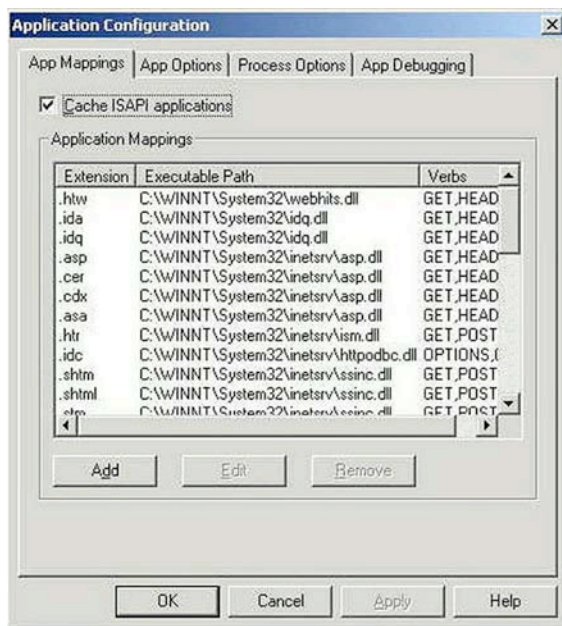


If you created a new directory in Step 1, confirm that the Local Path box still has X:\FOO\DXRRROOT entered. Make sure that Read is checked. Under Execute Permissions, make sure that you select Scripts and Executables. Now, click the Configuration button, and then go to the App Mappings tab. Make sure there is an entry for the perlis.dll file that is associated to the .pl extension. If not, click ADD and then fill in the following fields.

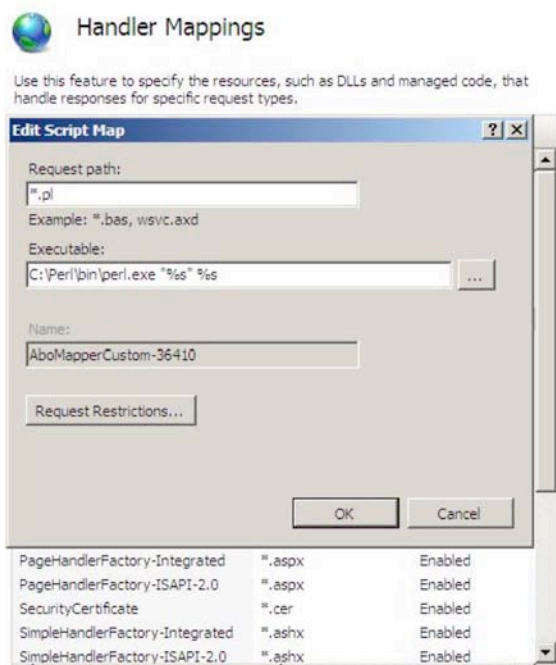
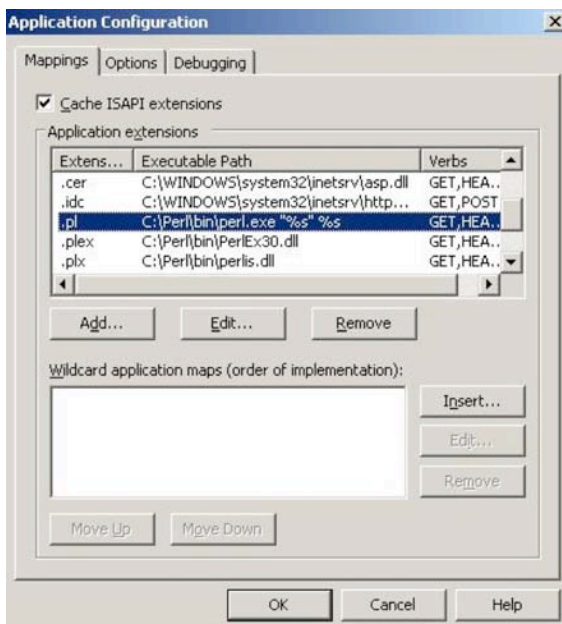
Executable: X:\Perl\bin\perl.exe "%s" %s

Make sure the Script Engine checkbox is CHECKED. The end result should look like one of the examples shown below.

Figures 5 & 6. Application Mappings settings in IIS for Windows 2003 server.

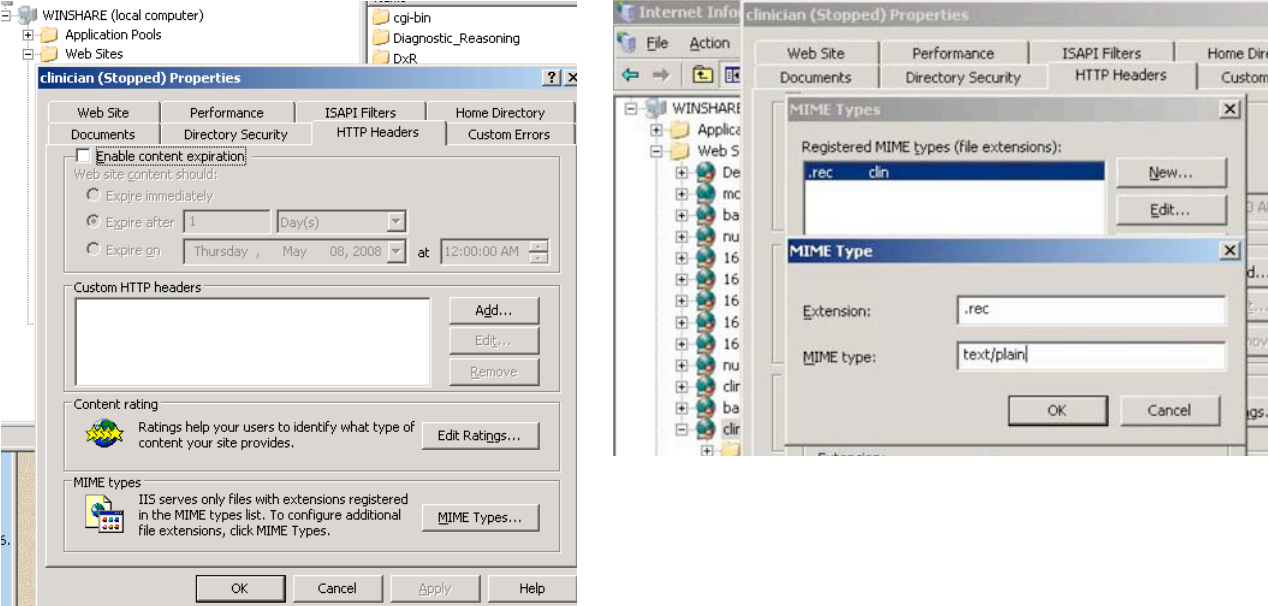


Figures 7 & 8. Application Mappings settings in IIS for Windows 2008 server.

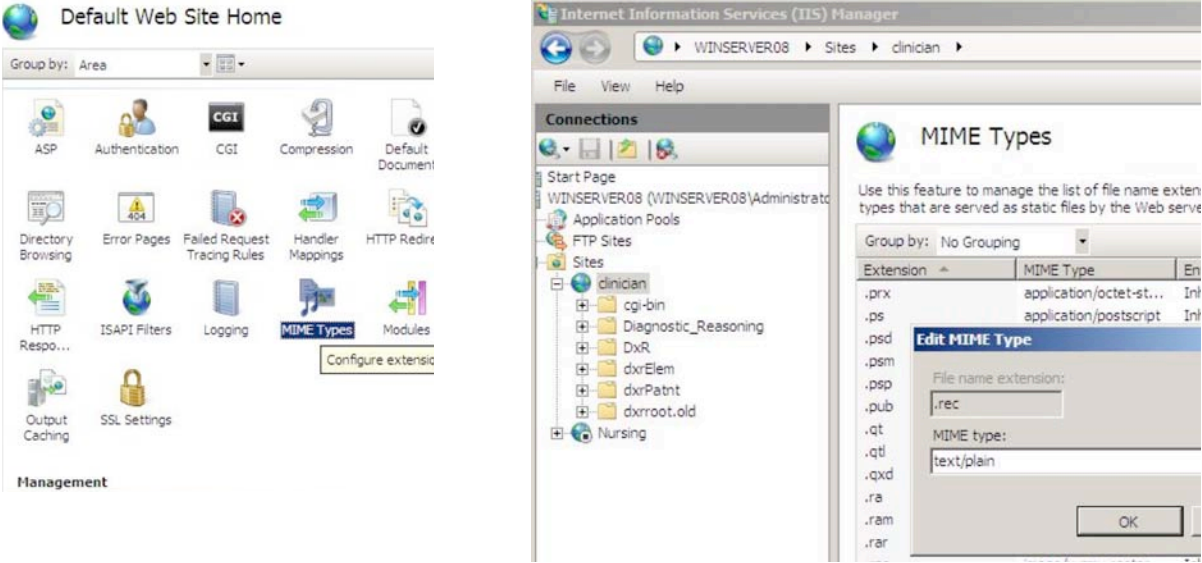


Once you've set up the App Mappings, click OK and go to the Directory Security tab. You'll want to make sure that Allow Anonymous Access and Windows NT Challenge/Response are checked. Next, choose the **HTTP Headers** tab. Under the **MIME Types** section, add the following file extension:  
 .rec

Figures 9 & 10. Click the MIME Types button to add the .rec extension on Windows 2003 Server



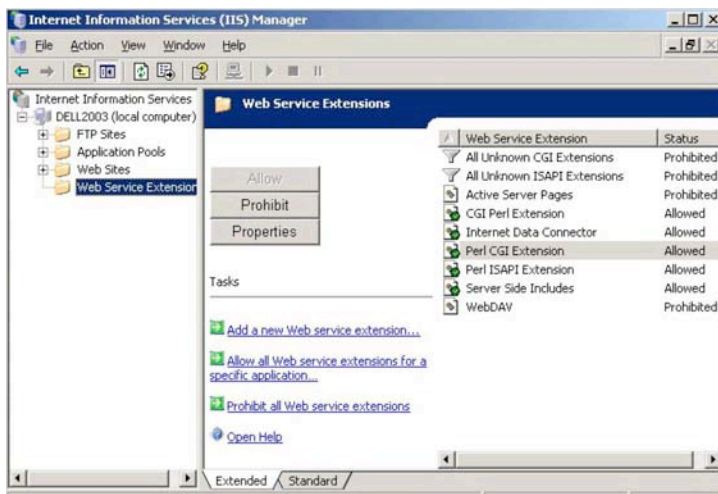
Figures 11 & 12. Select MIME Types, and then from the list, add the .rec extension on Windows 2008 Server



Once you have confirmed the MIME type settings, click OK to get out of the Authentication Methods screen, and then click OK again to get back to IIS proper. Right click the website and select Start, which will allow you to continue to the next step.

Lastly, click on the Web Server Extension at the bottom of the tree and allow Perl CGI Extensions.

Figure 6. Web Server Extensions for Windows 2003 Server ONLY



### 3. Unpacking the product .TAR file

On the CD, you will find a large .TAR file. For our DxR Clinician product, it will be named Diagnostic\_Reasoning.tar. This file contains the core product files. You must extract the contents of the file to your DXRROOT folder. WinZip (shareware, <http://www.winzip.com>) is the most common utility used for this purpose, and the following instructions are written with it in mind.

- a. Double-click on the .tar file to open it into WinZip.
- b. Click the Extract button located in the top tool bar.
- c. Make sure that All Files is selected.
- d. Make certain that Use Folder Names is checked.
- e. Find and highlight the X:\FOO\DXRROOT\ folder in the folder list.
- f. Click the Extract button.

Once the files have finished extracting (as indicated by the green light in the lower right corner of the WinZip window), you may close WinZip.

### 4. Placing the DxRSetup directory into the cgi-bin folder.

The DxRSetup directory contains scripts that will set up all of the cases included with this product. After you have unpacked the .tar file in the previous step, you will have a Diagnostic\_Reasoning directory. Within that directory is a DxRSetup directory. Copy the DxRSetup directory into your cgi-bin directory.

### 5. Running the dxrSetup.pl file to install the product.

To run the setup script, you will need to type the following address into a web browser:

[http://<your\\_web\\_site>/cgi-bin/DxRSetup/dxrSetup.pl](http://<your_web_site>/cgi-bin/DxRSetup/dxrSetup.pl)

If all is set up properly, you will see a welcome screen with instructions for installing the product cases. If you encounter errors, please contact Technical Support by email at [support@dxrgroup.com](mailto:support@dxrgroup.com) or by phone at 1-800-453-8040.

## 6. Securing your DxRManag Directory

Most Web browsers will cache the user names and passwords you type in. To be absolutely certain that no one gains unauthorized access to the management tools or the setup program when you are done with them, quit your browser completely. This will ensure that the next time your browser is started, any attempt to access the secured parts of the site will result in a challenge for the user name and password.

1. You will need to create a new user. Go to Start>Programs>NT Administrative Tools>User Manager for Domains. Create a user of any name and description.
2. Use the NT Explorer to navigate to your DxRManag directory. This is usually located in X:\FOO\DXRROOT\DxR. Right-click on the DxRManag folder and select properties. Click the Security tab, and then click Permissions.
3. Open the IIS Management Console. Use the tree view on the left to open the DxR Web site you created and navigate down the tree until the DxRManag folder is visible.
4. Right-click on the DxRManag folder and select Properties. Click the Directory Security tab, then click Edit in the Anonymous Access section. Uncheck 'anonymous access'. Check 'Basic Authentication'. Click the Edit button to the right of Basic Authentication.

This will allow only the user name you specified in step one to have access to this directory.

## 7. Securing the DxRSetup.pl file:

This procedure is almost the same as the above. We will assume that you are using the same user you created for the DxRManag folder for this procedure. You can use a different user if you wish, however. YOU MUST ALREADY HAVE INSTALLED AT LEAST ONE CASE FOR THIS TO WORK.

1. Use NT Explorer to navigate to the cgi-bin directory where the dxrSetup.pl file is located. Make a new folder within cgi-bin; you may name it whatever you wish. We will call it SECURE for the purposes of the procedure.
2. Copy the dxrSetup.pl and the other files in your DxRSetup directory into the SECURE directory.
3. Right click the SECURE directory and access its properties. Go to the Security tab, then click the Permissions button.
4. Open the IIS Management Console. Use the tree view on the left to navigate through the site until you find the SECURE folder under the cgi-bin folder.
5. Right-click on the SECURE folder and select Properties. Click the Directory Security tab, then click Edit in the Anonymous Access section. Uncheck 'allow anonymous access' and check 'Basic Authentication'.
6. The new URL to get to the DxRSetup program will now be:  
[http://<your\\_site\\_here>/cgi-bin/SECURE/dxrSetup.pl](http://<your_site_here>/cgi-bin/SECURE/dxrSetup.pl)  
Anyone trying to get to that address will be challenged for the name and password of the user that has access to that folder (the user from Step 3). Be aware that the same browser caching issues apply for this setup as well, so be sure to close any browser used for setup after the setup has been completed.

**Review of IIS Permissions by Directory:**

- Allow for Read
  - Allow for Read: DxRManag
  - Allow for Read: all other directories for the DxR software
- (Review continued on next page)

**Review of Directory Security Settings for IIS:**

- cgi-bin/SECURE: No anonymous access
- DxRManag: No anonymous access  
(Please note that there will be a /records folder created in /DxRManag. This folder must have anonymous write-access so that student records can be written.)
- all other DxR-associated directories: Allow anonymous access