# MES document

## Introduction

MES is web based software product with functionalities covering Manufacturing and Laboratory process execution. Main functionalities are:

* Defining processes using flow diagram based on BPMN 2.0 standard
* Configuration of named domain objects as Company, Vendors, Location, Equipment, Operation, Work Center, Product, User, Role
* Assigning data collections to processes and process steps.
* Main runtime screen for running all the processes
* Customized automatic data import from various sources
* Attach multiple files to process executions
* Customized data visualization (Semiconductor wafer maps, spectrum and IV charts)
* Reporting engine for retrieving data collections and process related parameters and exporting to excel files
* Statistical process control graphs with customized spec limits and 6-sigma boundaries
* Equipment E10 status management with real time weekly graph
* Equipment preventive maintenance management with notifications

## Installation in production

### Requirement for web server

* Microsoft Windows server 64 bit operating system
* At least 8 GB RAM
* At least 1 TB hard disk

#### Steps

* Install JAVA SDK.  
   File is located in [\\calserver03\c$\glo\jdk-7u2-windows-x64.exe](file:///\\calserver03\c$\glo\jdk-7u2-windows-x64.exe)
* Set JAVA\_HOME to Java JDK install directory
* Install apache web server. Make sure to install as windows service and auto start.  
  File located in [\\calserver03\c$\glo\apache-tomcat-7.0.25.exe](file:///\\calserver03\c$\glo\apache-tomcat-7.0.25.exe)
* Install MySQL database. During installation set ‘root’ password to ‘mysql’ . Make sure to install as windows service and auto start.  
  File located in [\\calserver03\c$\glo\mysql-5.5.20-winx64.msi](file:///\\calserver03\c$\glo\mysql-5.5.20-winx64.msi)
* Copy [\\calserver03\c$\glo\glo.war](file:///\\calserver03\c$\glo\glo.war) file to <apache installation folder>\webapps
* Create folder on server c:\usr\local\jd\conf and copy file [\\calserver03\c$\glo\glo-config.properties](file:///\\calserver03\c$\glo\glo-config.properties) into that folder. Update line mongoDataSourceUrl=calserver06 to point to correct mongodb server .
* Restart server and in browser go to <http://servername:8080/glo>

### Requirement for mongodb server

Linux Ubuntu operating system

* At least 8 GB RAM
* At least 1 TB hard disk

## 

#### Database restore

* Copy folder containing backup file to some folder on linux server: /usr
* Run command to restore database from the backup folder:

mongorestore --host calserver05 --port 27017 –db glo /usr/globackup

## Installation development environment

### Requirement for workstation

* Microsoft Windows server 64 bit operating system
* At least 8 GB RAM
* At least 1 TB hard disk

#### Steps

* Install JAVA SDK.  
   File is located in [\\calserver03\c$\glo\jdk-7u2-windows-x64.exe](file:///\\calserver03\c$\glo\jdk-7u2-windows-x64.exe)
* Set JAVA\_HOME to Java JDK install directory
* Install MySQL database. During installation set ‘root’ password to ‘mysql’ . Make sure to install as windows service and auto start.  
  File located in [\\calserver03\c$\glo\mysql-5.5.20-winx64.msi](file:///\\calserver03\c$\glo\mysql-5.5.20-winx64.msi)
* Install MySQL workbench   
  File located in [\\calserver03\c$\glo\mysql-workbench-gpl-5.2.35-win32.msi](file:///\\calserver03\c$\glo\mysql-workbench-gpl-5.2.35-win32.msi)
* Create folder on workstation c:\usr\local\jd\conf and copy file [\\calserver03\c$\glo\glo-config.properties](file:///\\calserver03\c$\glo\glo-config.properties) into that folder. Update line mongoDataSourceUrl=calserver06 to point to local mongodb server .

## Disaster recovery scenarios

### Calserver04 (app server) goes down

#### Steps

* Change DNS routing for mes to point to calserver03:8081
* Stop apache tomcat windows service on calserver03
* The latest MySql backup is stored in f:\backup\dump\mysql on calserver04 (Should be included in daily backups)
* Restore this backup in MySQL on calserver03 using command:  
   mysql –u root –p mysql glo < [full path to backup file]
* Start apache tomcat windows service on calserver03
* Users continue to use mes/glo url, but it is pointing now to calserver03

### Calserver06 (mongodb server) goes down

#### Steps

* The latest Mongodb backup is stored in f:\backup\dump\glo on calserver04 (Should be included in daily backups)
* Use ftp to upload whole folder to calserver05
* Folder should be copied to /home/[username]/ directory on calserver05
* To restore database from latest backup use command:  
   mongorestore --db glo /home/[username]/glo
* On calserver04 open c:\usr\local\jd\conf\glo-config.properties file and change mongoDBServerUrl to point to calserver05.
* Restart tomcat service on calserver04

### Reboot MES

#### Steps

* Remote desktop to calserver04
* Open windows services and stop ‘Apache tomcat service’
* Open task manager, go to process and show processes for all users
* Select java process and kill it.
* Start ‘Apache tomcat service’