# Purpose

The purpose of this document is to provide operators of the system with an overview of the components of the HEQC-online system and the procedures that must be run in order to keep the system in a working condition. The document also provides a troubleshooting section to assist with the resolution of known issues.

# System Overview

## System Information

The HEQC-online system consists of the following users, hardware and software components.

[Insert Graphic representation of servers (support (test) and production), databases and all components of the system including names of the various components e.g. new server name, new database name etc

The following systems comprise the HEQC-online system.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Software | Description | User | Access (URL and username / password) | Server | Location |
| HEQC-online | Support  production | es3admin  es3admin | URL: 192.168.0.200/heqc-online  es3admin/ Ksr@sr@w2b    URL: 192.168.1.122/heqc-online  heqcesadmin/ | Praxis to supply info | /var/www/ |
| crontab | Nightly download to supports, backups, creation of tmp\_aps etc | N/A | N/A | N/A | /var/spool/cron/crontabs/  Or terminal command:  crontab –e |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

## Software Inventory

The following installed software components support the system.

*Examples of software components are: Windows Server 2012 R2, Internet Information Server, Git 1.9, SQL driver 3.1 for php, Ghostscript 9.18, ImageMagic 6.8.8, Composer, wkHTMLtoX, PDFtk, Nodejs, RabbitMQ, SSH key, CentOS 6.6, Apache, Php 5.5, SQL Server 2012 Standard Edition*

|  |  |  |
| --- | --- | --- |
| Server1 (e.g. new production server) | Server2 (e.g. new support server) | Any others |
| Mysql 5.7.24 | Mysql 5.7.24 | n/a |
| Apache 2.4.29 | Apache 2.4.29 | n/a |
| PHP 7.2.10 | PHP 7.2.10 | n/a |
|  |  |  |

## Software interfaces

The following table lists the method to access HEQC-online and supporting software. (Examples given but please replace with real information and add all software interfaces)

|  |  |  |  |
| --- | --- | --- | --- |
| Server | Software | Description | User / password |
| Servers | | | |
| Production (name to updated) | Linux –Ubuntu 18.0.4 | URL: heqc-online.che.ac.za | Each user has own password |
|  |  | Heqc-online source files  /var/www/html/ |  |
|  |  |  |  |
| Support (192.168.1.122) | Linux – Ubuntu 18.0.4 | 192.168.0.200/heqc-online  source-files  var/www/html/ | [naude.r@che.ac.za](mailto:Naude.r@che.ac.za)  H@ppy123 |
| Database | | | |
| Production (insert name) | Linux – Ubuntu 18.0.4 | HEQC-online database | heqc/ H@ppy123  to be changed |
|  |  |  |  |
| Support | Linux | HEQC-online database | heqc/H@ppy123 |
| Software | | | |
| Production (insert name) | Apache webserver | Open Internet Information Services Manager | n/a |
|  |  |  |  |
| Support | Apache webserver | Zend Scripting Language Engine | n/a |
|  |  |  |  |

## Location of Error Logs

|  |  |  |
| --- | --- | --- |
| Software | Server | Logfile location |
| Apache |  | /var/log/apache2/error.log |
| PHP |  | /var/log/apache2/error.log |
| HEQC-online system |  | /var/www/error/ |
| Mysql |  | /var/log/mysql/mysql\_error.log |

# Operations Schedule

## Server shutdown procedure

|  |  |
| --- | --- |
| Step | Command |
| Shutdown database | /etc/init.d/mysql stop |
| Shutdown webserver | sudo service apache2 stop |
| Shutdown server | shutdown |
| Restart server | Shutdown –r now |
|  |  |
|  |  |

## Daily Tasks

|  |  |
| --- | --- |
|  | Check that all HEQC-online systems are running |
|  | Check that the server can access the internet |
|  | Check that all servers are up |
|  | Check for errors in the log files |
|  | Daily incremental backup of database and servers |
|  |  |

## Weekly Tasks

|  |  |
| --- | --- |
|  | Full backup of database,code and servers |
|  |  |

# Procedures

## Backup HEQC-online system—

|  |  |
| --- | --- |
| **Name** | Backup HEQC-online system |
| **Responsibility** | IT (Software Developer) |
| **Frequency** | Daily / Weekly |
| **Description** | |
| Backup the HEQC-online system data and server. Backup exec is used to backup the MBIT database. Please see the backup schedule below.  Production to copy the backup ( application and mysql) to the support using crontap. Scripts. | |

Insert Weekly backup schedule here

## Monitor and maintain system resources

|  |  |
| --- | --- |
| **Name** | Backup HEQC-online system |
| **Responsibility** | IT (Software Developer) |
| **Frequency** | Daily |
| **Description :**Back server to copy MySQL dump and code backup must be provided for space issues | |
|  | |

SSL CERTIFICATE SETUP

1)Directory: /etc/apache2/sites-available

2) configure file 000-default.conf

3) configure file hosts and add your domain. /etc/hosts

Support

Example:

Default’s configuration file 000-default.conf

**<VirtualHost Domain \*43 >**

**DocumentRoot /var/www/**

**ServerName heqc-online-support-1.che.ac.za**

**SSLEngine on**

**SSLCertificateFile /path/to/your\_domain\_name.crt**

**SSLCertificateKeyFile /path/to/your\_private.key**

**SSLCertificateChainFile /path/to/DigiCertCA.crt**

**</VirtualHost>**

4) Run the following command to test your configuration file (on some systems, it's **apache2ctl**):

**apachectl configtest**

5) **Restart Apache.**

# Troubleshooting Guide

The following table lists problems that may be experienced and the appropriate action to take.

|  |  |
| --- | --- |
| **Problem** | **Action / Procedure** |
| The users cannot access the system | System Administrator to check :   1. Check Emails for any log errors 2. Check the apache.log 3. Check the mysql log |
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| --- | --- | --- |
|  | Old server | New server |
| Linux Operating System type and version | Centos 6.8 | Ubuntu server 18.04.1 |
| Database and version | Mysql 5.1 | Mysql 5.7 |
| Webserver and version | Apache/2.2.3 | Apache/2.4.29 |
| Languages and versions (PHP) | PHP 5.3.3 | PHP 7.2.10 |
| Languages and versions (javascript) |  |  |
| Languages and versions (rtf generator) |  |  |
| Languages and versions (email server) |  |  |
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| **Source files** |  |  |  |  |
|  | Old server | | New server | |
|  | Server name | Filepath | Server name  (To be changed to name) | Filepath |
| PHP (per directory) e.g workflow 1.0 | Ignus | /var/www/heqc-support/common/workflow1 | 197.168.1.122 | /var/www/common/workflow1 |
| PHP (per directory) e.g heqc-online | Ignus | /var/www/heqc-support/heqc-online | 197.168.1.122 | /var/www/heqc-online |
| PHP (per directory) e.g common/other libs used | Ignus | /var/www/heqc-support/lib | 197.168.1.122 | var/www/heqc-online/lib |
|  |  |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- |
|  | Old server | | | New server | | |
| **Data files** | Fileserver location | Space allocated (MB) | Percent used | Fileserver location | Space allocated (MB) | Percent used |
| Mysql database (HEQC\_online) | /var/lib/mysql/ | 26 000 |  | /var/lib/mysql/ | 27 000 |  |
| Documents directory | /var/documents |  |  | /var/documents |  |  |

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| --- | --- | --- | --- |
| **Functions replaced** |  |  |  |
| List of php functions replaced in order to run in latest version of PHP | Old function | Reason replaced | New function |
| Deprecated methods and  connections in entire  project |  | **Note:** there was lot of native methods used in PHP 5 |  |
| that were not compatible to PHP 7, this includes the following : |
| 1)       Mysql Database connection |
| 2)       String manipulation methods throughout the code |
| 3)       Mysql Query execution |
|  |
|  |
| 4)       Changed mysql procedural calls to using mysqli |
|  |
| 5) Changed mysql queries to prepared statements  6) Changed deprecated CSS styles |
|  |  | across the whole project |  |

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| --- | --- | --- | --- | --- |
| **Software replaced** |  |  |  |  |
| List of software replaced in order to run on latest server version | Purpose of software | Old software | Reason replaced | New software |
| e.g. upload | none | none | none | none |
| rtf generator (or is that still running successfully) | none | none | none | none |
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