XACBench Readme file

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XACBench Tools

XACBench is a set of tools for generating synthetic and massive XACML security policies.

It is a typical Maven Java project:

- `Src/main/edu`: Contains the source code. Packages:
  - `Unsw.cse.xacml.experiment.v_3_0`: Contains all the `XACBench` classes for XACML V3.0:
    - `XACML3PolicyGenerator`: Contains the main program .
    - `PolSetGen`: Provide a method to create new elements((anyof, allof, ..).) in the policy.
    - `XACML3Analyzer`: Input analysis. Extract and represent the number of elements (anyof, allof, ..).
    - `XACML3Experiments`: Runs the experiments used in our paper.
  - `Unsw.cse.xacml.experiment.v_2_0`: Contains all the `XACBench` classes for XACML V2.0.

- `Src/main/oasis`: Contains the source code. Packages:
  - names.tc.xacml._3_0.core.schema.wd_17: Contains all Declared XACML 3.0 namespace:

- `src/test/edu`: Contains the test code. Packages:
  - unsw.cse.xacml.experiment.v_3_0: test code. Contains all test classes.
- `src/test/resources`: Contains resources used by the test code.

This tool first receives an entry with an xml extension containing the full address and filename of the input policy set, as well as the number of rules that the user wants to generate. In the following, the `XACBench` tool displays a summary of the input information, and then the unmarshall received entries (that is, the xml file are converted to Java objects), and the `XACBench` tool will begin to generate XACML policies.

At this stage, using the syntheticPolicySetGenerator () function in the PolSetGen class and using unmarshalled inputs and objects, the `XACBench` tool creates an array of syntax arrays and finally uses the printPolicysetStat () method in the class XACML3Analyzer, the generated policies will be printed as output in the output file, and a message will be displayed in the same direction.

There are two versions of security policy development:

2.0.0

3.0.0

http://docs.oasis-open.org/xacml/3.0/xacml-3.0-core-spec-os-en.pdf

Requirements

JDK 1.8 (Java 8)
Junit 4

Usage

UnManually via GIT

```
git clone git://github.com/nassirim/XACBench.git XACBench
cd XACBench
```

Manually via Download

Download zip file from address https://codeload.github.com/nassirim/XACBench/zip/master

Installation

- As a library or dependency that can be imported into a Java project

  There are two ways to import the Java library into another Java project:

  - As an external JAR: There is no need to download or compile the project, downloading the JAR and adding it to the project as a library is enough.

  - As a Maven dependency (it is available from the Maven central repository):

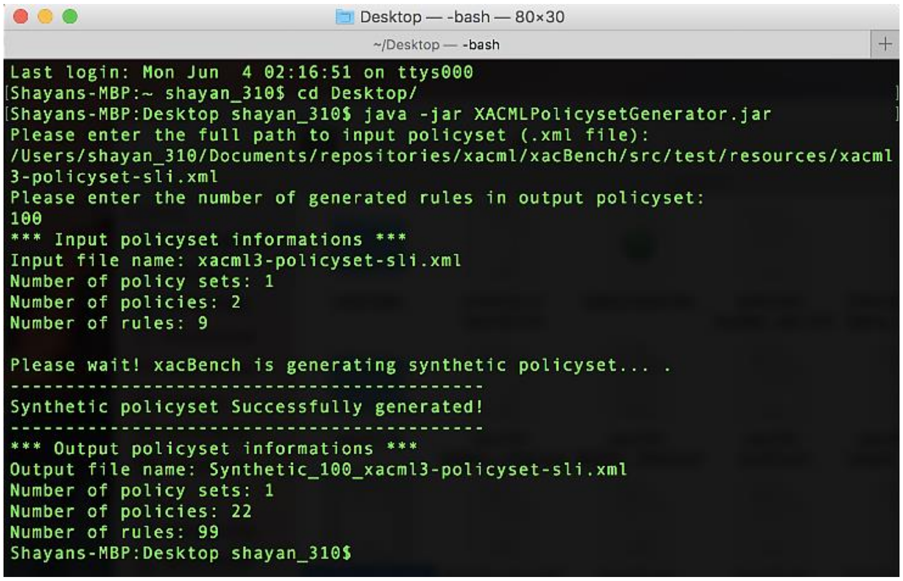
```
<dependency>
      <groupId>com.github.nassirim</groupId>
      <artifactId>XACBench </artifactId>
      <version></version>
</dependency>
```

Run

The tool is a Java Tools and can be used and Run in two ways:

- By means of the command line interface.
  - In order to use the command line interface, there is no need to download or compile the project, downloading the JAR is enough.
  - The JAR can be executed using the following command:

    java –jar XACBench.jar



```
Last login: Mon Jun  4 02:16:51 on ttys000
[Shayans-MBP:~ shayan_310$ cd Desktop/
[Shayans-MBP:Desktop shayan_310$ java -jar XACMLPolicysetGenerator.jar
Please enter the full path to input policyset (.xml file):
/Users/shayan_310/Documents/repositories/xacml/xacBench/src/test/resources/xacml
3-policyset-sli.xml
Please enter the number of generated rules in output policyset:
100
*** Input policyset informations ***
Input file name: xacml3-policyset-sli.xml
Number of policy sets: 1
Number of policies: 2
Number of rules: 9

Please wait! xacBench is generating synthetic policyset... .
-------------------------------------------
Synthetic policyset Successfully generated!
-------------------------------------------
*** Output policyset informations ***
Output file name: Synthetic_100_xacml3-policyset-sli.xml
Number of policy sets: 1
Number of policies: 22
Number of rules: 99
Shayans-MBP:Desktop shayan_310$
```

Figure (1): running XACBench on the Mac terminal

- As source code in IDE
  - First, download the zip code or clone it.
  - Duma, enter the full path to input policyset (.xml file)
  - Third, enter the number of generated rules in the output policyset
  - Fourth, XACBench is generating synthetic policyset ....
  - Finally, "Synthetic policyset Successfully generated!"

To find the output file, the output file will be printed and displayed.

Example

The `src/test/edu` folder contains all source code to test the Tools.
The `src/test/resources` folder contains files to test.

Libraries used

In the development of this tool, in addition to Java system libraries, some of the libraries published by Sun Microsystems are also listed below:

- sun.launcher
- sun.misc
- sun.net.util
- sun.net.www
- sun.net.www.protocol.file
- sun.net.www.protocol.jar
- sun.nio
- sun.nio.ch
- sun.nio.cs
- sun.reflect
- sun.reflect.annotation
- sun.reflect.generics.repository
- sun.reflect.misc
- sun.security.action
- sun.util
- sun.util.locale