

City/County RACES and EmComm Auxiliary Communications Service Exercise Plan

County of Orange RACES Orange County Sheriff's Department Emergency Management Division



Plan Overview

Welcome

On behalf of County of Orange RACES (Radio Amateur Civil Emergency Service), Orange County Sheriff's Department Emergency Management Division, we welcome you to the Fall 2021 countywide emergency communications (EmComm) exercise. Thank you in advance for your participation.

Purpose

This plan sets the test objectives and procedures for the October 2, 2021, County of Orange City/County RACES & EmComm Auxiliary Communications Service (ACS) exercise.

This exercise provides city and county RACES and EmComm organizations, members of these organizations, as well as independent AuxComm operators in Orange County an opportunity to operate and utilize their Emergency Communications equipment and processes, as well as test how well these integrate across Orange County.

During these bi-annual exercises, different emergency scenarios will be utilized in order to stress and understand the overall preparedness of EmComm across Orange County.

Exercise Overview

For this bi-annual countywide exercise, we are adding two additional exercise modes. The overall exercise consists of three separate but related drills that utilize different Amateur Radio services available to support countywide auxiliary emergency communication needs. Specifically, these are;

- Simplex voice on 2 meters FM and 60 meters upper sideband
- Winlink
- AREDN mesh

Details for each exercise are provided in the following sections of this plan.

Basic COVID-19 Health Protocol

Our previous three City/County RACES & EmComm ACS Exercises were restricted due to the COVID-19 pandemic and participants had to be portable on home property. For this October 2, 2021 exercise, participants may still operate portable from home property if they wish, but are also allowed to operate portable from other locations, provided that the following precautions are followed, not only during the exercise but at all other times:

- Wash your hands often with soap and water for at least 20 seconds, especially after being in a public place. If soap and water are not readily available, use a hand sanitizer with at least 60% alcohol. Avoid touching your eyes, nose, and mouth with unwashed hands.
- Avoid close contact with people who are sick, and practice social distancing by keeping at least 6 feet away from others if you must go out in public. Wear a cloth face covering to cover your mouth and nose when around others and when you must go out in public.
- Clean and disinfect frequently touched surfaces daily. These include tables, doorknobs, light switches, handles, desks, computers, phones, keyboards, sinks, toilets, faucets, and countertops.

Recommendation Survey

At the end of this exercise, OCRACES will compile your comments and suggestions in an *After-Action Report*. The questions listed below should be answered by the Chief Radio Officer or Coordinator of each participating

agency, with replies emailed to Lee Kaser at LKaser@OCSheriff.gov and Ken Bourne at kbourne.ocsd@earthlink.net by October 22, 2021.

- What are the locations of the radio dead spots that you found during the drill?
- What alternative means of communications (such as relays) worked for you to resolve dead spots?
- What portion of the drill caused the most trouble for your members?
- Overall, rate the ability to communicate with others to your satisfaction.

List any suggestions you have that would improve communications or overall exercise components during simulated repeater failure in Simplex, Winlink, or AREDN mesh exercises.

Participating Agencies

The following table shows the agencies who have indicated they will be participating in this ACS exercise, with portable stations capable of communicating a) on the OCRACES 146.595 MHz simplex frequency, b) on 60 meters channel 4 (5371.5 kHz dial frequency, upper sideband), as well as stations c) using Winlink, and d) using AREDN mesh.

Table 1. Current Planned Status of Participating Agencies.

Agency	2 Meters (146.595 MHz) Simplex	60 Meters (5371.5 kHz USB) Channel 4	Winlink	AREDN mesh
American Red Cross	Yes	No	Yes	Yes
Anaheim RACES				
Brea RACES				
Buena Park RACES				
Cal OES CRU	No	No	No	No
Costa Mesa RACES (MESAC)	No	No	No	No
Cypress RACES	Yes	No	No	No
Dana Point (Tri-Cities) RACES	Yes	No	Yes	Yes
Fountain Valley RACES				
Fullerton RACES	Yes	No	Yes	No
Huntington Beach RACES	No	No	No	No
Irvine RACES (IDEC)	Yes	Yes	Yes	Yes
Laguna Niguel ACS	Yes	No	Yes	Yes
Laguna Woods RACES	Yes	Yes	Yes	No
Los Alamitos RACES				
Mission Viejo RACES	Yes	Yes	Yes	Yes
Newport Beach Repeater Club	Yes	Yes	No	No
OCHEART	Yes	Yes	Yes	Yes
OCRACES	Yes	Yes	Yes	Yes
Orange County SKYWARN				
Orange RACES (COAR)	Yes	Yes	Yes	No
Placentia RACES				
San Clemente (Tri-Cities) RACES	Yes	No	Yes	Yes
San Juan Capistrano (Tri-Cities) RACES	Yes	No	Yes	Yes
Seal Beach RACES				
Westminster RACES	Yes	No	No	No

2-meters and 60-meters Simplex Exercise Plan

Background

Because of concerns that emergency communications might be degraded or fail due to poor repeater coverage in some areas of the county, or due to possible repeater failure, this exercise will be a field-deployment exercise and will focus on alternative means of communications in case of such repeater problems.

These alternative means of communications will consist of simplex communications on 2 meters FM, and HF NVIS (Near Vertical Incidence Skywave) on 60 meters. Relay stations may be assigned by the Orange County RACES net control during the exercise.

Operating Locations

OCRACES net control will operate from the Orange County EOC RACES Room on Loma Ridge in order to support more reliable simplex coverage on 2 meters and 60 meters throughout the county.

City and County RACES and EmComm members will operate portable stations, preferably at locations that need to be tested for local and countywide simplex radio coverage. In addition, the use of the following equipment and operations mode are recommended:

- Battery power (or generator)
- Portable antennas
- Simplex only (simulating repeater failure)

Exercise Overview

The simplex exercise will run from 0900 to 1130 hours. The first hour and half will be on 2 meters and the last hour and a half will be on 60 meters, with both segments overlapping by one-half hour.

Operations Schedule

Operations will be according to the following schedule:

0900 - 0930 (2 meters)

Each City and County RACES and MOU unit will conduct a roll call of its members on its primary simplex frequency. OCRACES will call its members on 146.595 MHz. If necessary, some city agencies may need to appoint a member to operate as a relay station.

0930 – 1030 (2 meters)

OCRACES net control (located at Loma Ridge) will call the roll of City RACES and MOU units on 146.595 MHz simplex. The Chief Radio Officer or Coordinator (or designated member) of each unit will respond, with a report of the number of stations that checked in on their agency's primary simplex frequency.

Relay stations may need to assist OCRACES net control in some difficult-to-reach cities, such as in South and West Orange County.

1000 – 1030 (60 meters)

OCRACES net control will run a net on 60 meters channel 4 (5371.5 kHz dial frequency, upper sideband), using the same roll call of Orange County City and County RACES and EmComm stations as on the Saturday morning OCRACES ACS net. The first half hour will run concurrent with the last half hour of the 2-meter simplex net.

1030 – 1130 (60 meters)

1. Net control will then call for additional RACES and EmComm stations in Orange County that were not on the Saturday roll call.

2. Relay stations inside and outside Orange County will assist OCRACES net control in covering various areas of Orange County.
3. OCRACES net control will then call the roll of RACES/ACS stations outside Orange County.
4. OCRACES net control will then call the roll of non-EmComm stations.
5. OCRACES net control will then stand by for visitors.

Winlink Exercise Plan

Purpose

1. To provide Winlink operators the opportunity to gain experience and demonstrate operation of their Winlink stations by transmitting a message with an attached Check-In form.
2. To assess the level of Winlink usage across the county and identify current Winlink operators.

Background

Amateur radio operators need to leverage the accuracy and throughput of digital communications to handle the large volume of traffic expected during large-scale events. Winlink is a widely used digital communications tool by county, state, and federal emergency management organizations, and represents an essential solution available within an amateur radio operator's EmComm toolbox. Reliability and resiliency in communication systems requires diversity and redundancy of assets, both technical and human.

Participants

The Winlink exercise is open to all licensed amateur radio operators that have Winlink stations in Orange County, California, and are encouraged to participate. This includes city RACES organizations (e.g., IDEC, MESAC, COAR), other organizations that have an MOU with OC Sheriff's Department (OCSD) (e.g., OCHEART, American Red Cross [ARC]), as well as other EmComm organizations (e.g., Newport Beach Repeater Club). In addition, this exercise is open to all individuals, whether or not they are members of the various city RACES organizations and are simply interested in supporting EmComm.

Telnet communications mode (i.e., direct internet connection) is acceptable and encouraged for those stations that are unable to communicate with a Winlink RMS (Radio Message Server) gateway via RF.

Note. Winlink accounts that are off-air for 400 days are automatically purged. If it's been a while, use it or lose it.

Operating Locations

OCRACES. Net control for the Winlink portion of the exercise may be located at the OCRACES radio room at Loma Ridge, or at a remote location.

Participants. During the exercise, participants are encouraged to "go mobile" and are invited to set up their Winlink station at a temporary remote location that is safe to operate. However, it is not required for this exercise, and operating from your city EOC or home location is a great way to take advantage of this exercise. Participants can support this exercise from any location they prefer, given that your location is safe.

Date and Time

Winlink messages will be accepted for the 24 hour period up to 3:00 pm on Saturday, October 2nd (i.e., 3:00 pm Friday through 3:00 pm Saturday).

Exercise Overview

Using Winlink Express software application, prepare a message with an attached Express Check-In form (Listed in Template Manager, Standard Templates, under GENERAL forms, as Winlink Check In.txt) and send it to OCRACES tactical and member addresses (details provided below). The message can be sent using any of the communications modes available to you (i.e., telnet or through an RMS Gateway).

Note: For those participants that are using older Winlink client software (e.g., Paclink), which doesn't have built-in forms, include the following information in the body of your message.

Fields to be completed in the Express Check-In form

Date/Time: Autocompleted with the current date and time.

Status: Exercise

Band: Select N/A if sending message using telnet, otherwise select band appropriate for the RF band you will be using to connect to a Winlink RMS Gateway. Pull-down options include N/A (i.e., Telnet), VHF, 220, UHF, HF Amateur, or HF Shares.

Mode: Select the communications mode you will be using to connect to the Winlink Common Message Server (CMS). Pull-down options include: Telnet (for direct connection to internet), Mesh, Packet, Ardop, Vara HF, Vara FM, Pactor, or Other.

Send To: For this exercise, send the message to the following addresses: CAORCO; W6HK; KM6RTE (note to use semicolon between addresses). This ensures that your message will go to OCRACES Tactical and to OCRACES members Ken Bourne and Scott MacGillivray. Do not include any other addresses for this message.

Call Signs of initial On-Site Operator(s): Fill in your callsign.

Sender: This field will autofill with your callsign.

Location: Enter a simple description of your location. No need to provide detailed location. For example: "Irvine EOC," "Private residence in Mission Viejo," "Remote at Rossmoor Shopping Center," "Remote at Pacific Ridge Trailhead, Newport Beach," "Remote at patio of Panera Bread restaurant in San Clemente."

Decimal GPS Coordinates: The decimal GPS coordinates for your location (optional, but highly recommended). Commonly found using an app on your smartphone (e.g., Compass, My GPS Location, and many other apps).

MGRS: This field will autofill once the GPS coordinates are filled in.

Grid: This field will autofill once the GPS coordinates are filled.

Comments: *(Dependent on your role in the exercise)*

- For messages coming from representatives of an Orange County City or MOU organization (e.g., Chief Radio Officer), include comment that you are representing your organization. For example: "Representing IDEC."
- If you are a member of an Orange County City or MOU organization (but not officially representing the organization), include comment that you are a member of a participating organization(s). For example: "Member of MESAC, ARC and OCHEART."
- For participants that are not a member of an Orange County City or MOU organization, include comment that you are participating as an independent operator. For example: "Participating as an independent operator."

An example of a completed form is shown in Figure 1.

NOTE: If applicable, send two separate messages; first message, as a representative of your organization as described in a) above from the organization's Winlink account, and second message as a member of your organization(s) as described in b) above from your personal Winlink account.

Separate Winlink Message and Form Instructions Offered

Detailed instructions for creating and sending a message with the Check-In form are provided in a separate [document](#) that is also available for download on the Groups.io website. To download, Log in to Groups.io and go to the ocsd-races.groups.io website. In the left navigation menu, click the **Files** entry, click on the **Winlink** folder, and then click on the file **WinlinkMessageForm_2021Oct02_V1.pdf** to download it.

These instructions are offered for those participants that may be new to Winlink and/or inexperienced with sending a Winlink message and using the forms included with Winlink Express. Feel free to distribute these instructions to anyone that needs them and that doesn't have access to the Groups.io website.

Additional Notes

- 1) If after reviewing these instructions you still have a question or comment, please contact Scott MacGillivray, KM6RTE, via email at KM6RTE@gmail.com or by phone at (714) 392-9095.

Express Check In

Setup Click to add your agency/group name to title
Load Check in Data
[Form Info](#)

This is for an initial check in via Winlink Express. Also sent as plain text in message body for non-Express users.

Date/Time

Select Status

Exercise
 Net
 REAL EVENT

Band

VHF
 220

Mode

Telnet
 Mesh
 Packet

Send To Clear ALL "Send To" Entries.

Entries will remain until you change or clear them.

Calls Signs of Initial On-Site Operator(s) Sender

Location

Decimal GPS Coordinates MGRS Grid

*Auto filled if GPS device is working in Express, or you can enter decimal degrees / MGRS coordinates manually.
 Ex: 38.5567,-121.7932 (note comma & dash) / Ex: 11SNR0184195204 or 11S NR 01841 95204*

Comments *Max Characters 250*

Member of OCRACES, COAR, and OCHEART.

Save Check in Data
Submit
Reset Form

Ver 2.99

Figure 1. Example of Completed Winlink Express Check-In Form.

AREDN Mesh Exercise Plan

Objectives

1. To assess the capabilities and current interconnectivity between RACES and EmComm agencies utilizing the Orange County AREDN network, in order to:
 - a. Pass traffic,
 - b. Use voice communications using VoIP phone calls,
 - c. Monitor and capture an image from a camera on the Orange County AREDN network, and
 - d. Send a Winlink message with an attachment, using the Orange County AREDN network as Winlink's Telnet communications mode.

Participants

The AREDN mesh exercise is open to all licensed amateur radio operators that have access to the Orange County AREDN network.

1. In order to participate in objective 1b, the operator must also have a VoIP phone attached to their node or use a smartphone app such as *Linphone*.
2. In order to participate in objective 1d, the operator must have Winlink Express installed on their computer and an active account with Winlink.org.

Operating Locations

OCRACES. Net control for the exercise will be from an AREDN mesh node operated by OCRACES personnel. Net control may be at Loma Ridge, at a deployed location, or from the residence of one of the OCRACES personnel.

Participants. A participant representing a city RACES or EmComm agency may operate from their organization's operating location such as an EOC or Radio Room, a deployed (remote) location, or from their home. Other participants can operate from any location where they can access the Orange County AREDN network. Access can be via RF or an internet tunnel.

Date and Time

The AREDN mesh exercise will run from 1030 to 1200 hours on Saturday, October 2, 2021.

Exercise Overview

1. Each participant will access their local AREDN mesh node and go to the *Mesh Status* page of that node. On the *Mesh Status* page locate the closest node (lowest ETX) that is running *MeshChat* with link text "MeshChat." Click on the "MeshChat" link and log in with operator's callsign (not your organization's callsign). Post a message with the following information:
 - a. Your Name:
 - b. Your Callsign:
 - c. The Organization you're representing or a member of (e.g., "Representing LNACS", "Member of Tri-Cities RACES"):
 - d. Your Operating Location (e.g., "IDEC EOC", "Private residence in Laguna Niguel"):
 - e. Your Cell Phone number:
 - f. Your VoIP IP address:
 - g. Winlink capability: (Yes/No):
 - h. Statement: "This message is in support of the OCRACES countywide exercise."
2. Continue to monitor the MeshChat and attempt to call at least two other VoIP phones as listed in MeshChat.

3. On the *Mesh Status* screen, search for: **AE6XE-OCcam** under **AE6XE-Saddleback-RM5**. This is a camera located at a Saddleback mountain location viewing Orange County.
 - a. Click on the **user1_view** link for the camera
 - b. Log into the camera with Username: *user1*; Password: *view*
 - c. Take a screen capture of the image from the camera and save it on your computer as a JPEG file type. A simple method for this can be done using the **Print Screen** keyboard key and then pasting (Ctrl-v) into a software application such as *Paint*. Then *Save As* the image with a file name that is relevant to you (e.g., "ScreenCaptureKE6BXT_2021Oct02").
4. With Winlink Express utilizing Telnet communications mode, and using the Orange County AREDN network, prepare and send a simple message with the image as an attachment.
 - a. Include in the body of the message: "*This message sent using AREDN.*"
 - b. If the camera screen capture image file is greater than 120 kb (most likely), it is too large to send through Winlink and must be resized. This can be done within Winlink using built-in resizing tools.
 - i. In the message window, click on the **Attach:** icon (paperclip) of the message. This will open a new *Attachments* window. Click on **Add** menu option and add the image file to the message. The image file will now be listed showing the name of the file and its Size (kb). The file size is probably highlighted in red, indicating that it is too large to send.
 - ii. With row highlighted, click on the **Edit/Resize-Image** Menu option. This will open a new *ImageFileName* window showing the image. Click on the **Resize** menu option.
 - iii. This will open the *Resize Image* window, with Current file size (kb) and a blank field for Desired size (kb). Enter a value less than 120 kb (recommend using 100). Click on the **Change Size** button and then click on the **Save** button to close the window.
 - iv. This will make the previous *ImageFileName* window active. Click on **Save Changes** to save the new reduced file size attachment and close this window.
 - v. In the *Attachments* window, the new reduced file size is shown. Click on **Finished** menu option to complete adding the attachment to the message.
 - c. Send message to CAORCO; W6HK; KM6RTE; W6RTR.

Additional Notes

If you have questions or comments, please contact Don Hill, KE6BXT, via email at donhill@gmail.com or by phone at (714) 345-1114.