ATIS-1000095.v002

ATIS Standard on -

Extending STIR/SHAKEN over TDM

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Abstract

The SHAKEN framework enables SHAKEN-authorized VoIP Service Providers to provide cryptographically protected attestation via SIP signaling that the calling user is authorized to use the calling telephone number. This specification extends the SHAKEN framework to enable conveyance of verified “shaken” attestation levels over TDM interconnects.

Foreword

The Alliance for Telecommunications Industry Solutions (ATIS) serves the public through improved understanding between carriers, customers, and manufacturers. The Packet Technologies and Systems Committee (PTSC) develops and recommends standards and technical reports related to services, architectures, and signaling, in addition to related subjects under consideration in other North American and international standards bodies. PTSC coordinates and develops standards and technical reports relevant to telecommunications networks in the U.S., reviews and prepares contributions on such matters for submission to U.S. International Telecommunication Union Telecommunication Sector (ITU-T) and U.S. ITU Radiocommunication Sector (ITU-R) Study Groups or other standards organizations, and reviews for acceptability or per contra the positions of other countries in related standards development and takes or recommends appropriate actions.

The mandatory requirements are designated by the word *shall* and recommendations by the word *should*. Where both a mandatory requirement and a recommendation are specified for the same criterion, the recommendation represents a goal currently identifiable as having distinct compatibility or performance advantages. The word *may* denotes an optional capability that could augment the standard. The standard is fully functional without the incorporation of this optional capability.

Suggestions for improvement of this document are welcome. They should be sent to the Alliance for Telecommunications Industry Solutions, 1200 G Street NW, Suite 500, Washington, DC 20005.

The **Non-IP Call Authentication Task Force** under the **ATIS Packet Technologies and Systems Committee (PTSC)** was responsible for the development of this document.

At the time it approved this standard, the PTSC had the following leadership:

M. Dolly, PTSC Chair

V. Shaikh, PTSC Vice Chair

P. Linse, PTSC NIPCA TF Chair

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1.1 Scope

The Signature-based Handling of Asserted information using toKENs (SHAKEN) framework enables a SHAKEN-authorized Voice over Internet Protocol (VoIP) Service Provider to deliver cryptographically protected attestation, via SIP signaling, that the calling user is authorized to use the calling telephone number. This specification extends the SHAKEN framework to enable conveyance of verified "shaken" attestation levels over Time Division Multiplexing (TDM) interconnects.

ATIS-1000097, *Technical Report on Alternatives for Caller Authentication for Non-IP Traffic*, which evaluates the viability of implementing this call authentication mechanism for TDM networks, should be considered along with this specification.

The mechanisms specified in this document are based on ITU Q.763 (12/1999), *Signalling System No. 7 – ISDN user part formats and codes*, rather than ATIS-1000113, *Signaling System No. 7 (SS7) – Integrated Services Digital Network (ISDN) User Part*. However, a similar approach could be used for ATIS ISUP, taking into consideration that the parameters, code values, and procedures of ATIS ISUP are different from ITU-T ISUP and are not specified in this document.

1.2 Purpose

The current SHAKEN framework provides a set of tools that enable verification of the calling party's authorization to use a calling telephone number for a call. It assumes that the SIP Identity header can be carried end-to-end between Originating Service Providers (OSPs) and Terminating Service Providers (TSPs). Currently this is not always possible due to the use of TDM-based signaling at various segments of the end-to-end signaling path.

The mechanisms described in this document address this problem by carrying verified "shaken" attestation levels over TDM signaling.

2 References

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

2.1 Normative References

[Ref 1] ATIS-1000073, *Technical Report on Use of the ISUP Screening Indicator for Conveying Caller ID Authentication Information.*[1]

[Ref 2] ATIS-1000074, *ATIS Standard on Signature-based Handling of Asserted Information using toKENs (SHAKEN).*[1]

[Ref 3] ATIS-1000679, *Interworking Between Session Initiation Protocol (SIP) and ISDN User Part.*[1]

[1] This document is available from the Alliance for Telecommunications Industry Solutions (ATIS) at: < https://www.atis.org/ >.