LUNA • Link-Using-System Utility for Network Analysis

Monitor • Capture • Analyse • Verify

IABG's LUNA is a Commercial-off-the-Shelf (COTS) software tool for data collection and evaluation of TDL (Tactical Data Link) surveillance which is used by NATO and the German armed forces. LUNA is composed of two major components: the application user interface combines a **2D situational overview with a tabular representation**. It presents the operational tactical picture of TDL communication and simulation networks. In conjunction with IABG's Mission Display and Analysis System (MiDAS), tabular views of incoming messages and orders can be displayed in addition to the 3D display of exercise participants and simulated units.

Background

LUNA is the successor of NAUTILUS (Network Analysis Utility for Test and Integration of Link Using Systems) used by the NATO and the German Armed Forces.

Problem Statement

The transmission of tactical real-time or near-real-time digital information in the form of structured TDL messages requires complex rule sets and in-depth interrogation to ensure effective communication and system verification.

The STANAG-compliant behaviour of each participating unit is of particular importance. To ensure the conformity of the network participants with military standards, data exchange has to be examined down to the level of the contents of individual messages. Network analysts need the support of a tool that is capable of showing the overall picture as well as the detailed message constituents in a clearly arranged representation. LUNA exceeds this challenge.

Use Case

LUNA provides live monitoring and analysis capabilities to investigate the TDL performance (Link 11, Link 11 B, Link 16) of C2 and non-C2 units as well as simulation systems participating in TDL with or without DIS/HLA simulation networks.

LUNA records, replays and analyses TDL data via a TCP/IP (SIMPLE or JREAP) interface together with selected Distributed Interactive Simulation (DIS) messages via SIMPLE or UDP.

LUNA analyses the TDL messages or 'perceived' information communicated between network nodes against DIS protocol based 'truth' data.

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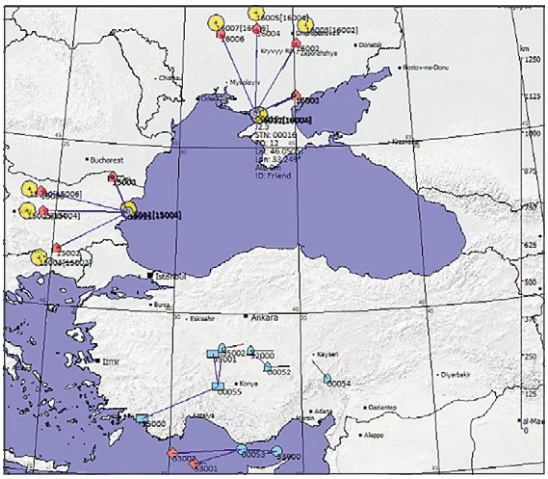
Value Proposition

LUNA enables fast offline, precise and complete access to data comparison, integrity and completeness checks via playback of captured/recorded data. Graphical summaries deliver the needed statistical and timing analysis representations.

Using a gateway to a Link 16 terminal, LUNA can be connected to a UHF-based live TDL network. The tool provides a basis for the STANAG-compliant verification/behaviour of a System Under Test (SUT). LUNA provides detailed message tables with complete message contents combined with a powerful graphical display of geo-referenced data.



LUNA provides track display of TDL and DIS information including ageing which can be analysed along with pairing lines between tracks and R2 units.

Key Advantages

- 100% ITAR-free COTS Windows 10 Software
- Processes more than 1,000 DIS entities or 1,000 TDL tracks simultaneously

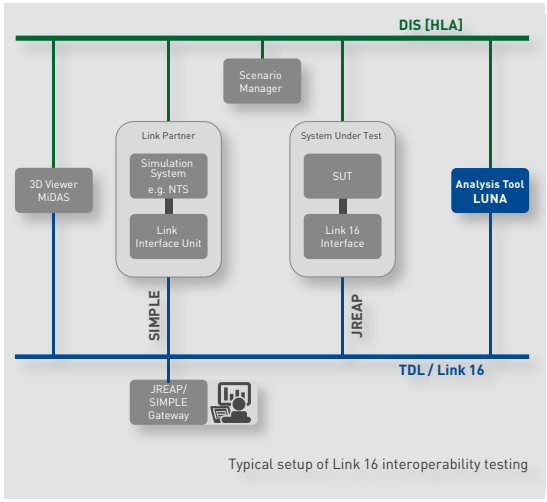
Simulation Technical Data and Compliance

LUNA communicates via TCP/IP supporting all:

- Link 16 J-series messages
- Link 11/Link 11-series messages
- DIS PDUs relevant for TDL analysis

LUNA is compliant with the following standards:

- SIMPLE STANAG 5602
- JREAP MIL-STD-3011-C
- Link 16 STANAG 5516
- Link 11 STANAG 5511
- DIS IEEE Std 1278
- IEEE Std 1278.1a



Typical setup of Link 16 interoperability testing

References

Since 2006 NAUTILUS and LUNA support the

- NATO Integrated Test Bed for Ballistic Missile Defence
- German Armed Forces Simulation and Test Environment (SuTBw)
- Exercise Joint Project Optic Windmill (JPOW)
- Research Institute in Poland
- Research Company in South Korea

Scope of Supply and Delivery

- USB Installer and product documentation
- Optional Link 16 message send plug-in

System Support & Training Services

IABG software products are delivered in accordance with their respective software release plans and maintenance agreements. Support plans delivered with IABG products include regular software and maintenance updates.

IABG training courses deliver the essential content required to ensure trainees are able to apply systems in the context of their operations. All aspects of the use, configuration and administration of the system are covered. Successful completion of the interactive training provides the basis to support continued proficiency improvement.

For further information please contact:
dssolutions@iabg.de

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IABG
Einsteinstrasse 20
85521 Ottobrunn
Germany
Phone +49 89 6088-2030
info@iabg.de
www.iabg.de