



Welcome to **webApp.secure**

Find out how easy it is to secure your
Web assets.

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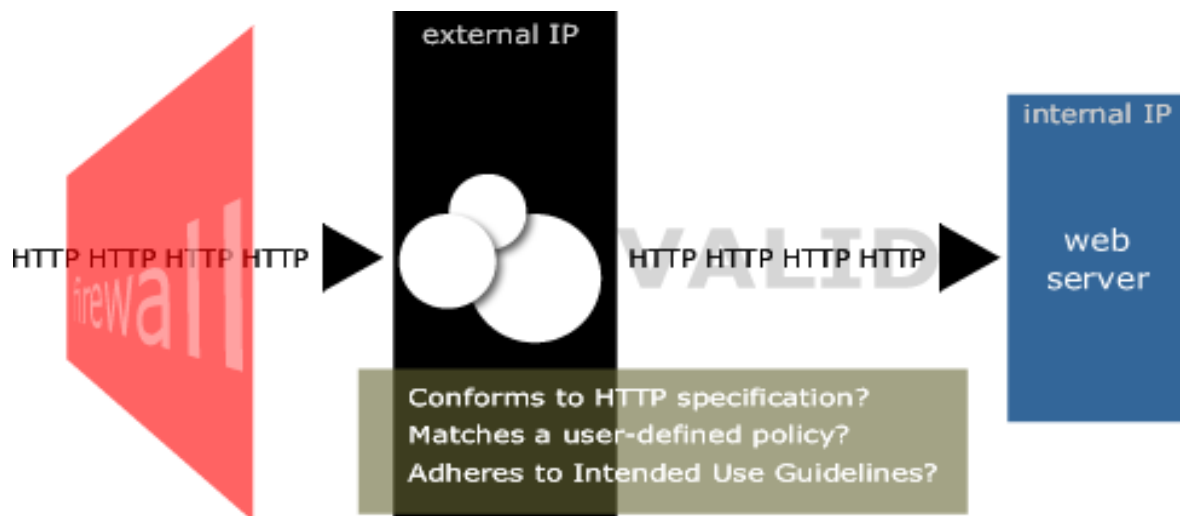
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Welcome to webApp.secure

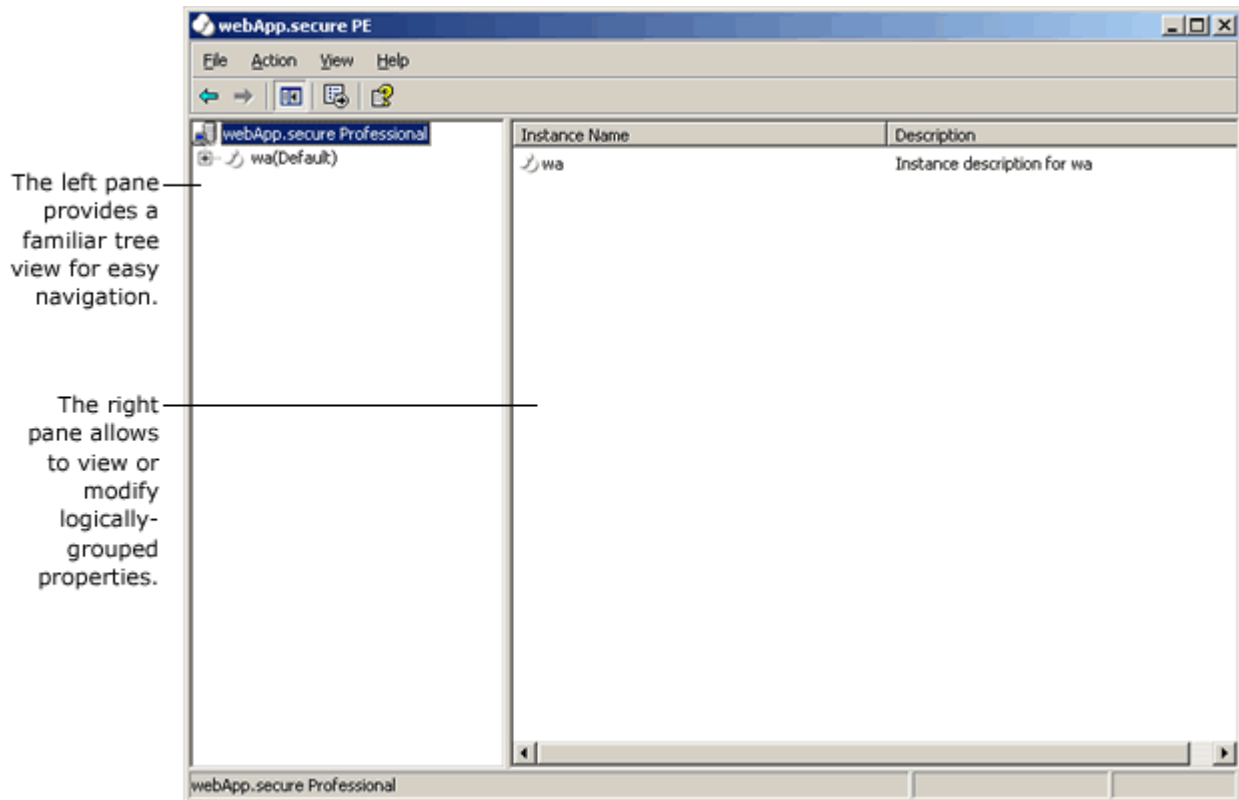
webApp.secure is a fresh idea in Web server hardening and Web application security. It's simple, yet powerful, so you can spend your time actually conducting business on the Web, not administering your defenses.



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Familiar Environment

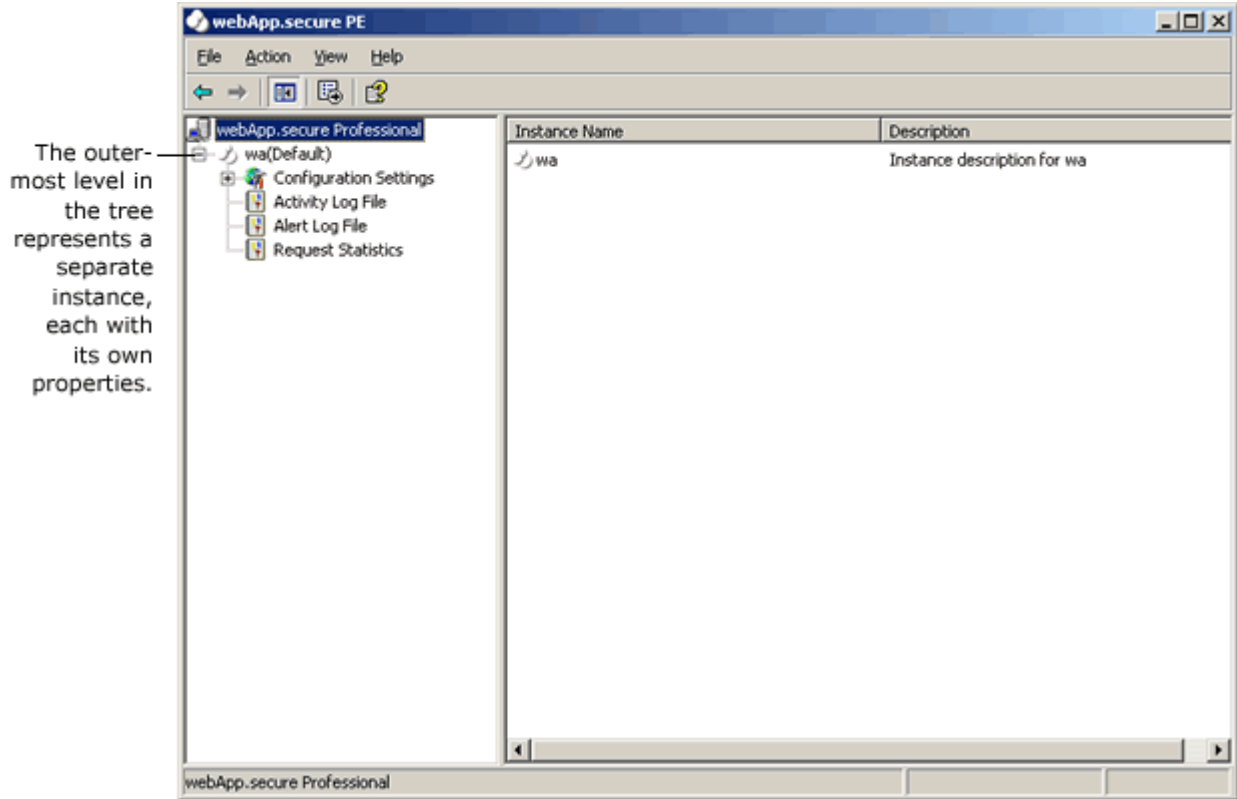
The MMC-compliant Admin Console provides a familiar interface for configuration and administration.



The Admin Console can be used as a stand-alone application or as a snap-in with other MMC-compliant utilities.

Multiple Instances

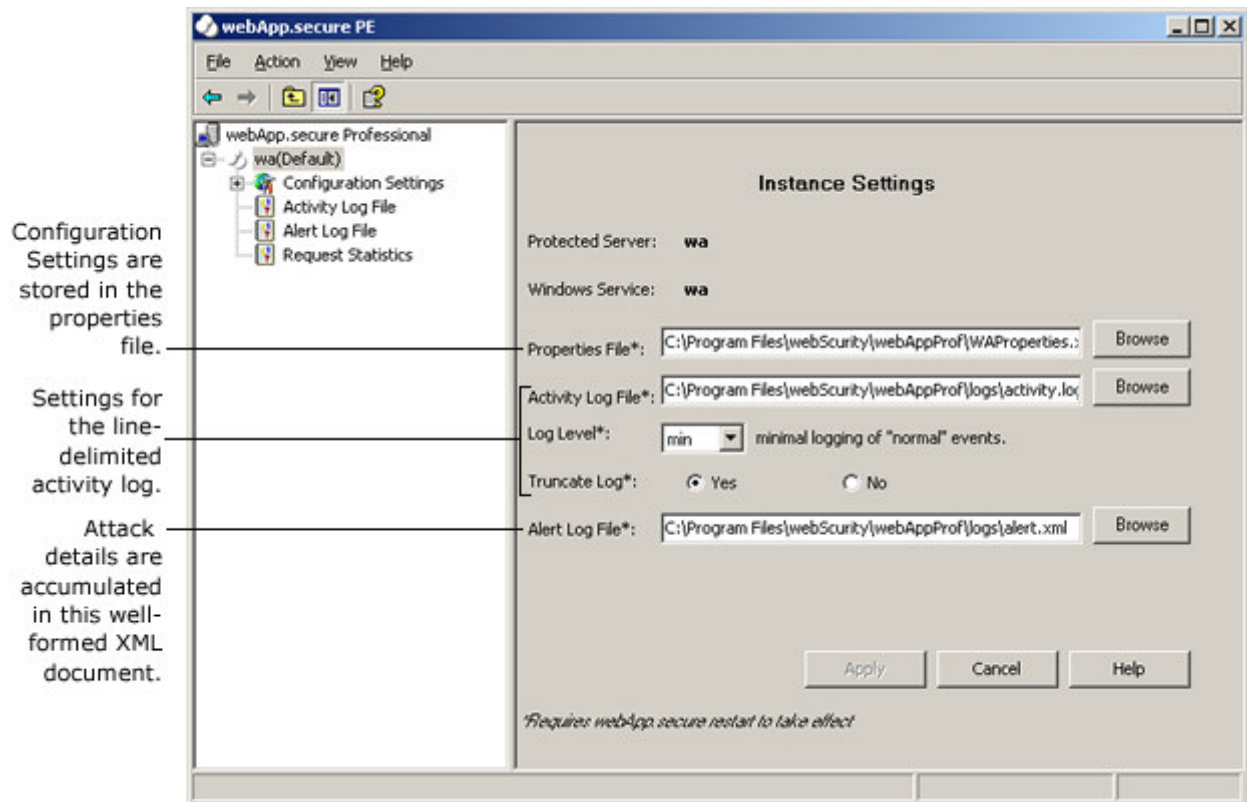
Multiple instances of webApp.**secure** can be used to protect multiple IP-based virtual Web sites on the same server. Each instance runs as a separate service with its own configuration.



If you host multiple Web sites on the same Web server using IP-based virtual hosting, then you will need to set up a separate instance for each IP. Set the **Listen IP** property (see **Server Setup** below) of each instance to the IP address of each Web site.

Location. Location. Location.

Key file names and paths are specified in the **Instance Settings** pane based on your system requirements. The values entered here are stored in the registry.



Properties File

The webApp.secure runtime properties (**Configuration Settings**) are stored in a well-formed XML document at this location. Neither the location, nor name, holds any significance to webApp.secure.

Activity Log File

System activity can be logged to a line-delimited text file at this location. Neither the location, nor name, holds any significance to webApp.secure.

Log Level

The level of detail logged to the activity log file is controlled by this setting. No, Min, User, and Admin are the four available levels ranging from none to extremely detailed, respectively.

Truncate Log

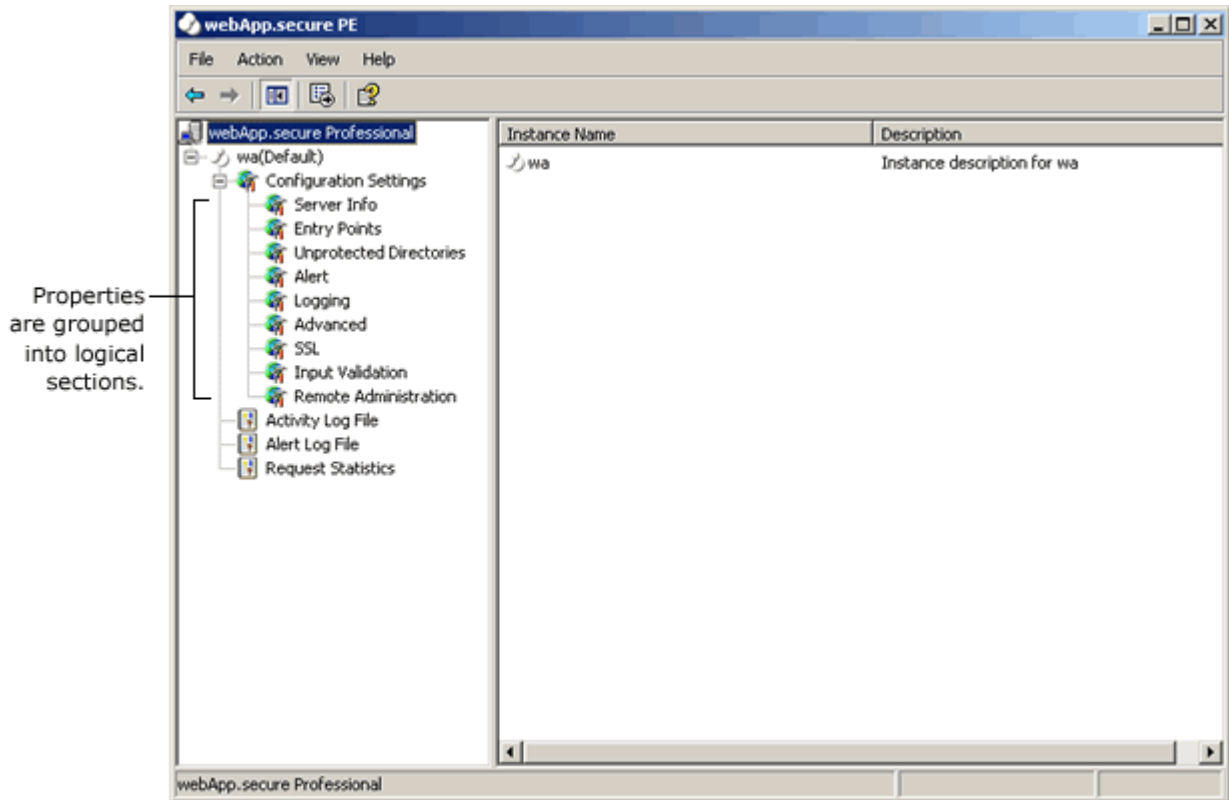
When set to Yes, the activity log file will be truncated at startup. When set to No, the activity log file will be appended to at startup.

Alert Log File

Malicious activity is logged to this well-formed XML document. Neither the location, nor name, holds any significance to webApp.secure. (Purging or renaming the active alert log through an automated batch process is generally acceptable.)

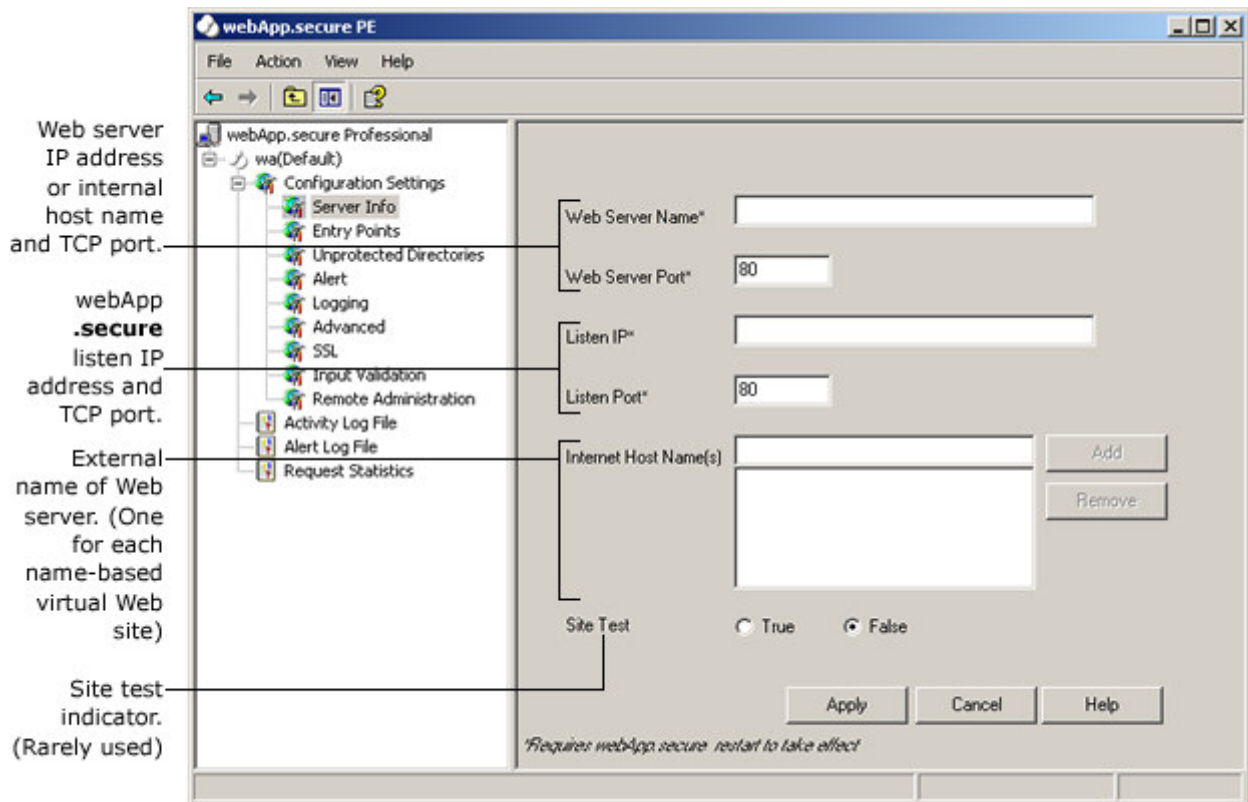
Property Groups

Individual properties are logically grouped under the **Configuration Settings** tree for easy access.



Server Setup

The **Server Info** properties specify the TCP/IP communication settings of the Web server and webApp.**secure**.



Web Server Name

Identifies the internal reference of the Web server webApp.**secure** is protecting (i.e. "192.168.0.2"). This is typically an IP address or internal server name.

Web Server Port

Identifies the TCP port number of the Web server webApp.**secure** is protecting (i.e. "8080"). If webApp.**secure** is running on the physical Web server, this should be a non-standard port number. However, if they are running on separate machines, this can be any valid TCP port number not accessible from the outside.

Listen IP

An optional IP address that webApp.**secure** should listen on (i.e. "192.168.0.2"). If no IP is specified, webApp.**secure** will use all available.

Listen Port

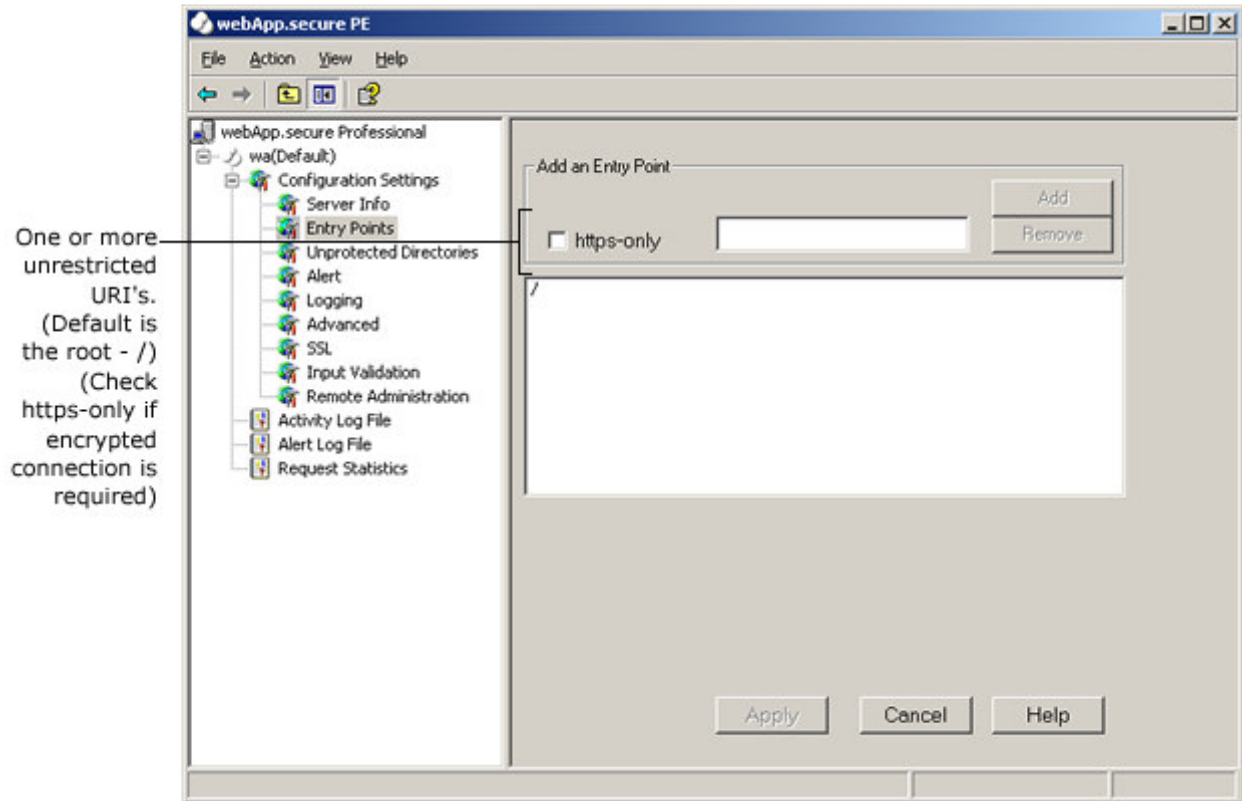
The TCP port number webApp.**secure** will listen on for unencrypted traffic (i.e. "80"). Normally this will be the standard HTTP port 80.

Internet Host Name(s)

One or more fully-qualified external host names of the Web site(s) webApp.**secure** is protecting (i.e. "www.mydomain.com"). There would be one entry for every name-based virtual Web site hosted on the Web server.

User-defined Policies (HTML content)

The **Entry Points** properties identify one or more URI's that are accessible without restriction from the outside. web/**insite** begins automatically identifying the **Intended Use Guidelines** from this(these) point(s).



Entry Point

Represents one or more public URI's that are initial entry points into the Web site and/or application. The root URI (/) is set up by default and it is common to also specify the root document name (i.e. /default.asp) specifically.

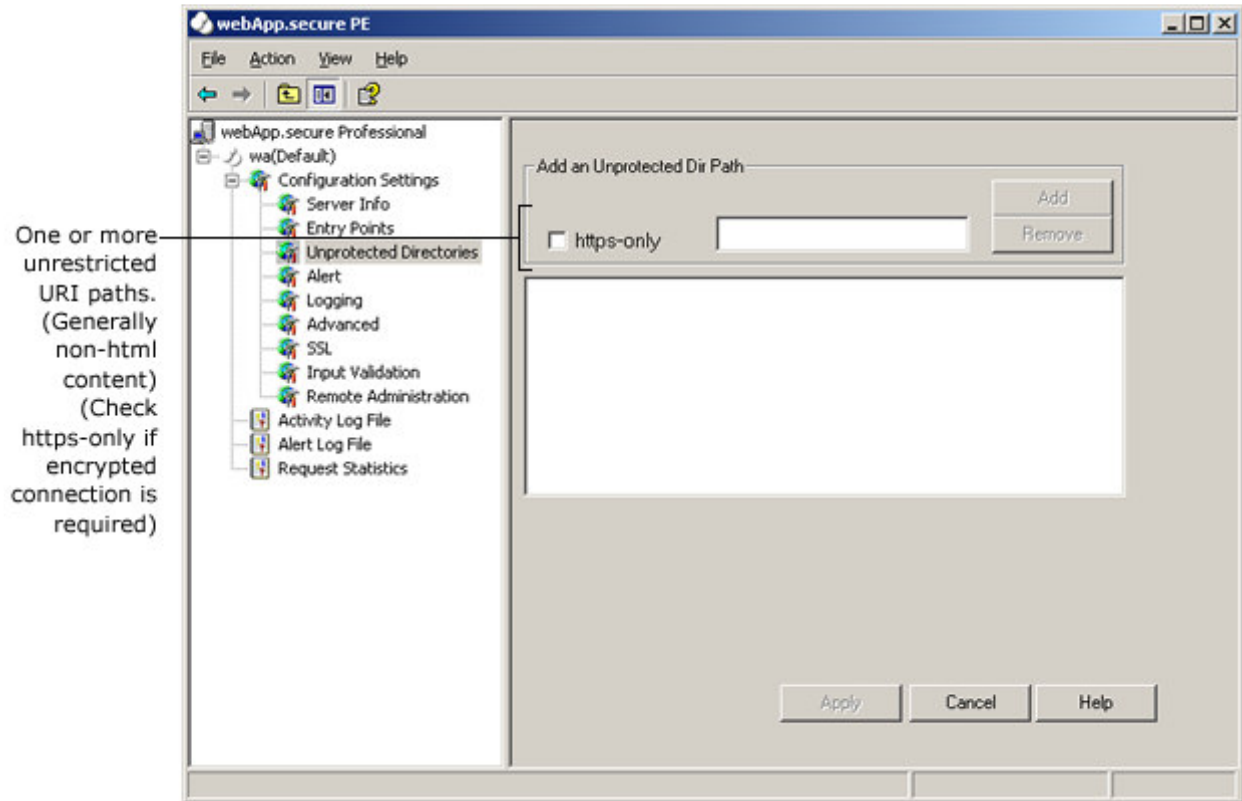
Use wildcard characters "*" (one or more alpha-numeric characters), "?" (single alpha-numeric character), and "#" (single numeric character) to specify entry points that may have a variable component (i.e. /default.asp?var=* would allow "/default.asp?var=1", but not "/default.asp?x=1").

https-only

Check here if an entry point is accessible through an encrypted connection only.

User-defined Policies (non-HTML content)

The **Unprotected Directories** properties identify one or more URI's that are accessible without restriction from the outside. These should be paths to images or other non-HTML content.



Unprotected Dir Path

A URI path that is accessible without restriction. Generally, these are used to specifically open access to non-HTML directories (i.e. /images/*.gif).

They can be useful to specify access to resources that webApp.secure is not able to automatically recognize as part of the **Intended Use Guidelines**.

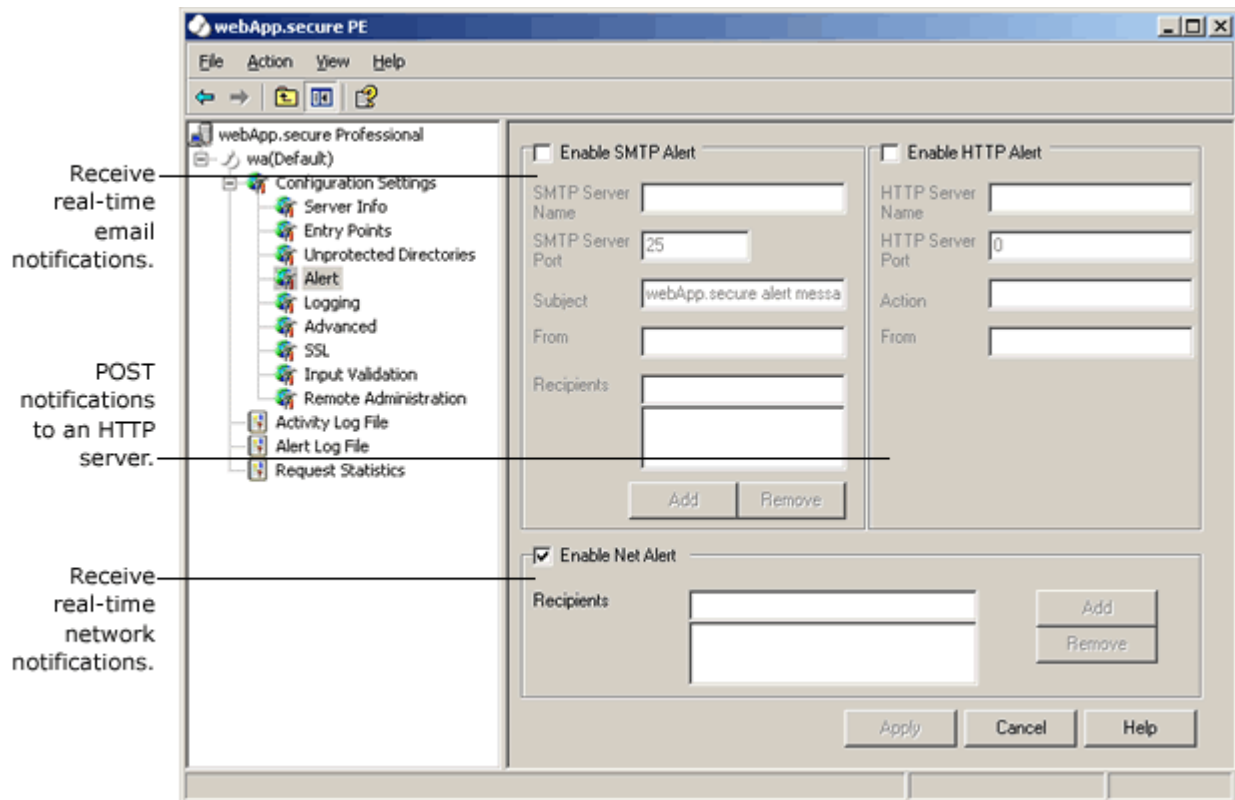
When the **JavaScript Processing** property (see **Advanced** properties section) is enabled, it should not be necessary to define any **Unprotected Dir Path's**.

https-only

Check here if an unprotected directory path is accessible through an encrypted connection only.

Real-time Attack Notification

Choose from 3 available real-time alert mechanisms that best suits your environment. Email, HTTP, and/or network notifications let you know what's going on.



Enable SMTP Alert

Check here to enable real-time email notification of malicious activity.

SMTP Server Name

The email server name or IP address (i.e. "mail.mydomain.com").

SMTP Server Port

The email server TCP port number (i.e. "25").

Subject

Text to appear in the subject line to help identify the origin of the alert email (i.e. "Alert from Web server 1").

From

A "from" email address. (i.e. "server1@mydomain.com").

Recipients

One or many recipient email addresses (i.e. "admin@mydomain.com").

Enable HTTP Alert

Check here to enable a real-time HTTP POST request of malicious activity.

HTTP Server Name

The HTTP server name or IP address (i.e. "192.168.0.100").

HTTP Server Port

The HTTP server TCP port number (i.e. "80").

Action

The URI of the receiving script (i.e. "/cgi-bin/alert.cgi").

From

An optional name to help the receiving CGI script (see **Action** above) identify the origin of the alert message.

Enable Net Alert

Check here to enable real-time network notification of malicious activity.

Recipients

One or many recipient user names (i.e. "administrator").

Activity Audit Trails

Use the **Logging** properties to establish audit trails.

Log alerts and other messages to the Event log.

Specify how many lines to cache before flushing the activity log.

Log specific request and/or response HTTP headers to the activity log.

Use standard W3C extended logging.

System Log

Enable or disable logging alerts and error messages to the Windows Event Log.

Activity Flush Count

Enter a numeric value that represents the number of lines to cache before flushing the activity log (see **Activity Log File** in the **Instance Settings** section). A higher value can improve performance, but could result in the loss of data in the event of a catastrophic system failure.

Log HTTP Headers

Enter request and/or response HTTP headers you would like written to the activity log file (see **Activity Log File** and **Log Level** in the **Instance Settings** section) regardless of log level (i.e. "Content-type:").

Enable W3C Extended Log

Check here to enable logging transaction in standard W3C extended log file format.

Log File Directory

Directory path to write W3C extended log files (i.e. "\\logs\webApp\").

Truncate At Startup

Check here to truncate the active W3C extended log file at startup (rarely used).

Rollover Period

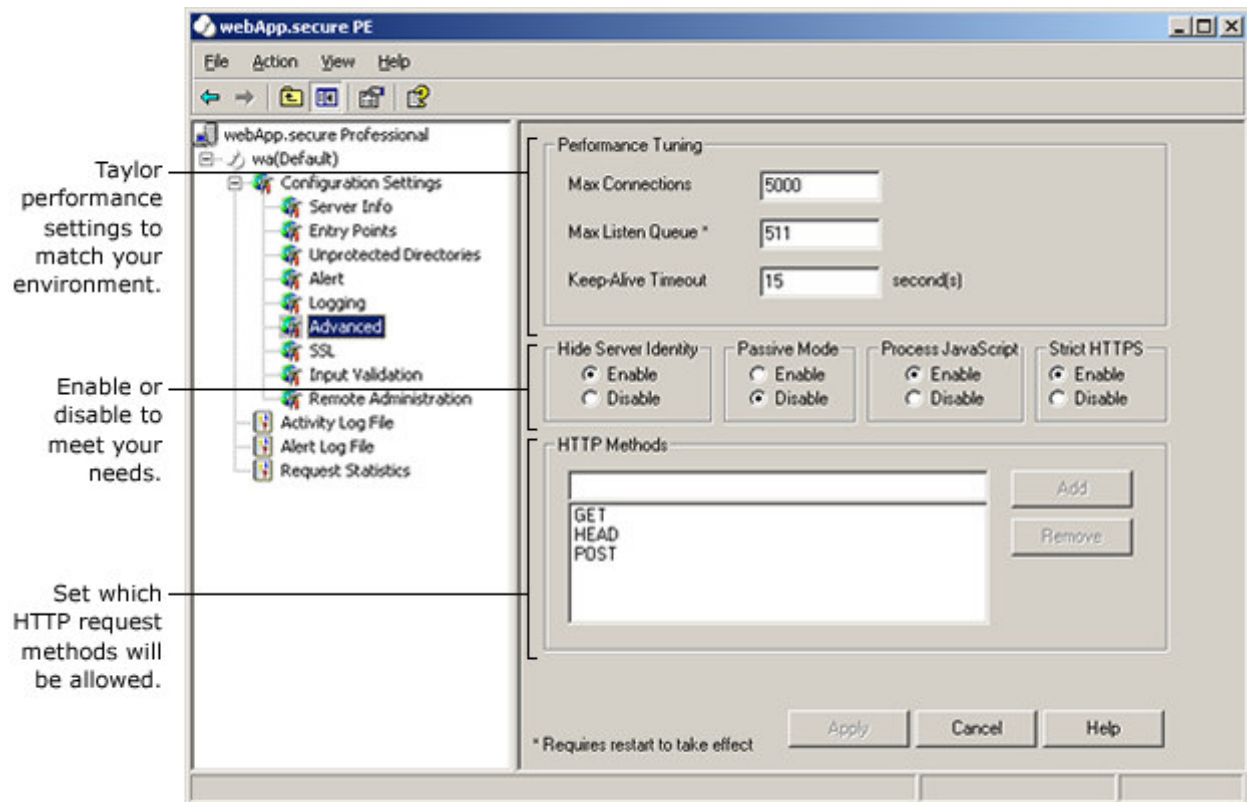
Specify how frequently to start a new W3C extended log file.

Extended Logging Fields

Select the standard W3C fields to be logged.

Advanced Settings

The **Advanced** property group allows you to tailor performance and other settings to your environment.



Max Connections

The maximum number of **simultaneous** client connections that will be served. Once the threshold is reached, new connections will be accepted, but immediately disconnected. NOTE: A value of 0 (zero) is interpreted as unlimited.

Max Listen Queue

The maximum number of pending connections in the operating system's listen queue.

Keep-Alive Timeout

The number of seconds to wait for subsequent requests before closing a connection.

Hide Server Identity

Enable to conceal the Web server's identity to prevent banner-grabbing.

Passive Mode

When enabled, webApp.**secure** will identify and report malicious activity, but will forward **all** requests on to the Web server.

Process JavaScript

Enable to interpret client-side JavaScript to extract **Intended Use Guidelines**.

Strict HTTPS

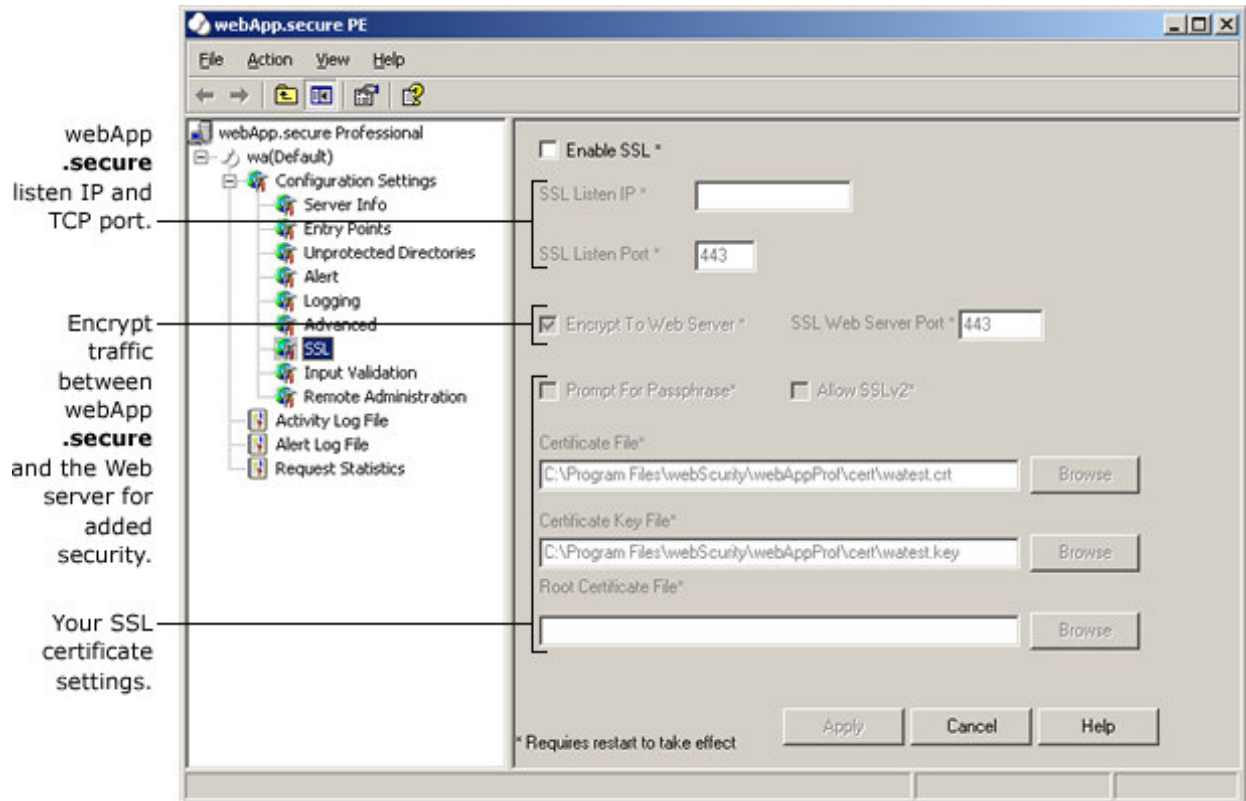
Enable to strictly enforce access to https resources through an encrypted connection.

HTTP Methods

Enter one or many HTTP request methods that will be allowed.

Secure Sockets Layer

Use the **SSL** properties to enable encrypted traffic support. webApp.**secure** must decrypt https traffic before forwarding valid transactions on to the Web server, but re-encrypting may not be necessary for every implementation (see **Encrypt To Web Server** below).



Enable SSL

Check here to enable secure socket layer communication support.

SSL Listen IP

Specific IP address webApp.**secure** should listen on for encrypted traffic (i.e. "209.123.123.123"). If left blank, all available IP addresses will be used.

SSL Listen Port

The TCP port webApp.**secure** should listen on for encrypted traffic (i.e. "443"). Normally the standard https port 443 will be used.

Encrypt to Web Server

Check here to enable re-encryption of validated traffic forwarded on to the Web server.

Allow SSLv2

Check here to enable support for SSLv2 client connections. By default, SSLv2 connections are NOT allowed because it is susceptible to man-in-the-middle attacks.

SSL Web Server Port

The TCP port number of the Web server for encrypted traffic. This is not used unless the **Encrypt to Web Server** property is checked (see above).

Prompt For Passphrase

Check here if the private certificate key is passphrase-protected.

Certificate File

Full name and path to the certificate file.

Certificate Key File

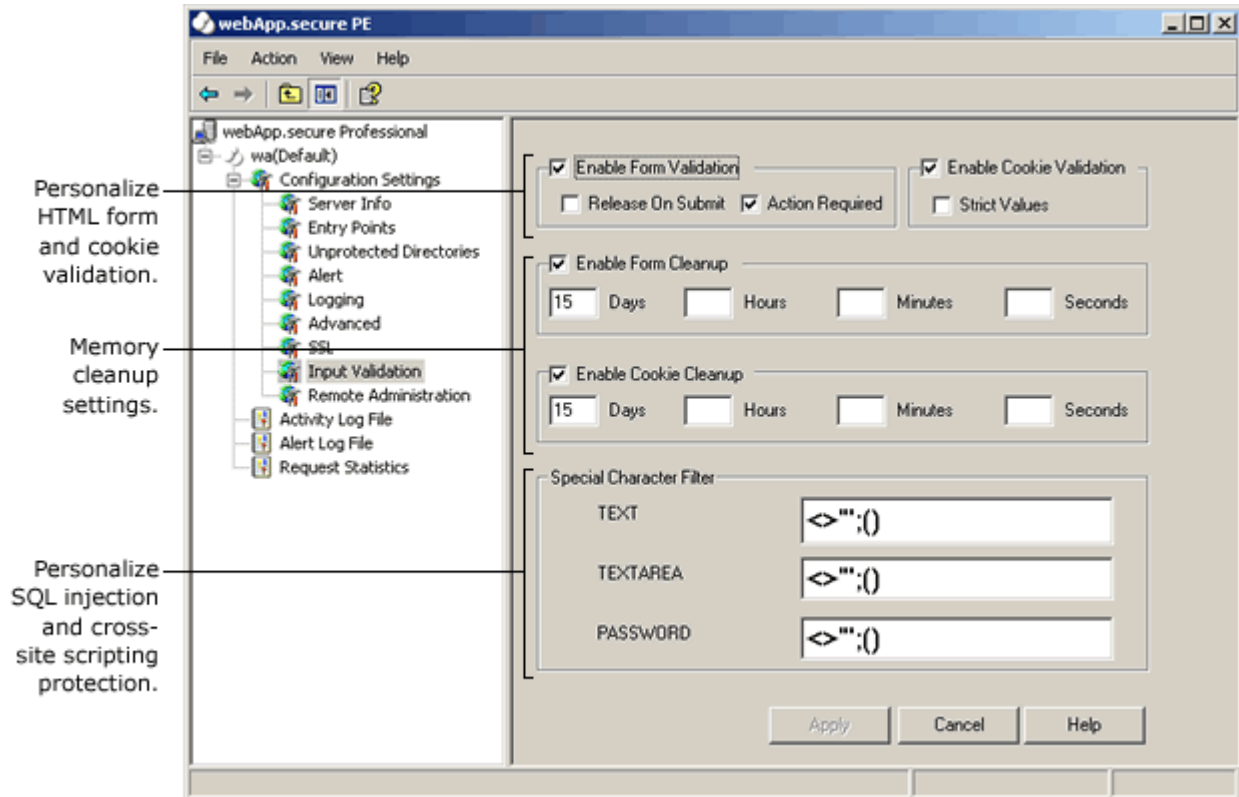
Full name and path to the private certificate key file.

Root Certificate File

Optional full name and path to the root certificate file.

Application Manipulation Protection (PE only)

Application manipulation attack protection settings can be tailored to your environment.



Enable Form Validation

Check here to enable HTML form field validation.

Release On Submit

Check here to release a form's **Intended Use Guidelines** from memory following successful validation. When checked, memory utilization is more efficient, but may not fully support the use of the browser's "back" button.

Action Required

Check here if HTML forms explicitly declare an "action" attribute (i.e. <form action="/cgi-bin/test.cgi" ...>). This should be checked if at all possible as it provides another means of validation.

Enable Cookie Validation

Check here to enable HTTP cookie validation.

Strict Values

Check here if requests that contain an altered cookie should be blocked and **not** forwarded on to the Web server. If this option is not checked, requests that contain altered cookie values will be forwarded on to the Web server, but the cookie will be completely stripped.

Enable Form Cleanup

Check here to enable cleanup of HTML form **Intended Use Guidelines** older than **Days**, **Hours**, and **Minutes**.

Enable Cookie Cleanup

Check here to enable cleanup of HTTP cookie **Intended Use Guidelines** older than **Days, Hours, and Minutes**.

TEXT

Characters that should be stripped from TEXT type form fields to prevent SQL injection and cross-site scripting.

TEXTAREA

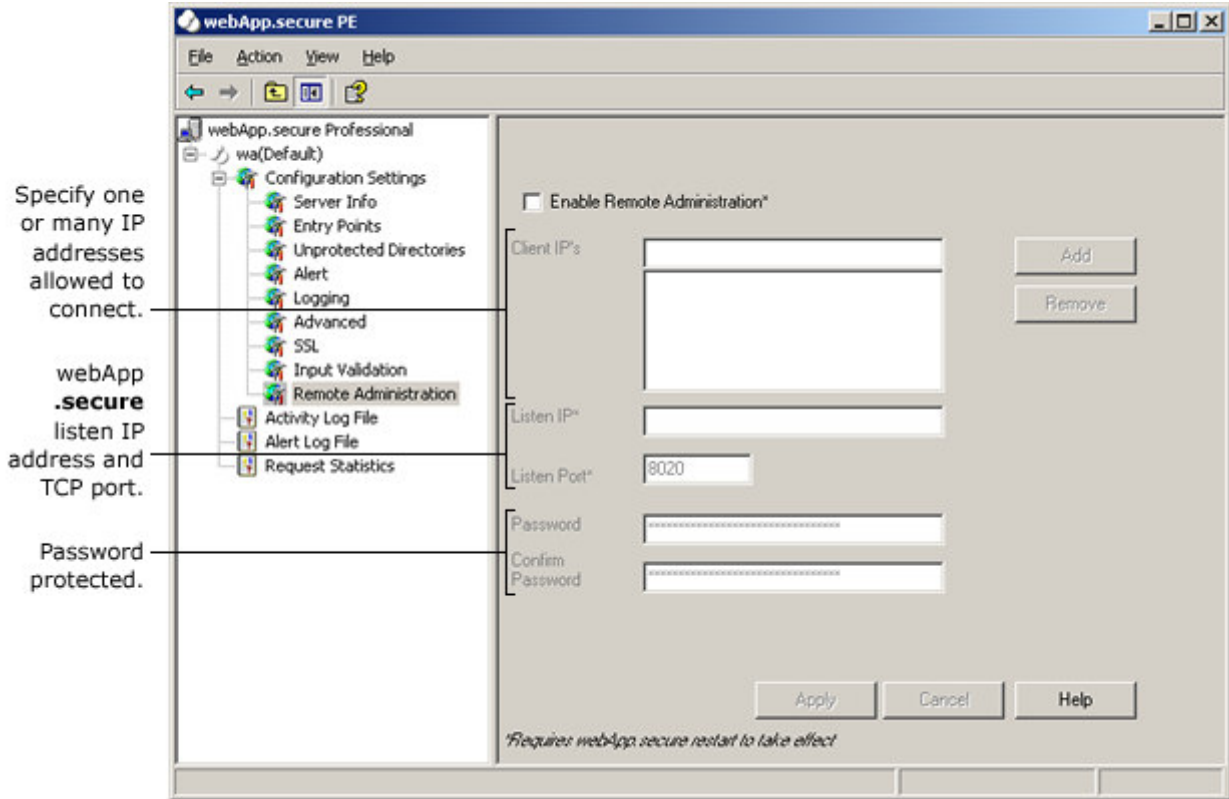
Characters that should be stripped from TEXTAREA type form fields to prevent SQL injection and cross-site scripting.

PASSWORD

Characters that should be stripped from PASSWORD type form fields to prevent SQL injection and cross-site scripting.

Browser-based Administration Option

The **Remote Administration** property group allows you to specify parameters for browser-based administration. There are safeguards to limit accessibility to the remote administration feature, and it does use SSL (<https://>), but it was designed to be used over an intranet.



Enable Remote Administration

Check here to enable browser-based administration.

Client IP's

One or many client IP addresses that are allowed to connect to webApp.secure for browser-based administration (i.e. "192.168.0.105"). If no IP's are specified, webApp.secure will accept connections from any IP address.

Listen IP

Specific IP address webApp.secure should listen on for browser-based administration (i.e. "192.168.0.2"). If left blank, all available IP addresses will be used.

Listen Port

The TCP port number webApp.secure should use for browser-based administration (i.e. "8020").

Password/Confirm Password

The password to use for browser-based administration access. The default password is "admin".

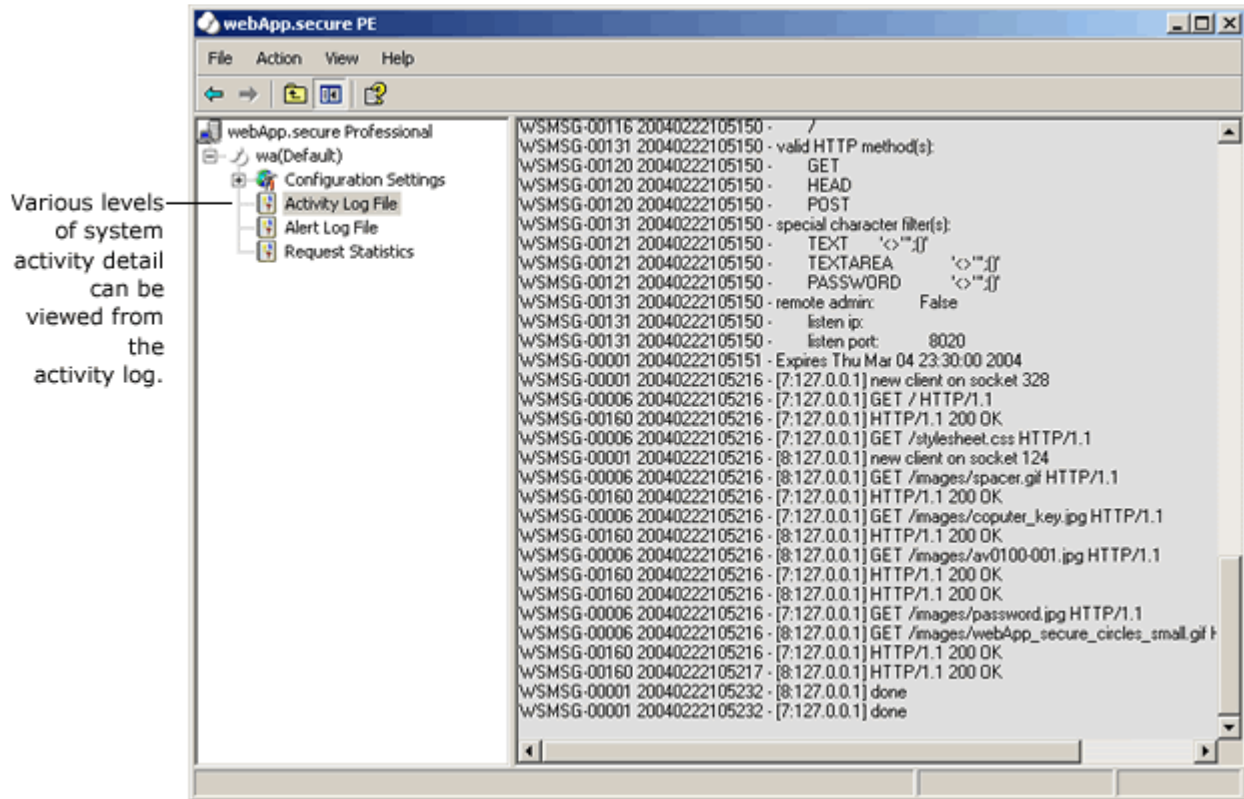
Example Addressing from a Browser:

<https://192.168.0.2:8020/>

(Please note the use of **https** in the above example.)

View Into System Activity

Select the **Activity Log File** option to view the contents of the plain text activity log. The level of detail collected in the activity log depends on the **Log Level** option on the **Instance Settings** pane.

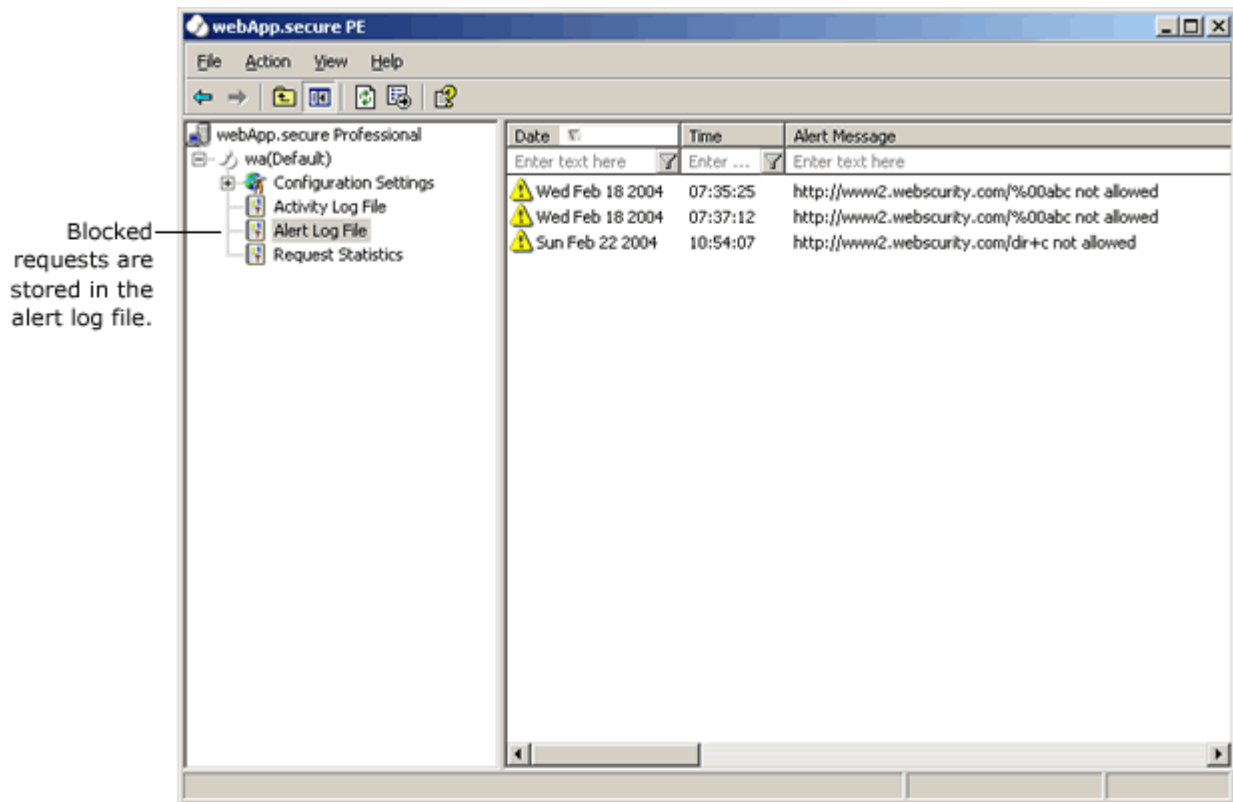


All system activity can be logged in a plain text file (see **Activity Log File** in **Instance Settings** pane).

The level of detail is controlled by the log level (see **Log Level** in the **Instance Settings** pane).

Attack Insight

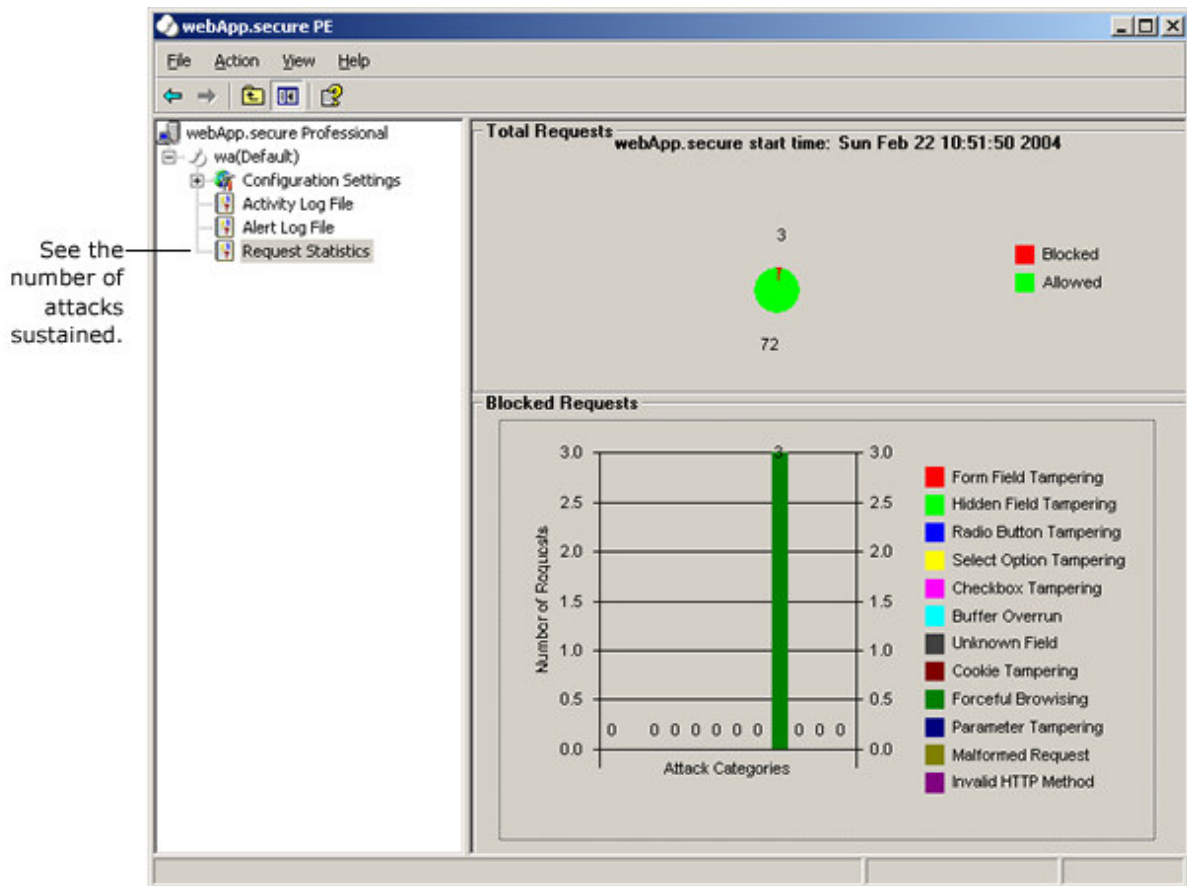
Select the **Alert Log File** option to browse the contents of the XML alert log. You can sort and filter the data to your specific needs.



All malicious activity is logged to a well-formed XML file (see **Alert Log File** in **Instance Settings** pane).

You can also analyze the alert log using any tool that supports XML (i.e. Excel).

What Kind of Attacks Are Being Attempted?



Runtime statistics are shown in the **Request Statistics** pane.

The number of allowed requests is displayed as well as the number of blocked requests. Blocked requests are then shown by attack type.

Evaluation Installation Examples

The following are examples illustrating possible installation scenarios for evaluating webApp.**secure**.

1. Web server and webApp.**secure** running on separate machines.

Web Server

Internal IP address:	192.168.0.10
External IP address:	209.98.241.200
Internal host identification:	WEB-SERVER-1
External host identification:	www.mydomain.com
HTTP TCP Port:	80

Workstation

Internal IP address:	192.168.0.25
Internal host identification:	WORKSTATION-1

In this example, webApp.**secure** is installed on the Workstation computer (WORKSTATION-1) which is part of the same internal network as the Web Server (WEB-SERVER-1).

webApp.**secure**

Web Server Name:	192.168.0.10
Web Server Port:	80
Listen Port:	80
Internet Host Name(s):	www.mydomain.com
Site Test:	False

For the most realistic test, add the following line to the hosts file on the Workstation:

```
127.0.0.1 www.mydomain.com
```

Now all references to the host www.mydomain.com from browser sessions on the Workstation* will be directed through webApp.**secure**. Valid HTTP requests will then be forwarded on to the Web Server and corresponding HTTP responses will be returned to the browser.

NOTE: It is important to clear the browser's cache before testing to avoid false positives.

To perform essentially the same test without modifying the hosts file on Workstation, simply make the following adjustment to the webApp.**secure** configuration:

Site Test:	True
------------	-------------

This will direct all browser requests for http://localhost/, http://192.168.0.25/, and http://127.0.0.1/ through webApp.**secure**. Setting Site Test to **True** instructs webApp.**secure** to replace the browser's HTTP "Host:" header with "www.mydomain.com" before forwarding valid requests on to the Web Server.

NOTE: While setting Site Test to **True** avoids having to modify the hosts file, fully-qualified URL's (links, images, etc.) inside HTML pages will bypass webApp.**secure**, thereby decreasing the value and realism of the test.

* To direct Web traffic through webApp.**secure** from other workstations in the network, add the following line to their local hosts file:

```
192.168.0.25 www.mydomain.com
```


2. Web server and webApp.**secure** running on the same machine.

Web Server

Internal IP address:	192.168.0.10
External IP address:	209.98.241.200
Internal host identification:	WEB-SERVER-1
External host identification:	www.mydomain.com
HTTP TCP Port:	80

webApp.**secure**

Web Server Name:	192.168.0.10
Web Server Port:	80
Listen Port:	1111
Internet Host Name(s):	www.mydomain.com
Site Test:	False

For the most realistic test, add the following line to the hosts file on any machine running a browser session:

```
192.168.0.10 www.mydomain.com
```

Now all references to the host www.mydomain.com:1111 from browser sessions will be directed through webApp.**secure**. Valid HTTP requests will then be forwarded on to the Web Server and corresponding HTTP responses will be returned to the browser.

NOTE: It is important to clear the browser's cache before testing to avoid false positives.

To perform essentially the same test without modifying the hosts file on the Workstation(s), simply make the following adjustment to the webApp.**secure** configuration:

Site Test:	True
------------	-------------

This will direct all browser requests for http://localhost:1111/, http://192.168.0.25:1111/, and http://127.0.0.1:111/ through webApp.**secure**. Setting Site Test to **True** instructs webApp.**secure** to replace the HTTP Host: header with www.mydomain.com before forwarding valid requests on to the Web Server.

NOTE: While setting Site Test to **True** avoids having to modify the hosts file, fully-qualified URL's (links, images, etc.) inside HTML pages will bypass webApp.**secure**, thereby decreasing the value and realism of the test.

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OpenSSL

webApp.**secure** utilizes the "OpenSSL Toolkit" functionality provided by "The Open SSL Project" at <http://www.openssl.org>.

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Mozilla Spidermonkey

webApp.**secure** utilizes the Spidermonkey JavaScript Interpreter provided by Mozilla at <http://www.mozilla.org>.

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Version 1.1

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