

# TERMINAL OPERATIONAL ENVIRONMENT SIMULATOR (TOES)

Multi-terminal network simulator providing a scalable software emulation of a Link 16 network

TOES leverages current L3Harris Link 16 development efforts including software for the Small Tactical Terminal (STT), the Amalgamated Remote Management System (ARMS) and the Link 16 Navigation Test Set.

## PRODUCT DESCRIPTION

### TOES ELIMINATES THE NEED FOR MULTIPLE LINK 16 TERMINALS

#### Use TOES to:

- > Test and validate network designs
- > Send tactical data through multiple units from a single interface for use with 3rd party battlespace simulator tools
- > Evaluate new data exchanges including stacked nets
- > Create a test environment for network monitoring and management systems
- > Replicate or simulate an operational environment for Link 16 training

#### Planned product improvements include:

- > Receipt/compliance
- > PPLI positions based on Kalman filter employing received PPLI positions/host navigation data and ultimately High Level Architecture/Distributed Interactive Simulation (HLA/DIS)

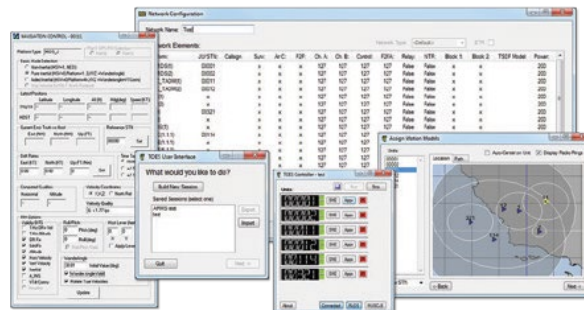
#### Software Architecture

##### > TOES User Interface

User selects network design (.jil, .jnl, .inde) and assigns platform loads and JU numbers to simulated terminals. User configures initial unit positions and simulated motion and defines host connection parameters. User, or third party software, commands simulated terminals to enter the net.

##### > TOES Engine Control

Simulated terminals are automatically created and initialized. Terminal assigned as Network Time Reference (NTR) starts net entry. Third party applications control simple, well-defined UDP interface. Active terminals transmit and receive host-generated messages per their individual initialization loads. During each time slot, TOES determines which slot transaction (transmit or receive) each simulated terminal performs.

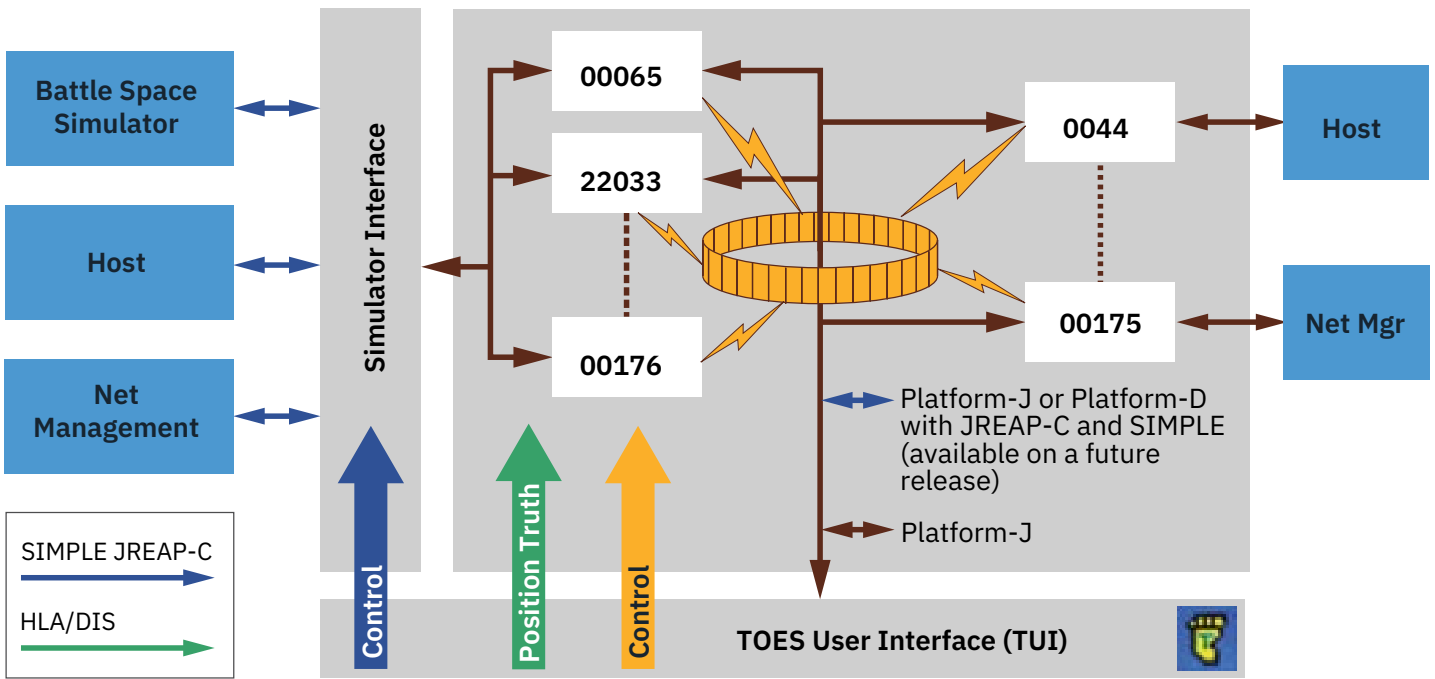


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Eliminate the Need for Multiple Link 16 Terminals

## KEY FEATURES

- > Simulates multiple Link 16 terminals
- > Employs actual network designs and platform loads
- > Regulates bandwidth and provides accurate time slot usage
- > Supports stacked nets and contention access
- > Implements paired slot relay
- > Simulates simple RF line-of-sight between terminals
- > Provides Platform-J host interface for each simulated terminal
- > Simulates terminal latency
- > Simulates Time-of-Arrival (range) delay between pairs of hosts



**Terminal Operational Environment Simulator (TOES)**

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1025 W. NASA Boulevard  
 Melbourne, FL 32919  
 t 833 537 6837  
 CSW.Products@L3Harris.com