



Compliance and Enforcement and Telecom Decision CRTC 2021-426

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CRTC Interconnection Steering Committee – Application requesting an urgent and expedited Commission direction deferring the effective date for the implementation of STIR/SHAKEN to 9-1-1 voice calls

The Commission **approves** the CRTC Interconnection Steering Committee's (CISC) request to defer the application of the STIR/SHAKEN condition of service to all 9-1-1 emergency and callback calls set out in Compliance and Enforcement and Telecom Decision 2021-123. The Commission requests that CISC monitor the standards work related to the application of STIR/SHAKEN to NG9-1-1 calls and callbacks and file a report with the Commission every six months starting **31 May 2022**.

Background

1. In Compliance and Enforcement and Telecom Decision 2021-123, the Commission directed telecommunications service providers (TSPs) to implement STIR/SHAKEN¹ to authenticate and verify caller identification (ID) information for Internet Protocol (IP)-based voice calls as a condition of offering and providing telecommunications services (the STIR/SHAKEN condition), effective 30 November 2021.
2. In Telecom Decision 2021-199, the Commission set out determinations in relation to new deadlines for the implementation of next-generation 9-1-1 (NG9-1-1) networks and services in Canada. Specifically, the Commission directed NG9-1-1 network providers and all TSPs to make the necessary changes to support NG9-1-1 Voice services and to begin providing them to their customers, using networks that are technically capable of supporting these services, by 1 March 2022. The decision also directed NG9-1-1 network providers to decommission their existing Enhanced 9-1-1 (E9-1-1) network components that will not form part of their NG9-1-1 networks by 4 March 2025 or sooner.

¹ STIR stands for Secure Telephony Identity Revisited. SHAKEN stands for Signature-based Handling of Asserted information using toKENs. It is a suite of protocols and procedures intended to combat caller identification (ID) spoofing by providing authentication and verification of caller ID information.

3. On 28 October 2021, the Emergency Services Working Group and the Network Working Group of the CRTC Interconnection Steering Committee (CISC) [collectively, the working groups] filed an application requesting that the Commission defer the application of the STIR/SHAKEN condition indefinitely for the legacy E9-1-1 network providers and until a specific set of milestones are met for the NG9-1-1 network providers. The working groups' application was supported by Bell Canada, Saskatchewan Telecommunications, and TELUS Communications Inc. (the NG9-1-1 network providers, responsible for the deployment of the NG9-1-1 network infrastructure).
4. The working groups submitted that a deferral is required because of the lack of standards regarding the integration of STIR/SHAKEN to 9-1-1 calls. They are concerned about the risk of 9-1-1 calls being misidentified as spoofed calls or being dropped if STIR/SHAKEN is applied to emergency calls before the appropriate standards are developed and implemented.
5. The Commission received interventions from the Coalition pour le service 9-1-1 au Québec (la Coalition)² and Shaw Communications Inc. (Shaw).

Application

6. Given that the current 9-1-1 system, E9-1-1, is based on time-division multiplexing (TDM) technology while the incoming NG9-1-1 system works exclusively on IP-based networks, the applicants' request differs for each 9-1-1 iteration.

E9-1-1

7. The working groups indicated that there are no standards available for the implementation of STIR/SHAKEN on the legacy E9-1-1 TDM-based networks. The working groups argued that it would take one to two years before standards for applying STIR/SHAKEN to legacy platforms are finalized and incorporated into vendor products. This would lead to a possible implementation date close to the decommissioning date for E9-1-1 networks. The working groups added that if 9-1-1 calls originating from IP voice networks are directed toward the E9-1-1 core network,³ the STIR/SHAKEN information that could be attached to those calls will be lost during the conversion to TDM.
8. The working groups therefore submitted that imposing a requirement to make E9-1-1 STIR/SHAKEN-compliant would only serve to assign finite TSP resources to what

² La Coalition pour le service 9-1-1 au Québec is comprised of l'Agence municipale de financement et de développement des centres d'urgence 9-1-1 du Québec, l'Association des centres d'urgence du Québec, and la Centrale des appels d'urgence Chaudière-Appalaches.

³ E9-1-1 networks include all equipment, transmission facilities, databases, and systems between the point of interconnection of the originating network and the 9-1-1 network, up to the demarcation point of the 9-1-1 network with the primary public safety answering point.

will soon be an obsolete legacy E9-1-1 platform, rather than allocating those resources to the ultimate objective of implementing the advanced and growing NG9-1-1 platform. The working groups therefore requested an indefinite deferral to the application of the STIR/SHAKEN condition to all E9-1-1 calls from end-users to public safety answering points (PSAPs) [emergency calls] and to calls from PSAPs to end-users (emergency callbacks).

NG9-1-1

9. With regard to NG9-1-1 calls, the working groups submitted that the combined requirements set out in Compliance and Enforcement and Telecom Decision 2021-123 and in Telecom Decision 2021-199 impose an obligation to apply STIR/SHAKEN to both NG9-1-1 emergency calls and emergency callbacks. They added that Compliance and Enforcement and Telecom Decision 2021-123 does not provide a specific exemption to the application of STIR/SHAKEN.
10. The working groups submitted that while work on developing standards is well underway there are still gaps that need to be filled prior to applying the STIR/SHAKEN framework to emergency calls and emergency callbacks in a consistent end-to-end standards-based fashion.⁴ In their application, the working groups listed a variety of areas where they consider that there is a lack of agreed-upon standards on the detail of integration of STIR/SHAKEN to NG9-1-1 calls.⁵ They added that there is typically an 18- to 24-month period between the publication of a standard and the availability of the new standardized associated product on the market.
11. The working groups argued that trying to apply STIR/SHAKEN to NG9-1-1 calls without all the necessary agreed-upon standards could result in 9-1-1 calls being misidentified as spoofed calls or being dropped, thereby creating confusion for the PSAP answering the call, or worse, a risk that legitimate 9-1-1 calls could be dropped. The working groups conclude that TSPs and NG9-1-1 network providers cannot risk applying the STIR/SHAKEN framework to both emergency calls and emergency callbacks until all of the relevant standards are finalized and the vendor

⁴ For instance, while the latest version of the [National Emergency Number Association \(NENA\) i3 standard](#) (the standard approved by the Commission as the reference standard for the establishment of NG9-1-1 in Canada), published on 7 October 2021, does incorporate the foundational elements to support the application of STIR/SHAKEN procedures on received emergency calls and originated emergency callbacks from the viewpoint of NG9-1-1 network providers, the standard also clearly indicates that “additional work outside of NENA is in progress” to fully support these capabilities.

⁵ For instance, they pointed out that NENA i3 does not yet take into account STIR/SHAKEN integration at the PSAP and STIR/SHAKEN support for the special call features of the NG9-1-1 callbacks. Another critical issue pointed out by the working groups is that NG9-1-1 calls are routed by using a Uniform Resource Name rather than a phone number, which is incompatible with the STIR/SHAKEN verification procedure, since STIR/SHAKEN serves to verify a telephone number.

community has implemented fully-tested software and equipment in compliance with these standards.

Request

12. In light of the above, the working groups requested that the Commission defer the effective date for the application of the STIR/SHAKEN condition to all 9-1-1 emergency and callback calls. They requested that the deferral apply indefinitely with respect to E9-1-1 networks and according to the following milestones with respect to NG9-1-1 networks:
 - a. The Commission would task the relevant CISC sub-committees to continue to monitor the standards work related to the application of the STIR/SHAKEN framework to NG9-1-1 emergency calls and callbacks, as well as the adoption of such standards by the vendor community, in both the telecommunications and emergency communications fields.
 - b. The relevant CISC sub-committees would report to the Commission semi-annually on the matters listed in paragraph 12(a) in a form to be determined by the Commission, and file such reports on the semi-annual reporting dates (**31 May 2022** and **30 November 2022**) prescribed by the Commission in Compliance and Enforcement and Telecom Decision 2021-123 for TSPs to provide their STIR/SHAKEN implementation status reports.
 - c. The Commission's deferral of the application of the STIR/SHAKEN condition would apply until such time as the relevant CISC sub-committees report and recommend the application of the STIR/SHAKEN framework to NG9-1-1 calls, as the Commission may approve, and subject to such conditions as the Commission considers appropriate.

Positions of parties

Interveners

13. La Coalition provided a brief comment fully supporting the working groups' application.
14. Shaw also expressed support for the working groups' application, submitting that the Commission should not require service providers to undertake any activities that would jeopardize the reliability of Canada's 9-1-1 system. Shaw added that it was confident that the industry will work expeditiously to deliver comprehensive standards and products that allow for the safe application of STIR/SHAKEN to NG9-1-1 calls.

Commission's analysis and determinations

Request to indefinitely defer the effective date for the application of the STIR/SHAKEN condition to E9-1-1 emergency calls and callbacks

15. Given that the development of a solution to apply STIR/SHAKEN to the legacy E9-1-1 network would, at best, be ready only shortly before the phasing out of the E9-1-1 infrastructure, imposing such a requirement to be implemented for such a short period of time, if at all, would be a waste of resources. In these circumstances, the Commission concludes that it is neither necessary nor appropriate to apply STIR/SHAKEN to E9-1-1.

Request to defer the effective date for the application of the STIR/SHAKEN condition to NG9-1-1 emergency calls and callbacks until certain milestones are met

16. Given the lack of necessary standards and related products, STIR/SHAKEN would not work as intended when applied to NG9-1-1 emergency calls or callbacks and there is a real risk of calls being misidentified as spoofed or being dropped. Moreover, the immediate application of STIR/SHAKEN to 9-1-1 calls would not produce any immediate tangible advantages. Given the crucial importance of 9-1-1 services for the security of Canadians, the risk of emergency calls being misidentified or dropped should not be taken lightly.
17. The Commission expects that STIR/SHAKEN will eventually be capable of operating on NG9-1-1. However, the current delay in the integration of STIR/SHAKEN with NG9-1-1 is due to the lack of standards and associated vendor products, matters over which TSPs and NG9-1-1 network providers do not have a lot of control.
18. Therefore, attempting to set a deadline at this time would be arbitrary and it would be appropriate, as suggested by the working groups, to wait until some milestones are reached before setting a date as well as to request the production of reports by CISC. Given that both STIR/SHAKEN and NG9-1-1 are being deployed in Canada and the United States, there is an incentive for the relevant standardisation organisations and the industry to develop the necessary standards in a timely manner.
19. The proposed bi-annual reports from CISC would provide the Commission with sufficient oversight. However, to ensure that CISC provides recommendations on a possible implementation timeframe to the Commission in a timely manner, the Commission requests that CISC include an assessment on a possible implementation date in its second report, due **30 November 2022**.

Conclusion

20. In light of all of the above, the Commission finds that implementing STIR/SHAKEN on 9-1-1 calls at this time could result in emergency calls being misidentified as spoofed calls or being dropped. This situation results in a risk for the reliability of the NG9-1-1 service and therefore a risk for the safety of Canadians.

21. The Commission therefore concludes that it is necessary and appropriate to suspend the application of the STIR/SHAKEN condition set out in Compliance and Enforcement and Telecom Decision 2021-123 to all 9-1-1 calls from end-users to PSAPs and to callbacks from PSAPs to end-users, and **approves** the working groups' application. In the case of NG9-1-1 calls, the suspension will remain in effect only until a new implementation date is set by the Commission, based on CISC's recommendation.
22. The Commission requests that CISC:
- continue to monitor the standards work related to the application of the STIR/SHAKEN framework to NG9-1-1 emergency calls and callbacks, as well as the adoption of such standards by the vendor community, in both the telecommunications and emergency communications fields; and
 - file with the Commission, every six months beginning **31 May 2022** and continuing until the Commission decides otherwise, a report providing a complete update on the matters listed in paragraph 12(a), with the second report including a recommendation as to the implementation date of the application of STIR/SHAKEN.

Policy Directions

23. The 2006 and 2019 Policy Directions⁶ state that the Commission, in exercising its powers and performing its duties under the *Telecommunications Act* (the Act), shall implement the policy objectives set out in section 7 of the Act in accordance with the considerations set out therein, and should specify how its decisions can, as applicable, promote competition, affordability, consumer interests, and innovation.
24. The Commission's determination to suspend the application of STIR/SHAKEN to 9-1-1 calls as outlined in this decision serves to protect the reliability of 9-1-1 calls and thus the safety and security of Canadians. In so doing, the Commission's decision serves to protect and promote consumers' interests and is consistent with the telecommunications policy objectives set out in paragraphs 7(a), (b), and (h) of the Act.⁷

⁶ *Order Issuing a Direction to the CRTC on Implementing the Canadian Telecommunications Policy Objectives*, SOR/2006-355, 14 December 2006 and *Order Issuing a Direction to the CRTC on Implementing the Canadian Telecommunications Policy Objectives to Promote Competition, Affordability, Consumer Interests and Innovation*, SOR/2019-227, 17 June 2019

⁷ The cited policy objectives are 7(a) to facilitate the orderly development throughout Canada of a telecommunications system that serves to safeguard, enrich and strengthen the social and economic fabric of Canada and its regions; 7(b) to render reliable and affordable telecommunications services of high quality accessible to Canadians in both urban and rural areas in all regions of Canada; and 7(h) to respond to the economic and social requirements of users of telecommunications services.

Secretary General

Related documents

- *Establishment of new deadlines for Canada's transition to next-generation 9-1-1*, Telecom Decision CRTC 2021-199, 14 June 2021
- *STIR/SHAKEN implementation for Internet Protocol-based voice calls*, Compliance and Enforcement and Telecom Decision CRTC 2021-123, 6 April 2021