

# Apache Web Server on HP-UX

Back to the Basics:  
What is the Apache  
(Strong) Web Server  
on HP-UX and What  
to Do with it

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# HP Apache Based Web Server



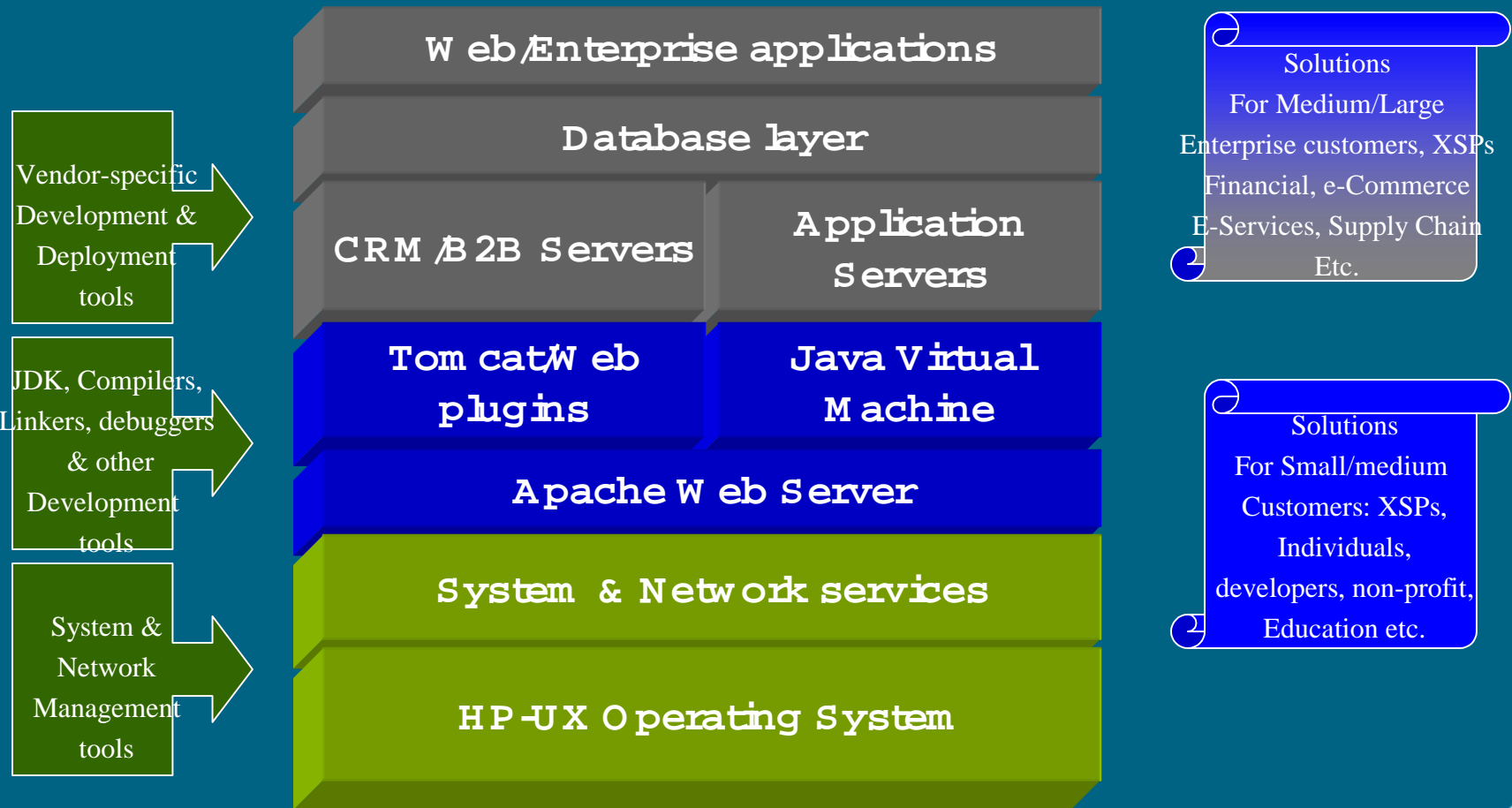
# Goals and Objectives

- Overview of the Apache Web Server on HP-UX
- An introduction into the positioning and architecture
- A comprehensive view of the features and functionality
- A walkthrough of the steps involved in installation and configuration
- A look at the webmin administration interface
- Where to go for more information

# Topics

- HP Apache-based web server
- Introduction to Apache
- Apache Architecture
- Third-party modules
- Java solutions
- Security solutions
- Installation and Configuration
- Webmin Administration Tools

# HP-UX Apache WebServer In Perspective



# Why an HP Apache-based Web Server

- Most popular web server in the market
- Easy extensibility
- Open source advantage
- Most popular security solution - mod\_ssl, openssl & RSA Crypto-C libraries
- Efficient and high-performance cryptographic libraries from RSA Security Co.

## Why an HP Apache-based Web Server (con't)

- Java Servlet/JSP extensibility with Tomcat
- Easy migration of proprietary modules to Apache Web Server
- Integration with other HP products like Virtual Vault, WebQoS etc.,
- LDAP, PHP, Front page extension and XML capabilities in the roadmap

# Why an HP Apache-based Web Server (con't)

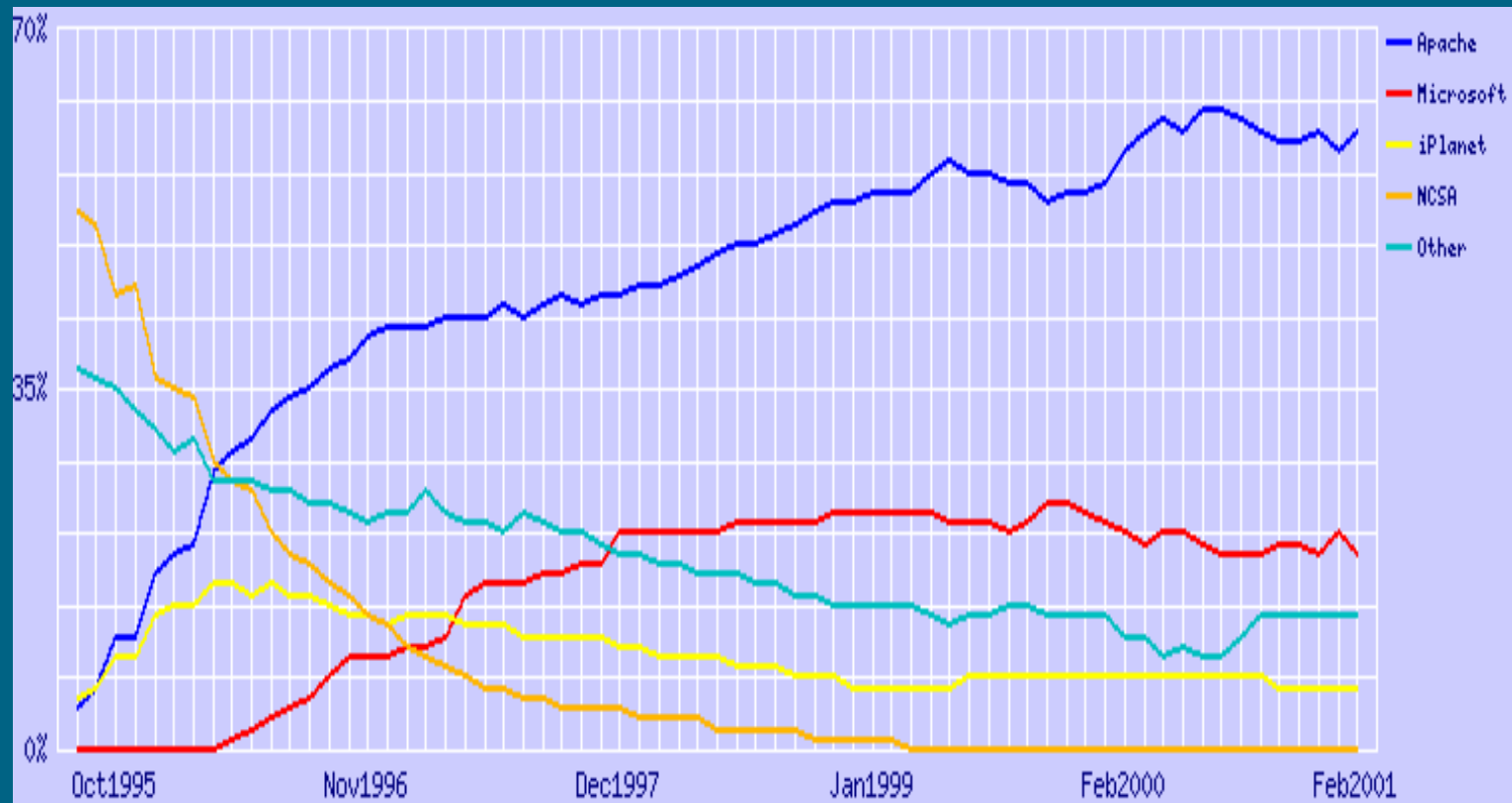
- IPv6 support
- Web-based graphical user interface for easy administration & configuration
- Efficient access control (not present in iPlanet)
- Load balancing among clusters (through mod\_backend in our roadmap)



# Why Apache?

- Open source software - FREE
- [www.apache.org](http://www.apache.org)
- Apache is a HTTP 1.0/1.1 compliant web server
- HP Apache Web server : <http://software.hp.com> (under Internet & Security solutions)
- Most popular web server in the market ...

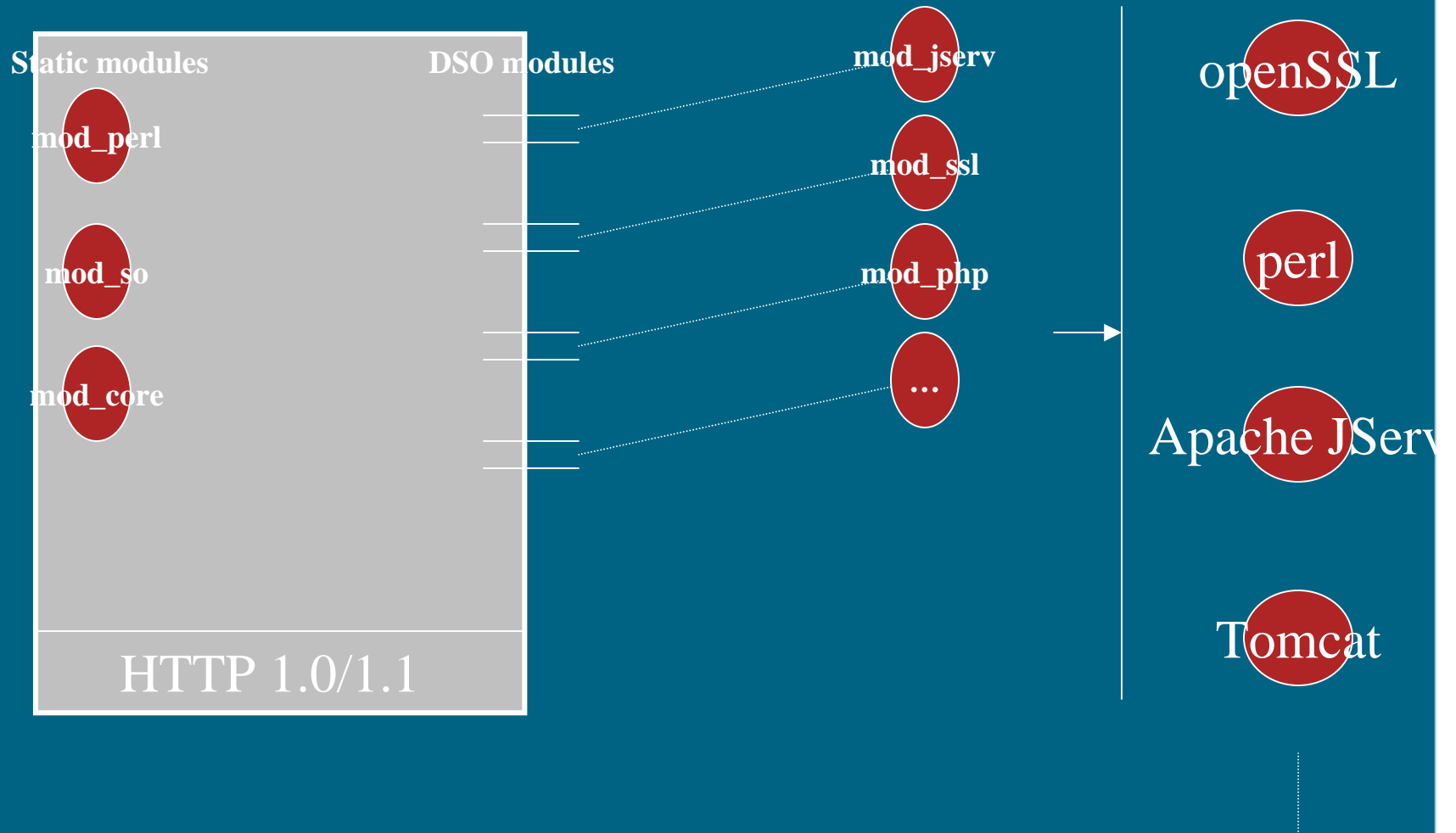
# Market-leadership: Web-server deployment statistics



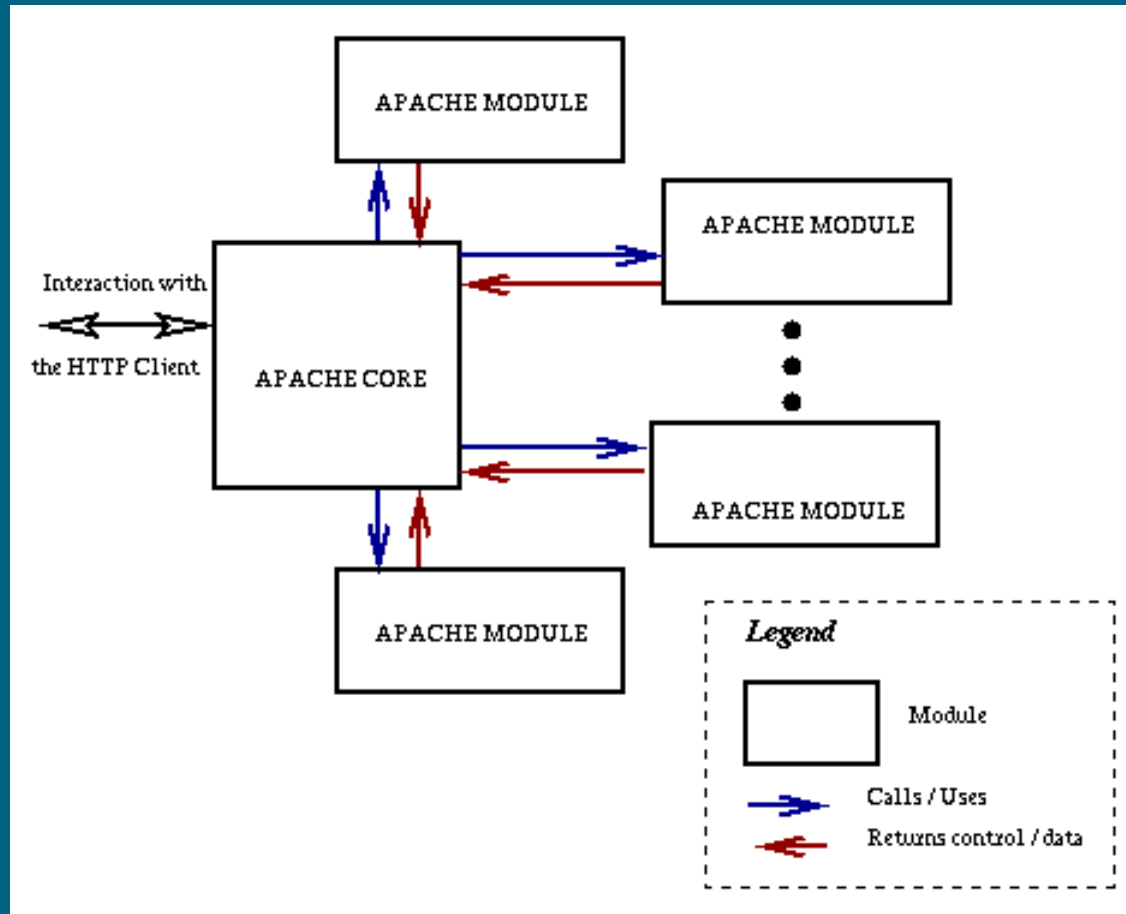
# Content Thru' Apache

- Static – html, images etc
- Dynamic – server-side programming
  - CGI, FastCGI
  - Java Servlets/JSPs
  - Server Side Includes
  - Embedded interpreters – mod\_perl, PHP

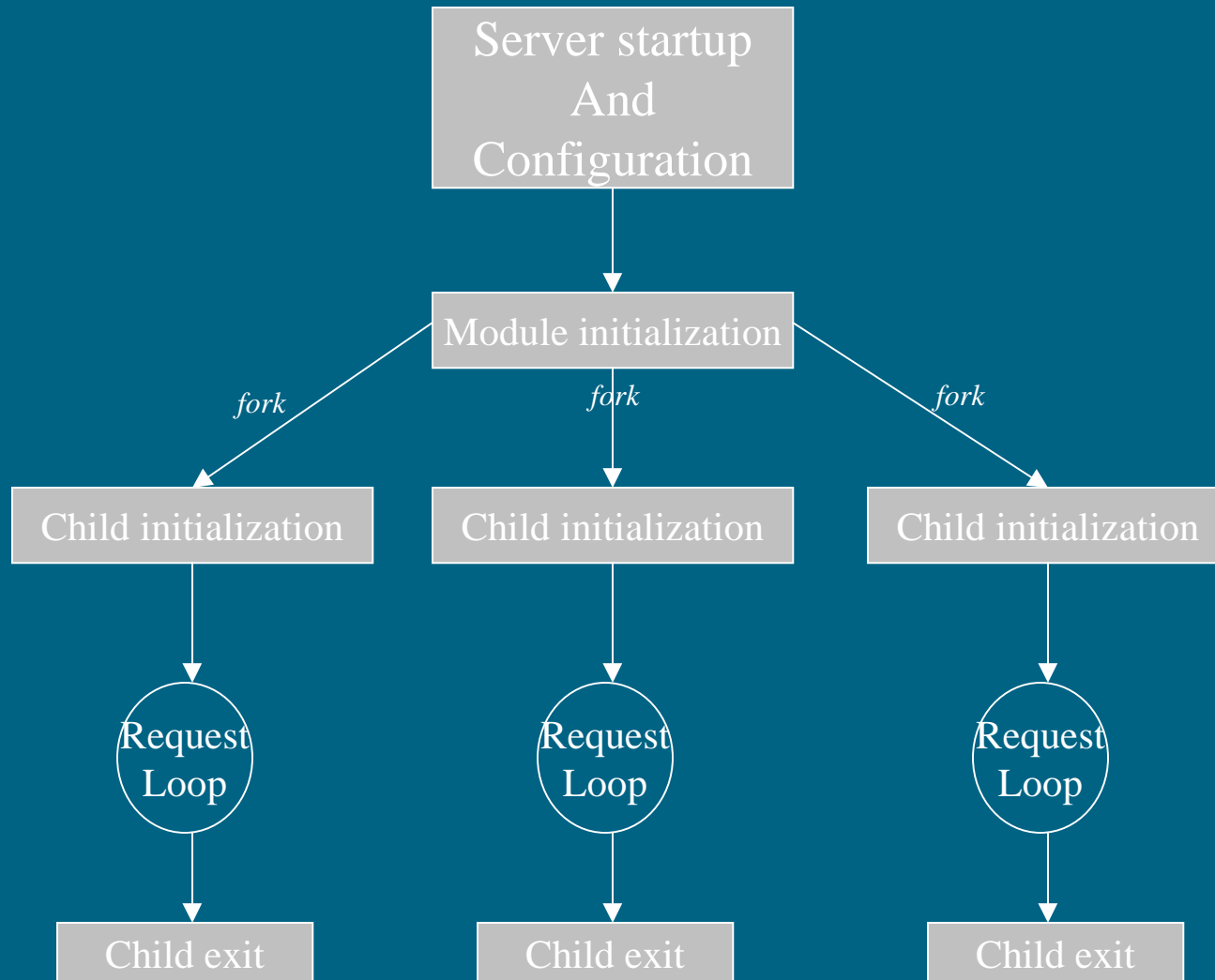
# Apache Architecture



# Apache Web Server Conceptual View



# Apache Server Life Cycle

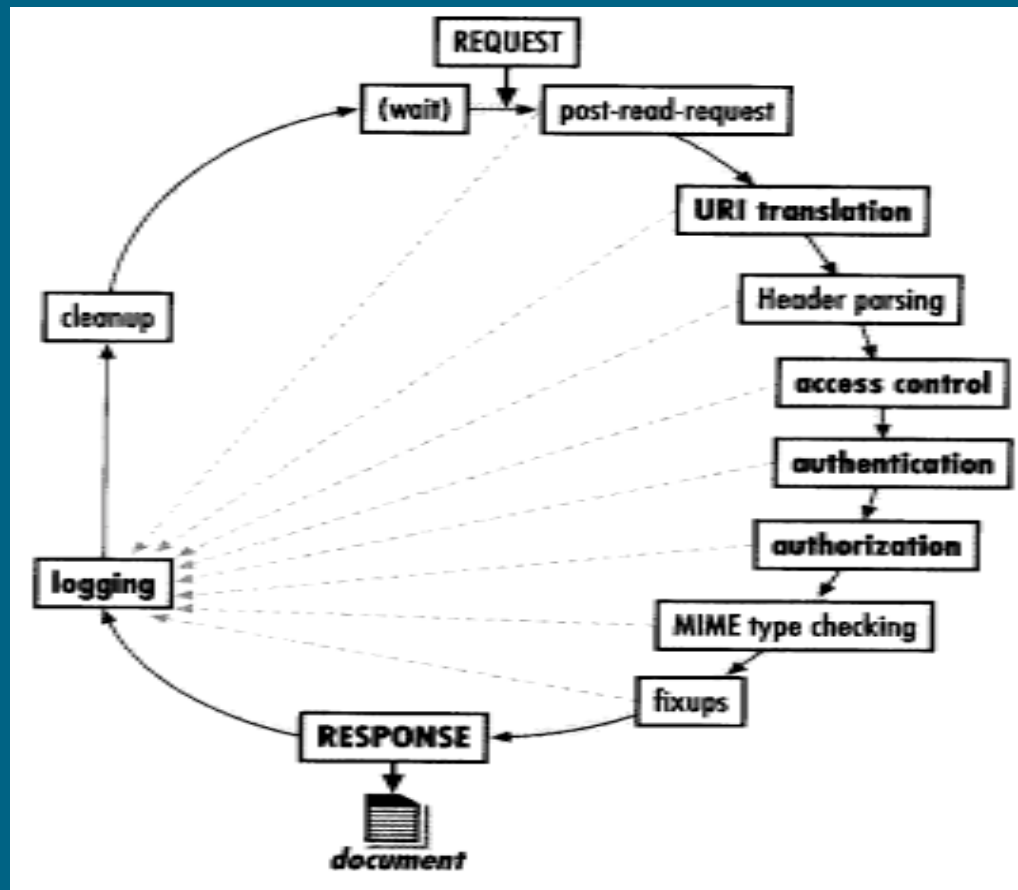


# HTTP Request and Apache Request Loop

Request method

URI of the document to be retrieved

Protocol Version



# Request/Response Phases

- **URI Translation Phase**
  - Alias, ScriptAlias, DocumentRoot
- **Access control Phase**
  - Where is the request coming from?
- **Authentication Phase**
  - Who is it coming from?
- **Authorization Phase**
  - Who is allowed to perform this particular request?
- **MIME type checking phase**
  - depends on file name, extension or document root
  - chooses the content handler to be used for response phase
- **Response Phase**
  - Content handler formulates the response body
- **Logging Phase**
  - Status, errors, information, etc are logged
- **Cleanup Phase**
  - deallocate resources, close databases, free memory etc.

Request information is stored under  
struct request\_rec



# DSO Support

- Flexibility (dynamic loading).
- Extensibility.
- Include new modules using DSO/apxs feature.

# Third-party Modules/software

- mod\_perl
- mod\_php
- mod\_jserv
- mod\_ssl
- openSSL (toolkit)
- RSA BSAFE Crypto-C (library)
- Apache Jserv (container)
- Tomcat (container)
- Webmin
- [www.perl.org](http://www.perl.org)
- [www.php.net](http://www.php.net)
- <http://jserv.apache.org>
- [www.modssl.org](http://www.modssl.org)
- [www.openssl.org](http://www.openssl.org)
- [www.rsasecurity.com](http://www.rsasecurity.com)
- <http://jserv.apache.org>
- <http://jakarta.apache.org>
- [www.webmin.com](http://www.webmin.com)

# Tomcat

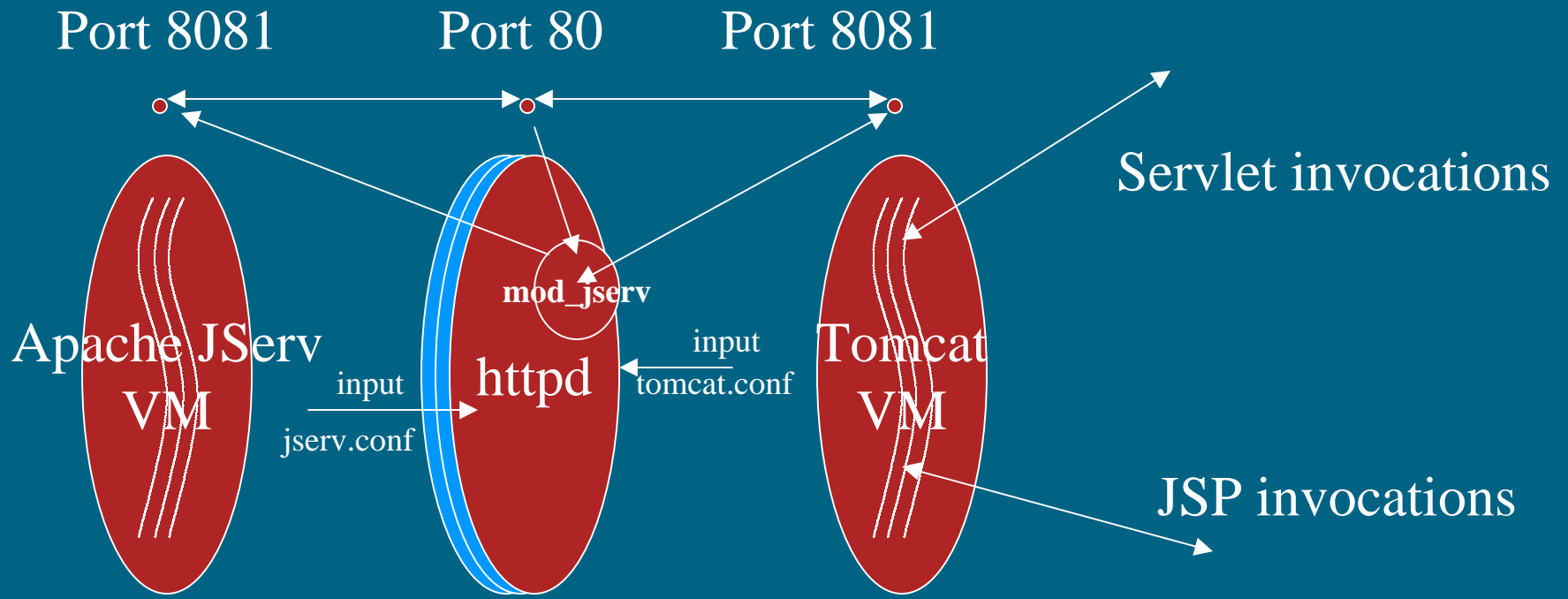


- Open source Java project from ASF
- Servlets & JSP implementation
- [jakarta.apache.org](http://jakarta.apache.org)
- Strategic
- Bundled with HP Apache
- Standalone/out-of-process servlet container

# Tomcat vs Apache JServ

- Runs with Apache, IIS, iPlanet, etc.,
- Can run standalone
- Supports Servlet API 2.2 & above
- Supports JSP 1.1
- Standard support to run only with Apache
- No standalone support
- Supports Servlet API 2.0
- Requires Java Servlet Development Kit 2.0 to be downloaded from SUN

# Tomcat/JServ



# Servlets v/s JSP

- Developers preference
- Logic for generation of the dynamic content is an intrinsic part of the servlets itself
- Tight coupling of presentation & content
- Developers & Web page designers preference
- JSP comprise of static HTML/XML components, special JSP tags & optional “scriptlets”
- Cleaner separation of static presentation & dynamic content
- Dynamic content served in a variety of formats:  
HTML/DHTML, WML, XML

# JSP Architecture

```
<%@ page import="java.text.*,java.util.*" %>
<html>
<body>
<%
Date d = new Date();
String today =
DateFormat.getDateInstance().format(d);
%>
Today is:
<em><%=today%></em>
</body>
</html>
```

.jsp file

Page Compilation

Servlet

Servlet Container

# CGI

- Flexible glue for bridging web protocols and other forms of IT.
- Close to “write once, run everywhere.”
- Not performance-sensitive for larger loads.
- Separate processes for requests. Processes exit once done.



# Apache 2.0 Design

- Primary Goals
  - Layered abstractions for multithreading, shared memory, portability and protocol streams
  - HTTP protocol extensions, WebDAV
  - New configuration language and run-time interface
  - More flexible, detailed module hooks and API
  - Front-end caching and proxy/gateway awareness

# Security

- User Authentication
  - Basic (mod\_auth\*) - text encoding
  - Digest (mod\_digest) - MD5 encoding
  - Anonymous
- SSL
  - 128-bit encryption through mod\_ssl+openssl+Crypto-C
  - Server & client certificates
- Combination of multiple security schemes

# Certificates

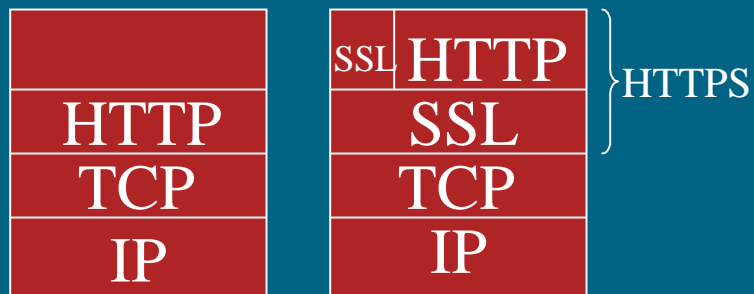
- Binding of a public key to an individual
- Digital signatures to protect public keys
- Issued by Certifying Authority (CA)
- Key pair -> public + private, used for exchanging information between clients
- Client & Server certificates

# Security Products With Apache

- mod\_ssl - Apache interface to openSSL
- openSSL
- RSA BSAFE Crypto-C



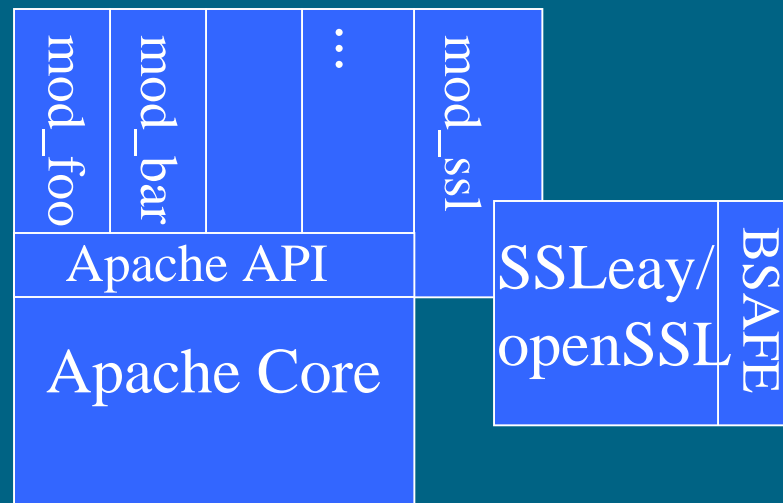
# Motivation for SSL



- HTTP is an unsecure application level protocol on top of TCP/IP
- HTTP lacks both peer authentication and reliable encrypted communication
- Secure Sockets Layer (SSL) is an additional transport protocol on top of TCP/IP providing communication authentication, privacy and reliability through strong cryptographic techniques.
- Current Standards: SSLv3 (Netscape) and TLSv1 (IETF)
- HTTP Secure (HTTPS) is HTTP over SSL and thus a secure HTTP variant.

# mod\_ssl

Apache module provides strong cryptography for the Apache 1.3 webserver via the Secure Sockets Layer (SSL v2/v3) and Transport Layer Security (TLS v1) protocols by the help of the Open Source SSL/TLS toolkit OpenSSL which is based on SSLey from Eric A. Young and Tim J. Hudson.



# OpenSSL

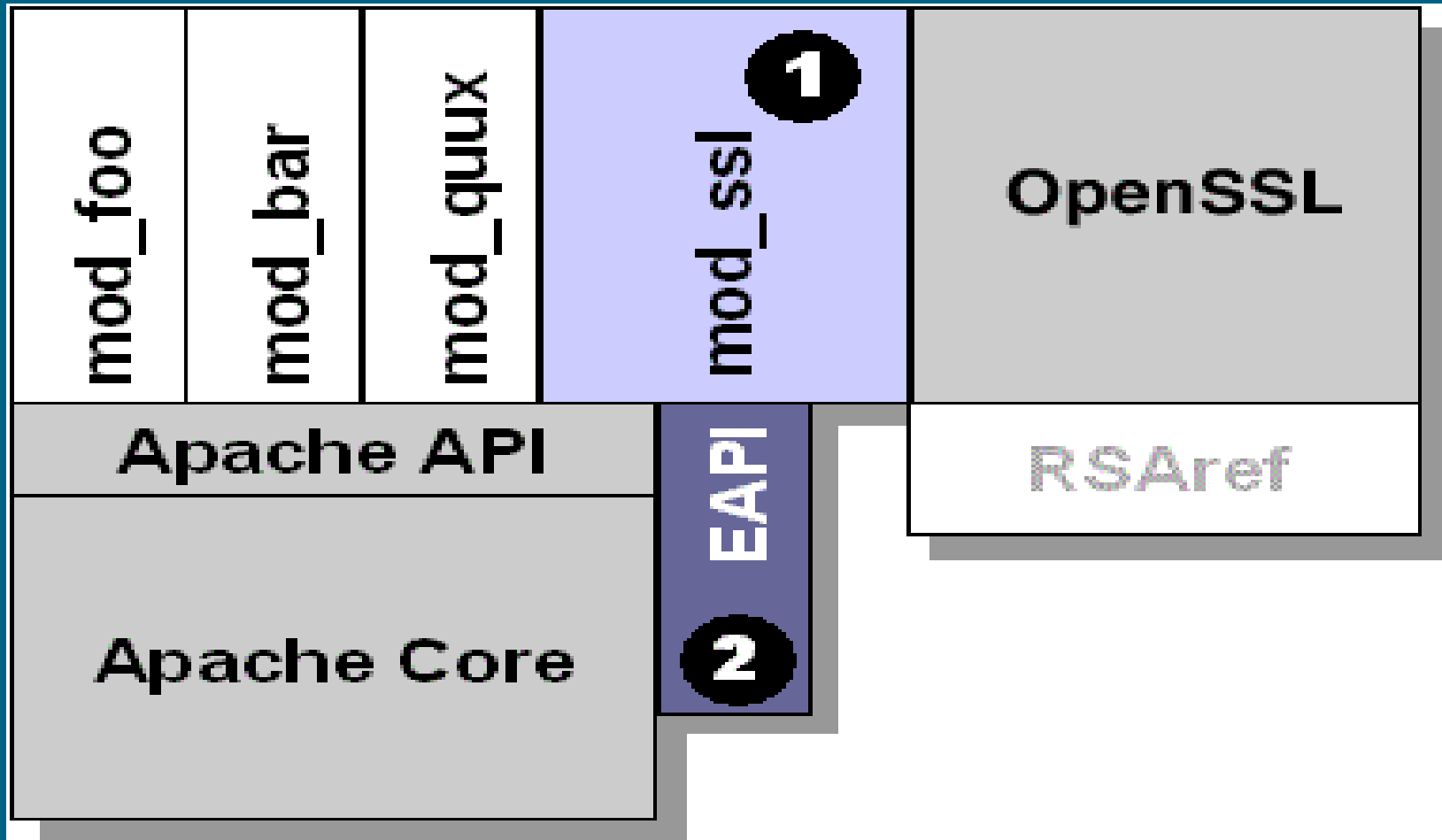
- Open source effort through [www.openssl.org](http://www.openssl.org)
- OpenSSL is a cryptography toolkit implementing the Secure Sockets Layer (SSL v2/v3) and Transport Layer Security (TLS v1) network protocols and related cryptography standards required by them.
- Contents:
  - openssl tool kit - command line tool for using various cryptographic functions of OpenSSL's crypto library from the shell.
  - crypto library - implements a wide range of cryptographic algorithms used in various Internet standards. The functionality includes symmetric encryption, public key cryptography and key agreement, certificate handling, cryptographic hash functions and a cryptographic pseudo-random number generator.
  - ssl library - implements SSL v2/v3 and Transport Layer Security

# Apache and SSL

- SSL available as a product and also as Open Source
  - API's in C, C++ and Java (JSSE)
- Currently available modules to plug-in SSL to Apache :
  - Apache-SSL – also known as Raven-SSL
  - Mod-SSL – derived from Apache-SSL
  - Mod-TLS – being developed by ASF
- Mod\_ssl with OpenSSL is the most widely used combination (12% worldwide)
  - Can be enabled as DSO
  - Uses Extended API (EAPI)
  - Easy configuration in httpd.conf



# Apache – SSL Architecture



# Sample httpd.conf

```
<IfDefine SSL>
  Listen 8080
  Listen 8443
</IfDefine>
.....
.....

<IfDefine SSL>
  AddType application/x-x509-ca-cert .crt
  AddType application/x-pkcs7-cr1 .cr1
</IfDefine>

<IfModule mod_ssl.c>
  SSLPassPhraseDialog builtin
  SSLSessionCache dbm:/home/madhum/httpd-1.3/logs/ssl_scache
  SSLSessionCacheTimeout 300
  SSLMutex file:/home/madhum/httpd-1.3/logs/ssl_mutex
  SSLRandomSeed startup builtin
  SSLRandomSeed connect builtin
  SSLLog /home/madhum/httpd-1.3/logs/ssl_engine_log
  SSLLogLevel info
</IfModule>
<IfDefine SSL>
  <VirtualHost _default_:8443>
    ....

    SSLEngine on
    SSLCipherSuite ALL:!ADH:!EXPORT56:RC4+RSA:+HIGH:+MEDIUM:+SSLv2:+EXP:+eNULL
    SSLCertificateFile /home/madhum/httpd-1.3/conf/ssl.crt/server.crt

    SSLCertificateKeyFile /home/madhum/httpd-1.3/conf/ssl.key/server.key
    SSLCertificateChainFile /home/madhum/httpd-1.3/conf/ssl.crt/ca.crt

    SSLCACertificatePath /home/madhum/httpd-1.3/conf/ssl.crt
    SSLCACertificateFile /home/madhum/httpd-1.3/conf/ssl.crt/ca-bundle.crt

    SSLCAREvocationPath /home/madhum/httpd-1.3/conf/ssl.cr1
    SSLCAREvocationFile /home/madhum/httpd-1.3/conf/ssl.cr1/ca-bundle.cr1

    SSLVerifyClient require
    SSLVerifyDepth 10

    <Location />
      SSLRequire (
        %{SSL_CIPHER} !~ m/A(EXP|NULL)/ \
        and %{SSL_CLIENT_S_DN_O} eq "snake oil, ltd." \
        and %{SSL_CLIENT_S_DN_OU} in {"Staff", "CA", "Dev"} \
        and %{TIME_WDAY} >= 1 and %{TIME_WDAY} <= 5 \
        and %{TIME_HOUR} >= 8 and %{TIME_HOUR} <= 20
        or %{REMOTE_ADDR} =~ m/^192\.76\.162\.[0-9]+$/
      ) \
    </Location>
  </VirtualHost>
</IfDefine>
```

# BSAFE

- Cryptographic library - Crypto-C 5.x
- Quality, high-performance implementation of encryption & signing algorithms
- Support for multiple key and data representations including ASN.1 BER

# Virtual Hosting & Proxy

- IP-based Virtual Hosting
  - Single domain name mapped to multiple IP addresses
- Name-based Virtual Hosting
  - Multiple domain names multiplexed over single IP address
- Proxy
  - Intermediate host between client and the serving host

# hp Apache-base Web Server Features

<b>SECURITY</b>	<ul style="list-style-type: none"><li>•Full Strength RSA encryption with competitive performance</li><li>•128-bit Strong Encryption</li><li>•Support for Virtual Vaults</li><li>•Support for Proxy Server</li></ul>
<b>Administrative</b>	<ul style="list-style-type: none"><li>•Support Dynamic Shared Object (DSO)</li><li>•Easy migration of proprietary modules</li><li>•Web based graphical user interface</li></ul>
<b>Java</b>	<ul style="list-style-type: none"><li>•Tomcat servlet/JSP container</li><li>•Jserv serlet engine</li></ul>
<b>Installation</b>	<ul style="list-style-type: none"><li>•Out of the Box Web Server</li><li>•HP Software Depot Swinstall format</li></ul>
<b>Other</b>	<ul style="list-style-type: none"><li>•Broadvision plug-in</li><li>•NES Certification Migration Tool</li><li>•PHP</li></ul>

# Where to get Apache for HP-UX

- [www.software.hp.com](http://www.software.hp.com)

- internet & security

- [hp apache-based web server](#) Designed to run out-of-the-box on HP-UX 11.0 and 11i, the HP Apache-based Web Server ensures strong security, high performance, and is easy to use so your web site is always reliable and easy to manage. **\$0.0**

# Installation of Apache Web Server from the HP Software Depot

- Download and print the Download, GUI Installation Instructions and Command Line Installation Instructions
- Read the Download, GUI Installation Instructions and Command Line Installation Instructions
- Follow the Download and GUI Installation Instructions
- <for example>
- `#swlist -s /disk/Apache/B9415AA_11.00.depot`
- B9415AA 1.3.14.00 HP Apache-based Web Server with Strong (128bit) Encryption
- `#swinstall -s /disk/Apache/B9415AA_11.00.depot \* @`
- Upon successful installation, swinstall runs the HP Apache-based Web Server automatically
- Refer to the release notes and config notes included in the rproduct
- Number of Kbytes installed: 31443

# Post Installation View of System

- `# ps -ef | grep apache`

```
www 4438 4433 0 16:34:32 ? 0:00 /opt/apache/bin/httpd
```

```
www 4439 4433 0 16:34:32 ? 0:00 /opt/apache/bin/httpd
```

```
www 4437 4433 0 16:34:32 ? 0:00 /opt/apache/bin/httpd
```

```
www 4435 4433 0 16:34:32 ? 0:00 /opt/apache/bin/httpd
```

```
www 4436 4433 0 16:34:32 ? 0:00 /opt/apache/bin/httpd
```

```
root 4433 0001 0 16:34:31 ? 0:00 /opt/apache/bin/httpd
```

- `# ls /opt/apache`

```
.....
```

- `# ls /opt/tomcat`

```
.....
```



# A look at what's installed and where

- #lsf /opt/apache

```
Jserv/          config.notes    man/
LICENSE        htdocs/        php/
apache.release.notes  icons/         php.user.guide
apache.tuning.notes  include/       proxy/
bin/           lib/           servlets/
cgi-bin/      libexec/       ssl/
conf/         logs/          webadmin/
```

# A look at what's installed and where (continued)

- `#lsf /opt/tomcat`

LICENSE

bin/

classes/

conf/

config.notes

doc/

jserv\_to\_tomcat\_migration\_guide

lib/

logs

src

tomcat.tuning.notes

webapps/

work/

# Apache Configuration file (httpd.conf)

- Section 1: Global Environment (default values)

ServerType standalone

ServerRoot /opt/apache

PidFile /opt/apache/logs/httpd.pid

ScoreBoardFile /opt/apache/logs/httpd.scoreboard

Timeout 300

KeepAlive On

MaxKeepAliveRequests 100

KeepAliveTimeout 15

MinSpareServers 5

MaxSpareServers 10

StartServers 5

MaxClients 150

MaxRequestsPerChild 0

\*\*Note: Load and add DSO Section “DO NOT TOUCH” unless you know what you are doing!!!

# Apache Configuration file (httpd.conf) con't

- Section 1: Global Environment (values not set)

```
#LockFile /opt/apache/logs/httpd.lock
```

```
#resourceConfig conf/srm.conf
```

```
#accessConfig conf/access.conf
```

```
#Listen 3000
```

```
#Listen 12.34.56.78:80
```

```
#BindAddress *
```

```
#ExtendedStatus On
```

**\*\*Note: Load and add DSO Section “DO NOT TOUCH” unless you know what you are doing!!!**

# Apache Configuration file (httpd.conf) con't

- Section 2: 'Main' server configuration (values set)

Port 80

<IfDefine SSL>

Listen 80

Listen 443

<IfDefine>

User www

Group other

ServerAdmin [www@mslavich.nsr.hp.com](mailto:www@mslavich.nsr.hp.com)

ServerName mslavich.nsr.hp.com

DocumentRoot "/opt/apache/htdocs"

# Apache Configuration file (httpd.conf) con't

- Section 2: 'Main' server configuration (values set)

```
<Directory />
```

```
Options FollowSymLinks
```

```
AllowOverride None
```

```
</Directory>
```

```
<Directory "/opt/apache/htdocs">
```

```
Options Indexes FollowSymLinks MultiViews
```

```
AllowOverride None
```

```
Order allow,deny
```

```
Allow from all
```

```
</Directory>
```

```
<IfModule mod_userdir.c>
```

```
UserDir public_html
```

```
</IfModule>
```

# Apache Configuration file (httpd.conf) con't

- Section 2: 'Main' server configuration (values set)

```
<ifModule mod_dir.c>
    DirectoryIndex index.html index.php
</IfModule>
AccessFileName .htaccess
<Files ~ "\.ht"
    Order allow,deny
    Deny from all
</Files>
UseCanonicalName On
<IfModule mod_mime.c>
    TypesConfig /opt/apache/conf/mime.types
</IfModule>
DefaultType text/plain
```

# Apache Configuration file (httpd.conf) con't

- Section 2: 'Main' server configuration (values set)

```
<ifModule mod_mime_magic.c>
```

```
    MIMEMagicFile /opt/apache/conf/magic
```

```
</ifModule>
```

```
HostnameLookups Off
```

```
ErrorLog /opt/apache/logs/error_log
```

```
LogLevel warn
```

```
LogFormat "%h %l %u %t %r" %b \"% {Referer}i\" \"% {User-Agent}I\" combined
```

```
LogFormat "%h %l %u %t %r" %b common
```

```
LogFormat \"% {Referer}i -> %U referer
```

```
LogFormat "% {User-agent}i agent
```

```
CustomLog /opt/apache/logs/access_log common
```

```
ServerSignature On
```



# Apache Configuration file (httpd.conf) con't

- Section 2: 'Main' server configuration (values set)

```
<ifModule mod_alias.c>
```

```
<Directory "/opt/apache/webmin/plugins">
```

```
    allow from all
```

```
    deny from none
```

```
    order allow,deny
```

```
</Directory>
```

```
Alias /icons/ "opt/apache/icons"
```

```
</Directory>
```

```
ScriptAlias /cgi-bin/ "opt/apache/cgi-bin"
```

```
<Directory "/opt/apache/cgi-bin">
```

```
    AllowOverride None
```

```
    Options None
```

```
    Order allow,deny
```

```
    Allow from all
```

```
</Directory>
```

# Apache Configuration file (httpd.conf) con't

- Section 2: 'Main' server configuration ( "some" values set)

```
<ifModule mod_autoindex.c>
    IndexOptions FancyIndexing
    ## AddIcon* directives
    ....
    ReadmeName README
    HeaderName HEADER
</IfModule>
<IfModule mod_mime.c>
    AddEncoding x-compress Z
    AddLanguages en .en
    AddCharset
<IfModule mod_negotiation.c>
    LanguagePriority en da nl et fr de el it ja kr no pl pt pt-br ru ltz ca es sv tw
</IfModule>
```

# Apache Configuration file (httpd.conf) con't

- Section 2: 'Main' server configuration ( features)

- # Customize behavior based upon browser

- <IfModule mod\_setenvif.c>

- # Allow server status reports with the URL of <http://servername/server-status>

- # Allow remote server configuration reports

- # Log attempted exploits of “old” security bugs

- # Proxy Server directives

# Apache Configuration file (httpd.conf) con't

- Section 3: Virtual Hosts ( features)

  - # Use name based virtual hosting

  - # SSL Global Context

  - #All SSL configuration in this context applies both to

  - #the main server and all SSL-enabled virtual hosts

  - #SSL Cipher Suite

  - #Server Certificate

  - #Server Private Key


  - #Additional Certificate related items

  - #Include both jserv.conf and tomcat.conf

Startup Page for HP Apache-based Web Server on HP-UX - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://mslavich.rnr.hp.com/> Go



# HP Apache-based Web Server

This web page is the default web page for the HP Apache-based Web Server on HP-UX. This page is usually replaced with web site content by the web site administrator.

If you are the administrator of this web site, the following links may be useful to help you get your web site configured:

- The Apache [documentation](#) is included with this distribution.
- The [Apache Software Foundation](#) exists to provide organizational, legal, and financial support for the Apache open-source software projects. Their web site provides useful information about the Apache web server and their other software projects.
- HP-specific release and configuration notes can be found for Apache under `/opt/apache`, and for Tomcat under `/opt/tomcat`.

If you are accessing this site as a user or system administrator, the following links may be helpful:

- [HP Technical Documentation](#)
- [HP-UX manual pages](#) on this system
- [HP Developer's Resource](#)
- [IT Resource Center](#)
- [www.hp.com](http://www.hp.com)
- [HP Assistance](#) for help with any HP product or service

Features included in this release:

- [Apache Web Server 1.3.14.00](#)
- [Tomcat 3.1.1](#) implements the Java Servlets 2.2 and JavaServer Pages 1.1 specifications and listens on port number 8081.
- [Apache JServ 1.1.1](#) is a 100% pure Java™ servlet engine which is compliant with the JavaSoft Java Servlet

Startup Page for HP Apache-based Web Server on HP-UX - Microsoft Internet Explorer

File Edit View Favorites Tools Help

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other software projects.


- HP-specific release and configuration notes can be found for Apache under `/opt/apache`, and for Tomcat under `/opt/tomcat`.

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- [Apache JServ 1.1.1](#) is a 100% pure Java™ servlet engine which is compliant with the JavaSoft Java Servlet Development Kit 2.0.
- [PHP 4.04pl1](#) is a server-side, cross-platform, HTML embeded, full-featured language with a Java/C++ syntax. It also supports many databases.
- [Webmin 0.84](#) is a web-based Configuration Tool. After entering `/opt/apache/webmin/webmin-init start`, you can use Webmin to [configure](#) your HP Apache-based Web Server. See `/opt/apache/webmin/webmin.release.notes` for User Name and Password.
- [Netscape Certificate Migration Tool 3.1.1](#) enables migration of iPlanet certificates to Apache pk12util binary that is included in the bundle.
- Support for loading customized C++ shared libraries
- Third Party Support: [BroadVision](#) plug-in provides a out-of-the box support for BroadVision e-commerce application suite.

Powered by  APACHE 

# New Features in Apache 1.3

- Dynamic Shared Object (DSO) support
- Support for Windows NT/95
- Support for NetWare 5.x
- Re-organized Sources
- Reliable Piped Logs

# New Features in Apache 1.3 (con't)

- Performance Improvements
- Configuration Enhancements
- Module Enhancements
- API Additions and Changes
- Miscellaneous Enhancements




# Features Included in the Latest Release

- Apache Web Server 1.3.14.00
- Tomcat 3.1.1
- Apache Jserv 1.1.1
- PHP 4.04p11
- Webmin 0.84
- Netscape Certificate Migration Tool 3.1.1
- Third Party Support: Broadvision plug-in

Apache 1.3 documentation - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://mshlavich.nsr.hp.com/manual/index.html> Go



Apache HTTP Server

# Apache 1.3 User's Guide

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## Release Notes

- [New features in Apache 1.3](#)
- [Upgrading to Apache 1.3](#)
- [Apache License](#)

## Apache Reference Manual

- [Search](#) for key words
- [Compiling and Installing](#)
- [Starting](#)
- [Stopping or Restarting](#)
- [Configuring](#)
- [Run-time configuration directives](#)
- Modules: [By Type](#) or [Alphabetical](#)
- [Virtual Hosts](#)
- [Dynamic Shared Object \(DSO\) support](#)
- [Handlers](#)
- [Content negotiation](#)
- [Special purpose environment variables](#)

Apache 1.3 documentation - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://mshlavich.nsr.hp.com/manual/index.html> Go

- [Special purpose environment variables](#)
- [The Apache API](#)
- [Using SetUserID Execution for CGI](#)

### Platform Specific Notes


- [Using Apache with Microsoft Windows](#)
- [Using Apache with Novell Netware 5](#)
- [Using Apache with HP MPE/iX](#)
- [Compiling Apache under UnixWare](#)
- [Overview of the Apache TPF Port](#)

### Other Notes

- [Frequently Asked Questions](#)
- [Tutorials](#)
- [URL Rewriting Guide](#)
- [General Performance hints](#) for getting the best performance out of Apache
- [OS Specific Performance hints](#) to help fine-tune specific platforms
- [Security tips](#)
- [Compatibility Notes with NCSA httpd](#)
- [How do I? documentation](#)
- [Discussion of the FIN\\_WAIT\\_2 problem](#)
- [Known problems with various clients](#)

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**Apache HTTP Server**



# Apache Modules (Core)

## Directives

AccessConfig	AccessFile Name	AddDefaultCharset
AddModule	AllowOverride	AuthName
AuthType	BindAddress	BS2000Account
ClearModuleList	ContentDigest	CoreDumpDirectory
DefaultType	<Directory>	<DirectoryMatch>
DocumentRoot	EBCDICConvert	EBCDICConvertByType
EBCDICKludge	ErrorDocument	ErrorLog
<Files>	<FilesMatch>	Group
HostNameLookups	IdentityCheck	<IfDefine>
<IfModule>	Include	KeepAlive
KeepAliveTimeout	<Limit>	<LimitExcept>
LimitrequestBody	LimitRequestField	LimitRequestFieldsize

# Apache Modules (Core con't)

LimitRequestLine	Listen	ListenBacklog
<Location>	<LocationMatch>	LockFile
LogLevel	MaxClients	MaxKeepAliveRequests
MaxRequestsPerChild	MaxSpareServers	MinSpareServers
NameVirtualHost	Options	PidFile
Port	Require	ResourceConfig
RLimitCPU	RLimitMEM	RLimitNPROC
Satisfy	ScoreBoardFile	ScriptInterpreterSource
SendBufferSize	ServerAdmin	ServerName
ServerName	ServerPath	ServerRoot
ServerSignature	ServerTokens	ServerType
StartServers	ThreadsPerChild	ThreadStackSize
TimeOut	UseCanonicalName	User
<VirtualHost>		

# Apache Modules (by type)

- Environment Creation
  - mod\_env
  - mod\_setenvif
  - mod\_unique\_id
- Content Type Decisions
  - mod\_mime
  - mod\_mime\_magic
  - mod\_negotiation
- Url Mapping
  - mod\_alias
  - mod\_rewrite
  - mod\_userdir
  - mod\_speling
  - mod\_vhost\_alias

# Apache Modules (by type con't)

- Directory Handling
  - mod\_dir
  - mod\_autoindex
- HTTP Response
  - mod\_headers
  - mod\_cern\_meta
  - mod\_expires
  - mod\_asis
- Access Control
  - mod\_access
  - mod\_auth
  - mod\_auth\_dbm
  - mod\_auth\_db
  - mod\_auth\_anon
  - mod\_auth\_digest

# Apache Modules (by type con't)

- Dynamic Content
  - mod\_include
  - mod\_cgi
  - mod\_actions
  - mod\_isapi (WIN32 only)
- Internal Content Handlers
  - mod\_status
  - mod\_info
- Logging
  - mod\_log\_config
  - mod\_log\_agent
  - mod\_log\_referer
  - mod\_usertrack



# Apache Modules (by type con't)

- Miscellaneous

- mod\_imap
- mod\_proxy
- mod\_so
- mod\_mmap

- Development

- mod\_example

- Obsolete

- mod\_browser (replaced by mod\_setenvif in Apache 1.3 and up)
- mod\_cookies (replaced by mod\_usertrack)
- mod\_dld (replaced by mod\_so)
- mod\_log\_common (replaced by mod\_log\_config)

# To control the apache web server

- Login as root

< To start and stop the apache web server >

```
# /opt/apache/bin/apachectl start
```

```
# /opt/apache/bin/apachectl stop
```

< To start and stop the apache web server with SSL capabilities >

```
# /opt/apache/bin/apachectl startssl
```

Note: You will be prompted for a PEM encoded phrase, which is “hp.com”

```
# /opt/apache/bin/apachectl stop
```

# Webmin

To Configure webmin and start:

Install the appropriate version of perl if needed from

<http://devresource.hp.com/OpenSource/Tools/perl/perl.html>

```
#!/opt/apache/webmin/setup.sh
```

- To start webmin: Login as root

```
#!/opt/apache/webmin/webmin-init start
```

<http://<hostname>:10000>

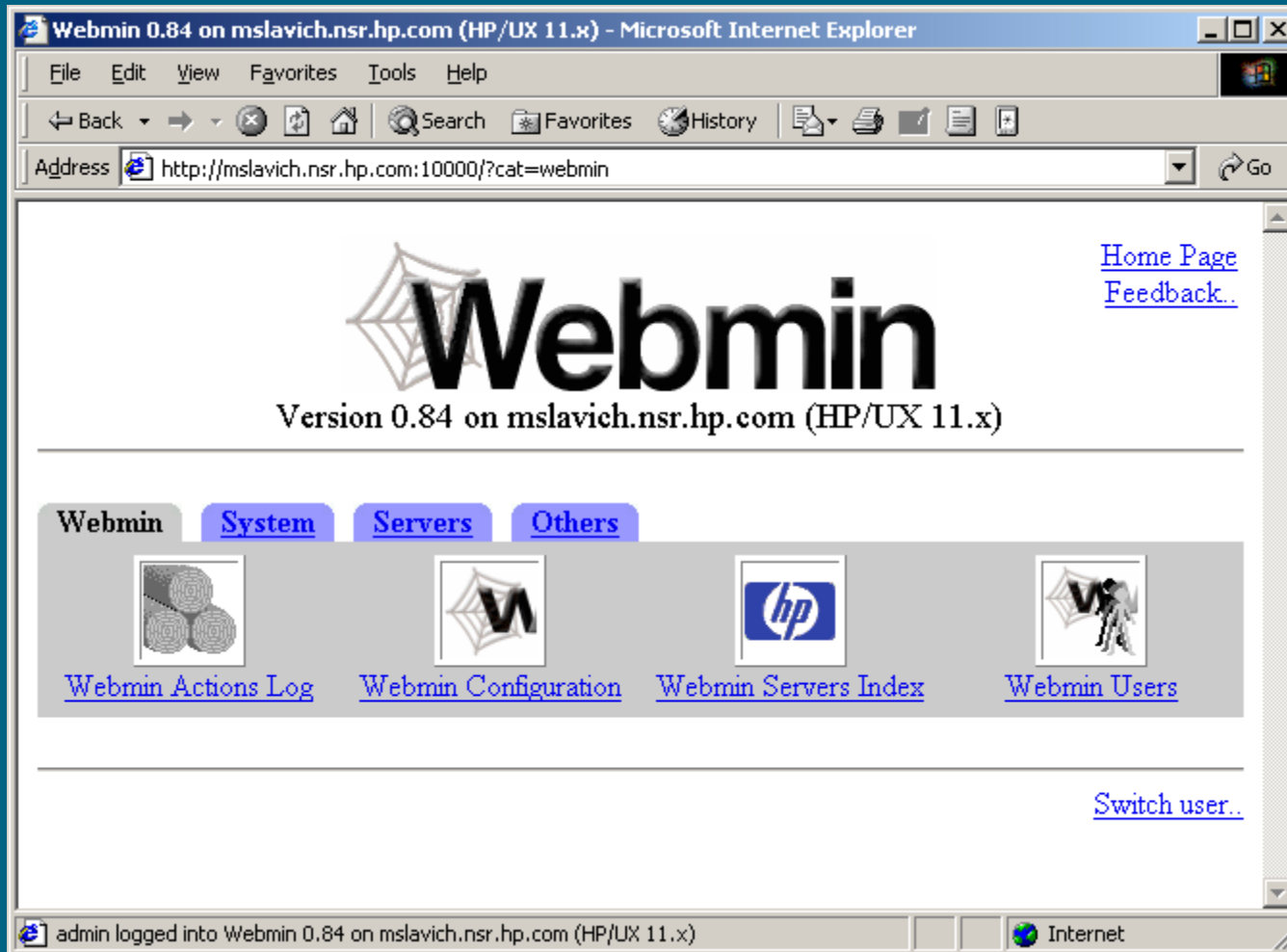
Login: admin

Password : hp.com

- To stop webmin

```
/opt/apache/webmin/webmin-init stop
```
















# Webmin




# Webmin Configuration

[Webmin Index](#)

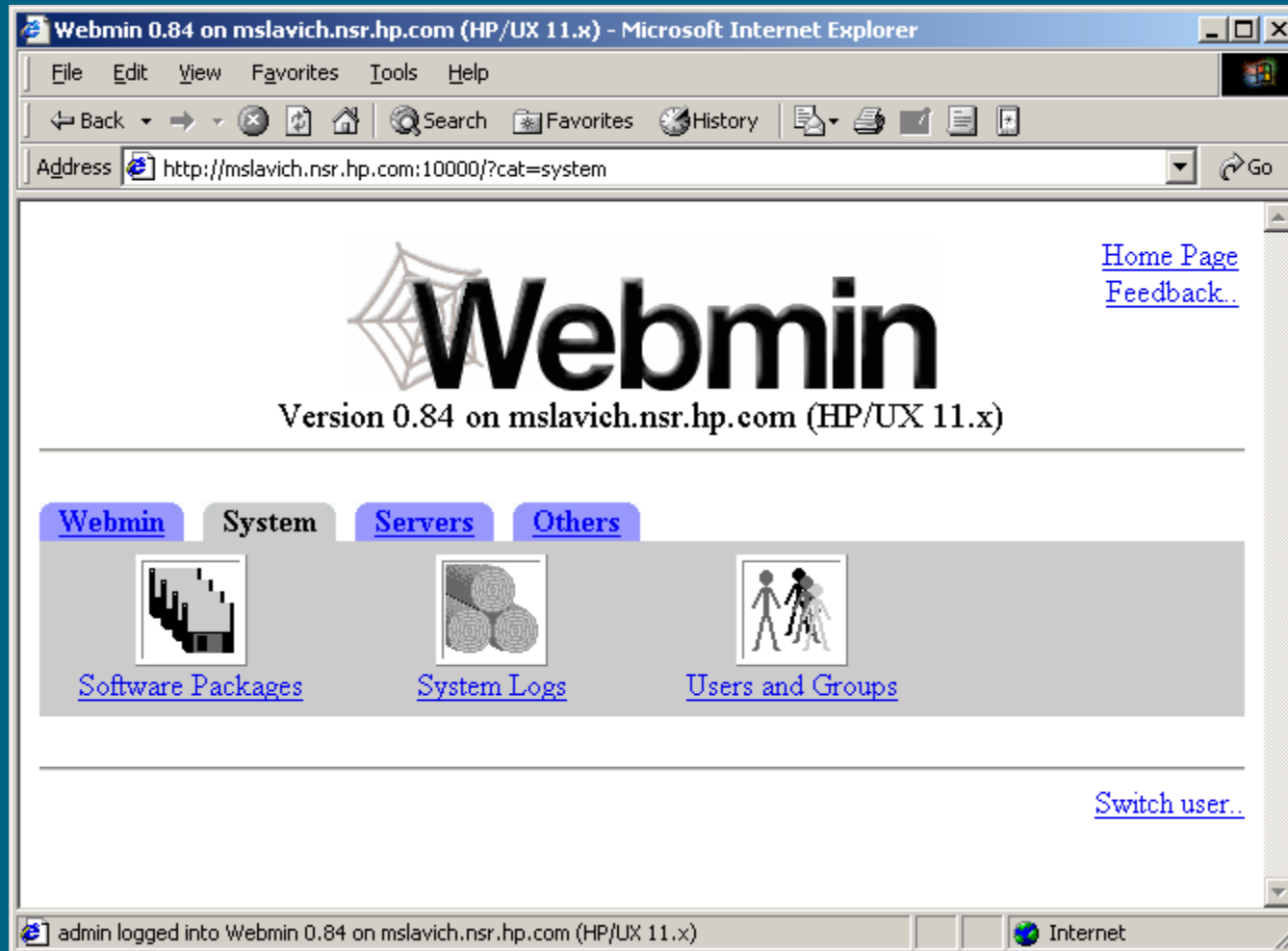
## Webmin Configuration

-  [IP Access Control](#)
-  [Port and Address](#)
-  [Logging](#)
-  [Proxy Servers](#)
-  [User Interface](#)
-  [Webmin Modules](#)
-  [Operating System](#)
-  [Language](#)
-  [Index Page Options](#)
-  [Upgrade Webmin](#)
-  [Authentication](#)
-  [Reassign Modules](#)
-  [Edit Categories](#)
-  [Webmin Themes](#)
-  [Trusted Referers](#)

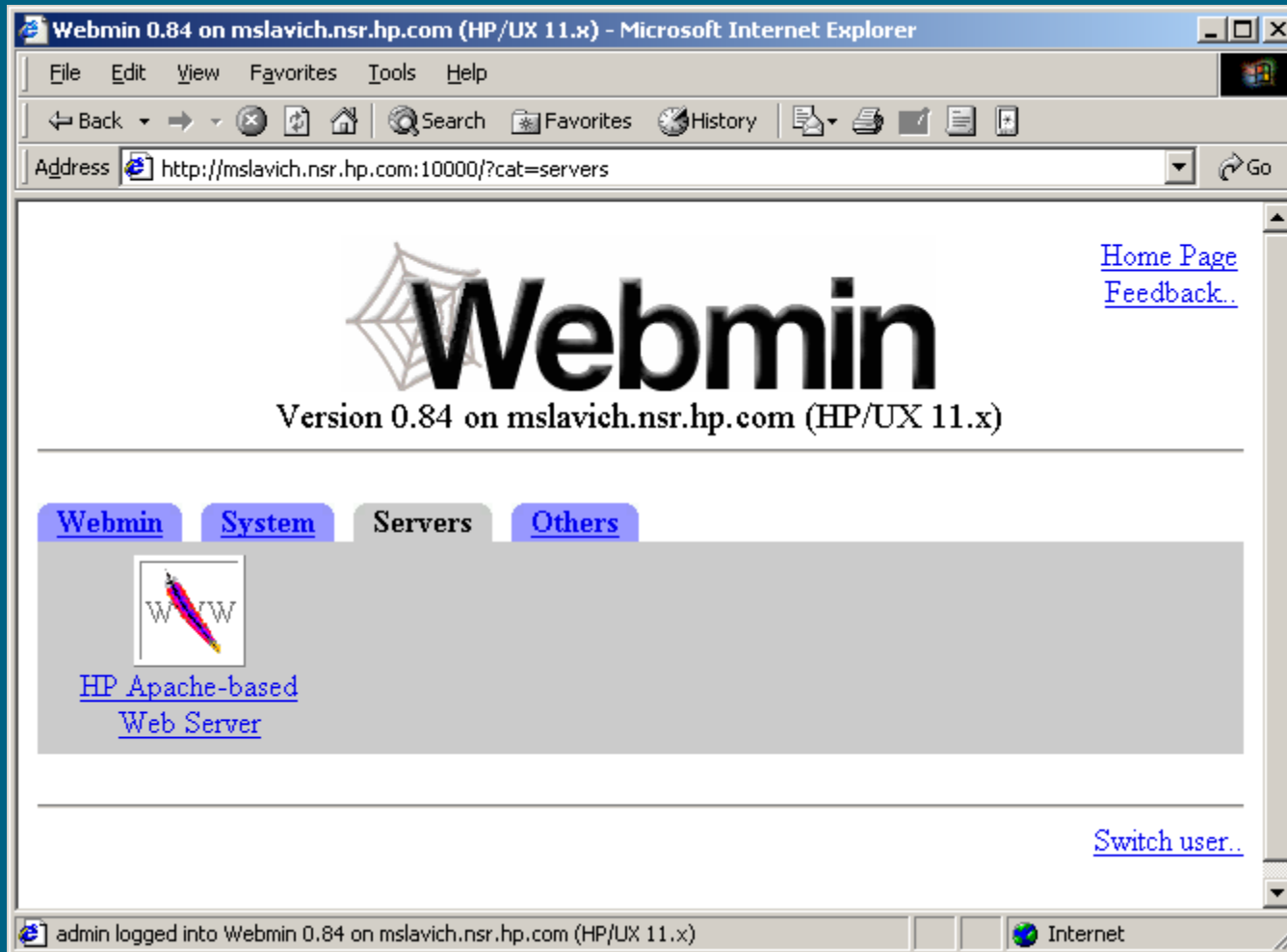
 [Return to index](#)

admin logged into Webmin 0.84 on mslavich.nsr.hp.com (HP/UX 11.x) Internet

# Webmin (System)



# Webmin (Servers)



# Webmin (Server Management)

HP Apache-based Web Server - Microsoft Internet Explorer

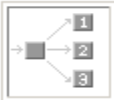




File Edit View Favorites Tools Help



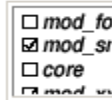

Back Forward Stop Home Search Favorites History Print View Source

Address <http://msslavich.nsr.hp.com:10000/apache/> Go


[Webmin Index](#) **HP Apache-based Web Server** [Apply Changes](#)  
[Module Config](#) [Stop Apache](#)

### Global Configuration

 [Processes and Limits](#)  [Networking and Addresses](#)  [Apache Modules](#)  [MIME Types](#)  [Miscellaneous](#)

 [CGI Programs](#)  [Per-Directory Options Files](#)  [Re-Configure Known Modules](#)  [Edit Defined Parameters](#)

### Virtual Servers

 Defines the default settings for all other virtual servers, and processes any unhandled requests.  
**Address** Any **Server Name** msslavich.nsr.hp.com

admin logged into Webmin 0.84 on msslavich.nsr.hp.com (HP/UX 11.x) Internet



# Webmin (Directory Control)

Per-Directory Options Files - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites History

Address <http://mslavich.nsr.hp.com:10000/apache/htaccess.cgi> Go

[Webmin Index](#)  
[Module Index](#)

## Per-Directory Options Files

Additional per-directory options can be specified in a file (usually called `.htaccess`) in each directory. The options apply to all files in that directory and any sub-directories, unless overridden by another options file.

**Per-Directory Options Files**

[/opt/apache/htdocs/foo/.htaccess](#)

Create Options File  ...

Find Options Files  Automatically  From directory  ...

← [Return to server list](#)

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# Webmin (Directory Options)

Per-Directory Options File - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites History Print Copy Paste

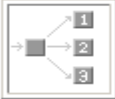










Address [http://mslavich.nsr.hp.com:10000/apache/htaccess\\_index.cgi?file=%2Fopt%2Fapache%2Fhtdocs%2F%2Ehtaccess](http://mslavich.nsr.hp.com:10000/apache/htaccess_index.cgi?file=%2Fopt%2Fapache%2Fhtdocs%2F%2Ehtaccess) Go

[Webmin Index](#) [Module Index](#) **Per-Directory Options File** [Delete File](#)

/opt/apache/htdocs/.htaccess

---

### Per-Directory Options

 <a href="#">Processes and Limits</a>	 <a href="#">Networking and Addresses</a>	 <a href="#">Access Control</a>	 <a href="#">Document Options</a>	 <a href="#">MIME Types</a>
 <a href="#">Error Handling</a>	 <a href="#">Aliases and Redirects</a>	 <a href="#">CGI Programs</a>	 <a href="#">Directory Indexing</a>	 <a href="#">Show Directives</a>
 <a href="#">Edit Directives</a>				

**Create Per-File Options**

Regexp?  Exact match  Match regexp

admin logged into Webmin 0.84 on mslavich.nsr.hp.com (HP/UX 11.x) Internet

michael\_slavich@hp.com

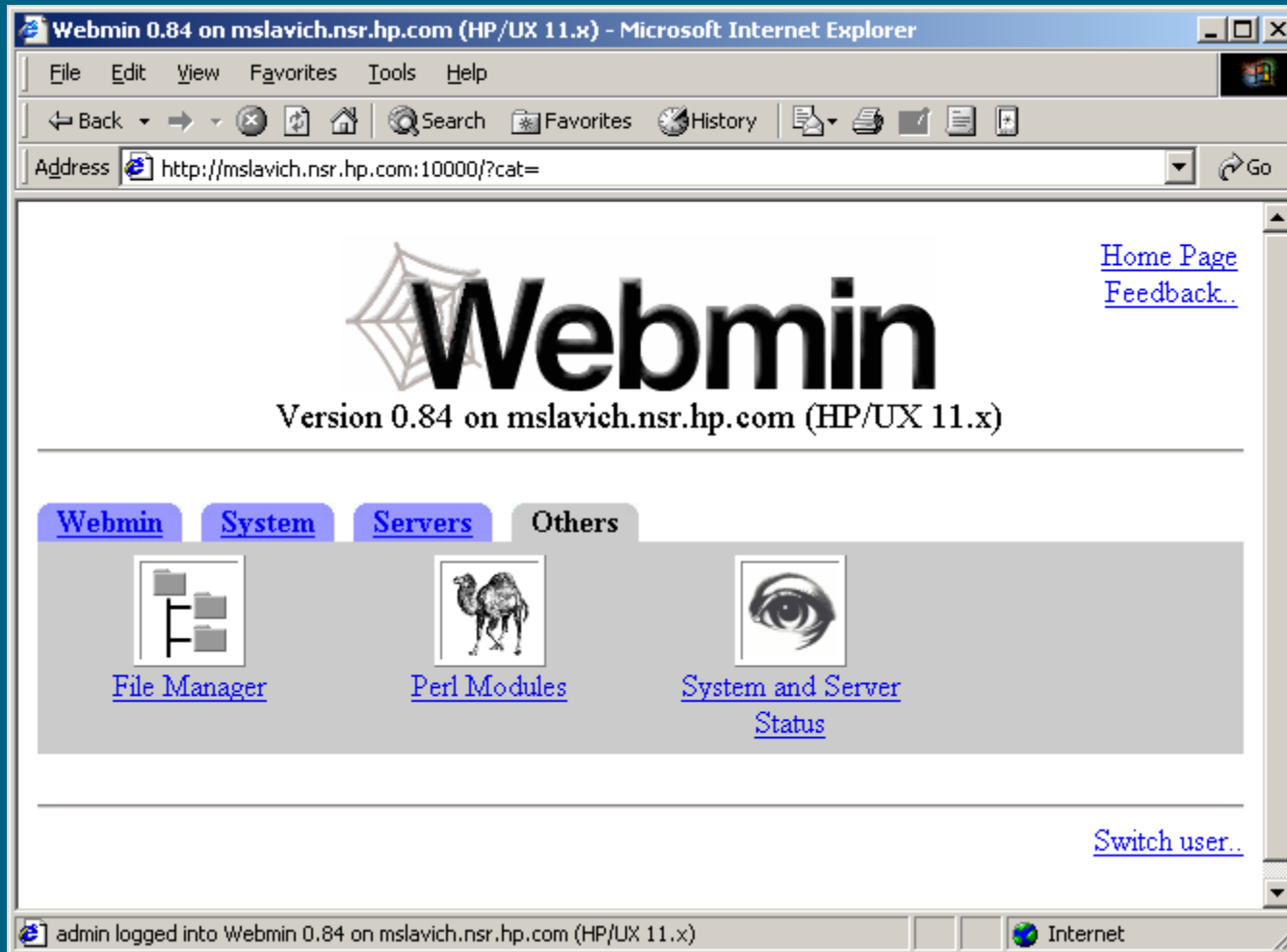
# Webmin (.htaccess file)

The screenshot shows the 'Access Control' interface in a Microsoft Internet Explorer browser window. The address bar shows the URL: `http://mslavich.nsr.hp.com:10000/apache/edit_htaccess.cgi?file=/opt/apache/htdocs/.htaccess&type=4`. The page title is 'Access Control' and the subtitle is 'For /opt/apache/htdocs/.htaccess'. The interface is divided into several sections:

- Authentication realm name:** Includes radio buttons for 'Default' and an empty text input field.
- Authentication type:** A dropdown menu.
- Restrict access by login:** Includes radio buttons for 'Default', 'Only these users:' (with an empty text input), 'Only these groups:' (with an empty text input), and 'All valid users:'.
- Clients must satisfy:** Includes radio buttons for 'Default', 'All access controls', and 'Any access control'.
- Restrict access (Default: Deny, Allow):** Includes radio buttons for 'Deny then allow', 'Allow then deny', 'Mutual failure', and 'Default'. Below this is a table with columns 'Action' and 'Condition'. The 'Action' dropdown is set to 'Deny' and the 'Condition' dropdown is set to 'All requests'.
- Text file authentication:** Includes 'User text file', 'Group text file', and 'Pass failures to next module? (Default: on)'. Each has radio buttons for 'Default', 'Yes', 'No', and 'Default'.
- DBM file authentication:** Includes 'User DBM file', 'Group DBM file', and 'Pass failures to next module? (Default: on)'. Each has radio buttons for 'Default', 'Yes', 'No', and 'Default'.

The status bar at the bottom indicates 'admin logged into Webmin 0.84 on mslavich.nsr.hp.com (HP/UX 11.x)' and 'Internet'.

# Webmin (Others)



# Miscellaneous Info

- Alternative source for perl and other hp-ux contrib software
  - <http://gatekeep.cs.utah.edu/ftp/hpux/Languages>
  - <http://gatekeep.cs.utah.edu/ftp/hpux/Languages/perl-5.6.1/>

# Review of Goals and Objectives

- Overview of the Apache Web Server on HP-UX
- An introduction into the positioning and architecture
- A comprehensive view of the features and functionality
- A walkthrough of the steps involved in installation and configuration
- A look at the webmin administration interface
- Where to go for more information