Statewide Interoperability Radio Network (SIRN)
Standards, Protocols, Procedures

Document Section	1 – Interoperability Standards	Status:
State Standard Number	**1.16.0**	SIEC Sub Committee Approval Date: 11/29/2021
Standard Title	**Patching SIRN Talkgroups with Other (Non-SIRN) Systems**	
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1. Purpose or Objective

This Standard establishes methods and procedures for the design, implementation and use of audio patches or gateways between the SIRN platform and other local conventional or trunked systems for the purposes of interoperability.

2. Technical Background

Capabilities

Several radio system gateway and patching technologies are available to support interoperable communications between users of SIRN and other networks such as legacy VHF systems, local conventional systems, or even neighboring state trunked networks.

Constraints

Patches to other systems can place undue capacity constraints on SIRN and additionally cause confusion among field users since in some cases the coverage area between the two patched systems may not be the same. Implementing a gateway, patch or bridge between SIRN and another system, therefore, requires careful design and established guidelines on when and how these gateways are used.

3. Operational Context

SIRN is designed to serve all State, local and tribal public safety and public service agencies with two-way radio communications needs. However, various scenarios exist where interoperable communications between SIRN users and users of other systems needs to be established. These communications pathways may be used for day-to-day coordination, urgent or emergency mutual aid situations, task forces, tactical teams, and for other purposes. They may be needed for a finite duration (e.g., a visiting mutual aid user with a VHF conventional radio) or as part of daily operations (e.g., a permanent patch placed between a SIRN talkgroup and a local public work agency's VHF channel).

Note that this Standard does not apply to "intra-SIRN" patches (patching between two or more SIRN trunked talkgroups also known as "multi-select") which is addressed in SIRN Standard 1.12.0 – Announcements-HAIL and other applicable Standards.

4. Recommended Protocol/ Standard

Various technologies are available to establish a gateway or patch between a SIRN talkgroup and a local User Agency system including radio-IP gateways, base station audio patches, console inter-connects and others. An agency may also elect to implement a local repeater for a national frequency such as VLAW,

8CALL or another resource which is directly interconnected with a SIRN console.

Provided that the solution complies with this Standard, user agencies may use their discretion in selecting and implementing a patch technology.

5. Recommended Procedure

Design and Implementation
Implementing a patch or gateway between SIRN and another local network resource generally requires additional hardware or software licensing to interface the non-SIRN system to a SIRN console or the SIRN core. These audio gateway devices pass audio from/to SIRN talkgroups and the other/local resource, and may be field-deployed or in a public safety communications center.

- **Design/Solution Submission**: During initial deployment, the design plan for any physical, network, or control station-based patch or gateway between a SIRN trunked resource and another local Agency system or channel must be properly documented and shared with the appropriate Regional System Administrators and the Statewide System Administrator or designee. The gateway or patch solution plan shall include a description of the solution and the agency's operational need, and indicate which SIRN talkgroup(s) will be patched through the gateways.

- **Qualified Personnel:** Design, configuration and installation of gateways MUST be performed by qualified personnel (See SIRN Standards 2.17.0. Technical Staff and Maintenance Providers Training and Qualifications). Work performed to configure SIRN consoles (as may be needed to add a local conventional resource, for instance) must similarly be performed by qualified personnel and comply with applicable policies on dispatch equipment reconfiguration (See SIRN Standards 2.15.0 Dispatch Console Hardware and Profile Change Management).

- **Costs:** Any costs incurred for the purposes of implementing connections between local systems and SIRN shall be borne by the Local User Agency.

Operational Guidelines

- **User Training:** Local Agencies must demonstrate that all users including dispatchers, first responders, and public service agency users are sufficiently trained on the use of the gateways and communications over patched resources. Users, namely dispatchers, must understand basic gateway concepts and be familiar with set up and breakdown of console patches.

- **Patches to Statewide and Regional Interoperability Talkgroup:**

  o Permanent patches between non-SIRN resources and SIRN Statewide and Regional Interoperability Talkgroups is NOT permitted.

  o Temporary patches between SIRN Statewide and Regional Interoperability Talkgroups and other local conventional networks, national interoperability channels or legacy state

resources (e.g., State Radio 2) should only be used when there is a need for communications between personnel that are on conventional radios and personnel who are users of the SIRN Platform.

- For planned events, use of such patches must be coordinated via a Regional (CRIB) or the SIRN Statewide System Administrator; alternatively, if use of such patches are included in an already approved Communications Preplan, they may be used without further coordination. The StatusBoard request for the Statewide and Regional Interoperability Talkgroup shall indicate the intention to patch.

- Dispatchers must announce what is occurring and which resources are being used consistent with SIRN Standard 1.12.0 – Announcements-HAIL

- **Patches with National and Federal Conventional Channels:** Agencies that seek to locally deploy federal national mutual aid conventional channels in any band (e.g., VLAW31, UTAC42, 7CALL50-D, 8CALL90, or 8TAC91) shall additionally adhere to all applicable FCC, ANSI and NTIA standards and rules.

Patches During SIRN Transition Period/Backward Compatibility
During the multi-year transition of users from legacy VHF conventional systems to SIRN, maintaining interoperability between "legacy system" and SIRN users will be essential. Therefore, during this transition period, various patches and gateways will be implemented between SIRN and several local conventional networks to support "backward" compatibility.

As part of the migration and onboarding process, and in accordance to this Standard, such gateways will be identified by the User Agencies and properly documented in the Master SIRN Fleetmap. Design documentation, as available, shall be submitted to the SIRN Statewide System Administrator.

Interstate Trunked Network Gateways
The State will implement audio gateways between SIRN and corresponding statewide networks in neighboring states including Minnesota, Montana and South Dakota, as well as partners in Canadian Provinces. As the gateways are implemented, they will be made available to PSAPs to enable interoperable communications with interstate agencies along the State's borders. (See SIRN Standard 1.17.0 Interstate Interoperable Communications)

Non-Compliance
Gateways or patches that are in non-compliance to this Standard, or technical and operational issues that arise from misuse of or improperly designed patch(es) will cause the gateways to be deactivated until a resolution is identified.

6. Management

The SIEC shall maintain this Standard and oversee Agency compliance.