Automatic Software Testing Tool for Computer Networks

User Manual

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In this section we will go over on how to use the AST software.

We will start with the installation procedure and then move to detailed guide on how to use the software.

2.1. Installation

2.1.1. PsTools Constraints

In order to use *PsTools suite*, please make sure that your computers meets the following constraints:

In the local machine (the machine where the software runs):
PsTools works on Windows Server 2008, Vista, NT 4.0, Win2K, Windows XP and Server 2003 including x64 versions of Windows.

In the target machines (the end-stations):
1. It is not running Windows XP Home. Windows XP Home is lacking some of the network functionality required by (most) PsTools commands.
2. The Workstation service is running (check using services.msc).
3. The Server service is running (check using services.msc).
4. The Admin$ share is available (check using computer management).
5. The Windows Network is running and Printer and File Sharing are activated (no need to actually share anything).
6. Incoming network users authenticate as themselves. To achieve this:
   o Turn off **simple file sharing** and thus turn on **classical file sharing** like on Win2K.
   o Turn of **network users identify as guests** and thus turn on **network users identify as themselves** like on Win2K.
7. <u>Note</u>: Classical Network Authentication requires a **non-empty password**.
   If you have not already done so, assign the user who will logon to \\target a strong password (This is recommended for security reasons anyway).
8. Make sure that the user who will execute the command on the target machine has got **admin privileges**.
9. Check your WinXP firewall settings. By default on WinXP Sp2 the firewall will block any incoming traffic. So it may be necessary to open port 445 on your target machine for incoming traffic from your local machine.
10. Allow remote assistance:
    My Computer -> Properties -> Remote -> Allow remote assistance.

2.1.2. Database Installation

1. Download and install 'Microsoft SQL Server Management Studio Express' (Link to the download page).

2. Open 'Microsoft SQL Server Management Studio Express' and press 'Connect'.
3. Select 'New Query'.
4. In the 'New Query' screen write: CREATE DATABASE ASTDB;
5. Select 'Parse' and then 'Execute'.
6. Load the attached *'InitDatabase.sql'* file, select 'Parse' and then 'Execute'.
7. The AST database installation is done.

2.1.3.   Setting the Configurations File

The system uses an XML configurations file that located under the same main folder as the executable *AST.exe*.
If the system doesn't find the configuration file, the system will use the next default values:

1. **Database Connection String:**
   Server= [*HOST_NAME*]\SQLEXPRESS; Database=ASTDB; Integrated Security=True;
2. **Max Thread Pool Size:** 10
3. **PsTools Path:** .(Current folder).

The configurations file XML Format:

```
<Configuration>
        <DatabaseConnectionString>String</DatabaseConnectionString>
        <MaxThreadPoolSize>Number</MaxThreadPoolSize>
        <PSToolsPath>Full Path</PSToolsPath>
</Configuration>
```

In order to change the settings of the configuration file - double click the *'config.xml'* file and change the connection string to the database, the pool size or the path of the PsTools directory.

2.2.   Guide

We will take you step by step over the functionality of our software, teaching you how to use it. So, at the end of the tutorial you will be able to create, modify and execute your own scripts and tests.

2.2.1.   Creating Additional Action

1. Open the software by running the *AST.exe* file.
2. Click 'File', then 'New' and then choose 'Additional Action'.
3. The next screen will appear:
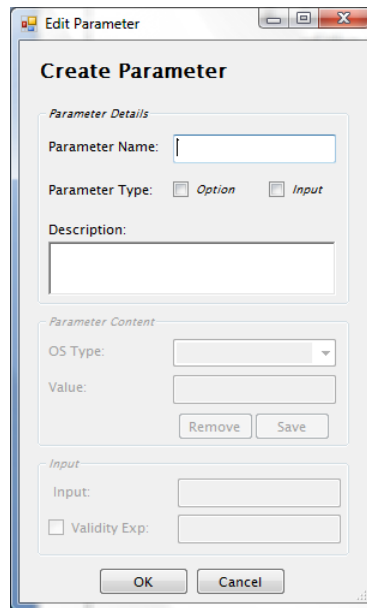
4. Enter the action name, your name, description of the action and choose the type of the action.
5. Select an OS Type.
6. If you chose 'Command line' type, write the desirable command line.
7. If you chose 'Script' type, click 'Browse' and locate the desirable script in your computer.
8. The validity string enables to recognize the success of properly execute, meaning the output of the execution of this additional action must contain this string to be considered as properly executed. If such string exists in your action, check the check-box near the validity string and write this string.
9. Select the timeout for this action.
10. Press the 'Save' button.
11. To add command line/script for another OS type, return to step 5.
12. After filling the content of the action, you can add/remove parameters to the action.
13. To add parameters, press the 'New' button.

14. Choose a name for the parameter.
15. If the parameter is an input parameter, (for example: username), check the 'Input' check-box and fill its value.
16. If the parameter is an option parameter (for example: -t) check the 'Option' check-box and add values according to the OS type.
17. Press the 'OK' button to save the parameter.
18. To add more parameters, return to step 13.
19. Press the 'OK' button to save the action, or the 'Cancel' button to exit without saving the action.

2.2.2.   Creating Test Scenario

1. Click 'File', then 'New' and then choose 'Test Scenario'.
2. The next screen will appear:
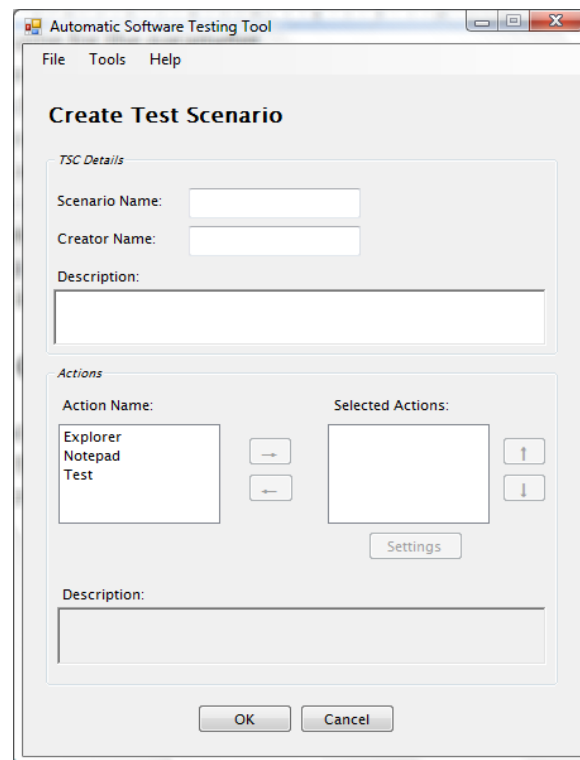
3. Enter the scenario name, your name and description of the action.
4. Select/unselect the actions for the scenario by pressing the 'left' and 'right' arrow buttons and moving the actions from one side to another.
   By standing on each action you can see its description.
5. Change the order of the actions by pressing the 'up' and 'down' arrow buttons.
6. To change setting of a selected action, select the action and press the 'Settings' button.
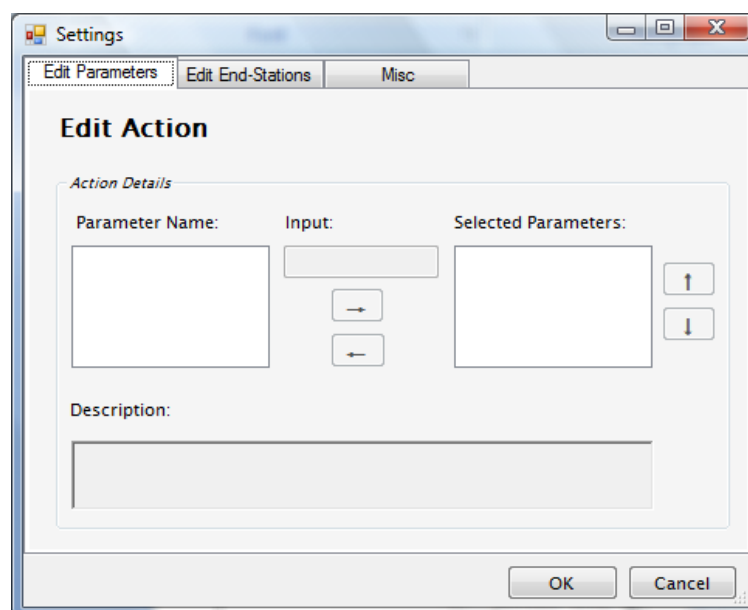

7. To add/edit parameters, go to 'Edit Parameters' tab.
   a. Select/unselect parameters by clicking the 'right' and 'left' arrow buttons.

      b. Change the parameters order by pressing the 'up' and 'down' arrow buttons.

8. To add/edit end-stations, go to 'Edit End-Stations tab.
      a. Select/unselect end-stations by pressing the 'right' and 'left' arrow buttons and moving the end-stations from one side to another.
      b. Change the end-stations order by pressing the 'up' and 'down' arrow buttons.
      c. Check the 'Parallel' check-box if you want to execute the selected action parallelly over the selected end-stations.
      d. Press the 'Schedule' button if you want to schedule the end-stations order.
9. To set a delay after the execution of the action and the duration of the action, go to 'Misc' tab.
10. Press 'OK' to save the settings.
11. Press 'OK' to save the test scenario, or the 'Cancel' button to exit without saving the test scenario.

2.2.3.   Creating Test Plan

1. Click 'File', then 'New' and then choose Test Plan.
2. The next screen will appear:
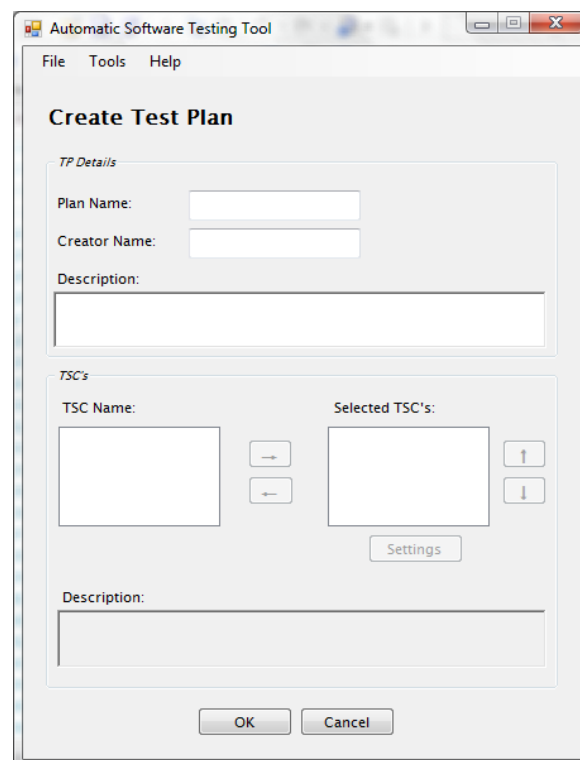
3. Enter the plan name, your name and description of the action.
4. Select/unselect the test scenarios for the plan by pressing the 'left' and 'right' arrow buttons and moving the test scenarios from one side to another.
5. By standing on each action and scenario you can see its description.

6. Change the order of the test scenarios by pressing the 'up' and 'down' arrow buttons.
7. To change setting of a selected action or scenario, select the action and press the 'Settings' button.
8. After the setting is done, press the 'OK' button to save the settings.
9. Click 'OK' to save the test plan, or the 'Cancel' button to exit without saving the test plan.

2.2.4.   Modifying Additional Action

1. Click 'File', then 'Open' and then choose 'Additional Action'.
2. Browse dialog will be opened.
3. Select the action you want to modify. The description of the action will appear in the description box.
4. After selecting the action, press the 'OK' button.
5. The same screen as 'New Additional Action' will appear, with filled data.
6. Modify the attributes you would like to change.
7. Press the 'OK' button to save the changes, or the 'Cancel' button to exit without saving the changes.

2.2.5.   Modifying Test Scenario

1. Click 'File', then 'Open' and then choose 'Test Scenario'.
2. Browse dialog will be opened.
3. Select the test scenario you want to modify. The description of the test scenario will appear in the description box.
4. After selecting the test scenario, press the 'OK' button.
5. The same screen as 'New Test Scenario' will appear, with filled data.
6. Modify the attributes you would like to change.
7. Press the 'OK' button to save the changes, or the 'Cancel' button to exit without saving the changes.

2.2.6.   Modifying Test Plan

1. Click 'File', then 'Open' and then choose 'Test Plan'.
2. Browse dialog will be opened.
3. Select the test plan you want to modify. The description of the test plan will appear in the description box.
4. After selecting the test scenario, press the 'OK' button.
5. The same screen as 'New Test Plan' will appear, with filled data.
6. Modify the attributes you would like to change.
7. Press the 'OK' button to save the changes, or the 'Cancel' button to exit without saving the changes.

2.2.7.   Removing Additional Action

1. Click 'File', then 'Delete' and then choose 'Additional Action'.
2. Browse dialog will be opened.
3. Select the action you want to remove and press the 'OK' button.
4. If the action isn't used in any test scenario, the action will be removed.

2.2.8.   Removing Test Scenario

1. Click 'File', then 'Delete' and then choose 'Test Scenario'.
2. Browse dialog will be opened.
3. Select the test scenario you want to remove and press the 'OK' button.
4. If the test scenario isn't used in any test plan, the scenario will be removed.

2.2.9.   Removing Test Plan

1. Click 'File', then 'Delete' and then choose 'Test Plan'.
2. Browse dialog will be opened.
3. Select the test plan you want to remove and press the 'OK' button.

2.2.10.   Executing Single Action

1. Click 'Tools', then 'Execute' and then select 'Single Action'.
2. Browse dialog will be opened.
3. Select the action you want to execute. The description of the action will appear in the description box.
4. After selecting the action, press the 'OK' button.
5. The next screen will appear:
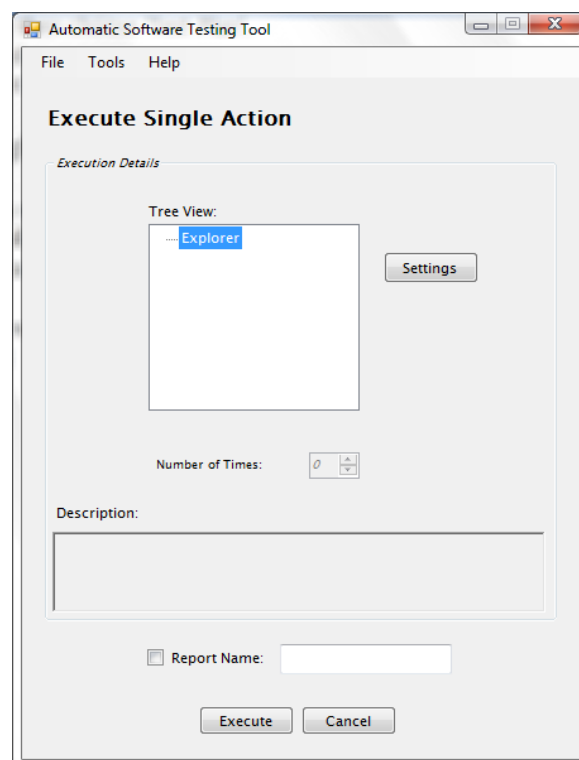
6. To change setting of the, select the action and press the 'Settings' button.
7. After the setting is done, press the 'OK' button to save the settings.
8. To save the results of the execution, check the check-box near the 'Report Name' and write the desirable name for the report.
9. Press the 'Execute' button to start the execution.
10. Dialog with the maximum running time will appear.
11. Press the 'OK' button.

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