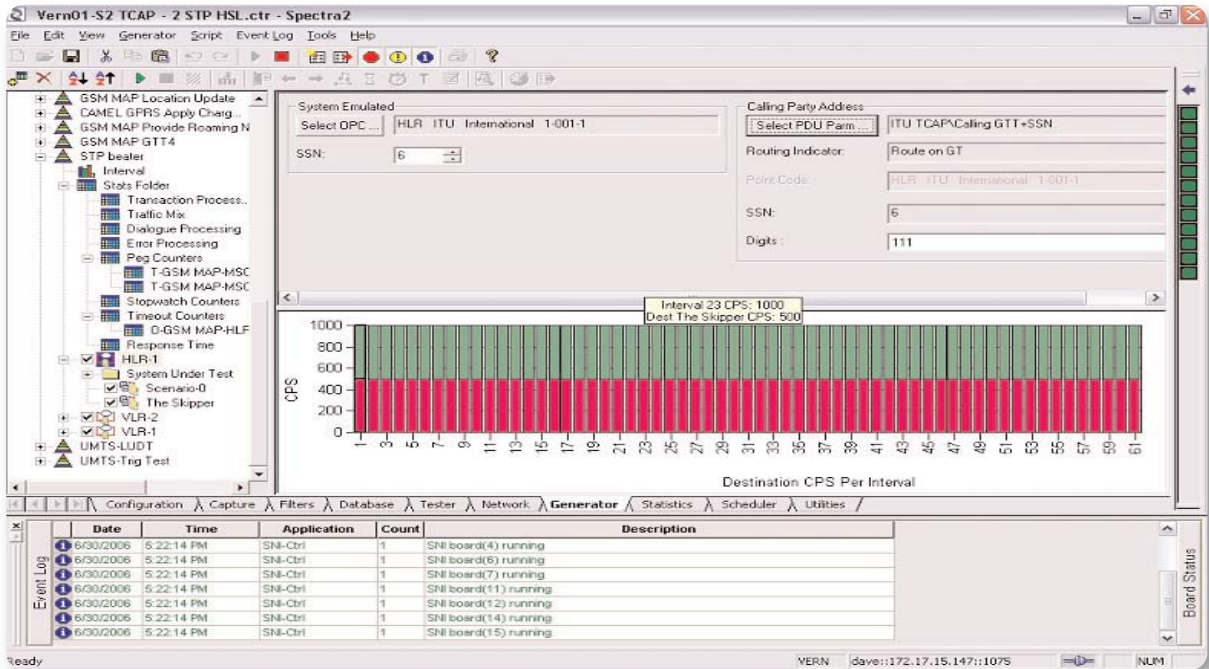


TCAP Solution for Converged Networks



The Spectra2 TCAP Monitoring and TCAP Generation solutions deliver a high-performance platform for TCAP diagnostics in a converged network environment. The Spectra2 TCAP capabilities include multi-user support for up to four users, an easy-to-use Windows-based GUI, and multi-protocol load generation of PSTN signaling to ensure performance in a converged environment. The Spectra2 platform also boosts TCAP load generation with the ability to deliver up to 384 Low-Speed Links (64Kb Timeslots) or 32 High-Speed Links. Users can easily Monitor and Generate TCAP scripts over legacy and next-generation networks with one Diagnostic solution.

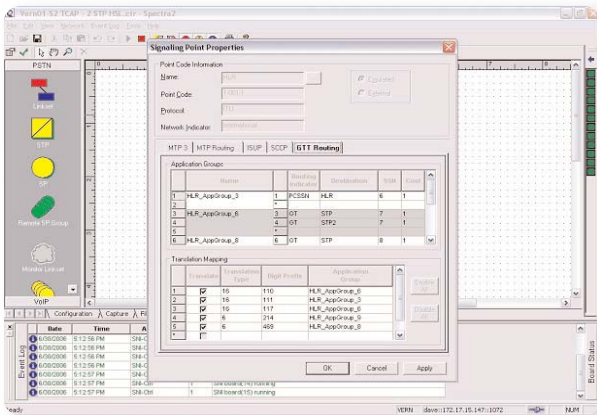
TCAP Solution for Converged Networks

► Application Brief

Spectra2 TCAP Solution

TCAP support is at the heart of the Spectra2 solution for the PSTN and converged networks. Even as carriers and network equipment manufacturers adopt new network models such as IMS, or IP Multimedia Subsystems, they must continue to support TCAP-based legacy applications.

The Spectra2 platform can analyze TCAP, SIP and ISUP protocols at the core of IMS and converged networks. Spectra2 includes test cases, protocols, and analysis tools in one integrated solution. Users can Monitor and Generate TCAP from a single test script on one test box, saving time, money, and development costs.



► **Figure 1.** Spectra2's Network Configurator provides a graphic representation of Level 3 network elements. Drag and drop network elements into place, connect the elements through link sets, then configure accordingly using a simple pop-up window interface.

Spectra2 supports ANSI, ETSI, and ITU protocol stacks, offering multi-protocol analysis for real-time visibility into converged networks.

TCAP: Monitor

With TCAP Monitoring support, users can monitor SCCP/TCAP nodes, interfaces, and traffic. Users can also view PDU contents, validate basic protocol functionality, and track communication between PSTN network elements. The Spectra2 Monitor application also collects TCAP PDU basic statistics.

Tektronix' TCAP monitoring solution uses all Spectra2 monitoring tools, including:

- **Call Trace** - Quickly reconstruct all captured calls, including call status and associated messages.
- **Message Filtering** - Apply pre- and post-capture filters.
- **Text Export** - Easily export call trace information and PDUs in an open text format.

TCAP: Generate

The Spectra2 TCAP Generator application includes a Multiple Call Leg feature that can perform a call scenario that requires multiple transactions in the same script. This allows users to better emulate elements such as HLRs.

Spectra2 delivers a simplified way to handle TCAP decode conflicts via a pop-up window in the Configurator application. Users can easily assign the SSN via the Spectra2 GUI so they can avoid decode conflicts during load generation.

TCAP Generator also includes pop-up windows for configuring the percentile of response time statistics, an easy-to-use interface for provisioning routing information, SSNs, and digit prefixes, and a tool for defining the SUT elements in the Generator and attaching them to the required call leg. Pop-ups are also available to explore PDU message details.

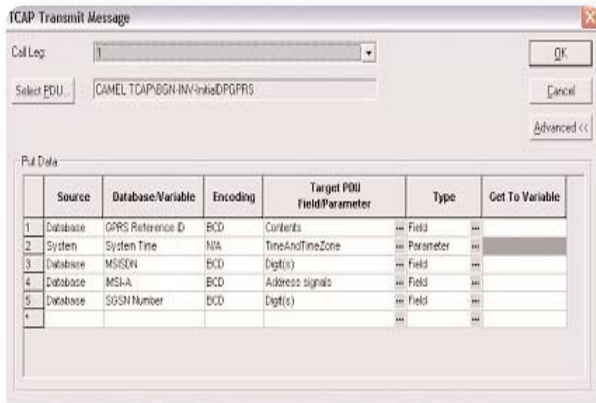
Spectra2 Generator features includes:

- Spectra2's simple and clear "ping-pong" editor. Write and edit test cases with minimal effort.
- A graphic-based network configuration tool that lets users drag and drop network elements into place, connect the elements through link sets, and configure the network accordingly.
- Scheduler, an integrated application that lets users automate conformance generation.
- A new feature in the Spectra2 Database application builds PDUs starting at the SCCP layer. The user does not have to build the lower level information in the PDU, saving valuable operator and testing time.

The Spectra2 TCAP Performance Advantage

The Spectra2 load generation capability lets users harness up to 384 Low-Speed Links (64Kb Timeslots) or 32 High-Speed Links from a single system. Other features include:

- ▶ Auto-Length PDU calculation, which gives Spectra2 TCAP Generation the ability to automatically calculate a PDU length based on selection of parameters and information elements.
- ▶ Support for Multiple Call Legs allows information elements to be passed between different call legs to support wireless call flows. This allows the Spectra2 platform to better simulate elements such as an HLR or any call scenario that requires multiple transactions in the same script.
- ▶ GET and PUT functionality lets information be passed between incoming trigger messages and transmit messages and across call legs.



▶ **Figure 2.** Spectra2's Generator displays TCAP message information in a simple pop-up window such as put data, timeout and trigger conditions, get data, and PDU field/parameter values.

TCAP Solution for Converged Networks

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Protocol Support

TCAP

ITU-Q.771, June 1997

ITU-Q.772, June 1997

ITU-Q.773, June 1997

ITU-Q.774, June 1997

ITU-Q.775, June 1997

ANSI T1.114-2000, June 2000

SCCP

ITU Q.711, March 2001

ITU Q.712, July 1996

ITU Q.713, July 1996

ITU Q.714, May 2001

ITU Q.715, July 1996

ITU Q.716, March 1993

ANSI T1.112, January 2000

ETSI INCS2

EN 301 140-1 V1.3.4 (1999-06)

AIN 0.2

T1.660- 6/4/1998, GR-1299-CORE

CAMEL

3GPP TS 29.078 version 5.9.0 (2004-09)

3GPP TS 29.078 version 4.8.0 (2003-03)

IS-41E

ANSI/TIA-41.000-E-2004, April 2004

ANSI/TIA-41.500-E-2004, April 2004

ANSI/TIA-41.510-E-2004, April 2004

ANSI/TIA-41.511-E-2004, April 2004

ANSI/TIA-41.520-E-2004, April 2004

ANSI/TIA-41.540-E-2004, April 2004

ANSI/TIA-41.550-E-2004, April 2004

ANSI/TIA-41.551-E-2004, April 2004

ANSI/TIA-41.590-E-2004, April 2004

ANSI/TIA-41.700-E-2004, April 2004

ANSI/TIA-41.790-E-2004, April 2004

UMTS MAP

UMTS MAP 3GPP TS 29.002 v6.7.0 Rls 6, September 2004

GSM MAP

ETSI TS 100 974 v7.1.0 / GSM 09.02 v7.1.0 Rel 98, August 1999

MEID

TIA-928, August 2004

TIA-928-1, October 2004

3GPP.S.R0048-A v.3.0, September 2004

IS-41D

TIA/EIA/IS-J-STD-036 Rev.0, 2000

TIA/EIA/IS-735, 1998

TIA/EIA/IS-751, 1998

TIA/EIA/IS-756, 1998

TIA/EIA/IS-764, 1998

TIA/EIA/IS-737, 1998

IS-771

TIA/EIA/IS-771, 1999

GSM3 (GSM MAP)

ETSI TS 100 974 v7.1.0 / GSM 09.02 v7.1.0 Rel 98,
August 1999

PCS3 (GSM3 over ANSI)

ETSI TS 100 974 v7.1.0 / GSM 09.02 v7.1.0 Rel 98,
August 1999

IS-634A

TIA/EIA/IS-634, 1998

Portable Chassis Specifications

- 9.5 kg (21 lb)
- 41 W x 25 D x 27 H cm
- 16.1 W x 9.8 D x 10.6 H in
- Flat Panel 35.8 cm (14.1 in) XGA TFT
- 110-220 VAC

Rackmount Chassis Specifications

- 22.7 kg (50.5 lb)
- 43.26 W x 46 D x 26.5 H cm
- 17 W x 18 D x 10.5 H in
- Optional Monitor
- 110-220 VAC
- -48 VDC Available

Available Packages for Spectra2

- VoIP Analyzer
- PSTN Analyzer
- ISUP Testing
- SIP Testing & Generation
- SIP-T Testing
- SIP/TLS Testing
- H.323 Testing & Generation
- MGCP Testing & Generation
- Megaco Testing & Generation
- Binary Megaco Testing
- Multi-Gateway Support for Megaco and MGCP
- Media Testing
- Voice Quality Testing
- Passive Voice Quality Testing
- RFC 2833 Testing
- Application Programming Interface (API)
- Historical Statistics
- ISUP Testing
- Japan ISUP Testing
- BICC Testing
- TCAP Generator

TCAP Solution for Converged Networks

► Application Brief

Contact Tektronix:

USA Richardson, Texas support contact info: 1 (469) 330-4000

Locate your nearest Tektronix representative: www.tektronix.com/contactus

For Further Information

Tektronix maintains a comprehensive, constantly expanding collection of application notes, technical briefs and other resources to help engineers working on the cutting edge of technology. Please visit www.tektronix.com



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