TSEP KERBEROS

SELF-CERTIFICATION OF LXI FUNCTIONALITY OF MEASURING INSTRUMENTS

TSEP Innovation made measurable.

TSEP KERBEROS 2.0 LETS YOU TEST AND CERTIFY YOUR T&M EQUIPMENT EASILY AND QUICKLY ACCORDING TO THE LXI STANDARD, INDEPENDENT OF TEST HOUSES.

DAVID COURTNEY, ARCHITECT OF THE LXI REFERENCE DESIGN

TEST AND CERTIFY YOUR MEASURING INSTRUMENTS ACCORDING TO THE LXI STANDARD

With its product Kerberos 2.0, TSEP offers a hardware and software solution for the self-certification of measuring devices for the core functionality of the LXI standard. In addition, with Kerberos it is possible to self-certify the ,,Extended Functions“ to support IPv6, VXI-11 Discovery and Identification, Security or HiSLIP and the IEEE 1588 functionality.

With the LXI Security Extended Function, the current Kerberos version now goes far beyond what was tested in the former LXI Conformance Test Suite of the LXI Consortium. While the old test suite only supported LXI standard 1.5, Kerberos supports both 1.5 and 1.6 standard.

Kerberos provides a unique and holistic solution of hardware, software and client for the execution, assessment and certification of LXI conformance tests. Kerberos can also be used to validate existing compliant products in regression testing in addition to conformance testing.

Kerberos Highlights:

- All-In-One LXI self-certification solution
- Regression test and Developer support
- IEEE 1588 Verification test
- Security Extended Function
- Control and Visualization through Client
- Continuous support and further development
- Including the new LXI standard LXI 1.6

TSEP KERBEROS 2.0 IN DETAIL

Your compact LXI certification device allows you to test and certify your devices according to the LXI standard

Power Unit:
- Digital Display
- LED Indicators
- Power Button

CPU Unit:
- 1 USB-C Port*
- 2 USB 3.0 Ports
- 1 LAN Port*
- 1 Display Port*

Kerberos Unit:
- 1 DUT LAN Port
- Completely integrated

*Please note: due to recent global conflicts, the actual end product may have different ports.
This doesn't limit the functionality and will be communicated.

TSEP KERBEROS 2.0 HARDWARE

Your very own test device to test and certify your devices according to the LXI standard

Hardware

The Kerberos hardware includes a stand-alone core and test-specific hardware components. For example, hardware for automatic disconnection (network plugin/unplug), hardware for the IEEE 1588 test and hardware for determining the transmission speed have been integrated into Kerberos.

The measuring device under test (DUT) runs in a separate network and is thus completely shielded from disturbing influences from outside.

All necessary network settings are made via an integrated router (Open-WRT). This ensures that all necessary network protocols and settings for IPv4/IPv6 can be carried out.

Within the Kerberos hardware, a Linux operating system runs with the actual Test Suite software. All test-specific data is stored directly on the hardware. Signing of the test-relevant data ensures that only the data sets generated by the test suite can be recognised and processed as such. Since all data is generated directly on the Kerberos hardware, it is not possible to manipulate the test results.

The configuration of the Kerberos hardware is done via TCP/IP, for this purpose Kerberos has its own network interface which is used for this communication. The network interface for the DUT and the network interface for communication with the hardware are physically separated. A direct manipulation of the test sequences or a change of the test cycles is not possible directly on the hardware.

The Kerberos software is updated via update software from an external USB stick. Existing test data and settings are not deleted during this process. To back up the existing test data and settings, Kerberos has the option of duplicating data on an external device. The data can then be transferred back to the Kerberos at any time.

TSEP KERBEROS 2.0 SOFTWARE

The Kerberos 2.0 basic software offers you everything you need

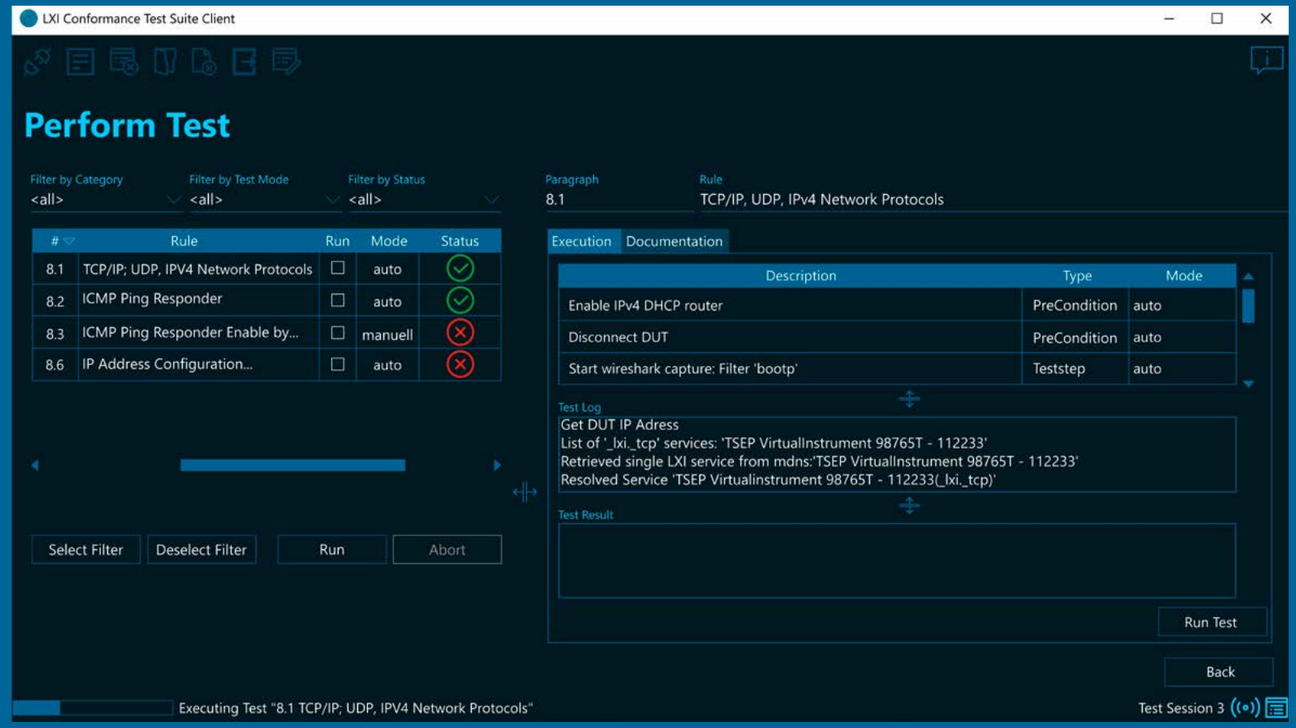
The Kerberos software is designed as client/server software. The server runs on the Kerberos hardware and is responsible for the execution of the tests and the reporting, i.e. the creation of the test report. The batch and script modes of the server software enable the execution and logging of conformance tests into automated regression tests. The output is in JSON format. A well thought-out listing and preparation of the test results also supports the tester in troubleshooting.

The Kerberos client is used to define the DUT and test parameters, select the tests and finally control the process. The client software is available for both Windows (Windows 10 and 11) and Linux (Ubuntu).

Include Security Functions in your device!

With the new version 1.6 and the Security Extended Function, LXI has implemented a completely new dimension in the LXI standard and finally took up the topic of security. This extension in the LXI standard is long overdue and closes an important gap in the LXI standard.
Kerberos also covers that topic and provides tests for the certifications.

***[TSEP KERBEROS –
YOUR SOLUTION FOR LXI
SELF-CERTIFICATION.
RELIABLE, EFFICIENT, FLEXIBLE.]***



TSEP KERBEROS 2.0 CLIENT SOFTWARE

Our easy-to-use and clearly structured client software simplifies your LXI certification

The Kerberos client software is used to control and visualise the results of the Kerberos hardware. The client has the ability to identify all Kerberos hardware on the network and connect to one of them after selecting it.

If an existing session is already being tested on the hardware, it is immediately reloaded by the test suite. Otherwise, it is possible to create a new test session. The following defines the DUT with its properties. These include which „extended functions“ are supported, as well as some device-specific information, e.g. whether mDNS can be disabled or the ICMP Ping Responder can be disabled. As soon as the configuration of the DUT is completed, the tests for this session determined from the configuration are loaded.

There are several ways to perform group or individual tests. Either the test selection can be adjusted by filter or specific tests can be selected and started. In addition, the client visualises a detailed procedure in the form of test steps and their documentation.

Since the documentation of the standard is included for each rule and additionally the individual test steps are described in detail, the user is always clearly visualised which test sequences of Kerberos are necessary for a certain test. In addition to the description, a test log is created during the runtime of each test so that the test sequence can be traced at any time. At the end of a test, the user is shown a detailed result output.

THE LXI STANDARD

A globally recognised standard, integrated into a renowned consortium

Overview

The LXI standard defines how test and measurement equipment should behave at the network interface and defines additional features that simplify and extend the interaction of several test and measurement equipment in the network.

The standard is divided into several functions. The function „LXI Device Specification“ contains all basic components such as network configuration, web server for controlling the devices via a web browser and further sub-components such as mDNS for automatic identification of the devices in the network.
Other functions are optional, such as event messaging, HiSLIP, wired trigger bus and clock synchronisation according to the IEEE1588 standard or event logging.

Cooperation: TSEP and the LXI Consortium

TSEP has been working on the LXI standard for more than 15 years and is also an active member of the LXI Consortium. In 2014, the LXI Consortium commissioned TSEP to develop the „LXI Reference Design and Implementation“ according to the LXI standard in order to provide a technical blueprint for the members.

TSEP is also certified as an LXI test house and conducts LXI certification tests for various LXI members.
As a current development, the first certified devices with the security extension are eagerly awaited.
TSEP is actively involved in several topics and participates in the various LXI working groups.

TSEP is an officially recognized test house for the LXI 1.6 standard – and TSEP KERBEROS is currently the only tool worldwide for the certification of LXI 1.6 devices.

LXI STANDARD: UPCOMING FEATURES

The LXI standard is constantly being improved – What the near future holds

Continuous Development

TSEP leverages its close relationship with the LXI Consortium to ensure that future enhancements to the LXI standard are supported by the Kerberos Test Suite.

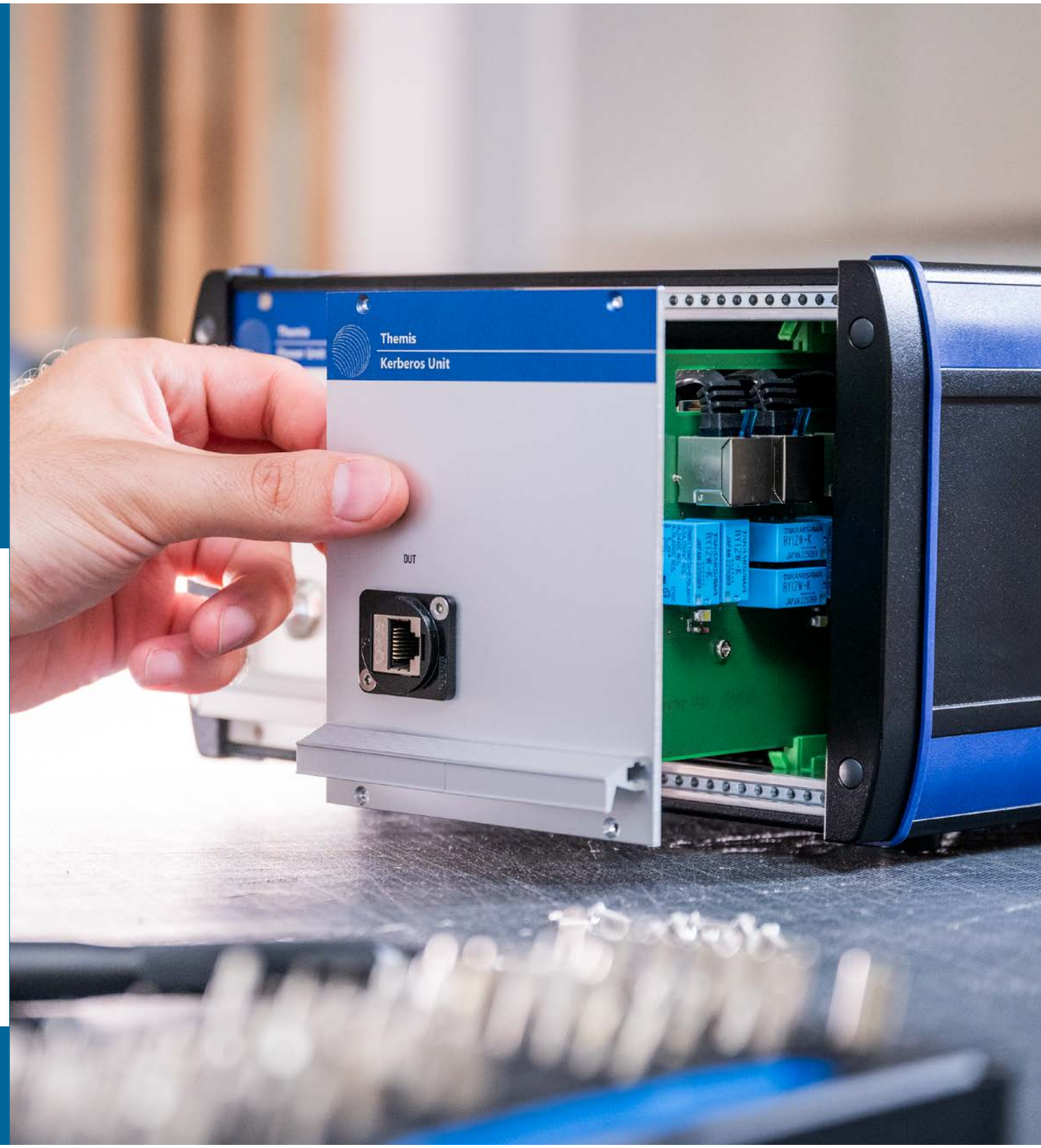
Network Monitoring

TSEP will extend Kerberos with a new debug function, a network monitoring service for logging network traffic.

Additional Extended Functions

TSEP will extend Kerberos with additional extended functions:

- LXI LAN Event Messaging
- LXI Wired Trigger Bus
  (manual testing only, no hardware support)



ORDER INFORMATION

Base Components

ORDER REF.	DESCRIPTION
KER-V2	Kerberos 2.0
KER-PTP	Option Clock Synchronization
KER-SEC	Option Security

Support / Updates

ORDER REF.	DESCRIPTION
KER-SUP	Support + Updates 1 year
KER-SUP3	Support + Updates 3 years
KER-SUP5	Support + Updates 5 years

FURTHER INFORMATION

TSEP.COM/KERBEROS/

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Technical Software Engineering Plazotta GmbH

Our customers include well-known manufacturers of test and measurement systems as well as users from numerous different industries who benefit from Kerberos, the modern solution for the self-certification of their measuring devices according to the current LXI standard.

TSEP Innovation made measurable.

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