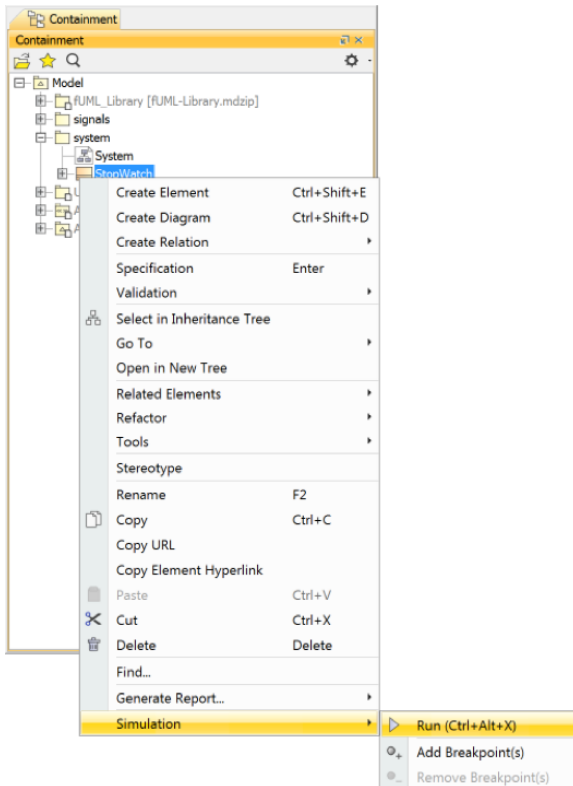


# Running the Stopwatch model

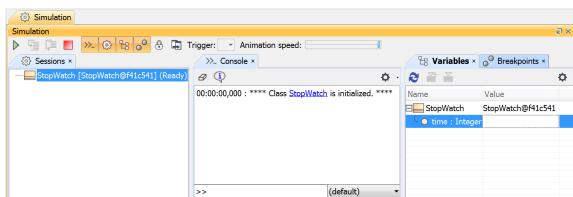
The *StopWatch* class is now ready to be executed. You can execute the *StopWatch* class either from the Model Browser or from the Class diagram.

To run the *StopWatch* Class

1. 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 **Breakpoints**. 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 in the **Sessions** tab of the Simulation window. (See the following figure.)



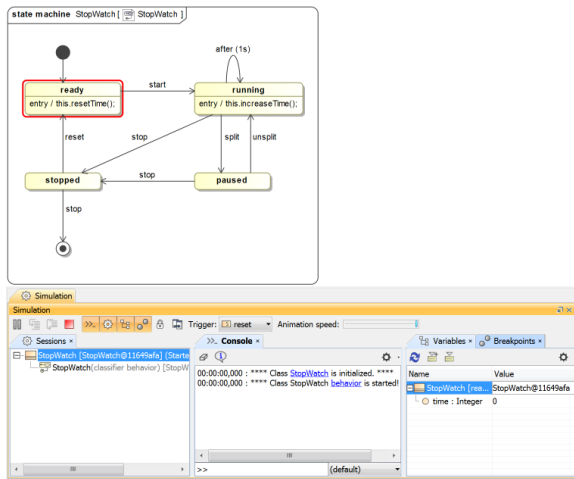
3. Click the **Start** button  on the Simulation window toolbar.

Once you have clicked the **Start** button, the classifier behavior of the *StopWatch* Class, which is the *Stop Watch* 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 *resetTime* 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

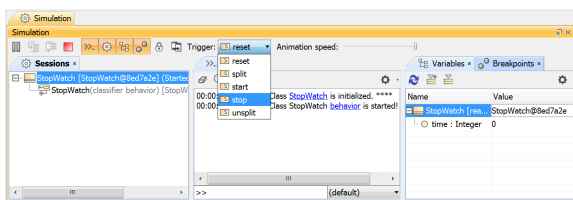
- Magic Alf Analyst
  - [Running a model with Alf](#)
- Magic Model Analyst
  - [Executing the stopwatch model](#)
  - [Creating User Interface mockups for the stopwatch model](#)



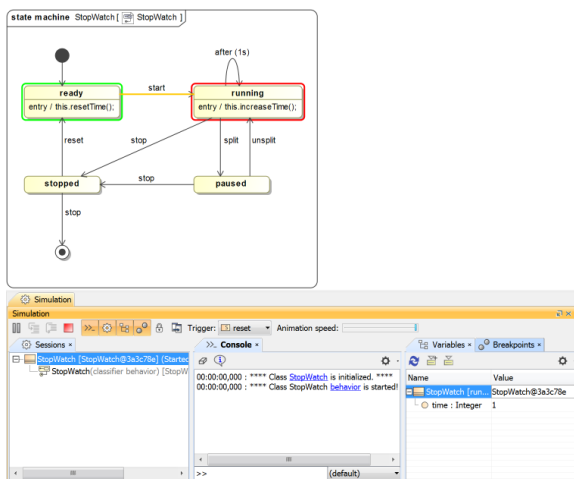
Now we want to trigger the *StopWatch* object to move from the *ready* State to the *running* State. To do this, we need to send a *start* signal to the *StopWatch* object.

To send a *start* Signal to the *StopWatch* object

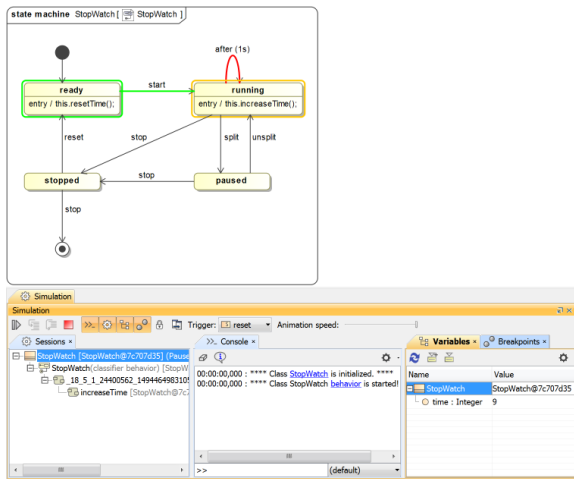
1. Select the *StopWatch* node in the **Variables** tab. The signals that can be sent to the *StopWatch* will be listed in the **Trigger** drop-down menu.
2. Select the **start** signal from the **Trigger** drop-down menu (see the following figure).



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).



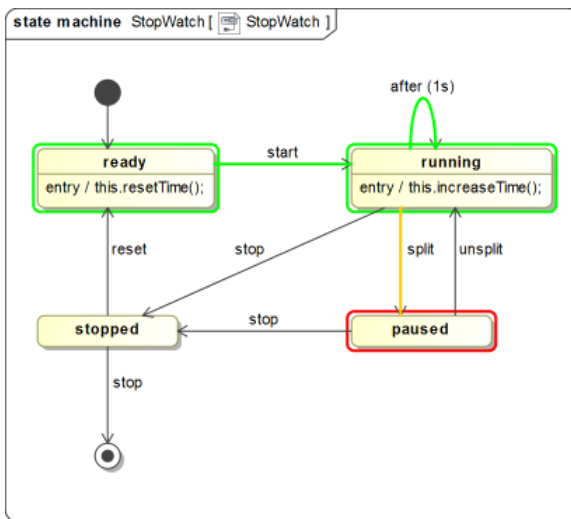
The *StopWatch* object stays in the *running* State, and the Time Event is triggered in this State every second. Therefore, a new simulation session will be created to call the *increaseTime* operation every second, and the *time* value will increment by one every time the operation is executed (see 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.
2. 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).

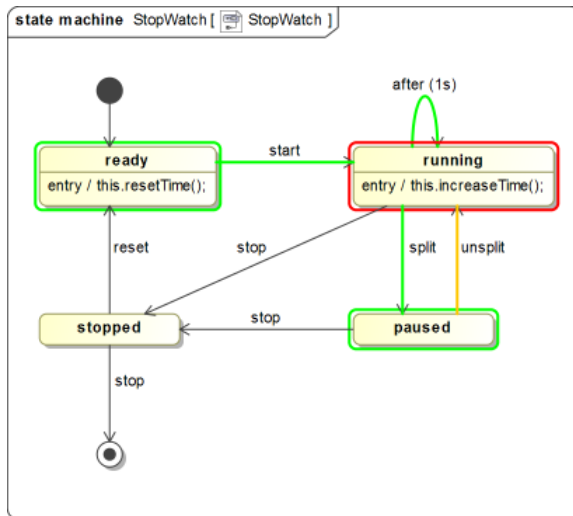


You can transition the paused *StopWatch* object to the *running* state by sending an *unsplit* Signal to the object.

To send an *unsplit* Signal to the *StopWatch* object

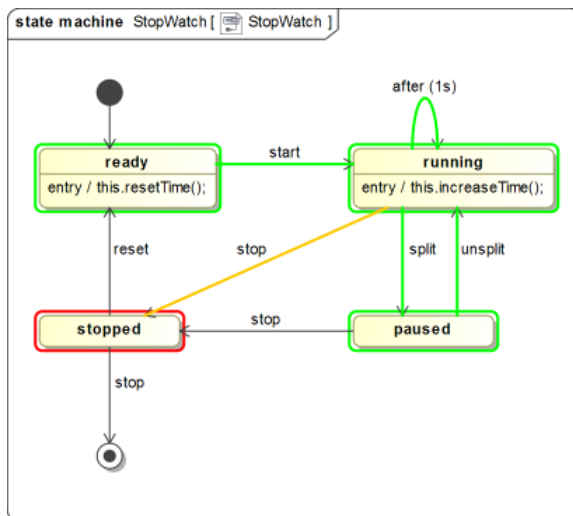
1. Select the *StopWatch* object in the **Variables** tab.
2. Select the **unsplit** Signal from the **Trigger** drop-down menu on the Simulation window toolbar. The state of the *StopWatch* object will be changed to the *running* state (see the following figure),

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.

**i** 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](#)