TFPG Viewer User Manual

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

Chapter 1

TFPG Viewer

TFPG viewer (Figure 1.1) is a tool designed to visualize and interact with Time and Failure Propagation Graphs (TFPGs) A TFPG is a labeled directed graph representing failure modes and discrepancies, where edges capture the propagation of failures over time in a dynamic system; for further details about TFPG syntax and semantics, please refer to the XSAP manual (Chapter 5). [1]

1.1   Prerequisites

pip latest available version

> Install corresponding package.

matplotlib Version 3.7.1 or later

> Install corresponding package.

networkx Version 3.0 or later

> Install corresponding package.

PySide2 Version 5.15.2.1 or later

> Install corresponding package.

setuptools Version 67.7.2 or later

> Install corresponding package.

1.2   TFPG viewer

- File Import: Users can import TFPG files in TXML or tfpg format for visualization and analysis.

- Interactive Visualization: The viewer provides interactive features such as moving, zooming, and panning to explore and inspect the TFPG.
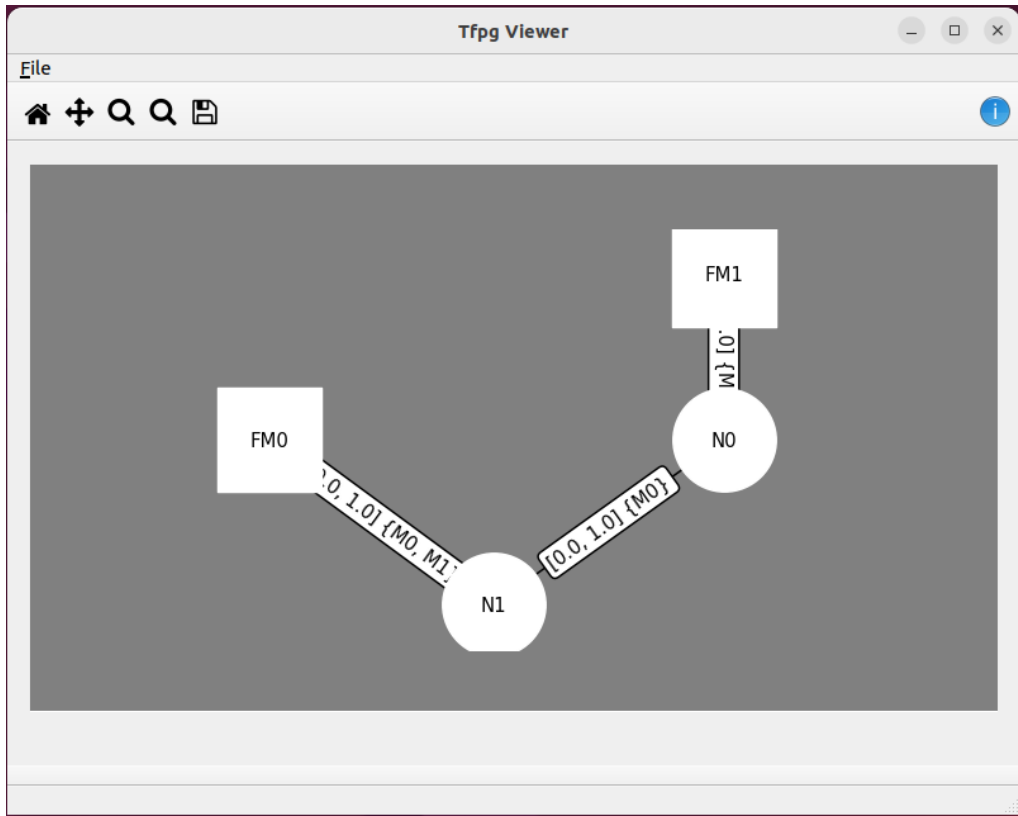
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[1]Visit the website: xSAP Website

Figure 1.1: The TFPG viewer

- Editing Capabilities: The viewer enables users to manipulate the TFPG structure, re-arranging nodes or modifying relationships.

- Export Options: TFPGs can be exported in PDF, PNG, or DOT formats, allowing for sharing and integration with other tools or platforms.

To run the TFPG viewer, invoke script:

```
$> python view_tfpg.py −h

usage: view_tfpg.py [−h] [−−tfpg−file TFPG_FNAME] [−−out−file OUT_FNAME]
                    [−−output−format {pdf,png,dot}]

Opens the TFPG Viewer

optional arguments:
  −h, −−help            show this help message and exit
  −−tfpg−file TFPG_FNAME, −t TFPG_FNAME
                        The input TFPG file name
  −−out−file OUT_FNAME, −o OUT_FNAME
                        The name of the output file used to dump the TFPG
  −−output−format {pdf,png,dot}, −f {pdf,png,dot}
                        Output format (default: pdf)
```

It is possible to run the viewer in three ways:

1. with a TFPG file as argument; in this case, the selected TFPG is shown.

2. with a TFPG file and and output file as arguments; in this case, the corresponding TFPG is directly dumped to file

3. without parameters; in this case, an empty window is shown and it is possible to load the TFPG using the GUI.