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# Post-Installation Guide

WebObjects 5.1



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# Contents

<b>Chapter 1</b>	<b>About This Document</b>	<b>5</b>
	How to Use This Guide	5
	NEXT_ROOT	6
<b>Chapter 2</b>	<b>Platform Specific Configuration</b>	<b>7</b>
	All Platforms	7
	Third Party JAR Files	7
	Servlet Deployment	7
	Windows 2000	8
	Disable Visual Notification in Dr. Watson	8
	Configure Default Character Encoding on the Japanese Version of Windows	8
	Mac OS X	9
	Start WebObjects Processes Automatically	9
	Turn Off Performance Caching	9
	Solaris	10
	Set WebObjects Environment Variables	10
<b>Chapter 3</b>	<b>Enterprise Objects Adaptors</b>	<b>13</b>
	Installing Database Adaptors	13
	Directory Services Adaptors	14
	Installation	14
	Reverse Engineering an LDAP Server	15

**Chapter 4**   **Web Server Adaptors**   17

---

API Adaptors	17
Apache Module	17
Building the Adaptor	17
Configuring the Apache Server	19
Running the Apache Server	21
Microsoft IIS ISAPI	21
Netscape iPlanet NSAPI Adaptor	23
Installing the Adaptor	23
Notes About Using the iPlanet Socket Routines	24
CGI Adaptors	25
Security Note	25
Adaptor Configuration	25
WO_CONFIG_URL	25
Debugging Using the CGU Adaptor	26
Mac OS X Server Issues	26

**Chapter 5**   **Verifying Your Installation**   27

---

Confirm That the WebObjects Processes Are Running	27
Run a Simple Application	28
Run an Application That Connects to a Database	28
Build a Simple Application	29
Checking the Installed Files	29
Mac OS X File System Layout	30
Corrective Action	31
Solaris File System Layout	32
Corrective Action	33
Windows 2000 File System Layout	34
Corrective Action	36

Index	37
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# About This Document

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This guide gives you some tips on how to configure WebObjects once the basic installation outlined in the Installation Guide is complete. This includes

- “Platform Specific Configuration” (page 7)
- “Enterprise Objects Adaptors” (page 13)
- “Web Server Adaptors” (page 17)
- “Verifying Your Installation” (page 27)

By following the instructions in this guide, you will be able to modify the default installation of WebObjects to meet your particular needs, and then test your installation to confirm that everything is working correctly.

Before reading this guide, be sure you have followed all of the instructions in the WebObjects installation guide that accompanies your system. Updated documentation is maintained at <http://developer.apple.com/techpubs/webobjects/>.

## How to Use This Guide

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Chapter 2, “Platform Specific Configuration” (page 7), should be read first. Beyond that, this guide is written as a topical reference for you to reference as needed.

## NEXT\_ROOT

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Throughout this document you will see references to `NEXT_ROOT`. This is the root of your installation of WebObjects. By default, this location on Windows is `C:\Apple`; on Solaris it is `/opt/Apple`. If you performed a custom installation, it is simply the root of your WebObjects installation. On Windows and Solaris `NEXT_ROOT` is an environment variable. On Mac OS X `NEXT_ROOT` does not exist as an environment variable. For the purpose of this document, assume `NEXT_ROOT` to be equivalent to the root folder of the partition on which you installed WebObjects (/).

# Platform Specific Configuration

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Immediately after installation, there are certain additional steps to perform to fully enable WebObjects in your installation. This chapter details those steps based on your installation platform.

## All Platforms

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### Third Party JAR Files

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WebObjects provides a selection of third party JAR files that you may need to install depending on your development requirements. Installation instructions are included in `ThirdPartyJars/Readme.rtf` on your installation CD.

### Servlet Deployment

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If you installed WebObjects Deployment with Servlet deployment (a custom installation) the following notes apply to your installation.

Configure your application server to pass on the following Java properties:

- Mac OS X
  - `-DWORKROOT=/ -DLOCALROOT=/Local`
  - `-DWOAINSTALL00T=/Local/Library/WebObjects/Applications`

### Platform Specific Configuration

#### ■ Solaris

- `-DWORKROOT=/opt/Apple -DLOCALROOT=/opt/Apple/Local`
- `-DWOAINSTALLROOT=/opt/Apple/Local/Library/WebObjects/Applications`

#### ■ Windows

- `-DWORKROOT=C:/Apple -DLOCALROOT=C:/Apple/Local`
- `-DWOAINSTALLROOT=C:/Apple/Local/Library/WebObjects/Applications`

Place your applications in `NEXT_ROOT/Local/Library/WebObjects/Applications`.

Place your frameworks in `NEXT_ROOT/Local/Library/Frameworks`.

## Windows 2000

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### Disable Visual Notification in Dr. Watson

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For Windows WebObjects Development machines there is a suggested change to the Dr. Watson settings. Due to the way that Dr. Watson on Windows 2000 locks instances of a crashed application, a slight modification of your Dr. Watson settings should be made to ensure that you are able to continue developing in the case of an application crashing. At the command line, open Dr. Watson by typing `drwtsn32`. Deselect the Visual Notification check box in Dr. Watson's Options.

### Configure Default Character Encoding on the Japanese Version of Windows

---

If you have installed WebObjects on the Japanese Version of Windows, you need to configure the default character encoding. The default character encoding is determined by the first character in

`NEXT_ROOT/Library/Frameworks/Foundation.framework/Resources/CStringEncoding`.

If this file exists, make sure that the first character is the number "8". If the file does not exist create it.



## Mac OS X

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### Start WebObjects Processes Automatically

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By default, wotaskd starts up when your system boots. You can configure JavaMonitor to start automatically also, and specify which user both of these processes run as, by uncommenting the appropriate lines in `/System/Library/StartupItems/WebObjects/WebObjects`.

**WARNING**

When setting WebObjects services to start automatically, it is important to remember that no application server should ever be controlled by more than one instance of Monitor. In installations where there are multiple application servers, do not configure Monitor to start automatically if another Monitor instance could be administering the same application server.

### Turn Off Performance Caching

---

For an installation of WebObjects Deployment on Mac OS X Server it is recommended that you turn off the performance caching on the Web server.

Performance Caching allows for greater server performance on sites with static html pages. Since WebObjects works with dynamically generated Web pages, it is important to turn this off so that you WebObjects generated Web pages behave as expected.

To turn off performance caching on Mac OS X Server:

1. Open `/Applications/Utilities/Server Admin`.
2. Choose the Internet tab.
3. Click Web and choose Configure Web Service.
4. Choose the Sites tab.

## Platform Specific Configuration

5. Select the appropriate site and click Edit.
6. Choose the General tab.
7. In the Site Options section, deselect Enable performance cache.
8. Click Save.
9. In the dialog, choose the option to Restart Now.

## Solaris

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### Set WebObjects Environment Variables

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The `NEXT_ROOT` and `PATH` environment variables need to be set. `NEXT_ROOT` is the location where you installed WebObjects. By default this is `/opt/Apple`. `PATH` is the directory to search for executables. The examples below assume that you have accepted the default installation path of `/opt/Apple`. If you have installed into a different location, replace `/opt/Apple` with the proper path name.

These settings go into the startup file of your shell. In C style shells, this file is usually called `.cshrc`. In Bourne compatible shells these settings can be set in your `.profile`. By default C style shells use the percent sign (%) as their prompt. Bourne shells use a dollar sign (\$). You can explicitly determine which shell you are running by typing `echo $SHELL` at the command line.

To set these environment variables in a C style shell:

1. Open `~/ .cshrc` in your editor of choice.
2. Add the following line: `setenv NEXT_ROOT /opt/Apple`
3. Find the line that begins with “set path”. Append `opt/Apple/Library/Executables` and `/opt/Apple/Developer/Executables` to the list of paths.

The resulting line will look similar to:

```
set path=(/opt/Apple/Library/Executables /opt/Apple/Developer/Executables
/usr/local/bin /bin /usr/bin /sbin /usr/sbin)
```

4. Save and close the file.

## C H A P T E R 2

### Platform Specific Configuration

5. Implement the new settings by typing `source ~/.cshrc`.

In a Bourne style shell set these variables as follows:

1. Open `~/.profile` in your editor of choice.
2. Add the following line: `NEXT_ROOT=/opt/Apple`
3. On the next line add: `export NEXT_ROOT`
4. Find the line that begins with "PATH". Append `opt/Apple/Library/Executables` and `/opt/Apple/Developer/Executables` to the list of paths.

The resulting line will look similar to:

```
PATH=/opt/Apple/Library/Executables: /opt/Apple/Developer/Executables: /usr/local/bin: /bin: /usr/bin: /sbin: /usr/sbin:
```

5. Save and close the file.
6. Implement the new settings by typing `~/.profile`.

## C H A P T E R 2

### Platform Specific Configuration

# Enterprise Objects Adaptors

---

WebObjects incorporates the Java Database Connectivity (JDBC) API for accessing data sources. Through this API you are able to access both databases and directory services.

When adding a new adaptor or driver to your system, you need only to copy the JAR, or possibly zip file, into a directory in your classpath. The default and recommended location is your Java extensions directory. On Mac OS X your Java extensions folder is `/Library/Java/Extensions`. On Windows and Solaris it is inside of your JDK directory in `/jre/lib/ext`.

Windows development requires the installation of JDK 1.1.8 compatible files due to the use of the Java bridge in some of the development tools. A Windows development machine will therefore usually include two different versions of many Enterprise Object Adaptor JAR files. The JDK 1.3.1 compatible files will be installed as discussed in the previous paragraph. The JDK 1.1.8 compatible files should be unzipped into the appropriate JDK directory.

## Installing Database Adaptors

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JDBC allows WebObjects to connect to Structured Query Language (SQL) based database. Though many databases may work, WebObjects 5.1 is supported on:

- Oracle 8.1.7
- SQL Server 2000 Standard Edition
- mySQL 3.23.42

### Enterprise Objects Adaptors

- OpenBase

By default WebObjects installs adaptors for OpenBase Innovator that is included with WebObjects. Connecting to an alternative databases is very straightforward.

Download a database driver from the appropriate vendor, then copy the JAR (or zip) file into a location in you classpath, preferably your Java extensions directory.

Following is a list of suggested database drivers for the databases supported by WebObjects 5.1. Since these are third party drivers, Apple does not guarantee them.

- Oracle - classes12.zip - <http://technet.oracle.com>
- SQL Server - <http://www.microsoft.com/sql/downloads/2000/jdbc.asp>
- MySQL - mm.mysql-2.0.6 - <http://mymysql.sourceforge.net>
- OpenBase - OpenBaseJDBC.jar (installed by default)

For updated jdbc driver availability see <http://industry.java.sun.com/products/jdbc/drivers>.

## Directory Services Adaptors

---

WebObjects allows for accessing directory services through the use of the Java Naming and Directory Interface (JNDI) adaptor in conjunction with a service provider. WebObjects supports connections to the following Lightweight Directory Access Protocol (LDAP) servers:

- the OpenLDAP Directory Server and
- the Netscape iPlanet Directory Server

Other configurations are possible, but not supported.

### Installation

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To use this LDAP JNDI adaptor you need to download and install the JNDI class libraries and the LDAP service provider from Sun Microsystems. These are both available from <http://java.sun.com/products/jndi>.

### Enterprise Objects Adaptors

On Mac OS X Solaris

- Download JNDI 1.2.1 and copy the enclosed `jndi.jar` to your Java extensions directory.
- Download LDAP Service Provider 1.2.3 and copy `ldap.jar`, `ldapbp.jar`, and `providerutil.jar` to your Java extensions directory.

On Windows

- Download JNDI 1.1.2. Expand the `jndi.jar` into you `jdk 1.1.8` directory.
- Download LDAP Service Provider 1.0.3. Expand the `jndi.jar` into you `jdk 1.1.8` directory.

**Note:** The use of the Java bridge on Windows necessitates using the JDK 1.1.8 version of the JNDI classes and LDAP Service Provider.

## Reverse Engineering an LDAP Server

---

With the JNDI classes and the LDAP service provider installed, you can use `WebObjects` to reverse engineer the LDAP server you wish to access.

1. Open `EOModeler`.
2. Choose `New` from the `Model` menu.
3. Choose `JNDI` from the `Available Adaptors` menu. Click `Next`.
4. Fill in the appropriate connection dictionary values for your LDAP server. The `JNDI Connection` dialog specifies default values for `authenticationMethod`, `initialContextFactory`, `plugInClassName`, `scope`, and `timeout`. If you need to modify these values you may do so.
5. In the in the “Choose what to include in your model” dialog deselect
  - Assign primary keys to all entities
  - Ask about relationships
  - Ask about stored procedures
  - Use custom Enterprise Objects
6. Select `Finish` to build the new model.
7. Save the model.

## C H A P T E R 3

### Enterprise Objects Adaptors



# Web Server Adaptors

---

The Web server adaptors include both API adaptors written to specific Web server technologies and the CGI adaptor. The supported Web servers with WebObjects 5.1 are:

- Apache 1.3.20 (Included with Mac OS X and Mac OS X Server)
- Apache 1.3.9 (Included with Solaris 8)
- Microsoft IIS
- Netscape iPlanet Web Server, Enterprise Edition 6.0 SP1

## API Adaptors

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### Apache Module

---

This adaptor has been tested on Mac OS X (with Apache version 1.3.14) and Solaris (with Apache version 1.3.9). It was not tested on other Apache 1.3.x versions besides the aforementioned, but it should work. Note that the adaptor is not backward-compatible with Apache 1.2.x versions, because the module API changed from version 1.2 to 1.3.

### Building the Adaptor

---

For convenience, this adaptor is configured to run out of the box on Mac OS X; no further installation or configuration is necessary. Any request with `.../cgi-bin/WebObjects/...` will be handled by the WebObjects Apache module. The Apache

### Web Server Adaptors

module overrides the use of the WebObjects executable in `/Library/Web Server/CGI-Executables`, though you can optionally disable the Apache module so that the CGI adaptor handles such requests.

On Mac OS X, recompiling is just a matter of running `make` in the `/Developer/Examples/WebObjects/Source/Adaptors` directory.

The Apache WebObjects module has been tested on Solaris, as well. It has not been tested on Windows 2000, but there's no known reason it shouldn't work. The `apxs` rule in the Makefile works fine on Mac OS X and Solaris, but your experience may be different on other platforms. If your Apache Web server can already accept Dynamic Shared Objects (DSOs), you can skip to the instructions for [“Configuring the Apache Server”](#) (page 19).

General information regarding building Apache and including new DSO modules can be found at The Apache Group and in the documentation included with the Web server and source for Apache v.1.3 or later.

### **Preparing the Apache Web Server to Accept the WebObjects Adaptor on Platforms other than Mac OS X**

---

This guide does not attempt to teach you how to build an Apache Web server that can accept Dynamic Shared Objects such as the Apache WebObject adaptor. Please refer to the Apache Web site for more details. Usually, you must at least configure the Web server in the following manner:

```
./configure --enable-module=so
```

### **Compiling the WebObjects Adaptor as a Dynamic Shared Object (DSO)**

---

1. Make sure that you've installed the following on your system:
  - WebObjects
  - Perl (5.005\_02 or later)
  - ANSI-C compliant compiler (e.g. gcc-2.7.2 or later)
  - gnumake (3.74 or later)

## Web Server Adaptors

- Apache Web server (1.3.9 or later). The default makefiles assume that the Apache executable `apxs` is located in `/usr/sbin/apxs` on Mac OS X and in `/usr/apache/bin/apxs` on Solaris (which usually means that the whole Apache package is installed in `/usr/apache` on Solaris systems). If you install the Apache package elsewhere, you have to modify `make.config` in `NEXT_ROOT/Developer/Examples/WebObjects/Source/Adaptors`.
2. On platforms other than Mac OS X, make sure that you have defined and exported an environment variable called `NEXT_ROOT` that contains the path to your WebObjects installation (e.g. `/opt/Apple`).
  3. Make sure that you include the paths to the aforementioned executables in your `PATH` environment variable, preferably as close to the beginning as possible.
  4. Go to the `NEXT_ROOT/Developer/Examples/WebObjects/Source/Adaptors/` directory; on Mac OS X, go to `/Developer/Examples/WebObjects/Source/Adaptors/`. Amend `make.config` so that the variable `ADAPTORS` is only equal to Apache. Run `make`.
  5. If this succeeds in building `mod_WebObjects.so` in `NEXT_ROOT/Developer/Examples/WebObjects/Source/Adaptors/Apache`, you will not have to rebuild the Apache server. Configure the Apache Web server.
  6. If this fails to build, you will have to rebuild your Apache Web server.

## Configuring the Apache Server

---

Once you have built the adaptor and server, you will need to configure the Web server to handle WebObjects requests. On Mac OS X, the WebObjects installer has already properly set the configuration files, but you may still want to modify their parameters. On other platforms, you'll have to perform the following steps:

1. Locate the Apache configuration file in the Apache package on your system. Usually it's called `httpd.conf`. On Mac OS X, this file is located in the `/etc/httpd` directory. Append these lines to the end of `httpd.conf`:

```
# Including WebObjects Configs
Include /System/Library/WebObjects/Adaptors/Apache/apache.conf
```

This example "Include" line assumes that the `apache.conf` file supplied by WebObjects resides in the `/System/Library/WebObjects/Adaptors/Apache` directory (on OS X). For other platforms other than OS X, it should be located in `NEXT_ROOT/Library/WebObjects/Adaptors/Apache` directory.

## Web Server Adaptors

2. Copy the newly compiled `mod_WebObjects.so` to `NEXT_ROOT/Library/WebObjects/Adaptors/Apache` (on Mac OS X, `/System/Library/WebObjects/Adaptors/Apache`). Ensure that the `LoadModule` command in `apache.conf` is pointing at the right path. Continuing the example from the previous step:

```
LoadModule WebObjects_module /System/Library/WebObjects/Adaptors/Apache/
mod_WebObjects.so
```

3. You may also want to configure the parameters located in `apache.conf`:

```
WebObjectsDocumentRoot <the document root for the web server>
WebObjectsAlias         <the URL key>
WebObjectsConfig        <the URI to the configuration file> <interval
between re-reading config>
```

For example:

```
WebObjectsDocumentRoot /Local/Library/WebServer/Documents
WebObjectsAlias /Apps/WebObjects
WebObjectsConfig webobjects://239.128.14.2:1085 10
```

The default alias is `/cgi-bin/WebObjects`. By default, the adaptor contacts the local instance of `wotaskd` to retrieve configuration information. Please consult the `WebObjects` document for more details.

`WebObjects` supports three mechanisms for reading an adaptor configuration:

- a. to read from a static URL:

```
WebObjectsConfig file:///Local/Library/WebObjects/Configuration/
WebObjects.xml
WebObjectsConfig http://www.company.com/private/woappconfig.xml
```

- b. to find applications running on known hosts:

```
WebObjectsConfig http://woserv1:1085,http://woserv2:1085,http://
woserv2:1085 10
```

- c. to discover hosts using multicast:

```
WebObjectsConfig webobjects://239.128.14.2:1085 10
```

The re-read interval for either the host list or multicast mechanisms is set by specifying the desired re-read interval in seconds at the end of the line.

### Web Server Adaptors

4. You may have to add a handler to enable the adaptor to take over requests. To do this, add a <Location> directive to the built Web server's httpd.conf file:

```
<Location /cgi-bin/WebObjects*>  
SetHandler WebObjects  
</Location>
```

### Running the Apache Server

---

Once you've built and configured the server with the linked adaptor, you should start it and confirm that it's working by moving aside the WebObjects CGI adaptor in the cgi-bin directory and making a few requests. If you still are suspicious that the CGI adaptor may be handling the requests instead of the DSO module, you can check this by turning on the logging feature of the adaptor as follows:

1. As root, touch /tmp/logWebObjects
2. Make a request to some WebObjects application to initialize the log file.
3. From the shell, tail -f /tmp/WebObjects.log
4. If the Apache Web server is configured to use the CGI adaptor, each request is logged with:

```
Info: <CGI> new request: /cgi-bin/WebObjects/MyApp
```

5. If the Apache Web server is configured to use the WebObjects Apache module, each request is logged with:

```
Info: <WebObjects Apache Module> new request: /cgi-bin/WebObjects/MyApp
```

### Microsoft IIS ISAPI

---

To install this adaptor, copy the file WebObjects.dll to your Web server's scripts directory. The adaptor will be loaded into the server the first time a request of the form http://.../scripts/WebObjects.dll is made. It will remain active in the server until you stop the server.

ISAPI doesn't provide any specific way to pass information into the adaptor, so the Registry is used. Modifying the Registry should only be done by an experienced Windows 2000 Administrator. To do so, from the Start Menu, choose Run and type in "regedit" and return.

## CHAPTER 4

### Web Server Adaptors

Look for the panel titled `HKEY_LOCAL_MACHINE`.

All WebObjects adaptor entries are found in:

```
SOFTWARE\Apple\WebObjects\Configuration
```

To change the configuration URL, you need to add the following entry:

```
CONF_URL <URL>
```

Choose `New->String Value` from the edit menu. Type in `CONF_URL` for the name. Enter the URL you want to use for the value. This might, for example, be `file:///Apple/Local/Library/WebObjects/Configuration/WebObjects.conf`, if you want to use the old-style configuration. The default is `http://localhost:1085`.

The URL entered will depend on how you wish to retrieve adaptor configuration:

- to read configuration from a static URL:

```
file:///Local/Library/WebObjects/Configuration/WebObjects.xml  
http://www.company.com/private/woappconfig.xml
```

- to find applications running on known hosts:

```
http://woserv1:1085,http://woserv2:1085,http://woserv2:1085
```

- to discover hosts using multicast:

```
webobjects://239.128.14.2:1085
```

To set the re-read interval for either the host list or multicast mechanisms, set a separate registry entry named `CONF_INTERVAL` to the desired re-read interval in seconds.

Here are some other registry entries recognized by the ISAPI adaptor. The values are as described in the `.xml` configuration example or the DTD for the adaptor:

```
WUSERNAME  
WOPASSWORD  
CONF_INTERVAL  
CONF_URL  
SEND_TIMEOUT  
RECV_TIMEOUT  
CONNECT_TIMEOUT
```

## Web Server Adaptors

```

TIMEOUT
POOL_SIZE
RETRIES
DORMANT_INTERVAL
ERROR_REDIRECT
LOG_PATH
SCHEDULER
DOCUMENT_ROOT
    
```

Setting Wousername to "public" allows anyone to see the WOAdaptorInfo page.

## Netscape iPlanet NSAPI Adaptor

---

### Installing the Adaptor

---

**Note:** Spacing is significant to configuration information; please read carefully. Items in brackets "<>" denote names or directory paths that you configure).

1. In a text editor, open the magnus.conf file for your iPlanet Web Server 6.0 (e.g. /opt/iplanet/servers/https-/config/magnus.conf).
2. At the end of the block of configuration items that are prefixed with Init, add the following two lines:

```

Init fn="load-modules"
funcs="WebObjects_init,WebObjectsNameTrans,WebObjectsRequest"
shlib=<pathToNSAPIadaptor>
Init fn="WebObjects_init" root=<pathToWebServer'sDocRoot>
config=<woconfigurl>
    
```

where:

<pathToNSAPIadaptor> = the path to the NSAPI shared library (e.g. /opt/Apple/Library/WebObjects/Adaptors/NSAPI/libWebObjects.so on Solaris, or C:/Apple/Library/WebObjects/Adaptors/NSAPI/WebObjects.dll on Windows)

<pathToWebServer'sDocRoot> = the path to the document root of your Web server (e.g. /opt/iplanet/servers/docs)<woconfigurl> = the URL to access wotaskd on the local machine (e.g. http://localhost:1085)

## Web Server Adaptors

The URL entered will depend on how you wish to retrieve adaptor configuration:

- a. to read configuration from a static URL:

```
file:///Local/Library/WebObjects/Configuration/WebObjects.xml
http://www.company.com/private/woappconfig.xml
```

- b. to find applications running on known hosts:

```
http://woserv1:1085,http://woserv2:1085,http://woserv2:1085
```

- c. to discover hosts using multicast:

```
webobjects://239.128.14.2:1085
```

To set the re-read interval for either the host list or multicast mechanisms, add a separate configuration option (on the same init line) named "confinterval" and set its value to the desired re-read interval in seconds.

```
Init fn="WebObjects_init" root="/opt/iplanet/servers/docs"
config="http://localhost:1085" confinterval="10"
```

3. In a text editor, open the obj.conf file for your iPlanet Web Server 6.0 (e.g. /opt/iplanet/servers/https-/config/obj.conf).

4. Add the following line as the very first line after the line containing <object name=default>:

```
NameTrans fn="WebObjectsNameTrans" from="/cgi-bin/WebObjects"
name="webobjects"
```

5. Add the following three lines at the very end of the file:

```
<Object name="webobjects">
Service fn="WebObjectsRequest"
</Object>
```

## Notes About Using the iPlanet Socket Routines

---

WebObjects 5.1 now uses non-blocking sockets `nsocket.c` even for NSAPI adaptor. These functions provide a thread safe, platform independent socket API. This is fine for most installations. It used to be iPlanet's socket cover functions (the `nsocket.c` transport).



## CGI Adaptors

---

The default CGI adaptor is a generic CGI adaptor designed to be usable with all Web servers that supports CGI. There is a performance disadvantage in using the CGI version; you are encouraged to use a server plug-in adaptor whenever possible.

To install this adaptor, copy the file `WebObjects` (or `WebObjects.exe` on Windows) to your Web server's `cgi-bin` or `scripts` directory. This is done for you if you install `WebObjects` on to the system with a Web server installed.

### Security Note

---

The `WOAdaptorInfo` (configuration information listing) and application listing functionality are enabled by default with the CGI adaptor for the convenience of developers. These should be disabled for deployment. To disable these features, you need to set `WO_ADAPTOR_INFO_USERNAME` and `WO_ADAPTOR_INFO_PASSWORD` to "disabled" so that the CGI program can determine the functions are switched off, or alternatively, rebuild the CGI adaptor with a code change to turn off the feature (see `WebObjects.c` for how to do this).

### Adaptor Configuration

---

The CGI adaptor configuration is modified by using environment variables. You must consult your Web server documentation to understand how to create and pass environment settings on to a CGI program.

#### `WO_CONFIG_URL`

---

On Mac OS X and Solaris, the CGI adaptor uses a memory-mapped state file and does not need to contact `wotaskd` for each request. For Windows 2000, by default, the CGI adaptor contacts the instance of `wotaskd` on the local host to locate applications. Since this is expensive for a CGI program (it must do it every time), for deployment you would normally want to use a different mechanism - either a static file on the Web server machines, or a static URL. To change this, set the `WO_CONFIG_URL` environment variable. Examples:

## C H A P T E R 4

### Web Server Adaptors

```
Static file: file:///Local/Library/WebObjects/Configuration/WebObjects.xml
wotaskd URL list: http://woserv1:1085,http://woserv2:1085,http://
woserv2:1085
Static URL: http://www.company.com/private/woappconfig.xml
```

For the latter case you'll need to make sure your Web server is configured to send text/xml as the MIME type for .xml files.

### Debugging Using the CGU Adaptor

---

There is a good reason to use the CGI adaptor: to exercise the underlying request handler and debug any customizations you may have made to the source code. Since all input to any CGI program is provided in the environment variables and stdin, the WebObjects CGI program can be conveniently run under a debugger.

To do this, set the following environment variables (examples using /bin/sh):

```
REQUEST_METHOD=GET;export REQUEST_METHOD
SERVER_PROTOCOL=HTTP/1.0;export SERVER_PROTOCOL
QUERY_STRING=?foo=bar;export QUERY_STRING
SCRIPT_NAME=/cgi-bin/WebObjects;export SCRIPT_NAME
PATH_INFO=/MyApps/MyCoolApp;export PATH_INFO
```

If you want to include form data, set a CONTENT\_LENGTH header and type the form as stdin. Another solution is to edit the provided TestCGI.sh or Env.csh file to suit your needs and execute it.

### Mac OS X Server Issues

---

If there are problems executing the CGI adaptor on MacOS X Server, make sure that the "WebObjects" CGI executable is located in /Library/WebServer/CGI-Executables/, is owned by root:admin, and is executable by everyone. If MacOS X Server is running on an HFS filesystem, stop the Web server, remove the /tmp/WOAdaptorState file, "touch WebObjects", and restart the Web server. You may have to repeat this process (i.e. "touch WebObjects" and restart) after every boot or reboot for the Web server to notice it.

# Verifying Your Installation

---

After you have installed WebObjects and performed the steps in [Chapter 2, “Platform Specific Configuration”](#) (page 7), you should verify your installation. This is also useful after you have made other changes such as modifying your adaptors as presented in [Chapter 4, “Web Server Adaptors”](#) (page 17). The steps outlined below will help you to do this.

These steps assume you have access to a WebObjects Developer installation. The examples mentioned below are not installed with WebObjects Deployment, though they can be copied to, and tested on a WebObjects Deployment installation.

## Confirm That the WebObjects Processes Are Running

---

On Mac OS X, open `/Applications/Utilities/Terminal`. At the command line, run `ps -aux`. Verify that `javawoservice.sh` is running.

On Windows 2000, open the Services control panel and verify that Apple WebObjects Monitor 5 and Apple WebObjects Task Daemon 5 running. In addition confirm that their startup mode should be set to Automatic.

On Solaris type `ps -eaf` in a shell window and verify that `javawoservice.sh` is running.

## Run a Simple Application

---

On Mac OS X or Windows development machine navigate to `NEXT_ROOT/Developer/Examples/JavaWebObjects/HelloWorld/HelloWorld.woa`.

On Mac OS X you can double click `HelloWorld.woa`, or run the `HelloWorld` executable directly by navigating into the `HelloWorld.woa` folder and typing `./HelloWorld` in Terminal.

On Windows run `HelloWorld.cmd` either from a shell or by double-clicking it.

A browser window launches and you can interact with the `HelloWorld` application.

On a deployment machine, you first need to copy the `HelloWorld.woa` folder from a development installation to your deployment computer. Once you have copied `HelloWorld.woa` to your computer, navigate into the `HelloWorld.woa` folder and run `HelloWorld` with `./HelloWorld`. As the application starts up, you should see output scroll by. Near the bottom of this output is an html address that looks similar to: <http://tex/cgi-bin/WebObjects/HelloWorld.woa/-40168>. Copy this URL into a browser and you should be able to connect directly to the application.

## Run an Application That Connects to a Database

---

Running `NEXT_ROOT/Developer/Examples/JavaWebObjects/ThinkMovies/ThinkMovies.woa`, included with a Mac OS X or Windows Development installation, will help to verify that your development installation is configured properly. The procedure for running the application is that same as that outlined in “[Run a Simple Application](#)” (page 28).

On Mac OS X a standalone Java window will open in which you should be able to interact with the movies database. On Windows the application runs within your browser window.

## Verifying Your Installation

This application makes use of a pre-configured database and an Enterprise Object Model to coordinate the information flow between the database and the applications. Successful running of this application confirms that the included version of OpenBase is working and that Enterprise Object adaptor is working.

## Build a Simple Application

---

Once you have verified that you can run a simple application and can run an application that connects to a database, you should verify that you can build applications on your WebObjects Development machine. Both the HelloWorld.woa and ThinkMovies.woa applications include the source code and the Project Builder files to build them.

Copy one of these or another of the example applications in `NEXT_ROOT/Developer/Examples/JavaWebObjects` into your development directory.

Open the project in Project Builder by running the `.pbproj` file.

Build and run the application with Project Builder.

When you have completed this you will have verified that your WebObjects installation is ready for development.

## Checking the Installed Files

---

If any of the above steps fail you should confirm that the installation proceeded correctly. The following sections give you an idea of what should be installed and what to do if it is not correctly installed.

## Mac OS X File System Layout

---

On Mac OS X, these locations should contain the following files or directories:

- /Library/WebServer/CGI-Executables (the Web server's cgi-bin directory).

WebObjects: The WebObjects adaptor

- /Library/WebServer/Documents (the Web server's document root directory)

```

WebObjects/
  Frameworks/
    JavaEOGeneration.framework/
      WebServerResources/
    JavaDirectToWeb.framework/
      WebServerResources/
    JavaEOApplication.framework/
      WebServerResources/
    JavaWOExtensions.framework/
      WebServerResources/
  Java/
    JavaDirectToWeb.jar
    wojavaclient.jar
    com/
      apple/
        client/
          webobjects/
    WebObjects/
      eoapplication/
      eocontrol/
      eodistribution/
      eogeneration/
      eointerface/
      foundation/
      jspServlet/
  
```

- /System/Library

Check for these files and directories:

Frameworks/JavaWebObjects.framework: WebObjects library of classes, plus header files (Developer installations only)

Verifying Your Installation

Frameworks/JavaWOExtensions.framework: WebObjects Extensions framework, which contains extra dynamic elements and shared components

Java:The Java interfaces to WebObjects classes WebObjects/Adaptors: Contains WebObjects configuration files and adaptors

WebObjects/Adaptors: Contain WebObjects configuration files and adaptors

WebObjects/Executables: Contains required WebObjects applications

Corrective Action

---

If the WebObjects adaptor is missing from your Apache web server's cgi-bin directory, reinstall it using the instructions found in "CGI Adaptors" (page 25).

If you are missing any of the contents of your server's document root directory, copy the missing files from the following locations, or simply reinstall WebObjects.

If you are missing...	Copy it from...
JavaEOGeneration.framework/ WebServerResources	/System/Library/Frameworks/ JavaEOGeneration.framework/
DirectToWeb.framework/ WebServerResources	/System/Library/Frameworks/ DirectToWeb.framework/
JavaEOApplication.framework/ WebServerResources	/System/Library/Frameworks/ JavaEOApplication.framework/
WOExtensions.framework/ WebServerResources	/System/Library/Frameworks/ WOExtensions.framework/
Java/directtoweb.jar	/System/Library/Frameworks/ DirectToWeb.framework/ WebServerResources/Java/
Java/wojavaclient.jar	/System/Library/Frameworks/ EOJavaClient.framework/ WebServerResources/Java/
Java/woextensions.jar	/System/Library/Frameworks/ WOExtensions.framework/ WebServerResources/Java/

## Verifying Your Installation

If you are missing any of the contents of your /System/Library , reinstall WebObjects.

## Solaris File System Layout

---

On Solaris, these locations should contain the following files or directories:

- Web Server Directories

```

Web Server CGI-Bin Directory\
  WebObjects: The WebObjects adaptor
Web Server Document Root Directory\
  WebObjects/
    Frameworks/
      JavaEOGeneration.framework/
        WebServerResources/
      JavaDirectToWeb.framework/
        WebServerResources/
      JavaEOApplication.framework/
        WebServerResources/
      JavaWOExtensions.framework/
        WebServerResources/
    Java/
      JavaDirectToWeb.jar
      wojavaclient.jar
      com/
        apple/
          client/
            webobjects/
              eoapplication/
              eocontrol/
              eodistribution/
              eogeneration/
              eointerface/
              foundation/
              jspervlet/
  
```

- NEXT\_ROOT directory



## Verifying Your Installation

This is the location where you installed the WebObjects software. Check for these files and directories:

Library/WebObjects/Executables: Contains `woservices.sh` and `woservices_utils.sh`

Library/Frameworks/WebObjects.framework: WebObjects library of classes, plus header files (Developer installations only)

Library/Frameworks/WOExtensions.framework: WebObjects Extensions framework, which contains extra dynamic elements and shared components

Library/Java: The Java interfaces to WebObjects classes

Library/WebObjects/Adaptors: Contains WebObjects configuration files and adaptors.

## Corrective Action

---

If you are missing any of the files from your server's *cgi-bin* directory, you can copy them from `$NEXT_ROOT/Library/WebObjects/Adaptors/CGI` to your HTTP server's *cgi-bin* directory.

If you are missing any of the contents of your server's *document root* directory, copy the missing files from the following locations, or simply reinstall WebObjects.

<b>If you are missing...</b>	<b>Copy it from...</b>
JavaEOGeneration.framework/ WebServerResources	NEXT_ROOT/Library/Frameworks/ JavaEOGeneration.framework/
JavaDirectToWeb.framework/ WebServerResources	NEXT_ROOT/Library/Frameworks/ JavaDirectToWeb.framework/
JavaEOApplication.framework/ WebServerResources	NEXT_ROOT/Library/Frameworks/ JavaEOApplication.framework/
JavaWOExtensions.framework/ WebServerResources	NEXT_ROOT/Library/Frameworks/ JavaWOExtensions.framework/

Verifying Your Installation

<b>If you are missing...</b>	<b>Copy it from...</b>
Java/JavaDirectToWeb.jar	NEXT_ROOT/Library/Frameworks/ JavaDirectToWeb.framework/ WebServerResources/Java/
Java/wojavaclient.jar	NEXT_ROOT/Library/Frameworks/ wojavaclient.framework/ WebServerResources/Java/
Java/com/apple/client/*	NEXT_ROOT/Library/Frameworks/ JavaDirectToWeb/WebServerResources/Java/ com/apple/client/

If you are missing any of the contents of the NEXT\_ROOT directory, reinstall WebObjects.

## Windows 2000 File System Layout

The file listing below is broken down into those files that should be in your Web Server's directory structure and those that should be in WebObject Installation directory (NEXT\_ROOT).

■ Web Server Directories

```

Web Server CGI-Bin Directory\
  WebObjects.exe
  WebObjects
Web Server Document Root Directory\
  WebObjects\
    Frameworks\
      DirectToJavaClient.framework\
        WebServerResources\
      EOJavaClient.framework\
        WebServerResources\
      JavaDirectToWeb.framework\
        WebServerResources\
      JavaDirectToWeb.framework\
        WebServerResources\
      JavaEOApplication.framework\
        WebServerResources\
      JavaEOGeneration.framework\

```

Verifying Your Installation

```
WebServerResources\  
JavaWOExtensions.framework\  
WebServerResources\  
WOExamplesHarness.framework\  
WebServerResources\  
Java\  
  directtoeb.jar  
  JavaDirectToWeb.jar  
  woextensions.jar  
  wojavaclient.jar  
  com\  
    apple\  
      client\  
        directtoeb\  
        eoapplication\  
        eocontrol\  
        eodistribution\  
        eogeneration\  
        eointerface\  
        foundation\  
        playback\  
        webobjects\  
      webobjects\  
        eoapplication\  
        eocontrol\  
        eodistribution\  
        eogeneration\  
        eointerface\  
        foundation\  
        jspervlet\  
      
```

■ NEXT\_ROOT directory

Library\Frameworks\WebObjects.framework: WebObjects library of classes, plus header files (Developer installations only)

Library\Frameworks\WOExtensions.framework: WebObjects Extensions framework, which contains extra dynamic elements and shared components

Library\Java: Java interfaces to WebObjects classes

Library\WebObjects\Adaptors: WebObjects configuration files and adaptors

Verifying Your Installation

**Corrective Action**

---

If you are missing any of the files from your server's cgi-bin directory, you can copy them from Library\WebObjects\Adaptors\CGI to your HTTP server's cgi-bin directory.

If you are missing any of the contents of your server's document root directory, copy the missing files from the following locations, or simply reinstall WebObjects.

<b>If you are missing...</b>	<b>Copy it from...</b>
DirectToJavaClient.framework/ WebServerResources	\$NEXT_ROOT/Library/Frameworks/ DirectToJavaClient.framework/
DirectToWeb.framework/ WebServerResources	\$NEXT_ROOT/Library/Frameworks/ DirectToWeb.framework/
EOJavaClient.framework/ WebServerResources	\$NEXT_ROOT/Library/Frameworks/ EOJavaClient.framework/
WOExtensions.framework/ WebServerResources	\$NEXT_ROOT/Library/Frameworks/ WOExtensions.framework/
Java/directtoweb.jar	\$NEXT_ROOT/Library/Frameworks/ DirectToWeb.framework/ WebServerResources/Java/
Java/woextensions.jar	\$NEXT_ROOT/Library/Frameworks/ WOExtensions.framework/ WebServerResources/Java/
Java/com/apple/client/*	<b>Obtain the contents of the client directory by combining the WebServerResources/Java/com/apple/client/ directories of the DirectToWeb, EOJavaClient, DirectToJavaClient, and WOExtensions frameworks (all in \$NEXT_ROOT/Library/Frameworks)</b>

If you are missing any of the contents of the NEXT\_ROOT directory, reinstall WebObjects.

# Index

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## A, B

---

adaptors  
  Apache 17–21  
  CGI 25–26  
  database 13–14  
  directory services 14–15  
  Enterprise Objects 13–15  
  IIS 21–23  
  Netscape 23–24  
  Web server 17–26  
Apache Web server adaptor 17–21

---

## C

---

CGI adaptors 25–26

---

## D

---

database  
  installing adaptors 13–14  
  versions supported 13  
Dr. Watson, disable visual notification 8  
Dynamic Shared Object, compiling WebObjects  
  adaptor as 18–19

---

## E

---

environment variables, setting in Solaris 10

---

## F, G, H

---

file locations  
  in Mac OS X 30–31  
  in Solaris 32–33  
  in Windows 2000 34–35

---

## I

---

IIS adaptor 21–23  
installing  
  database adaptors 13  
  IIS adaptor 21–23  
  JAR files 13  
  Netscape adaptor 23–24

---

## J, K

---

Japanese version of Windows, configuring  
  default character encoding 8  
JAR files  
  recommended installation location 13  
  third party 7  
Java extensions folder location 13  
JavaMonitor  
  starting automatically in Mac OS X 9  
JDBC  
  installing adaptors 13–14  
  use in Enterprise Objects adaptors 13

## INDEX

### L

---

#### LDAP

- as directory services provider 14
- reverse engineering a server 15
- supported servers 14

### M

---

#### Mac OS X

- file system layout 30–31
- issues with CGI adaptors 26
- platform specific configuration issues 9
- Microsoft IIS ISAPI adaptor 21–23
- MySQL JDBC driver 14

### N

---

#### Netscape iPlanet NSAPI adaptor 23–24

##### `NEXT_ROOT`

- definition of 6
- setting in Solaris 10

### O

---

#### OpenBase JDBC driver 14

#### Oracle JDBC driver 14

### P, Q, R

---

#### performance caching

- turning off on Mac OS X 9

### S

---

#### servlet deployment 7

#### Solaris

- file system layout 32–33
- platform specific configuration issues 10
- SQL Server JDBC driver 14
- supported
  - databases 13
  - LDAP servers 14
  - Web servers 17

### T, U, V

---

#### testing

- application building 29
- correct processes running 27
- database connectivity 28–29
- running an application 28

### W, X, Y, Z

---

#### Windows 2000

- file system layout 34–35
- JDK version 13
- platform specific configuration issues 8
- `wotaskd`, starting automatically in Mac OS X 9