Fault Tree Viewer User Manual

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This document is part of the distribution package of the viewers toolset.

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Chapter 1

Fault Tree Viewer

The fault tree viewer (Figure 1.1) can be used to display a fault tree generated by xSAP. It takes a FT in FT-Plus format (two files for events and gates) or in XML format and shows it; for further details about what fault tree is, please refer to the XSAP manual (Chapter 3). [1]

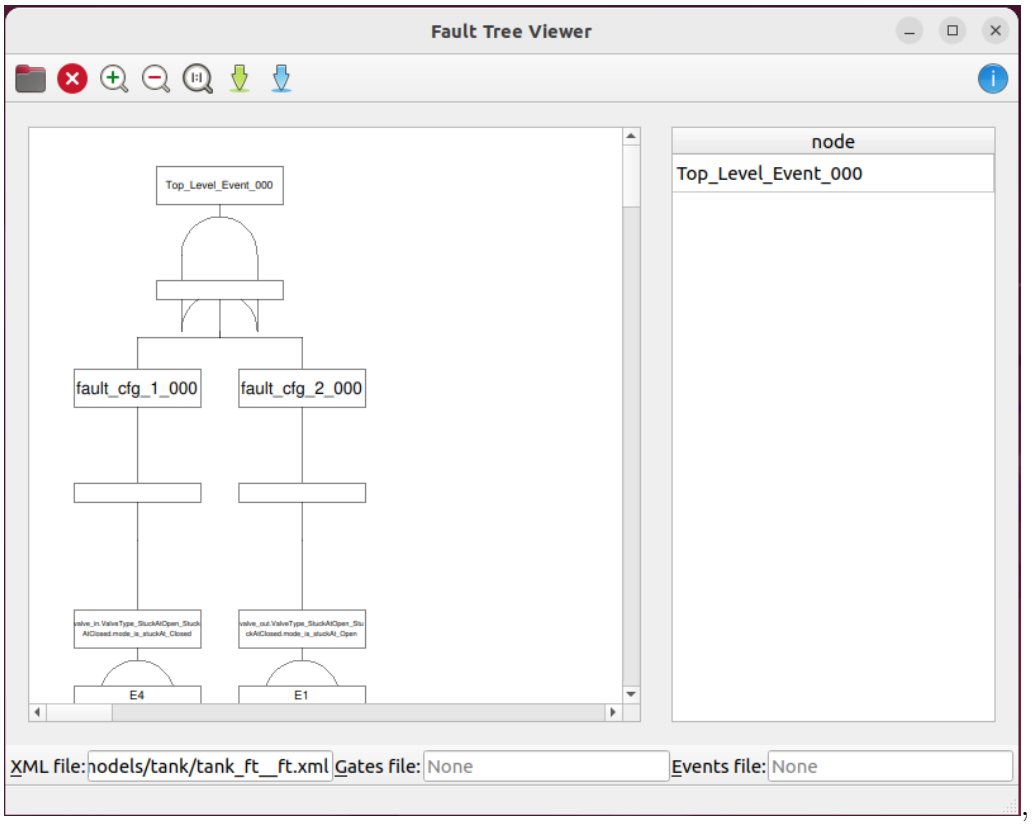

Figure 1.1: The Fault Tree viewer

- Fault Tree Display: The viewer can display fault trees generated by xSAP.
- File Import: Fault Tree files in FT-Plus format (separate files for events and gates) or XML format can be imported for visualization and analysis.

[1] Visit the website: xSAP Website

- Interactive Visualization: Users can explore and inspect the fault tree using interactive features such as moving, zooming, and panning.
- Export Options: The viewer may provide options to export the fault tree display as PDF, PNG, or other formats for sharing or further integration with other tools or platforms.

1.1 Prerequisites

pip latest available version

Install corresponding package.

PySide2 Version 5.15.2.1 or later

Install corresponding package.

Pillow Version 9.5.0 or later

Install corresponding package.

1.2 Fault Tree viewer

To run the Fault Tree viewer, invoke script:

```
$> python view_ft.py -h

usage: view_ft.py [-h] [--events-file EVENTS_FILE] [--gates-file GATES_FILE]
                  [--xml-file XML_FILE] [-d PATH] [-o OUTPUT_FILE]
                  [-f OUTPUT_FORMAT] [--verbose]

Opens the Fault Tree Viewer with specified or found files

optional arguments:
  -h, --help            show this help message and exit
  --events-file EVENTS_FILE, -e EVENTS_FILE
                        The input events file name
  --gates-file GATES_FILE, -g GATES_FILE
                        The input gates file name
  --xml-file XML_FILE, -x XML_FILE
                        The input fault tree xml file name
  -d PATH, --outdir PATH
                        Input directory, where gates and events files are
                        searched when not specified (default:out)
  -o OUTPUT_FILE, --output-file OUTPUT_FILE
                        Output file where fault tree is dumped
  -f OUTPUT_FORMAT, --output-format OUTPUT_FORMAT
                        Output format for the fault tree (default: png)
  --verbose, -v         Sets verbosity to high level
```

Given a pair of events and gates files, (e.g. event.txt and gates.txt) it can show the fault tree with:

```
$> python view_ft.py -e events.txt -g gates.txt
```

The same can be obtained giving an xml representation of it (e.g. ft.xml):

```
$> python view_ft.py -x ft.xml
```