

Eduss School Server specifications

The Eduss School Server (ESS) consists of many well know applications put into a package to offer high reliability and zero user maintenance. All support applications on the ESS are well known open source software and are thoroughly tested in organizations all over the world. This document is intended to be a technical reference for the Eduss School Server, and an introduction to the core components of the ESS.

Hardware

Dell PowerEdge SC430 Server
Intel P4 3.0GHz/2MB,800MHz FSB
Integrated Broadcom Gigabit Ethernet Controller
1024 MB Ram, 80 GB SATA Hard Disc Drive

Operating System

Debian Linux “Etch” - Kernel 2.6.18-4-686

Software

These are the main software components of the ESS:

MySQL

MySQL is a very common open source database that is capable of handling very large amounts of data very efficiently. Almost all of the data that is stored on the server is stored in MySQL databases.

While MySQL is capable of operating as a SQL server we currently have the server port closed. All access to the MySQL service is done through other software on the local machine (Apache, PHP)

Version: 5.0.32 Debian

Apache

Apache is a very common HTTP server software package that is extremely versatile and secure.

Apache operates on port 80 and is configured to allow connections from all users.

This is from accessible from a web browser at <http://<ESS IP ADDRESS>/admin/> for user administration purposes. Apache is also used

as a gateway to the MySQL service using PHP scripts and is the general channel of communication for most data transactions between the Eduss workstation software and the Eduss School Server.

Ports:
80/tcp http Apache2 Server
Version: 2.2.3

Samba

Samba is an open source alternative to Window's network file sharing, allowing operating systems other than windows to connect to windows networks.

Samba uses the standard Windows file and print services ports to communicate with other Windows machines on the network. Samba is used to provide simple access to program files and media contained on the server.

Ports:
137/udp netbios-ns NetBIOS name service
138/udp netbios-dgm
139/tcp netbios-ssn NetBIOS session service
445/tcp Microsoft-ds

Version - 3.0.24

This is accessible via "[\\edusserver](#)" or "\\<ESS IP ADDRESS>" from a Windows computer.

PHP

PHP is a common and powerful scripting language and interpreter. Much of the administration of the server is done via PHP scripts. Some of the scripts are run interactively using the http administration panel, and some are run at fixed times throughout the day.

SSH

SSH is remote shell that uses encryption to secure the contents of the communication, it is similar to telnet but much more secure.

SSH uses one port and requires a username and password to connect, this is to be used by Eduss Personnel only for remote administration.

Ports:
22/tcp SSH
OpenSSH_4.3p2 Debian-8.sarge

Wget

Simple http file downloader program used to download backups off of the Master Eduss Server.

GNU Wget 1.10.2

Ncftpput

Simple ftp utility to upload daily backups to the Eduss Backup Server.

NcFTPPut 3.1.9

Network communication:

Details on all communication that is necessary for normal operation of the server

A note on firewalls:

The ESS is intended to work on a network with a firewall in place between the server and the Internet. No inbound routing or forwarding is required but can often be helpful when diagnosing and correcting issues. Access to the internet is expected, through a proxy or through a gateway, to allow unfiltered communication over ports 80 and 21 (http and ftp).

Protocols:

Inbound (LAN):

HTTP 80/TCP Apache2 Server

NETBIOS 137/138/139/TCP/UDP Samba printer and file sharing

Inbound (WAN):

SSH 22 ssh server

Outbound (WAN):

HTTP 80/TCP schoolserver.edussmedia.com

FTP 21: backups.edussmedia.com

Outbound (LAN):

NETBIOS 137/138/139/TCP/UDP (LAN only) Workstations

Bandwidth –

The most bandwidth that is used by the server will be via the Samba protocol when transferring files. This should only be local traffic and will only be at the demand of the users.

All bandwidth requirements are from SAMBA access only; this is transfer of actual media over the network. All other data is negligible, it is done is small text queries (<1KB each) every time a set of exercises is finished.

LAN Bandwidth:

Math:

Initial load* : 9.38 MB

Per Exercise : 1 MB

The actually bandwidth requirements will require that these amounts can be downloaded in an acceptable time period.

English & Phonics:

Initial Load (Launcher) *: 3.49 MB

Initial Load (English) : 12.75 MB

Per exercise : 0.59 MB

**The software is being run directly from the server and all media must be downloaded from the server at runtime.*

This is an approximation of the amount of network utilization; actual amounts will vary dependent on network configuration and actual exercises (The media contained, graphics, sounds, videos, etc)

WAN Bandwidth:

Backups:

Database files are backed up nightly to the Eduss Backup Server, this is approximately between 400KB and 1 MB.

Updates:

Updates are generally small but can vary in size, this is done approximately monthly but there is no set update schedule.

Status Information:

The server communicates its status information to the Master Eduss Server every 10 minutes, this just a single post to an http server.