Folkhälsomyndigheten
PUBLIC HEALTH AGENCY OF SWEDEN

CASE quick-start installation manual

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Introduction

This document gives a quick overview of how to compile the Java source code and configure a server to run CASE. At the public health agency of Sweden we do all the developing on Windows and then we run the CASE application on a Linux Ubuntu server. It is possible to run CASE on a Windows system as well. CASE collects data from a remote My-SQL database and inserts it into a local My-SQL database. These two processes are referred to as the "extraction" process and the "execution" process.

Server configuration Linux

CASE is designed to run on both Linux and Windows. To be able to run the CASE application from a linux server you will need to install the following software:

- Sun Java Runtime Environment 6.0 or higher
- R software for Linux. Follow the instructions at http://ftp.sunet.se/pub/lang/CRAN/
- ImageMagick for Unix http://www.imagemagick.org/script/index.php
  On Ubuntu simply run "sudo apt-get install imagemagick"

ImageMagick is used for converting the graph generated by R from a bitmap image to png. ImageMagick is only necessary if you are running CASE on Linux.

## Server configuration Windows

To be able to run the CASE application on a Windows server you will need to install the following software:

- Sun Java Runtime Environment 6.0 or higher
- R software for Windows http://ftp.sunet.se/pub/lang/CRAN/

When running CASE on Windows you need to bring up the CASE GUI and set the path to the R executable (R.exe) in the settings dialog. This dialog is accessed under the *Tools → R Settings* menu option. It is not necessary to install ImageMagick when CASE is running on Windows. The SatScanBatch.exe located in the SatScan folder is responsible for calculations related to SatScan when CASE is running on Windows.

Working with the source code

CASE has been developed in Eclipse and the source has been exported from the IDE using the export function. After you have downloaded the source and imported the files and folders into your favourite IDE you should have a file structure looking like this:
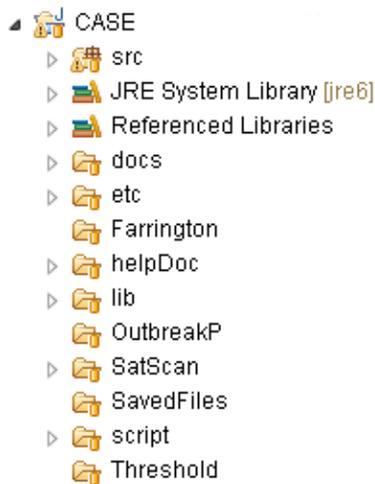
The Farrington, OutbreakP, SatScan, Threshold and the SavedFiles folders are mainly used as output folders/working directories for the different algorithms. The batch and executable files in these folders are only used when running the application in Windows. The SavedFiles folder is used only for storing a copy of the result files. This is convenient for debugging purpose and if you want to take a closer look at previous generated results.

For the code to compile, you need to add eleven jar-files to the classpath:

- datafile.jar
- gentlyWEB-utils-1.1.jar
- iText-5.0.6.jar
- jcalendar-1.3.3.jar
- JoSQL-2-1.jar
- Log4j-1.2.16.jar
- mail.jar
- mysql-connector-java-5.1.7-bin.jar (or other suitable)
- swing-layout-1.0.1.jar
- mchange.commons-java-0.2.2.jar
- c3p0-0.9.2-pre4.jar

These files can be found in the lib folder that is distributed with CASE.

To be able to start CASE and bring up the GUI you need to set up the CASE local database. A My-SQL script to create this database is located in the script folder. Create a database user and put the username and password in the db.properties file located in the etc folder. The local CASE database script bundled with the source code contains about 97Mb of disease data and settings.

To be able to run the algorithms from CASE on Windows, you need to specify the path to the R-executable (R.exe). This is done in the GUI (select Tools → R Settings). When you specify the path the R_batchWin.bat files are generated in the Farrington, OutbreakP, SatScan and Threshold folders.

It is quite easy to compile and generate a distribution of CASE. Just run the ANT build script that is located in the script folder and a distribution of CASE will be created in a folder called dist. If you want run CASE from the IDE simply run the main method in the ConfiguratorMain class located in se.smi.caseproject.surveillance package.

To populate the local database with new disease data you need to run the "extraction" process in CASE. The main method to start this process is located in the ExtractorMain.java class. To be able to run this process you need a database with data to extract from. Put the connection information for this database in the db.properties file located in the etc folder.

Running CASE

CASE has three entry points, main methods. To bring up the GUI run the main method in the ConfiguratorMain class. If you want to run the extraction and insert process from the remote database into the local database run the main method in the ExtractorMain class. The third main method is in the ExecuteMain class and performs the detection based on the selected diseases and algorithms in the GUI. It is also possible to perform the execution from within the GUI.

We use a CRON command to schedule the extraction and execution process at midnight. It is often necessary to increase the java heap size since the extraction process from the remote database could result in a big result set.

------------------------------------ cron jobs example --

00 22 * * * java -Xms128m -Xmx256m -classpath /home/CASE2/case.jar:. se.smi.surveillance.ExtractorMain

00 00 * * * java -Xms128m -Xmx256m -classpath /home/CASE2/case.jar:. se.smi.surveillance.ExecuteMain

If you want to execute these methods manually you could run the scripts extractor.sh, execute.sh or configurator.sh. These scripts are bundled with CASE.