Standard Talkgroup Nomenclature Framework for Public Safety Broadband

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Cybersecurity and Infrastructure Security Agency

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Introduction

This document outlines a Standard Talkgroup Nomenclature for Public Safety Interoperability Talkgroups that agencies may adopt. The need for a common naming convention for public safety's interoperability talkgroups was identified by the National Public Safety Telecommunications Council (NPSTC) in their 2018 report, "Mission Critical Push to Talk (MCPTT) Considerations for Interoperability Talkgroup Naming and Management." Further, public safety has had success with voluntary adoption of the current Association of Public Safety Officials (APCO)/NPSTC 1.104.2 ANSI standard "Standard Channel Nomenclature for the Public Safety Interoperability Channels." This standard is intended to leverage the referenced ANSI standard to the extent possible to ensure a smooth and easy transition for public safety as they leverage mission critical services (MCX) for public safety communications.

With the ability for public safety to access nationwide networks comes the need for a common naming convention for interoperability talkgroups. The standard is general in nature, agnostic to the backhaul or transport layer, and can be applied to any public safety talkgroup-based PTT communications system.

At the end of the document, there are three public safety use cases included as examples for how this framework could be applied within the context of an actual incident.

Document History

This is the first iteration of this document. The intention is to periodically review these suggested naming conventions with the public safety community and update as necessary.

Implementing This Common Naming Convention

Implementation of this naming convention should be done in an organized and coordinated manner. Modern day MCX services allow for talkgroup programming to be done through a web portal and updated to the user devices and dispatch consoles in near real time. This should help ensure more consistent naming across devices.

This document provides a standard naming format as the single reference for common identification of public safety interoperable cellular talkgroups.

Talkgroups in the MCX system are typically available throughout the entire carrier network. Agencies should program at minimum the nationwide and their state, tribal and/or territorial-designated interoperability talkgroups into their users' MCX clients. It will be left up to the agencies to decide if neighboring state, tribal, or territorial interoperability talkgroups, along with any required regional interoperability talkgroups, should be programmed into the agencies' MCX clients.

National, State, and Territory Interoperability Talkgroup Naming Format

Each designated Interoperability talkgroup shall have a unique name developed according to the standardized format.

The standard naming format is as follows:

AA-Type-###-M

This format is broken down as follows:

AA ..... National/State/Tribal/Territorial Designator

The National/State designator is unique two alpha characters to designate the public safety area of operation most commonly used.

US .....National interoperability talkgroup

XX.....United States Postal Service postal code representing U.S. state or territory or TR as a tribal designator

Type..... Channel Use Designator

The channel use designator is an alphanumeric tag that signifies the primary purpose of operations in the talkgroup. *Knowing that APCO is working on the refresh of the LMR naming standard, this document will align type designator for continuity between broadband and LMR naming.*

Table 1: Channel Use Designator Types

Type	Definition
AG	Talkgroup is dedicated nationwide for the express purpose of low power, low level (less than 1500' AGL) Air-Ground operations.
*CACH (State & Local Use)	Talkgroup is primarily used for non-discipline-specific cache devices.
CALL	Talkgroup is dedicated nationwide for the express purpose of interoperability calling only.
*COR	Talkgroup is primarily used for interagency communications by corrections agencies.
*DOT	Talkgroup is primarily used for interagency communications by roads/streets/highways agencies.
*ECC	Talkgroup is primarily used for interagency communications by Emergency Communications Center (ECC) agencies.
*EDU (State & Local Use)	Talkgroup is primarily used for interagency communications by education (K-12/university) agencies.
*EM	Talkgroup is primarily used for interagency communications by Emergency Management agencies.
*EVAC (State & Local Use)	Talkgroup is primarily used for interagency communications by Transportation Services agencies typically supporting evacuation efforts.
FIRE	Talkgroup is primarily used for interagency incident communications by fire agencies.
*GOVF *GOVS *GOVL *GOVT	Talkgroup is primarily used for interagency communications by government (county/municipal) agencies. Designators reference Federal (F), State (S), Local (L), Tribal or Territorial (T).
GTAC	Talkgroup is primarily used for interagency incident communications between public safety-eligible entities and eligible non-governmental organizations.

Type	Definition
LAW	Talkgroup is primarily used for interagency incident communications by law enforcement agencies.
MED	Talkgroup is primarily used for interagency incident communications by emergency medical service and healthcare agencies.
*MOB (State & Local Use)	Talkgroup is primarily used for on-scene interagency incident communications by any public safety-eligible entity using a deployable asset.
*MIL	Talkgroup is primarily used for interagency communications by military agencies.
*PWKS (State & Local Use)	Talkgroup is primarily used for interagency communications by public works agencies.
*SAR (State & Local Use)	Talkgroup is primarily used for interagency communications by search and rescue agencies.
TAC	Talkgroup is primarily used for interagency communications by any public safety-eligible entity for tactical purposes.
*UTIL (State & Local Use)	Talkgroup is primarily used for interagency communications by utilities agencies.

..... Channel Identifier

The Channel Identifier is a numeric two place tag to uniquely identify the specific channel. Channel Identifiers are grouped by national (U.S.), and states/territories/tribes as follows:

X00 – X49 ..... U.S. (national)

X50 – X99 ..... U.S. state/territory/tribe

XXX50 – XX99 ..... Used for state/territory/tribe use when not using predefined types.

M ..... Modifier

The Modifier character is an alphanumeric tag to identify a modification to the default operation type on the resource, when applicable:

D ..... Direct mode or talk around use

IWF ..... Interworking with land mobile radio (LMR) providing supplemental data

ITC ..... Interconnected with LMR voice only

DATA ..... Data service to include or combine data, voice, images, video, and location-based services (LBS)

OFN ..... Off network

DPLY ..... Deployable supported e.g., Cell on Wings (COW), Compact Rapid Deployables (CRD), Mini-CRD

CCC ..... Cross-carrier communication

VIDEO ..... Video or streaming transmission

Regional and Local Interoperability Talkgroup Naming Format

Each designated interoperability talkgroup shall have a unique name developed according to the standardized format. Significant latitude is given to the defining agency in developing naming that is meaningful to the public safety operation.

The standard naming format is as follows:

ST-CTY-USER_Defined

This format is broken down as follows:

ST.....State/Territory/Tribe

The state/territory/tribe designator is a unique two alpha character to designate the public safety area of operation most commonly used.

XX.....USPS state postal code representing U.S. state/territory, or TR for Tribe

CTY.....City or County

The City or County designator is the name of the city or county where the hosting agency's operations are based.

CTY.....City or County name

USER_Defined .....User-defined interoperability talkgroup name

The user-defined talkgroup name is set up to be meaningful to the regional or local agencies that may leverage this interoperability talkgroup. Further information can be provided in the user-defined designation as desired by the agency (e.g., WA-King County-SEAFAIR-Water Patrol).

USER_Defined .....User-defined interoperability talkgroup name

National Interoperability Talkgroups

The table below provides guidelines for mutual aid channels across this country but is intended as an example only. As agencies deploy these resources, they can determine within their own region, states, territories, or tribes how expansive the channel nomenclature will become.

Table 2: National Interoperability Talkgroups

Common Name	Eligible Users	Notes
US-CALL-(100-149)	National Calling	
US-CALL-(100-149)-X		
US-AG-(200-249)	National Air – Ground	
US-AG-(200-249)-X		
US-CNVY-(300-349)	National Convoy	Convoy
US-CNVY-(300-349)-X		

Common Name	Eligible Users	Notes
US-FIRE-(400-449)	National Fire	
US-FIRE-(400-449)-X		
US-GTAC-(500-549)	National General Public Safety	
US-GTAC-(500-549)-X		
US-LAW-(600-649)	National Law	
US-LAW-(600-649)-X		
US-MED-(700-749)	National Medical	
US-MED-(700-749)-X		
US-TAC-(800-849)	National Tactical	
US-TAC-(800-849)-X		
US-XXX-(900-949)	National Itinerant	XXX can be assigned to an additional Type noted with an * i.e. (US-EM-900)
US-XXX-(900-949)-X		

Table 3: State Interoperability Talkgroups (Replace XX with State/Territory/TR for Tribal)

Common Name	Eligible Users	Notes
XX-CALL-(150-199)	State/Territory Calling	
XX-CALL-(150-199)-X		
XX-AG-(250-299)	State/Territory – Ground	
XX-AG-(250-299)-X		
XX-CNVY-(350-399)	State/Territory Convoy	Convoy
XX-CNVY-(350-399)-X		
XX-FIRE-(450-499)	State/Territory Fire	
XX-FIRE-(450-499)-X		
XX-GTAC-(550-599)	State/Territory General Public Safety	
XX-GTAC-(550-599)-X		
XX-LAW-(650-699)	State/Territory Law	
XX-LAW-(650-699)-X		
XX-MED-(750-799)	State/Territory Medical	
XX-MED-(750-799)-X		
XX-TAC-(850-899)	State/Territory Tactical	
XX-TAC-(850-899)-X		
XX-XXX-(950-999)	State/Territory Itinerant	XXX can be assigned to an additional Type noted with an * i.e. (US-EM-950)
XX-XXX-(950-999)-X		
XX-XXX-XX50-XX99	State/Territory Defined	Non-predefined type
XX-XXX-XX50-XX99-X		Non-predefined type

Table 4: Regional / Local Interoperability Talkgroups
(Replace XX with State/Territory/TR for Tribal / XXX City or County Name, XXXX Is User Defined)

Common Name	Eligible Users	Notes
XX-XXX-XXXX	Regional/Local Defined	Non-predefined type
XX-XXX-XXXX		Non-predefined type

Appendix A: Use Case Samples

The following examples are defined by an incident overview and how the corresponding ICS 205 may be represented.

USE CASE: HURRICANE

(EXERCISE ONLY) Hurricane Storm – Cat 4 at landfall (EXERCISE ONLY)

Landfall on the Alabama/Mississippi border

A/O for this example: South Baldwin County, AL (Fort Morgan to Orange Beach)

Purpose for this example: To demonstrate the use of state-assigned LTE mutual aid talkgroups working in concert with LMR

Time: 12 hours post-landfall

Unified Command for the southern part of the county has been established in conjunction with public safety entities representing state, county, and municipal jurisdictions. Multiple mobile command posts are currently setup as part of the unified command structure and are in coordination with the county's Emergency Operations Center (EOC) and the county's Emergency Communications Center (ECC), which houses county and municipal dispatchers, along with a Public Safety Answering Point (PSAP).

As you will see referenced in the ICS 205 form, multiple command and coordination channels/patches have been established in conjunction with the mobile communications vehicles (MCV) and ECC. A great advantage to incorporating state-assigned LTE talkgroups into the comms plan is to capitalize on incoming mutual aid units use of their own LTE devices. By coordinating the use of state-assigned LTE talkgroups with the state EOC ESF-2 desk and/or the Statewide Interoperability Coordinator (SWIC), the local Communications Unit Leader (COM-L) created the ability to effectively communicate with mutual aid teams still enroute to and/or already working in the area of operations (AO). This capability carries through from the units being enroute, staging assignment, tasking, response/operations, and demobilization.

The use of the LTE talkgroups' ability to be patched into local communication infrastructure complements the use of LMR. Having mutual aid personnel equipped with MCPTT capabilities that are integrated with local response strike teams to conduct Search and Rescue missions, traffic/re-entry details, and/or medical field operations, bolsters the effectiveness of the response and the safety of response personnel. Having this MCPTT capability for both mutual aid agencies and local responders also builds the situational awareness of both the EOC/MCVs and the personnel in the field executing the mission. Patching the LTE talkgroups and LMR channels provides communication paths to carry vital time-sensitive information across both communication technologies.

In this example of a major hurricane landfall response operation—one that affects a large area and includes many different jurisdictions, you can see the benefits of having pre-assigned statewide LTE talkgroups for SWICs and local COM-Ls to utilize. By having an effective and efficient comms plan in place, it enhances situational awareness and capitalizes on utilization of LTE devices most responders carry on a daily basis.

INCIDENT RADIO COMMUNICATIONS PLAN			Incident Name			Date/Time Prepared		Operational Period Date/Time	
			EXERCISE ONLY Hurricane "Storm" - **South County AO**			10/01/2020 - 1800 Brief		**10/02/2020 0800 - 10/03/2020 0759**	
Line #	Function	Channel Name/Trunked Radio System Talkgroup	Assignment	RX Freq	RX Tone/NAC	TX Freq	Tx Tone/NAC	Mode A,D,M or	Remarks
*****Barrier Island AO - Intercoastal Waterway***** **++Highlights denote channel patches++**									
1	Unified Command	AREA-OPS1	Multi-Agency Leadership	***Trunked 700Mhz P-25 Coastal Site 3***				D	UC channel will be patched on BCCC ISSI slots 2,3, and 5. Major Wright holds approval authority. ID341 867-5309
1	Unified Command	8TAC93	Multi-Agency Leadership	852.5125	CSQ	807.5125	156.7	A	
1	Unified Command	AL-TAC-851	Multi-Agency Leadership	***MCPTT LTE***				LTE	
2	Staging Check-In	AL-CALL-150	Incoming Units	***MCPTT LTE***				LTE	
2	Ops / Dispatch	8TAC92	MCV Dispatch Console 05	852.0125	CSQ	807.0125	156.7	A	Patch on LE-MCV gateway slots 1 and 10. Sgt. Smith holds approval authority.
3	Fire Command	VFIRE22	Fire Alarm 2 Console	155.265	CSQ	155.265	CSQ	A	Fire coordination for USAR will be patched on Fire Alarm ISSI slots 1 and 6. Captain Sparks holds approval authority.
3	SAR Coordination	AL-FIRE-463	Mutual Aid SAR Officers & Local FDs	***MCPTT LTE***				LTE	
4	LE Command	LAW-OPS2	Highway Patrol MCV - South	***Trunked 700Mhz P-25 Coastal Site 3***				D	LE Coordination for mutual aid units (mainly traffic) will be patched on HP MCV-South console 3 ISSI. HP Captain on duty holds approval.
4	LE Coordination	AL-LAW-662	Mutual Aid LE	***MCPTT LTE***				LTE	
5	EMS Coordination	AL-MED-765	EMS Mutual Aid Units	***MCPTT LTE***				LTE	Fire Alarm will monitor for requests
6	**LOCAL** Coordination Channel	AL-TAC-852	Local SAR	***MCPTT LTE***				LTE	Fire Alarm will monitor for requests
7	Air Boss	AL-AG-258	Aviation Units	***MCPTT LTE***				LTE	****Needs cache devices for personnel****
8	COM-U	ALMATAC 1	COM-L's, COM-T's, ICC	***Trunked 700Mhz P-25 STR T-1 Site***				D	T-1 Site @ GCWCC
8	COM-U	AL-TAC-857	COM-L's, COM-T's, ICC	***MCPTT LTE***				LTE	ICC will monitor from HPMCV - North
Prepared By (Communications Unit)				Incident Location					
John Doe, Communications Unit Leader				County	State	Latitude	N	Longitude	W

The convention calls for frequency lists to show four digits after the decimal place, followed by either an "N" or a "W", depending on whether the frequency is narrow or wide band. Mode refers to either "A" or "D" indicating analog or digital (e.g. Project 25) or "M" indicating mixed mode or "LTE" indicating an cellular LTE PTT channel. All channels are shown as if programmed in a control station, mobile, portable radio and/or LTE device. Repeater and base stations must be programmed with the Rx and Tx reversed.

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USE CASE: WILDLAND FIRE

(EXERCISE ONLY) Wildland Fire scenario (EXERCISE ONLY)

Acme Fire

Purpose of this example: To demonstrate the use of LTE mutual aid talkgroups working in concert with LMR.

A large wildland fire, named the Acme Fire, is burning on the eastern end of the state. As of now, the fire is 30% contained and has only burned unpopulated areas. Because of the sudden weather change, the fire has turned and is moving toward a populated area.

Because of the nationwide critical shortage of personnel and equipment, the governor has activated the Army National Guard. The Guard will provide air and medical assets, along with ground assets to assist in the evacuation and protection of the community.

There are command and logistics LMR systems set up to cover the incident. Additional radios have been ordered, but they are not due to arrive until well after the Guard arrives on site. The Guard is deploying with their standard LMR radio package and a large cache of handheld cellular devices capable of PTT over LTE. There is also a small number of LMR to LTE interop devices, but the devices are not currently configured to work with the radios being used at the incident.

Zone /Gp	CH	Function	Channel Name/Trunked Radio System Talkgroup	Assignment	RX Freq	RX Tone/NAC	TX Freq	Tx Tone/NAC	Mode A,D,M or LTE	Remarks
	7	Command	CMD 7	All Div	170.0125 N	110.9	165.2500 N	110.9	A	ICP to fire line
	8	Command	CMD 8	All Div	170.9750 N	110.9	168.7000 N	110.9	A	Northern fireline to ICP
	9	Command	CMD 9	All Div	169.8125 N	110.9	164.6750 N	110.9	A	Southern fireline to ICP
	1	Tactical	Tac-1	Div B	168.0500 N	110.9	168.0500 N	110.9	A	Div B
	2	Tactical	Tac-2	Div C	168.2000 N	110.9	168.2000 N	110.9	A	Div C
	3	Medical	Tac-3	All Div	168.6000 N	110.9	168.6000 N	110.9	A	Evacuation area
	10	Medical	CMD 10	All Div	171.8875 N	110.9	162.1875 N	110.9		Evacuation area to ICP Patched to ANG XX-MED-65
		Tactical - Army NG	MIL-MED-765	All Div	MCPTT LTE				LTE	Army National Guard EMS Tac patched to CMD 10 at ANG forward command post
	15	AIR AMBULANCE	EMS 2	EMERGENCY	155.2800 N		155.2800 N	156.7	A	STATECOMM / AIR AMBULANCE
	16	AIR GUARD	AIRGUARD	EMERGENCY	168.6250 N		168.6250 N	110.9	A	EMERGENCY USE ONLY

Prepared By (Communications Unit)	Incident Location
John Doe, Communications Unit Leader	County State Latitude N Longitude W

The convention calls for frequency lists to show four digits after the decimal place, followed by either an “N” or a “W”, depending on whether the frequency is narrow or wide band. Mode refers to either “A” or “D” indicating analog or digital (e.g. Project 25) or "M" indicating mixed mode or "LTE" indicating an cellular LTE PTT channel. All channels are shown as if programmed in a control station, mobile, portable radio and/or LTE device. Repeater and base stations must be programmed with the Rx and Tx reversed.

USE CASE: ACTIVE SHOOTER

(EXERCISE ONLY) Active shooter scenario (EXERCISE ONLY)

Central City Police

Purpose of this example: To demonstrate the use of LTE mutual aid talkgroups working in concert with LMR.

An unknown number of individuals have occupied an education facility. The "Active Shooter plan" has been activated. The primary responders are Central City police, fire, and EMS. The plan also calls for mutual aid law enforcement support from surrounding communities and EMS support from a local private ambulance service, Acme EMS.

The mutual aid agencies operate on different LMR radio systems than Central City, but a patch can be established at Central City dispatch. The Acme EMS uses PTT over LTE cellular and will need to be patched into LMR. An Acme EMS supervisor will respond with the ability to patch their ambulances into the state mutual aid EMS frequencies. As a backup, there is a PTT over LTE to LMR interop device in the Central City command vehicle. All EMS units that operate in the state are required to have an LMR mobile with the state mutual aid EMS frequencies. The purpose of having a patch for the PTT LTE cellular devices is to allow the EMS personnel to continue to be able to use their handheld devices.

An ICS 205 Communications Plan was created to pre-establish interoperability for an active shooter incident.

B	12	Staging-Fire/EMS/LE	CCFD12	Central City Fire/EMS	Central City Trunked 800Mhz P-25				D	Staging for Fire/EMS resources patched to VEMS295 at CC dispatch
		Staging-Fire/EMS	VEMS295	Mutual aid EMS Staging	155.2950 N	D155	155.2950 N	D155	A	EMS staging mutual aid interop patched to CCFD12 at CC dispatch
A	11	Tac-LE	CCPD11	Central City Police	Central City Trunked 800Mhz P-25				D	Tac-LE Mutual aid interop patched to 8TAC92 at CC dispatch
		Tac-LE	8TAC92	Mutual Aid	852.0125	156.7	807.0125	156.7	A	Tac-LE Mutual aid interop patched to CCPD11 at CC dispatch
A	13	Spec Ops-LE	CCPD13	Central City Police	Central City Trunked 800Mhz P-25				D	
		Spec Ops-LE	8TAC91	Mutual Aid	851.5125	156.7	806.5125	156.7	A	Tac-LE Mutual aid interop patched to CCPD11 at CC dispatch
B	13	Tac EMS	CCFD13	Central City Fire/EMS	Central City Trunked 800Mhz P-25				D	EMS Tac patched to VEMS205 at CC dispatch
		Tac EMS	VEMS205	Mutual aid EMS Tac	155.2050 N	D205	155.2050 N	D205	A	EMS Tac patched to CCFD13 at CC dispatch
		Tac EMS	CC-MED-765	EMS Mutual Aid Units	MCPTT LTE				LTE	EMS Tac patched to VEMS205 at Acme EMS supervisor vehicle or CC command vehicle
Prepared By (Communications Unit)					Incident Location					
John Doe, Communications Unit Leader					County	State	Latitude	N	Longitude	W

The convention calls for frequency lists to show four digits after the decimal place, followed by either an “N” or a “W”, depending on whether the frequency is narrow or wide band. Mode refers to either “A” or “D” indicating analog or digital (e.g. Project 25) or "M" indicating mixed mode or "LTE" indicating an cellular LTE PTT channel. All channels are shown as if programmed in a control station, mobile, portable radio and/or LTE device. Repeater and base stations must be programmed with the Rx and Tx reversed.

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Appendix B: Acronyms and Abbreviations

3GPP	3rd Generation Partnership Project
ANSI	American National Standard Institute
APCO	Association of Public-Safety Communications Officials – International
CISA	Cybersecurity and Infrastructure Security Agency
ECC	Emergency Communications Center
LE	Law Enforcement
MCData	Mission Critical Data Services as defined by 3GPP
MCPTT	Mission Critical Push-To-Talk Services as defined by 3GPP
MCVideo	Mission Critical Video Services as defined by 3GPP
MCX	Mission Critical Services as defined by 3GPP
NCSWIC	National Council of Statewide Interoperability Coordinators
NPSTC	National Public Safety Telecommunications Council
PTT	Push-To-Talk
SIEC	Statewide Interoperability Executive Committee

Appendix C: About SAFECOM and NCSWIC

SAFECOM is composed of more than 70 members representing federal, state, local, and tribal emergency responders, and major intergovernmental communications interoperability through collaboration with emergency responders and policymakers. NCSWIC is composed of Statewide Interoperability Coordinators and their staff from the 56 states and territories. Together, SAFECOM and NCSWIC collaborated with CISA to provide expertise and knowledge of technical information, best practices, and lessons learned in funding and deploying public safety communications systems. Send any questions on this document to SAFECOMGovernance@mail.cisa.dhs.gov and NCSWICGovernance@mail.cisa.dhs.gov.