

Bylaws of the NG9-1-1 Interoperability Oversight Commission

Approved on January 19, 2020 by a vote of the NENA Board of Directors

Article 1: Name

- A. The name of this commission is the NG9-1-1 Interoperability Oversight Commission (“Commission”) established by the National Emergency Number Association (“NENA,” or “Association”), a 501(c)(3) non-stock corporation chartered in the state of Wisconsin, by its Board of Directors (“Board”).

Article 2: Background

- A. The NENA i3 family of standards for NG9-1-1 (“i3 Family”) require that certain services (“Interoperability Services”) be established in order to provide baseline interoperability for NG9-1-1 systems in the United States, Canada, and beyond.
- B. These services include the establishment of a root of trust for NG9-1-1 and a Forest Guide, as specified in the i3 Family, as well as the establishment of a conformance test program.

Section 1: Root of Trust

- A. Best convention in modern web services and telecommunications demands secure communications over Transport Layer Security (TLS). TLS requires the sharing of security certificates issued by a shared root of trust. Over the general internet, several reputable Certificate Authorities (CAs) operate as shared roots of trust within the general public trust framework.
- B. Critical Infrastructure (CI) industries and other fields with special security requirements, such as public safety and military, will routinely establish a shared Public Key Infrastructure (PKI) independent of the general trust framework for the internet, with a shared root of trust specific to that industry. The rationale for these industry-specific PKIs is to establish trust within a specific industry and for special purposes. NG9-1-1 is one such field.
- C. The i3 Family requires shared root of trust specific to NG9-1-1. This is the PSAP Credentialing Agency (PCA). The PCA enables an entity and its functional elements to initiate communications with another entity and its functional elements using a certificate that identifies it as a verified 9-1-1 entity when establishing a connection. The PCA allows for and promotes interoperability by enabling a querier to establish a secure connection with any other entity in the NG9-1-1 ecosystem using its credentials that mark it as a known and validated 9-1-1 entity. This secure connection can also be established with special privileges provided only to 9-1-1 entities because it shares the

- 35 root of trust for NG9-1-1. It is safe for an entity to provide these special privileges to even
36 a completely unknown entity if both share the same root of trust exclusive to NG9-1-1,
37 because only legitimate 9-1-1 entities will have a certificate with credentials traceable to
38 the PCA.
- 39 D. The i3 Family requires that the PCA be established and that credentials throughout the
40 NG9-1-1 ecosystem are traceable to the PCA. Without PCA deployment, no NG9-1-1
41 deployment can be fully conformant with standards.
- 42 E. Without a shared root of trust, NG9-1-1 cannot achieve universal, interoperable, secure
43 communications, as it is not feasible for every jurisdiction to independently establish
44 trust with every other jurisdiction.
- 45 F. Infrastructure owners must leverage PKI according to best practices and possess root
46 certificates that are managed at a much higher level of security than most certificate-
47 owning entities; accordingly, every NG9-1-1 deployment will have to contend with highly
48 secure certificates. For interoperability purposes, the i3 Family specifies that all
49 certificates for NG9-1-1 be traceable to the same entity.
- 50 G. The PCA shall be operated as a world-class root CA, and will require funds to sustain its
51 operation, which will be assessed on entities that establish a position on the chain of
52 trust for NG9-1-1. This is normal practice in cybersecurity; any web service operator pays
53 a fee to purchase a security certificate from a root CA provider or a fee to operate an
54 intermediate CA that has trust established by a reputable root CA or other intermediate
55 CA closer to the root CA in the chain of trust.
- 56 H. Accordingly, the PCA does not necessarily impose a new cost category on NG9-1-1
57 providers, because providers would otherwise incur cost in acquiring or generating
58 certificates. However, i3 does require that their security certificate is traceable to the
59 PCA.
- 60 I. The PCA must be administered by a neutral party. NENA, under oversight by the
61 Commission, is hereby acknowledged as this neutral party for the PCA for the United
62 States, and potentially beyond.

63 Section 2: The Forest Guide

- 64 A. In NG9-1-1, emergency call routing is managed by rules and in normal cases determined
65 by the location of the caller. This is called Location-to-Service Translation (LoST). A LoST
66 server performs this location-based routing function.
- 67 B. The Forest Guide is a LoST server that contains routing information for NG9-1-1 systems.
68 The i3 Family requires the existence of a top-level LoST server, which is described in the
69 i3 Standard for Next-Generation 9-1-1 as the United States Forest Guide (“Forest Guide”).
70 The United States Forest Guide will contain routing information for every NG9-1-1
71 system in the U.S., as well as routing information for other Forest Guides, such as a
72 Canadian or other non-U.S. entity Forest Guide(s). The Forest Guide is an
73 implementation of IETF RFC 5582.

- 74 C. The Forest Guide does not contain routing information for individual answering points;
75 however, it will provide information for queries to find the correct LoST server that finds
76 the answering point that serves that location.
- 77 D. The Forest Guide is queried recursively. In NG9-1-1, this occurs when a query to the
78 Emergency Call Routing Function (ECRF)/Location Validation Function (LVF) lacks service
79 information for a given location. The ECRF/LVF will then query the Forest Guide to
80 determine whether it can identify the appropriate ECRF/LVF for routing at that location.
- 81 E. In most cases, neighboring jurisdictions should provision routing information for each
82 other, and queries will not recur to the Forest Guide. The Forest Guide provides for
83 interoperability in cases where such prior coordination has not occurred; for example,
84 jurisdictions geographically far apart or in neighboring countries.
- 85 F. In limited cases, the Forest Guide may also be consulted for service discovery; for
86 example, initial provisioning of an originating service provider external ECRF, so that it
87 may populate and sync the routing data an NG9-1-1 system will use to route a call.
- 88 G. In general, the Forest Guide will not be consulted as the initial target for a LoST query;
89 queries should arrive at the Forest Guide through recursion. The Forest Guide is to be
90 used for interoperability; it is not intended to be the initial routing element for live
91 emergency calls.
- 92 H. There should be one Forest Guide for each larger coverage region, such as a federation
93 of states or subcontinent.
- 94 I. Each Forest Guide must be administered by a neutral party. NENA, under oversight by
95 the Commission, is hereby acknowledged as this neutral party for the Forest Guide for
96 the United States, and potentially beyond.

97 **Section 3: Establishment of the Commission**

- 98 A. NENA, at the direction of its standards development community, including the NENA
99 Development Steering Council (DSC), i3 Core Services Workgroup, and the Board, has or
100 will execute an open and competitive Requests for Proposal (RFP) to establish the
101 Interoperability Services.
- 102 B. NENA and its selected vendor have developed (or will develop) a set of policies for the
103 Services, which will be presented to the Commission for consideration.
- 104 C. The Services shall be operated without profit motive for NENA.
- 105 D. Because the Services are part of the critical infrastructure chain for NG9-1-1, and
106 because operating the Services requires investment by NENA and its stakeholders, the
107 Services require independent oversight by affected stakeholders. This oversight is the
108 responsibility of the Commission.
- 109 E. The i3 Family may require that additional functional elements be established by a
110 neutral third party and governed in a similar manner. It is assumed that the Commission
111 shall oversee implementation and governance of these elements as they are introduced.
112 These bylaws will be updated according to such increased scope over time.

113 **Article 3: Purpose**

- 114 A. The Commission shall oversee:
- 115 a. The PCA;
 - 116 b. Forest Guide;
 - 117 c. Any additional NG9-1-1 Interoperability Services that arise in the future;
 - 118 d. NENA's administration of Services contracts, including direct management of the
 - 119 vendor(s) and related accounting and expense management;
 - 120 e. Financially sustainable operation of the Services, including reasonable fee schedules;
 - 121 f. The Services' not-for-profit mandate;
 - 122 g. Licensing of one or more certification marks related to conformance with the i3
 - 123 Family and/or integration with interoperability services overseen by the Commission;
 - 124 h. Development of tools for Conformance testing and establishment of an NG9-1-1
 - 125 Conformance Test program;
 - 126 i. Initial passage, maintenance, and update of policies such as the PCA Certificate
 - 127 Policy (CP) and, when necessary, enforcement of those policies; and
 - 128 j. Administration of the Services performed by staff employed by NENA ("The Office").
- 129 B. The Commission shall deliver or delegate the delivery of regular reports of deployment and
- 130 management of the Services to the Board and/or NENA Membership.

131 **Article 4: Commission Membership**

132 **Section 1: Members**

133 **Subsection 1: Membership**

134 The Commission's membership shall be representative of 9-1-1's needs and

135 interests, including stakeholder entities that are involved with the PKI for NG9-1-1.

136 These members shall include the following, their successor, or their delegate:

- 137 A. The NENA chief executive officer ("CEO") (non-voting)
- 138 B. The president of the Board ("President")
- 139 C. One member from the NENA Development Steering Council ("DSC member")
- 140 D. One member from the NENA 9-1-1 Core Services Committee ("CS member")
- 141 E. One member representing a U.S. state, provincial, or national non-U.S. 9-1-1
- 142 authority with responsibility for operating an NG9-1-1 network ("State
- 143 Member")
- 144 F. One member representing local or regional 9-1-1 authorities with
- 145 responsibility for operating an NG9-1-1 network within a region smaller than
- 146 a US state or province, such as a county, metropolitan area or a council of
- 147 governments ("Local Member")
- 148 G. One member representing commercial providers of NG9-1-1 core services
- 149 ("Core Services Member")

- 150 H. One member representing commercial providers of NG9-1-1 end-user
- 151 products (“Product Member”)
- 152 I. One member representing organizations with a direct responsibility for
- 153 handling 9-1-1 emergency calls (“PSAP Member”)
- 154 J. One member representing elected officials who does not represent a public
- 155 safety agency, with oversight of 9-1-1 services (“Elected Member”)
- 156 K. One member representing public safety associations not otherwise
- 157 represented (“Association Member”)
- 158 L. One member representing the United States National 911 Program (“Federal
- 159 Member”) (non-voting)
- 160 M. One member representing the United States Federal Communications
- 161 Commission (“FCC Member”) (non-voting)
- 162 N. One member representing the Canadian Radio-television and
- 163 Telecommunications Commission (“CRTC Member”) (non-voting)

164 **Subsection 2: Restrictions**

- 165 A. No individual organization, government entity, company or equivalent may
- 166 have more than one Commissioner serving on the Commission at the same
- 167 time, unless that organization is a trade association.

168 **Section 2: Nomination and Selection**

169 **Subsection 1: Call for Applications**

- 170 A. The Board shall direct the NENA Office to issue a call for nominations for any
- 171 open seats on the Commission no later than the last day of January on each
- 172 calendar year for any open positions on the Commission. The NENA Office shall
- 173 endeavor to seek nominations from bodies that can meaningfully represent an
- 174 interest area or body of members, such as professional associations, rather than
- 175 from individuals.
- 176 B. Nominations will be accepted through the last day of February.
- 177 C. The NENA Office shall review each nomination application for completion and
- 178 provide an overview of each nomination to the Board.

179 **Subsection 2: Selection**

- 180 A. The Board shall review nominations and convene a vote to appoint Commission
- 181 members.
- 182 B. In order to be appointed, Commission members must be affirmed by a two-
- 183 thirds (2/3) vote of all
- 184 C. Board members serving during the nomination deadline.

- 185 D. In the case of competing nominations (e.g., more than two State Members are
186 nominated simultaneously), the Board shall select their preferred representative
187 from those nominated through a two-thirds (2/3) vote of the whole voting body
188 the Board.
- 189 E. In considering nominees, the Board shall endeavor to ensure that nominees
190 represent the whole of NENA's membership and stakeholder base, including, for
191 example, members from both urban and rural communities and applicable
192 communities outside of the United States where jurisdictions elect to utilize the
193 PCA overseen by the Commission.

194 Section 3: Tenure and Succession

195 Subsection 1: Tenure

- 196 A. Each commissioner shall serve in two-year terms, with the exception of the
197 current NENA CEO or their delegate, who has a permanent seat.
- 198 B. Commissioners may serve unlimited consecutive terms, at the discretion of the
199 Board.
- 200 C. For the first term only, the following positions are established for a three-year
201 term as designated by the Board:
- 202 i. The DSC Member;
 - 203 ii. The State Member;
 - 204 iii. The Local Member;
 - 205 iv. The Core Services Member; and
 - 206 v. The Elected Member.

207 Subsection 2: Departure from the Commission

208 *Item 1: Resignation and Removal*

- 209 A. A commissioner may resign at any time.
- 210 B. If a Commissioner becomes unable to discharge the duties attendant upon
211 their position, they shall notify the Board of such inability within fourteen (14)
212 days.
- 213 C. A commissioner may be removed at any time upon a 2/3 vote of
214 Commission's standing members (not including the commissioner proposed
215 for removal), or upon a 2/3 vote by the Board.
- 216 D. If a Commissioner no longer meets the eligibility requirements or
217 qualifications for the position to which they were elected or appointed, they
218 shall promptly resign.
- 219 E. An individual whose affiliation changes so that they may no longer represent
220 the interest group for which they were appointed to represent (e.g., a State

221 Member who accepts employment in the private sector or an elected
222 official's term in office ends) must resign from the Commission immediately.

223 *Item 2: Clause Filling A Commission Vacancy*

- 224 F. When a vacancy occurs among the Commission, the Board may appoint
225 another eligible and qualified member to serve out the remainder of the term.
- 226 G. Commissioners appointed to fill a seat vacated more than one year before
227 the end of that seat's term shall complete the term and afterward be subject
228 to the regular nomination and appointment requirements of the seat.
- 229 H. When a vacancy occurs among the Commission due to death, disability,
230 resignation, or removal the Board shall appoint an otherwise eligible and
231 qualified member to serve the remainder of that Commissioner's term,
232 provided, however, that the Commission may leave vacant a Commissioner's
233 seat when no more than 6 months remains in the current term for the vacant
234 seat.

235 **Article 5: Powers**

- 236 A. The Commission may set policies and procedures for certain services required for NG9-1-1
237 interoperability, including, but not limited to:
- 238 i. approval of a vendor contract to provide services for the PCA;
 - 239 ii. execution of a Certificate Policy (CP) governing terms of utilization and management
240 of the PCA, including architecture, minimum service level agreement (SLA), certificate
241 issuance, expiration and revocation;
 - 242 iii. approval of a fee schedule for credential issuance from the PCA;
 - 243 iv. approval of a vendor contract to provide services for the Forest Guide;
 - 244 v. approval of Forest Guide Policy (FGP) governing the terms of utilization and
245 management of the Forest Guide, including architecture, management and
246 provisioning of geospatial data and routing policies; and
 - 247 vi. approval of a fee schedule for the Forest Guide, if required.
- 248 B. The Commission may resolve conflicts or appeals under documented policies for the
249 Services.
- 250 C. The Commission may review and approve the finances of Commissioned-sanctioned
251 activities, such as and including the Services.
- 252 D. The Commission shall conduct an audit, review its results, and issue an audited financial
253 statement to the Board at least once each two calendar years.
- 254 E. The Commission may periodically review the interim financial reports prepared by the NENA
255 Office to ensure adequate management of financial performance.

256 **Article 6: Meetings**

- 257 A. The Commission shall meet at least once per calendar quarter.

- 258 B. The Commission may meet by telephone conference call or other electronic means,
259 provided that all members may hear and speak to one another at the same time.
- 260 C. Special meetings of the Commission may be called by the Chair or by any six (6) members of
261 the Commission.
- 262 D. Notice shall be sent to all Commissioners at least fourteen (14) days in advance of a regular
263 meeting, and at least twenty-four (24) hours in advance of a special meeting.
- 264 E. Notice of regular or special meetings may be sent by electronic mail or other methods
265 approved by the Commission, and may be waived by a vote of a majority of the whole
266 number of voting parties in the Commission, provided, however, that any action taken at a
267 meeting subject to a notice waiver must be re-considered by the Commission at the next
268 subsequent meeting for which notice is not waived upon the request of any member of the
269 Commission.
- 270 F. A majority of the number of Commissioners in office at the time of a meeting shall constitute
271 a quorum for the conduct of business.
- 272 G. In general, the Commission may act by consensus. If consensus cannot be achieved, the
273 Commission shall act by plurality vote, unless these Bylaws require a simple or larger
274 majority for a particular action.
- 275 H. Each authorized Commissioner may participate in meetings, make motions, offer new
276 business, speak in debate, and cast one vote.
- 277 I. Non-voting members shall participate in meetings, may make motions, offer new business,
278 and speak in debate, but shall neither vote nor be counted as a Commissioner for purposes
279 of calculating a quorum or required majority.
- 280 J. The CEO shall keep, or cause to be kept by a designee, minutes of the Commission's
281 discussions and actions. The minutes of each meeting shall promptly be posted to the
282 Commission's website, once approved, as corrected, at a subsequent meeting.
- 283 K. The CEO may be excused from part of a meeting by a majority vote of the whole number of
284 the Commission.
- 285 L. When necessary or prudent to protect the interests of the Commission, the Commission
286 may hold confidential discussions among its members and invited guests in an executive
287 session. No action shall be taken, however, until the Commission has returned to open
288 session. The minutes of the meeting during which an executive session is held shall note the
289 occurrence, and a general statement of the subjects discussed.

290 Article 7: Chair

- 291 A. The Board shall designate an individual to convene and chair the Commission, in
292 consultation with the Commission.
- 293 B. This individual shall be a member of the Commission in good standing.
- 294 C. This individual shall not also be the President or the President's delegate to the Commission.
- 295 D. In the event that the Chair's seat is made vacant, the Board shall meet promptly and
296 designate a new Chair.
- 297 E. The Commission shall not meet during such time that the Chair's seat is vacant.

298 F. The Chair shall be a voting member.

299 Article 8: Administration

300 Section 1: Office & Staff

- 301 A. The Office shall employ such staff as is necessary for conduct of the Commission's
302 business, including but not limited to oversight of the contract services for the PCA.
303 B. The Office shall provide a direct staff liaison for the Commission. Such individual may
304 also be nominated as the CEO's delegate to the Commission.

305 Section 2: Property

- 306 A. All property of the Commission shall be held in accordance with the bylaws of the
307 Association.

308 Article 9: Dissolution

309 Section 1: Procedure

- 310 A. This Commission may be dissolved by a vote of four-fifths (4/5) of the whole number of
311 the Commission.

312 Section 2: Distribution of Assets

- 313 A. Should the Commission be dissolved, all assets attributable to the Commission shall be
314 deposited into the NENA general fund.

315 Article 10: Parliamentary Procedure

- 316 A. The rules contained in the current edition of *Robert's Rules of Order Newly Revised* shall
317 govern this Commission in all cases in which they are consistent with these Bylaws and any
318 special rules of order which the Commission or the Association may adopt.

319 Article 11: Amendment

320 Section 1: Proposal

- 321 These Bylaws may be amended provided each of the following conditions is met:
322 A. An amendment is proposed by any Commission member; and
323 B. The amendment is approved by two-thirds (2/3) of the whole number of
324 Commissioners, and

- 325 C. The amendment is approved by two-thirds (2/3) of the whole number of Officers and
326 Directors of the Board.

327 **Section 2: Review**

328 When one or more authorized proponents submits a timely proposed amendment, the
329 Commission shall:

- 330 A. Review the submission(s) and edit for composition and conformance with the
331 structure and defined terms of these Bylaws;
332 B. Consolidate similar amendments for joint presentation to the Commission, subject
333 to the approval of the proponent(s) of each amendment consolidated;
334 C. Submit final proposals for amendments to the membership at least one week prior
335 to the next regularly scheduled meeting of the Board; and
336 D. Provide a written recommendation for action by the Board based on the
337 Commission's review of the proposed change(s).

338 **Section 3: Adoption**

339 A duly proposed and reviewed amendment shall be incorporated into these Bylaws only if it
340 receives the affirmative vote of two-thirds (2/3) of the whole voting body of the Board.

341 **Section 4: Effective Date**

- 342 A. All amendments to these bylaws shall become effective immediately upon adoption
343 by the Board, unless a proviso is simultaneously adopted to change the effective
344 date. Such provisos shall automatically be removed from these Bylaws upon their
345 execution.
346 B. Adopted amendments shall be incorporated into the official publication of these
347 bylaws on the Association's website within thirty (30) days.

348 **Article 12: Finances**

- 349 A. The Office shall collect fees and administer expenditures on behalf of the Commission.
350 B. The Office shall be reimbursed for reasonable management costs for executing the work of
351 the Commission, including executive staff time, the administering of any and all contracts on
352 behalf of the Commission and attendant travel costs or other expenses.
353 C. Members of the Commission shall serve on a volunteer basis and shall not be offered a
354 salary, reimbursed for time served as a member or receive any other consideration with
355 respect to executing their duties as Commissioner.
356 D. Members of the Commission shall be reimbursed for reasonable costs incurred on executing
357 work of the Commission, including travel costs.
358 E. The Office shall maintain an accounting of the Commission's revenues and expenditures
359 separate and distinct from the general fund of the Association.

360 F. The revenues and expenditures of the Commission shall be generally open and available to
361 the public.

362 Article 13: Conflict of Interest Policy

363 Section 1: Policy

- 364 A. At each meeting of the Commission, immediately following a call to order, the Chair shall
365 recite the conflict of interest policy, section 1, in full.
- 366 B. As a general policy, members of the Commission must not hold any personal or financial
367 interest in such areas as governed by the Commission.
- 368 C. In those cases where a Commissioner does have a financial or personal interest in any
369 matter coming before the Commission, the Commission shall ensure that:
- 370 i. The interest of such officer or director is fully disclosed to the Commission;
 - 371 ii. Any transaction in which a Commissioner has a financial or personal interest
372 shall be duly approved by the Commission members not so interested or
373 connected as being in the best interests of the organization;
 - 374 iii. Compensation to the interested Commissioner shall be reasonable and shall not
375 exceed fair market value;
 - 376 iv. The minutes of meetings at which such votes are taken shall record such
377 disclosure, abstention, if appropriate; and rationale for approval.
- 378 D. An individual's employment affiliation shall not be considered, on its own, to constitute a
379 conflict of interest.

380 Section 2: Removal of Member

381 If a Commissioner is found upon two-thirds (2/3) of the whole voting body of the
382 Commission to hold substantial conflicts of interest, whether disclosed or not, the
383 individual shall be removed from the Commission immediately.