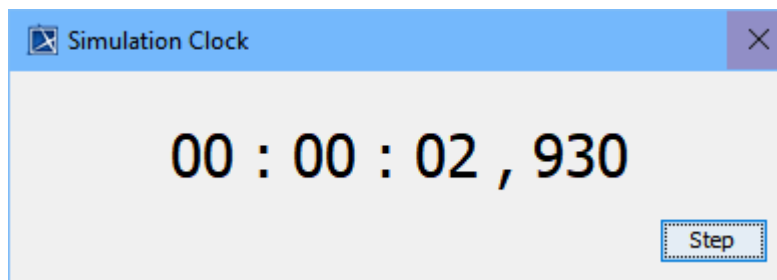# Simulation time and simulation clock

When you simulate a model related to time (for example, a transition with a time trigger), Magic Model Analyst will obtain simulation time from a simulation clock. The simulation time is the amount of time spent on simulating a model. Magic Model Analyst also uses the simulation time in a timestamp of a signal instance in the SimulationLog (see Simulation log), in a time series chart (see Time series chart), and on messages of a generated Sequence diagram.

There are three types of simulation clocks in Magic Model Analyst:

- Built-in clock. This is the default simulation clock.
- Internal simulation clock. This clock is designed to precisely control the simulation time. Its implementation is based on UML run-to-completion semantics and internal completion events.
- Model-based clock. You can select the model-based clock by making the property as the time value tag definition of a Simulation Config. See Model-based Clock for further details on the model-based clock.
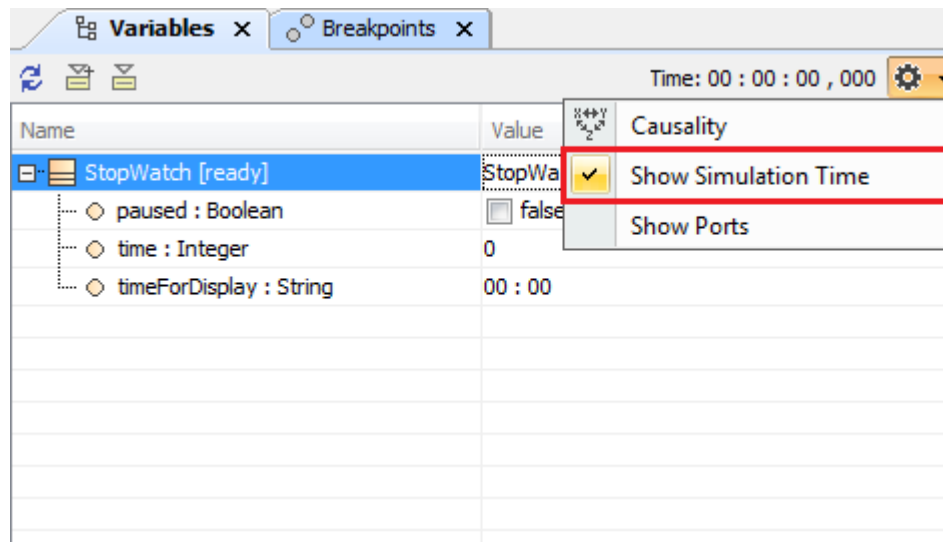
> ⚠️ **Note**
> Nanosecond and microsecond are supported only in the internal simulation clock and model-based clock.

You can open the **Simulation Clock** dialog to see the internal simulation clock in real time by right-clicking within the **Simulation Sessions** pane and selecting **Show Simulation Clock**.

The Simulation Clock dialog with the Step button.

You can show or hide simulation time in the **Variables** pane by selecting **Show Simulation Time** in the ⚙ Options menu.

The Show Simulation Time command in the Options menu.

> ⚠️ **Note**
> The **Step** button in the **Simulation Clock** dialog is available only for the internal simulation clock to allow manually increasing and ticking the internal simulation clock.

Related pages

- Built-in clock
- Internal simulation clock
- Model-based clock
- Understanding simulation sessions