How to draw a Timing Diagram in UML

Timing diagram is a kind of UML diagram that shows time, event, space and signal for real-time and distributed system.

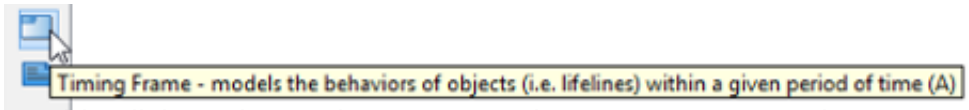
Creating timing diagram

Perform the steps below to create a UML timing diagram in Visual Paradigm.

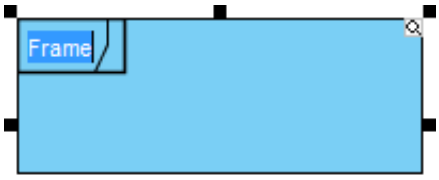
1. Select **Diagram > New** from the application toolbar.
2. In the **New Diagram** window, select **Timing Diagram**.
3. Click **Next**.
4. Enter the diagram name and description. The **Location** field enables you to select a model to store the diagram.
5. Click **OK**.

Creating timing frame

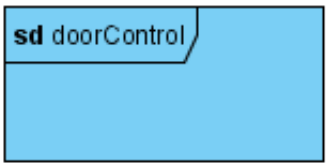
To create timing frame in a timing diagram, click **Timing Frame** on the diagram toolbar and then click on the diagram.



Double click on the top left corner of the frame to rename it.

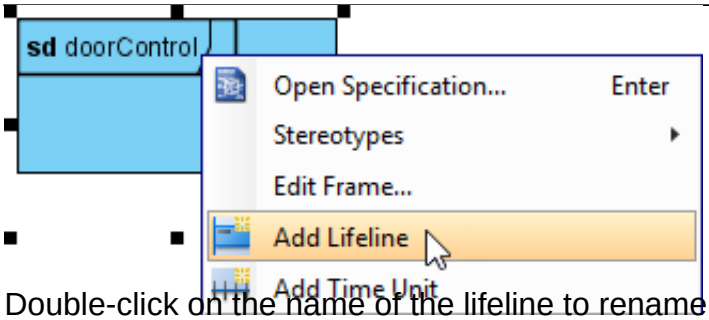


The name of a timing frame is usually preceded by the **sd** keyword.



Adding lifeline to frame

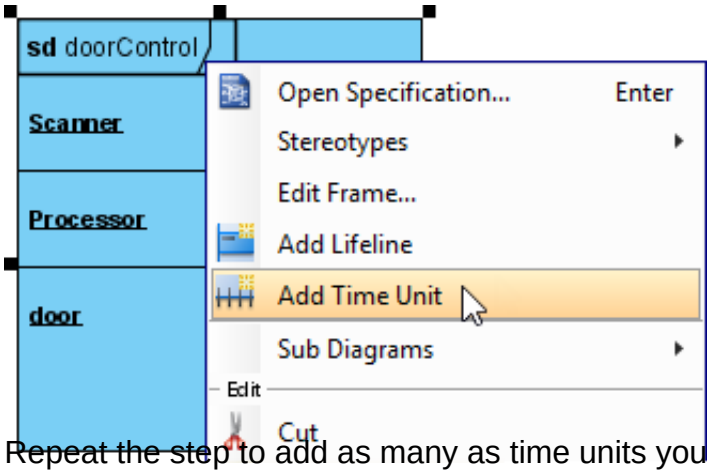
To add lifeline to a timing frame, right-click the frame and select **Add Lifeline** from the pop-up menu.



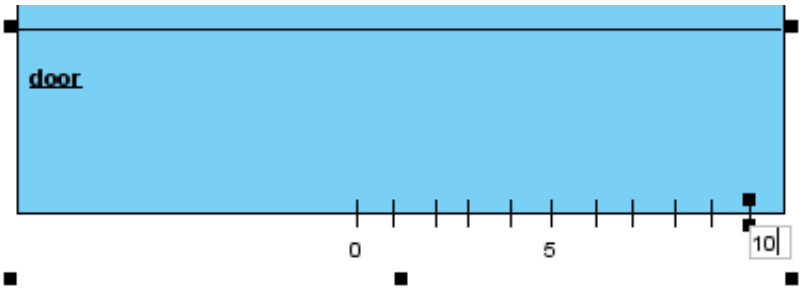
Double-click on the name of the lifeline to rename it.

Adding time unit to frame

To add time unit to a timing frame, right-click the frame and select **Add Time Unit** from the pop-up menu.

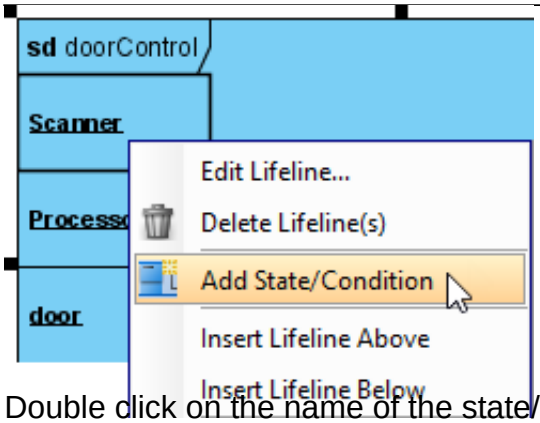


Repeat the step to add as many as time units you need. Double-click on a time unit to rename it.



Adding state/condition to lifeline

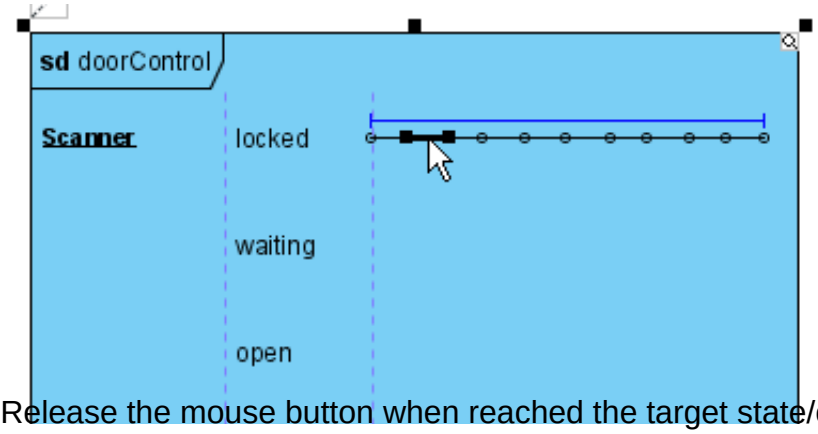
To add state/condition to a lifeline, right-click the lifeline and select **Add State/Condition** from the pop-up menu.



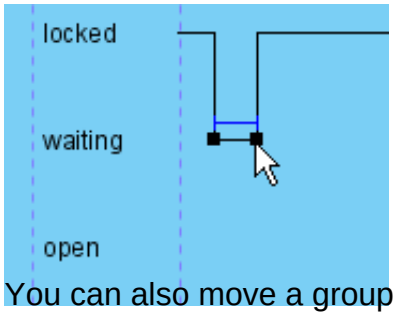
Double click on the name of the state/condition to rename it.

Dragging time instance

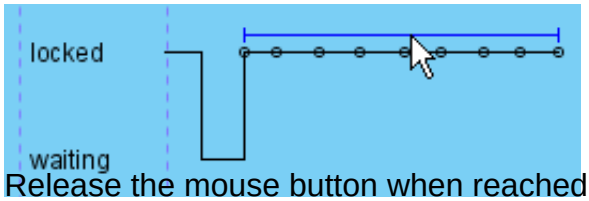
Move your mouse pointer over the line segment of a time instance, click and drag it.



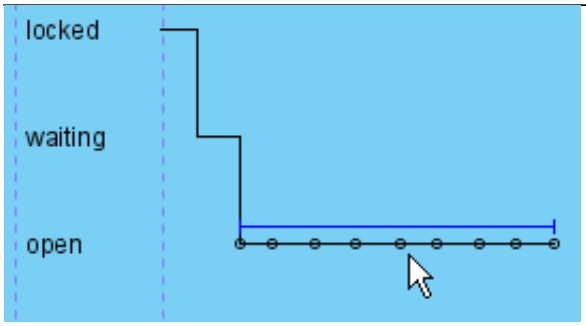
Release the mouse button when reached the target state/condition.



You can also move a group of time instances that are at the same state/condition. Mouse over the time instances and you will see a blue line above them, click and drag on the blue line.

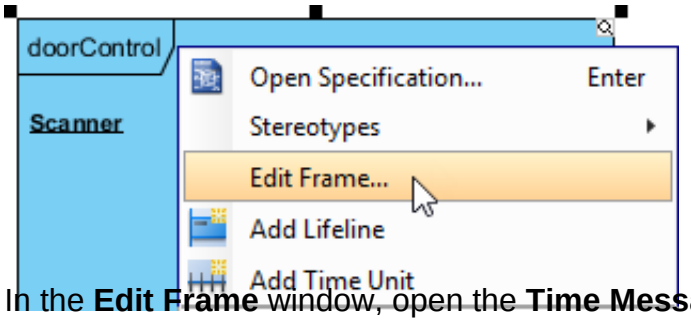


Release the mouse button when reached the target state/condition. The group of time instances is moved at once.

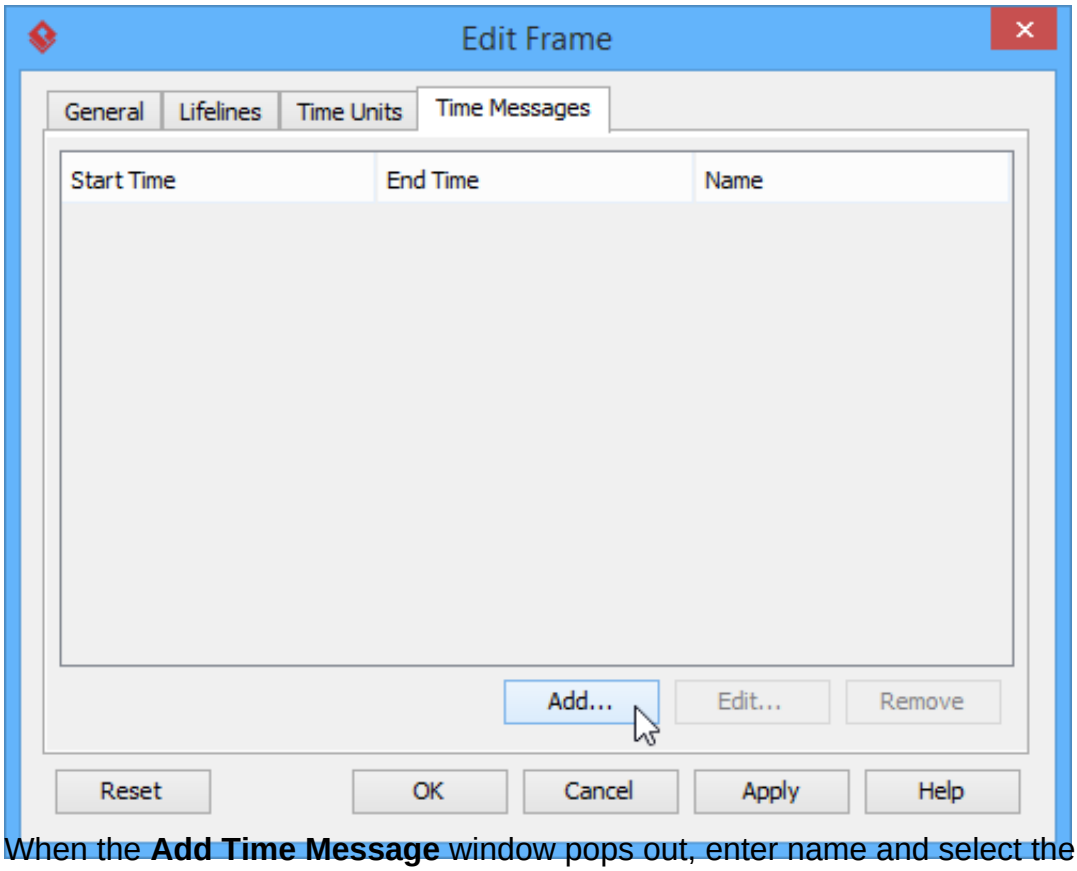


Adding time messages to frame

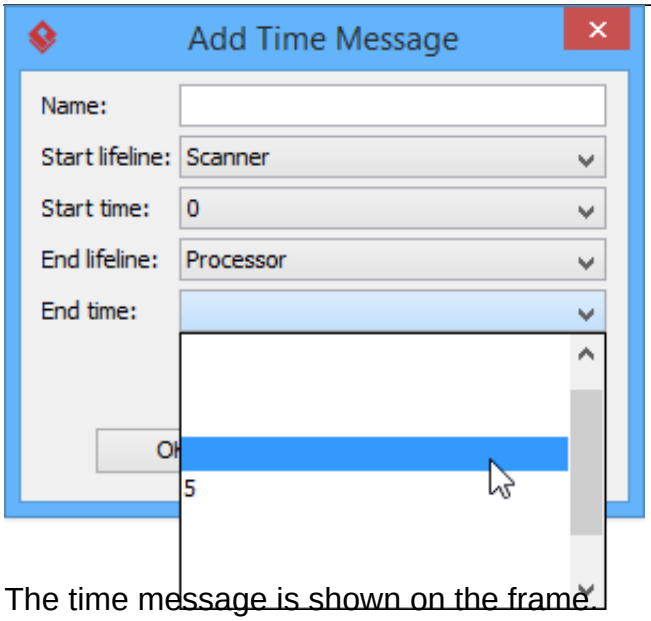
To add time messages to frame, right-click the timing frame and select **Edit Frame...** from the pop-up menu.



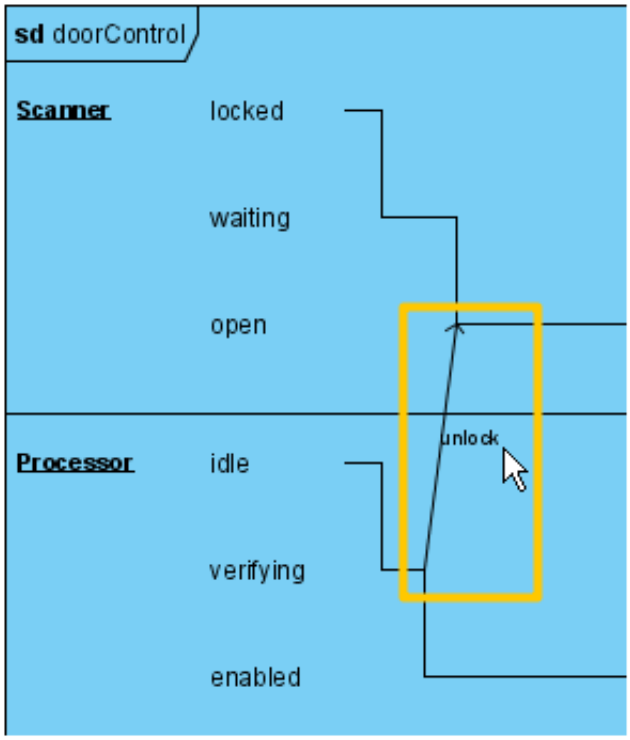
In the **Edit Frame** window, open the **Time Messages** tab and click **Add...** button.



When the **Add Time Message** window pops out, enter name and select the start lifeline, start time, end lifeline and end time for this time message. Note that as time units may be unnamed, when selecting start/end time you should check the relative position of the time unit in the list.



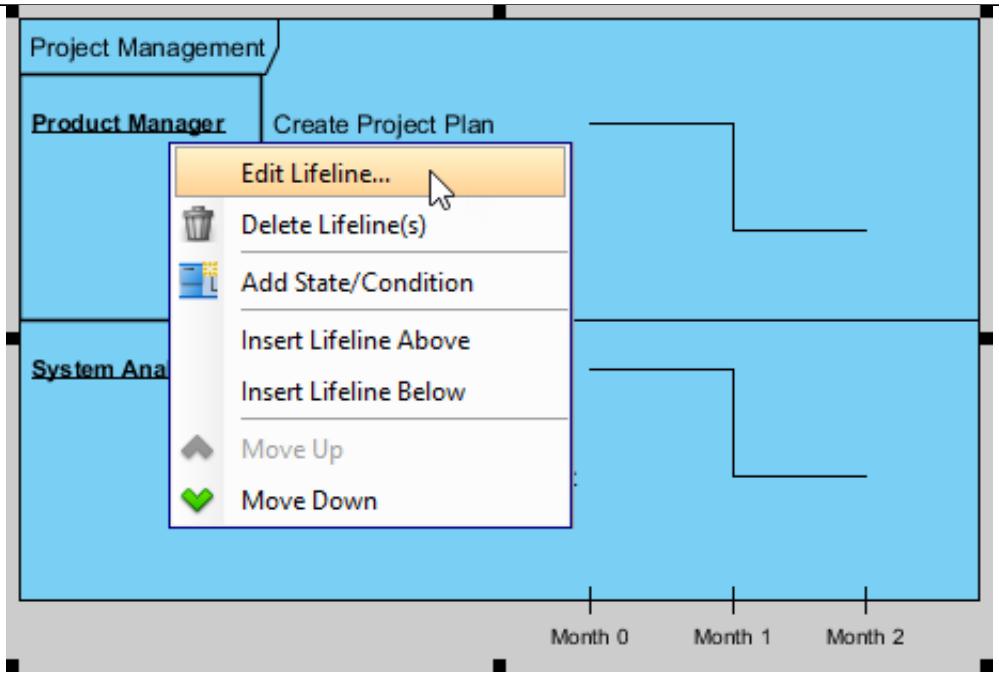
The time message is shown on the frame.



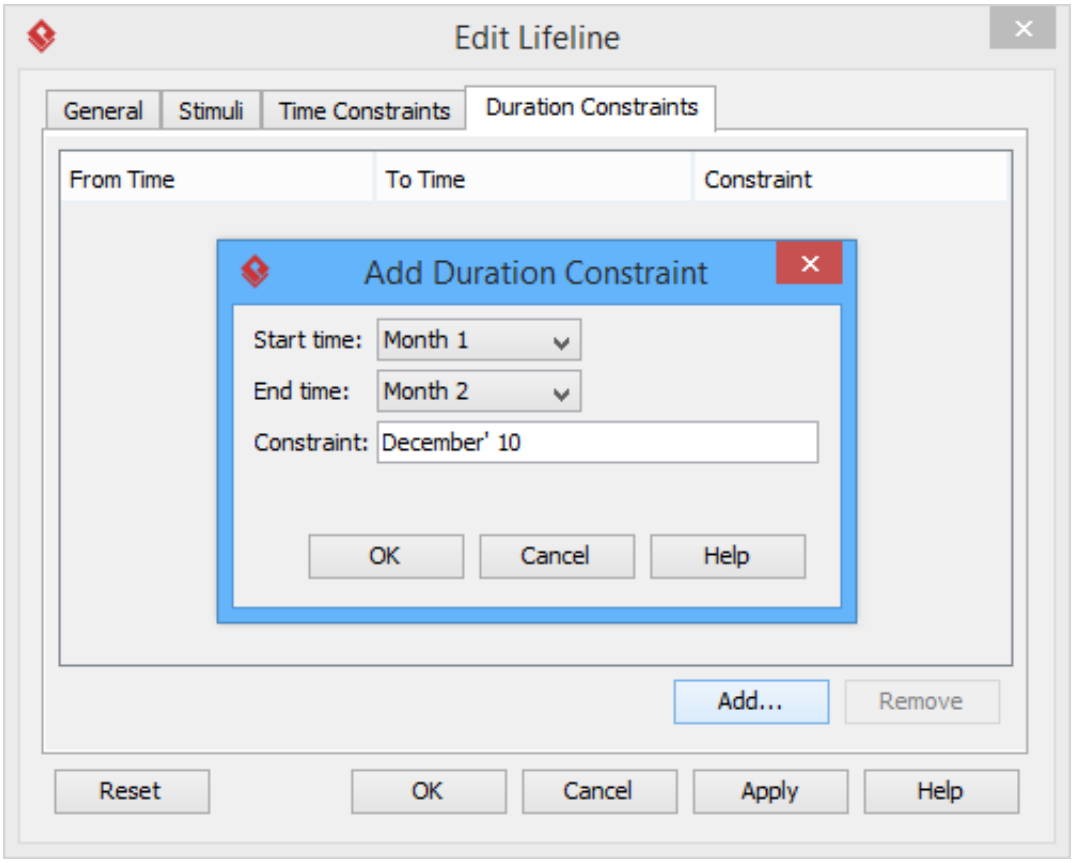
Adding duration constraint

Duration constraint is used to show the duration limitation of a particular lifeline over a period of time.

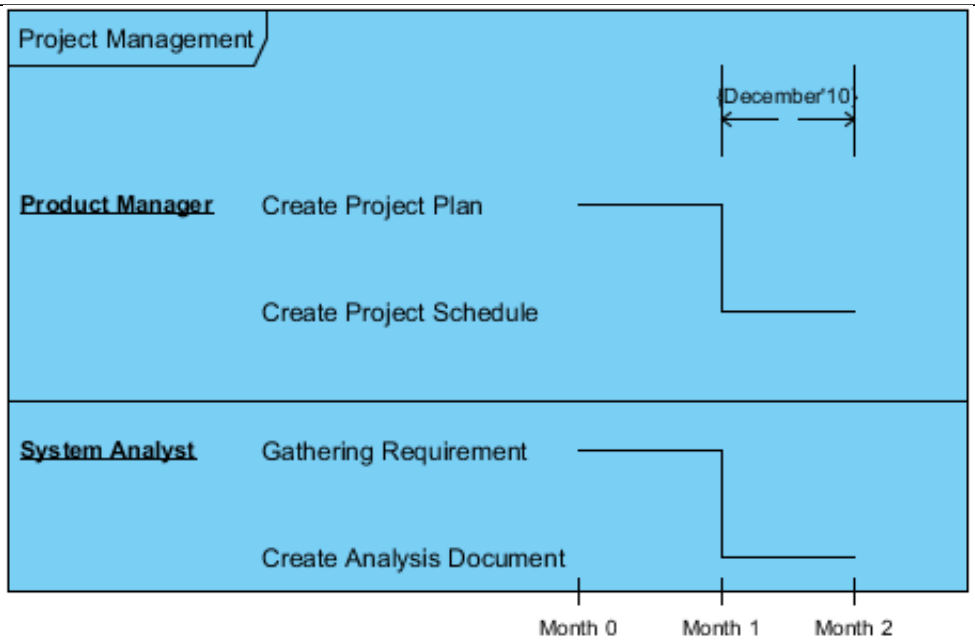
1. To set the duration constraints of a lifeline, right-click on the lifeline and select **Edit Lifeline...** from the pop-up menu.



2. In the **Duration Constraints** tab, click on the **Add...** button. In the **Add Duration Constraint** window, select the appropriate **Start time**and **End time** from the drop down menu. Fill in the duration constraint of the selected time on the **Constraint** field. Click on the **OK** button to close the window.

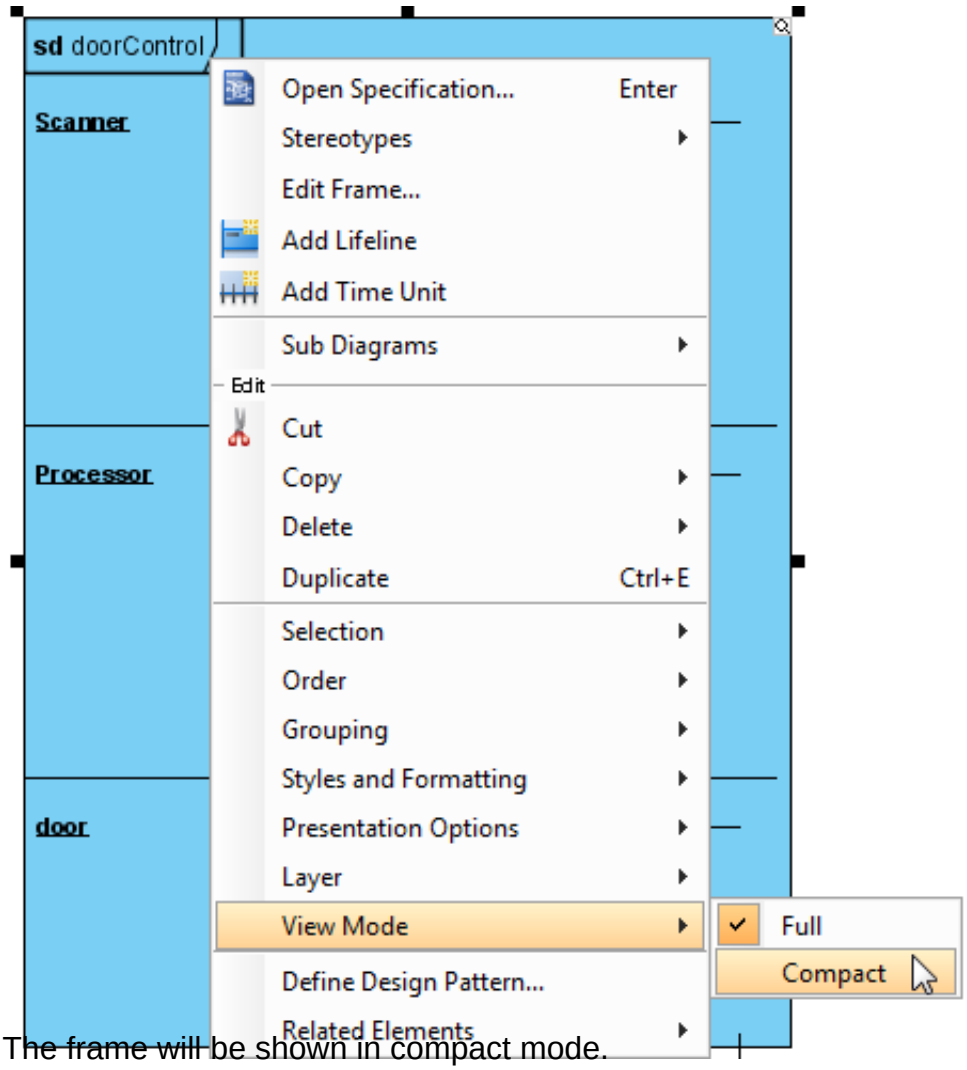


3. Click **OK** to return to diagram.

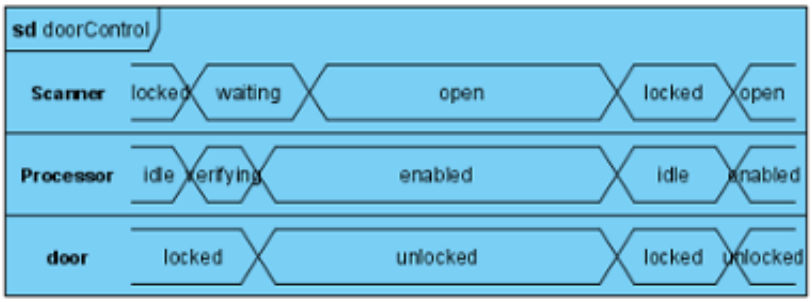


Switching to compact view mode

To switch to compact view mode, right-click the frame and select **View Mode** > **Compact** from the popup menu.



The frame will be shown in compact mode.


sd doorControl
Scanner
locked
waiting
open
locked
open
Processor
idle
verifying
enabled
idle
enabled
door
locked
unlocked
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