# Executing the Standalone Calibration Tool

The standalone calibration tool is designed to calibrate the model that is used for physical hosts. Its usage is as follows:

**java –jar energy-modeller-standalone-calibration-tool-0.0.1-SNAPSHOT.jar <hostname> [halt-on-calibrated] [benchmark-only] [use-watts-up-meter]**

**<hostname>:** This is an non-optional argument that states which host to emulate the Watt meter for. If no hostname is specified the tool will work for all calibrated hosts.

**[halt-on-calibrated]:** The halt-on-calibrated flag will prevent calibration in cases where the data has already been gathered.

**[benchmark-only]:** The benchmark-only flag skips the calibration run and performs a benchmark run only. Benchmarking allows physical hosts to be ranked in order i.e. performance per Watt for example.

**[use-watts-up-meter]:** The use-watts-up-meter flag can be used so that Zabbix is not used for calibration but local measurements are performed instead. This requires a Watts Up Meter.

# Settings Files

There are 4 configuration files that need to be created. These are:

energy-modeller-db.properties  
energy-modeller-db-zabbix.properties  
calibration\_settings.properties  
Apps.csv

The first two provide access to the Zabbix and energy modeller databases respectively. The latter two settings files provider further configuration details of the model and the watt meter respectively.

**energy-modeller-db.properties**

iaas.energy.modeller.db.driver = com.mysql.jdbc.Driver  
iaas.energy.modeller.db.url = jdbc:mysql://testnode1:3306/energy\_modeller  
iaas.energy.modeller.db.user = energy-modeller  
iaas.energy.modeller.db.password = XXXXX

This settings file contains the details to connect to the energy modeller’s database. This allows calibration data to be used as part of the estimations.

**energy-modeller-db-zabbix.properties**

iaas.energy.modeller.zabbix.db.driver = com.mysql.jdbc.Driver  
iaas.energy.modeller.zabbix.db.url = jdbc:mysql://testnode1/zabbix  
iaas.energy.modeller.zabbix.db.user = zabbix  
iaas.energy.modeller.zabbix.db.password = XXXXX  
iaas.energy.modeller.filter.begins = Wally  
iaas.energy.modeller.filter.isHost = true

This settings file contains the details to connect to the Zabbix database directly. This allows current metric values to guide the estimated power value. Zabbix doesn’t distinguish between hosts and VMs. The property “iaas.energy.modeller.filter.begins” indicates what a node’s name should begin with for it to be a physical host. The property “iaas.energy.modeller.filter.isHost” indicates that the nodes detected that start with this name are hosts i.e. not VMs. True = host, False = VM.

**calibration\_settings.properties**

#Settings  
#Fri Feb 13 11:55:08 GMT 2015  
poll\_interval=2  
delay\_before\_taking\_measurements=4  
working\_directory=/opt/energy-modeller-calibrator/  
log\_executions=true  
simulate\_calibration\_run=false

This settings file configures the main elements of the calibrator.

**poll\_interval**: This indicates the interval at which new datapoints can be generated. **delay\_before\_taking\_measurements**: This indicates how many seconds the modeller should wait after an application starts executing. This helps avoid jitter that occurs immediately after an application starts and just before it ends.  
working\_directory: This changes the directory the calibrator looks in for configuration files such as Apps.csv. **log\_executions:** This indicates if a log file called AppsLog.csv should be generated. **simulate\_calibration\_run**: This indicates if the run should be simulated or not, if it is simulated the load is generated but no data is saved into the energy modeller’s database.

**Apps.csv**

This settings file contains the list of applications to run and information regarding the times at which they should run as well.

This output file has the following headers:

**Time From Start**: The time in seconds from the start of the calibration run at which an application should be started.  
**Command**:The command to run the application  
**stdOut**: The standard out for the application  
**stdError**: The standard error for the application  
**Working Directory**: The working directory for the application  
**Output To Screen**: If the standard out and error should be output to the screen as well  
**End Time:** The time the application should end by.

Example Apps.csv file:

Time From Start,Command,stdOut,stdError,Working Directory,Output To Screen

0,sleep 50,/opt/energy-modeller-calibrator/test.out,/opt/energy-modeller-calibrator/error.out,/opt/energy-modeller-calibrator/,TRUE,50

60,/opt/energy-modeller-calibrator/run-stress-point.sh 10 4 60,/opt/energy-modeller-calibrator/test.out,/opt/energy-modeller-calibrator/error.out,/opt/energy-modeller-calibrator/,TRUE,120

160,/opt/energy-modeller-calibrator/run-stress-point.sh 20 4 60,/opt/energy-modeller-calibrator/test1.out,/opt/energy-modeller-calibrator/error1.out,/opt/energy-modeller-calibrator/,TRUE,220

260,/opt/energy-modeller-calibrator/run-stress-point.sh 40 4 60,/opt/energy-modeller-calibrator/test2.out,/opt/energy-modeller-calibrator/error2.out,/opt/energy-modeller-calibrator/,TRUE,320

360,/opt/energy-modeller-calibrator/run-stress-point.sh 60 4 60,/opt/energy-modeller-calibrator/test3.out,/opt/energy-modeller-calibrator/error3.out,/opt/energy-modeller-calibrator/,TRUE,420

460,/opt/energy-modeller-calibrator/run-stress-point.sh 80 4 60,/opt/energy-modeller-calibrator/test4.out,/opt/energy-modeller-calibrator/error4.out,/opt/energy-modeller-calibrator/,TRUE,520

560,/opt/energy-modeller-calibrator/run-stress-point.sh 100 4 60,/opt/energy-modeller-calibrator/test5.out,/opt/energy-modeller-calibrator/error5.out,/opt/energy-modeller-calibrator/,TRUE,620