

HPE NonStop iTP WebServer and HPE NonStop iTP Secure WebServer software

Fast and reliable Web delivery of
heterogeneous application



Integrate heterogeneous applications

HPE NonStop iTP WebServer software provides a full range of services for running online commercial or informational enterprise applications on the Web via the HTTP protocol suite.

Today's enterprise IT infrastructures are becoming increasingly heterogeneous, creating mounting challenges around integrating your IT landscape so you can act swiftly and decisively on new business opportunities. Many companies are leveraging the Internet, using a Web-based model for integrating heterogeneous applications, with clients and servers communicating via the HTTP protocol suite. This model includes both Web page serving and the increasingly important Web services and service-oriented architecture (SOA) paradigms.

HPE NonStop iTP WebServer software¹ provides a full range of services for running online commercial or informational enterprise applications over the Web. It benefits from the HPE NonStop server platform's high availability, scalability, and extensibility in delivering

high-performance access to a variety of application interfaces and methods (See figure 1). HPE NonStop iTP WebServer software is a strategic product that supports Web and SOA application and solution deployment on the HPE NonStop server, providing standards-based integration of HPE NonStop applications in a heterogeneous IT infrastructure environment.

HPE NonStop iTP WebServer is the gateway to all other HPE NonStop middleware software products, such as HPE NonStop Servlets for Java Server Pages (NSJSP) and Simple Object Access Protocol (SOAP) that use HTTP(S) as their transport protocol. It provides them with out-of-the-box scalability and availability without any complex cluster definitions and configurations.

¹ In this document, "HPE NonStop iTP Secure WebServer" refers to the secure version of the HPE NonStop iTP WebServer product software, whereas "HPE NonStop iTP WebServer" refers to the regular version of the product software.

Note: Both versions inherit HPE NonStop product fundamentals and both are available on the SUT.

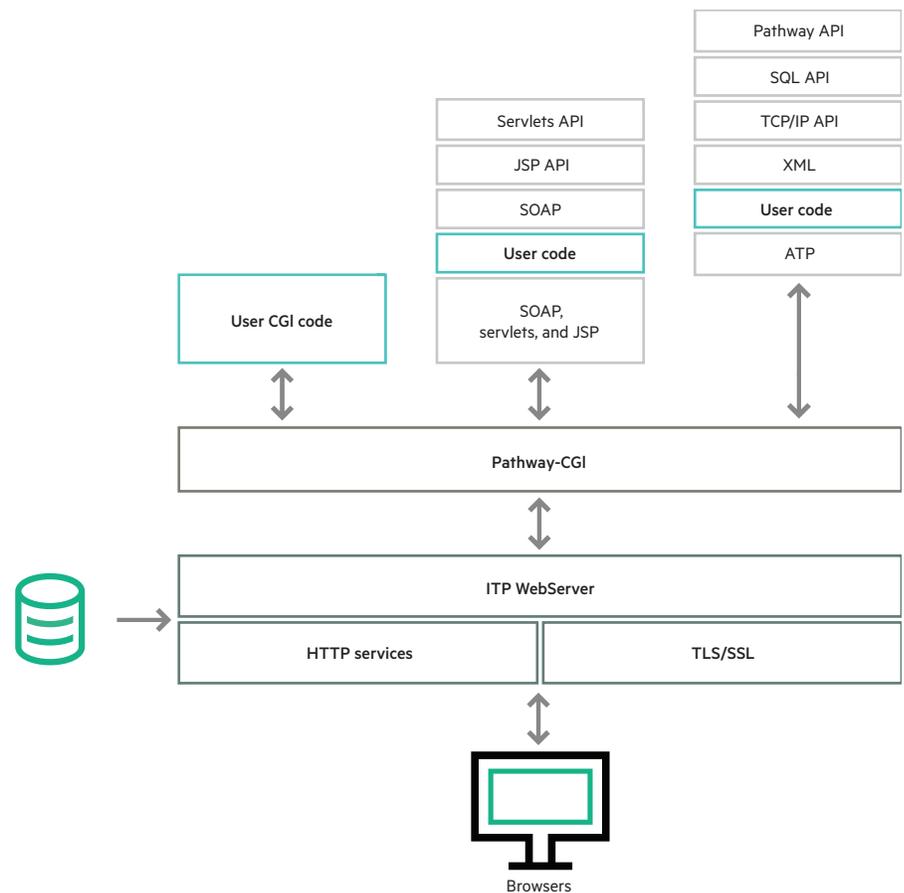


Figure 1: HPE NonStop iTP WebServer software provides high-performance access to a variety of application interfaces and methods, as well as to HPE NonStop SQL database.

What's new

New features in both secure and regular variants of HPE NonStop iTP WebServer 7.6

- **“Faster message transfer between CLIM and iTP WebServer”** on page 3
- **“Support for pathway named server”** on page 3
- **“Human readable dates in httpd.log”** on page 3

Note: Version 7.6 is available only in L-series and J-series software. The last version of iTP WebServer in H-series is version 7.5.

Features continuing from previous versions

- Ability to present only those certificates as necessary during client-server authentication (see “Distinction between client and server root, intermediate, and leaf certificates” on page 3)

- Support for encrypting exported private keys (see “Export private keys securely” on page 3)
- Support for hash algorithm SHA256 (see “Secure Hash Algorithms” on page 3)
- Ability to update the configuration of individual serverclasses (see “Online update of individual serverclass configuration” on page 4)
- Ability to configure maximum length of incoming HTTP(S) POST requests (see “Configurable HTTP(S) POST request size” on page 6)
- Support for advanced key exchange algorithm (Diffie-Hellman)
- Renaming of a serverclass
- Support for CGI variable REMOTE_PORT
- Support Microsoft® Windows® compliant log file name format
- Configurable HTTP header size

Full-featured Web serving

HPE NonStop iTP WebServer software products are designed for transaction processing and electronic commerce. They can support and process thousands of simultaneous queries from Web users through a back-end information database server. HPE NonStop iTP WebServer can also be used as an adjunct to—or a replacement for— traditional client/server computing.

HPE NonStop iTP WebServer provides the necessary HTTP protocol support for running SOA and Web-service applications on HPE NonStop servers, using the adjunct HPE NonStop SOAP or NSJSP products.

- Turn on cookie information logging
- Support for TLS 1.2 protocol

Key features and benefits

Full-featured Web serving

Improved usability and performance

HPE NonStop iTP WebServer software products are implemented as a Pathway server class to achieve the scalability critical to e-business. Whenever traffic exceeds a user-defined threshold, the Web server process is replicated across multiple processors. Therefore, during heavy traffic, multiple processes run concurrently, delivering high performance and availability.

HPE NonStop iTP WebServer software products deliver fault tolerance by rerouting traffic should a unit fail. In addition, HPE NonStop iTP Secure WebServer software automatically load-balances incoming, secure transaction requests.

Faster message transfer between CLIM and iTP WebServer

From release 7.6 the messages are transferred at 32 Kbytes per second. Prior to release 7.6 they were transferred at 16 Kbytes per second.

Support for pathway named server

The iTP WebServer setup script has been enhanced to provide an easy mechanism to start underlying Pathway CGI applications as named server processes. Advantage of this is that messages are not routed to wrong process instances during context sensitive message transfer.

Human readable dates in httpd.log

ITP webserver has 3 different log files: httpd.log, access.log and error.log. While the other two files log dates in human readable format, the httpd.log has been logging them in timestamp format. From iTP WebServer 7.6 release onwards, user can set httpd.log to record date in human readable format.

Distinction between client and server root, intermediate, and leaf certificates

From release 7.5, HPE NonStop iTP Secure WebServer provides two distinct databases, one each for storing the server and client root certificates. The advantage of this is that during the client authentication handshake process only the relevant client certificates need to

be sent by the Web server. This reduces the data exchanged during handshake and their processing. Additionally, if the intermediate certificates are also available in the client certificate database then the client needs to send only its leaf certificate.

Advanced security

HPE NonStop iTP Secure WebServer software provides higher levels of security without requiring you to purchase additional hardware or reconfigure your system. It provides two levels of standard security: 128-bit and 256-bit.

Export private keys securely

From release 7.5 the HPE NonStop iTP Secure WebServer is able to encrypt the private keys that are exported out of its key database to disk files. It also imports private keys in encrypted format from external sources and stores them in its key database. The encryption format complies with Public-Key Cryptography #8. The key encryption algorithms supported are AES256, AES192, AES128, and 3DES. Advanced Encryption Standard—AES256 is the default. The encrypted keys are encoded either as per Distinguished Encoding Rules or using the Privacy Enhanced Mail (PEM) encoding. PEM is the default method. This feature prevents malicious use of exported private keys and is supported by both keyadmin and the dbmigrate utilities.

Note

There is no change to the key database format itself compared to the previous versions of HPE NonStop iTP Secure WebServer because of this feature.

Secure Hash Algorithms (SHA) Enhancement

HPE NonStop iTP Secure WebServer 7.5 brings in the SHA256 hashing to HPE NonStop. Earlier releases supported MD5 and SHA1. All three, MD5, SHA1, and SHA256 are enabled by default but can be disabled selectively. Thus the HPE NonStop iTP Secure WebServer from release 7.5 onwards provides a higher level of security. Both the supported key exchange methods, namely, Diffie-Hellman and remote secure access (RSA), are now able to make use of the two-cipher hashing algorithms, AES_128_CBC_SHA256 and AES_256_CBC_SHA256. The order of increasing security provided by these hashing algorithms is SHA256 > SHA1 > MD5.

Enhanced administrative and management features

Administrative services for both the HPE NonStop iTP WebServer and HPE NonStop iTP Secure WebServer software products provide a browser interface for defining your Web server configuration, starting and stopping it, and monitoring noteworthy events such as read/write errors or memory crashes. Further, administrative services enable you to manage the configuration and operation of one or more Web server environments from your browser which allows you to:

- Start the Web server environment
- Restart the Web server environment and switch to new log files
- Stop the Web server environment
- View configuration files
- Edit configuration files
- Search configuration files
- Monitor EMS events
- Collect various Web server statistics through a CLI and a Web-based interface
- Monitor log messages
- Issue POSIX-compliant Open System Services (OSS) commands

TLS Version 1.2, 1.1, and 1.0, SSL Version 3.0

HPE NonStop iTP Secure WebServer software supports Transport Layer Security (TLS) and Secure Sockets Layer (SSL) protocols. These secure transport protocols provide data security between application protocols such as HTTP, Telnet, Network-to-Network Transfer, File Transfer Protocol (FTP), and TCP/IP. HPE NonStop iTP WebServer supports TLS 1.2 from release 7.4. Releases prior to 7.4 supported TLS 1.1 and 1.0.

Cryptographic key-exchange methods

RSA key exchange algorithm was supported until release 7.3. Diffie-Hellman algorithm has been added from release 7.4. Diffie-Hellman key-exchange, being more secure, is the preferred key exchange algorithm for secure communication with clients.

Certificate authorization lists

The HPE NonStop iTP Secure WebServer software supports several industry-leading certification authorities and stores their roots in its key database. Entrust, BBN, VeriSign, GTE, RSA, MCI, and AT&T are among the root keys supported.

Digest access authentication

Digest access authentication provides a challenge and response authentication mechanism for additional security wherein the user's password is not sent over the network.

Content encoding compression types

Content encoding allows HPE NonStop iTP Secure WebServer software to return the proper encoding type for compressed files.

Client authentication

HPE NonStop iTP Secure WebServer software can handle enhanced TLS/SSL requests to support client authentication. Also, from release 7.2, you can raise the RSA key length up to a maximum of 4,096 bits—256-bit encryption with stronger cipher suites using AES and Camellia.

Session tracking and authentication

The HPE NonStop iTP Secure WebServer software includes built-in support for “ticketing,” a technique for user session tracking that issues anonymous tickets. You can use conventional log analysis tools to generate reports detailing user access patterns.

X.509 Version 3.0 certificates

X.509 certificates are industry-standard for user authentication. An X.509 certificate is an electronic file validation for a public key owner. It is similar to a notary seal in that it binds a user's identity to a digital signature in a manner verified by a trusted third party, often referred to as the certification authority.

Enhanced administrative and management services

Online update of individual serverclass configuration

From release 7.5 onwards, administrators can specify the individual serverclass name that needs to be restarted to update any configuration changes applicable for that serverclass application. Other serverclasses—for which no configuration change was done—are not restarted. Thus this feature enhances application availability. Serverclasses can be restarted one at a time using a command-line interface (CLI) command or using the restart option in Admin WebServer. Multiple serverclasses can be restarted simultaneously using the script that is provided in release 7.5. In addition, new serverclasses can be added to the WebServer environment without restarting the WebServer.

Event report

Both the software products and their related components report events noted by the operating system to the Event Management Services (EMS). This basic reporting identifies the subsystem, the Pathmon name, and the type of event that occurred.

Resource locator service

The resource locator service (RLS) allows the HPE NonStop iTP WebServer software to act as a front end to commodity servers based on the UNIX® or Microsoft Windows NT® operating system. The RLS environment can choose one of many commodity servers to process a browser request. As each new browser request arrives, the RLS component selects the best-performing server capable of handling the request. The requester need not know which server handled a request. The RLS component provides reliability and availability to commodity Web servers by monitoring their status and selecting a server that is available and capable of processing the request. Web serving is often implemented in a platform environment, and RLS makes interoperation functionally practical.

Improved standards compliance

Both HPE NonStop iTP WebServer and HPE NonStop iTP Secure WebServer software products support several Internet application and development standards, including:

- HTTP 1.1
- TLS 1.2, 1.1, and 1.0
- SSL 3.0
- SHA-1 and SHA256
- CGI 1.1
- POSIX-compliant OSS
- X.509 Version 3.0 for Certificates
- National Center for Supercomputing Applications (NCSA) and CERN standards (a standard sourced by the European Organization for Nuclear Research)
- JavaScript 1.5 (ECMA 3.0)
- Unicode

Virtual hosts

Both software products can support multiple domains within a single instance of the Web server, including the ability to return customized content based on the destination domain name. This feature makes it possible to host many websites or domains on a single Web server.

Parallel library TCP/IP support

Both software products support all available formats of TCP/IP_{v6} addresses. Domain name resolution is also supported for TCP/IP_{v6} addresses.

HPE NonStop iTP WebServer is a major user of TCP/IP_{v6} and IP CLIM. The Web server is able to take advantage of the parallel processing of TCP/IP_{v6} and IP CLIM to gain significant performance improvement.

Improved standards compliance

HTTP file services

The HPE NonStop iTP WebServer and HPE NonStop iTP Secure WebServer products function as HTTP file servers, displaying static information. They also provide file transfer and storage, flexible access control, enhanced logging, customized error messages, and customized directory indexing.

Both software products contain the following features, all defined by the HTTP 1.1 specification.

- Persistent connections—Instead of establishing a new TCP/IP connection for each URL, these Web servers can establish a persistent connection for a set of related requests. You can set a timeout or specify the maximum number of requests per connection.
- ETag response header—HPE NonStop iTP WebServer gives you the option to disable ETag response header processing—if that best fits your particular usage scenario—for improved usability and performance. Currently, HPE NonStop iTP WebServer returns the ETag response header to indicate whether Web content has changed since the last access. However, in some Web server configurations, the ETag response header does not reliably indicate whether content has changed (for example, when the content is served by multiple Web servers distributed across HPE NonStop nodes). In such cases, the benefit is exceeded by the cost associated with calculating the ETag value.
- Chunk transfer encoding—When a browser or other Web client cannot anticipate the length of a request, it can transmit the data in chunks to the Web server software. The server reassembles the request and transmits it to the Common Gateway Interface (CGI) application.
- Content negotiation—When a page is available in multiple representations (for example, the text is available in multiple languages, or a file is available in different character sets or compression formats), the HPE NonStop iTP WebServer software can select among those representations on the basis of information transmitted with each request or specified in the HPE NonStop iTP WebServer software configuration.
- PUT and TRACE methods—Default values for these methods have been changed to “disabled” from release 7.2 onwards. They may still be explicitly enabled by the user if required.

Other features of HPE NonStop iTP WebServer and HPE NonStop iTP Secure WebServer software

Unicode

HPE NonStop iTP WebServer software supports security certificates containing non-English characters.

CGI

Both products process requests for CGI scripts that launch and link applications—applications that can access the HPE NonStop SQL database, as well as similar databases, enabling you to offer database access through the Web. With this CGI capability, the HPE NonStop iTP WebServer software also provides a message-switching facility, allowing messages from Internet clients to be forwarded to application programs.

The HPE NonStop iTP WebServer software supports both a generic CGI, conforming to NCSA CGI standard 1.1, and a CGI customized for Pathway applications. The CGI for the Pathway environment delivers two key benefits. First, it enables you to leverage existing Pathway and client/server applications by migrating them to the Web. Second, because it is customized for Pathway applications, the CGI for the Pathway environment improves application performance.

Pathway CREATEDELAY parameter

For improved usability and performance, HPE NonStop iTP WebServer provides a new configuration option to specify the Pathway CREATEDELAY value, which controls the conditions under which Pathway creates dynamic HPE NonStop iTP WebServer CGI servers.

Support for additional MIME types

HPE NonStop iTP WebServer recognizes JavaScript and CSS file types by default, simplifying configuration and enhancing usability.

CGI library compiled with neutral float

This enhancement enables the HPE NonStop iTP WebServer CGI library to be bound with applications that use either the IEEE or Tandem float types, for improved usability.

NCSA format in image maps

Both the HPE NonStop iTP WebServer software products support NCSA-formatted image map files and the CERN format. The products also provide support for the point directive in NCSA-formatted image maps. This format allows users to click an arbitrary area of an image to be taken to a specified URL, essentially turning the entire screen image into a hypertext button.

Byte range protocol

Both software products support the Byte Range Retrieval Extension to HTTP. This means, for instance, that either Web server can serve Adobe® PDF documents one page at a time, compared with a whole document at a time, to users of Adobe Acrobat® Reader 3.0 or later. This permits high-quality PDF documents to perform like HTML documents.

Configurable HTTP(S) POST request size

HPE NonStop iTP WebServer release 7.5 onwards supports configurable HTTP(S) POST request message size. If the length of the HTTP(S) POST request exceeds the configured value an HTTP 403—FORBIDDEN response is returned to the client.

Configurable HTTP header size

HPE NonStop iTP WebServer supports configurable HTTP header size. The header field size can be set according to user requirements.

HTTP Serverclass renaming

HPE NonStop iTP WebServer allows you to configure HTTP Serverclasses name and configure multiple HTTPD Serverclass within the same Pathmon.

Enhanced information logging

HPE NonStop iTP WebServer can be configured to log cookie and CGI variable REMOTE_PORT in the WebServer logs. Logging the remote port information helps track the source of requests. Cookie logging enables HPE NonStop iTP WebServer logs to be analyzed by generally available Web traffic analysis software such as Google™ Urchin. This will help users measure and troubleshoot traffic-related problems better. This feature is available from release 7.4 onwards.

Online upgrade

When used in conjunction with TS/MP 2.3 or higher, HPE NonStop iTP WebServer can be configured to support the online upgrade feature using Pathway domains. This configuration option allows HPE NonStop iTP WebServer to be upgraded to a higher version without bringing the existing HPE NonStop iTP WebServer environment down, resulting in zero downtime.

Technical specifications**System requirements**

HPE Integrity NonStop i BladeSystem servers, RVU version J06.14 or later
 HPE Integrity NonStop X servers, RVU version L15.02 or later
 HPE Virtualized NonStop servers, RVU version 17.02 or later
Note: Please refer to the latest edition of Software Products Maintenance List (SPML) to know the support status for different RVU versions.
 OSS operating system environment
 HPE NonStop TS/MP (version 2.3 or later for online upgrade support)
 STD-SEC STANDARD SECURITY and SAFEGUARD (for 64-character password)
 OSS File System

HPE NonStop iTP WebServer 7.6 acquiring information

iTP WebServer 7.6 (Secure) and iTP WebServer 7.6 (Regular) are included in the SUT from L17.02 and J06.21 onwards.
 iTP WebServer 7.5 is the last version in H-series. iTP WebServer 7.5 (Regular) is always included in the H-series SUT from H06.22 onwards. For acquiring iTP WebServer 7.5 (Secure) on H-series please order one of the below PIDs:
 HSJ98: HPE NonStop iTPWS 7.5 Secure (U.S. version)
 HSJ95: HPE NonStop iTPWS 7.5 Secure (international version)

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HPE Technology Services

HPE Technology Services help build an infrastructure that is reliable, highly available, and rooted in best practices. Hewlett Packard Enterprise recommends the following services:

HPE Critical Service: High-performance reactive and proactive support designed to minimize downtime. It offers an assigned support team, which includes an Account Support Manager (ASM). This service offers access to HPE's Global NonStop Solution Center, 24x7 hardware and software support, six-hour Call-to-Repair commitment, enhanced parts inventory, and accelerated escalation management.

HPE Proactive 24 Service: Provides proactive and reactive support delivered under the direction of an ASM. It offers 24x7 hardware support with four-hour onsite response, 24x7 software support with two-hour response and flexible call submittal.

HPE Support Plus 24: Provides reactive hardware and software support with remote problem diagnosis, four-hour onsite response, replacement parts. The software support includes installation advisory support, software updates for Hewlett Packard Enterprise and selected third-party software products.

HPE Installation and Startup Service:

This service provides efficient and effective deployment of HPE NonStop system.

For more information, visit hpe.com/services.

Learn more at
hpe.com/info/nonstop



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