

Release notes of XTAP Ver. 2.51

1. Several features have been improved.

- XTAP can now run on Windows 11.
- XTAP Ver. 2.51 and future versions can coexist on the same machine. The default installation folder has been changed from “C://XTAP” to “C://XTAP/V25EN”. For future versions, the default installation folder will be different for each version. Please note that since this feature is available only for Ver. 2.51 and future versions, all versions before Ver. 2.51 must be uninstalled.
- The time needed to launch the internal solver after running the simulation has been reduced.

2. Some new shortcuts have been added.

- Pressing the “Enter” key while a component is selected will open its properties window (it is equivalent to double-clicking the component).
- Pressing the “Shift” + “Enter” keys together while a component is selected will open the internal circuit diagram (it is equivalent to selecting “Edit subcircuit diagram” when right-clicking the component).

3. Convenient new features for the schematic diagram drawing have been added.

- It is now possible to change the name of the branches on the “Branch list” window. It is also possible to change the parameter, including the used metric prefix, of single-phase resistors, capacitors, and inductors on the “Branch list” window. The “Branch list” window can be reached from the top menu “Circuit”, by clicking on “Edit all branch properties”.
- It is now possible to display the unit, including the used metric prefix, of the resistance of single-phase resistors, the capacitance of single-phase capacitors, and the inductance of single-phase inductors on the schematic diagram.
- The resistance of single-phase resistors, the capacitance of single-phase capacitors, and the inductance of single-phase inductors can now be modified directly from the circuit schematic diagram. It can be done by double-clicking the respective parameter displayed on the circuit schematic diagram.
- The parameters of some components, such as the “non-linear single-phase resistor”, are specified using a table. It is possible to select the metric prefix of such parameters, however it only works when all elements of the table are numbers. If a variable (string) is set as an element, the metric prefix will be neglected. When a variable (string) is used, a new feature to automatically multiply all the inputted numbers of the list to match the

desired metric prefix has been added (for example, if the metric prefix is set as “k” all numbers will be multiplied by 1000).

- It is now possible to see the contents of external files which have been specified as the parameters for some components such as the “ π -Equivalent Circuit Line Model (XTLC)”. It can be done by clicking on the button “Display” at the right-hand side of the button “Choose file”, on the properties window of the respective component.
- The following control blocks located at the category “47 Signal Sources” have been improved so that double-quotation marks are automatically added when specifying the “reference node/branch names”.
 - 02 Node Voltage Output
 - 03 Branch Voltage Output
 - 04 Branch Current Output

4. Several minor bugs have been fixed.

- When the state of some switches is “OFF” at the start of the simulation, their icon on the schematic diagram changes to the icon of a closed switch. When it is “ON”, their icon changes to the icon of an opened switch. However, there was a trouble which some icons would not change properly. Such a trouble has been fixed.
- An error with some internal parameters used in the component “06 External-Commutated SVC”, located at the category “08 DC power transmission, Frequency Converter, FACTS”, has been fixed.
- In the previous versions of XTAP, the initial current/voltage values of the Inductor (for initialization)/Capacitor (for initialization) were displayed on the schematic diagram even if the flags to display them were not checked. Now, they are displayed only if the flags to display them are checked. It is also now possible to change the position of the displayed initial current/voltage value.
- The properties window of the transformers which leakage impedance is specified in percentage has been fixed. In such transformers, there are two options to specify the value of the impedance connected to the primary and secondary sides: to specify the primary/secondary ratio; to specify the primary and the secondary values directly. When one option is selected, the parameter fields corresponding to the other options are now automatically disabled.

5. Several components have been added.

- The transmission-line model which uses cascaded Bergeron cells: “Frequency-Dependent Distributed Constant Line Model (BC Model)” has been added. It is located

at the “05 Transmission and Distribution Lines” category. It is a transmission-line model which uses cascaded Bergeron cells, and which can consider the frequency dependence of parameters caused by the skin effect of conductors and the ground soil. It is more computationally expensive than the conventional frequency-dependent line model, but it is more numerically stable.

- Several three-phase transformers with delta-Y winding connection have been added. They are located at the category “06 Transformer” and the sub-category “01 3-Phase 2-Winding Transformer”.

6. A new test case and a unified version of PDF file including information about all test cases have been added.

- The test case PLL-01 has been added. It explains the operating principle of the “phase detector” and the “frequency calculator” control blocks used in XTAP.
- A unified version of PDF file including information about all test cases has been added. If you installed XTAP in the default folder, it is the file “TestCasesofXTAP_v251.pdf” available inside the folder “C://XTAP/V25EN/work/Examples”.

7. Some features of the line-constant calculation program XTLC have been improved.

- It is now possible to generate a frequency-dependent BC-line model. It is a transmission-line model which uses cascaded Bergeron cells, and which can consider the frequency dependence of parameters caused by the skin effect of conductors and the ground soil. It is more computationally expensive than the conventional frequency-dependent line model, but it is more numerically stable.
- It is now possible to edit the cable “main insulator relative magnetic permeability”, from the cable database editing window.

8. Some features of the graph-plotting tool XPLT have been improved.

- It is now possible to select an arbitrary time range when plotting XY graphs. This feature is available by clicking on the “Edit waveform” button, selecting the “XYPlot” option and finally clicking on “Plot it”.
- The size of the graph-plotting tool XPLT window will now be remembered after closing it, so after launching it again the window size will be the same.