



**SIP FORUM**

**ATIS-1000093**

**ATIS Standard on Toll-Free Numbers in the SHAKEN  
Framework**

**JOINT STANDARD**



As a leading technology and solutions development organization, the Alliance for Telecommunications Industry Solutions (ATIS) brings together the top global ICT companies to advance the industry's most pressing business priorities. ATIS' nearly 200 member companies are currently working to address the All-IP transition, 5G, network functions virtualization, big data analytics, cloud services, device solutions, emergency services, M2M, cyber security, network evolution, quality of service, billing support, operations, and much more. These priorities follow a fast-track development lifecycle — from design and innovation through standards, specifications, requirements, business use cases, software toolkits, open source solutions, and interoperability testing.

ATIS is accredited by the American National Standards Institute (ANSI). The organization is the North American Organizational Partner for the 3rd Generation Partnership Project (3GPP), a founding Partner of the oneM2M global initiative, a member of the International Telecommunication Union (ITU), as well as a member of the Inter-American Telecommunication Commission (CITEL). For more information, visit [www.atis.org](http://www.atis.org).



The SIP Forum is a leading IP communications industry association that engages in numerous activities that promote and advance SIP-based technology, such as the development of industry recommendations; interoperability testing events and special workshops, educational activities, and general promotion of IP communications standards, services, and technology for service provider, enterprise, and governmental applications. The SIP Forum is also the producer of the annual SIPNOC conferences (for SIP Network Operators Conference), focused on the technical requirements of the service provider community. One of the Forum's technical activities is the development of the SIPconnect Technical Recommendation – a standards-based SIP trunking recommendation that provides detailed guidelines for direct IP peering and interoperability between IP PBXs and SIP-based service provider networks, and the SIPconnect Certification Testing Program, a unique certification testing program that includes a certification test suite and test platform, and an associated “SIPconnect Certified” logo program that provides an official “seal of certification” for companies products and services that have officially achieved conformance with the SIPconnect specification. Other important Forum initiatives include work in security, SIP and IPv6, and IP-based Network-to-Network Interconnection (IP-NNI). For more information about all SIP Forum initiatives, please visit:

< <http://www.sipforum.org/> >

---

### Notice of Disclaimer & Limitation of Liability

The information provided in this document is directed solely to professionals who have the appropriate degree of experience to understand and interpret its contents in accordance with generally accepted engineering or other professional standards and applicable regulations. No recommendation as to products or vendors is made or should be implied.

NO REPRESENTATION OR WARRANTY IS MADE THAT THE INFORMATION IS TECHNICALLY ACCURATE OR SUFFICIENT OR CONFORMS TO ANY STATUTE, GOVERNMENTAL RULE OR REGULATION, AND FURTHER, NO REPRESENTATION OR WARRANTY IS MADE OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR AGAINST INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS. ATIS SHALL NOT BE LIABLE, BEYOND THE AMOUNT OF ANY SUM RECEIVED IN PAYMENT BY ATIS FOR THIS DOCUMENT, AND IN NO EVENT SHALL ATIS BE LIABLE FOR LOST PROFITS OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES. ATIS EXPRESSLY ADVISES THAT ANY AND ALL USE OF OR RELIANCE UPON THE INFORMATION PROVIDED IN THIS DOCUMENT IS AT THE RISK OF THE USER.

NOTE - The user's attention is called to the possibility that compliance with this standard may require use of an invention covered by patent rights. By publication of this standard, no position is taken with respect to whether use of an invention covered by patent rights will be required, and if any such use is required no position is taken regarding the validity of this claim or any patent rights in connection therewith. Please refer to [<http://www.atis.org/legal/patentinfo.asp>] to determine if any statement has been filed by a patent holder indicating a willingness to grant a license either without compensation or on reasonable and non-discriminatory terms and conditions to applicants desiring to obtain a license.

---

## ATIS-1000093, ATIS Standard on Toll-Free Numbers in the SHAKEN Framework

Is an ATIS & SIP Forum Joint Standard developed by the **ATIS/SIP Forum IP-NNI Task Force** under the **ATIS Packet Technologies and Systems Committee (PTSC)** and the **Technical Working Group (TWG)** under the **SIP Forum**.

Published by  
**Alliance for Telecommunications Industry Solutions**  
1200 G Street, NW, Suite 500  
Washington, DC 20005

**SIP Forum LLC**  
733 Turnpike Street, Suite 192  
North Andover, MA 01845

Copyright © 2020 by Alliance for Telecommunications Industry Solutions and by SIP Forum LLC.  
All rights reserved.

No part of this publication may be reproduced in any form, in an electronic retrieval system or otherwise, without the prior written permission of the publisher. For information contact ATIS at 202.628.6380 or the SIP Forum at 203.829.6307. ATIS is online at < <http://www.atis.org> > and the SIP Forum is online at < <http://www.sipforum.org> >.

**ATIS-1000093**

ATIS Standard on

# **ATIS Standard on Toll-Free Numbers in the SHAKEN Framework**

**Alliance for Telecommunications Industry Solutions**

Approved November 12, 2020

## **Abstract**

This document is intended to cover calls using Toll-Free Numbers (TFNs) within the SHAKEN Framework. This addresses calls where the calling party number displayed in the Caller ID is a TFN. This document considers scenarios involving the calling party's use of the TFN in order to enable them to attain full attestation for the TFN.

## Foreword

---

The Alliance for Telecommunications Industry Solutions (ATIS) is a global standards development and technical planning organization that develops and promotes worldwide technical and operations standards for information, entertainment, and communications technologies. ATIS' diverse membership includes key stakeholders from the Information and Communications Technologies (ICT) industry – wireless and wireline service providers, equipment manufacturers, broadband providers, software developers, VoIP providers, consumer electronics companies, public safety agencies, and internet service providers. ATIS is also a founding partner and the North American Organizational Partner of the Third Generation Partnership Project (3GPP), the global collaborative effort that has developed the Long-Term Evolution (LTE) and LTE-Advanced wireless specifications.

ATIS' Packet Technologies and Systems Committee (PTSC) develops standards related to services, architectures, signaling, network interfaces, next generation carrier interconnect, cybersecurity, lawful intercept, and government emergency telecommunications service within next generation networks. As networks transition to all-IP, PTSC will evaluate the impact of this transition and develop solutions and recommendations where necessary to facilitate and reflect this evolution.

The SIP Forum is an IP communications industry association that engages in numerous activities that promote and advance SIP-based technology, such as the development of industry recommendations, the SIPit, SIPconnect-IT, and RTCWeb-it interoperability testing events, special workshops, educational seminars, and general promotion of SIP in the industry. The SIP Forum is also the producer of the annual SIP Network Operators Conference (SIPNOC), focused on the technical requirements of the service provider community. One of the Forum's notable technical activities is the development of the SIPconnect Technical Recommendation – a standards-based SIP trunking recommendation for direct IP peering and interoperability between IP Private Branch Exchanges (PBXs) and SIP-based service provider networks. Other important Forum initiatives include work in Video Relay Service (VRS) interoperability, security, Network-to-Network Interoperability (NNI), and SIP and IPv6.

Suggestions for improvement of this document are welcome. They should be sent to the Alliance for Telecommunications Industry Solutions, PTSC, 1200 G Street NW, Suite 500, Washington, DC 20005, and/or to the SIP Forum, 733 Turnpike Street, Suite 192, North Andover, MA, 01845.

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.

The **ATIS/SIP Forum IP-NNI Task Force** under the **ATIS Packet Technologies and Systems Committee (PTSC)** and the **SIP Forum Technical Working Group (TWG)** was responsible for the development of this document.

## Table of Contents

1	Scope & Purpose .....	1
1.1	Scope.....	1
1.2	Purpose .....	1
2	References.....	1
3	Definitions, Acronyms, & Abbreviations.....	1
3.1	Definitions .....	2
3.2	Acronyms & Abbreviations .....	3
4	Overview .....	4
4.1	The Right to Use the Toll-Free Number .....	4
4.2	Problem Statement.....	4
4.3	Toll-Free Overview .....	4
4.3.1	Toll-Free Number Assignment .....	5
5	Scenarios .....	5
5.1	Principles .....	5
5.2	Toll-Free Number Origination in SHAKEN .....	6
5.3	Delegate Certificate Management for Toll-Free Number .....	6
5.3.1	Issuing Delegate Certificate for Toll-Free Number.....	6
5.3.2	Utilizing Delegate Certificate to sign Originating Toll-Free Number.....	8
	Annex A: Process of becoming a RespOrg (Informative).....	9

## Table of Figures

FIGURE 4.1 – TOLL-FREE NUMBER ASSIGNMENT PROCESS.....	5
FIGURE 5.1 – RESPORG ISSUES DELEGATE CERTIFICATE FOR TOLL-FREE NUMBER.....	7
FIGURE 5.2 – AUTHENTICATION/VERIFICATION DURING CALL SETUP .....	8