



Telecom Decision CRTC 2019-226

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CISC Emergency Services Working Group – Consensus report regarding technical specifications for real-time-text-based Next-Generation 9-1-1 Text Messaging

*The Commission **approves** the recommendation made by the CRTC Interconnection Steering Committee’s Emergency Services Working Group on technical specifications for the implementation of real-time-text (RTT)-based Next-Generation 9-1-1 (NG9-1-1) Text Messaging. The Commission **directs** wireless service providers to implement these specifications for the provision of RTT-based NG9-1-1 Text Messaging in Canada by 31 December 2020.*

Background

1. Canadians currently have access to either Basic 9-1-1 or Enhanced 9-1-1 service¹ through wireline, wireless, and voice over Internet Protocol (VoIP) telephone services wherever a 9-1-1 call centre, also known as a public safety answering point (PSAP), has been established.
2. When a 9-1-1 call is made in Canada today, it travels from the network on which it was placed (the originating network) to the local specialized 9-1-1 network. The 9-1-1 network determines which PSAP serves the area from which the call was placed and directs the call to that PSAP. The PSAP then dispatches emergency responders such as fire, police, and ambulance, as required.
3. The Commission’s role in the 9-1-1 context is to exercise regulatory oversight of the access provided by telecommunications service providers (TSPs)² to 9-1-1 services to enable Canadians to contact PSAPs wherever one has been established by the local government. As part of this oversight, the Commission conducted a proceeding on the implementation and provision of next-generation 9-1-1 (NG9-1-1) networks and services in Canada.

¹ Basic 9-1-1 service enables callers to be connected to 9-1-1 call-takers in public safety answering points (PSAPs), who dispatch the appropriate emergency responders. Enhanced 9-1-1 service includes Basic 9-1-1 service but also automatically provides PSAP 9-1-1 call-takers with the telephone number and location of the caller.

² In this context, TSPs are currently restricted to originating network providers of local voice telephony services, including traditional wireline, wireless, and local VoIP telephony networks. In the future, this could include other types of providers as new next-generation 9-1-1 (NG9-1-1) services are introduced.

4. In Telecom Regulatory Policy 2017-182, the Commission directed all incumbent local exchange carriers (ILECs) to establish their NG9-1-1 networks and to be ready to provide NG9-1-1 Voice by 30 June 2020 wherever PSAPs have been established in a particular region.³ The Commission also directed these ILECs as NG9-1-1 network providers and wireless service providers (WSPs) to provide NG9-1-1 Text Messaging, a new service for all Canadians, by 31 December 2020.⁴
5. To support NG9-1-1 Text Messaging, the Commission requested that the CRTC Interconnection Steering Committee (CISC)⁵ present it with recommendations on the technical specifications for the implementation of real-time-text (RTT)-based NG9-1-1 Text Messaging.
6. RTT-based NG9-1-1 Text Messaging will provide an alternative method for requesting emergency assistance⁶ when, for example, a voice-based call is not possible, or talking is unsafe for the caller. RTT is an Internet Protocol (IP)-based text messaging service, using the Session Initiation Protocol (SIP) signalling protocol, that enables characters to be sent and received immediately as they are typed, simulating a typical real-time conversation. The routing of RTT-based emergency requests and the transmission of associated location information will be the same as for wireless NG9-1-1 Voice calls.
7. RTT-based NG9-1-1 Text Messaging is being developed to replace Text with 9-1-1, a service introduced in 2015 as an interim solution for the Deaf, deafened, hard-of-hearing, and speech-impaired (DHHSI) community.⁷ RTT-based NG9-1-1 Text Messaging does not have the same inherent limitations as Text with 9-1-1. End-users will therefore not need to pre-register with their WSP for the service, nor will they have to wait for the PSAP call-taker to respond by text message after the user has initiated the session with a voice call, as is the case with Text with 9-1-1.

The Report

8. On 15 November 2018, the CISC Emergency Services Working Group (ESWG) submitted the following consensus report (the Report) to the Commission for approval:

³ See paragraph 71 of Telecom Regulatory Policy 2017-182, as amended in Telecom Decision 2018-188, for specific obligations.

⁴ See paragraph 182 of Telecom Regulatory Policy 2017-182 for specific obligations.

⁵ CISC is an organization established by the Commission to assist in developing information, procedures, and guidelines as may be required in various aspects of the Commission's regulatory activities.

⁶ A request for emergency assistance includes both 9-1-1 voice calls and, once deployed, emergency requests sent by text message.

⁷ To this end, in Telecom Regulatory Policy 2017-182, the Commission tasked CISC with making recommendations on both a transition plan for existing Text with 9-1-1 users and a public education plan for the introduction of NG9-1-1 Text Messaging, in subsequent reports, expected on 30 June 2020 and 30 September 2020, respectively.

- *RTT-based NG9-1-1 Text Messaging Specifications*, 15 November 2018 (ESRE0083)
9. The Report can be found under the “Reports” section of the ESWG page, which is available under the CISC section of the Commission’s website at www.crtc.gc.ca. The Report is based on the views of NG9-1-1 stakeholders including WSPs, NG9-1-1 network providers, PSAPs, and representatives of the DHHSI community.
 10. As described in the Report, depending on the device used, end-users would initiate an RTT-based emergency request by dialing 9-1-1 on their device’s native dialer, then clicking the RTT button (for example, an icon on the phone keypad/touchscreen). This establishes an NG9-1-1 session using both voice and text media.⁸ Once the RTT session has been established between the end-user and the PSAP call-taker, the end-user can start typing his/her request. Either voice, text, or both media can be terminated by either party at any time. The session is ended by clicking the hang-up button.
 11. The Report outlines four conditions that an end-user must meet to make an emergency request using RTT-based NG9-1-1 Text Messaging:
 - the end-user must use a wireless device that natively supports RTT;
 - the end-user must (i) have a valid mobile wireless service plan⁹ with a Canadian WSP, (ii) have a subscriber identity module (SIM) card, and (iii) enable the voice over long-term evolution (VoLTE) feature;
 - at the time of the request, the end-user must be within the coverage area of and connected to the WSP’s wireless network, which (i) has a compatible IP Multimedia Subsystem, such as VoLTE networks,¹⁰ and (ii) supports RTT-based NG9-1-1 Text Messaging; and
 - at the time of the request, the end-user must be within an area served by a PSAP that supports RTT-based NG9-1-1 Text Messaging.
 12. The ESWG proposed that (i) consistent with the current practice for 9-1-1 calls, no usage charges should be billed for emergency requests sent by RTT, and (ii) when selecting devices with accessibility features, WSPs consider devices with the ability to change the font size and colour, the background colour, and the layout of the conversation.

⁸ By keeping the voice media active, the PSAP call-taker is able to hear background noise, which can help in assessing the emergency and providing situational awareness.

⁹ Further investigation is required to determine whether there are technical limitations related to, for example, the status of the account or the type of service plan (e.g. a voice plan may be required). These permutations will be tested as part of the NG9-1-1 trial.

¹⁰ This excludes Wi-Fi, 2G (second-generation), and 3G (third-generation) networks.

13. The ESWG reviewed the Alliance for Telecommunications Industry Solutions (ATIS)¹¹ standards, which are collectively considered to be the current baseline reference architecture for the implementation of RTT-based NG9-1-1 Text Messaging, and identified three relevant standards for the provision of RTT by WSPs for the purpose of emergency requests. The ESWG recommended that the Commission direct WSPs to implement all portions of the ATIS-0700029, ATIS-0700030, and ATIS-1000068 standards that apply to WSPs and that fall within the scope of the Report,¹² as defined in the Report, for the implementation of RTT-based NG9-1-1 Text Messaging in Canada by 31 December 2020 (pursuant to Telecom Regulatory Policy 2017-182).
14. The ESWG further recommended that the sub-group that worked on the Report remain active to address matters that will require further consideration, including the following:
- the ability for PSAPs to contact the person requesting emergency assistance after the 9-1-1 session has ended or has been disconnected prematurely;
 - whether a solution has been developed for the technical challenges related to international roaming on VoLTE networks;
 - a review of subsequent versions of the National Emergency Number Association (NENA) i3 architecture standard for RTT-related changes;
 - the ability for devices to identify the various parties in the conversation in RTT sessions that include more than two people;
 - a review of the User-to-Network Interface (UNI) and Network-to-Network Interface (NNI) specifications;
 - operationalizing RTT-based NG9-1-1 Text Messaging by PSAPs; and
 - whether it would be beneficial and feasible to know the caller's language preference in advance.
15. The ESWG stated that it would prioritize these matters, and any additional matters relevant to RTT-based NG9-1-1 Text Messaging that arise through discussion or the mandated NG9-1-1 trial, and present recommendations to the Commission as appropriate, to support the Commission-mandated timelines.

¹¹ ATIS is a technical planning organization that develops worldwide standards and includes wireless and wireline service providers, equipment manufacturers, broadband providers, software developers, consumer electronics companies, public safety agencies, and Internet service providers.

¹² The scope of the Report excludes (i) the transition from teletypewriter (TTY) to RTT; (ii) RTT to TTY conversion for legacy PSAPs; (iii) RTT-based NG9-1-1 Text Messaging for originating wireline networks; (iv) the transition from Text with 9-1-1 to RTT-based NG9-1-1 Text Messaging; (v) a public education plan for the introduction of RTT-based NG9-1-1 Text Messaging; (vi) the trial phase related to RTT-based NG9-1-1 Text Messaging; (vii) non-emergency RTT-based text messages; (viii) the interoperability between NG9-1-1 Text Messaging and other messaging services, such as Short Message Service (SMS), Multimedia Messaging Service (MMS), and instant messaging; and (ix) the assessment of the implementation of RTT-based NG9-1-1 Text Messaging by PSAPs.

Commission's analysis and determinations

16. The Commission considers that there was appropriate stakeholder representation in developing the Report. The Commission also considers the ESWG's recommendation pertaining to the technical specifications for RTT-based NG9-1-1 Text Messaging to be appropriate, reasonable, and consistent with the broader strategic objectives set out in Telecom Regulatory Policy 2017-182, namely that solutions be standards-based and nationally consistent.
17. Accordingly, the Commission **approves** the ESWG's recommendation and **directs** WSPs to implement all applicable portions of the ATIS-0700029, ATIS-0700030, and ATIS-1000068 standards which apply to WSPs and which are in scope as defined in the Report, for the provision of RTT-based NG9-1-1 Text Messaging in Canada by **31 December 2020**, pursuant to Telecom Regulatory Policy 2017-182.
18. Since RTT-based NG9-1-1 Text Messaging will eventually be the primary method for the DHHSI community to request emergency assistance, the Commission reminds WSPs that its accessibility-related requirements generally include an expectation that WSPs consult with customers with disabilities to understand their needs and develop suitable options for accessible devices. For example, in Broadcasting and Telecom Regulatory Policy 2009-430, the Commission requested that WSPs consult with parties representing persons with disabilities on an ongoing basis to determine which handsets they will make available to address the needs of persons with disabilities. Also in consultation with these groups, the Commission requested that the service providers provide reasonable technical and lifecycle support of these handsets in order to address unique needs, such as those imposed by assistive technologies. These requests continue to apply regarding devices with RTT capabilities.

Secretary General

Related documents

- *New Brunswick 9-1-1 Bureau, on behalf of public safety answering point organizations – Application to review and vary Telecom Regulatory Policy 2017-182 regarding next-generation 9-1-1 services*, Telecom Decision CRTC 2018-188, 28 May 2018
- *Next-generation 9-1-1 – Modernizing 9-1-1 networks to meet the public safety needs of Canadians*, Telecom Regulatory Policy CRTC 2017-182, 1 June 2017; as amended by Telecom Regulatory Policy CRTC 2017-182-1, 28 January 2019
- *Accessibility of telecommunications and broadcasting services*, Broadcasting and Telecom Regulatory Policy CRTC 2009-430, 21 July 2009; as amended by Broadcasting and Telecom Regulatory Policy CRTC 2009-430-1, 17 December 2009