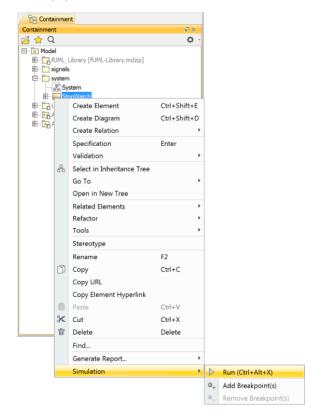
## **Running the Stopwatch model**

The *StopWatch* class is now ready to be executed. You can execute the *StopWatch* class either from the Model Browser or from the Class diagram.

To run the StopWatch Class

 Right click on the StopWatch class in the Model Browser and select Simulation > Run (see the following figure).



2. The Simulation window will open. It contains four tabs: Sessions, Console, Variables, and Bre akpoints. At this point, an instance of the StopWatch class is created, which you can see in the Variables tab. In addition, a simulation session to execute the StopWatch class is created, which you can see to the Sessions tab of the Simulation window. (See the following figure.)



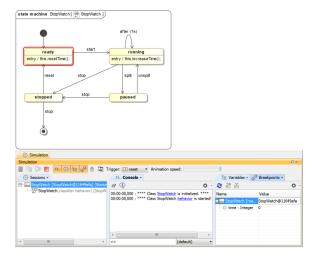
3. Click the **Start** button on the Simulation window toolbar.

Once you have clicked the **Start** button, the classifier behavior of the *StopWatch* Class, which is the *StopWatch* State Machine, starts executing. A new session to execute the *StopWatch* state machine is created under the simulation session of the *StopWatch* class, and the *StopWatch* state machine diagram will be open and ready for the simulation.

The StopWatch State Machine execution will start from the initial Pseudostate and automatically move to the ready state because the Transition that connects the initial Pseudostate to the ready State does not have a defined trigger. When the ready State is entered, its entry Behavior is executed, which calls the re setTime operation. After this, the StopWatch State Machine is in the ready State, and the time attribute is set to 0 (see the following figure).

## Related pages

- Magic Alf Analyst
  - Running a model with Alf
- Magic Model Analyst
  - Executing the stopwatch model
  - Creating User Interface mockups for the stopwatch model



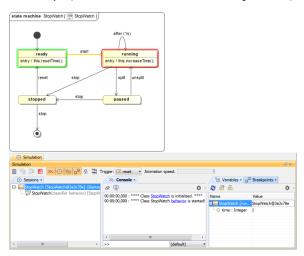
Now we want to trigger the *StopWatch* object to move from the *ready* State to the *running* State. To do this, we need to send a *start* signal to the *StopWatch* object.

To send a start Signal to the StopWatch object

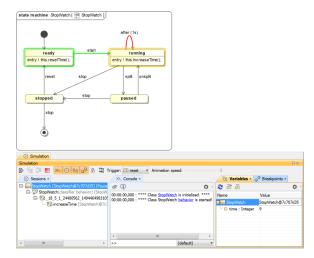
- Select the StopWatch node in the Variables tab. The signals that can be sent to the StopWatch will be listed in the Trigger drop-down menu.
- 2. Select the **start** signal from the **Trigger** drop-down menu (see the following figure).



Once the *start* Signal has been sent, the *StopWatch* enters the *running* State. On entry to the *running* state, its entry Behavior is executed, which calls the *increaseTime* operation, incrementing the *time* attribute by 1 (as shown in the **Variables** tab in the figure below).



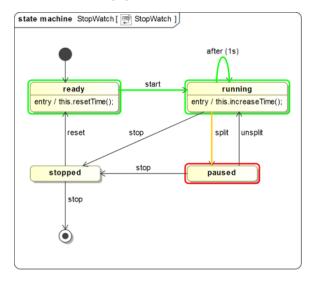
The *StopWatch* object stays in the *running* State, and the Time Event is triggered in this State every second. Therefore, a new simulation session will be created to call the *increaseTime* operation every second, and the *time* value will increment by one every time the operation is executed (see the following figure).



While the *StopWatch* object is in the *running* state, we can send a *split* signal to trigger a transition to the *paused* state or send a *stop* signal to trigger a transition to the *stopped* state.

To send a split Signal to the StopWatch object

- 1. Select the StopWatch object in the Variables tab.
- Select the split Signal from the Trigger drop-down menu on the Simulation window toolbar. (You may have to temporarily reduce the animation speed in order to be able to select a trigger before the Time Event fires.) The state of the StopWatch object will be changed to the paused state (see the following figure).

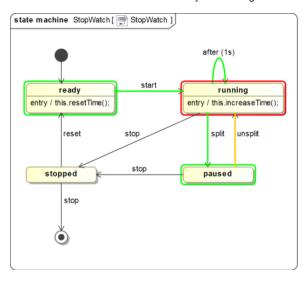


You can transition the paused *StopWatch* object to the *running* state by sending an *unsplit* Signal to the object.

To send an unsplit Signal to the StopWatch object

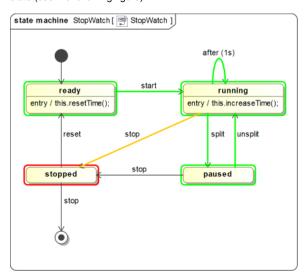
- 1. Select the StopWatch object in the Variables tab.
- Select the unsplit Signal from the Trigger drop-down menu on the Simulation window toolbar. The state of the StopWatch object will be changed to the running state (see the following figure),

and the time value will start to continuously increase again.



To send a stop Signal to the StopWatch object

- 1. Select the StopWatch object in the Variables tab.
- 2. Select the **stop** Signal from the **Trigger** drop-down menu on the Simulation window toolbar. (You may have to temporarily reduce the animation speed in order to be able to select a trigger before the Time Event fires.) The state of the *StopWatch* object will be changed to the *stopped* state (see the following figure).



In the *stopped* state, if the *reset* Signal is sent to the *StopWatch* object, the object will go to the *ready* State, and the *time* value will be reset to zero by calling the *resetTime* operation. If, instead, the *stop* Signal is sent to the object again, the object will go to the Final State, the simulation will stop, and all of the simulation sessions will be closed.



From this point, you can also explore additional features of Magic Model Analyst for executing the *StopWatch* model, as described in the MSI Tutorial:

- Executing the StopWatch instance specification
- Executing the StopWatch using Simulation Configuration
- Creating User Interface mockups for the stopwatch model