



VEBKO ONLINE HELP

The "Transient" State (Observing the Differential Trajectory)

Category	tester
Section	AMT Sequencer Module
Language	English
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As already said, one of the functions of the "State Type: Transient" is to observe the impedance and differential trajectories of distance and differential relays. The route trajectory signifies the variation of differential or impedance characteristic curve in differential or distance relays based on the injected wave shapes. To this purpose, at first, from the "Default Layout for Transient" option is selected from the "Window" menu, so the arrangement of windows change proportionally to this test run. In this arrangement, the "Detail View", "Signal View", "Vector View" and "Impedance View" are located in a way to observe the trajectory.

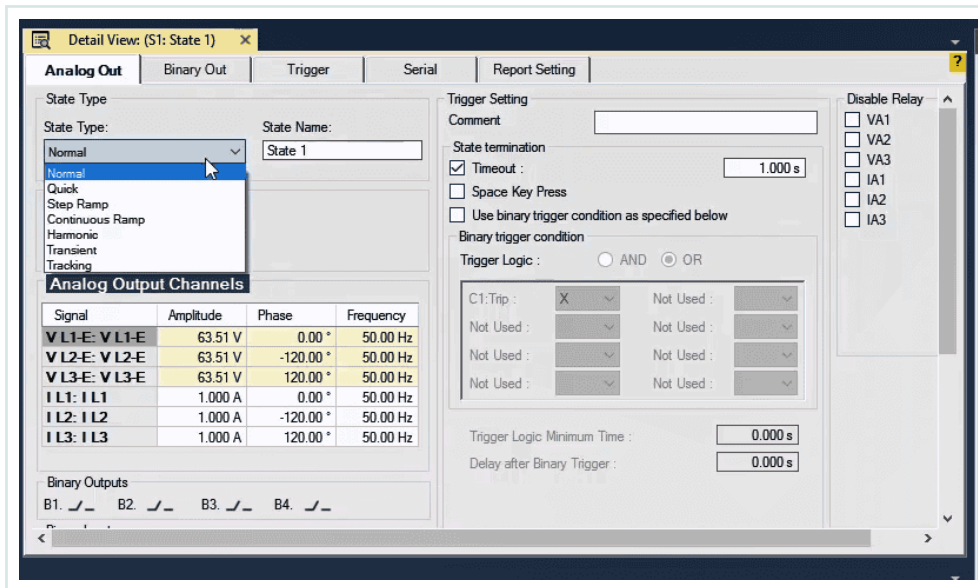


Figure 1

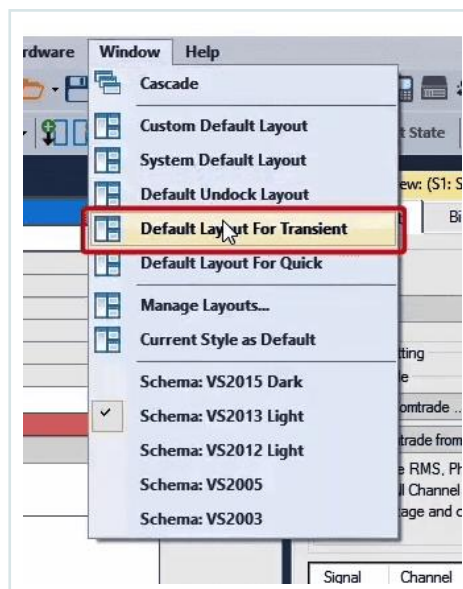


Figure 2

Subsequently, the "Transient" state is selected from the "Detail View" window from the "State Type" slider field. Remember for "Comtrade" files of the differential relay six current phases, three current

phases and three voltage phases must be active for "Comtrade" files of distance relay. Also, examine if the assigned signal to each output matches exactly the real condition and in case of any differences you have to correct it manually. At first, six current phases are activated in the "Hardware Configuration" window and the voltage phases are deactivated.

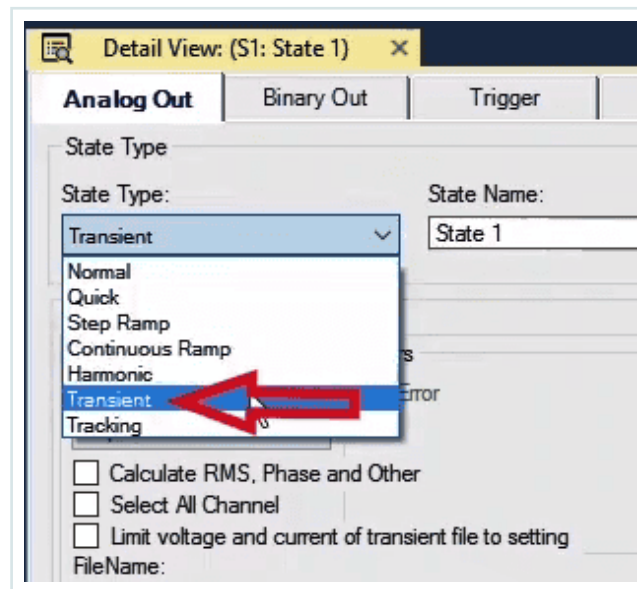


Figure 3

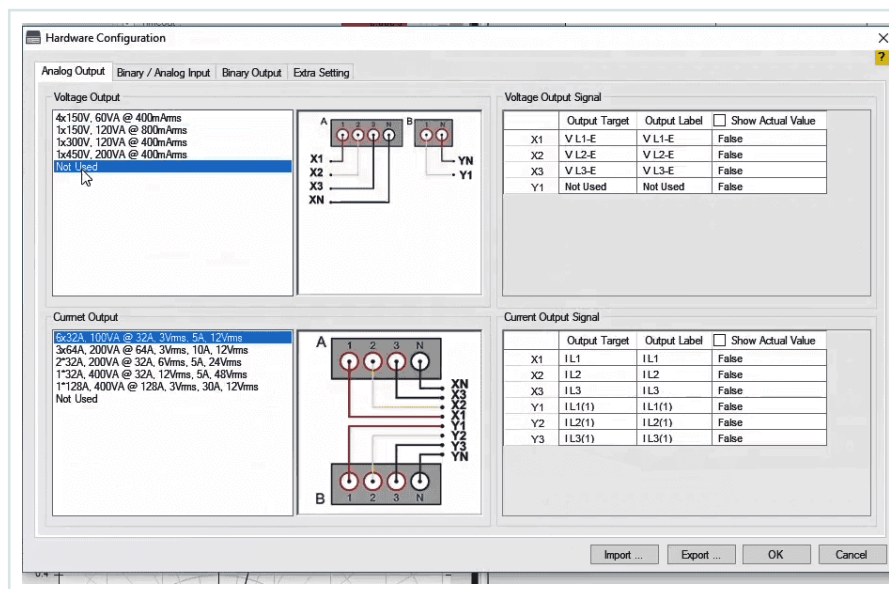


Figure 4

1 Simultaneous importing of the "Comtrade" file and relay information

In this video, the objective is to import the relay information and "Comtrade" file simultaneously. This case happens when the "Comtrade" and "Rio" files of the relay have an identical name and saved in

one folder. Then, click on the "Import Comtrade" option and the "Comtrade" file of the "7ut613" differential relay is selected. After that, the "Open Comtrade File" message is shown. This message signifies that a "Rio" file with the same name as the "Comtrade" file exists. By clicking on "YES", the "Rio" and "Comtrade" files of the relay are loaded simultaneously and in case of selecting "NO", the "Rio" file won't be loaded and the relay information should be loaded separately. In this video, after clicking on the "YES" option, the "Rio" and "Comtrade" files are loaded simultaneously. After loading the "Comtrade" file, the "Detail View" window should be checked to see if the assigned signals to the current outputs accommodate the real condition or not. In this table, the "3I0" signal is imported instead of the "IL1-M2" signal that is not correct. Therefore, in the "Channel" column, the IL1 (1) slider field is right-clicked and the "IL1-M2" is selected. The "IL2-M2" and "IL3-M2" signals are assigned to fifth and sixth outputs, respectively. Then, from the toolbar on the top of the page, the "Current State" option is selected. By doing this, the signals related to "State Type" is displayed in the "Signal View" and "Vector View" after importing the "Comtrade" file.

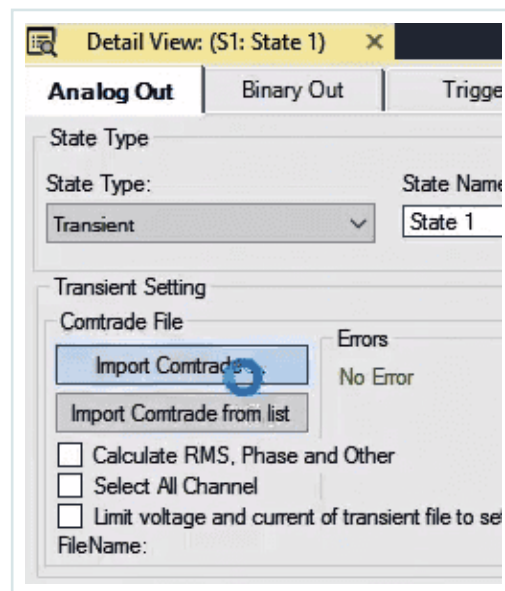


Figure 5

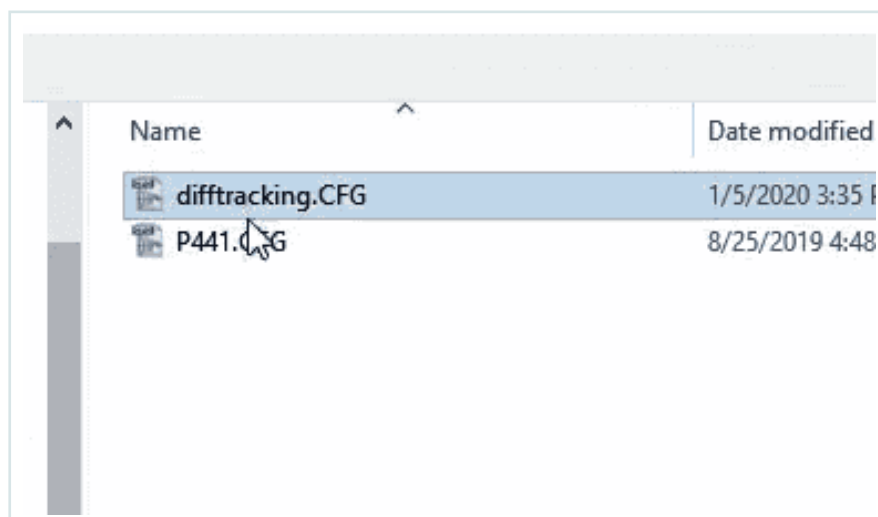


Figure 6

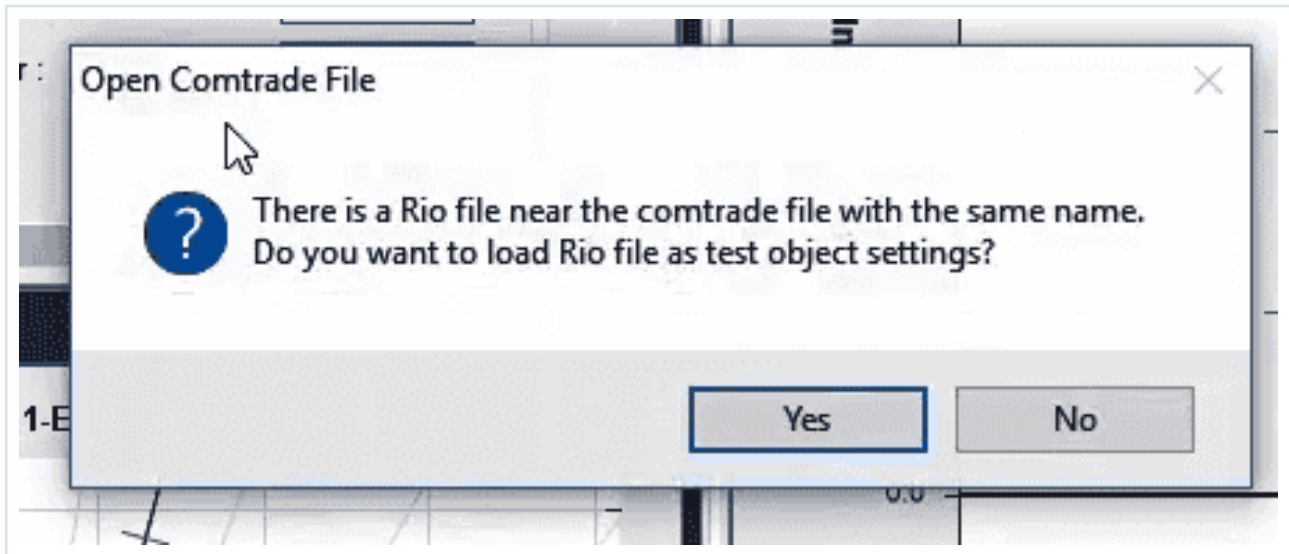


Figure 7

Signal	Channel	Scale	Min	Max	Prim. factor	Sec. factor	PS
I L1	iL1-M1	100.0 %	-20.98 A	20.72 A	500.0 A	1.000 A	Secondary
I L2	iL2-M1	100.0 %	-20.72 A	20.98 A	500.0 A	1.000 A	Secondary
I L3	iL3-M1	100.0 %	-6.913 mA	6.913 mA	500.0 A	1.000 A	Secondary
I L1(1)	3i0-M1	100.0 %	-31.48 mA	31.48 mA	500.0 A	1.000 A	Secondary
I L2(1)	iL1-M1	100.0 %	-11.75 A	12.01 A	1.200 kA	1.000 A	Secondary
I L3(1)	iL2-M2	100.0 %	-24.03 A	23.49 A	1.200 kA	1.000 A	Secondary

Figure 8

Subsequently, click on the "Differential" icon on the "Impedance View" window, so the characteristic curve of the differential relay is displayed. This curve is based on "I bias" and "I diff" that are bias current and differential current, respectively. Remember by selecting the "Differential" curve, proportionally, the name of the window is changed to "Differential Characteristic". After this, the "Cursor" option is checked in the "Setting" tab in the "Signal View" window. Do not forget to check "Calculate RMS..." option which displays the differential trajectory. After activating the "Cursor", by moving the "Cursor 1" over the time axis in the "Signal View" window, the differential trajectory could be observed instantly in the "Differential Characteristic" window. By checking the "All Point" option, the differential trajectory is displayed in all the time of the "Comtrade" file. Other options of the "Differential Characteristic" window are similar to the "Impedance View" window that has been explained in previous educational videos.



Figure 9

[jg1]Transient_State_Observing_the_differential_trajectory