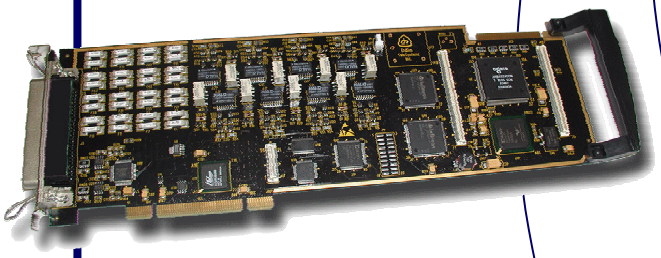
STINGA ISDN PRA

Monitor & Simulator

Extremely cost-efficient
World class support
Very easy to use
Very Portable



Gain customers and money
by improving your networks and projects

Whether you're into mobile, VoIP, PSTN, or ISDN business,
get on top of your problems now!

UTEL SYSTEMS
Your customers will notice

Odin TeleSystems Inc.
Open Telecom for Open Minds

STINGA ISDN PRA Application Areas

IMPROVED BUSINESS WITH LOW COST SOLUTIONS

- Get your development and test projects finished on schedule
- Helps you to reduce Time To Market (TTM)
- No 1st or 2nd line support anymore, you have 3rd line support directly by world class specialists
- Tailor made solutions in just a few days
- Training available by highly experienced and skilled protocol and signalling specialists

DEVELOPMENT & IMPLEMENTATION

- Supports prototyping
- Reduce the risks in your project by verifying your design on an early stage
- Generate traffic and test before your system is developed
- Verify your product's capabilities in an early stage

TESTING

- Supports both **black box and white box testing**
- Use it for component, function, integration, system, acceptance and conformance testing
- Easy to develop new test suits based on existing ones
- Comprehensive **conformance test** suite included free of charge.
- **Regression Testing**: To build test suites is a breeze and enables the user to perform automated regression testing in a cost-efficient way.

FAULTFINDING & TROUBLESHOOTING

- Comprehensive protocol decoding of ISDN protocols (both European and American standards) makes it possible to track and search for protocol irregularities. Recorded irregular messages may be regenerated with the protocol simulator. This is a very convenient way of reproducing errors.

KEY FEATURES

- **ISDN PRA protocol simulation**
- **ISDN PRA protocol analysis/monitoring**
- **PCMCIA and PCI based solutions**
- **Monitoring up to eight bi-directional E1/T1/J1 interfaces**
- **One simulator per E1/T1/J1 interface**
- **Audio and DTMF support**
- **Conformance Test Suite framework included**
- **Supports both ISDN TE and NT simulation**

OVERVIEW

Components

The cost-efficient STINGA ISDN PRA test instruments from Utel Systems comprises the following components:

- One or more hardware cards (PCMCIA or PCI) with E1/T1/J1 line interfaces
- One or more software modules:
  - ISDN PRA Monitor for protocol analysis
  - ISDN PRA Simulator for protocol simulation
  - A Conformance Test Suite is included with the ISDN PRA Simulator product

Highly Portable

"All-in-one" concept: PCMCIA based instrument with many applications in one notebook. With these hardware and software components, highly portable protocol simulators and analysers, desktop protocol simulators and analysers, and rack-based monitoring probes are supported.

Cost-efficient Windows-based Test Instruments

All software and hardware components are running on standard notebook and desktop PCs with Windows, providing cost efficient IT service, fast learning curve, easy and cheap access to replacement units.

Same User Interfaces for all Products Reduce Costs

All test instruments from Utel Systems are based on the same windows user interface framework. The user do not have to focus on how to use different applications, meaning full focus on different protocols and network technologies in use. Same decoding format for monitor and simulator results in time efficient testing.

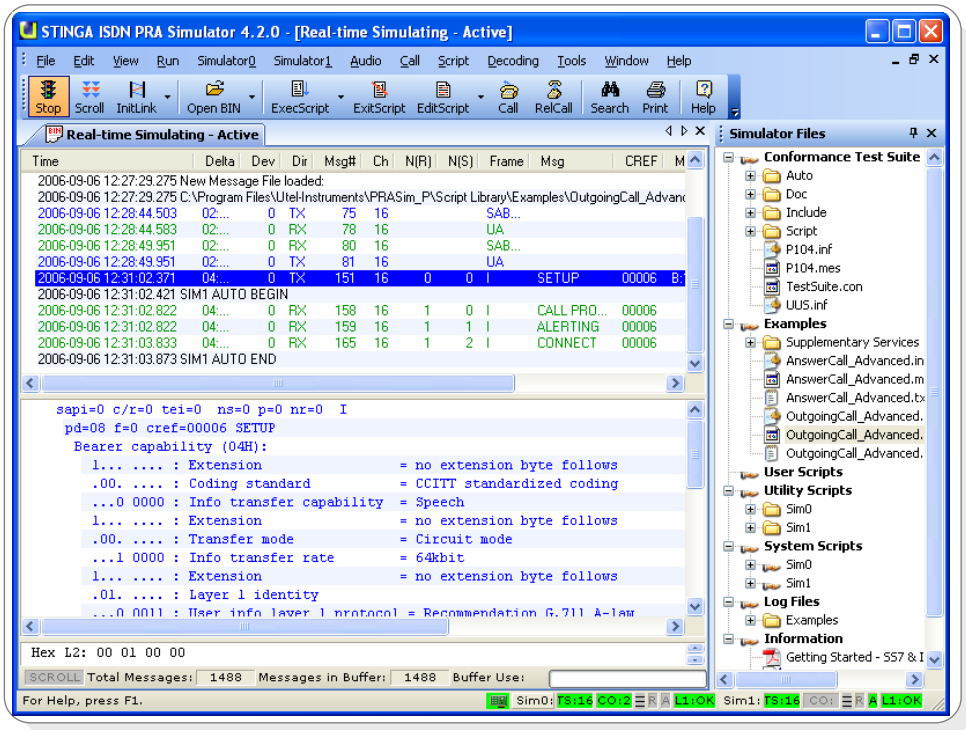
Simultaneously Protocol Simulation & Analysis

Different protocol simulators and analysers can easily be used together on the same PC simultaneously. It is possible to simulate on one side of a test object (i.e. a switch) and monitor on the "other" side. By installing two PCMCIA cards in one notebook, it is possible to use both cards to monitor two E1/T1/J1 interfaces or to use one card for protocol monitoring and the other for protocol simulation. A combination of SS7, BICC, V5 and ISDN PRA test instruments are supported.

Open script format

Content and order of any message of information element can be changed. The simulator can therefore simulate any regular or irregular/incorrect protocol implementation and be adapted to new protocol elements.

STINGA ISDN PRA Simulator - protocol simulation



Easy to use Windows-based user interfaces.
Integration with Microsoft Word, Microsoft Excel and Adobe Acrobat Reader is supported.
Script files, parameter files, messages files and log files are easily accessed from the Simulator Files pane.

ISDN PRA SIMULATOR - PROTOCOL SIMULATION

The ISDN PRA protocol simulator is designed to be used by both skilled and unskilled users: From easy and quick testing by point-and-click to more advanced and flexible script-based testing.

Simulator Processes

The ISDN PRA Simulator product have two simulator processes which can be connected to two different E1/T1/J1s. Both simulator processes can be configured as Terminal (slave timing) and Net (master timing).

Call & Release Call guides

Call setup and termination are easily done from dialogs which guides the user through the generation of outgoing calls and termination of calls.

Protocols and User Parts

Simulation of different protocols like DSS1 layer 2 & 3, Euro-ISDN layer 2 & 3, National ISDN-2, X.25, Layer 6 and 7, ASN.1 and PPP & IP in B channel are supported.

Audio and DTMF Generator/Detector

The DTMF Generator makes it possible to send single DTMF tones and to specify a series of digits to be sent as DTMF tones. When DTMF tones are sent/received, message are printed in the one-line decoding window. Received DTMF tones and audio is played in the PC-speakers for the PCMCIA solutions, and in the connected handset for the PCI solutions. This function is available both through the user interface and scripts.

Call Generation

In call generation mode, one simulator process is only sending messages while the other simulator process is only responding to incoming messages. A user friendly user dialog provides automatic connection to a microphone and the PC speaker.

Script Language

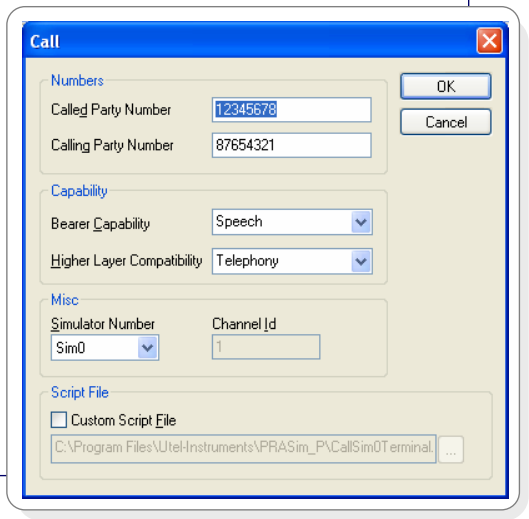
A powerful and flexible script language makes it possible to set up a required/desired (protocol/terminal) state, both normal and error states. There are no restrictions on neither format nor content of the protocols transmitted/received. Arbitrary manipulation (down to bit level) of messages, parameters and message sequence on the different protocols are allowed. The test scripts may be started manually or they can be automatically triggered by incoming messages. DTMF scripting is supported including branching dependent on the received DTMF string. This is a very comprehensive feature for testing DTMF dependent services. It is very useful when the simulator sends a setup without the called number and if it is required to send the called number in the user channel and for test of value added services in the active phase of a call.

Remote Control

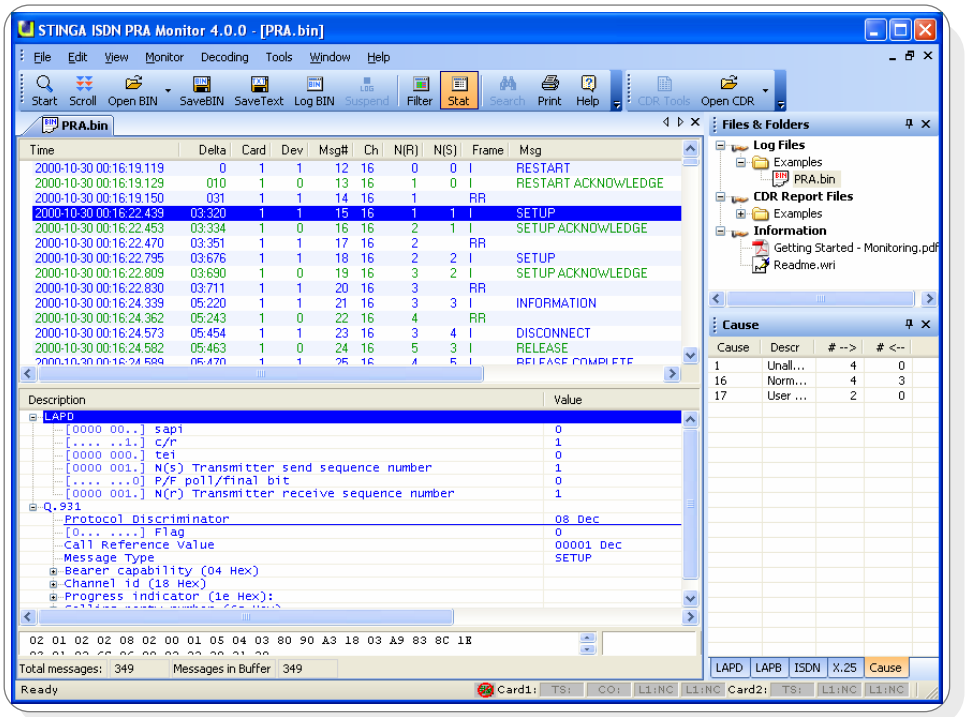
The simulator application is constructed to be remotely controlled over a IP connection (like a dial-up connection). The graphical user interface is installed on a local PC, while the simulator "agent" is running on a remote PC connected to the test object through the hardware.

Conformance Test Suite Framework

Repeated use of the simulator to perform similar tests is significantly alleviated if a library structure of test scripts is built. Examples of situations where this is recommended are functional testing, regression testing and conformance testing of terminal equipment and/or network elements. A library of test scripts is available as a framework for the user for building a dedicated test environment.



STINGA ISDN PRA Monitor - protocol analysis



Easy to use Windows-based user interfaces.

Integration with Microsoft Word, Microsoft Excel and Adobe Acrobat Reader is supported.

Log files and CDR Report files are easily accessed from the Monitor Files pane.

Real-time statistics are displayed in the different statistics panes.

ISDN PRA MONITOR - PROTOCOL ANALYSIS

Real-Time Monitoring

It is possible to monitor two E1/T1/J1 interfaces with one notebook, and up to eight E1/T1/J1 interfaces with the PCI based desktop/rack solutions. Up to five timeslots can be monitored simultaneously for each line interface. More E1/T1/J1 interfaces can be monitored with the notebook solution by using a 3rd-party E1/T1/J1 concentrator.

Real-Time Decoding

Comprehensive real-time decoding of the ISDN protocols is provided. Customer configured one-line decoding, detailed decoding and hex information are displayed. Physical link status is displayed with indicators in the status bar and layer 1 alarms are printed in the one-line decoding window.

Filter Mechanisms

Different filter mechanisms are supported. A Call Trace filter where it is possible to specify a number of Calling/Called Party numbers is available. Also filters covering layer 2 and LIC/DIX are available.

Search

It is possible to search for information in all captured messages, and it is also possible to specify which columns in One-Line Decoding to search.

Audio Monitoring

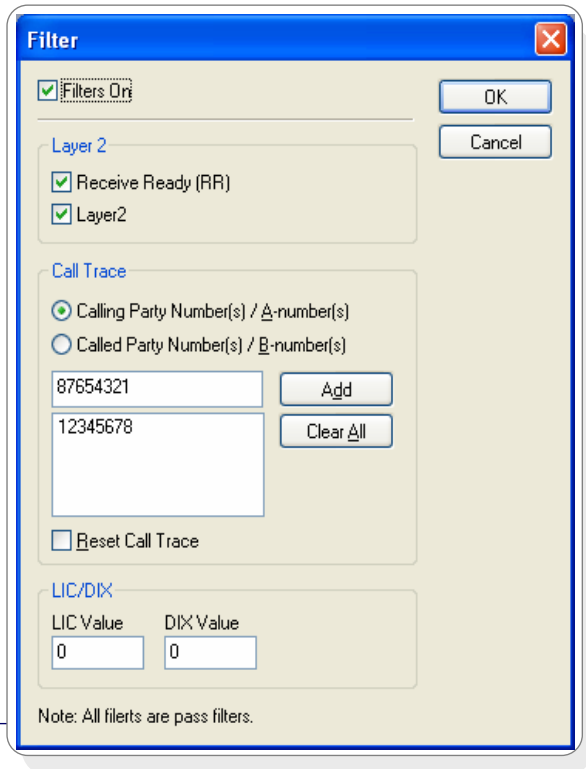
It is possible to listen to a specific user channel. With the PCMCIA solutions, the audio is played through the PC-speakers using the built-in sound card. With the PCI solutions, an on-board codec is used to play the audio in a connected head set.

Decode Single Message

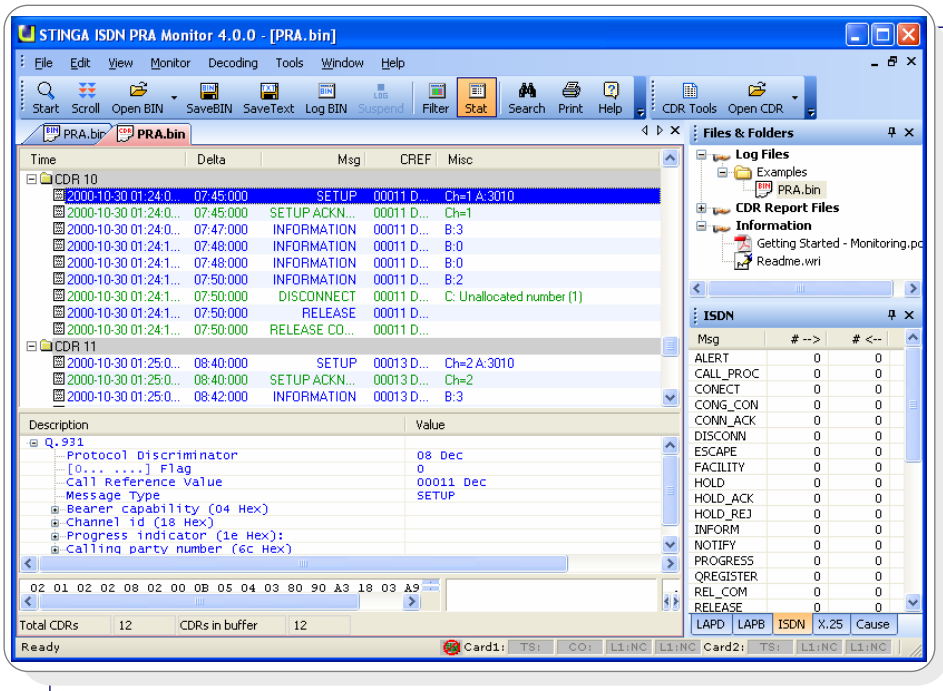
With the Decode Single Message feature, it is possible to import protocol information on hex format to get it detailed decoded. This protocol information could be some messages captured by a 3rd-party analyser that you for example have received by e-mail.

Remote Control

The monitor application is constructed to be remotely controlled over a IP connection (like a dial-up connection). The graphical user interface is installed on a local PC, while the monitor "agent" is running on a remote PC connected to the tapping point through the hardware.



STINGA ISDN PRA Monitor - protocol analysis

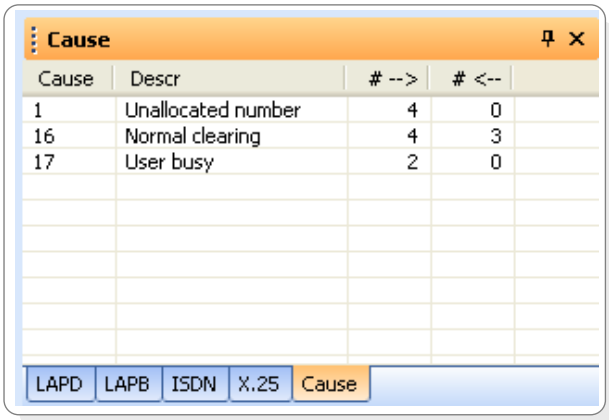


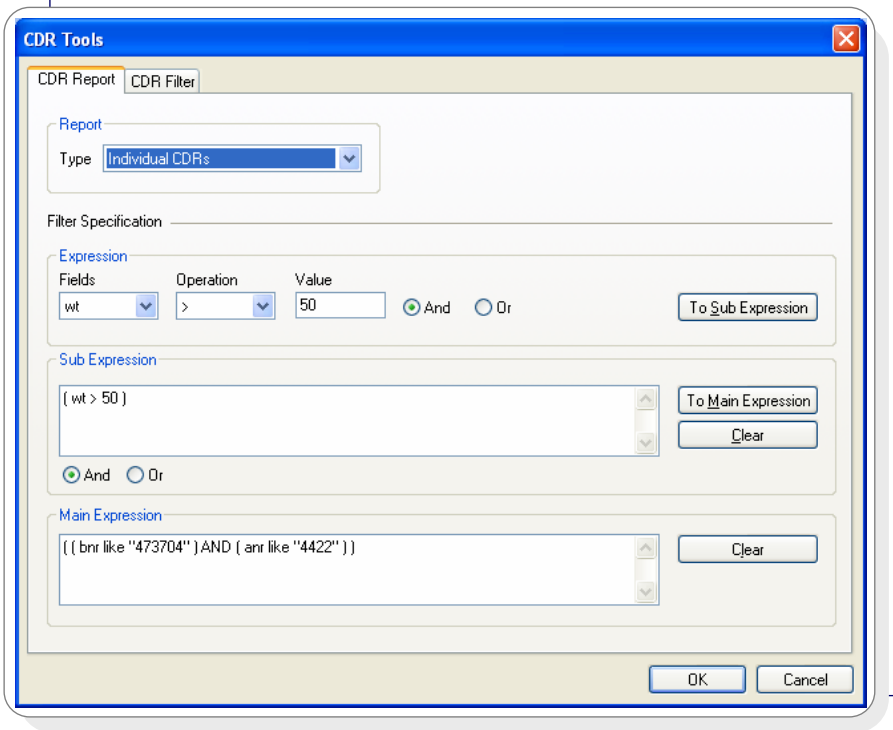
In Call Trace view all messages related to the same connection/call are grouped together.

The CDRs (call detail records) generated in this Call Trace view mode can be exported to Microsoft Excel in CSV format for further analysis.

Call Trace View
It is also possible to present captured messages in a Call Trace view to group messages related to the same connection. In this Call Trace view, CDRs (call detail records) are generated on the basis of the captured messages. These CDRs can be saved to file for later CDR Statistics Report generation, or exported to Microsoft Excel for further analysis.

Real-Time Statistics
Statistics on different LAPD, LAPB, ISDN, X.25 messages and cause values are reported in real-time. The statistics counters are presented separately for each monitored direction. The statistics can be saved to a file for later analysis.





CDR Search and Filtering Engine
An advanced search and filtering engine is combined with the CDR Statistics Report feature. With this functionality, it is possible to create a filter specification where a number of filters based on a field, an operation and a value are combined with logical AND/OR operations. These filters are easily generated by selecting fields and operations from drop-down lists. Advanced user may write the filters directly in the expression fields.

This Filter Specification sample is demonstrating how you can filter on specific fields using the different operations available. A number of filters can be combined with logical AND/OR operators.

STINGA ISDN PRA Protocol analysis & simulation

TECHNICAL SPECIFICATIONS

Hardware & Software Requirements

- Software modules running on Windows Vista/ XP/2003 Server/2000.
- PCMCIA cards (Type II) with two dongles with built-in amplifiers and RJ45 connectors – one dongle for each E1/T1/J1 line interface.
- Half or full length PCI cards with up to eight E1/ T1/J1 interfaces. Special monitoring cards with sixteen receivers (no transmitters) are also available - typically used in monitoring probes for monitoring up to eight bi-directional E1/T1/J1 interfaces.

Protocols Supported

- E1/T1/J1 interfaces
  - E1/T1/J1 alarm signals and link status
- 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
- National ISDN-2 (NI-2)
- X.25 (B and D channel, layer 3)
- Layer 6 and 7, ASN.1 (Supplementary Services)
- PPP and IP in B channel
- Supplementary Services
- Other protocols and national protocol variants are implemented on customer requests.

Cables

Cables included with the ISDN PRA test instruments:

- One 1:1 twisted pair cable with RJ45 connectors for simulation (TE).
- One twisted pair crossover cable with RJ45 connectors for simulation (NT).
- One Y-cable with RJ45 connectors for monitoring.

Options

Optional products available for the ISDN PRA instruments:

- Impedance Converter: A small external adapter for 75 Ohm dual coax (BNC or Type 1.6/5.6) termination to 120 Ohm twisted pair RJ45 termination. No AC power or batteries required.
- T-Attenuator: A small external adapter for tapping into a twisted pair signalling link for non-intrusive monitoring. RJ45 connectors. No AC power or batteries required.
- Amplifier: A external switchable 0, 20 or 30 dB amplifier with both 75 Ohm coax (Type 1.6/5.6), 120 Ohm twisted pair (RJ45) and terminal block connectors, is available for compensating for possible attenuation on the cross coupling device (tapping point). High impedance mode is also supported. Battery eliminator is included.

Related Products

- STINGA BICC Monitor & Simulator
- STINGA IRI Analyser
- STINGA ISDN BA Monitor & Simulator
- STINGA MOBILE Monitor
- STINGA NGN Monitor
- STINGA SCTP Simulator
- STINGA SIP Simulator
- STINGA SS7 Monitor & Simulator
- STINGA V5 Monitor & Simulator
- E1/T1/J1 support for Wireshark (Ethereal)

Note: The **BICC** products includes all the functionality of the SS7 products, in addition to support for the BICC protocol. The SS7 test instruments can easily be upgraded to the BICC products.

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