

Android Smartphone as a Portable Web Server

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Abstract

A cloud Webserver which is capable of running on the android platform is known as Android Smartphone Cloud Webserver. It is a lightweight and the fastest cloud Web Server specially designed for the android mobile devices, android cloud webserver can be used to host the websites and to serve the files over the Hypertext Transfer Protocol (HTTP). Webserver implements the HTTP-1.0 and HTTP-2.0. Cloud Webserver is having compatible with all the android devices supports all the android OS. It is the ultimate webserver for the android device to set all the logins for the certain directories in the root and secure your cloud webserver http connection with the help of secure socket layer (HTTPS-SSL) and you can also secure files & also encrypt all the various files and the users or developers can also set the specific settings for the specific folders with the simple htaccess files (.htaccess). You can edit or create them with the help of built in with the .shtaccess manager. It is fully listed with the various features that you can scroll down them to the features list in the multiple-sections. In the current version that developers can add the two servers that is cloud Web Servers and the Dynamic DNS Updaters in the networking.

1. Introduction

Cloud Webserver package which is capable of running on android platform is a website of the web developer for any Android platform. It also consists of a standalone web server, the PHP programming language support is enabled, a database with MySQL which runs on the android platform and the mobile msmt is enabled in

package for sendmail webserver support. This cloud webserver suite allows users and developers to organize the platform for running the webserver on android device and debugging mode for debugging the complied web applications or sites in any Android pre-installed device and Users do not need the root access or rooted device to run the cloud webserver. Otherwise, the users and developers can start the standalone web server on the default port 80. It is a user friendly graphical interface of the webserver and the online support leads developers and users to the realization of all the cloud web projects of the developers.

This software is the open source and is easy to install, configure and run.

The three users with the root passwords and the per simple htaccess that developers and users can add the maximum number of three which is allowed by default in the server and the blocked IP's with the three default indexes placed in the root folder of the webserver. If user want to add the unlimited items then users can enable it on the webserver according to the needs and requirements.

It will have a support development that developers will be able to add the unlimited items on the Cloud webserver.

2. System Requirements

- A Standalone Android Cloud Webserver
- Cloud Root Access Enabled Device
- PHP Support in Cloud
- Apache Pre-requisites

- A Standalone Cloud Database Server

Table: 1 Requirements

Mobile OS:	Android OS 2+
Webserver:	Android Compatible Cloud Webserver
Extensions:	PHP Extensions
Language Support:	PHP & HTML Support
Device root Access:	Must be enabled
Cloud Database:	MySQL along with Webserver
Upload Speed:	Minimum 512Kbps
RAM:	4GB RAM
ROM:	4GB RAM
Processor:	1GHZ Dual as an Entry Level processor or 1.2GHZ Quad Core
GPU:	ARM MALI or NVIDIA GPU
Connectivity:	3G or 4G LTE or WLAN
Browser Support:	All the Android Web Browsers
Other Extensions:	fast CGI
Ports to be enabled:	80 or 8080
Database Server Port:	3128

- The Android cloud webserver compatible with the HTTP Server Project which is a critical effort to develop and maintain the open source mobile HTTP server for the modern mobile operating systems which is including the Unix UI interface.
- The main goal of the project is to provide the secure, the highly efficient and the extensible webserver that also provides the HTTP services in the sync with all the current HTTP standards of the cloud webserver.
- Runs with any Linux kernel and can also be integrated with the Linux environment by adding the multiple ports in the android system.
- Supports server side scripting.

3. Android Webserver Architecture

Web Server Architecture

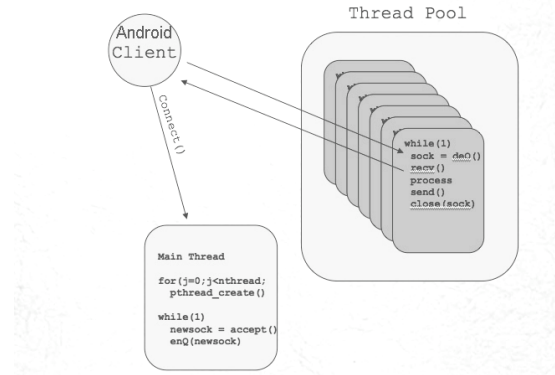


Figure: 1 Basic Architecture of the Android Cloud Webserver

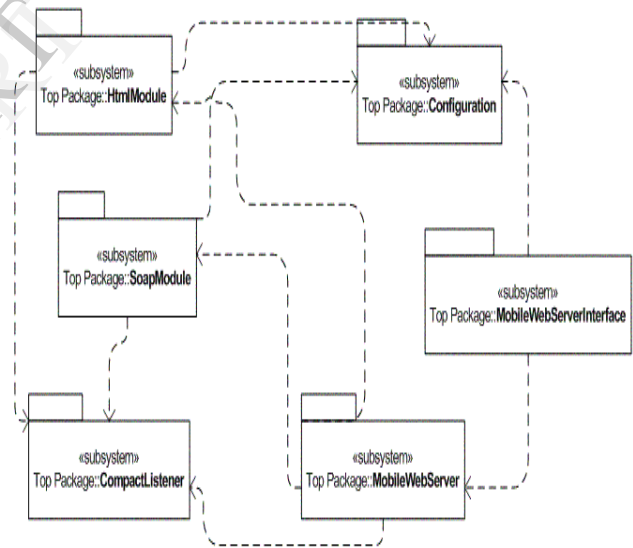


Figure: 2 Operations and function involved in Android Cloud Webserver

The android webserver can run a lots of variety of content management system such as like WordPress web application, Joomla Web application, Drupal Web Application, Prestashop Web application, etc. and beside Content management system it can also run the PHP frameworks such as like the Code Igniter

application, YII developer application, CakePHP application, etc. It is same as the IIS-Internet Information Services, APACHE for Linux or such as like WAMP Server or the LAMP Server or the XAMPP Server running on the personal computer or personal laptops or netbooks, Standalone Servers etc. But this package is only built for the smartphone or android devices enabled with the lighttpd extensions like other Cloud Webservers.

4. Functionalities & Features

- **Features Server Side Includes (SSI):**

When you fill the variables, the text file it will also be replaced with corresponding to the content when someone or the other requests in the file is made. This works for the text files as mentioned below.

```
{{include=(URL/Absolute mpath/Relative mpath)}}
{{filemodified=(Absolute mpath/Relative mpath)}}
{{filemodifiedstring=(Absolute mpath/Relative mpath)}}
{{filesize=(Absolute mpath/Relative mpath)}}
{{filesizestring=(Absolute mpath/Relative mpath)}}
{{var=()}}
```

- **Root privileges is not needed:**

The application is a web application which runs on the web server without root privileges for the android includes:

- LIGHTTPD as a cloud webserver,
- PHP as the php cloud webserver,
- MYSQL as the MySQL Cloud database Server,
- PHPMYAdmin as the MySQL Client &
- MSMTMP as the SMTP Client

It is wrapped into the one standalone application is the Android Webserver. So it is easy to run the android device, just the single click then developers or users can run the web dynamic scripts. The web application is specially designed for mobile and the tablet which is enabled and the application requires the very small memory. For

running the various web application for the first time and the internal memory in the android device requirements that should not be less which is less than 50MB. Because of the webserver applications all the data which is wrapped into the apk file. And the web applications can also be accessed from the computer networks over the wifi tethering.

- **Basic Android Cloud Webserver Features**

- The Basic & digest type of authentication for the highly secure access.
- (SSI) Server side includes for cloud webserver.
- Directory indexes for the cloud webserver.
- The Directory downloads in various format such as .tar, .tgz and .zip formats.
- It is resumable for the heavy file downloads.
- It is Built-in with the Dynamic DNS updating
- Supports Up to the 20 parallel connections in the same period of time.
- It is Comprehensive with the HTTP logs for recording the information on the log files.

- **Additional features of Cloud Webserver:**

- The HTTPS and TLS support the BKS PKCS12 key stores in the webserver
- The password is also based on the file encryption such as 256 bit AES & the Triple DES.
- The GZip file compression for the webserver
- The Directory indexes in the formats such as JSON format and XML format for index the sorting in order.
- It is highly configurable in the webserver with the supports of 999 per port parallel connections in the system.
- The Directory server level configuration is easily configurable
- With the support of more Dynamic DNS providers such as DynDNS, ZoneEdit etc.
- Supports the different programming languages such as php, html, shtml, etc. Also supports the various webpage extensions.

- **Modules/extensions of Cloud Webserver with PHP Extensions support:**

- apc - bcmath - bz2 - cgi-fcgi - Core - ctype - curl - date - dom - ereg - exif - fileinfo - filter - ftp - gd - gmp - hash - iconv - json - libxml - magickwand - mbstring - mcrypt - mhash - mongo - mysql - mysqli- pcre - PDO - pdo_mysql - pdo_sqlite - Phar - posix - Reflection - session - shmop - SimpleXML - soap - sockets - SPL - sqlite3 - standard - sysvmsg - sysvsem - tokenizer - xdebug - xml - xmlreader - xmlwriter- xsl - zip - zlib and many more other libraries such as the freetype, the jpeg picture file formats, the png picture file formats, the openssl file formats etc.

- **Storage Engine supports Android Cloud Webserver with MySQL is as follows:**

- MyISAM
- MRG_MYISAM
- BLACKHOLE
- CSV
- MEMORY
- INNODB
- ARCHIVE

- **Syntax for the Configuration files**

The httpd configuration files contain the one directives per single line and the backslash "\" may also be used as one of the last character on the same line in order to indicate the directives which continues on the next line of the code statement. There must not be any other characters with the white space between backslash and at the end of the statement code line. The arguments of the directives are differently separated by the more number of whitespaces. If the argument contains the white spaces, we must enclose the argument in the double quotes of the code lines of the statement.

Directives in httpd configuration files is case insensitive, but the arguments of the directives are most often used as case sensitive lines. The lines which begins with the hash character # is considered as the comments and they are automatically ignored. The comments may include the one line after the other with a configuration directives in the httpd file. The blank line and the white spaces is occurring

before the directive which are ignored earlier, so that indent of the directives may go for the clarity.

The different values of the multiple variables is also defined as the keyword define in the shell environment variables which can also be used in the various configuration file code statement lines using syntax `${VAR}` and the "VAR" file is the archived and name of the valid variable in the value of that variable which is substituted into the spot of the configuration file in a command code line and the processing that continues as that, the text is found directly in the current httpd configuration file.

The variables is defined as to take precedence in all over the shell environment with the multiple variables.

5. Conclusion

Android smartphone as a Cloud Webserver is a HTTP server written in the PHP language based webserver and its open source package supports android smartphone devices with any android OS which can be installed into a smartphone with the help of .apk file. It is designed to be more secure, reliable and the extensible. It is being written in the PHP which it makes more easily extensible with the customized modules, more secure because the running inside off the Zend API scripting engine in order to immune the total number of the various common security threats such as the format strings and the buffer overflows etc. It can be used as the framework to develop and customize the standalone web based applications or frameworks. The Webserver with LiteHTTP Server that provides a wide variety of the different mechanisms in logging into the webserver from the initial requests through URL mapping process for the final resolution of the connection that also including any errors that it may have occurred in the current process. In addition to it the third party modules provides the logging capabilities in order to inject the entries into the current existing log file and the web applications like CGI programs or or PHP scripts and the other handlers may also send the messages to the server error logs in the cloud webserver.

We hereby conclude that the Android compatible cloud webserver application is designed and developed for android handheld devices or

smartphones. Cloud Webserver can be installed on any Android Device which is capable of running the standalone webserver in the device. It supports with the 3G Connectivity as a minimum requirement and it can also be used with the connectivity such as 4G LTE, LAN, etc. Finally, we conclude that a powerful compatible webserver can be installed and run on the Android Smartphone Device, So, Android Smartphone now turns into a standalone Cloud Webserver.

6. References

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