County of Orange RACES
NetControl

Newsletter of the County of Orange Radio Amateur Civil Emergency Service

Inside this issue:

OCRACES Online Meeting on Zoom:

Monday, August 3, 2020, at 7:30 PM

Orange County Sheriff's Department Technology Division

Captain's Corner
by RACES Captain Ken Bourne, W6HK, Chief Radio Officer

Ransomware Is Getting Worse

How secure is your computer? Are you backing up your data consistently? Does that make you feel safe? It shouldn't!

If your computer suddenly crashes and burns, I hope you can recover most of your vital data from an external hard drive and install it on a replacement computer. But what if you are attacked by ransomware? If your backup hard drive is plugged in at the time, it might be infected as well, and all would be lost. Therefore, it's probably a good idea to run a backup at least once a day and then unplug your external drive, especially while you are opening e-mail attachments or exploring the Web.

We store many valuable things on our computers, including financial data, family photos, videos, databases, plans (such as the RACES drill and activation plans on my computer), irreplaceable records, archived e-mails, etc. But the bad guys who develop sophisticated ransomware are not after your computer's content; rather, they are after your money that you will pay them to unencrypt the files that they have now hidden from you.

It's bad enough to get hit by viruses and malware, but often that can be remedied with lots of hard work finding and deleting the implanted files (or maybe by the Geek Squad!). However, ransomware is another issue. A few years ago, some ransomware could be removed, but the sophistication of ransomware has advanced so much that large government agencies, utilities, and corporations are unable to rescue their computer systems and are paying mil-

lions to the bad guys to unencrypt their files. Even after the "rescue," doubt remains as to whether the ransomware has been totally removed or if its effects will reoccur at a later date.

This June, warnings were issued about a new wave of ransomware targeting at least 31 large organizations (including eight Fortune 500 companies), whose networks had been breached. Fortunately, the attack was disrupted—otherwise, it could have led to millions of dollars in damages and downtime, impacting the supply chain.

Ransomware gangs are going after not only individual PCs like what we RACES members have, but also irreplaceable business assets, including file servers, database services, virtual machines, and cloud environments. They will encrypt backups that governments, businesses, utilities, and even hospitals should not have left connected to their networks, resulting in difficult or impossible recovery, unless the victims are willing to pay the ransom.

During recent months we have learned of breaches into major databases that have confiscated our personal information (credit-card numbers, birth dates, bank-account numbers, passwords, etc.). These include Yahoo, Facebook, Twitter, Linkedin, Equifax, eBay, Dropbox, Uber, Home Depot, and many others. Governments and utilities have also been breached, and even COVID-19 vaccine researchers have been breached by foreign entities. This could be the start of something worse. Now that these critical net-

Captain's Corner *Continued from page 1*

works have been breached, the bad guys might eventually take complete control of these networks or activate ransomware that they implanted during the initial breach, especially if the breach victims failed to detect superfluous files in their systems that might lie dormant for weeks or months.

It is important to "practice safe computing" when using our personal computers or the computers of the companies we work for or the computers of the agencies we serve as RACES members. Books have been written and courses taught on cybersecurity. Greater emphasis has been placed on the dangers of ransomware that can cripple or destroy our computers and networks. We need to keep up to date on recent attacks and how to recognize or avoid common (and not so common) sources of ransomware. This is scary stuff, and we need to take it seriously!

New types of digital attacks are expected from enemy nation states and others who want to destroy networks. These attacks are not exactly "ransomware," because no ransom is demanded. This "wiper malware" uses encryption that can't be reversed, so the data is lost forever.

Cyber criminals are expected to breach a network, steal the data, and encrypt the network, and then threaten to leak the data if the victim does not pay a ransom. These criminals often spend weeks exploring the network to understand key digital assets (such as critical e-mails), before launching their attack.

A new form of ransomware, called "Tycoon," was discovered in December 2019. It is written in Java, deployed as a trojanized Java Runtime Environment, and is compiled in a Java image file (Jimage) to hide on breached networks. Persistence is maintained by using Image File Execution Options (IFEO) injection settings. Privileges are used to disable anti-malware software using ProcessHacker in order to stop removal of their attack. After execution, the ransomware encrypts the network with files and the attackers demand a ransom (paid in bitcoin) in exchange for the decryption key.

"Dharma" is another family of ransomware, which incorporates a trick to lure victims into installing file-locking malware that poses as anti-virus software. Dharma attacks start with phishing e-mails, which claim to be from Microsoft and that the victim's Windows PC is "at risk" and "corrupted" following "unusual behavior," luring the user to "update and verify" their anti-virus by accessing a download link. (At least two OCRACES members received similar e-mails earlier this year, with subject headers that included passwords that they had been using. The attackers apparently obtained these passwords from networks they had breached, such as Linkedin, Yahoo, or even government or utility sites.)

One step to take in avoiding ransomware (or other malware) infections is to apply security patches when they are released. Such patches are intended to eliminate vulnerabilities that the operating system or other software authors have discovered. Regularly back up your computers, but do not leave your backup hard drive connected at all times, because it too can become infected. You can also back up to the cloud, but even the cloud (such as Dropbox) can be breached.

Beware of dangerous e-mails, especially from trusted friends! If a friend sends you an e-mail with little or no text, but with an attachment or link, it's probably not a good idea to open or access it, unless he told you ahead of time that he was going to send you an important file. It is common for friends to forward political, newsy, or humorous e-mails that they received from other friends. First, double-check your friend's e-mail address. If it's different from what he normally uses (even by a slight change such as changing a "1" to an "l" or an "O" to a "0," don't open it! If the e-mail includes a link to an article on Yahoo, it might be ok. If the link is to an unfamiliar website, it could direct you to an infection.

RACES members often forward JPG image files and MP3 audio files to their friends, which they have received from other friends. If it's a file that you know they created, it's probably safe. However, if it's a file from an unknown source, passed from friend to friend to friend, it might launch ransomware when executed or run.

You can also get a virus from an MP4 video file. The exploit is in some players. The payload overflows a buffer in the player, to place executable code into your computer's memory, and then to trick the player into executing this code.

Avoid opening PDF documents attached to unexpected e-mails. Victims are being cyber attacked with a variant of Lockey ransomware hidden inside PDF documents. When you open the document with Acrobat Reader, the ransomware is run by a VBA macro hidden inside an MS Word document that is embedded in the PDF, thus evading anti-virus filters. The document then asks you to enable editing, which launches the attack. To isolate yourself from this type of attack, make sure that auto execution of macros has been turned off in your computer.

YouTube is used by RACES members for learning about new radio equipment. Be careful! Cyber criminals are spreading Cyrptolocker/CryptoWall via YouTube advertising space. Clicking on a thumbnail after the first video causes a redirect and kicks in an exploit, which looks for an unpatched hole and executes the ransomware. And don't download advertised driver updates!

August 3rd OCRACES Meeting to Be on Zoom

Due to the COVID-19 pandemic and Sheriff's Department orders to stand down on all RACES activities outside the home, the next OCRACES meeting again will be online, using Zoom, on Monday, August 3, 2020, at 7:30 PM, with the meeting ID and password sent to the mailing lists for OCRACES members and applicants and city RACES and MOU officers, members, and coordinators. Joe Selikov, KB6EID, will once again be the meeting host. Everyone who wishes to participate should access https://zoom.us and download and install the Zoom software.

No Sheriff's Department business will be conducted during OCRACES Zoom meetings, due to security concerns. Zoom meetings are for socializing only, such as discussing amateur radio technical projects and on-the-air activities. We will not discuss activation policies and procedures, EOC RACES equipment, etc.

Zoom claims to have substantially increased the security of its system. Nevertheless, we will continue to use Zoom with caution. If you installed the Zoom software on your computer, be sure it is the newest version, currently 5.1.3.

Rob Grimes, KF6ETS, Promotes to Lt Col

Congratulations to Fighter Pilot Rob Grimes, KF6ETS, son of Ray and Carol Grimes, N8RG and WB6VMH, and brother of Rich Grimes, W6RYS, on his promotion to Lieutenant Colonel in the United States Air Force. He was sworn in on June 30, 2020, by Lt Col Jaina Donberg at Royal Air Force Lakenheath in Suffolk, England, where he serves in the 48th Fighter Wing, which is part of the USAF Third Air Force, assigned to Headquarters Air Command Europe and United States Air Forces in Europe (USAFE). Rob flies the F-15E Strike Eagle.

Rob took his first flight in Ray's plane at age 3 months, which, says Ray, "makes me responsible for his passion for aviation." Rob is an Eagle Scout. He attended MIT on an Air Force scholarship as an aeronautical engineering major and later earned a Master's Degree at Purdue University while serving in Texas. He is currently being reassigned to North Carolina with his wife and two small children.

USAF F-15E Strike Eagle.

Lt Col Jaina Donberg (left) swears in Lt Col Rob Grimes.

CISA Enhances Cybersecurity

Strengthening the Team. On July 22, 2020, The Cybersecurity and Infrastructure Security Agency (CISA) announced the addition of two top cybersecurity experts to support the agency's COVID-19 response, with more to come. The agency is taking advantage of hiring authorities granted in the CARES Act, which allows agencies to hire staff to temporarily support the COVID-19 response, therefore bolstering their efforts.

Making Elections More Resilient. On July 22nd, CISA released two guides to support state and local election officials as they shift toward voting environments that are different than Americans are used to. The Cyber Incident Detection and Notification Planning Guide for election security helps jurisdictions effectively recognize and respond to potential cyber incidents, and the Innovative Practices and New Solutions Guide shares ideas and practices for election administrators to consider. The agency continues to provide support and resources to all 50 states and thousands of local jurisdictions.

CQ Offers *Sloper Antennas* Book

Sloper antennas are easy to construct, do not require much horizontal space, and are effective antennas on the HF bands. A station in Bonsall (San Diego County) that often checks into the OCRACES 60-meter net on Saturday mornings has a very strong signal into Orange County, using a sloper antenna. We also had great results with a 40-meter sloper during OCRACES Field Day at Craig Regional Park a few years ago. *Sloper Antennas: Single– and Multi-Element Directive Antennas for the Low Bands*, by Juergen A. Weight, OE5CWL, is available in paperback ($24.95) and CD ($18.95) from CQ Communications, Inc., 17 West John Street, Hicksville, NY 11801. With calculations and practical experience, this 236-page book shows which basic concepts have to be considered for sloper antennas for the low bands. These fundamentals are supplemented by construction guidelines for directive antennas using a single element or several elements. Previously, gathering all the necessary information to construct an effective sloper for a particular application was tedious and time consuming. Here, in one place, the reader finds all of the information needed for successful home building of the antennas. Thus, this book fills a gap in ham radio literature.

Some of the topics inside:

1. Vertical dipole and sloper in free space, over perfect or real ground
2. Sloper with several elements
3. Feeding sloper antennas
4. Multi-band sloper
5. W3DZZ and double Zepp as a sloper antenna
6. Multi-element sloper antennas for multi-band operation
7. Special types of halfwave sloper antennas
8. Multi-element phased sloper arrays
9. Bent-wire slopers
10. The quarterwave vertical radiator
11. The radial system
12. The sloping vertical
13. Multi-element arrays using sloping vertical
14. The quarterwave sloper
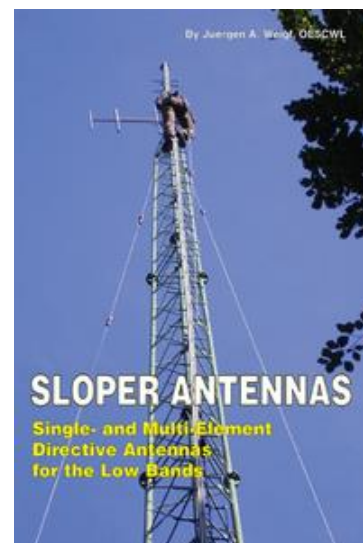
Virtual Ham Expo: August 8-9, 2020

The first *QSO Today* Virtual Ham Expo, Saturday and Sunday, August 8-9, 2020, has confirmed what it's calling "a packed lineup of over 70 great speakers" for the ARRL-sanctioned event. Attendance is free and registration is open.

Presentations will cover a range of topics, with two tracks focused on providing hands-on, practical advice for those just getting started in amateur radio. Steve Johnston, WD8DAS, will demonstrate basic soldering techniques for repairing equipment and building projects. Marcel Stieber, AI6MS, will offer an overview of common battery types, discussing the pros and cons of each—including battery chemistry, common uses and misuses, and everyday application tips.

For experienced operators, topics will cover new techniques, equipment upgrading, 3D printing, and more. Glenn Johnson, WØGJ, will attempt to answer the question, "Is 3 dB Worth a Divorce?" and cover a wide range of antenna topics. Jim Veatch, WA2EUJ, will explain how to build a QRP radio. In his presentation, "The Slot Antenna— Undiscovered Country for Most Hams," John Portune, W6NBC, will demonstrate how a satellite TV dish can be "slotted" to make an effective outdoor 2-meter or UHF antenna for use in antenna-restricted neighborhoods.

Prominent youth educator Carole Perry, WB2MGP, will moderate a lineup featuring amateur radio's future leaders. Audrey McElroy, KM4BUN, will speak on, "Getting Girls Involved in STEM, Specifically Amateur Radio!" while hot-air ballooning will be the focus of a talk by Jack McElroy, KM4ZIA, "Highly Flying Kids with HAB."

QSO Today's Eric Guth, 4Z1UG, says that one challenge to any ham radio convention, whether in person or virtual, is keeping the content of presentations from becoming overly complicated and overwhelming. "For our inaugural virtual Expo, we've made sure that there are great speakers for both beginners and experienced hams," Guth said. "We've asked all of our speakers to be laser focused on their topics while providing hands-on, practical advice." Each presentation will wrap up with a live question-and-answer session.

For more information or to register, visit the *QSO Today* Virtual Ham Expo website at https:// www.qsotodayhamexpo.com/.

KØMD Helps Lead COVID-19 Program

The following article was posted on June 30, 2020, on the ARRL website—Editor

Well-known contester, DXer, and *National Contest Journal* (*NCJ*) Editor Dr. Scott Wright, KØMD, MD, has been "substantially" stepping back from ham radio while offering his expertise to the US convalescent plasma COVID-19 Expanded Access Program. The study began in early April under the leadership of Dr. Michael Joyner, MD, of the Mayo Clinic; Dr. Peter Marks, AB3XC, MD, PhD, and Dr. Nicole Verdun, MD, of the US Food and Drug Administration; Dr. Arturo Casavedall, MD, PhD, of Johns Hopkins University; and Dr. Wright, who is a cardiologist at the Mayo Clinic.

"The US Convalescent Plasma Expanded Access Program is a collaborative project between the US government and the Mayo Clinic to provide access to convalescent plasma for patients in the US who are hospitalized with COVID 19," Dr. Wright told ARRL. The work has been referenced during White House press briefings and in congressional testimony. The US government-supported study collects and provides blood plasma recovered from COVID-19 patients, which contains antibodies that may help fight the disease. The Mayo Clinic is the lead institution for the program.

"My role was to organize the infrastructure and the research approach, and to help lead the setup of the data collection and of the website teams, while overseeing the study conduct and regulatory compliance," Dr. Wright explained.

According to a June 18th *Washington Post* article, "A large study of 20,000 hospitalized COVID-19 patients who received transfusions of blood plasma from people who recovered found the treatment was safe and suggests giving it to people early in the disease may be beneficial."

An initial safety report on 5,000 patients appeared in May in the *Journal of Clinical Investigation*. The safety study on 20,000 subjects referenced in the *Washington Post* article was published earlier in the *Mayo Clinic Proceedings*.

Dr. Wright said most scientific studies of this magnitude take months to a year with planning and execution to get under way. In this case, the study team went from zero to 60 in a few short weeks.

"We started in less than a week. Most studies recruit 2,500-5,000 patients," Dr. Wright said. "We have recruited over 30,000 patients in 10 weeks, exceeding all expectations."

Hospitals in all 50 states and several US territories are participating, Dr. Wright said, and more than 8,000 physician-scientists are working with the team as investigators at their hospitals. "We also helped manage the startup of collection of convalescent plasma by the large blood organizations, such as the American Red Cross, by strategically connecting donor pools and people willing to donate with the blood collection centers."

Dr. Wright's study responsibilities, which are on top of his regular day job, have required him to work daily, including weekends, for all of April, most of May, and all of June. "It has been intense," he said.

Dr. Wright said an FDA announcement on the benefit of convalescent plasma was expected soon. "We are working on a third publication now to submit to a major international medical journal for publication on whether the study has shown that use of convalescent plasma reduces mortality," Dr. Wright added. The FDA has been inviting donations of convalescent plasma from individuals who have fully recovered from COVID-19.

Dr. Wright will be the keynote speaker at the *QSO Today* Virtual Ham Expo August 8-9, 2020, to discuss the study, its results, and, he said, "linking it to skills acquired through ham radio. (See article on page 4 of this issue.)

Cleaning Ham Gear and Using Hand Sanitizer

During COVID-19, Elecraft has issued recommendations for cleaning your amateur radio equipment. Don't use harsh chemicals such as bleach. Avoid getting moisture in any openings. Don't submerge your equipment in any cleaning agents. If you decide to use a cleaning agent on your equipment, spritz a disposable micro cloth with the solution and wipe your equipment—don't spray the cleaning agent directly on your gear. Throw away the micro cloth after use.

Place hand sanitizer and a short note next to your equipment, asking fellow hams to sanitize hands before and after use. Hard surfaces such as tables, chairs, pencils, pens, and clipboards should be sanitized throughout the day.

Most commercially available alcohol-based hand sanitizers or rubs (ABHSR) contain either ethanol or isopropanol as active ingredients. On June 19, 2020, the U.S. Food and Drug Administration (FDA) advised consumers not to use any hand sanitizer manufactured by "Eskbiochem SA de CV" in Mexico, due to the potential presence of methanol, a "toxic alcohol," as an active ingredient, which can cause blindness and/or death when absorbed through the skin or when swallowed. Since then, FDA has identified additional ABHSR products that contain methanol and is working with manufacturers and distributors on a voluntary recall of these products (https://www.fda.gov/drugs/drug-safety-andavailability/fda-updates-hand-sanitzers-methanol).

RACES/MOU News from Around the County

Orange County Amateur Radio Club (OCARC)

The next OCARC meeting will be held online via Zoom, on Friday, August 21, 2020, at 1900 hours.

County of Orange RACES (OCRACES)

The OCRACES Winlink system is down, due to an RMS server failure on July 21st.

Congratulations to OCRACES Member Ray Grimes, N8RG, who has been elevated to Fellow of the Radio Club of America. The newly announced Fellows will be celebrated at RCA's Banquet & Awards Presentation on Friday, November 20, 2020, in Pittsburgh, Pennsylvania.

Upgrading to Extra Class

RACES members are encouraged to achieve the highest level of FCC amateur radio licensing—the Amateur Extra Class—not only to enjoy all operating privileges on all amateur radio frequencies, all operating modes, and maximum power levels, but also to increase your knowledge of radio-electronics theory for greater understanding and enjoyment of the art of radio communications. With this knowledge you can improve the capabilities of your station as well as contribute to the improvement of RACES equipment configurations in your EOC.

Books and courses are available for studying to pass examinations for all classes of amateur radio licenses—Technician, General, and Extra. The primary publishers are the ARRL and W5YI Group. To upgrade to Amateur Extra, you must already hold a General Class license (or have recently passed all the exams required for a General license). The following information focuses on material available for passing the Amateur Extra Class exam.

The Amateur Extra Class license examination question pool, effective from July 1, 2020, through June 30, 2024, is available at the National Conference of Volunteer Coordinators (NCVEC) website at http://www.ncvec.org/.

The ARRL Extra Class License Manual for Ham Radio, 12th Edition, spiral bound, has all the questions and answers, with detailed explanations, for the new question pool. The $32.95 guide is all you need to not only pass the exam but understand the material. You will study small sections at a time:

- Operating Practices
- Rules and Regulations
- Electrical Principles
- Components and Building Blocks
- Electronic Circuits
- Radio Signals and Measurements
- Radio Modes and Equipment
- Antennas and Feed Lines
- Topics in Radio Propagation
- Safety

W5YI Group offers the ECS-20 *Extra Class Software Pkg 2020-2024* with the GWEM-20 *Gordon West Study Manual*, which allows you to take random generated practice exams at your computer (no Internet connection required). It scores your exam and shows your strong and weak areas of knowledge. Interactive feedback on incorrect answers with correct answer, highlighted key words, and Gordo's explanations teach you the right answer. Study one or all sections of the question pool. Print random generated practice exams with answer and grading keys to prepare for taking the real test. The companion study manual GWEM-20 is completely updated with all 621 Extra Class questions. The CD media is Windows 7 through Windows 10 compatible. The package is $46.95.

The W5YI GWEP-20 *Extra Class Book & Audio Value Pack 2020-2024* includes the 2020 Extra Class Study Manual and 2020 Audio Course on six audio CDs, and a Part 97 Rules & Regulations book. The study course includes hints and methods of getting to the right answer quickly, while teaching higher levels of electronic theory of amateur radio. The package is $64.95.
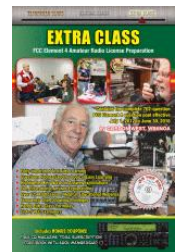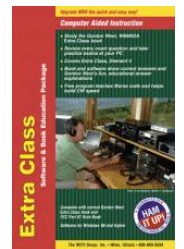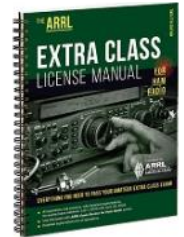
August 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1 Weekly 60 m ACS Net
2	3 Weekly 2 m ACS Net & OCRACES Zoom Meeting	4	5	6	7	8 Weekly 60 m ACS Net & Virtual Ham Expo
9 Virtual Ham Expo	10 Weekly 2 m ACS Net	11	12	13	14	15 Weekly 60 m ACS Net
16	17 Weekly 2 m ACS Net	18	19	20	21 Orange County Amateur Radio Club Meeting	22 Weekly 60 m ACS Net
23	24 ACS Net on Four Bands	25	26	27	28	29 Weekly 60 m ACS Net
30	31 Weekly 2 m ACS Net					

Upcoming Events:

- **August 3:** OCRACES Meeting on Zoom, 1930 hours
- **August 8-9:** Virtual Ham Expo (see page 4)
- **August 21:** Orange County Amateur Radio Club (OCARC) Meeting, 1900 hours, on Zoom
- **October 3:** City/County RACES & MOU ACS Exercise
- **October 29:** Cal OES Southern Region communications exercise with stations in Region I and VI.

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 (out of service)
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)
23 cm: 1287.650 MHz, 1287.675 MHz, 1287.700 MHz, 1287.725 MHz, 1287.750 MHz, and 1287.775 MHz outputs, –12 MHz inputs, 88.5 Hz PL

*Primary Net—Mondays, 1900 hours

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It's Where It's @!

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"W6ACS ...
Serving
Orange County"

Meet Your County of Orange RACES Members!

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