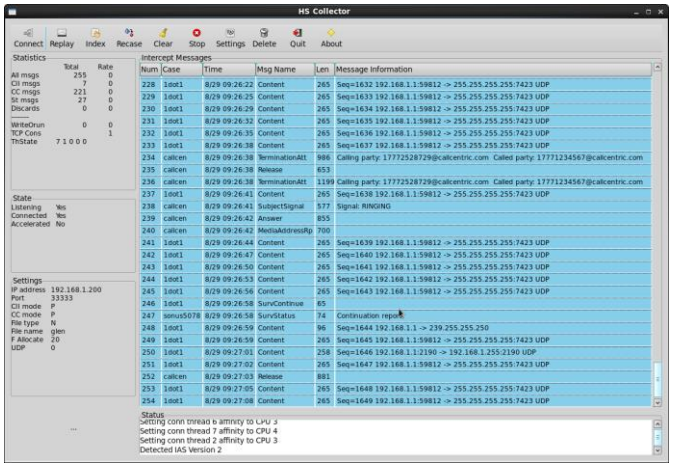
Counter Link High-Speed Collector

Basic lawful-interception collection system providing collection speeds above 1 Gb/s in an inexpensive form

KEY FEATURES & BENEFITS

- Low-speed version (< 1 Gb) supplied as a software product
- High-speed version can collect at up to 4 Gb/s using 10Gb interfaces and SSD storage
- Requires no pre-provisioning; dynamically recognizes intercept cases and the LI standards in which traffic is sent
- Supports a variety of LI handover standards – ATIS, EGPP, ETSI

The HSCollector is a basic collection system that records intercepts to file storage and optionally decode and display the intercept messages on the user's screen in real time. It can run as a cloud application, an application atop a physical Linux server, or as preconfigured in a 10G system for high-speed use.



The user interface has five parts. The large window shows the decoded LI messages as they are received. The small window on the top left shows real-time statistics. The small window at the mid left shows state information. The small window at the lower left shows some of the current configuration parameters. Finally, the status window at the bottom shows status and error messages.

Standards Supported.
The HSCollector currently supports the following LI handover standards:

- ATIS 678, versions 2 and 3
- ATIS IAS, versions 1 and 2
- ATIS-1000069, version 1
- 3GPP 33.108 EPS Part 10, versions 12 and 13 with and without the U.S. annexes G and H
- ETSI 102 232-1 and 102 232-5, versions 3.12.1 and 3.6.1

Dynamic input recognition. Because the LI message standards are self-describing with object identifiers and case names, the HSCollector requires no prior setup of cases. Each message sent to it is examined to determine the standard in which it is encoded and the case to which it is associated. If the case is a new case, the HSCollector recognizes it as such.

Collection Modes. The HSCollector is normally in collection mode, where it listens for incoming TCP connections (e-interface connections in ATIS terminology; HI2 and HI3 connections in 3GPP and ETSI terminology). In this mode, it collects all incoming information in a single file and, depending on parameters in its configuration file, parses and displays messages on the user interface. The file format can be selected to be ASN.1 BER or PCAP.

Other Modes. When the HSCollector is not in collection mode, the tool bar on the user interface can be used to put it in a variety of other modes, all of which are operations on a designated input file.

- Replay mode, in which it treats each message as if it were an incoming message, and otherwise performs the operations above.
- Index mode, where it lists the LI cases found in the input file.
- Recase mode, where it replays the input file but ignores all messages that aren't associated with a specified case. Recase can be used to segregate cases into individual files.
- Remod mode, where it creates a different file for each object type found in the input file.

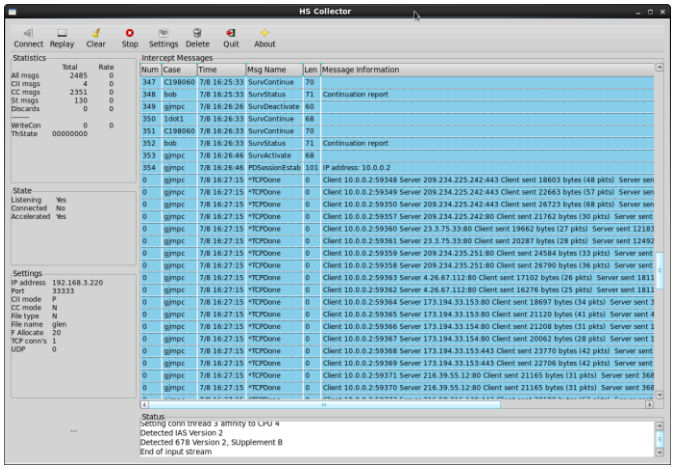
Message parsing. How messages are displayed, if at all, is controlled by configuration parameters. Configuration parameters come from a configuration file but can also be changed via the user interface. During high-speed intercepts, one would disable LI message display (but the status window always displays status and error updates, including any ATIS-1000069 incoming messages). Alternatively, one can select minimal display of CII/IRI messages (basically case name, timestamp, message name), or select partial decoding/display of each message. For the latter, what is displayed

depends on the standard. E.g.,

- For the IAS standard, the IPv4 or IPv6 address associated with a new packet data session
- For IAS and 33.108, an incoming packet-data-summary message results in a table of flows, showing for each the IP addresses, ports, protocol, packet count, and byte count
- For 678 call starts, the identifiers of the calling and called parties
- For 678 signals, the signaled information
- For 33.108, the event, the IMSI, MSISDN, and MEI, and certain other fields
- For 102 232-5, the SIP message name and response code

For CC (content) messages, options are no display, parsed display (e.g., IP addresses, protocol, port), and hex display.

TCP Analysis. If TCP analysis is enabled, the HSCollector detects the start of each TCP connection, tracks the payload bytes in both directions, and detects the end of the connection. At the end, a "pseudo" intercept message is sent to the display containing information about the completed connection. The information displayed is the client and server IP addresses and ports, time of start, and the number of packets and total data bytes sent by both client and server.



10G HSCollector Physical and Electrical Characteristics

- 1U, 16.9" deep
- Approximately 16 lbs
- Operating temperature: 10-35ºC
- One 1G system port (maintenance)
- One 10G port for high-speed delivery, SFP+
- Two or four SSDs, 0.8 to 4.8 TB total, 4.7 Gb/s write speed, RAID-0 striping
- AC power, typical power 90w
- Remote management via BMC/IPMI

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