SecuriTAS - Installation and Execution Instructions

1 Preliminaries

We did not provide the code to use the NFC Reader to monitor people and assets in the office, since it requires the availability of the AET62 NFC Reader. However, on the demo site we will use the NFC reader to show how assets and context are monitored and how security controls are applied. The Graphical Modeler and the Adaptation Manager dashboard (without NFC equipment) are enough to demonstrate the main functionality of SecuriTAS.

Note that SecuriTAS has been tested and works on 32bit Windows machines.

2 Prerequisites

Make sure you have the following software installed in your machine:

1. **Eclipse Modeling Tools.**
    - Select and download the version that corresponds to your operative system at `http://www.eclipse.org/downloads/packages/eclipse-modeling-tools/indigosr2`
    - Extract the downloaded archive file in your favorite directory
2. **MySQL Server**
    - You can download it at: `http://dev.mysql.com/downloads/mysql/`

- Follow the installation instructions of MySQL installer and, when asked, set the root password to *paperino*.

3. **GraphViz**

   - You can download it at `http://www.graphviz.org/Download.php`
   - Follow the instructions of Graphviz installer

4. **JBoss Application Server v5.1**

   - You can download it at `http://sourceforge.net/projects/jboss/files/JBoss/JBoss-5.1.0.GA/`
   - Unzip the archive in your favorite directory

Configure the *JAVA_HOME* system environment variable to point the installation directory of your JDK (Java Development Kit). To create a system environment variable, go to "Control Panel > System & Security > System > Advanced system settings > Environment Variables". From this window you can create a new System Variable called *JAVA_HOME* and points to the path to your jdk.

Add directory *%JAVA_HOME%/bin* to your *Path* system environment variable. To this aim, go to "Control Panel > System & Security > System > Advanced system settings > Environment Variables". From this window, select *Path* System variable and click the Edit button, and append the following string ";%JAVA_HOME%/bin".

3 Install and Start the Components

Unzip file Securitas.zip file. Note that directory "Runner" will be created. Furthermore, make sure MySQL server is running.

3.1 Install the Graphical Modeler

1. Run the command prompt as Administrator (from Start, Programs, right-click Command Prompt and select option "Run As Administrator")

2. On the command prompt, type: *cd "Path-to-Your-Runner-Directory"*

3. On the command prompt, type: *installGraphModeler.bat*

4. Follow the instructions that are printed on the command prompt.

5. This installer will automatically start the eclipse application containing the plugins of the Graphical Modeler. From this eclipse version you can create the goal, threat, and asset models of your system.

3.2 Install the Adaptation Manager

1. Run the command prompt as Administrator (from Start, Programs, right-click Command Prompt and select option "Run As Administrator")

2. On the command prompt, type: *cd "Path-to-Your-Runner-Directory"*

3. On the command prompt, type: *installAdaptManager.bat*

4. Follow the instructions of the installer. Note that the installer will ask you the path to the directory where MySQL, jBoss, Graphviz, and Eclipse are installed. If the name of one or more directories in your path contains spaces, please put it between double quotes. For example, if the path to Graphviz is *C:\Program Files\Graphviz 2.28*, it should be specified as follows *C:\"Program Files"\"Graphviz 2.28"*.

5. At the end of the installation process, JBoss will be automatically started.

6. After JBoss is started, the window of your default browser will open automatically to show the AdaptationManager dashboard. Alternatively you can type *localhost:8080/DynamicAccessControlWebProject* in your favorite browser.

3.3 Start the Graphical Modeler

1. Execute Eclipse. This Eclipse version contains the plug-ins of the Graphical Modeler.

2. From this Eclipse installation you can create a new general project.

3. You can add to this general project a new (asset, threat, and goal) model. To this aim, from the Eclipse Menu "File", you should select options "New>Example>SM diagram" and type the name of your model (i.e., assets, threats, or goals, respectively).

3.4 Start the Adaptation Manager

1. Go to directory *JBoss\bin* and execute script run.bat.

2. After JBoss is started (1min) type *localhost:8080/DynamicAccessControlWebProject* in your favorite browser.

4 Run the Demo Scenario

This section describes the steps you can perform to reproduce our demo scenario.

4.1 Run the Graphical Modeler

1. From Eclipse, import project "AccessControl". To this aim from menu "File" select option "Import>General>Existing Projects Into Workspace". Then, click "Next" and select *AccessControl.zip* file located in your Runner directory.

2. Note that this project contains the asset, threat, and goal models used in our dynamic access control example. You can open the file diagrams (*.sm_diagram*) to see how they look like.

3. Right-click on the "AccessControl" project and select option "Generate FCN". The causal network will be generated.

4. Right-Click on the "AccessControl" project and select option Generate Sec Controls. Select the security functions provided at runtime for each countermeasure.

4.2 Run the Adaptation Manager

1. From the Adaptation Manager Dashboard, select Function "Show Causal Network" to visualize the causal network associated with the asset, threat, and goal models opened in the Graphical Modeler.

2. From the Adaptation Manager Dashboard, select function "View System State". The input view will show the value of the assets located in the office (Proposal and Computer) and whether the professor is in the office. Note that you can also modify these values manually and re-compute a new set of countermeasures by selecting function "Modify the Input Values". An appropriate set of countermeasures will be shown in the "Output View".

3. From the Adaptation Manager Dashboard, select function "Security Controls" to visualize the security controls applied on the system.

4. Select function "Show Causal Network" to visualize the causal network.