Executing the StopWatch using Simulation Configuration

Magic Model Analyst allows you to customize model execution by using an Simulation Configuration. The Simulation Configuration is a stereotype that can be applied to a Class Element. This stereotype contains tag definitions for model execution customization such as enable or disable animation and UI mockups. To be able to use the Simulation Configuration, we need to add the *SimulationProfile.mdzip* file to our project.

To add the SimulationProfile.mdzip file to a project

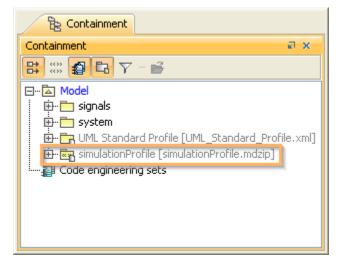
- 1. Click File > Use Project on the main menu. The Use Project wizard dialog opens.
- 2. Select the From predefined location option.
- 3. Select <install.root>profiles in Project modules paths, and then select SimulationProfile.mdzip.

🔀 Use Project	×
	em or predefined location (paths to used projects) and click 'Next' to proceed. default application profiles and libraries.
 1. Select project 2. Specify usage options 	Select a project to use From file system From predefined location Paths to used projects: <project.dir> <instal.root>/profiles <instal.root>/profiles <instal.root>/profiles ParametricExecutionProfile Project Usage Map Profile Project Usage Map Profile RM_ODP_Profile Scrum_Profile Scrum_Profile Special Style Versioning Profile Special Style Versioning Profile</instal.root></instal.root></instal.root></project.dir>
	< Back Next > Finish Cancel Help

4. Click Next to go to the second step, Module Settings.

💽 Use Project				X	
Specify project usage options Specify usage options for the selected project and then click 'Finish' to start using it.					
 1. Select project 2. Specify usage options 	Accessibility © Read-only © Read-write		Load Mode Always load Autoload Autoload Autoload with prompt		
	Image: With the second seco		Manual load Path Mounted On		
	SimulationProfile				
< Back Next > Finish Cancel Help					

5. Use the default settings and click Finish. The simulation profile will be added to the project. You can see it in the containment browser.



An Simulation Configuration is a Class Element, which is applied with the «SimulationConfig» stereotype (see the following figure). This stereotype contains tag definitions to customize model execution (see SimulationConfig stereotype).

«SimulationConfig» 🛠			
SimulationConfig			
« Simulation Config»			
addControlPanel = false			
animationSpeed = 95			
autoStart = true			
autostartActiveObjects = true			
cloneReferences = false			
constraintFailureAsBreakpoint = false			
fireValueChangeEvent = true			
initializeReferences = false			
numberOfRuns = 1			
runForksInParallel = true			
silent = false			
solveAfterInitialization = true			
startWebServer = false			
timeVariableName = "simtime"			
treatAllClassifiersAsActive = true			

Next, we will create the Simulation Configuration to execute our StopWatch model without using animation.

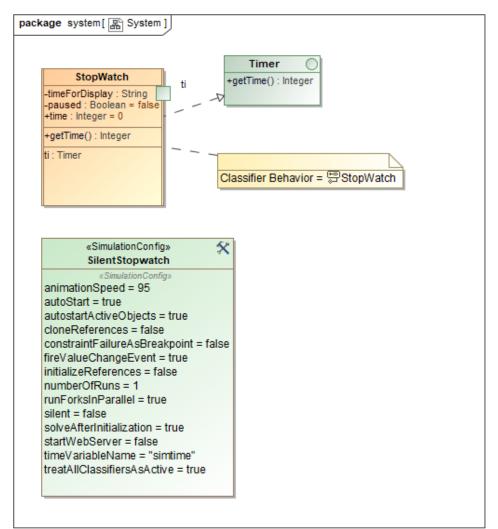
To execute our StopWatch model without using animation

- 1. Open a **System** Class diagram.
- 2. Create a new Class Element by clicking the Class button on the Class diagram toolbar.
- 3. Click the diagram to create the Class Element.
- 4. Name the created Class Element "SilentStopwatch".
- 5. Right-click the **SilentStopwatch** Class and select **Stereotype** to apply the «SimulationConfig» stereotype to the created Class. The **Stereotype** context menu group will open.

package system[🔚 System]				
StopWatch ti Timer -timeForDisplay : String +getTime() : Integer -paused : Boolean = false + +time : Integer = 0 + +getTime() : Integer + ti : Timer Classifier Behavior = 💬 StopWatch				
Stereotype:				
□				
Class				
SignalInstance [Element] SimulationConfig [Class]				
SimulationLog [Class]				
Specification [Classifier]				
🔲 🖽 Spinner [Class]				
Term [Class]				
TextArea [Class]				
< >				
(press Ctrl+Space to select)				
Apply Clear All Order				

6. Select SimulationConfig from the list of available stereotypes for the Class Element.

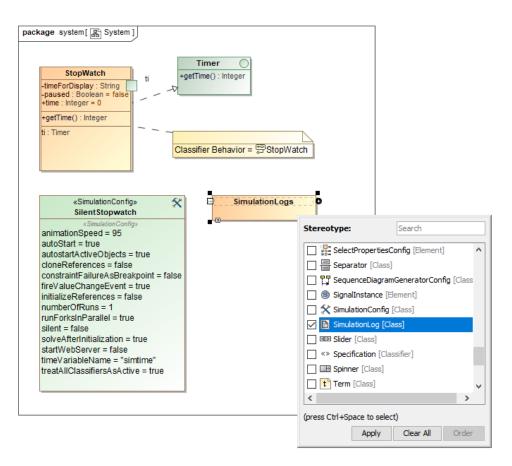
7. Click Apply. The SilentStopwatch Class will be with the applied SimulationConfig stereotype.



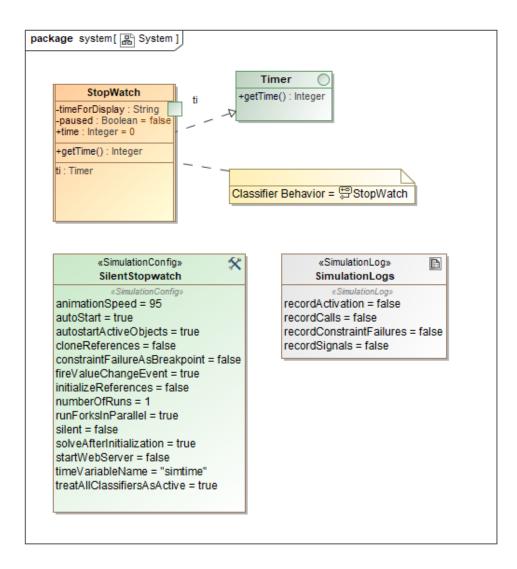
Next, we will create a SimulationLog to record the runtime events occurrence and assign this SimulationLog to the SimulationConfig.

To record all runtime events occurrence and assign a SimulationLog to the SimulationConfig

- 1. Create a new Class Element by clicking the Class button on the Class diagram toolbar.
- 2. Click the diagram to create the Class Element.
- 3. Name the created Class "SimulationLogs".
- Right-click the SimulationLogs Class and select Stereotype to apply the «SimulationLog» stereotype to the created Class. The Stereotype context menu will open.



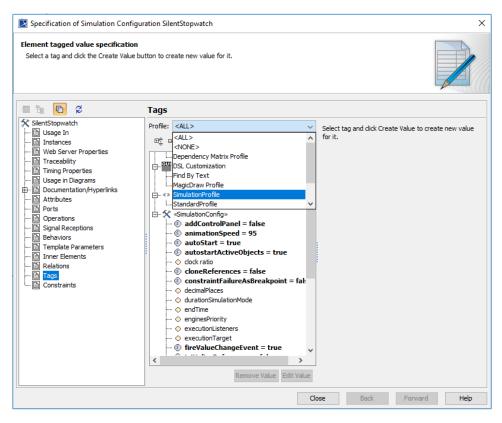
5. Select SimulationLog and click Apply. The SimulationLogs Class will be with the applied «SimulationLog» stereotype.



Now we need to specify the tagged values of the «SimulationConfig» stereotype that is applied to the SilentStopwatch Class.

To specify the tagged values of the «SimulationConfig» stereotype

- 1. Open the **Specification** dialog of the **SilentStopwatch** Simulation Configuration by right-clicking the **SilentStopwatch** symbol and select **Specifi** cation.
- 2. Select the Tags node on the left-hand side of the dialog.
- 3. Select SimulationProfile from the Profile drop-down menu.

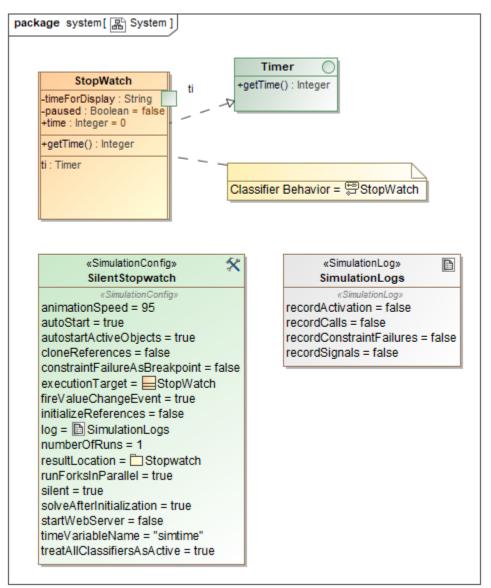


4. Specify the tagged value of the execution target to the **StopWatch** Class by selecting **executionTarget** and click **CreateValue**. The **SelectEleme nts** dialog will open for you to select the Element that will be the execution target.

Select Elements ×					
Select, search for, or create elements Use the List or Tree view to search for an element. To find the element, type a name in the "Search by Name" box. You can also use wildcards (*,?). Click the magnifier icon to select searching for elements by qualified names, or use camel case.					
Qt					
맘 Tree 言言 List					
哦 咳 贱 账	195 matches found with filter applied				
<pre></pre>	(17 matches)				
Apply Filter (Ctrl+Space) 🝸 Creation Mode	() Multiple Selection				
	OK Cancel Help				

- 5. Select the StopWatch Class (you can also select the stopwatch InstanceSpecification, which has been created in the previous section) as the ex ecutionTarget.
- 6. Click OK to close the Select Elements dialog.
- 7. Follow the same steps used to set the tagged value of executionTarget to the StopWatch Class and specify the tagged values of the following tag definitions
 - i. log to SimulationLogs.
 - ii. resultLocation to the Stopwatch folder.
 - iii. silent to true.

8. Click Close to close the Specification dialog.



To execute the Simulation Configuration

- 1. Right-click the SilentStopwatch symbol on the diagram and select Simulation > Execute.
- 2. Click the RunSimulation button on the Simulation window toolbar to start the simulation. The StopWatch Class will then be executed without animation. You will need to wait until the runtime object of StopWatch is at the ready State. You can see the State of the runtime object at the Var iables tab. The State of the object will be displayed in square brackets.
- 3. Select the StopWatch node in the Variables tab.
- 4. Select the start signal from the Triggers drop-down menu on the Simulation window toolbar.

Now, you can see that the value of time:Integer, which is displayed in the Variables tab, will increase by one every second.

To stop the execution

- 1. Select the StopWatch node in the Variables tab.
- 2. Select the stop signal from the Triggers drop-down menu. The StopWatch object will go to the stopped State.
- 3. Select the stop signal again to move the object to the final stage to close the simulation session. The latest value of time:Integer will be saved into the slot value of the stopwatch InstanceSpecification.