

Using Server Proxies with VisualWorks

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This technical note describes the steps to configure Apache and IIS servers for use with web applications running in VisualWorks (e.g., Seaside, Web Services, Web Toolkit, and VisualWave).

For reliability and simplicity, a reverse proxy is the recommended configuration. This serves as a gateway for the front-end server (i.e., Apache or IIS) to provide content from an application server (VisualWorks), while controlling access from the Internet at large.

The reverse proxy configurations described in this note are intended to supersede previously documented methods for the VisualWorks Application Server (VWAS), such as the VisualWorks CGI and ISAPI. Support for CGI/ISAPI .exe and .dll may be deprecated in a future release.

In the typical scenario, a company has a web site with a public IP address and DNS entry, as well as an application server behind a firewall, with a private IP address and no DNS entry. To make the application server available on the public Internet, while maintaining strict access control, a proxy is used to map web requests between the public and private addresses.

This technical note explores the following topics:

- [Configuring a Reverse Proxy with Apache](#)
- [Configuring a Reverse Proxy with IIS](#)

Configuring a Reverse Proxy with Apache

Using a reverse proxy with Apache is one of the simplest ways to install and configure a VisualWorks server application. No additional relay is required. Simply edit the Apache configuration and restart the server.

Download and Installation

Instructions for download and installation of Apache 2.4 may be found at the following locations:

Unix

<http://httpd.apache.org/download.cgi#apache24>

MS-Windows

<http://www.apachelounge.com/download/>

For a basic proxy configuration, you need to set up the Apache server to use the `mod_proxy` module. Apache modules can be included statically at build time or loaded dynamically at runtime. In the example configuration described below, we will use dynamic loading.

For details on using `mod_proxy`, consult the Apache documentation:

http://httpd.apache.org/docs/2.4/mod/mod_proxy.html

When configuring an Apache server to use a reverse proxy, you may also need the `mod_proxy_html` module. This provides a filter to rewrite HTML links through the proxy, to ensure that links work for users outside the proxy.

Note: In Apache 2.2, `mod_proxy_html` is a third-party module, but in version 2.4, `mod_proxy_html` is part of the product. In the latter, the `/apache24/conf/extra` directory includes the **`proxy-html.conf`** file with the `mod_proxy_html` directives.

Additional documentation on configuring Apache for Seaside applications can be found here:

<http://book.seaside.st/book/advanced/deployment/deployment-apache/configure-apache>

Example Configuration

To illustrate the use of a proxy, let's say we want to configure the Apache server at localhost:9090 to proxy traffic for a Seaside application at localhost:7777. Typically, the Seaside application runs as a headless VisualWorks image.

Edit the `/conf/httpd.conf` file to include the following:

```
Listen localhost:9090
ServerName localhost:9090

LoadModule proxy_module modules/mod_proxy.so
LoadModule proxy_http_module modules/mod_proxy_http.so
ProxyRequests Off

# Settings for Apache 2.4
<Proxy *>
    Require all granted
</Proxy>
# End of Settings for Apache 2.4

# Settings for Apache 2.2
<Proxy *>
    Order deny,allow
    Allow from all
</Proxy>
# End of Settings for Apache 2.2

<VirtualHost localhost:9090>
    ProxyPass / http://localhost:7777/
</VirtualHost>
```

In this example, requests to an outward-facing port (9090) are mapped to port 7777, which is used by the Seaside application.

When setting up the configuration file, there are two other directives that can be used to create a proxy:

ProxyPassMatch

Maps remote servers into the local server URL-space using regular expressions.

ProxyPassReverse

Modifies the URL in the Location, Content-Location and URI headers on HTTP redirect responses. This is essential when Apache is used as a reverse proxy (or gateway) to avoid by-passing the reverse proxy because of HTTP redirects on the back-end servers behind the reverse proxy.

Testing the Proxy

You can test the Apache proxy using a Seaside server.

- 1 To load Seaside, open the Parcel Manager, select the Seaside-All parcel, and click the **Load** button. It may be necessary to load the Seaside-Examples-All and Seaside-Testing-All parcels as well.

- 2 Start the Seaside server on localhost:7777 (this is the default).

For this, you can use the **Seaside** menu in the Launcher window.

- 3 In a command shell, start Apache with the reverse proxy, e.g. on Windows 7:

```
c:\apache24\bin\httpd.exe -f c:\apache24\conf\httpd_reverseProxy.conf
```

- 4 Use a web browser to open: <http://localhost:9090/>

The browser should display the **Welcome to Seaside** page.

You can browse the Seaside tests and demos at: <http://localhost:9090/> and they should work without any changes to the server configuration.

Configuring a Reverse Proxy with IIS

An IIS server can be configured as a reverse proxy using the URL Rewrite Module and Application Request Routing (ARR).

Download and Installation

To configure a reverse proxy, download and install the Application Request Routing (version 2.5) module by following the instructions on this site:

<http://www.iis.net/download/ApplicationRequestRouting>

The Microsoft WPI installs IIS (if it was not already installed in your system), as well as the ARR and URL Rewrite components.

Example Configuration

To illustrate the use of a reverse proxy, let's say we want to configure IIS with a default web site at localhost:8085, to map traffic to a Seaside application at localhost:7777. Typically, the Seaside application runs as a headless VisualWorks image.

Once you have installed ARR, it needs to be configured to operate as a reverse proxy:

- 1 Open the IIS Manager standalone, by launching **Inetmgr.exe**. Don't use the IIS Manager from the Computer Management console, as you won't be able to see the ARR icon.
- 2 In the IIS Manager, select the **Application Request Routing Cache** feature, and click **Open Feature** in the **Actions** pane (on the right-hand side of the window).
- 3 Still in the **Actions** pane, click **Server Proxy Settings**.
- 4 Select the **Enable proxy** checkbox in the central region of the window, and then click **Apply**. Leave all the other default values as is.
- 5 Configure the **URL Rewrite** rule.

This can be done using the IIS Manager **URL Rewrite** UI, or by modifying the file `inetpub\wwwroot\web.config`. For the purposes of this example, we will do the latter.

- 6 Edit the `inetpub\wwwroot\web.config` file as follows (our changes appear in the `<rewrite>` section):

```
<?xml version="1.0" encoding="UTF-8"?>
<configuration>
  <system.webServer>
    <defaultDocument enabled="true">
      <files>
        <clear />
        <add value="iisstart.htm" />
        <add value="Default.htm" />
        <add value="Default.asp" />
        <add value="index.htm" />
        <add value="index.html" />
      </files>
    </defaultDocument>
    <rewrite>
      <rules>
        <rule name="Seaside Reverse Proxy"
stopProcessing="false">
          <match url=".*" />
```

```

        <action type="Rewrite" url="http://localhost:7777/{R:0}" />
    </rule>
</rules>
</rewrite>
</system.webServer>
</configuration>

```

Save the **inetpub\wwwroot\web.config** file.

- 7 Restart the Default web site.

Testing the Proxy

You can test the IIS proxy using a Seaside server.

- 1 To load Seaside, open the Parcel Manager, select the Seaside-All parcel, and click the **Load** button. It may be necessary to load the Seaside-Examples-All and Seaside-Testing-All parcels as well.
- 2 Start the Seaside server on localhost:7777 (this is the default).
For this, you can use the **Seaside** menu in the Launcher window.
- 3 Use a web browser to open: <http://localhost:8085/>
The browser should display the **Welcome to Seaside** page.

You can browse the Seaside tests and demos at: <http://localhost:8085/> and they should work without any changes to the server configuration.

Related Documentation

The following documentation may be useful for configuring IIS:

<http://www.iis.net/download/ApplicationRequestRouting>

<http://learn.iis.net/page.aspx/659/reverse-proxy-with-url-rewrite-v2-and-application-request-routing/>

http://sahelp.sharepointforall.com/FAQ/bconfigure_IIS.html

<http://learn.iis.net/page.aspx/461/creating-rewrite-rules-for-the-url-rewrite-module/>

<http://forums.iis.net/1154.aspx?PageIndex=2&forumoptions=0:1:11::>