# ALL NEW RSCAD-FX

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# AGENDA

- RSCAD Re-Write Project Overview
- RSCAD-FX RunTime
- RSCAD-FX Features
- Future Developments
- Questions

RSCAD®FX

# RSCAD-FX RE-WRITE PROJECT

## Overview

- RSCAD FX project began in 2018
- Objectives were
  - To modernize the RSCAD GUI
  - To improve RSCAD's useability by addressing the requests from customers over the years.
  - To use an updated technology stack
- The project was broken up into phases
  - Phase I Draft Re-write, C-Builder Re-write and the ICT Development
  - Phase II Runtime Re-write
  - Phase III Python Scripting Support
  - Phase IV ???

# RSCAD-FX REWRITE PROJECT

## Phase I – Draft Rewrite (RSCAD-FX 1.0)

- Released in April 2021
- Largely a porting of existing functionality into a modernized framework.
- More extensive use of Tabs and Drag and Drop functionality.
- Redesigned the library into a Tree Structure.
- New features such as Wire Mode and Auto-Naming were introduced.
- The CBuilder and ICT Tool redevelopments were initiated.

- Initially, some users liked it, others did not.
- The Draft portion of RSCAD FX is maturing and users are becoming comfortable with it.

# RSCAD-FX REWRITE PROJECT

## Phase II – Runtime Rewrite (RSCAD-FX 2.0)

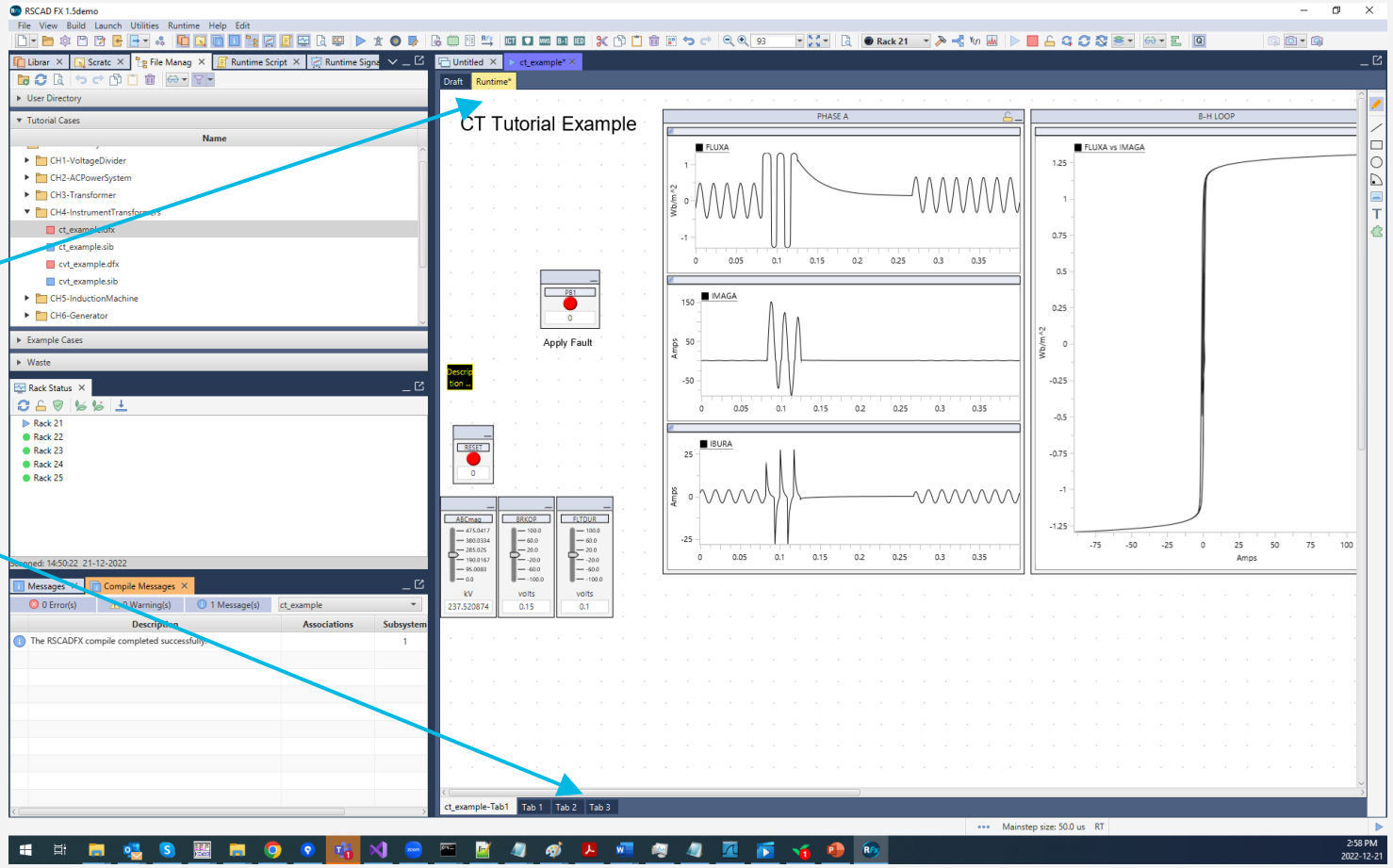
- Released in May of 2023
- The main objective was to implement the key functionality available in RSCAD-V5 RunTime.
- Other objectives were to add following features to make it more user friendly.
  - Runtime Overlays.
  - Better Mechanism for adding plots and meters.
  - Integrated Case Files.
  - Enhanced Runtime Graphics.
  - Tighter integration of Draft and Runtime functionality.

- Like the Draft release, reception has been mixed. Some users like it, others don't.
- We're actively fixing bugs and making refinements.

# RSCAD-FX RUNTIME

## RunTime Environment

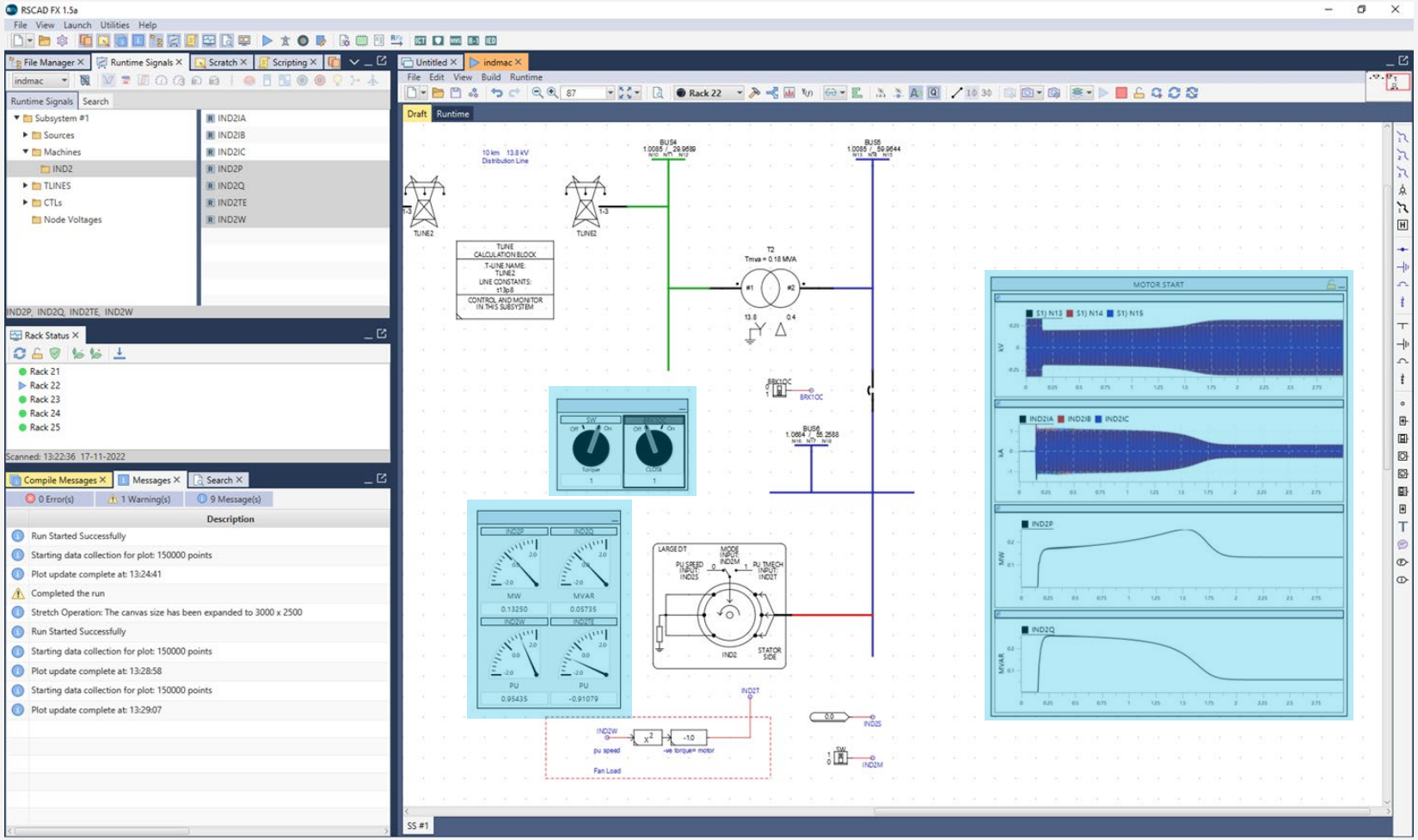
- RunTime is now a Tab under the case tab
- It can be docked/undocked.
- Multiple RunTime Panels can be added



# RSCAD-FX RUNTIME

## RunTime Overlay

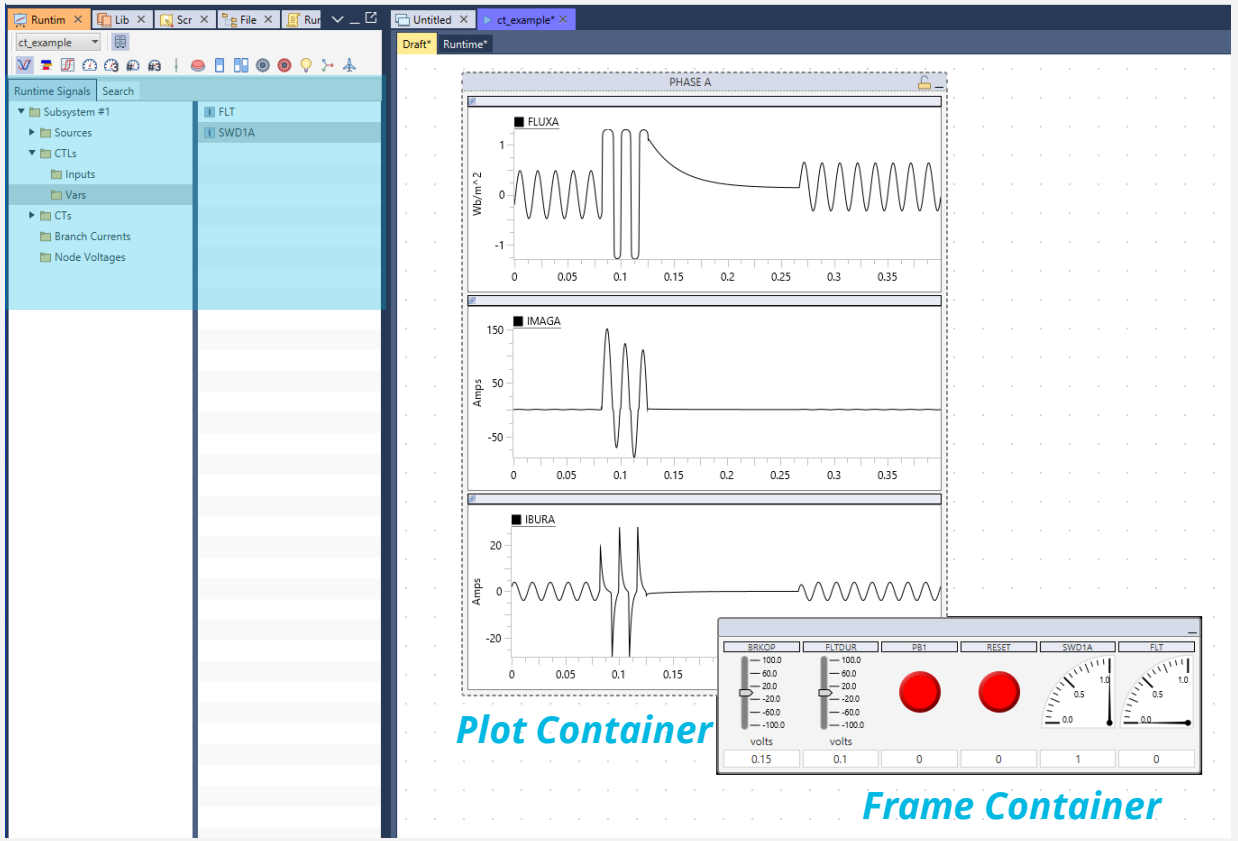
- Plots, Meters and Other RunTime Objects can be placed in Draft canvases.



# RSCAD-FX RUNTIME

## RunTime Signals Utility Tab

- Runtime Signals Utility Tab allows signals to be drag and dropped onto the runtime canvas
- RunTime objects like Meters, Graphs, 3P RMS, Vector Displays, Switches, Buttons etc. can be grouped in containers to be easily moved together and re-arranged.
- Multiple types of RunTime objects can be added at one time making it faster to create an HMI for a simulation

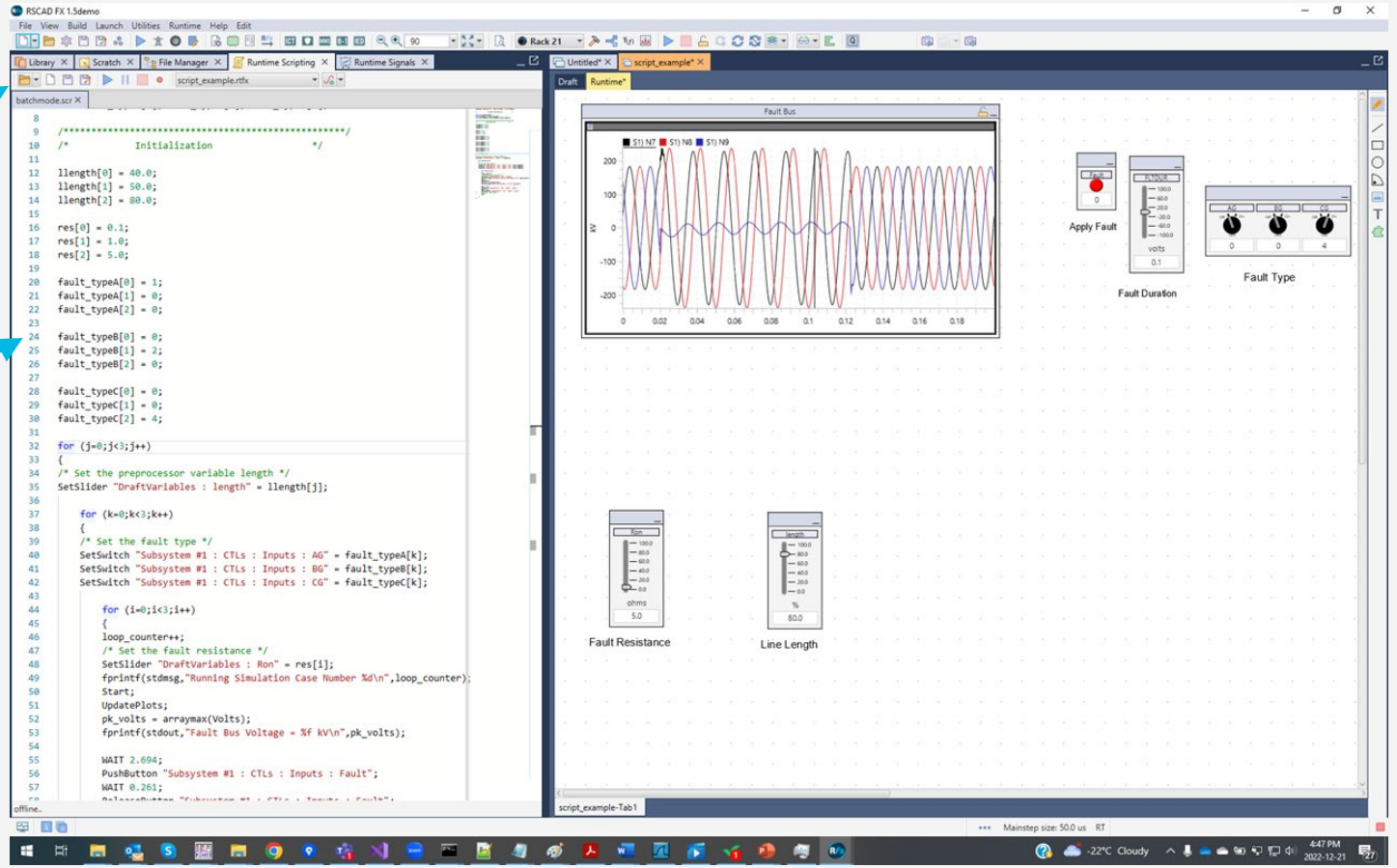


# RSCAD-FX RUNTIME

## Scripting

*Scripting Utility Tab*

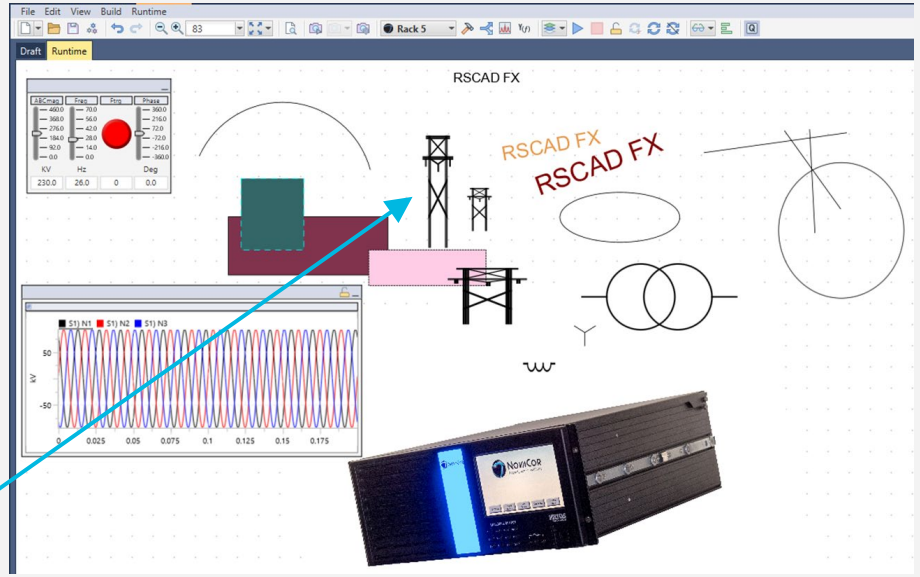
*Integrated Text Editor*

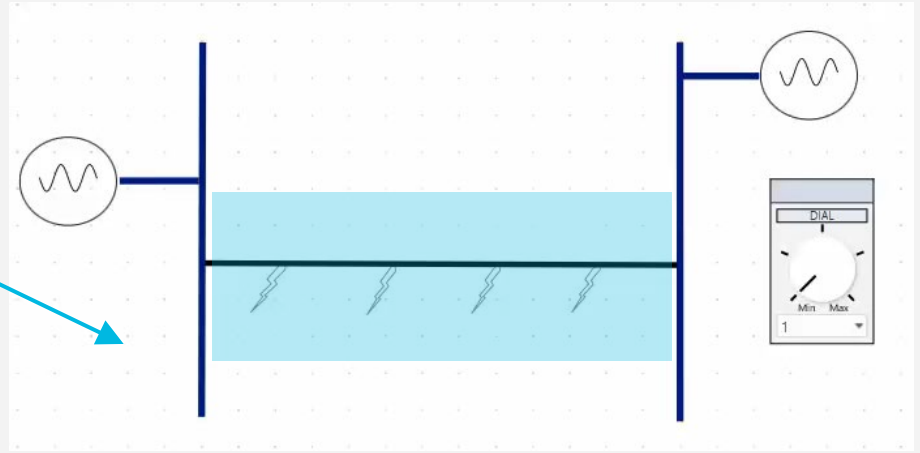


# RSCAD-FX RUNTIME

## Enhanced Runtime Graphics

- Increased number of shape properties gives increased flexibility
- Added the ability to add multiple resizable images so that it is easier to make HMIs representing the simulation.
- Properties can be changed conditionally based on signals in simulation.

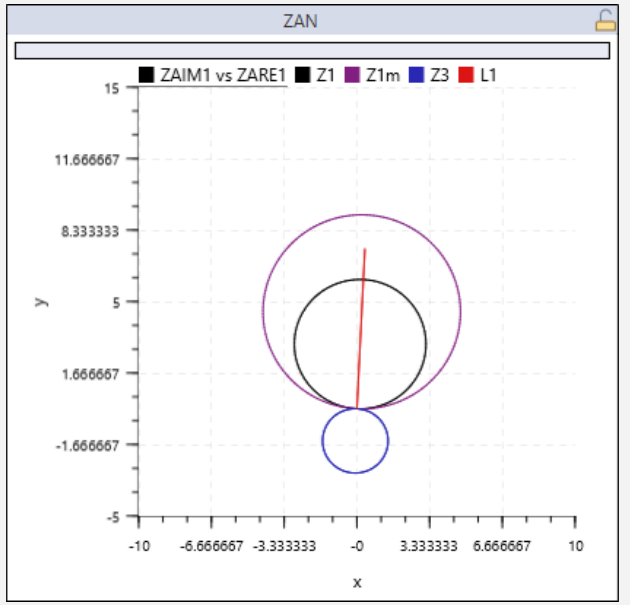


# RSCAD-FX RUNTIME

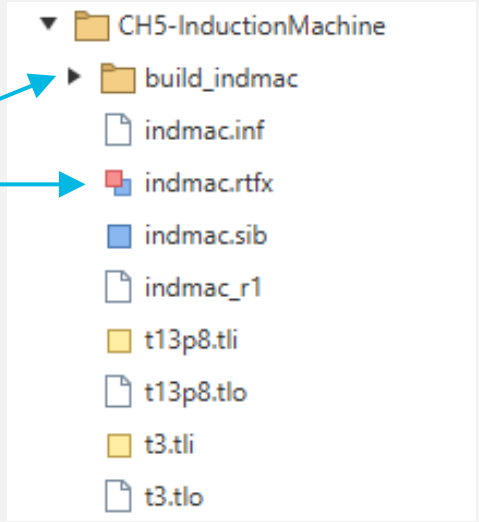
## Other Notable Features in Runtime

- Added Undo/Redo Functionality.
- Tighter integration of Draft and Runtime so that changes in one does not break the other.
    - Ex: Moving signals between Subsystems or between Mainstep-Substep)
- Improved Relay Characteristics Curves in Plots.
- Added support for saving plot data in COMTRADE v2013 format.



# RSCAD-FX FEATURES

## Integrated Case File – RTFX File

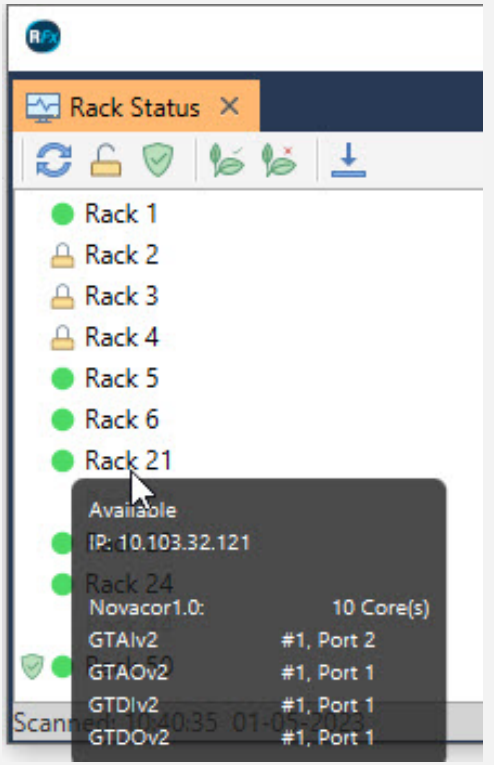



- RTFX case file is a zip file
  - DFX – Draft case
  - RTX – Runtime
  - Other connecting files
- Build folder
  - Contains files created during a draft compile
- All other files (Cable, Tline, etc.)
  - Linked to RTFX case file by being in the same directory
- When the user converts a .sib file to .rtx, the conversion will put it inside the RTFX zip file

# RSCAD-FX FEATURES

## Rack Status Utility Tab

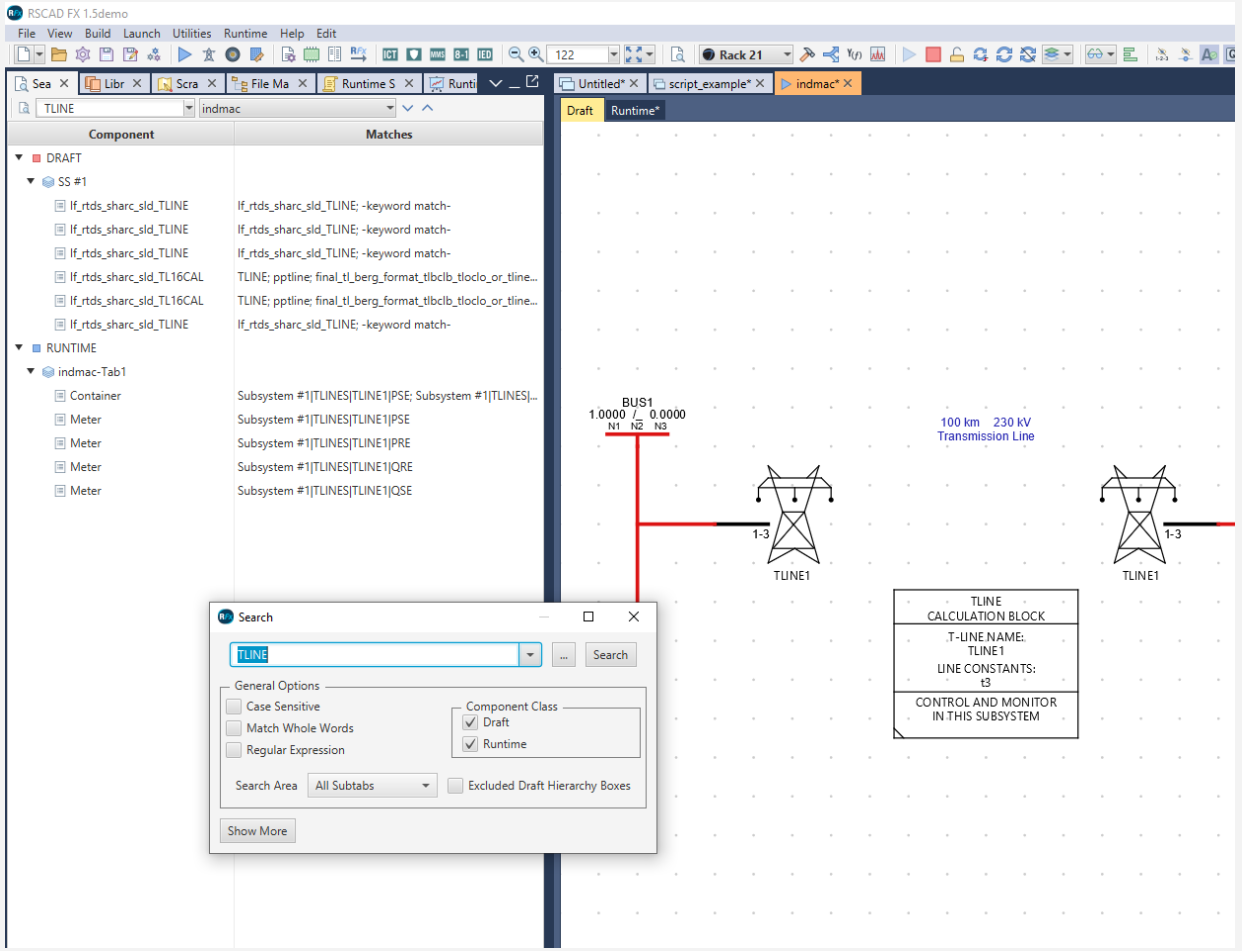
- Provides easy access to available hardware configurations
- Provides information on
  - Current status (Free/Used/Locked)
  - IP address
  - Number of Cores
  - Connected peripheral cards and port numbers
- Rack Security
- Retrieve Rack Logs
- Low Power Mode



# RSCAD-FX FEATURES

## Search Feature

- Moved existing functionality into a utility tab
- Required in order to consolidate Runtime and Draft searches
- Kept existing Tree view



# RSCAD®Fx

## *Upcoming Features*

# RSCAD-FX FUTURE DEVELOPMENTS

## Python Scripting

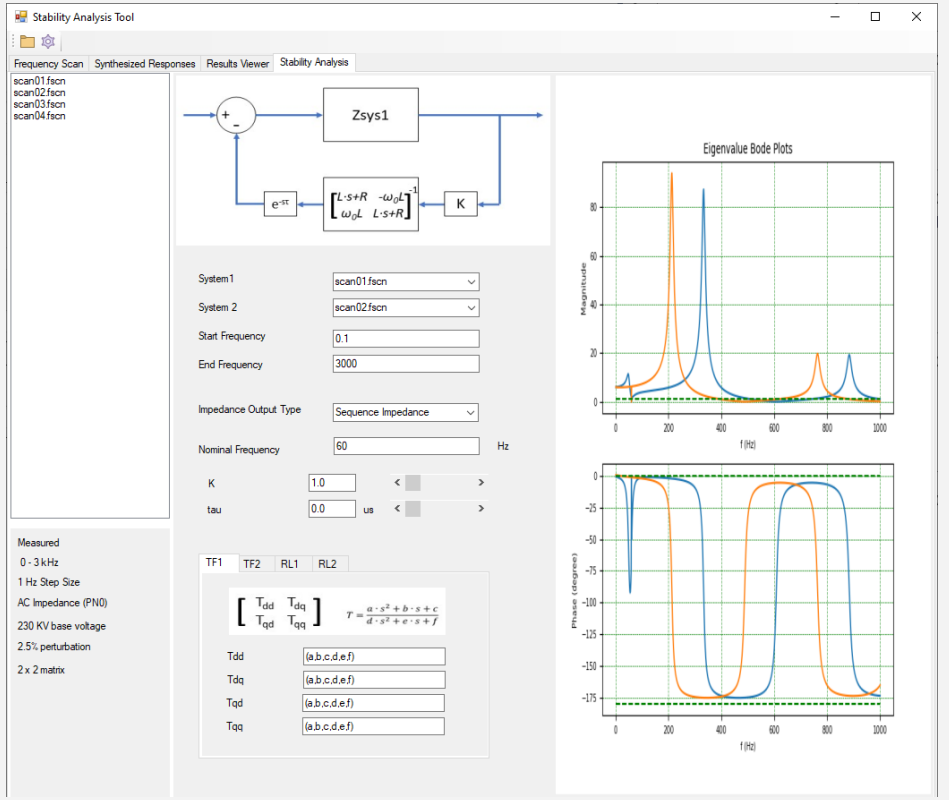
- Moving towards Python-based scripting.
- Increasingly common feature requests from clients.
- Future scripting enhancements will be made for Python Scripting only.
- Legacy scripting support will remain but will be deprecated.


- Functionality will probably be released in stages.

# RSCAD-FX FUTURE DEVELOPMENTS

## Stability Analysis Tool

- Tool to analyze the harmonic scan.
- Input impedance as a function of frequency can be measured and plotted
- The effect of providing specific closed loop control of the measured systems can be analyzed.
- phase margin and magnitude margin of the closed loop systems is provided.



# RSCAD-FX FUTURE DEVELOPMENTS

## Incremental Improvements

- Bug fixes
- Refinements based on the feedback received.
- Performance improvements
- There were several omissions from the initial Runtime FX release due to time constraints. Those features will be added in future.
  - Displaying meters as a graphs
  - Saving plots as vector graphics
- Going forward RSCAD-FX development will be an ongoing, continual process to address the feedback from users.

*Questions?*