

# Wisconsin Interoperable System for Communications



End User Basic Awareness

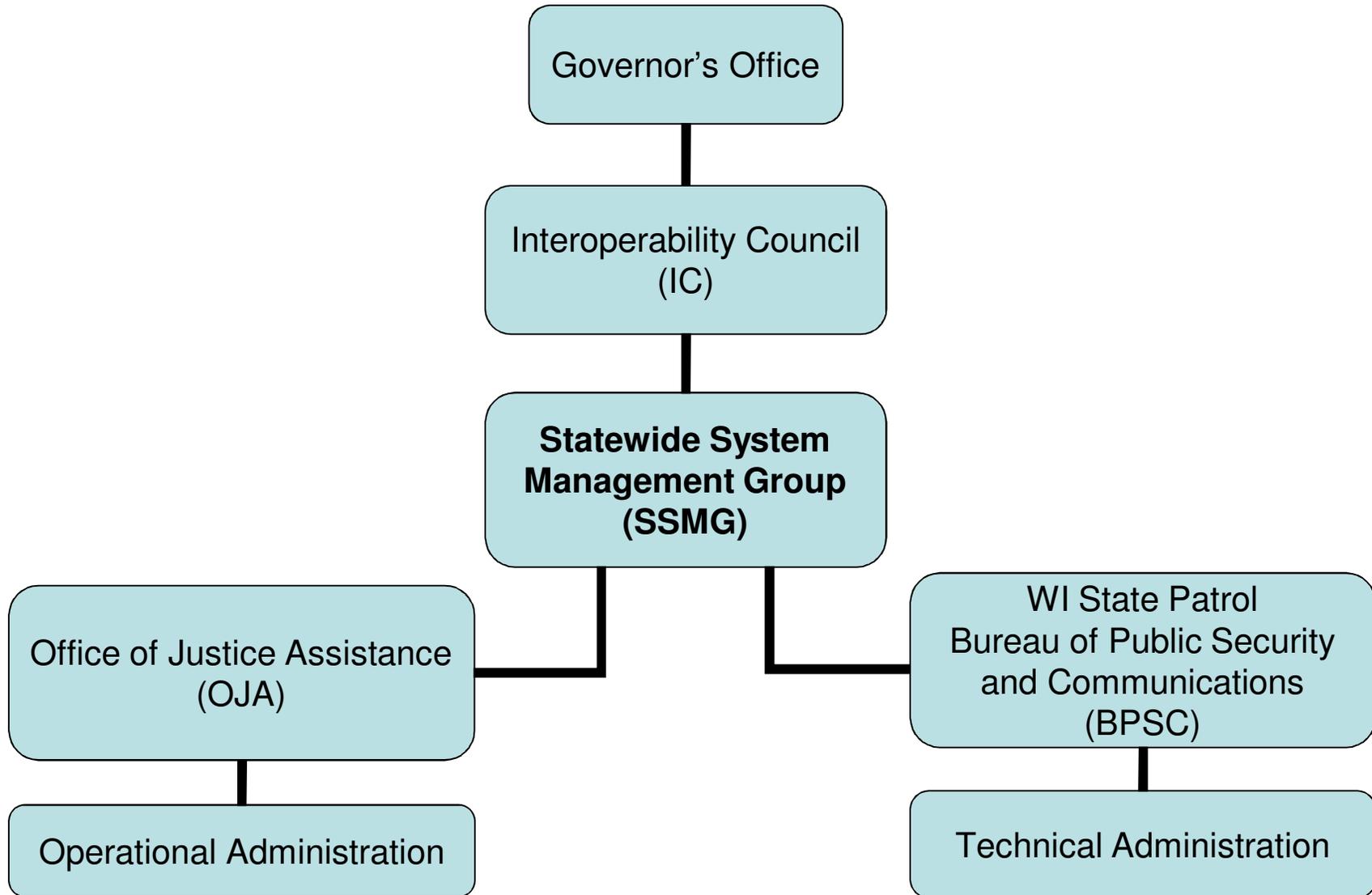
Wisconsin Office of Justice Assistance  
Homeland Security Interoperable Communications  
April 2012 – Version 1.2

# Today's Purpose

- **Provide targeted system training**
  - System Overview
  - System Operation
  - Radio Operation
- **Answer questions**

# System Governance





Insert WISCOM Video here



# System Overview



# What is WISCOM?

- **Statewide VHF Trunked Radio System**
- **APCO Project 25 (P25) digital**
- **80 core VHF tower sites**
- **95% statewide mobile coverage**
  - **Many areas of portable coverage**



## Current Usage

- As of April 2012
  - 6,000+ radios enabled on system
  - 250+ applications received
  - Federal, state and local agencies
  - Users across Wisconsin and Minnesota
- Several counties and/or agencies migrating to system for daily use

# How WISCOM Works



# What is Trunking?

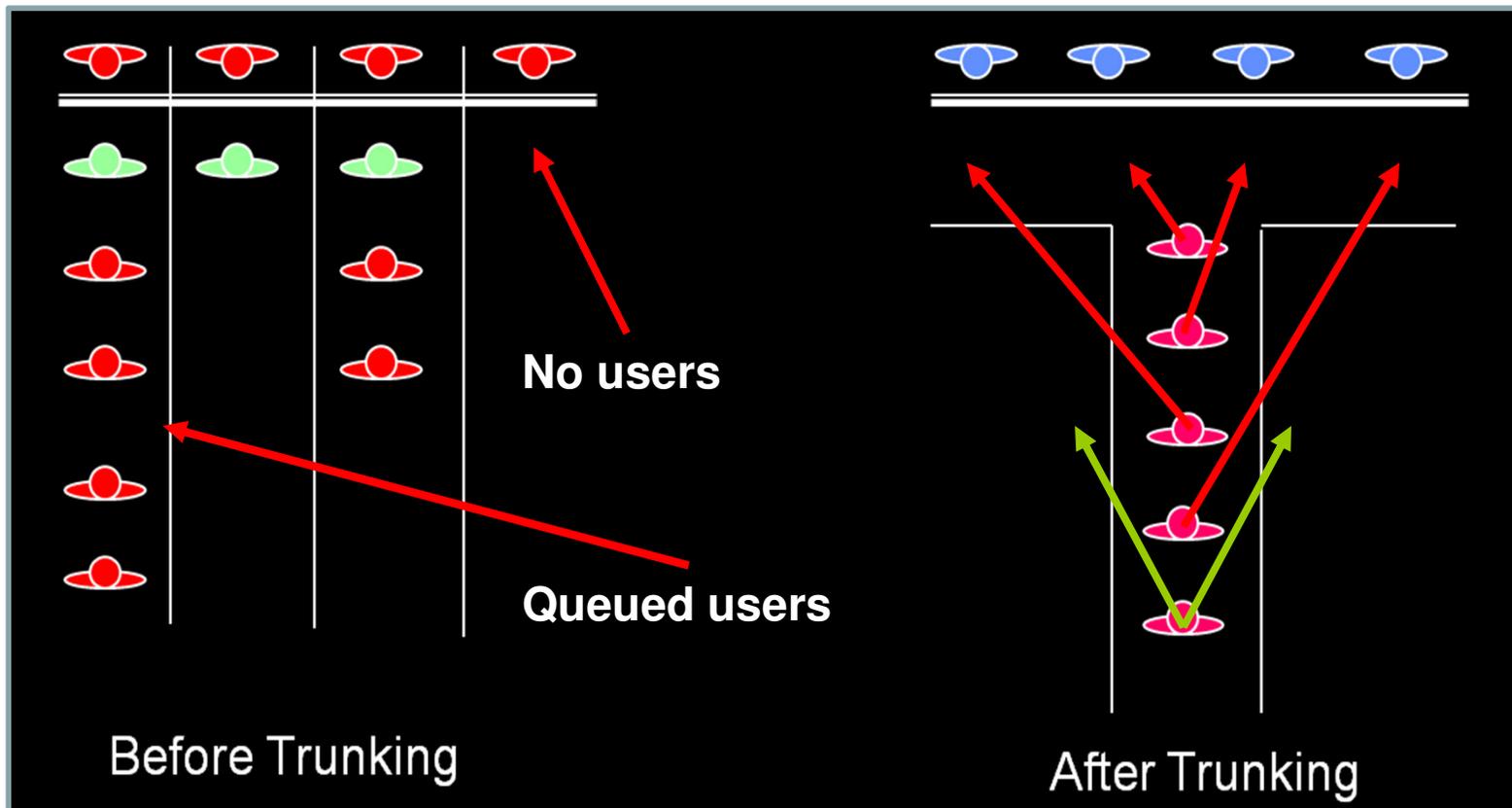
- Trunked radio systems are complex, computer-controlled radio systems
- All users share the same ‘pool’ of available resources rather than a dedicated resource for each group of users
- Radios are allocated a resource only for the duration of a voice call
- System resources are allocated automatically, on demand

# Conventional

LAW EMS FIRE DPW

# WISCOM

R1 R2 R3 R4



# Talkgroups vs. Channels

- “Channel” generally refers to a conventional frequency or frequencies
  - “Sheriff Dispatch” or “Fire Paging”
- “Talkgroup” is a virtual channel
  - Functions like conventional channel to end user
  - A talkgroup is a number, not a frequency or repeater

## Differences

- WISCOM is Project 25 (P25) digital
  - No static...voice is either heard or not
- WISCOM is statewide
  - Radios roam from site to site as you travel
  - Similar to how cell phones function
- WISCOM available to many users
  - Any public safety agency or other authorized entity may use the system

# WISCOM

## Interoperability Talkgroups



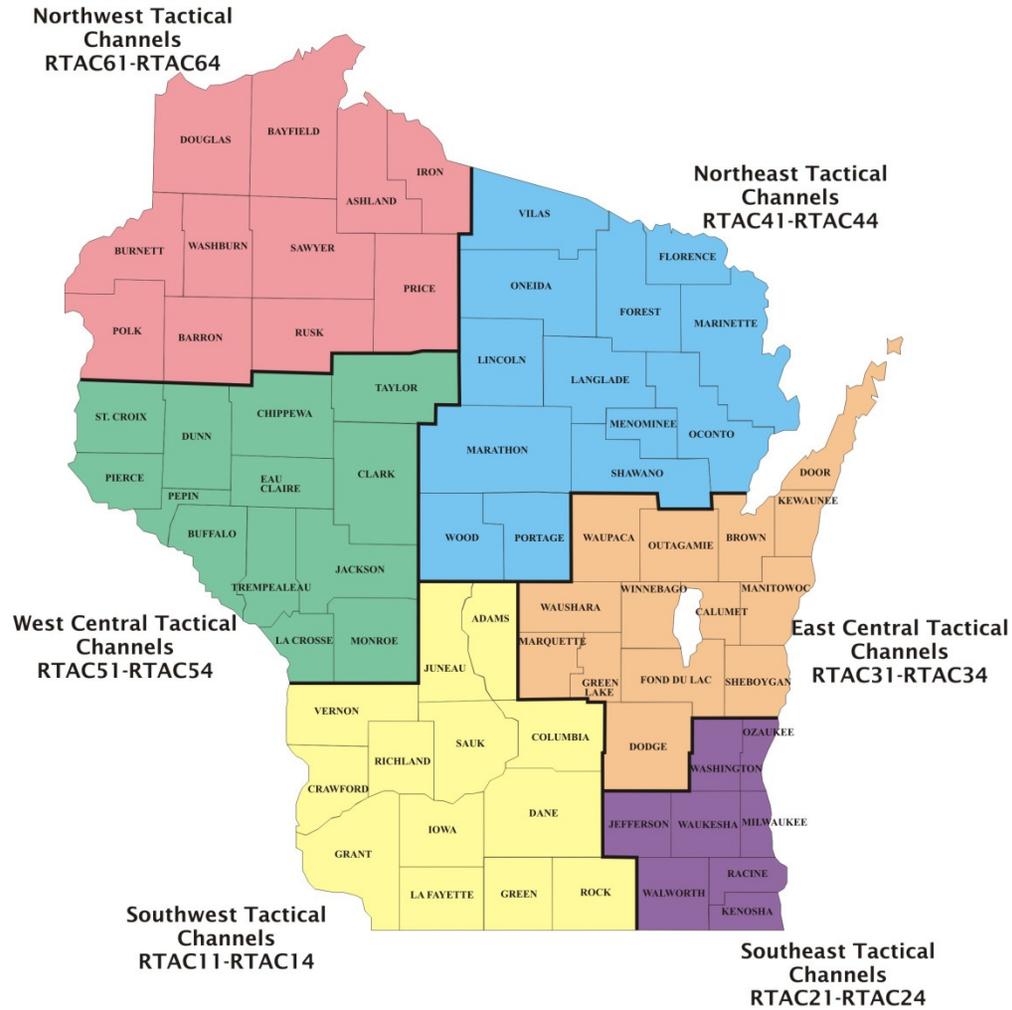
# Statewide Tactical (STAC)

- Available to any WISCOM user
  - Available on any WISCOM tower statewide
  - Required in all radios
- **STAC1**
  - **STAC2**
  - **STAC3**
  - **STAC4**
  - **STAC5**
  - **STAC6**
  - **STAC7**
  - **STAC8**

## Region Tactical (RTAC)

- Based on Homeland Security Council planning regions
  - Available to any WISCOM user in each region
  - Required in all radios
- |                    |           |
|--------------------|-----------|
| • <b>RTAC11-14</b> | <b>SW</b> |
| • <b>RTAC21-24</b> | <b>SE</b> |
| • <b>RTAC31-34</b> | <b>EC</b> |
| • <b>RTAC41-44</b> | <b>NE</b> |
| • <b>RTAC51-54</b> | <b>WC</b> |
| • <b>RTAC61-64</b> | <b>NW</b> |

## WISCOM REGIONAL TALKGROUPS



# County Common (xxCOM)

- Each county will have interop talkgroup
- Talkgroup name starts with county ID

## Examples

- **OUCOM**
  - Outagamie County
- **DACOM**
  - Dane County
- **DGCOM**
  - Douglas County
- **WKCOM**
  - Waukesha County

# County Travel (xxTRVL)

- Each county will have travel talkgroup
- Talkgroup name starts with county ID
- Available statewide for communications back to dispatch

## Examples

- **OUTRVL**
  - Outagamie County
- **DATRVL**
  - Dane County
- **DGTRVL**
  - Douglas County
- **WKTRVL**
  - Waukesha County

# Talkgroup Guidelines

- Plain language only
  - No 10 codes, ciphers or encryption allowed
  - Per WISCOM Admin Policy 201.00
- Interoperable communications only
  - Not for routine traffic
- Patching is permissible as allowed in the WISCOM Administrative Manual

# WISCOM

## Agency-specific Talkgroups



# Agency Talkgroups

- Each Daily User agency is eligible for at least one (1) agency talkgroup
- Total number of agency talkgroups subject to system capacity
  - Determined by System Admins and SSMG
  - Will vary on case-by-case basis
- Only available on tower(s) that cover your area

# Radio ID Numbers

- All WISCOM radios have unique 7 digit number
- Radio ID's begin with county or agency digits
- 3<sup>rd</sup> digit denotes what type of radio
- You will see these numbers on your radio display

**8100041**

State Patrol Car 41  
**mobile** radio

**8910012**

OJA Car I12  
**portable** radio

**4190621**

Milwaukee County EM  
**cache** radio

# Radio ID Format

A	B	C	D	E	F	G
COUNTY CODE		PREFIX	UNIT			
01-99		1-9	0001-9999			

# Using WISCOM



# Using WISCOM

- When the radio is first placed onto the WISCOM system:
  - Radio scans to find nearby tower
  - Radio transmits data packet to system
    - If a valid unit, the system allows radio to access system
    - If an invalid unit, the system refuses to allow registration of radio

# Using WISCOM

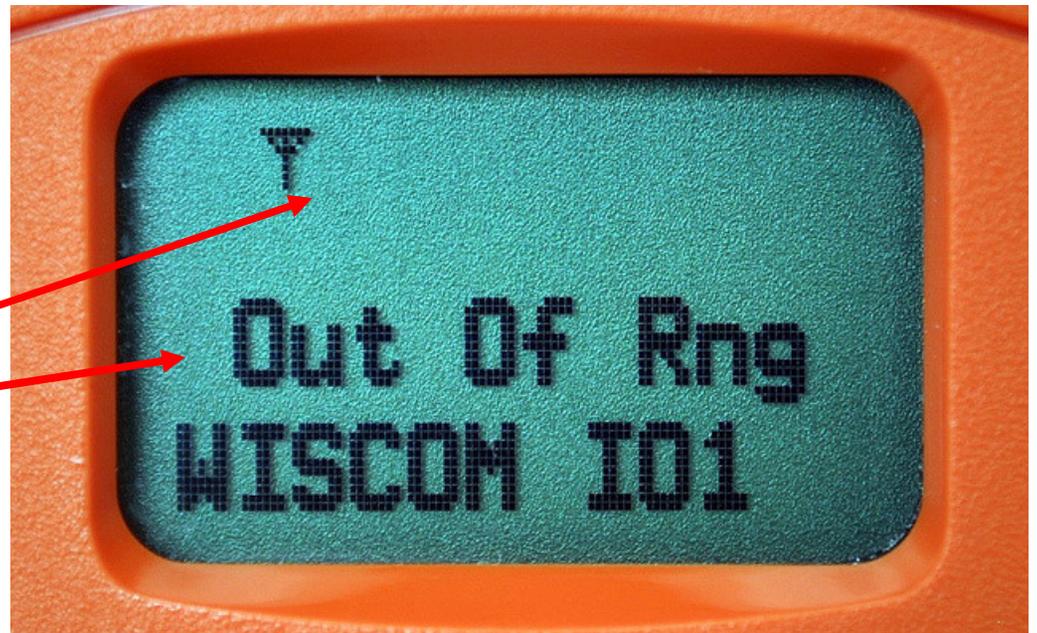
- Radio must be in range of a tower
- Radio will show received signal strength

**RSSI display**  
**(More bars = better signal)**



## Using WISCOM

- When radio is out of range of system, no communications will occur (RX or TX)
- Radio will indicate
  - Display message



**Out of Range indication (EFJ)**

**No RSSI bars displayed**

## Using WISCOM

- If radio ID is not enabled in system, the radio can not register with system
- Radio will indicate
  - Display message

**Registration Refused indication  
(EFJ)**



## Using WISCOM

- If radio is set to invalid or disallowed talkgroup, the system will not allow affiliation
- Radio will indicate
  - Display message

**Affiliation Refused indication  
(EFJ)**



## Using WISCOM

- If local tower site loses wide area network, you lose statewide coverage but retain local coverage
- Radio will indicate
  - Display message

Site Trunking indication (EFJ)



# Transmitting on WISCOM

- Push and hold PTT
  - Upon PTT press, the TX light will blink quickly
  - Upon channel grant, the TX light will come on **steady** when the talk path is open
- You must wait for the channel grant before speaking or the message will be cut off
- Radios are capable of having audible alert
  - Alerting options depend on programming

# Channel Grant

- Why the delay when PTT is pushed?
  - Radio sends data packet to tower
  - System verifies that radio is authorized
  - Tower returns a data packet to radio
  - Radio allows transmission by user
- This happens in **~350 milliseconds**

# Moving Forward



# PSAP Connection Program

- Check with your local PSAP to see if they have a WISCOM connection
- If they don't have a connection, encourage them to get one
- Enhances interoperability
- Contact dispatch supervisor for local information

## Other Initiatives

- WISCOM is exploring the following enhancements:
  - Connections to other states
  - Rebroadcasting non-WISCOM traffic
    - County Scan, NAWAS etc.
  - Additional usage policies
    - Patching, encryption, data etc.

## For More Information

- WISCOM Administrative Manual
  - Covers policy, procedures and forms
  - Adopted by SSMG
- On the web
  - <http://interop.wi.gov/wiscom>
  - WISCOM Administrative Manual found there
  - Protocol for reporting WISCOM service and performance issues

## For More Information

- [oj interoperability@wi.gov](mailto:oj interoperability@wi.gov)
  - Submitting applications, training questions or usage questions
- [wiscomtech@dot.wi.gov](mailto:wiscomtech@dot.wi.gov)
  - Programming support or technical questions

# Conclusion

# Questions?

