CenturyLink Service Guide

Web Application Software 1.0: Apache Httpd Server

This Service Guide ("SG") sets forth a description of the Web Application Software 1.0: Apache Httpd Server ("Service") offered by CenturyLink, including technical details and additional requirements or terms. This SG is subject to and incorporated into the Agreement and Hosting Service Schedule between the parties. The specific details of the Service ordered by Customer will be set forth on the relevant Service Order. For avoidance of doubt, any references in the Agreement, Schedule, or Service Orders to SSG, shall mean SG.

Version	Previous	Section Modified	Date
HOS-SG-Managed-Apache-Httpd-20180816.pdf	HOS-20140730-SG-ApacheWebServer.pdf	All	August 16, 2018

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Overview

Web Application Software 1.0: Apache Httpd Server is a Managed Hosting product. The standard Service consists of the licensing, installation, configuration, administration, monitoring, maintenance and support for software components.

The Managed Hosting SLA applies to this Service.

Customer chooses the supported version at the time of purchase.

Supported Versions, Platforms and Operating Systems

See Managed Application Services Compatibility Matrix or navigate to https://www.ctl.io/legal/managed-hosting/web-apps-compatibility-matrix/ from any Internet browser.

Supported Modules

- Apache Httpd Modules (detailed list below)
- PHP Modules (detailed list below)
- Apache Httpd mpm_worker (threaded) as the default Apache Httpd worker module
- Apache Httpd mpm_pre_fork (non-threaded) as an optional Apache Httpd worker module

Access

Customer is provided login access and access to Httpd directories but not root or sudo access.

Monitoring

CenturyLink will enable application level monitoring for each environment as they are created within the product configuration. CenturyLink will retain primary notification and resolution responsibilities for all automated environment alerts. A Customer technical contact will be engaged to perform primary resolution of incidents associated with a non-production level environment.

Maintenance and Support

- **Change Management:**
  All changes to the CenturyLink managed applications, systems, network and facilities are subject to CenturyLink's change management process. This process is intended to confirm that work is reviewed for completeness (risk assessment, completed test procedure, metrics for measuring progress, back out procedure, etc.) and accuracy prior to scheduling and implementation.

- **Major and Minor Releases:**
  Major and Minor Releases are upgrades and require a new installation of the Software binaries, which is not included in this Service. As a commercially reasonable practice, it is suggested that Customer purchase a new managed server (via a Service Order) and purchase migration services (via a Statement of Work). Customer should contact their sales representative to determine their upgrade options.

- **Patch Releases**:
  CenturyLink compiles, packages, certifies, approves and delivers Software patch branch versions for installation in a Customer environment. Customer must approve the installation by contacting CenturyLink support. Any outages directly caused by Customer's failure to accept the implementation of a patch will not be subject to SLA Service Credits.

- **Maintenance Windows:** CenturyLink will use commercially reasonable efforts to perform routine maintenance only during defined maintenance windows. See our published [Maintenance Window schedule](https://www.ctl.io/legal/managed-hosting/maintenance-windows/), or navigate to https://www.ctl.io/legal/managed-hosting/maintenance-windows/ from any Internet browser. CenturyLink has the right to perform scheduled maintenance (during the windows specified), which may limit or suspend the availability of the Services. CenturyLink shall provide Customer with at least ten (10) days prior notice of any scheduled maintenance activities. In addition to providing written notice, CenturyLink maintenance notifications are available on the SavvisStation customer portal.

- **Support:**
  CenturyLink will provide support for the Service during installation, content migration, Customer validation, and 24x7 monitoring and management by the CenturyLink Service Center after installation.

Optional Services

At Customer's option and expense, Customer can purchase the following service for an additional fee and additional terms and conditions apply.

SSL Certificates

SSL Certificates are small data files that digitally bind a cryptographic key to an organization's details. When installed on a web/application server, it allows secure connections from a web/application server to a browser. An SSL Certificate can be purchased via a Service Order.

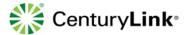# CenturyLink Responsibilities

Licensing

- Maintain licensing in accordance with the Apache Open Source Software Foundation (ASF) and PHP Free Software Foundation (FSF)
- Procure SSL Certificate, if purchased

Installation

- Prepare server for application service (OS specific parameters)
- Install Apache Httpd
- Install PHP
- Install OpenSSL
- Harden Apache Httpd to CIS Level 1 and CenturyLink standards
- Install SSL Certificate, if purchased
- Install CenturyLink Monitoring
- Perform quality assurance against Apache Httpd installation/hardening

Configuration

- Configure site connectivity (Virtual Hosts, TCP Port, IP Address and SSL Certificate allocation)
- Implementation of Customer specified Apache configuration
- Implementation of Customer specified PHP configuration
- Configure CenturyLink Monitoring

Administration

- Application log monitoring
- Restart/Stop/Start Services
- Install patched Apache, PHP and OpenSSL packages
- Log management (rotation & removal)

Maintenance and Support

- Coordinate patching with Customer during maintenance hours
- Customer initiated redundancy & high availability test/audit (excludes Disaster Recovery testing)

If a customer requires any additional services which are not explicitly included as either the standard Service or optional services in this SG, they should contact their sales representative for assistance and information.
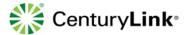
Customer Responsibilities

Customer acknowledges and agrees that its failure to perform its obligations herein may result in CenturyLink's inability to perform the Services and CenturyLink shall not be liable for any failure to perform, including any SLAs in the event of Customer's failure. CenturyLink shall not be liable for any failure to perform in the event Customer does not fulfill Customer's responsibilities and requirements as detailed herein and in the event of Customer's errors or omissions in setting up the environment. In addition, CenturyLink is not responsible for any loss or corruption of data or information. CenturyLink's obligations related to data are exclusively governed by the Security and Compliance section of the applicable Agreement.

Licensing

- Licensing of the Software is provided by CenturyLink. CenturyLink maintains the licenses in compliance with the Apache Open Source Software Foundation (ASF) terms and the PHP Free Software Foundation (FSF). License agreements can be found at: Apache and PHP. All users of the Service are subject to the terms and conditions of the referenced license agreements.

Configuration

- Create/Configure sites
- Deploy Customer code and content

- Create/Configure JDBC/ODBC resources
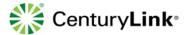- Data validation, User Acceptance Testing (UAT), Site Acceptance Testing (SAT)

Administration

- Maintain Customer code and content
- Customer code and content packaging
- Request/Initiate DNS zone changes when using CenturyLink managed DNS Services
- End user identity and access management

Acknowledgements and Consent

- **Third-Party Components:** Customer acknowledges that all third-party components of the Service are subject to the applicable vendor's decision to (i) not continue to provide or renew the Service with CenturyLink and/or (ii) modify or end of life a component(s). If any of the foregoing occurs, CenturyLink will use commercially reasonable efforts to migrate Customer to another comparable CenturyLink service at any time. Such migration will occur without regard to Customer's current term.
- **Provide Contact:** Designate and maintain a Customer Contact during the service term and any applicable renewal term (including current contact information). "Customer Contact" means a technical point of contact with sufficient knowledge, authority and access to address configuration issues, event notifications, system or infrastructure modifications and authentication of applicable systems.
- **Security Precautions:** Neither Customer nor its representatives shall attempt in any way to circumvent or otherwise interfere with any security precautions or measures of CenturyLink relating to the Service or any other CenturyLink equipment.
- **Supportability:**
  a. Customer acknowledges and agrees that it is solely responsible for selecting and ensuring its software and systems are up to date and supportable.
  b. Customer further acknowledges it is solely responsible for ensuring all devices and hardware are upgraded to meet vendor configurations and agrees that CenturyLink's SLA only applies to currently supported configurations (including but not limited to related devices, software, and operating systems) at the time SLA support requests are triggered. If any configuration or version is identified as "unsupported" by a vendor, the Services are subject to all of the following conditions and/or requirements: (i) a service level objective ("SLO") referring to CenturyLink's reasonable effort to provide support will apply in lieu of any other applicable SLA and will automatically apply from the time

CenturyLink receives notice from the vendor of such unsupported service; (ii) CenturyLink, in its reasonable discretion may elect to charge the Customer for any support or additional tasks/work incurred by CenturyLink resulting from Customer's continued use of unsupported configuration until Customer purchases the required and supported upgrades or extended support at an additional cost from the vendor. The requirement to purchase upgrades or extended support from vendor shall apply at any time, regardless of any contract term, term commitments, or renewal periods. Customer's failure to do so may result in CenturyLink's inability to provide the Services and CenturyLink shall have no liability therefrom.

c. CenturyLink is not responsible for the service or the SLA if any changes by Customer affect the infrastructure or monitoring capability of CenturyLink.

- **Data Transfer:**
  a. Customer consents to CenturyLink's and its affiliates or subcontractors' use and transfer to the United States, or other countries, data or information (including Customer Contact information such as names, phone numbers, addresses and/or email addresses) of the Customer for the sole purpose of: (i) fulfilling its obligations under the Agreement; and (ii) providing information to Customer about CenturyLink's products and services. Customer represents that it will ensure that all information provided to CenturyLink is accurate at all times and that any business contact has consented to CenturyLink's processing of such information for the purposes identified herein.

  b. Customer consents to CenturyLink collecting and compiling system and operational metrics data to determine trends and improve service capabilities. CenturyLink may associate this data with similar data of other Customers so long as such data is merged in a manner that will not in any way reveal the data as being attributable to any specific Customer. Customer acknowledges CenturyLink's access to Customer data is generally limited to machine/system generated information and/or metrics, however if required as part of CenturyLink's obligation to provide the Service, or requests by Customer, CenturyLink may have access to Customer data, including personal information.

Modules

Apache Modules

Apache Modules	Apache 2.4.x
core	X
mpm_event	X
mpm_prefork	X
mpm_worker	X
mod_access_compat	X
mod_actions	X
mod_alias	X
mod_asis	X
mod_allowmethods	X
mod_auth_basic	X
mod_auth_digest	X
mod_auth_form	X
mod_authn_anon	X
mod_authn_dbd	X
mod_authn_dbm	X
mod_authn_file	X
mod_authn_socache	X
mod_authnz_ldap	X
mod_authz_dbd	X
mod_authz_dbm	X
mod_authz_default	X
mod_authz_groupfile	X
mod_authz_host	X
mod_authz_owner	X
mod_authz_user	X
mod_autoindex	X
mod_buffer	X
mod_bucketeer	X
mod_cache	X
mod_cache_disk	X
mod_case_filter	X
mod_case_filter_in	X
mod_cern_meta	X
mod_cgi (Prefork MPM)	X
mod_cgid (Worker MPM)	X
mod_charset_lite	X
mod_data	X
mod_dav	X
mod_dav_fs	X
od_dav_lock	X
mod_dbd	X
mod_deflate	X
mod_dialup	X
mod_dir	X
mod_dumpio	X

Apache Modules	Apache 2.4.x
mod_echo	X
mod_env	X
mod_example_looks	X
mod_example_ipc	X
mod_expires	X
mod_ext_filter	X
mod_file_cache	X
mod_filter	X
mod_headers	X
mod_heartbeat	X
mod_heartmonitor	X
mod_lbmethod_bybusyness	X
mod_lbmethod_byrequests	X
mod_lbmethod_bytraffic	X
mod_lbmethod_heartbeat	X
mod_ldap	X
mod_log_config	X
mod_log_debug	X
mod_log_forensic	X
mod_logio	X
mod_lua	X
mod_macro	X
mod_mime	X
mod_mime_magic	X
mod_negotiation	X
mod_optional_fn_export	X
mod_optional_fn_import	X
mod_optional_hook_export	X
mod_optional_hook_import	X
mod_proxy	X
mod_proxy_ajp	X
mod_proxy_balancer	X
mod_proxy_connect	X
mod_proxy_express	X
mod_proxy_fcgi	X
mod_proxy_fdpass	X
mod_proxy_ftp	X
mod_proxy_html	X
mod_proxy_http	X
mod_proxy_scgi	X
mod_proxy_wstunnel	X
mod_ratelimit	X
mod_reflector	X
mod_remoteip	X
mod_reqtimeout	X
mod_request	X
mod_rewrite	X
mod_sed	X
mod_session	X

Apache Modules	Apache 2.4.x
mod_session_cookie	X
mod_session_dbd	X
mod_setenvif	X
mod_slotmem_plain	X
mod_slotmem_shm	X
mod_so	X
mod_socache_dbm	X
mod_socache_memcache	X
mod_socache_shmcb	X
mod_speling	X
mod_ssl	X
mod_status	X
mod_substitute	X
mod_suexec	X
mod_unique_id	X
od_unixd	X
mod_userdir	X
mod_usertrack	X
mod_version	X
mod_vhost_alias	X
mod_watchdog	X
mod_xml2enc	X

PHP Modules

PHP Modules	PHP 7.0	PHP 7.1
Ctype	X	X
Ctype	X	X
cURL	X	X
Date/Time	X	X
DOM	X	X
Ereg	X	X
Exif	X	X
Fileinfo	X	X
Filter	X	X
FTP	X	X
GD	X	X
Gettext	X	X
GMP	X	X
Hash	X	X
Iconv	X	X
Imap	X	X
JSON	X	X
libxml	X	X
Mcrypt	X	X
Multibyte String	X	X
mysqlnd	X	X
MySQL (PDO)	X	X
Oci8	X	X

PHP Modules	PHP 7.0	PHP 7.1
ODBC	X	X
OpenSSL	X	X
PDFLib	X	X
PCRE	X	X
PDO	X	X
pdo_mysql	X	X
Phar	X	X
POSIX	X	X
PS	X	X
Reflection	X	X
Sessions	X	X
Shmop	X	X
SimpleXML	X	X
SOAP	X	X
Sockets	X	X
SPL	X	X
SQLite3	X	X
Standard	X	X
Sysvmsg	X	X
Sysvsem	X	X
Sysvshm	X	X
Tidy	X	X
Tokenizer	X	X
WDDX	X	X
XML	X	X
XML-RPC	X	X
XMLWriter	X	X
XSL	X	X
Zip	X	X
Zlib	X	X

Monitors

Monitor	Description	Frequency
Process Monitor	Verifies that Apache is running; if process is not running will automatically restart service. If this fails an alarm will be generated to Operations for resolution.	1 Minute
Response Time	The amount of time it takes the Apache HTTPd server to respond to a simple request. The threshold is configurable. The default is greater than 2.00 seconds.	5 Minutes
Requests Per Second	Monitors the number of requests per second, if past a default value (75) this will throw an alert to Operations.	5 Minutes
Total Accesses	Watches total number of pages accessed, if greater than 100,000 in a 5-minute window will throw an alert to Operations.	5 Minutes
Authentication Failures	Alerts Operations in the event an authentication fails.	5 Minutes

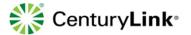| Monitor	Description	Frequency
Log "error"	Monitors web server log for all errors.	Instant
Log "fail"	Monitors web server log for all failures.	Instant
Log "warn"	Monitors web server log for all warnings.	Instant
Log custom check	Customer is able to define custom defined log keyword checks in log entries.	Instant
Busy Workers %	Monitors the percentage of busy works versus max clients. The threshold is configurable. The default threshold is >99%	5 Minutes
Clients in Keep Alive %	Monitors the percentage of clients in keep alive state versus max clients. The threshold is configurable. The default threshold is >25%.	5 Minutes
Clients in DNS Lookup %	Monitors the percentage of clients in the DNS lookup state versus max clients. The threshold is configurable. The default threshold is >25%.	5 Minutes
Clients in Logging %	Monitors the percentage of clients in the logging state versus max clients. The threshold is configurable. The default threshold is >80%.	5 Minutes
Total Mem Usage %	Monitors the total memory usage of all httpd processes versus total physical memory of the system. The threshold is configurable. The default threshold is >50%.	5 Minutes
URL Monitor	Remote monitor, which traverses the Internet and performs a simple http request and alerts when the specified timeout is exceeded. The default timeout is 120 seconds. The threshold is configurable and can be managed through the Customer Portal.	5 Minutes

Definitions

Apache Open Source Software Foundation (ASF): Provides support for the Apache community of open-source software projects, which provide software products for the public good.

Major Release: Major Releases (X.y.z) are vehicles for delivering major and minor feature development and enhancements to existing features. They incorporate all applicable error corrections made in prior Major Releases, Minor Releases, and Patch Releases. Software Provider typically has one Major Release per year.

Minor Release: Minor Releases (x.Y.z) are vehicles for delivering minor feature developments, enhancements to existing features, and defect corrections. They incorporate all applicable error corrections made in prior Minor Releases, and Patch Releases.

Patch Release: Patch Releases (x.y.Z) are vehicles for delivering security fixes, feature developments, enhancements to existing features, and defect corrections. They incorporate all applicable error corrections made in prior Patch Releases. Patches are often called "Patch Updates" and are critical or security related.

PHP: PHP is a powerful language and the interpreter, whether included in a web server as a module or executed as a separate CGI binary, is able to access files, execute commands and open network connections on the server.

Software: Software in binary form, any other machine-readable materials (including, but not limited to, libraries, source files, header files, and data files).

Software Provider: A third party that makes and sells software products CenturyLink uses in the services we deliver.