



Cyber Eagles Reach Newsletter

Term: Spring
Date: May 2, 2022

Editor: Jake Graves,
Computer Science

Cyber Club Happenings

By: Warren Proctor

This month cyber eagles have had two awesome and informative meetings that allowed students to learn about cyber competitions and what it takes to compete. The two main competitions spoken of were CCDC, the collegiate cyber defense competition, and CPTC, collegiate penetration testing competition. Those on the panel talked about the tryouts for the competition and the best way to prepare for them. Tools such as Try Hack Me and Hack the box were mentioned as excellent practice for individuals looking to compete. One of the key differences between the two competitions is the formalities between the two. CPTC requires a very formal presence and CCDC is held in a little more of a relaxed environment. CPTC also requires a heavy amount of reporting in order to account for the vulnerabilities found during the competition.

Cyber Eagles also had the opportunity to host George Haynes from Consolidated Nuclear Security (CNS). The students who attended learned many new things, but an important take away was the top five interview questions that Haynes asks and skills he looks for in prospective hires. One question was, why do you want to work there? In preparation for this question the person being interviewed needs to have done research on the company they are interviewing for so they can give a decent response. Another question asked was, what are the top cyber threats that have occurred in the last 12 months? This question requires knowledge of the current events of the cyber field and gives the interviewer an idea of if the person they are interviewing is staying up to date on vulnerabilities and attacks. The biggest take away that Haynes had for those present is to never stop learning. Cyber security is constantly changing and evolving to keep up with new vulnerabilities and new attacks, and a passion for learning about new tools and techniques will be useful in this field.

QR Codes

Scan this QR to make sure that you do not miss and issue!



Scan this QR code to become a member of the Cyber Eagles



Message from CEROC

My father, Siraj had one answer when asked about what he wanted his children to be: *"Make their lives useful to others!"* That is what I tried to do at Tech, that is what I will try to do at the National Science Foundation and I hope that some of you, feel the same way.

~Dr. Ambareen Siraj, CEROC Founding Director

WiCyS Ohio Trip 2022

By: Warren Proctor

WiCyS 2022 was a success! This year featured keynote speakers such as Latanya Sweeney and Jen Easterly. Who each brought forth valuable lessons for all those who attended. One of the first speakers, Dr. Latanya Sweeney, talked about how the new world is a Technocracy. A technocracy is where the government, or control over society or industry, is by an elite group of technical experts. The first example she presented was how the first camcorders had no mute button, and how laws had to be changed or adjusted accordingly to match the changes of technology. The new wave of technology challenged data privacy, and it was, and still is, the job of cyber security specialists to protect sensitive data. The next interesting point that was made had to do with biased algorithms, or algorithms learning from people's biases. These tech biases are important to find and correct. Once again, the WiCyS keynotes encouraged all listeners to be confident in themselves and encouraged the women present to help close the gender gap in the cyber security field. When asked about WiCyS, Katherine Spann comments "It's an amazing group to be a part of! Everyone is so welcoming and encouraging. Once I got involved, it feels more like a family." This year one of the last keynotes was made up of WiCyS members who shared their story with the organization. This allowed one of CEROC's own, Hayden Keller, to speak about his WiCyS experience and his goal to educate others on cyber security while making a place at the table for everyone. Overall, WiCyS 2022 was a blast for all those who attended and allowed for a warm welcoming environment for everyone to learn more about cyber security.



Scholarship Student Highlight

I'm Earl Pike, a senior doing BS/MS fast-track in Computer Science/Cybersecurity. I'm a transfer student from Pellissippi State Community College in Knoxville, TN where I earned my Associate Degree. I've found a community of friends and like-minded computer science students here at Tennessee Tech and my education is richer for it. I am a recipient of the CyberCorps Scholarship for Service. This scholarship has helped me be able to afford an amazing education, develop myself professionally, and connect with cybersecurity students and professionals across the country. This scholarship also directs me into a career with the United States government, which is exactly where I want to be. For anyone starting down the computer science or cybersecurity path, my foremost piece of advice is to find what about this degree sparks joy and follow that bliss. For current students my advice is to stay strong and keep doing your best!



Earl Pike

Excerpt from the Final Lecture of Dr. Ambareen Siraj

If you missed Dr. Siraj's last lecture, here is an excerpt from it where she shares the struggles and then, victories of her students like us. Names are hidden.

"Let me start with a little bit about myself: not about who I am but why I am who I am ...

My mom was a school principal's daughter who had to leave her family for inter-religious marriage to my dad. Growing up she used to always tell me that I needed to be a scholar like my granddad. So, while in school, I studied and worked very hard so that she can make her dad proud but I also wanted to make my dad proud!

You see, my dad, Siraj came from an extremely poor family. He worked all night in the village factory to support himself to even go to school. With his aspiration and hard work towards it, he did retire from one of the highest gov civilian positions in Bangladesh. But that was not his dream! He wanted to earn the highest degree in education and become a professor which he could not afford to pursue. So, I did that and I became a professor and when someone calls me by his name, Dr. Siraj, I feel like, it makes somewhere up there smile.

Now, by chance, this worked very well for me and I love my job because of you but one piece of advice!! Please do not try to become anything for anyone. Be what you want to be, do what you want to do, and be good at it!

My doings here at Tech have primarily been associated with CEROC and WiCyS. Both of these entities that I created stand to serve two of my passions: A strong cyber workforce with Cybersecurity Education, Research, and Outreach, and a diverse cyber workforce ensuring equity in a gender imbalanced one.

So naturally, my story is not mine alone. In fact, my success is about the success of others. There are so many powerful stories from the WiCyS community that I can share but I won't have the time and so, I will only share some from Tech. Among many, I had to pick a few, and I hope that if you listen hard, you will be able to hear the messages in them.

I am proud of D. because one day with a not-so-great academic record, he asked what he needed to do to turn his life around and achieve his dream of serving the nation in cyberspace. That day he did not just take advice, he ran with it and worked extremely hard to move mountains to climb high and get to where he needed to be. I am glad to tell you that he is there now and thriving!!

I am proud of K. who had only one career goal! He wanted to work for SpaceX in cyber. Even though this seemed a unique and somewhat unconventional dream for a kid from Baxter, Tennessee but he did it! With focused hard work and talent.

I am proud of D. who after graduating with a Bachelor's degree felt that he did not take advantage of all that Tech/CEROC has to offer to hone his skills in cybersecurity so that he had the upper hand in deciding his career path. For the next two years, as a grad student, he immersed himself in everything and became competitive in the job market. As a result, before he even graduated, he had the job he wanted waiting for him.

Excerpt from the Final Lecture of Dr. Ambareen Siraj Continued

I am proud of S. and A. Both came from two different community colleges. New campus. New environment. New friends. They would sometimes feel at a disadvantage because they did not

spend their 1st two years here. So, they worked extra hard and both did very well! In fact, now both are graduating with Master's degrees, landing jobs at two very reputed research labs.

Let's talk about H.. A humble hard-working young woman who was very shy when she came. But now with her engagement with CEROC, she is one of our top ambassadors who represent our security program to outsiders very eloquently, herself serving as an example of a dedicated motivated student.

The same goes for H. He has been working for CEROC since he came as a freshman. again very quiet, and somewhat introverted. But as time went by, I am in awe to see how he has immersed himself as a leader and learned a lot of new things that he was initially uncomfortable with, and with practice, he has become very good at some of them, including public speaking.

I am proud of J. and B.: students here in my early years. Very talented. I always knew they could do so much more! Both at different times reached out to let me know that they did end up dreaming bigger than Tennessee and now, both are making an impact in technology and research, one from the West Coast and one from Europe.

I am proud of A. For those of you who knew her, I am sure you remember her big smiles. In fact, I used to call her Sunshine of CEROC. Being an international undergraduate student, she did not have the same outside opportunities accessible to her but she did not let that stop her from growing and making herself and the community around her better. As a graduate student now in Germany, A. is studying Ethical AI and even started a non-profit associated with the topic.

I am proud of V. who also came to Tech as an international student and was my 1st PhD student. With his enthusiasm and dedication, he gave way more to CEROC than he received. He is a professor now and continues to inspire his students on and serves as the advisor of more than 160 WiCyS student chapters across the nation. Often people wonder, being a male, how did he end up being such an amazing advocate for those who are underrepresented. I wonder too!

I am proud of a "John Doe". Was a talented student but struggled with mental depression making it very hard for him to stay on track. But he remained focused. He fought it and sought help, when needed. Whether it was a counselor, his family, and friends, Eric or me. He reached out. We listened. Sometimes it was just his battle to win with himself. He never gave up and graduated with his dream job. I don't know whether things are much easier now but at least he does not have to worry about bills!

I can go on and on and on with names but it will take all night. If you are one of those students listening, even if I did not mention your name, you know how proud i am of your hard work, your enthusiasm, your willingness to learn continuously, and most importantly, your "pay it forward" mindset. I hope we stay in touch."

~Dr. Ambareen Siraj

How to Have a Productive Day Off

By: Jake Graves

As the semester winds down and finals are upon us soon, mental health has never been more important. Keeping your mental health as a priority is crucial to maintaining and improving your grades and work ethic. However, there are days when we all need a bit of break from our day-to-day lives. These are off days. While it may seem like you cannot correctly have a day off, there are several factors that could help you improve on your ability to be rested in order to proceed into your busy week after. The first way to ensure a good day off is taking a true break from work and school. When you take a day off, you should avoid working or thinking too much on what you are taking a break from. While it may seem tempting to work some, it is important to keep in mind that this work is what we are trying to separate ourselves from. A good way to do this around Cookeville is to take a hike away from the computer. Emails are difficult to receive in the woods! Another way to ensure that you are well rested is to actually rest! Try to not do things that you dread on your rest day. It may be tempting to run those errands on your day off, but in reality, this could cause you to feel even more drained when you get back to your normal schedule. The point is, when you work, you work hard to achieve what you want. You need to do the same with a day off. The saying "Work hard, play hard" fits perfect here. After you work hard, it is a common thing to need a break. Do not feel afraid of a break, and please use the resources provided around campus to do so!

Eight Cyber Security Tips For Students

By: Asia Mckissack

Here are eight cyber security facts that will help you stay more secure at home and at school!

1. Don't share personal information
2. Be vigilant regarding phishing scams
3. Don't use unsecured WIFI sources
4. Keep secure backups of important files or databases
5. Use strong and unique passwords
6. Secure your social media
7. Use a VPN
8. Be aware of phishing scams

The Differences Between Offense and Defense

By: Asia Mckissack

What are the differences between Offensive and Defensive security? Red team and blue team? Well Offensive security also known as the "red team" is a kind of cybersecurity that aggressively tries to break into systems and exploit bugs in software and find loopholes in policies that gains them access. What differentiates Offensive specialist from hackers is the results of their efforts. A hacker might compromise a system to install ads on a website or, steal user data while an offensive security specialist would use the same techniques to penetrate the same systems but with different motives. The goal for an offensive specialist would be to test the system for vulnerabilities that need to be fixed, or to demonstrate to a company the flaws in their security or the policies that they need to fix. Defensive security is the opposite of offensive security. Defense security, also known as the "blue team", is like security guard to thieves of the offensive security world. Defensive security specialist are the people who sit in an office, designing both computer systems and networks as well as company policies to ensure both digital and procedural security. While offensive security specialists might use physical intrusion and social engineering tactics, a defensive specialist takes a more encompassing approach and helps their company carry out both physical and procedural policies as well as digital security.

Source: <https://kingslanduniversity.com/offensive-vs-defensive-security/>

Scholarship Student Highlight



Quincy Card

My name is Quincy Card. I'm from Memphis, Tennessee, and I am currently a senior in the FastTrack program, as well as a SFS recipient. Tennessee Tech has been the perfect place to foster my interest and skills in cybersecurity. Although I only received the SFS scholarship this Spring, it has helped me a lot to make the prospects of someday joining the workforce all that more real, and it has pushed me to seek out internships and to be even hungrier for knowledge. As I begin to think about all of the work required of a Masters student, I wanted to advise students a couple of things: make a schedule that involves breaks, stay to that schedule, and get involved wherever you can/want to. I hope everyone does well on their finals, and I wish everyone a good Summer and a good next semester!

Current Student Highlight



Jessica Eileen Baugh

My name is J. Eileen Baugh and I'm a senior graduating in Spring '23. I'm in the Fast Track program, so after I complete my undergraduate degree I will pursue a master's degree, and most likely a Ph.D. after that. The opportunities I've had during my time here at Tech as a lab instructor and undergraduate research assistant have helped me discover that I really enjoy teaching and doing research, so I plan on eventually becoming a professor. If I decide work in industry for a while before that, I'll probably be a penetration tester, which is also something that I discovered a passion for through the cyber interest groups and competitions I've gotten to participate in here. My advice to students would be to finish your homework as early as you can and take all opportunities for bonus points, even if you think you don't need to. You never know what might happen later on in the semester. Also try to participate in extracurriculars even if you think you might not be good at them, since they can help you discover enjoyable career paths that you might not have considered before.

Cyber History: Elizebeth S. Friedman

By: Warren Proctor

This month we have decided to take a moment to acknowledge some cyber history with Elizebeth S. Friedman, a pioneer in U.S. cryptology. While often referred to as “the wife of William Friedman,” this cryptologist has enjoyed many successes of her own and has even been dubbed “America’s first female cryptanalyst.” Even though her husband is credited with numerous contributions to cryptology, she holds the credit for introducing him to the field. Her works led to the conviction of many violators of the Volstead Act during the Prohibition years. During her time with the U.S. Treasury department, Friedman was provided many opportunities to crack the codes of anti-prohibitionists. She led the effort against international smuggling and drug-running radio and encoded messages. While these early codes may be seen as basic their later change in complexity and resistance to solution led to the financial success and growth of the operation. But no matter the sophistication or complexity, Friedman took it all in stride and broke these codes left and right. As her own responsibilities began to grow, she realized she needed to teach other analysts the fundamentals of cryptanalysis which included deciphering techniques. This allowed her to focus on the more unusual new systems that arose. This served to expedite the process leading to a solution and allowed her to stay ahead of the smugglers. If you would like to know more about the Women in American Cryptology Honoree, you can check out the link below.

Source: <https://www.nsa.gov/History/Cryptologic-History/Historical-Figures/Historical-Figures-View/Article/1623028/elizebeth-s-friedman/>

Security Toolbox

By: Warren Proctor

Cyber Gen IQ Test

This tool from Haystack Solutions allows the user to test their cyber aptitude and find where their talents lie. There are 15 different assessments that are designed to create a full picture of the test takers cognitive abilities. It also tests and assess each user to discover their natural aptitude across four cognitive domains of cybersecurity to help align their strengths. This test is unique as it requires no prior technical cybersecurity knowledge. This test has a 97% accuracy in predicting job performance and mapping talent to job roles (haystacksolutions). If you would like to take the test for yourself, just google Cyber Gen IQ!

Source: <https://haystacksolutions.com/services/assessment/>

Talks On Your Own Time

Got some time to kill? Here are a couple of resources to let you listen to professionals talk about topics in cyber!



CAE Tech
Talk resources

WiCyS Webinar
Series



Current Student Highlight



Daniel Richeson

My name is Daniel Richeson and I am currently a Senior here at Tennessee Tech. I originally grew up in Nashville, TN, in a very diverse community. Moving to Tech was a hard transition, especially when you're the minority at such a small school. Although it took some time, I have found amazing people here and have actively become more involved in the community. I am the vice president of the Society of Hispanic Engineers (SHPE) and soon to be sponsorship director of CyberEagles. The more people you get to know, the more opportunities you will get. Luckily, I was able to get into our fast-track program so I plan on getting my master's after graduating. I also received a summer internship in California, this semester, where I will learn more about IT security. After I finish school, I plan on going into a cybersecurity-related job that will keep me interested and have a great work envi-

PHD Student Highlight



Adewale Adeyemo

My name is Adewale Adeyemo, and I am from Lagos, Nigeria. I am a Ph.D. student in the Electrical and Computer Engineering department. My research is centered around the security of deep learning models in collaborative environments. My time in Tech. has been fantastic. My colleagues are friendly, and the professors are always eager to assist. Coming from a different culture and background, I am glad for a level playing field and the welcoming individuals at Tech and in Cookeville. Upon completion of my Ph.D., I hope to pursue an exciting career in the industry as a Machine Learning Engineer or Hardware Security Engineer. Tech has provided me with the requisite skills, and I will "boldly" and "confidently" spread my wings without apologies. My advice to fellow students is to put in the hard work, research the in-demand skills, and go get those skills. I am convinced that there is no better time in America or the globe to be skilled and resourceful. I am grateful for the research assistant position extended to me under the tutelage of Dr. Syed Hasan, the stipend has helped me keep my stomach full while I focus on conducting high-end research.

Grad Student Highlight



Bradley Northern

Bradley Northern started attending Tennessee Technological University from the fall of 2012. He graduated with a Bachelor of Science in Manufacturing and Engineering Technology with 2 minors: Business and Computer Science in 2020. The later in which he took 30 credit hours for, this being double the requirement for the minor. He started his Masters degree in 2020 in Computer Science under the guidance of Dr. Ulybyshev. In which he was involved in many successful papers and starting filing a patent for his research. He graduated with a Master of Science in Computer Science in May of 2022. He plans on continuing his education in the Fall of 2022 under the College of Engineering's Doctoral program with a concentration in Computer Science. He will be continuing his research with Vulnerability Analysis and Risk Assessment (VERCASM). His advice for new students is to always challenge the status quo. Never accept the norms, and challenge yourself to reach new heights. Any student at this University can do anything they want. Always push hard and never give up.

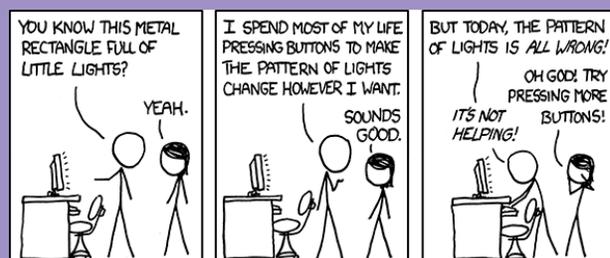
What Are Vulnerability Reports?

By: Warren Proctor

Let's say you got a very respectable and interesting job in the cyber force and your company tasked you with finding and managing your department's vulnerabilities. Your boss calls you up and asks you to draw up a Vulnerability Assessment Report, and you find yourself asking "What is that?" Well to put it simply, it is a document that shows how your company is handling its vulnerabilities. This is important to show their customers, users, or partners that they are doing their best to avoid attacks wherever possible. These reports need to be done regularly in order to stay on top of the vulnerabilities that are present or may appear. These reports are intimidating, and some companies choose an external provider to draw up these reports as to not distract their security teams from their day-to-day work. While you are shopping around for providers remember to keep in mind what you are looking to get out of the report, not all assessment tools are exactly alike, so you need to make sure you are getting what you need for your company's report. Also note that your provider may provide complex results that will be harder to understand for some audiences, and you may have to put in more work to translate the technical terms into language that is more easily understood. If you would like to read the full article you can head over to The Hacker News to get the full scoop.

Source: <https://thehackernews.com/2022/04/everything-you-need-to-know-to-create.html>

Fun Corner



Source: <https://xkcd.com/722/>

Join Our Community

Have you joined the Cyber Eagles discord yet? We have social events there too! All computer science students are encouraged to come hang out and socialize with their peers. These events range from sports to video games, and they all are with people you will see in your classes! Join us and build a strong community of peers who you can discuss internships, school-work, and projects with!



Some of our students took a trip to do an escape room together!

Log4J Vulnerability

By: Asia Mckissack

What is the Log4j vulnerability? Log4j is an open-source software, a java-based logging library used widely by businesses and web portals. Multiple vulnerabilities were reported in Apache Log4j which could be exploited by a remote attacker to execute unpredictable code or perform a denial-of-service attack on targeted servers. In simpler terms, it made it easy for hackers to steal data or take control over the system. The issue is that Log4j is being used by many businesses and websites around the world as a java language, and this software is publicly accessible and is used to collect and store records of activity on a server. This allows malicious attackers to execute code remotely on any targeted computer. This vulnerability had the potential to expose organizations to a new wave of cyber risk, where the attackers could exploit data using Remote Code Execution. These vulnerabilities affected the computers that ran these software applications and websites that used java-based logging library. A solution that was provided by CrowdStrike, an American cybersecurity company, launched a free search tool that performs a targeted search by scanning a given set of directories, and then runs a deeper scan on file types matching known sets for Log4j libraries. It was also recommended by global cybersecurity company Kaspersky, to install security solutions on servers so that it would detect any launch of malicious code and stop the attack's development.

Source: <https://www.thehindubusinessline.com/info-tech/cyber-security-log4j-vulnerability-issue-explained/article38061525.ece#:~:text=The%20Log4j%20vulnerability%20allows%20malicious,the%20news%20for%20its%20vulnerabilities.>

GitLab Patches Vulnerability

By: Asia Mckissack

DevOps platform GitLab just released software updates to address a dangerous security vulnerability that could have potentially exploited and seized control of user's accounts. Tracked as a CVE-2022-1162 the bug has a common vulnerability scoring system (CVSS) of 9.1. The security threat was discovered internally by someone on the GitLab team. A hardcoded password was set for accounts registered using an OmniAuth provider in GitLab allowing attackers to potentially take over others accounts. GitLab have addressed this vulnerability by releasing versions 14.9.2, 14.8.5 and 14.7.7 for the GitLab Community Edition (CE) and Enterprise Edition (EE). GitLab also took the steps of resetting the passwords of an unspecified number of users to make sure that hackers couldn't get back in just in case they got sensitive information. The company also published a script that administrators of self-managed instances can run to single out accounts possibly affected by CVE-2022-1162. As a part of GitLab's security update they added 2 high-severity stored cross-site scripting bugs as well as 9 medium-severity flaws and 5 issues that are rated low in severity.

Source: <https://thehackernews.com/2022/04/gitlab-releases-patch-for-critical.html>

Scholarship Student Highlight



Marena Soulet

Hi, my name is Marena Soulet and I am set to graduate with my master's degree this upcoming December! I am from Puerto Rico (Wepa!), but have since then moved to Tennessee where I've been able to find an incredibly supportive community within Tennessee Tech. Throughout my time here my professors and advisors have continuously encouraged me to challenge myself both personally and professionally by learning and trying new things. Getting out of my comfort zone has opened doors to so many new opportunities, including the honor of becoming a CyberCorps SFS scholar. It has been life-changing to say the least, and I am absolutely thrilled to officially begin my cybersecurity career at CNS Y-12 when I graduate! For those that are just starting the program, my advice would be to surround yourself with friends who will support and encourage you throughout your time here. Moreover, to not shy away from getting involved in extracurricular activities. Get involved within the cyber interest groups, participate in cybersecurity competitions, have fun and ask questions! Even if you don't think you're qualified or "good" enough. Taking that first step will enable you to discover and learn the skills and interests you're truly passionate about, and that will take you far.

Elon Musk and Twitter

By: Asia Mckissack

Elon Musk CEO of SpaceX and Tesla has now bought the popular site Twitter, and on Thursday announced that he wants to add support for end-to-end encryption to the networks direct message (DM) feature. Musk stated "Twitter DMs should have end to end encryption like, Signal so no one can spy on or hack your messages." Musk has a lot of ideas to up the security for the platform he acquired. He also wants to enhance the site with new features making the algorithms open-source to increase trust, defeating the spam bots and authenticating humans. The lack of end-to-end encryption for Twitter has been a concern with the Electronic Frontier Foundation because Twitter itself has access to all of their user's DM information. Which means that Twitter can hand the DM's over in response of law enforcement request, messages can be leaked, and internal access can be abused by malicious hackers or Twitter employees. A two-year report from Business for Social Responsibility (BSR) found that "expanding end-to-end encryption enables the realization of a diverse range of human rights and recommended a range of integrity and safety measures to address unintended adverse human rights." The independent human rights impact assessment also pointed out the risks of improved privacy protections, including facilitating child exploitation, distribution of child sexual abuse material (CSAM), and spreading hate speech.

Source: <https://thehackernews.com/2022/04/twitters-new-owner-elon-musk-wants-dms.html>

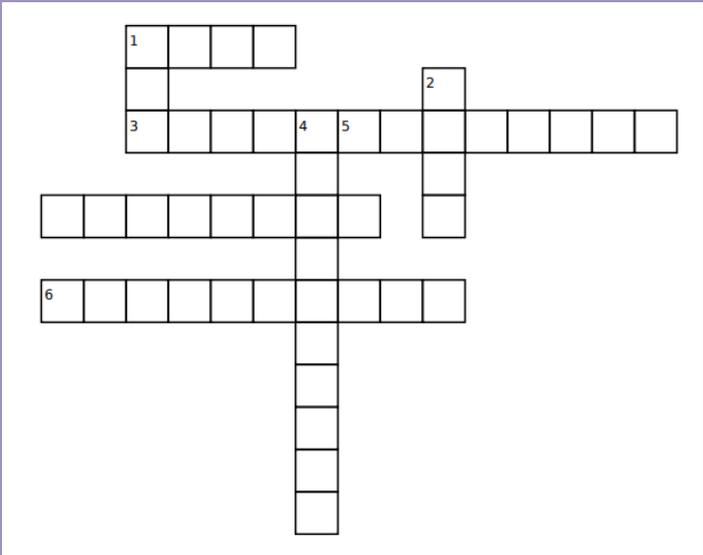
Crossword Puzzle

Across:

1. An attack that is initiated by a vast array of malware-infected host machines controlled by the attacker
3. the attacker takes the time to research their intended targets and then writes messages that the target is likely to find personally relevant
5. occurs when a malicious actor sends emails that seem to be coming from a trusted legitimate source in an attempt to get sensitive information from you
6. when the attacker tries to guess the login credentials of someone with access to the targeted system

Down:

1. an attack that is designed to overwhelm the resources of a system to the point where it is unable to reply to legitimate service request
2. breaches in cybersecurity that makes it possible for an attacker to eavesdrop on the data sent back and forth between two people, networks, or computers
4. a victim's system being held hostage until they agree to pay a ransom to the attacker



ATP Hackers Develop Custom Tools

By: Warren Proctor

APT hackers have now developed custom tools for targeting ICS/SCADA related devices, specifically designed to single out Schneider Electric programmable logic controllers (PLCs), OM- RON Sysmac NEX PLCs, and Open Platform Communications Unified Architecture (OPC UA) servers. The unnamed threat is also said to have the ability to infiltrate Windows-based engineering workstations across IT and OT networks exploiting a known vulnerabilities with an ASRock-signed motherboard driver. The intent is to leverage access to ICS systems and to elevate privileges and move laterally within the networks. Once this occurs, they can work to sabotage mission-critical functions in liquified natural gas and electric power environments. The Industrial cybersecurity company Dragos has been tracking this malware under the name "PIPEDREAM" and has described it as a "modular ICS attack framework that an adversary could leverage to cause disruption, degradation, and possibly even destruction depending on targets and the environment." Along with this report comes another from Mandiant, a threat intelligence firm, which reveals a state sponsored malware named INCONTROLLER. This malware is designed to "interact with specific industrial equipment embedded in different types of machinery leveraged across multiple industries" and uses industrial network protocols like OPC, UA, Modbus, and CODESYS. This malware is comparable to Triton as well as Stuxnet which are both responsible for other cyber disasters. In order to mitigate risk, the agencies targeted are recommending organizations to enforce multifactor authentication and making sure to keep on high alert for malicious activity.

Accolades

- Akond Rahman, Shazibul Islam Shamim, Hossain Shahriar, Fan Wu, “Can We use Authentic Learning to Educate Students About Secure Infrastructure as Code Development?” in 27th ACM Conference on Innovation and Technology in Computer Science Education (ITiCSE) 2022
- Farzana Ahamed Bhuiyan, Stacey Prowell, Hossain Shahriar, Fan Wu, and Akond Rahman, “Shifting Left for Machine Learning: An Empirical Study of Security Weaknesses in Supervised Learning-based Projects” in 46th IEEE Computer Society Computers, Software, and Applications Conference (COMPSAC), 2022
- Jesse Holland, Muhammed Ismail, Ahmed Younes, "Improved Quantum Controlled Teleportation Via Quantum Hiding" Optica Quantum 2.0 Conference (2022).
- Mohammad Masum, Mohammad Nazim, Md Jobair Hossain Faruk, Hossain Shahriar, Maria Valero, Md Abdullah Hafiz Khan, Gias Uddin, Shabir Barzanjeh, Erhan Saglamyurek, Akond Rahman, Sheikh Iqbal Ahamed, “Quantum Machine Learning for Software Supply Chain Attacks: How Far Can We Go?” in 46th IEEE Computer Society Computers, Software, and Applications Conference (COMPSAC), 2022.
- Paramita Basak Upama, Md Jobair Hossain Faruk, Mohammad Nazim, Mohammad Masum, Hossain Shahriar, Gias Uddin, Shabir Barzanjeh, Sheikh Iqbal Ahamed, Akond Rahman, “Evolution of Quantum Computing: A Systematic Survey on the Use of Quantum Computing Tools” in 46th IEEE Computer Society Computers, Software, and Applications Conference (COMPSAC), 2022

Other Awards

- Tymothy Brandel was awarded The Outstanding Senior Award which recognizes senior students who excel through academic achievement; athletic or extra-curricular honors or awards; service and leadership; scholarships and work ethic during their time at Tennessee Tech.
- Justin Presley was awarded The Computer Science Innovation Award which recognizes a student and their ingenuity and dedication to the field of computer science.
- Kaitlyn Carroll placed first and won \$1000 in Security Awareness Public Service Announcement (PSA) hosted by Temple University. Here is the link to hers and other submissions: <https://sites.temple.edu/psa-contest/2022-psa-winners/>
- Dr. Farzana Ahamed Bhuiyan has successfully defended her PhD dissertation in March 2022. She will join Meta as a research scientist in June. Dr. Bhuiyan was advised by Dr. Rahman.
- Shazibul Islam Shamim will spend his summer (summer 2022) with GEODIS as a data science intern. Shamim is a 3rd year PhD student advised by Dr. Rahman.
- Farhat Lamia Barsha will work as an AI intern with WindRiver for summer 2022. Lamia is a 1st year PhD student, and advised by Dr. Rahman.
- Farhat Lamia Barsha was awarded CRA-W Grad Cohort travel grant to present her research on Ansible compiler quality. Lamia is a 1st year PhD student, and advised by Dr. Rahman.