Asgard Edge Server

WebDAV File Transfer

User Manual v2.4.65

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Revision History

Document Version	Issued	Notes	Comments
1.0.7	24 February 2023	Installer 1.0.7	First public release.
1.0.8	10 January 2024	Installer 1.0.7	Revised document branding.
2.4.65	18 August 2025	Installer 2.4.65	Added the Troubleshooting section.

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Introduction

ASGARD WebDAV Server is a customised Apache WebDAV Server optimised for use with the Asgard Edge Q-Sys Plugin. The ASGARD WebDAV Server runs on supported Microsoft Windows operating systems.

When paired with the Asgard Edge plugin, the server enables chunked file transfers via HTTP with md5 transfer validation.

Installation provides a desktop shortcut to the transfer folder containing the transferred files.

Hardware & Software Requirements

- Suitable Microsoft Windows operating system:
  - Windows 10 Home, Windows 10 Pro
  - Windows 11 Home, Windows 11 Pro
  - Windows Server 2016 or later
- Visual C++ Redistributable 2015-2022 (auto installed if the PC/Server has internet access)
- .NET Framework 3.5
- Server or PC Hardware
- Licensed Asgard Edge Plugin running on a QSC Q-Sys Core

Dependencies

Visual C++ Redistributable 2015-2022

Asgard Edge WebDAV Server requires the Visual C++ Redistributable 2015-2022 which is automatically downloaded and installed as part of the Asgard Edge WebDAV installation. If the PC/Server does not have internet access, then this dependency must be installed manually prior to the Asgard Edge WebDAV Server installation.

.NET Framework 3.5 on Desktop PCs

.NET Framework 3.5 is included in Desktop Windows 10 and 11. Go to:

Control Panel>Programs and Features>Turn Windows features on or off and enable .NET Framework 3.5

.NET Framework 3.5 on Windows Server

On Windows server, as administrator run:

DISM /Online /Enable-Feature /FeatureName:NetFx3 /All

Getting the Installer

The Asgard Edge WebDAV Server installation file is freely available from the Redfish Technologies web site.

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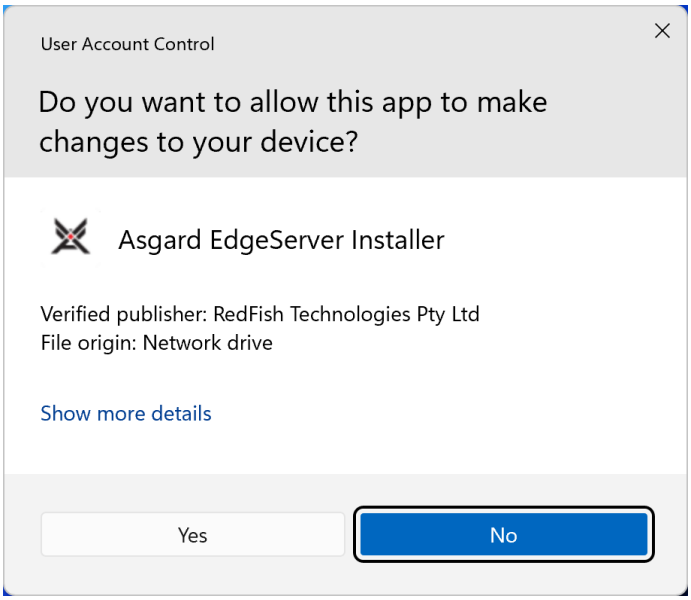
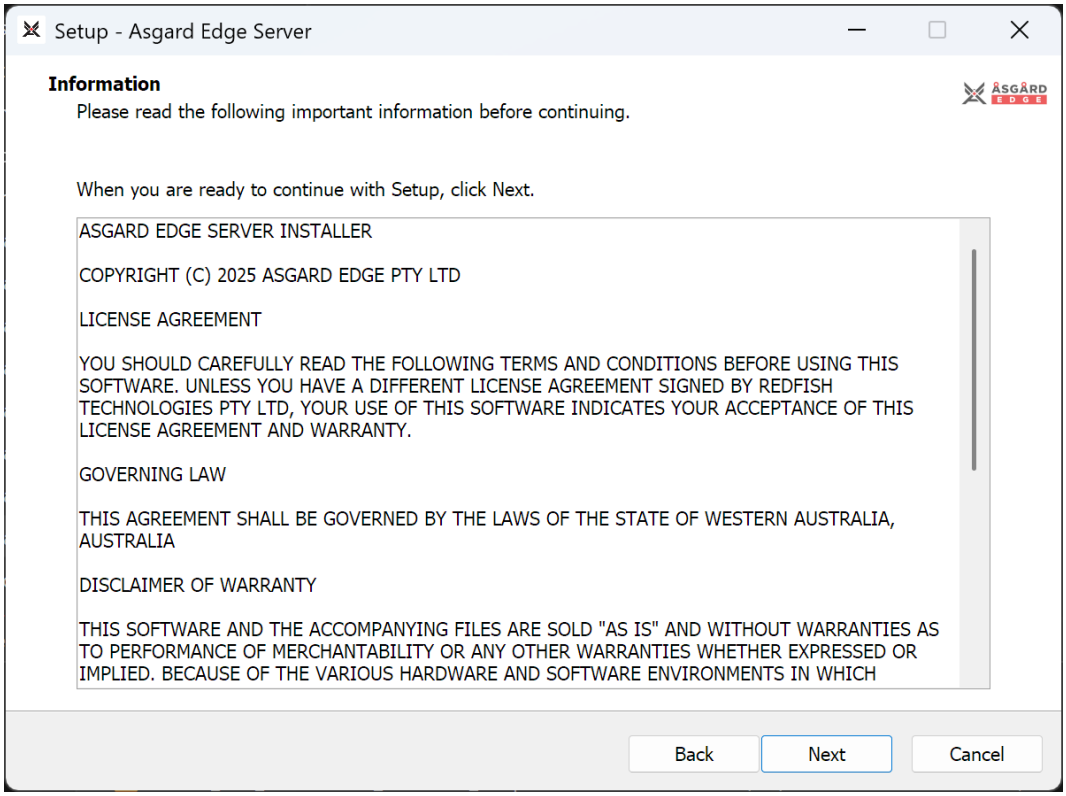
Installation

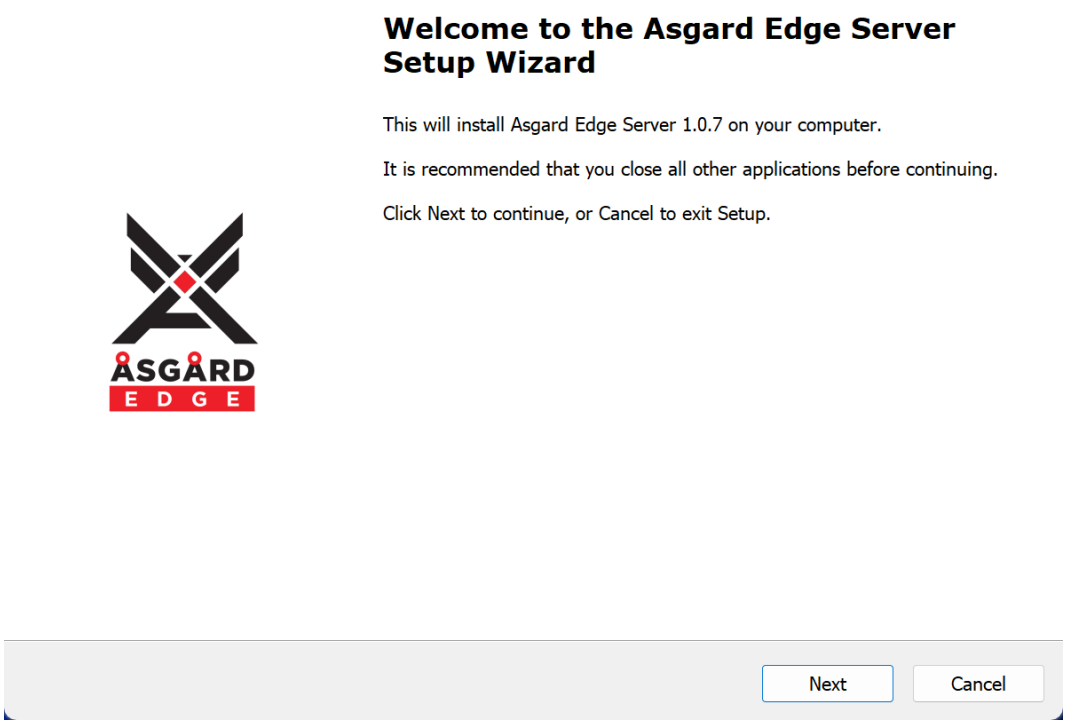
1. Double click on the installer file to start the installation.
2. Click “Yes”.



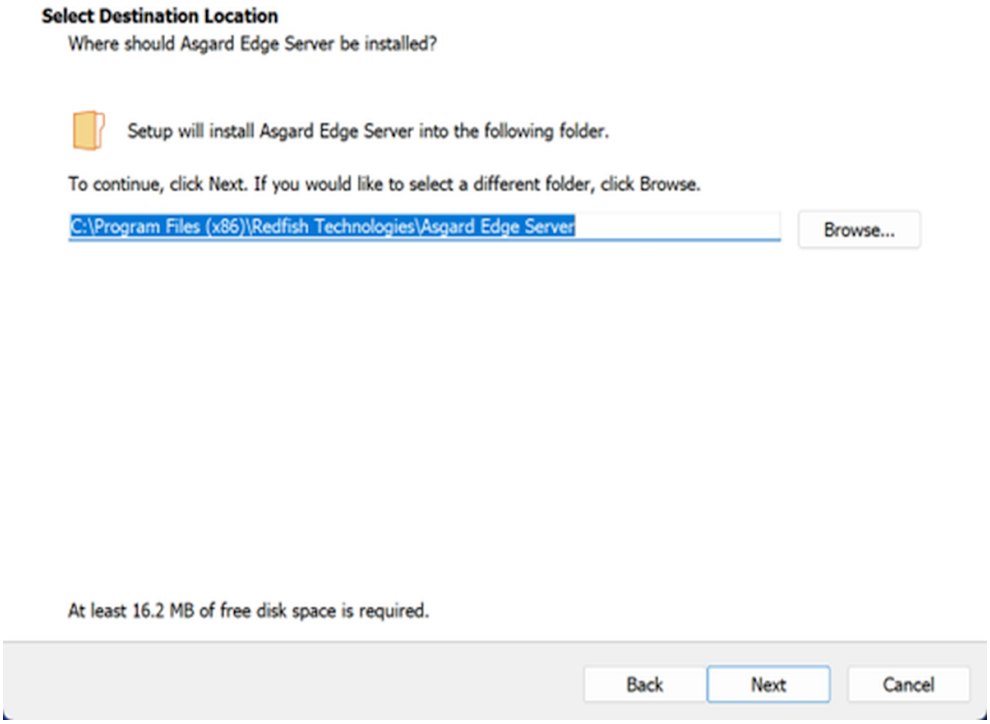
3. Click “Next”.



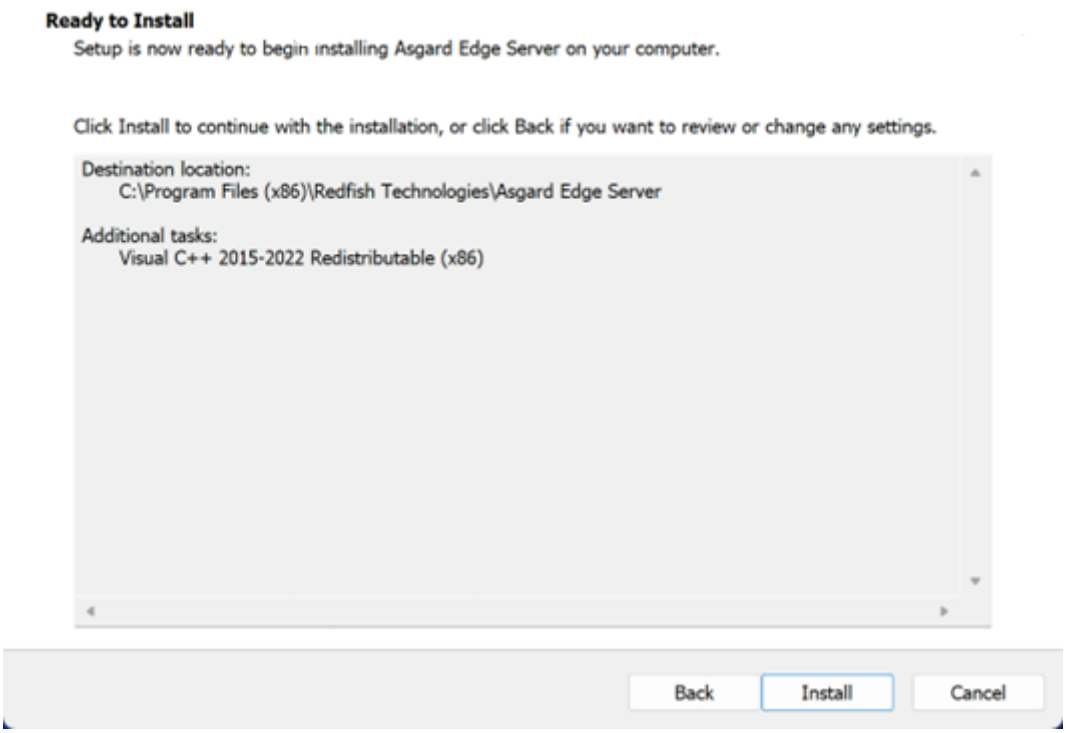
4. Click “Next”.



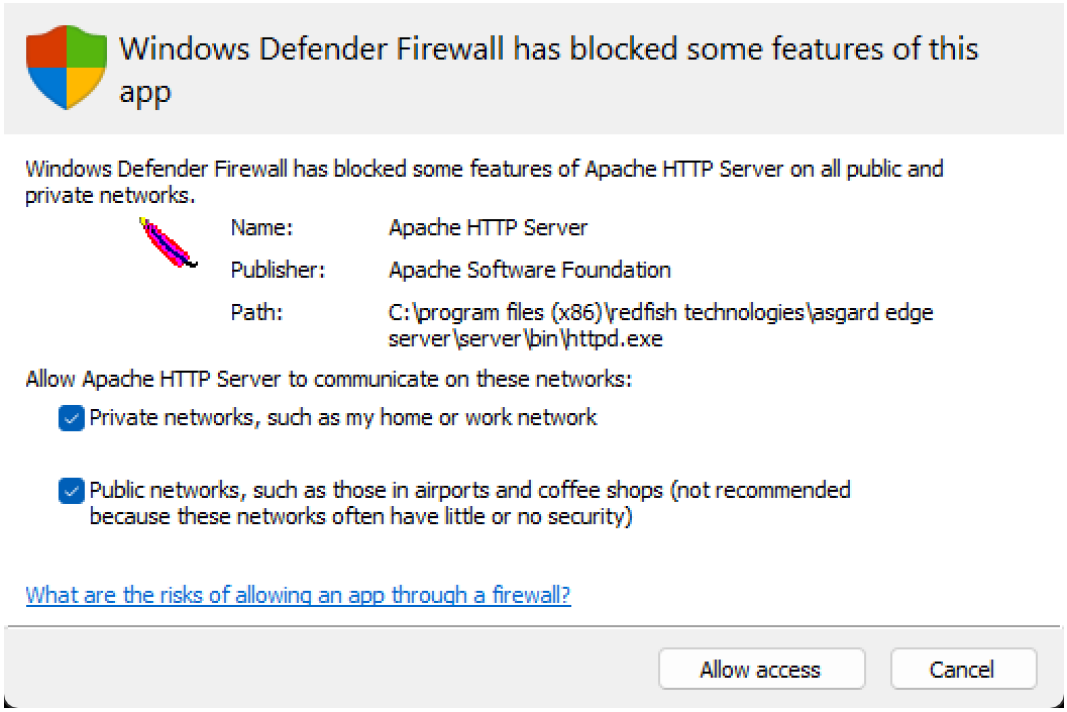
5. Accept the default installation path, or modify as necessary and click “Next”.



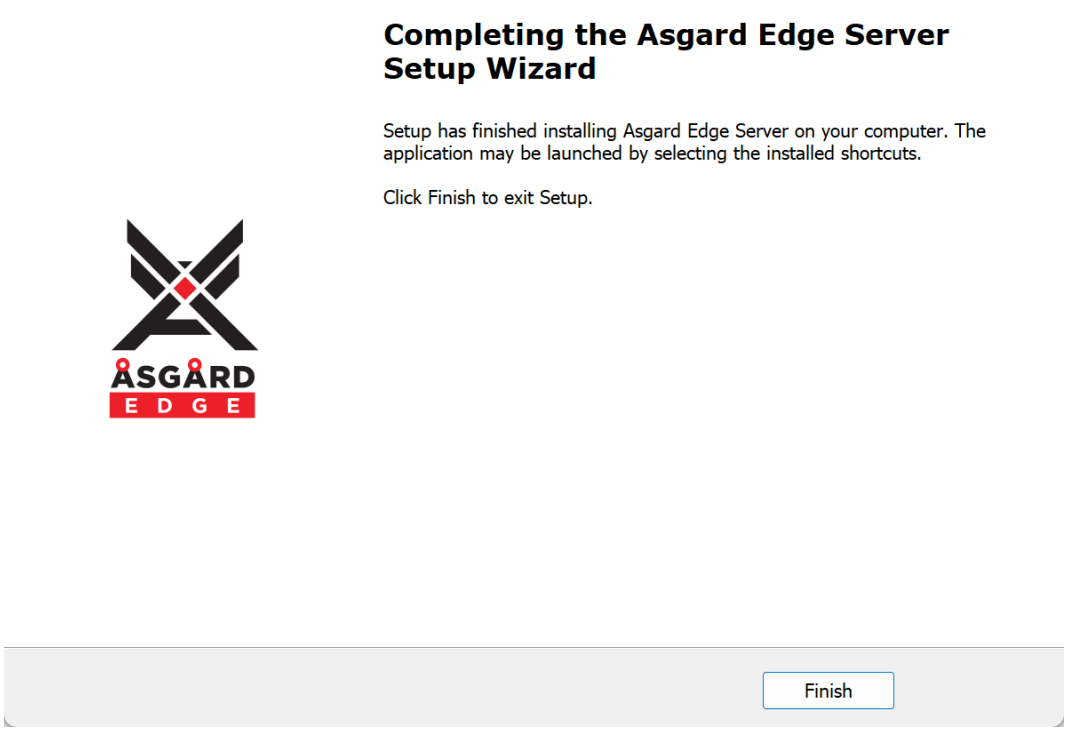
6. Click “Install”.



7. Select both “Private” and “Public” networks, then Click “Allow access”.



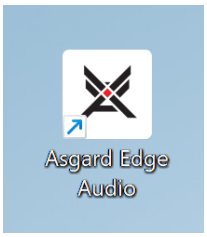
8. Click “Finish”.



Operation

Desktop Shortcut

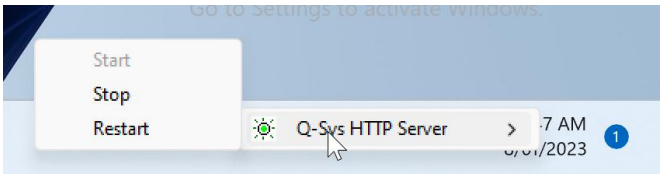
The installation process creates a desktop shortcut to the transfer folder. Transferred files are stored in the Asgard Edge Audio folder.



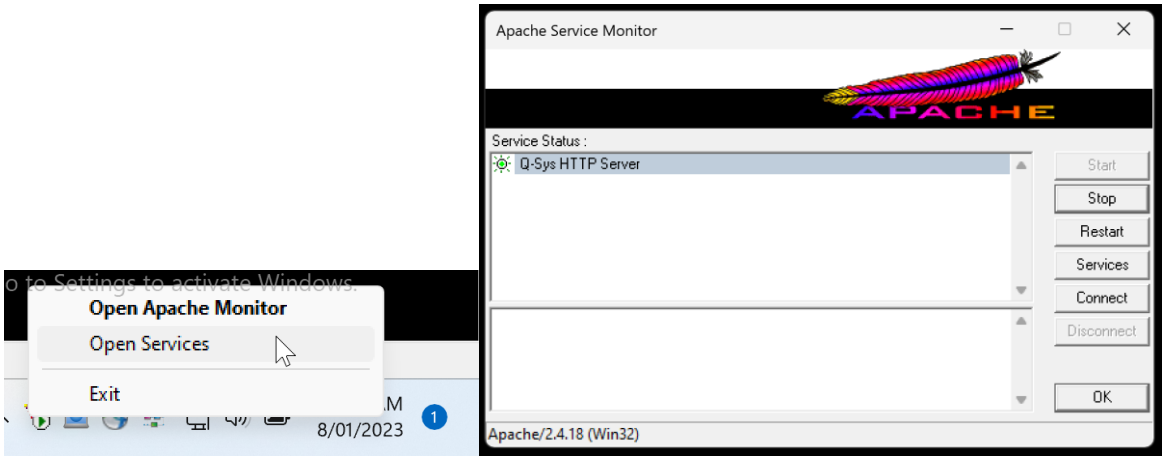
Tray Monitor

The “Apache Monitor” program should now be visible in the task bar tray and should display the green “Play” icon to indicate that the Asgard WebDAV server is running.

Clicking the tray icon produces the popup menu providing the ability to Start, Stop or Restart the Asgard WebDAV server.



Right clicking the tray icon produces the Open menu providing the ability to Open the Apache Monitor or the Windows Services panel.

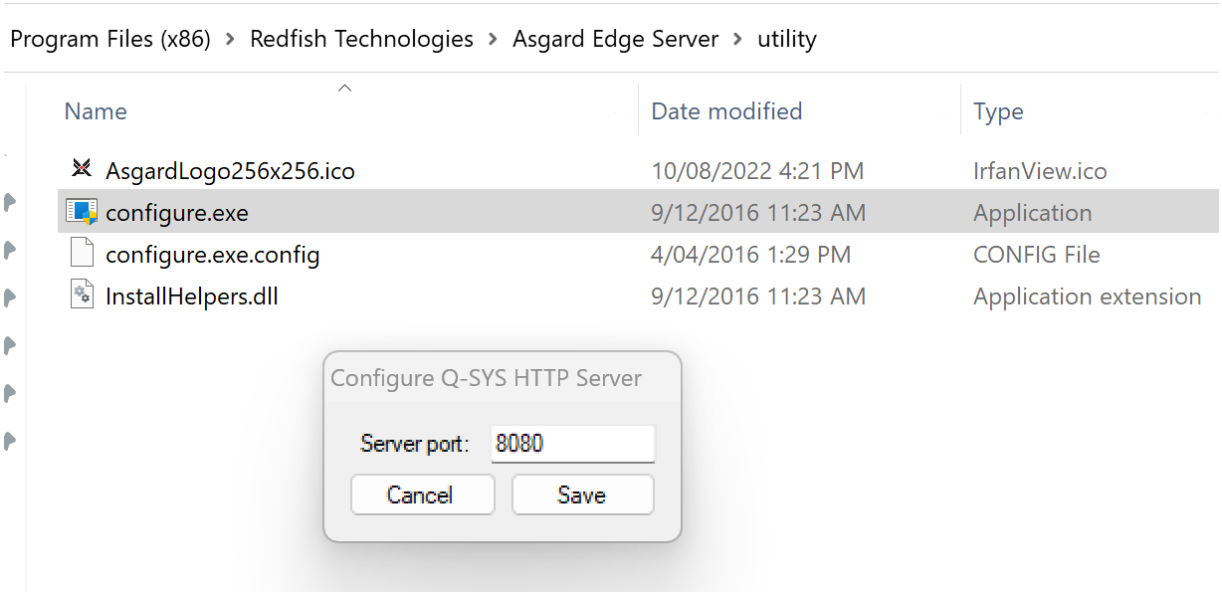


Configuration

Server Port Address

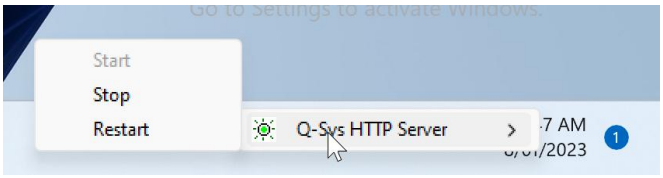
The Asgard WebDAV Server is pre-configured to communicate on TCP port 8080.

The port may be reconfigured if required by running the configure.exe program located in the utility folder as shown below.



When changing the port number, restart the Asgard Apache WebDAV Server via the tray icon as shown below.

Clicking the tray icon produces the popup menu providing the ability to Restart the Asgard WebDAV server.



Apache Server Configuration

The Apache server configuration file is located in the Server installation path at:

```
Asgard Edge Server/server/conf/httpd.conf
```

The Asgard Edge WebDAV Apache server just be restarted when changes are made to the configuration file.

The standard configuration provides for 2000 worker threads to handle client connections from Asgard Edge Cores. This configuration is capable of a large number of concurrent connections. The server configuration may be modified to reduce the maximum number of concurrent connections as required to consume less server system resources.

The MPM module is configured as per the example below:

```
<IfModule mpm_winnt_module>
    ThreadStackSize        65536
    ThreadsPerChild        2000
    ThreadLimit            2000
    MaxConnectionsPerChild 0
    # Ensure use of the more efficient AcceptEx() API on Windows
    AcceptFilter http connect
    AcceptFilter https connect
</IfModule>
```

mpm_winnt_module		
Paramater	**Description**	**Notes**
TheadStackSize	The per thread data stack size in bytes	No less than 65536. Stack memory allocated is this value multiplied by the ThreadsPerChild setting
ThreadsPerChild	The total number of threads to create for inbound connections	Must be equal to or less than ThreadLimit
ThreadLimit	The total limit of threads	Must be equal to or greater than ThreadsPerChild
MaxConnectionsPerChild	The maximum number of connections per Child process before the process is killed and a new process spawned	0 = unlimited connections, never killed
AcceptFilter http	The pre-filtering mechanism for http requests	“connect” ensures the efficient AcceptEx() Windows API is utilized
AcceptFilter https	The pre-filtering mechanism for https requests	“connect” ensures the efficient AcceptEx() Windows API is utilized

Troubleshooting

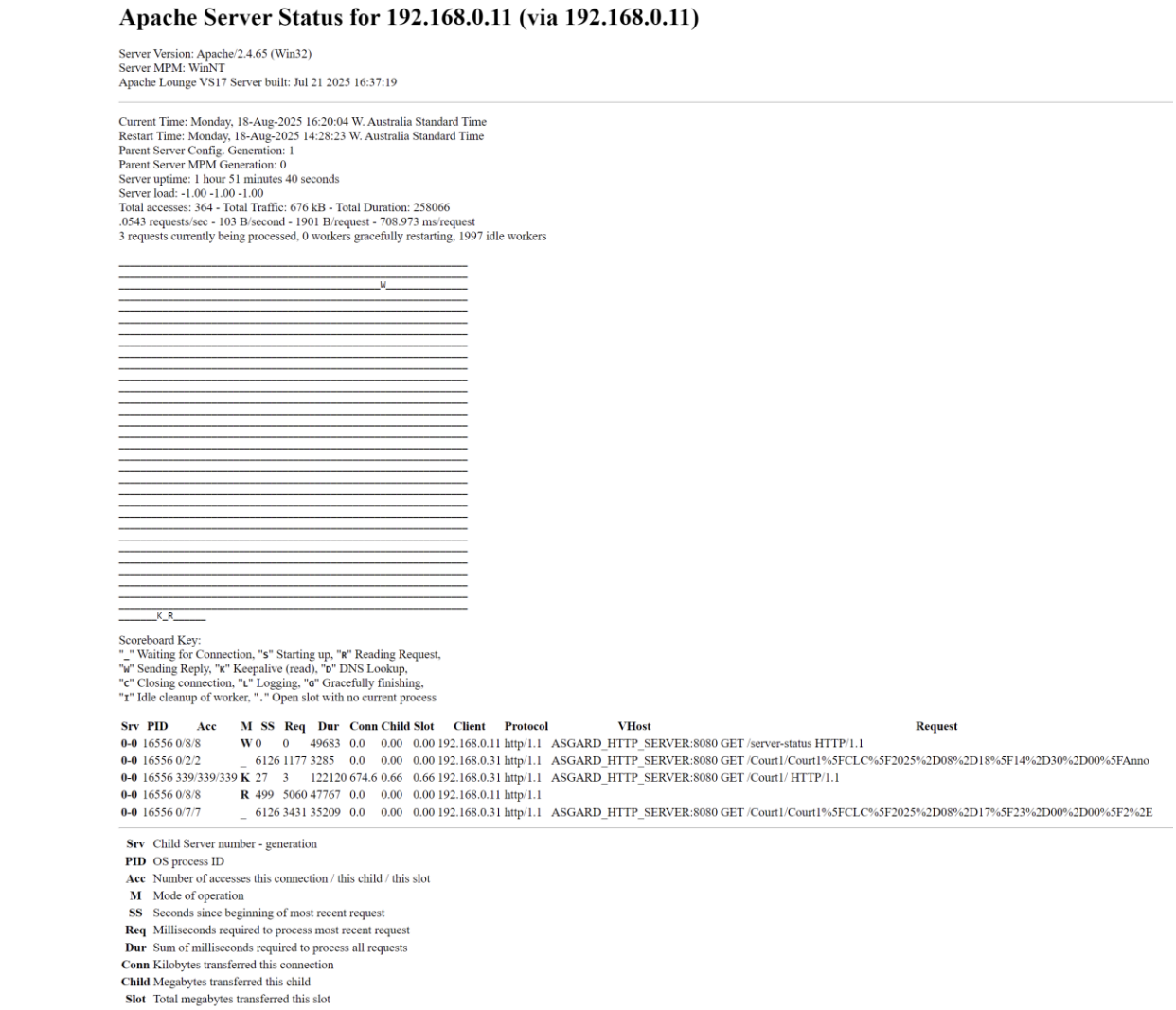
Server State Monitoring

From v2.4.65 the Asgard Edge WebDAV Server provides a server status page at the following URL:

```
http://IP/server-status
```

The status page provides a detailed view of:

- Apache Server version
- Server uptime
- Access and request counters
- Active and idle Worker process counts
- Worker thread state map
- A list of the current TCP socket connections



Apache Server Status for 192.168.0.11 (via 192.168.0.11)

Server Version: Apache/2.4.65 (Win32)
Server MPM: WinNT
Apache Lounge VS17 Server built: Jul 21 2025 16:37:19

Current Time: Monday, 18-Aug-2025 16:20:04 W. Australia Standard Time
Restart Time: Monday, 18-Aug-2025 14:28:23 W. Australia Standard Time
Parent Server Config. Generation: 1
Parent Server MPM Generation: 0
Server uptime: 1 hour 51 minutes 40 seconds
Server load: -1.00 -1.00 -1.00
Total accesses: 364 - Total Traffic: 676 kB - Total Duration: 258066
.0543 requests/sec - 103 B/second - 1901 B/request - 708.973 ms/request
3 requests currently being processed, 0 workers gracefully restarting, 1997 idle workers

Scoreboard Key:
"_" Waiting for Connection, "S" Starting up, "R" Reading Request,
"W" Sending Reply, "K" Keepalive (read), "D" DNS Lookup,
"C" Closing connection, "L" Logging, "G" Gracefully finishing,
"I" Idle cleanup of worker, "." Open slot with no current process

Srv	PID	Acc	M	SS	Req	Dur	Conn	Child	Slot	Client	Protocol	VHost	Request
0-0	16556	0/8/8	W	0	0	49683	0.0	0.00	0.00	192.168.0.11	http/1.1	ASGARD_HTTP_SERVER:8080	GET /server-status HTTP/1.1
0-0	16556	0/2/2	_	6126	1177	3285	0.0	0.00	0.00	192.168.0.31	http/1.1	ASGARD_HTTP_SERVER:8080	GET /Court1/Court1%5FCLC%5F2025%2D08%2D18%5F14%2D30%2D00%5FAnno
0-0	16556	339/339/339	K	27	3	122120	674.6	0.66	0.66	192.168.0.31	http/1.1	ASGARD_HTTP_SERVER:8080	GET /Court1/ HTTP/1.1
0-0	16556	0/8/8	R	499	5060	47767	0.0	0.00	0.00	192.168.0.11	http/1.1		
0-0	16556	0/7/7	_	6126	3431	35209	0.0	0.00	0.00	192.168.0.31	http/1.1	ASGARD_HTTP_SERVER:8080	GET /Court1/Court1%5FCLC%5F2025%2D08%2D17%5F23%2D00%2D00%5F2%2E

Srv Child Server number - generation
PID OS process ID
Acc Number of accesses this connection / this child / this slot
M Mode of operation
SS Seconds since beginning of most recent request
Req Milliseconds required to process most recent request
Dur Sum of milliseconds required to process all requests
Conn Kilobytes transferred this connection
Child Megabytes transferred this child
Slot Total megabytes transferred this slot

Server Access Log

The server access log is located in the Server installation path at:

```
Asgard Edge Server/server/logs/access.log
```

This file records all HTTP access requests received by the server and may be monitored to observe all requests.

Log Entry Format:

Time, Client IP, Request, Request Status, Connection Status, #KeepAlive Requests, Time to Service the request

Entry Element	Description
Time	The date and time of the request
Client IP	The IP of the client making the serv er request
Request	The first line of the HTTP request
Request Status	The HTTP status code of the completed request (see below)
Connection Status	The status of the Keep Alive socket connection (see below)
#KeepAlive Requests	The number of times a single connection has been re-used to service this request
Time to Service	The time in mill-seconds to process and complete the server request

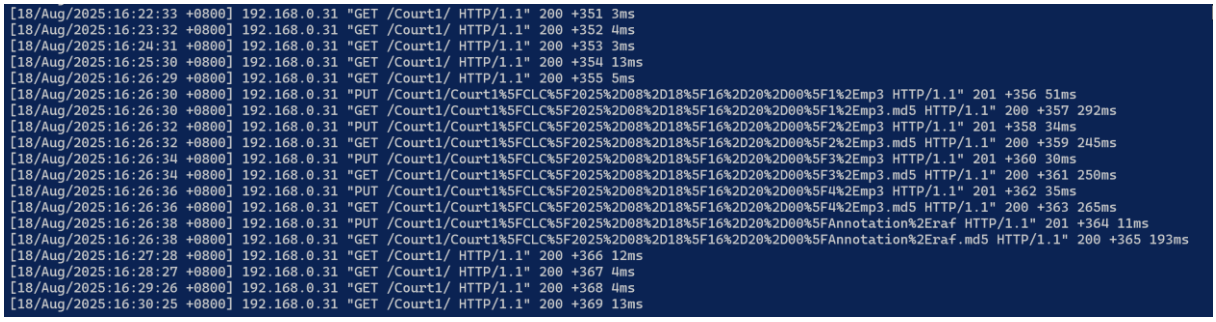
HTTP Status	Type	Description
1xx	Information Response	the request was received, continuing process
2xx	Successful	the request was successfully received, understood, and accepted
4xx	Client Error	the request contains bad syntax or cannot be fulfilled
5xx	Server Error	the server failed to fulfil an apparently valid request

HTTP Request Types		
Request	**Description**	**Notes**
GET	Core Reads from the Server	1. server directory contents for listing in the plugin 2. the md5 hash of a transferred file for verification
PUT	Core Writes a new file to the Server	Core starts a new file transfer
POST	Core Writes to a new file (chunked)	Core continues a file transfer in chunks (for files greater that 10MB in size)

Connection Status	Description
X	Connection aborted before the response completed
+	Connection may be kept alive after the response sent
-	Connection will be closed after the response is set

Examples:

```
[14/Aug/2025:16:23:55 +0800] 192.168.0.31 "GET /Court1/ HTTP/1.1" 200 +3 13ms
```



HTTP Status Codes

2xx Sucess		
Status Code	**Description**	**Notes**
200	OK	Standard response for successful HTTP requests
201	Created	The request has been fulfilled, resulting in the creation of a new resource
202	Accepted	The request has been accepted for processing, but the processing has not been completed. The request might or might not be eventually acted upon, and may be disallowed when processing occurs
203	Non-Authoritative Information	The server is a transforming proxy
204	No Content	The server successfully processed the request, and is not returning any content
205	Reset Content	The server successfully processed the request, asks that the requester reset its document view, and is not returning any content
206	Partial Content	The server is delivering only part of the resource (byte serving) due to a range header sent by the client. The range header is used by HTTP clients to enable resuming of interrupted downloads, or split a download into multiple simultaneous streams

4xx Client Errors		
Status Code	**Description**	**Notes**
400	Bad Request	The server cannot or will not process the request due to an apparent client error
401	Unauthorised	Similar to 403 Forbidden, but specifically for use when authentication is required
403	Forbidden	The request contained valid data and was understood by the server
404	Not Found	The requested resource could not be found
405	Method Not Allowed	A request method is not supported for the requested resource
406	Not Acceptable	The requested resource is capable of generating only content
407	Proxy Authentication Required	The client must first authenticate itself with the proxy
408	Request Timeout	The server timed out waiting for the request
409	Conflict	Indicates that the request could not be processed because of conflict in the current state of the resource

5xx Server Errors		
Status Code	**Description**	**Notes**
500	Internal Server Error	A generic error message, given when an unexpected condition was encountered
501	Not Implemented	The server either does not recognize the request method
502	Bad Gateway	The server was acting as a gateway or proxy and received an invalid response from the upstream server
503	Service Unavailable	he server cannot handle the request (because it is overloaded or down for maintenance)
504	Gateway Timeout	The server was acting as a gateway or proxy and did not receive a timely response from the upstream server
505	HTTP Version Not Supported	The server does not support the HTTP version used in the request

User Notes

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