This short guide will show you how to begin to draw Event Trees using Logidraw.

We describe the events and the outcomes that occur when a level control fails. There are two event levels – one for the hardware and one for the operator - with one event in each level each of which has two outcomes.

Within seconds from now you will have learned how to draw the Event Tree below:

	Alarm Hardware	Operator response to Alarm	Outcomes	
		Operator stops flow to tank (0.80)		
	High Level Alarm operates (0.90)		0.072 / Yr	No Overflow
		Flow to tank not stopped by operator (0.20)		
Failure of Level Control 0.10/Yr			0.018 / Yr	Overflow Occurs
	High Level Alarm in failed state (0.10)		0.010 / Yr	Overflow Occurs

Okay start Logidraw.

1. Click **Start** > **Programs** > **PEL** > **Logidraw**. After the splash screen disappears, click **Create Event Tree** and when the Event Tree Project window appears enter the title as **60 Second Guide** and click **OK**.

    The first thing to do is to create the Initiator Event.

2. Click the window to add the Initiator Event and then enter the event name as **Failure of Level Control**.

    Next we need to specify outcomes. By default each new event has 2 outcomes named **S** (success) and **F** (failure) each with a probability of 50%. We need to rename the outcomes and specify new probabilities.

3. Double-click **S(0.5)** in the Outcome list and rename the outcome to High Level Alarm operates. Set the probability as **0.9** and click **OK**. Repeat for outcome **F(0.5)** renaming it to **High Level Alarm in failed state** with a probability of **0.1** and click **OK**.

    To complete the input for the Initiator Event we need to specify a frequency of 0.1 per year.

4. Keeping the Input Value Type as Frequency, type **0.1** into **Value** and select **yr** in the **Units** list. Finally click **OK**.

    Now we need to give this level of the event tree a meaningful name.

5. Double-click the heading **Level 1** and rename it to **Alarm Hardware**.

    We now have the Initiator Event with the first event level. Next we need to add the second level of events.

6. Click the first outcome. The event and its outcomes are highlighted blue and the selected outcome also has blue handles on it. Right-click this outcome (the blue horizontal line - not the handles) and click the last item **Attach Event to Outcome**.

    This will create two further outcomes that we again need to rename and reset their probabilities.

7. Edit the outcome **S(0.5)** and rename it to **Operator stops flow to tank**; set the probability to **0.8**. Repeat for outcome **F(0.5)** renaming it to **Flow to tank not stopped by operator** with a probability of **0.2**.

    Now we need to promote the second outcome of the event in the first level to the final outcome column.

8. Click the second outcome in the **Alarm Hardware** column to give it blue handles then right- click and click **Promote to Outcome Column**. This will extend the outcome to the final **Outcomes** column.

    Complete this second level of events by renaming the header.

9. Double-click the heading **Level 2** and rename it to **Operator response to Alarm**.

    Finally we need to add the final outcome descriptions.

10. Double-click 0.072 in the **Outcomes Value** column and add the description **No Overflow** and click OK. Repeat for the values 0.018, 0.010 and enter **Overflow Occurs** for each description.

We should now have a total frequency that overflow occurs of 0.028/yr.

And that's it! If you have time try extending the drawing to include a third event level called **Trip Function** as shown below:

Alarm Hardware	Operator response to Alarm	Trip Function	Outcomes	
	Operator stops flow to tank (0.80)		0.072 / Yr	No Overflow
High Level Alarm operates (0.90)		Trip in working state stops flow (0.95)	0.017 / Yr	No Overflow
	Flow to tank not stopped by operator (0.20)	Trip in failed state (0.050)	9.0E-04 / Yr	Overflow Occurs
Failure of Level Control 0.10/Yr		Trip in working state stops flow (0.95)	0.0095 / Yr	No Overflow
High Level Alarm in failed state (0.10)		Trip in failed state (0.050)	5.0E-04 / Yr	Overflow Occurs

11. First attach a new event to the outcome **Flow to tank not stopped by operator** with two new outcomes (a) **Trip in working state stops flow** with a probability of **0.95** and (b) **Trip in failed state** with a probability of **0.05**.

12. Next, attach a new event to the outcome **High Level Alarm in failed state** again with two outcomes (a) **Trip in working state stops flow** with a probability of **0.95** and (b) **Trip in failed state** with a probability of **0.05**.

13. Next, promote the outcome **Operator stops flow to tank** to the final **Outcomes** column.

14. Complete the drawing by renaming the **Level 3** header to **Trip Function** and adding appropriate descriptions to the final **Outcomes**.

15. Finally, on the **File** menu click **Customise** and set the font size to **10 pt** for the column headings and to **8 pt regular** for the Outcome text and values.

You should end up with a total frequency that overflow occurs of 0.001/yr.

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