

Department	Operations Support & Deployment
SOP Title	RECOVERY PROCEDURE

RECOVERY PROCEDURE SOP

Purpose

The purpose of this document is to assist in the recovery of a system in the case of an unexpected failure or shutdown.

All members of the department are responsible for regularly reviewing the SOP. Any individual affected by the SOP may bring forward recommendations for the additions and revision of the SOP.

Targeted users

This SOP is aimed at all personnel within the department.

ABBREVIATIONS & ACRONYMS

BDE – Back Data Entry

HDD – Hard Disk Drive

MySQL - My Structured Query Language

HTTP – Hypertext Transfer Protocol

fsck – File system check

1) SYSTEM RECOVERY

Introduction

For system recovery the following equipment is needed

- Monitor
- Keyboard
- Flash drive with Ubuntu desktop and clonezilla
- laptop
- Screw drivers
- Network cable

System Failure Scenarios

- MySQL crashing
- MySQL core tables crashing
- http error 500
- Application errors (helpdesk message pop-up)
- HDD partition full

Steps to be taken

- MySQL Crashing
 - Go to terminal and log into server
 - Check the backup directory for all the latest datasets dumps and copy them to your laptop
 - Check and clear disk space; Restart MySQL daemon using:
 - `sudo service MySQL restart`
 - if still malfunctioning cross check error online (MySQL support website)
 - if still not unable to resolve consult a colleague

N.B: Reinstalling MySQL should be the last resort
- MySQL core tables crashing
 - Go to terminal and log into server
 - Run the following command:
 - `MySQLcheck --auto-repair -A -u root -p root`
 - Log into MySQL and run the following command
 - `repair table *DATABASENAME*.*TABLENAME*;`
 - if still not unable to resolve consult a colleague
- HTTP error 500 (arises from ruby on rails dependency deficiencies)
 - Go to terminal and log into server
 - View the last lines of nginx error log in real time by using the following command:
 - `sudo tail -f /opt/nginx/log/error.log`
 - refresh the application page on your laptop and check what error is indicated on the log
 - resolve the error
 - otherwise contact support office
- Application errors (helpdesk message pop up)

- They are two approaches to these errors:
 - View the error indicated immediately below the hyperlink options
 - resolve the error
 - otherwise contact support office
 - View the production log file for the application
 - Change into the application's directory
 - `tail -f log/production.log`
 - refresh the application page on your laptop and check what error is indicated on the log
 - resolve the error
 - otherwise contact support office
- HDD partition full
 - Check space of HDD ; `df -h`.
 - Reboot with ubuntu start updisk
 - Use gparted to resize
 - Select targeted HDD in the disks dropdown
 - Right click on targeted partition
 - Select Resize/Move
 - Then follow on screen instructions to increase the size of the partition

2) SERVER FAILURE

Introduction

For server recovery the following equipment is needed

- Monitor
- Keyboard
- Flash drive with Ubuntu desktop and clonezilla
- laptop
- Screw drivers
- Network cable

Server Failure Scenarios

- Power Failure
- Boot failure
- Login Failure
- Corrupted file system

Steps to be taken

- Power Failure
 - Check if the power indicator is lit
 - If not on
 - check if the power module is lit (if installed inside server)
 - if it's on collect the server for repairs
 - if it's off check if power backup is functioning properly (refer to power SOP)
 - check if server power supply is lit (if power module not installed inside server)
 - if it's on collect the server for repairs
 - if its off check the power backup is functioning properly (refer to power SOP)
 - if power back-up functionality is normal collect server power supply for repairs
 - Report to hardware & networks
- Boot failure
 - If the server is stuck on grub
 - then press **ENTER** key
 - if it doesn't boot up you may need to repair grub
 - boot with an Ubuntu start up disk
 - install boot-repair using the following steps
 - `sudo add-apt-repository ppa:yannubuntu/boot-repair`

- *sudo apt-get update*
 - *sudo apt-get install -y boot-repair && boot-repair*
 - Repair grub with boot repair
 - Restart server
- NB: re-cloning of server (Last resort)
- Login Failure
 - Make sure user name and password are correct
 - If credentials are correct
 - change password using recovery mode
 - reboot server
 - press shift repeatedly until grub shows on screen
 - select advanced options
 - select recovery mode
 - select root
 - change the password by using the command:
 - passwd
 - restart server
- Corrupted File System
 - Steps to be taken:
 - boot with an Ubuntu start up disk
 - go to terminal and run the following command:
 - **fsck /dev/PARTITION_NAME**
 - eg. fsck /dev/sda1
 - restart server

3) DATA LOSS RESPONSE & RECOVERY

Introduction

For data recovery the following equipment is needed

- Monitor
- Keyboard
- Flash drive with Ubuntu desktop and clonezilla
- laptop
- Screw drivers

- Network cable
- Manual records
- BDE clerks
- Workstations for BDE
- Replacement HDD

Steps to be taken:

- Data Status
 - Check the scheduled backups
 - Verify latest time stamps on datasets' auto-dumps
 - If the latest dump is more than 24 hours from the point of failure; then there is a need for BDE
 - Manual Recovery
 - BDE is done from manual records made after time-stamp of latest dump

4) DATA RECORDING DURING DOWNTIME

Items needed:

For data recovery the following equipment is needed

- Monitor
- Keyboard
- Flash drive with Ubuntu desktop and Clonezilla
- Laptop
- Screw drivers
- Network cable

- Manual records
- BDE clerks
- Workstations for BDE
- Registers
- Manual Forms

Steps to be taken:

- Users should maintain manual records.
- Identify manual records not captured into the system.
- Make preparations for BDE to be conducted.
 - Identify personnel to conduct BDE (application literate facility staff).
 - Identify number of days to conduct BDE (based on missed manual records).
 - Communicate gathered information to immediate supervisor.
 - Write requisition for BDE process.
- Conduct BDE.