

Apache Module `mod_isapi`

Description:	ISAPI Extensions within Apache for Windows
Status:	Base
Module Identifier:	<code>isapi_module</code>
Source File:	<code>mod_isapi.c</code>
Compatibility:	Win32 only

Summary

This module implements the Internet Server extension API. It allows Internet Server extensions (*e.g.* ISAPI .dll modules) to be served by Apache for Windows, subject to the noted restrictions.

ISAPI extension modules (.dll files) are written by third parties. The Apache Group does not author these modules, so we provide no support for them. Please contact the ISAPI's author directly if you are experiencing problems running their ISAPI extension. **Please *do not* post such problems to Apache's lists or bug reporting pages.**

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Usage

In the server configuration file, use the `AddHandler` directive to associate ISAPI files with the `isapi-isa` handler, and map it to them with their file extensions. To enable any .dll file to be processed as an ISAPI extension, edit the `httpd.conf` file and add the following line:

```
AddHandler isapi-isa .dll
```

There is no capability within the Apache server to leave a requested module loaded. However, you may preload and keep a specific module loaded by using the following syntax in your `httpd.conf`:

```
ISAPICacheFile c:/WebWork/Scripts/ISAPI/mytest.dll
```

Whether or not you have preloaded an ISAPI extension, all ISAPI extensions are governed by the same permissions and restrictions as CGI scripts. That is, `Options ExecCGI` must be set for the directory that contains the ISAPI .dll file.

Review the Additional Notes and the Programmer's Journal for additional details and clarification of the specific ISAPI support offered by `mod_isapi`.

Additional Notes

Apache's ISAPI implementation conforms to all of the ISAPI 2.0 specification, except for some

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"Microsoft-specific" extensions dealing with asynchronous I/O. Apache's I/O model does not allow asynchronous reading and writing in a manner that the ISAPI could access. If an ISA tries to access unsupported features, including async I/O, a message is placed in the error log to help with debugging. Since these messages can become a flood, the directive `ISAPILogNotSupported Off` exists to quiet this noise.

Some servers, like Microsoft IIS, load the ISAPI extension into the server and keep it loaded until memory usage is too high, or unless configuration options are specified. Apache currently loads and unloads the ISAPI extension each time it is requested, unless the `ISAPICacheFile` directive is specified. This is inefficient, but Apache's memory model makes this the most effective method. Many ISAPI modules are subtly incompatible with the Apache server, and unloading these modules helps to ensure the stability of the server.

Also, remember that while Apache supports ISAPI Extensions, it **does not support ISAPI Filters**. Support for filters may be added at a later date, but no support is planned at this time.

Programmer's Journal

If you are programming Apache 2.0 `mod_isapi` modules, you must limit your calls to `ServerSupportFunction` to the following directives:

`HSE_REQ_SEND_URL_REDIRECT_RESP`

Redirect the user to another location.

This must be a fully qualified URL (*e.g.* `http://server/location`).

`HSE_REQ_SEND_URL`

Redirect the user to another location.

This cannot be a fully qualified URL, you are not allowed to pass the protocol or a server name (*e.g.* simply `/location`).

This redirection is handled by the server, not the browser.

Warning

In their recent documentation, Microsoft appears to have abandoned the distinction between the two `HSE_REQ_SEND_URL` functions. Apache continues to treat them as two distinct functions with different requirements and behaviors.

`HSE_REQ_SEND_RESPONSE_HEADER`

Apache accepts a response body following the header if it follows the blank line (two consecutive newlines) in the headers string argument. This body cannot contain NULLs, since the headers argument is NULL terminated.

`HSE_REQ_DONE_WITH_SESSION`

Apache considers this a no-op, since the session will be finished when the ISAPI returns from processing.

`HSE_REQ_MAP_URL_TO_PATH`

Apache will translate a virtual name to a physical name.

`HSE_APPEND_LOG_PARAMETER`

This logged message may be captured in any of the following logs:

- in the `\"%{isapi-parameter}n\"` component in a `CustomLog` directive
- in the `%q` log component with the `ISAPIAppendLogToQuery On` directive
- in the error log with the `ISAPIAppendLogToErrors On` directive

The first option, the `%{isapi-parameter}n` component, is always available and preferred.

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HSE_REQ_IS_KEEP_CONN

Will return the negotiated Keep-Alive status.

HSE_REQ_SEND_RESPONSE_HEADER_EX

Will behave as documented, although the `fKeepConn` flag is ignored.

HSE_REQ_IS_CONNECTED

Will report false if the request has been aborted.

Apache returns `FALSE` to any unsupported call to `ServerSupportFunction`, and sets the `GetLastError` value to `ERROR_INVALID_PARAMETER`.

`ReadClient` retrieves the request body exceeding the initial buffer (defined by `ISAPIReadAheadBuffer`). Based on the `ISAPIReadAheadBuffer` setting (number of bytes to buffer prior to calling the ISAPI handler) shorter requests are sent complete to the extension when it is invoked. If the request is longer, the ISAPI extension must use `ReadClient` to retrieve the remaining request body.

`WriteClient` is supported, but only with the `HSE_IO_SYNC` flag or no option flag (value of 0). Any other `WriteClient` request will be rejected with a return value of `FALSE`, and a `GetLastError` value of `ERROR_INVALID_PARAMETER`.

`GetServerVariable` is supported, although extended server variables do not exist (as defined by other servers.) All the usual Apache CGI environment variables are available from `GetServerVariable`, as well as the `ALL_HTTP` and `ALL_RAW` values.

Apache 2.0 `mod_isapi` supports additional features introduced in later versions of the ISAPI specification, as well as limited emulation of async I/O and the `TransmitFile` semantics. Apache also supports preloading ISAPI .dlls for performance, neither of which were not available under Apache 1.3 `mod_isapi`.

ISAPIAppendLogToErrors Directive

Description:	Record <code>HSE_APPEND_LOG_PARAMETER</code> requests from ISAPI extensions to the error log
Syntax:	<code>ISAPIAppendLogToErrors on off</code>
Default:	<code>ISAPIAppendLogToErrors off</code>
Context:	server config, virtual host, directory, <code>.htaccess</code>
Override:	<code>FileInfo</code>
Status:	Base
Module:	<code>mod_isapi</code>

Record `HSE_APPEND_LOG_PARAMETER` requests from ISAPI extensions to the server error log.

ISAPIAppendLogToQuery Directive

Description:	Record <code>HSE_APPEND_LOG_PARAMETER</code> requests from ISAPI extensions to the query field
Syntax:	<code>ISAPIAppendLogToQuery on off</code>
Default:	<code>ISAPIAppendLogToQuery on</code>
Context:	server config, virtual host, directory, <code>.htaccess</code>

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Override:	FileInfo
Status:	Base
Module:	mod_isapi

Record HSE_APPEND_LOG_PARAMETER requests from ISAPI extensions to the query field (appended to the CustomLog %q component).

ISAPICacheFile Directive

Description:	ISAPI .dll files to be loaded at startup
Syntax:	ISAPICacheFile <i>file-path</i> [<i>file-path</i>] ...
Context:	server config, virtual host
Status:	Base
Module:	mod_isapi

Specifies a space-separated list of file names to be loaded when the Apache server is launched, and remain loaded until the server is shut down. This directive may be repeated for every ISAPI .dll file desired. The full path name of each file should be specified. If the path name is not absolute, it will be treated relative to `ServerRoot`.

ISAPIFakeAsync Directive

Description:	Fake asynchronous support for ISAPI callbacks
Syntax:	ISAPIFakeAsync on off
Default:	ISAPIFakeAsync off
Context:	server config, virtual host, directory, .htaccess
Override:	FileInfo
Status:	Base
Module:	mod_isapi

While set to on, asynchronous support for ISAPI callbacks is simulated.

ISAPILogNotSupported Directive

Description:	Log unsupported feature requests from ISAPI extensions
Syntax:	ISAPILogNotSupported on off
Default:	ISAPILogNotSupported off
Context:	server config, virtual host, directory, .htaccess
Override:	FileInfo
Status:	Base
Module:	mod_isapi

Logs all requests for unsupported features from ISAPI extensions in the server error log. This may help administrators to track down problems. Once set to on and all desired ISAPI modules are functioning, it should be set back to off.

ISAPIReadAheadBuffer Directive

Description:	Size of the Read Ahead Buffer sent to ISAPI extensions
Syntax:	ISAPIReadAheadBuffer <i>size</i>
Default:	ISAPIReadAheadBuffer 49152
Context:	server config, virtual host, directory, .htaccess
Override:	FileInfo
Status:	Base
Module:	mod_isapi

Defines the maximum size of the Read Ahead Buffer sent to ISAPI extensions when they are initially invoked. All remaining data must be retrieved using the `ReadClient` callback; some ISAPI extensions may not support the `ReadClient` function. Refer questions to the ISAPI extension's author.