July 2022

County of Orange RACES
NetControl

Newsletter of the County of Orange Radio Amateur Civil Emergency Service

OCRACES Meeting

Online on Microsoft Teams

Monday, July 11 2022, at 7:30 p.m.

Orange County Sheriff's Department Emergency Management Division

CRO's Nest
by Ken Bourne, W6HK, OCRACES Chief Radio Officer

Dangerous Emails

Despite the dangers I have previously mentioned of sending and opening emails containing only a website link and no text (except maybe a couple of words like "click for important information"), or a link to an attachment that is hackable, I continue to receive emails from RACES members with those violations. Bad guys who want to infect your computer will often disguise themselves by posing as someone you know (often with a "trustworthy" email address), and sending you a link that looks legitimate. For example, if you are thinking you are connecting to a news story on https://www.yahoo.com, the link from your friend might be something like https://www.yah00.com, directing you to a malware-infected site. It's even harder to spot the difference between https://www.ye1p.com and https://www.yelp.com (note that a "one" and a lower-case "L" look identical. A bad guy could purchase a domain with the fake character and begin his criminal escapade, at your expense

Or if your friend often sends you attachments forwarded from others, beware! Don't open files that can be infected. The file might be from a trustworthy friend, but he might have been infected by the same file without knowing it!

Before I launch into which types of attachments are most dangerous, let's quickly review the definitions of a trojan horse and a virus. A trojan horse (or trojan) is a type of malware that conceals its true content to fool a user into thinking it's a harmless file. A trojan does not self-replicate. A virus malware self-replicates. It can spread to other devices by creating copies of itself and attaching them to the infected computer's software, files, and folders. Once a trojan is downloaded, the malicious code will execute its intended task, such as gain backdoor access to your computer, spy on your online activity, or steal your sensitive data. If your computer's settings change unexpectedly, it might have a trojan.

I recently received an MP4 file from a very trustworthy friend and OCRACES member. Is it safe? Since it's not an executable file, it's not a virus. According to malware research expert David H. Lipman, commenting in a Malwarebytes forum, a virus is an executable file or code that is prepended, appended, or cavity injected into a legitimate file and is able to self replicate. Once infected, that infected file can further the infection by infecting other legitimate files. Or the infection can spread from computer to computer. Such code or executable self replicates. That is, it is able to spread on its own and without assistance. On the other hand, trojans need assistance to spread. There are trojans that also prepend, append, or cavity inject malicious code into a legitimate file. However, the action stops there and cannot spread. Such a file may be deemed "trojanized" or "patched." True MP4 files are media files and are not executable. They can employ embedded malicious code that may exploit Digital Rights Management (DRM) and may be classed as a trojan.

Suspicious files or websites may be

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checked by VirusTotal (https://www.virustotal.com), which inspects items with over 70 antivirus scanners and URL/domain blocklisting services, in addition to several tools to extract signals from the studied content.

Be careful with an email that you think a friend sent to you. The address that I normally use for RACES-related matters is kbourne.ocsd@earthlink.net. A common scam is a bad guy registering your friend's partial address on a recently purchased foreign domain, such as kbourne.ocsd@races.sg, with an extension in Singapore, which you might not notice if you're in a hurry. It might not even be registered, but the email might contain a malware attachment or a link to an infected website. But what if the bad guy is even more sneaky and establishes a common ".net" domain that looks like "earthlink," for example? What if you receive an email from kbourne.ocsd@earth1ink.net? It looks like my address but replaces the lower-case "L" in earthlink with a numeral "one." With some fonts, you can hardly tell the difference. Do you see the difference between "earthlink" and "earth1ink"? What if phil@gmail.com is your friend Phil's email address, but a bad guy makes a subtle change to your friend's name and registers it with gmail.com, and then tries to fool you with the new address? Do you see the difference between phil@gmail.com and

phi1@gmail.com? If the email looks suspicious, such as containing an attachment without an explanation, or using poor grammar, don't open the attachment or click on a link without first checking with the sender by telephone that he indeed sent it.

Be careful even with Microsoft Office files attached to emails. Most often they are safe, especially if they contain information related to RACES activities. However, files from questionable sources may contain a macro virus, which is a type of computer virus that could be stored in macros within a Microsoft Office file (such as a document, presentation, workbook, or template), or within any ActiveX control, COM add-in, or Office add-in. Microsoft Office files that have a macro in them have a different file extension to indicate that they have an embedded macro. For example, a normal modern Word document is a .DOCX file, but, if a macro is added to the file, it's saved as a .DOCM file. Likewise, a modern Excel workbook is a .XLSX file, and a modern PowerPoint presentation is a PPTX file, but, if there are macros in them, the Excel file becomes a .XLSM file and the PowerPoint presentation becomes a .PPTM file.

This might be a shock to you, but even Adobe PDF documents can carry various types of viruses or malicious executable code. Malware is primarily hidden in multimedia content, hyperlinks, JavaScript code, and system commands. The malware at-

tack executes when users open the file or interact with the embedded content after opening. These files include static components such as images and text plus dynamic details such as forms. While PDF elements make the document understandable, functional, and visually appealing, they can be corrupted to carry out malicious functions. Since it's normal to find links to helpful resources within PDFs, attackers may use this to lead you to malicious sites. The bad guy can compromise your system with unsolicited downloads or manipulate you into providing some information you wouldn't otherwise give. Your antivirus software should catch infected PDFs, but I also recommend using VirusTotal to determine whether a PDF file is safe. VirusTotal also allows you to check whether URLs found in a PDF are safe.

How about JPEG image files? JPEGs or PNGs or MP4s or AVIs don't have macros. They are not executable, although a hacking genius might embed some code to trick an image file reader. That's highly complex and unlikely. But be careful to note the file extension. You might not notice the ".exe" in "newradio.jpg.exe" if you are in a hurry, and think you are simply opening a .jpg file. If the file extension ends in ".exe," it's an executable file that opens by itself without an image reader, and will probably greatly infect your computer with malware or even ransomware. ✹

Next OCRACES Meeting: July 11th on Teams

The next OCRACES meeting will be on Monday, July 11, 2022, at 7:30 p.m., online on Microsoft Teams. This is one week after the usual first-Monday meeting, due to the Independence Day holiday. All city and county RACES and EmComm members and PSRs are invited to attend.

At this meeting we will discuss how to respond effec-

tively during field deployments, which are not automatic when we are activated to the EOC, but which occur only after receiving instructions from the OCSD Emergency Management Division.

John Pilger, K6PIO, has an excellent PowerPoint presentation on field activations, which he is preparing to share with us during the meeting. ✹

800 MHz Talkgroups in Orange County (Part 5)
by Robert Stoffel, KD6DAQ

As RACES members, we are sometimes called upon to operate on public safety radio channels, either from the Orange County Emergency Operations Center (EOC) at Loma Ridge, in the field with the Control 7 communications response vehicle, or using a public safety radio at the scene of an incident or special event. In this continuing series I am providing our members with a better understanding about these channels and how they are used.

This month we continue our look at the 800 MHz Countywide Coordinated Communications System (CCCS), the trunked radio system shared between the County and it's 34 cities. Last month we focused on talkgroups unique to Lifeguards; this article will discuss talkgroups used by Public Works. The 800 MHz CCCS has always referred to "Public Works" as anything that is not a part of Law Enforcement, Fire Service, and Lifeguard departments, and includes traditional public works operations plus other functions such as maintenance, water or electric utility, local government, transportation, park rangers, airport operations, and so forth.

The 800 MHz CCCS is used by OC Parks for communications between dispatch, rangers, maintenance staff, and first responders.

Public Works talkgroups are assigned to the County and its 34 Cities, yet many rarely use the system, or may only use it during special events, emergencies, and disaster situations. I think one reason for less use by Public Works is because of how technology has changed in the past 25 years. Before the 800 MHz CCCS, most Public Works departments utilized simplex radio systems at VHF Low Band and VHF High Band, and only a few had the benefit of a repeater system. Thus, when the CCCS came along, it provided a superior radio system that not only supported the use of portable radios, but also featured outstanding radio coverage throughout not only the local jurisdiction but all of Orange County. This was previously unheard of for our Public Works partners and it brought new opportunities for many City and County agencies. Yet, as time moved on, the cellular telephone became portable and mainstream, and many (but not all) Public Works departments shifted communications from radios to cell phones. Today, most every city that doesn't use the CCCS for daily communications maintains radios for use in an emergency or disaster situation.

Silver is the color used to designate Public Works talkgroups. Every City and County Public Works agency has at least one talkgroup known as Silver-1. It is agency specific, meaning that an Aliso Viejo radio selected to Silver-1 will not communicate with an Anaheim radio selected to Silver-1. Some departments have more than one talkgroup, and they are designated with an additional number (such as Silver-2, Silver-3, etc.) or a letter (such as Silver-N or Silver-S), and these also are agency specific. The EOC radio console and other special radios (such as in Control 7) that may be used by RACES personnel have all Silver talkgroups, and the display name will also include a three-letter mnemonic as a part of the channel display to identify the actual user of each Silver. For example, the Silver-1 talkgroup for Aliso Viejo will be shown as Silver-1-AVJ.

A recent addition to the 800 MHz CCCS is the various Water Districts in Orange County. Every Water District has been assigned one talkgroup known as Blue-1. It is agency specific, meaning that an East Orange County Water District radio selected to Blue-1 will not communicate with an El Toro Water District radio selected to Blue-1. Just like with the Silver talkgroups, the EOC radio console and other special radios that may be used by RACES personnel have all Blue talkgroups, and the display name will include a three-letter mnemonic to identify the actual user of each. For example, the Blue-1 talkgroup for Yorba Linda Water District will be shown as Blue-1-YLW.

The Water Emergency Response Organization of Orange County (WEROC) has two 800 MHz CCCS talkgroups for coordination between all of the water districts and city water departments, replacing the long-used VHF Low Band system. The WEROC-1 talkgroup is used in the same manner as the former Low Band radio system, but provides better radio coverage for all agencies. OCRACES members monitor this talkgroup at the EOC and may transmit messages as a part of the Operational Area Radio System during an EOC activation.

The color Brown is used to designate talkgroups shared between all Public Works and Water District agencies. Brown-N (pronounced "Brown North") and Brown-S (pronounced "Brown South") are unrestricted and may be used by any department at any time. Brown-1 through Brown-6 are restricted and only used when assigned by Control One. The Brown talkgroups may be used by a single Public Works or Water District agency, or when multiple departments are working together in a planned event or mutual aid situation.

This concludes our review of Public Works communications; next month we will continue our look at the 800 MHz CCCS by reviewing the radio display mnemonics. ✦

Winlink in Orange County
by Scott MacGillivray, KM6RTE@gmail.com

Results from June 11th Winlink Peer-to-Peer Drill

This quarter's countywide Winlink Peer-to-Peer (P2P) drill was held on Saturday, June 11, 2022, from 9:00 a.m. until noon. The purpose of the practice drill was 1) to provide Winlink operators in Orange County the opportunity to gain experience using Winlink Peer-to-Peer (P2P) operating mode, and 2) to test their Winlink computer and radio equipment setup. This drill was similar to the ones held in previous quarters, though included the additional opportunity of having participants include a form attached to their Winlink message.

Drill Ops, operating from the OCRACES radio room at Loma Ridge, communicated with over 15 different Winlink operators around Orange County. Overall, there were an estimated 50 messages transferred to/from Drill Ops during the 3-hour-long exercise.

In order to support the anticipated greater traffic because of the inclusion of transferring an attached form to the message, an additional second channel (i.e., frequency) was supported for the drill. However, due to an unknown issue, the additional Winlink Express station set up to operate on this second frequency (144.970 MHz) did not work properly. *Nuts*. As a result, only one message was received and sent on this channel during the drill. Sorry if this issue caused undue frustration to any of the participants.

Most participants included the requested Check-In form, and some additionally tried including other types of forms. No one got the number of "hidden" icons initially correct (11). Though KN6SUZ (Malachi) eventually got it correct on his third try. However, the great news is a large number of operators did an absolutely awesome job with all of the other aspects of the drill. These included: KN6SUZ (Malachi), NJ6R (Steve), KK6LZB (Roger), K6GAT (Greg), KE6MVS (Chi), W6HBR (Greg), KK6O-EX (Ken), KG6LZP (Ted), W6OPD (Will, Cliff, Karen, and Don), KK6BML (Bob), KR6ISS (Kriss), and K6PB (Peter). These are truly Orange County's Winlink "Rockstars"! You guys did a great job!

The next countywide Winlink P2P drill is tentatively scheduled for Saturday, September 10th, from 9:00 a.m. until noon. Mark your calendars. In the meantime, continue to use the various Winlink RMS (Radio Message Server), aka "gateway," around the county to check out your
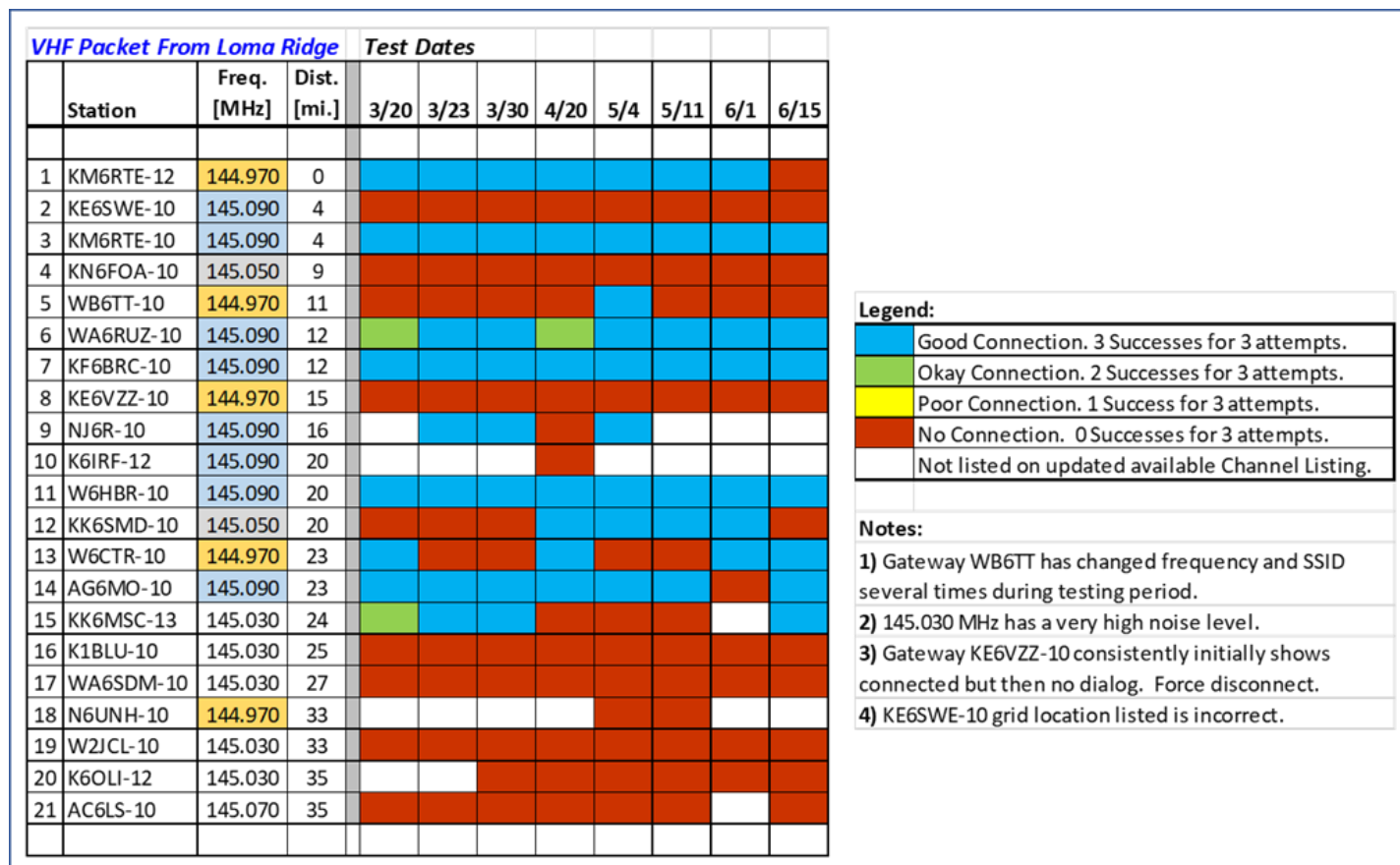
	VHF Packet From Loma Ridge	Freq. [MHz]	Dist. [mi.]	3/20	3/23	3/30	4/20	5/4	5/11	6/1	6/15
1	KM6RTE-12	144.970	0								
2	KE6SWE-10	145.090	4								
3	KM6RTE-10	145.090	4								
4	KN6FOA-10	145.050	9								
5	WB6TT-10	144.970	11								
6	WA6RUZ-10	145.090	12								
7	KF6BRC-10	145.090	12								
8	KE6VZZ-10	144.970	15								
9	NJ6R-10	145.090	16								
10	K6IRF-12	145.090	20								
11	W6HBR-10	145.090	20								
12	KK6SMD-10	145.050	20								
13	W6CTR-10	144.970	23								
14	AG6MO-10	145.090	23								
15	KK6MSC-13	145.030	24								
16	K1BLU-10	145.030	25								
17	WA6SDM-10	145.030	27								
18	N6UNH-10	144.970	33								
19	W2JCL-10	145.030	33								
20	K6OLI-12	145.030	35								
21	AC6LS-10	145.070	35								

Legend:

- Good Connection. 3 Successes for 3 attempts.
- Okay Connection. 2 Successes for 3 attempts.
- Poor Connection. 1 Success for 3 attempts.
- No Connection. 0 Successes for 3 attempts.
- Not listed on updated available Channel Listing.

Notes:

1) Gateway WB6TT has changed frequency and SSID several times during testing period.
2) 145.030 MHz has a very high noise level.
3) Gateway KE6VZZ-10 consistently initially shows connected but then no dialog. Force disconnect.
4) KE6SWE-10 grid location listed is incorrect.

Figure 1. Access test results to local Winlink gateways from Loma Ridge.

Winlink in Orange County *Continued from page 4*

equipment with conventional Winlink messages and try experimenting by going mobile.

Survey Results of Winlink Gateways Local to Loma Ridge

Over the last several months, I've been testing access to local gateways that are within a 35-mile radius of Loma Ridge. This was done by downloading the latest current Winlink Channel listing prior to the test (typically Wednesday mornings), and then attempting to connect to each gateway three times. The results of these tests are shown in Figure 1.

The results show that there are five Winlink gateways (KM6RTE-12, KM6RTE-10, WA6RUZ-10, KF6RC-10, and W6HBR-10) available in Orange County and accessible from Loma Ridge that seem to be generally available consistently.

There are several gateways (KE6SWE-10, KN6FOA-10, WB6TT-10, and KE6VZZ-10) that are consistently not available or accessible from Loma Ridge. This may be due to line-of-sight limitations, but I'm currently not sure. No testing was done from other locations in the county to verify that they are otherwise operational. The Loma Ridge location provides very good coverage across Orange County. If these stations are indeed fully operational, it is recommended that they operate on 144.970 MHz (if not currently operating on that frequency). Refer to the next article for the rationale. If they are not operational, please notify their system administrators so they can look into getting them back online.

There are several other gateways (i.e., NJ6R-10, K6IRF-10, KK6SMD-10, W6CTR-10, and KK6MSC-10) that are available sometimes, but not consistently. If these were consistently available, Orange County would have a really good start at having reasonable Winlink RMS coverage throughout the county.

In addition, it is strongly recommended that all of the RMS stations in Orange County use the "PUBLIC" Service Code. As noted on the Winlink website, the "PUBLIC" service code is for maritime and open amateur radio use, including emergency gateways that allow public access, whereas the "EMCOMM" is for emergency gateways that do not allow public access. I believe it is best practice for Winlink gateways to be available 24/7 to all operators in order to support checking equipment and/or performing regular testing (both client and server), as well as be available during an emergency.

Recommended Winlink VHF Frequencies in Orange County

With the expectation that the number of Winlink oper-

ators in Orange County will continue to grow, there is the need for frequencies to be organized for Winlink traffic in Orange County. During conventional Winlink communications mode (i.e., through a local RMS ["gateway'] to the Winlink CMS [Common Message Server] via the internet), there is minimal issue on what frequency a local RMS operates at. However, during a larger, regional emergency, access to the internet will most likely not be available. As a result, the use of Winlink Peer-to-Peer communications mode will be heavily relied on. P2P communication can use these RMS gateways as relays if they operate on a common frequency. While utilizing a common frequency increases the chance of congestion, the use of the digital Packet mode can support multiple "sessions" simultaneously. Though, by utilizing different frequencies, the congestion is hoped to be minimized. Here are the recommended VHF frequencies for Winlink in Orange County:

1) For Winlink P2P communications to and from Loma Ridge (i.e., the OCRACES Radio Room, adjacent to the county EOC), the VHF frequency of 145.090 MHz is recommended. In addition, it is recommended that Winlink RMSs (gateways) located within a radius of 5 to 12 miles from Loma Ridge also use this frequency (145.090 MHz). By doing so, these RMSs can operate as relays for Winlink operators located at further distances around the county. During a regional emergency when OCRACES is activated, the goal is for a Winlink P2P station located at Loma Ridge to be operational in order to support a continuously open P2P session on this frequency.

2) For Winlink P2P communications to and from Orange County cities and/or individual AuxComm operators, the VHF frequency of 144.970 MHz is recommended. In order to support this city-to-city communications, Winlink RMS KM6RTE-12 has been set up (temporarily) at Loma Ridge on this frequency.

3) To provide an alternate or backup Winlink P2P communication frequency, the VHF frequency of 145.050 MHz is recommended. This frequency would be used for situations where the other frequencies are not available, such as when the others are congested.

This recommended organization of Winlink VHF frequencies in Orange County is summarized in Table 1.

Future "Winlink in Orange County" articles will address the allocation of recommended Winlink UHF frequencies. Though, they will include 431.075 (San Clemente), 431.125 (Brea), and 431.475 (Loma Ridge) MHz since these are the frequencies used by the OCRACES RMS gateways (currently offline).

As noted in the system operators' guidelines for RMS operations, it is requested that SysOps commit "… to pro-

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Table 1. Recommended Winlink VHF frequencies used in Orange County

Purpose	Frequency	Encoding /	Notes / Comments
To/From Loma Ridge	145.090	Packet / 1200	For communications with OCRACES at Loma Ridge. Currently supported by several operational RMS gateways in OC; KM6RTE-10 [North Tustin], KF6BRC-10 [Mission Viejo], WA6RUZ-10 [Mission Viejo], W6HBR-10 [Huntington Beach].
To/From City⇔City	144.970	Packet / 1200	For communications to/from city RACES agencies, as well as with AuxComm operators. Currently supported with RMS gateway KM6RTE-12 [Loma Ridge].
Alternate (Spare)	145.050	Packet / 1200	Additional frequency to be used if other frequencies are not available (e.g., congested). Currently supported by RMS gateways KN6FOA-10 and KK6SMD-10 [TBD locations]

vide dedicated gateway equipment, *preferably with automatic emergency power*" (emphasis by me). To support this guidance, it is highly recommended that a gateway be powered through a system that has some sort of backup and/or reserve power available. For example, RMS KM6RTE-10 has a UPS (Uninterruptable Power Supply) that will provide power for about 2-1/2 hours. In reality, this is not very long, but this will support the brief occasional outage. However, work is in progress to install a whole-house battery and solar system in order to support extended outages. ✦

Following OCRACES Net Procedures

The primary purposes for OCRACES weekly nets are to check your radio equipment and antennas for reliable coverage, to hear announcements of meetings and upcoming events, and to train on using emergency net procedures. Our net procedures were originally established by current and former RACES Coordinators, who previously served as Supervising Communications Coordinators at Control One. Our streamlined net procedures might sound a bit "unfriendly" to some hams who commonly check into club nets and are unfamiliar with professional dispatching protocol. Nevertheless, we have been given some excellent guidelines to keep our RACES nets sharp in accordance with public-safety radio practices. The following net-control procedures include those guidelines plus additional policies:

- Use adequate power or antenna for a reliable signal into the repeater. A handheld radio is usually not adequate. Use a base or mobile station, pretested for full-quieting repeater access.)
- Acknowledge check-ins with a "Roger" and no signal report except for a faulty signal (weak, broken, distorted, or hum), with no "Good evenings" or "Thanks for checking in." After pressing your push-to-talk switch, wait a second before speaking. (The repeater is on a simulcast system, with a slight transmit audio delay that otherwise might cause most of your "Roger" acknowledgements to be heard only as a "…ger" or not at all.)
- During the roll call, if a called station does not check in, do not say, "Nothing heard." Instead, immediately proceed to calling the next station. If a called station does not hear your "Roger," he knows he was not heard, so saying "Nothing heard" is redundant. If you hear the called station, so does everyone else on the repeater. If you run a net on simplex, you might not hear the called station while others do, so saying "Nothing heard" on simplex is OK and invites a relay from someone who did hear the station.
- Acknowledge applicants and late and visitor check-ins with "Roger," followed by their call sign or at least their call-sign suffix. Otherwise, they might not know if you are acknowledging them or another station that overrode them. Acknowledging only by their city name is not adequate, since more than one member of the same city unit might be trying to check in simultaneously.
- Use the alphabetic suffix categories in the preamble (alpha through hotel, india through quebec, and romeo through zulu) when calling for late check-ins. Otherwise, you might be overwhelmed with too many calling.
- On a fourth Monday, announce at the beginning of the 2-meter net that the net will followed by a roll call on one of the UHF repeaters (as specified in the net schedule), followed by the 223.76 MHz repeater, and finally the 52.62 MHz repeater. On the UHF repeater, call only those who checked in on 2 meters. On the remaining repeaters, call only those who checked in on both 2 meters and UHF. ✦

Why Be a PSR?
by Eric Bowen, W6RTR

If you ask ten PSRs why they like being a PSR, you will probably get eleven different answers. Probably more. We all have our different reasons for wanting to become a PSR. We could probably spend days discussing those reasons and how much we enjoy volunteering. When I first became a PSR, I told myself that I would try to do as much as I can in order to see what I liked and didn't like, even if I didn't feel comfortable doing it.

What do I mean by that? Well, there have been some events that come up where I wasn't sure if I would be able to do them. That "not knowing" is what would make me uncomfortable. However, I signed up for them anyway and actually really enjoyed doing them. Mostly, these events are where PSRs are requested to be actors. We get a lot of training to perform our other jobs, but this type of job is a free-for-all when it comes to what you can do. I wrote about some of these events in last month's article, so I won't go over them again.

I recently went to an event where I noticed another PSR having some difficulties. It wasn't because he wasn't trained or lacked the proper experience, as he had done this type of duty numerous times. However, in events prior to this, he had had a lot of support and direction from other Department members or PSRs on-scene. This event was put on by an outside company and the Department resources were limited to what was requested. I'll get back to this in a minute.

There are a number of things that are unique to being a PSR. It is not your normal volunteer-type position. The Orange County Sheriff's Department puts a lot of trust in us to perform our duties. And I don't say that lightly. This includes being called upon to search for missing people, providing medical treatment to injured hikers by giving them a bandage or calling in Duke to transport a patient to a hospital, driving black-and-white patrol vehicles to the county yard for repairs, doing traffic control for events, and so many others.

You have to be very comfortable being out there with zero to minimal direct supervision. They trust us to be able to do that and we are trained very well to be able to do this. We are almost always on-scene with other PSRs, Deputies, or Department members, so help is always close-by. However, there are times where we are on our own and nobody is around. Although, immediate help is always available to us via our unit Sergeant, our PSR Sergeant, other PSRs, Deputies, or even via Dispatch through a radio or telephone. We are never truly alone. I know the contact list on my phone has never been this big!

Back to that PSR. One of the training items that I always fall back upon is that if you are doing something and there is no leadership, you take that responsibility on yourself until somebody comes along to take over. This is a primary theme in your ICS training. And most recently, when I was in one of the classrooms at the Sheriff's Academy, there was a white board in there that had written upon it, "Absent leadership, I will lead."

I found myself quickly taking the leadership role to help the other PSR. I was assigned a different detail than him that day, but I tried to help as much as I can. He wasn't looking to be told how to do his job, he already knew how. He just needed that support he had enjoyed at his other events. I made sure that he had a chair, water, food, shade, breaks, Gatorade, and anything else he needed during his shift. His mood changed for the better after that.

This example wasn't mentioned because I am looking for pat on the back or anything. That is not my reason for becoming a PSR. The responsibility that the Sheriff's Department puts upon us to perform our job is actually a tiny part when compared to our responsibility to one another. I am writing about this because it is something I see every time I put on my uniform and go to an event, and this time I had that opportunity to help. I see PSRs and Reserve Deputies looking out for one another in ways that I haven't seen anywhere else, and that is something that, as a PSR, I am very grateful for. ✦

Hardwood Dolly Holds Heavy Power Supply

Many RACES members have well-equipped ham shacks, with HF and dual-band VHF/UHF transceivers and accessories running on 13.8 VDC. A common power supply used to run that equipment is the Astron RS-50A or RS-70A, providing 50 or 70 amperes of current. Those supplies weigh almost 50 pounds and can sit on the floor. At that weight, moving them around can be awkward, but Harbor Freight comes to the rescue! They offer the Franklin hardwood dolly (SKU 58312) with a carpeted surface and four 3-inch hard rubber swivel casters for $13.99. It's 18 inches long by 12¼ inches wide by 6 inches high and holds 1,000 pounds.

For smaller equipment is their Haul-Master 3-wheel wood dolly with three 360° swivel casters. It measures 8 inch-

**Harbor Freight dolly for power supply.**

es by 8 inches and costs $3.47. ✦

Using OCRACES Online Meeting Etiquette

Some OCRACES meetings will continue to be held online, on Microsoft Teams, although we are looking forward to resuming a few in-person meetings, such as the August 1st meeting at the OC EOC at Loma Ridge. It's important to adhere to rules of etiquette during online Teams or Zoom meetings. Unfortunately, a couple of common-sense rules of etiquette were violated at our June 6th Teams meeting, so let's be more careful at our July 11th meeting. Here are some rules of online etiquette:

- Check your system quality before the meeting, including internet reliability, mic audio level and frequency response (not too bassy), camera positioning, and ability to share your screen if required (such as for a PowerPoint presentation).
- Display your name, call sign, and affiliation.
- Be on time, so you don't disrupt the host, who needs to let you in while he's trying to focus on the meeting.
- Stay muted until you speak. Other meeting members don't want to hear you coughing, your dog barking, your phone ringing, or your ham radio blasting. Remember to toggle your mic on when you are speaking, and then off when you have stopped. Know where your mute button is, and position your cursor over it.

- Consider whether to disable your camera video. There are pros and cons. Seeing all the participants makes the meeting more engaging and informal, but can be very distracting if a guest speaker is making a presentation. If you have allergies and constantly blow your nose, turn your camera off to avoid distracting others. Active people behind you may also be distracting (especially if they are undressing!). Alert them that you are online and that your camera is on, or simply turn it off, or use a virtual background (a Teams feature). Be careful where you point your camera (or laptop screen/camera). Others don't want to see only the very top of your head or your ceiling. Maintain eye contact with your screen/camera. If you toggle your camera on and off, know where your video button is (usually next to your mic mute button).
- Don't eat or slurp your drink when your mic and camera are on.
- Avoid multitasking. If your camera is on, others can tell when you are checking your email or working on another project. Treat a Teams meeting like an in-person meeting, and give it your undivided attention. ✦

NIFOG Updated to Version 2.01

The *National Interoperability Field Operations Guide* (*NIFOG*) has been updated to version 2.01 and can be viewed and downloaded by clicking on https://www.cisa.gov/sites/default/files/video/NIFOG%202.01_508%20FINAL%20VERSION%205%2011%2022.pdf. New content in 2.01 includes references on Information Technology, Emergency Wireless Carrier Services, Interference Management, Encryption, and Cybersecurity. The *NIFOG* is a technical reference for emergency communications planning and for radio technicians responsible for radios that will be used in disaster response. The *NIFOG* includes rules and regulations for use of nationwide and other interoperability channels, tables of frequencies and standard channel names, and other reference material, formatted as a pocket-sized guide for radio technicians to carry with them. ✦
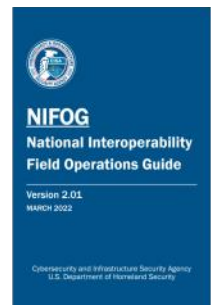
Congratulations to Eric Christensen, K6EJC
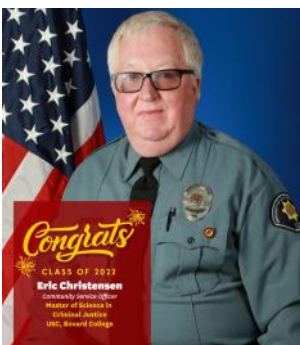
Eric Christensen, K6EJC.

Congratulations to Community Service Officer Eric Christensen, K6EJC, on joining the University of Southern California Class of 2022 with a Master of Science in Criminal Justice from USC, Brevard College. CSO Christensen worked as a Security Officer at Knott's Berry Farm in Buena Park.

Eric is well known and respected in the amateur radio community. Eric holds an Amateur Extra Class License. He is a former member of OCRACES and was a valuable participant in our drills and activities, such as Field Day and Baker to Vegas. He served his fellow hams during his many years as manager of Ham Radio Outlet in Burbank.

Eric is a member of the Los Angeles County Disaster Communications Service and was the City RACES Radio Officer at Burbank. In ARES, he served as the Northeast District Emergency Coordinator, ARRL Los Angeles Section. ✦

U.S. Military Recognizes HF Radio Capabilities

The U.S. military is once again considering HF radio as an alternative to its primary satellite and undersea cable systems in the Pacific and Indian Oceans.

The Defense Information Systems Agency (DISA) acknowledges that both satellites and cable systems are vulnerable to accidental or deliberate damage, and the Indo-Pacific Command's relief network has been testing HF single sideband as a backup. HF data communications are on the drawing board as well.

The DISA Joint Interoperability Test Command High Frequency Team participated in the annual Armed Forces Day (AFD) Crossband High Frequency Communications Exercise on Saturday, May 14, 2022, hosted by the U.S. Department of Defense (DoD). Military and amateur stations have taken part in this event for more than 50 years.

This was the first opportunity to utilize the newly established temporary facility on Fort George G. Meade, Maryland, at the Defense Media Activity/DISA Antenna Field.

This annual exercise provides a unique opportunity to test two-way HF communications between radio amateurs and military stations, which is authorized under the Federal Communications Commission 46 CFR §97.111. These tests provide opportunities and challenges for radio operators to demonstrate individual technical skills in a tightly controlled exercise scenario that does not impact public or private communications.

To mimic a situation that may require this type of communications, a military unit initiated a complex operation by transmitting on a frequency in the 60-meter band and subsequently listened for a response, mostly on a different frequency band. Military stations in various locations also transmitted on selected military frequencies and announce the specific ham band frequencies they were monitoring. Radio amateurs listened for stations on military operating frequencies and transmitted on frequencies in adjacent amateur bands. Twenty-four military stations participated.

During designated emergencies such as a natural disaster, U.S. military units are authorized to use a set of frequencies in the 60-meter band to communicate with amateurs and others.

Two different radios and antenna physics were utilized during this exercise:

- A commercial radio using a dipole antenna configured for Near Vertical Incident Skywave (NVIS) operations to provide excellent communications in a radius of up to about 300 miles

- A U.S. Department of Defense (DOD) tactical radio with a different dipole antenna configured for greater distances, to enable communications extending several thousand miles

Traditional military-to-amateur crossband single sideband voice, Morse code, and the use of legacy interoperability waveforms are some of the critical functions this exercise is designed to assess. It also provides a rare opportunity for participating amateurs to utilize more modern military modes, such as MIL-STD Serial Pulse Shift Keying (M110) and Automatic Link Establishment (ALE).

An AFD message was transmitted utilizing the Military Standard (MIL-STD) serial PSK waveform (M110), followed by MIL-STD Wide Shift FSK (850 Hz RTTY), as described in MIL-STD 188-110A/B. The AFD message was also sent via CW and RTTY.

Military units across the globe participating this year included: USS Midway, San Diego, California; U.S. Naval Academy, Annapolis, Maryland; U.S. Air Force Savannah Cyber Training Center, Savannah, Georgia; USS Yorktown, Patriot's Point South Carolina; Naval Air Station Whidbey Island, Washington; U.S. NORTHCOM; and U.S. Marine Corps Camp Foster, Okinawa, Japan. ✦

Copper Strap vs Wire vs Braid for Grounding

An effective RF ground system in your ham shack is needed, to reduce problems such as RF pickup on mic cables, RF burns, erratic equipment behavior, etc. It's not a good idea to use your home's AC safety ground for your station's RF ground. That AC ground wiring can act more like an antenna than an RF ground.

All your radios and accessories should be bonded together with short, low-impedance connections. A good idea is to run a copper pipe across the rear of your operating table and connect your equipment ground terminals to that pipe with short copper straps (or copper braid if you need flexibility for moving your equipment around often).

Copper strap is better than braid and stranded wire because its very large surface area reduces RF skin-effect resistance. Compared to braid, strap is a better choice for outside connections to ground rods, because it dries quickly and its oxidation actually protects the strap. Solid copper wire (8 gauge or larger) is acceptable. Braid holds water, which corrodes the tinning material and eventually the small copper wires in the braid. If it has some corrosion, flexing the braid could cause RF noise that would be detected at some frequencies. In mobile installations, strap could become fatigued with constant vibration and break, so tinned copper braid would be preferred. ✦

Countywide RACES/EmComm News

Costa Mesa RACES (MESAC)

Brenda Emrick, KI6EXL, of Costa Mesa Fire and Rescue is now the City's Acting Emergency Services Manager.

MESAC has had its annual elections. Ashley Fisher, KM6UJD, is now the MESAC President and Chief Radio Officer. Malachi Clark, KN6SUZ, is the Acting Vice President Operations. Board Positions include: Joe Orrico, WB6HRO, Technical Officer; George Berg, KN6MYV, Logistics Officer; and Keith Manahan, KK6GLQ, Admin Officer. The two Board Members at Large include Neal Leiman, KM6YY, and Ray Ott, KK6WYD. The President, VP-Ops, and Logistics are newly elected, and the others were re-elected.

Irvine RACES (IDEC)

IDEC operated an AREDN mesh node during Field Day on June 25-26, 2022, at Las Lomas Community Park in Irvine. A VoIP phone connected to the node could be seen by others on the AREDN network. A camera could be accessed to see the Field Day site, with any

George Gilley, KC6KCE, at IDEC Field Day mesh station.

required passwords listed in Mesh Status. It was advisable to use the Real-Time Streaming Protocol (RTSP) feed and VLC media player to view the camera, although others could try the http link if they had the correct plug-ins to their web browser. Others who wanted to be given a call or to let IDEC know that they had a camera feed were asked to post that information in the MeshChat with

the lowest ETX (extended transmission count) possible. They were advised not to use any MeshChat with any zone identification, as it would not go to every other MeshChat. Those at other sites who had a VoIP phone operating were asked to post the IP address and any specific times they preferred to be contacted. If others wanted to demonstrate the File Transfer, they were advised to use the same FTP server that was used in the May 7th City/County RACES & EmComm ACS Exercise.

Orange County Hospital Emergency Amateur Radio Team (OCHEART)

OCHEART Frequency ZERO repeater is now fully operational (KB6BXD) on 147.975 MHz (-), 151.4 Hz CTCSS. Joe Orrico, WB6HRO, obtained and installed the equipment. Joe Moell, K0OV, along with Joe, was instrumental in obtaining the repeater pair.

County of Orange RACES

Congratulations to Ernest Fierheller, KG6LXT, whose PSR application has been administratively approved. All OCRACES members are now OCSD Reserves (PSR or sworn).

OCSD Mutual Aid / Reserve Bureau

OCSD PSRs (including RACES members) are asked to register on the Reserve Tracker Calendar for the PSR Active Shooter/ Situation Awareness Training class, either on Wednesday, July 13, 2022, or on Tuesday, July 19th, from 1830 to 2130 hours, at the OC Sheriff's Regional Training Academy in Tustin. Training will cover Active Shooter Events while working events and while off duty, and things to think about. The second half will cover the Tracker system and common problems.

Orange County Fire Watch

OC Fire Watch Manager Tony Pointer emailed detailed instructions to volunteers for a Special Fire Watch Deployment (not RACES) on Monday, July 4, 2022, to Irvine Regional Park, Laguna Coast Wilderness Park, Laguna Niguel Regional Park/Aliso and Wood Canyons Wilderness Park, Irvine Ranch Open Space Post #5—Black Star Canyon Gate, and Carbon Canyon Regional Park.

July 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2 Weekly 60 m ACS Net
3	4 Independence Day & Special Fire Watch Deploy	5	6	7	8	9 Weekly 60 m ACS Net
10	11 Weekly 2 m ACS Net & OCRACES Meeting	12	13 PSR Active Shooter/ Situation Awareness	14	15 Orange County Amateur Radio Club Meeting	16 Weekly 60 m ACS Net
17	18 Weekly 2 m ACS Net	19 PSR Active Shooter/ Situation Awareness	20	21	22	23 Weekly 60 m ACS Net
24	25 Weekly 2 m ACS Net	26	27	28	29	30 Weekly 60 m ACS Net
31						

Upcoming Events:

- **July 4:** Independence Day (no net, no meeting); Special Fire Watch Deployment (not RACES)
- **July 11, 1930-2130 hours:** OCRACES Meeting on Microsoft Teams
- **July 13, 1830-2130 hours:** PSR Active Shooter/Situation Awareness Training, OC Sheriff's Regional Training Academy
- **July 15, 1900 hours:** Orange County Amateur Radio Club Meeting on Zoom and at American Red Cross, 600 Parkcenter Drive, Santa Ana
- **July 19, 1830-2130 hours:** (repeat of July 13th PSR Active Shooter/Situation Awareness Training)
- **August 1, 1930-2130 hours:** OCRACES meeting at OC EOC, Loma Ridge
- **August 31, 1830 hours:** Orientation for PSR Applicants, OC Sheriff's Regional Training Academy
- **September 10, 0900 hours:** Pre-screen for PSR Applicants, OC Sheriff's Regional Training Academy

https://ocraces.org

Mission Statement

County of Orange RACES has made a commitment to provide all Public Safety departments in Orange County with the most efficient response possible to supplement emergency/disaster and routine Public Safety communications events and activities. We will provide the highest level of service using Amateur and Public Safety radio resources coupled with technology, teamwork, safety, and excellence. We will do so in an efficient, professional, and courteous manner, accepting accountability for all actions. We dedicate ourselves to working in partnership with the Public Safety community to professionally excel in the ability to provide emergency communications resources and services.

County of Orange RACES Frequencies

60 m: 5371.5 kHz USB (dial) (Channel 4) (OC ACS Net—Saturdays, 1000 hours)
40 m: 7250 kHz LSB
10 m: 29.640 MHz output, 29.540 MHz input, 107.2 Hz PL (down for repair)
6 m: 52.620 MHz output, 52.120 MHz input, 103.5 Hz PL
2 m: 146.895 MHz output, 146.295 MHz input, 136.5 Hz PL*
2 m: 146.595 MHz simplex
1.25 m: 223.760 MHz output, 222.160 MHz input, 110.9 Hz PL
70 cm: 446.000 MHz simplex
70 cm: 448.320 MHz output, 443.320 MHz input, 141.3 Hz PL (private)
70 cm: 449.100 MHz output, 444.100 MHz input, 110.9 Hz PL (private)
70 cm: 449.180 MHz output, 444.180 MHz input, 107.2 Hz PL (private)
70 cm: 449.680 MHz output, 444.680 MHz input, 131.8 Hz PL (private)
*Primary Net—Mondays, 1900 hours

OCSD RACES Coordinator
Lee Kaser, KK6VIV, (714) 628-7081

Radio Officer
Scott Byington, KC6MMF

Chief Radio Officer
Ken Bourne, W6HK, (714) 997-0073

Assistant Radio Officers
Jack Barth, AB6VC
Ernest Fierheller, KG6LXT

County of Orange RACES

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https://ocraces.org
It's Where It's @!

Questions or Comments?
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"W6ACS …
Serving
Orange County"

Meet Your County of Orange RACES Members!

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W6HK

Scott Byington
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Jack Barth
AB6VC

Ernest Fierheller
KG6LXT

OCSD
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N6PRL

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Ray Grimes
N8RG

Peter Jimenez
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KC6HAM

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N6NTH

Steve Livingston
NJ6R
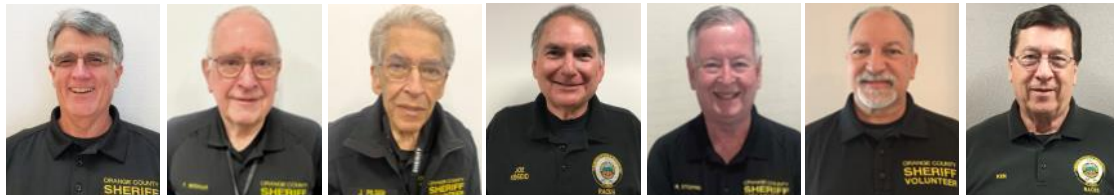
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Joe Selikov
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