Odin TeleSystems Inc.

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Freya SS7 and Freya ISDN

The Freya line of test software for SS7 and ISDN network protocols is a software package integrated with the industry award-winning Odin Telecom frameworX (OTX) family of hardware products. Designed to maximize the usability and operability of these hardware adapters, Freya extends the value of this entire product line.

Providing a complete and homogenous multi-protocol simulation and monitoring environment, Freya SS7 (C7) and Freya ISDN bring leading-edge functionality for such areas as: protocol simulation and filtering, scripting for repetitive simulation tasks, and protocol analysis. All these functions are available through remote access over LAN/WAN topology.

And to maximize performance efficiency, these simulation and monitoring functions can be performed simultaneously on the same system.

So whether you are looking for the best in error tracking and regression testing, or IN and interconnect testing, the Freya SS7 (C7) and Freya ISDN software applications deliver results in a complete and value-based package.
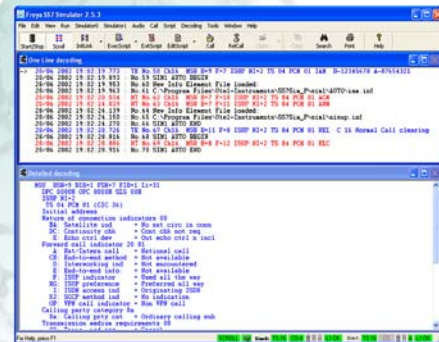
Feature Highlights

- SS7 and ISDN PRA protocol simulation on multiple (up to 8) T1 or E1 spans

- SS7 and ISDN PRA protocol monitoring of multiple (up to 4) T1 or E1 spans

- Integrated with Odin TeleSystems' OTX cards

- Available script package for interconnect testing (according to ITU-T Q.78x series specifications)

- Monitoring and simulation can be performed simultaneously on the same system

- Remote operation and control via LAN/WAN through standard operating system mechanisms

- Two software modules, SS7 (C7) and ISDN PRA, providing a complete and homogenous multi-protocol simulation and monitoring environment
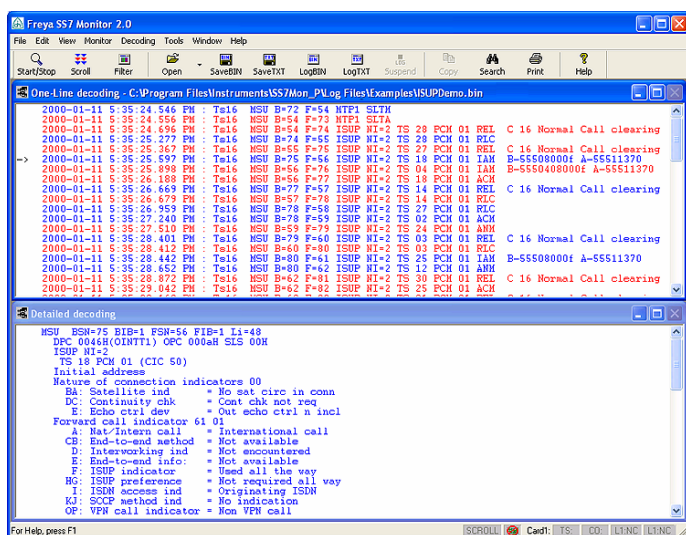
Applications

Error Tracking

Comprehensive protocol decoding of user parts and protocol layers enables the user to track and search for protocol irregularities. Recorded irregular messages may be regenerated using the simulator, providing a convenient way of reproducing errors in the network.

Regression Testing

The user can perform automated and rapid regression testing by building libraries of scripts.

Remote Control

Both the SS7 and ISDN Freya software applications can be controlled remotely using ISDN or LAN. For example, the user can, from a local PC, control two separate SS7 or ISDN PRA Freya systems using two B-channels on a single ISDN basic access.

Simultaneous Protocol Simulation and Analysis

Having two OTX cards installed in the system, the user is able to simulate on one link and concurrently monitor a different link. This enables the user to simulate on one side of a switch and monitor on the "other" side.
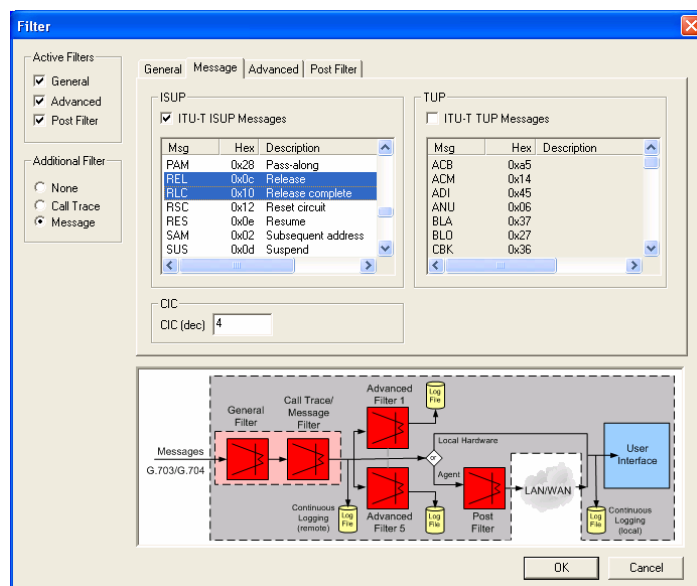
IN-Testing

Using the simulator, the user may build IN-messages to perform IN script testing.

Interconnect Testing

This testing involves automated SS7 and ISDN end-to-end interconnect testing using optional script packages.

Protocol Simulation

The simulator behavior is controlled by means of a powerful and easy-to-use script language. The script language makes it possible to set up a required/desired (protocol/terminal) state, both normal and error states. There are minimal restrictions on the format and contents of the protocols transmitted or received. Arbitrary manipulation of messages, information elements and message sequence on the different protocols is allowed.

The scripts may be started in two different ways: 1) manually from the GUI, and 2) automatically triggered by incoming messages. The different simulator applications comprise

Script Packages

Repetitive simulation tasks (tests of similar nature) are significantly alleviated if a library structure of test scripts is constructed. Examples of situations where this is recommended are interconnect testing between carriers as well as functional testing, regression testing and conformance testing of terminal equipment and/or network elements.

A library of scripts is available as a framework to the user for building a dedicated test environment. The library is based on the Eurescom P.412/P.104 (ISDN end-to-end testing), ITU-T Q.782 (MTP Level 3), ITU-T Q.784 (ISUP, Basic Call), ITU-T Q.785 (ISUP, Supplementary Services) and ITU-T Q.788 (ISDN end-to-end testing).

Protocol Analyzer

Comprehensive decoding of inclusive MTP, ISUP (v1, 2 and 3), TUP, SCCP, TCAP, INAP, MAP (v2), CCBS and MWI is provided for the SS7 version. The decoding is displayed in plain English.

For the ISDN Freya application, the PRA protocol analyzer, or monitor, analyzes and decodes the signaling and displays it for the user in English. The degree of details is user controlled, from INFO frames on Layer 1 to detailed decoding of supplementary services on Layer 6/7 (ASN.1 decoding).

A monitored signaling sequence can be stored on hard disk either as screen dumps (ASCII) or binary files holding the complete detailed decoding. The stored information can be retrieved at any time using the same monitor or an ASCII text editor.

Long duration monitoring by automatic storage to hard disk is also possible. The amount of information that can be collected is then only limited by the size of the hard disk.

Finding errors and signaling problems is as simple as searching for a text string in the log file. If the simulator is installed, it is possible to copy data from a monitored sequence into the simulator in order to re-generate the sequence. This is useful in situations where rare and difficult errors need to be reproduced.

Filters

The protocol monitor includes filtering options for:

SS7

- User part filter
- Call trace filter (whole or parts of the B-number)
- TCAP sub-system number (MAP, INAP CS1, INAP CS1 + Ericsson, CS1 + Alcatel)
- LSSU, FISU and PCR
- Point codes (OPC/DPC)

ISDN PRA

- LIC
- DIX
- RR

Remote Use

The simulator and monitor applications are both constructed to be used over a LAN/WAN access. The graphical user interface can be installed on one PC and the simulation or monitor "agent" run on another Windows PC connected to the test object. The WAN connection can be a standard mechanism such as dial-up networking (RAS) in Windows.

F r e y a   S S 7   (C 7)   a n d   F r e y a   I S D N   P r o d u c t   B r i e f

Hardware and Software Specifications

The software is supported by the following operating systems:	• Windows NT4 • Windows 2000
The software can be configured to run with the following Odin TeleSystems' board combinations:	• Thor-2-PCMCIA, which provides simulation capability for 2 T1 or E1 spans, or monitoring capability for 1 T1 or E1 span. • Thor-2-PCI equipped with a Vidar-5x4-ASM daughter board, which provides simulation capability for 2 T1 or E1 spans, or monitoring capability for 1 T1 or E1 span. • Thor-8-PCI equipped with a Vidar-5x4-ASM daughter board, which provides simulation capability for 8 T1 or E1 spans, or monitoring capability for 4 T1 or E1 spans.

Supported Protocols

The SS7 applications support the following protocols:	• Layer 1 (Frame Sync, AIS, loss of layer 1, i.e.) • MTP (ITU "blue and white book") • SCCP (CCITT blue and white book) • ISUP v3 and TUP (CCITT blue and white book) • UK ISUP (PD 6623.2000) • IUP (PND-ISC 006 and 004) • ANSI ISUP (T1.113-1995) • TCAP (CCITT blue and white book). • INAP (Intelligent Network Application Protocol) • MAP v2 (Mobile Application Protocol) • ITU-T TUP • SSUTR2
The ISDN PRA simulator and monitor supports the following protocols:	• DSS1 layer 1 (e.g. Frame Sync, AIS, loss of layer1) • DSS1 layer 2 (Q.921/I.441) • Euro-ISDN layer 2, LAPD, LAPDE, LAPB, LAPBE • DSS1 layer 3 (Q.931/I.451) • Euro-ISDN layer 3 • X.25 (B- and D-channel, layer 3) • Layer 6 and 7, ASN.1 (supplementary services) • PPP, IPX and IP in the B-channel

Related Freya Software Modules

	• Script package for ISUP interconnect testing (Q.78x series) • ISDN PRA simulator software module • ISDN PRA monitor software module • ISDN PRA script package for interconnect testing (P.412) • SS7 simulator software module • SS7 monitor software module

Ordering Information

Product Name / Product Category	• Freya SS7 Simulator Software Package / SAA-1009-2 • Freya SS7 Monitor Software Package / SAA-1009-1 • ISUP Interconnect Test (Q.78x series) Script Package / SAA-1009-9 • Freya ISDN PRA Simulator Software Package / SAA-1009-4 • Freya ISDN PRA Monitor Software Package / SAA-1009-3 • ISDN End-to-End Interconnect Test Script Package / SAA-1009-8 • Thor-2-PCMCIA-PRO Card, 2 T1/E1 Interfaces / HAA-1060-1 • Thor-2-PCI Card, 2 T1/E1 Interfaces / HAA-1022-1 • Thor-8-PCI Card, 8 T1/E1 Interfaces / HAA-1019-1 • DSP Daughterboard for Thor-2-PCI and Thor-8-PCI/HAA-1009-1

Contact Information

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