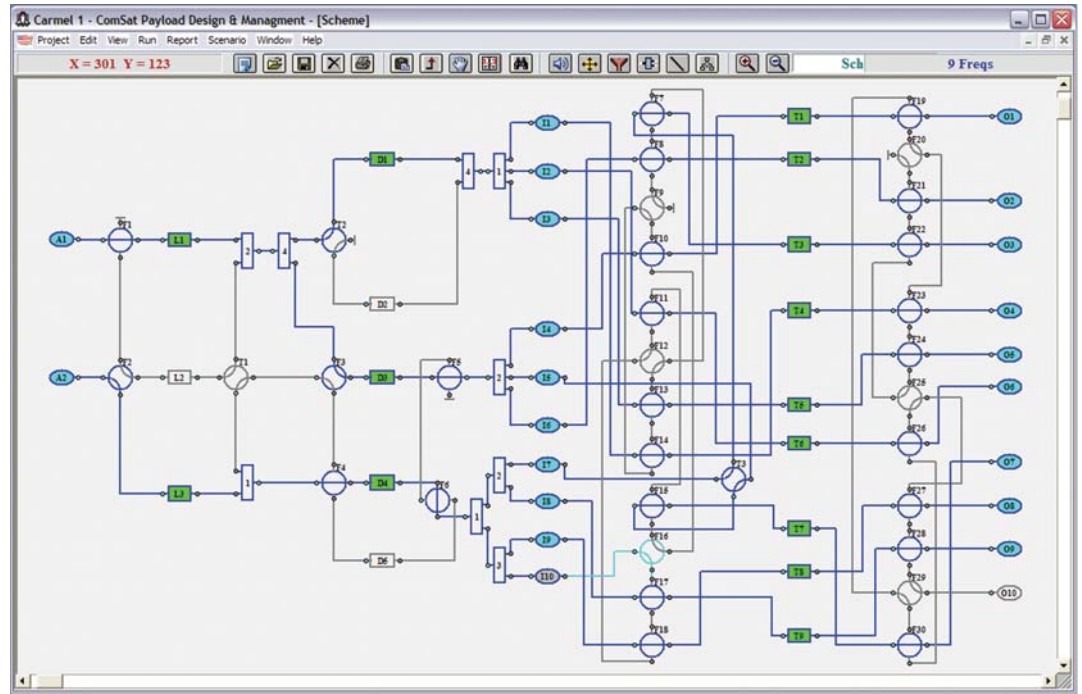


## Product Description



Sample Payload Scheme Window in TRECS

TRECS™ (Transponder Reconfiguration System) enables communications satellite operators to rapidly and efficiently plan changes to the payload configuration that occur as part of routine satellite and test operations while also minimizing the duration of unexpected communications outages.

Using TRECS, operators can optimally reconfigure the payload system components to achieve the desired communications payload configurations for in-orbit (or ground) testing, operational configurations and payload reassignments. Changing a payload assignment involves an easy manual redefinition of an interface table and launching of a specially designed, very powerful computerized mathematical algorithm to find all feasible solutions, sort them by output signal quality while rejecting many millions of non-feasible solutions. The solutions will be optimal in terms of signal quality, satisfy defined needs and minimize disruption to existing configurations.

After the most effective configuration is determined, a simple menu selection will allow generation of a commanding procedure (STOL or ARES™) to reconfigure the payload. This procedure will verify initial conditions of the payload, send the required commands and then positively verify completion via telemetry. The TRECS system will also allow visualization in near real time by displaying configuration status via a simple ASCII file interface to the realtime system.

TRECS brings together the strengths of Integral Systems command and control systems, and LIDM Software System's ComSat Payload Design & Management Program optimization and configuration product into a versatile tool for the Satellite Operator.

# TRECS™

Transponder Reconfiguration System - Operators

# TRECS for Operators

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## Features

## Benefits

- Model Defined per Satellite
  - Easily supports multiple satellites
  - Models easily and quickly developed by user using cut & paste, as well as drag and drop functions
- Optimal configurations determined quickly
  - Powerful optimization algorithm can search through many millions of combinations in a few minutes.
  - Solutions are ordered by “cost” function to minimize loss of signal quality across the paths.
  - Solution scenarios can be saved and reloaded from disk for comparative analysis or planning
  - Busy paths can be marked to ensure no disruption to desired/existing customer paths.
  - Equipment on/off status taken into account for searches.
  - Faulty (aged) payload elements are marked on the Scheme and the optimizing algorithm is utilized to alternatively re-configure the best means of satisfying all requests
- Snapshots of configurations can be saved and reloaded from disk.
  - Searches can be tested on input through output by frequency or by total channels
  - Quick determination of feasible/non-feasible configurations.
  - Switch and on/off status can be read from telemetry.
  - Intermediate or pre-planned payload configurations may be easily maintained.
- Graphical User Interface
  - Color coded graphical layout to speed evaluation of complex solutions.
  - User may override the optimal solution by manually configuring components, then running the path (primal task) program to inspect results.
  - Reports generated may be printed or saved to files for distribution
  - Both tabular and graphical representation of data.
  - High (1200 x 1600) resolution for enhanced visibility.
- Direct Command Procedure Generation
  - Once plan is selected, a simple menu selection will generate a command procedure for the EPOCH realtime control system to configure the spacecraft.
  - Multiple command types supported

## Applications/Usage

TRECS provides a sophisticated modeling and graphical environment enabling payload and test engineers to develop payload reconfiguration or recovery command sequences which will directly flow to the realtime control system. Configurations may be saved and kept as reference configurations for future use and existing paths which should not be disturbed can be identified and protected for customer service. Runs on affordable and available Windows PCs (Windows XP).

