

Cybersecurity

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DISCLAIMER

The opinions expressed during this presentation are my own. They do not necessarily represent the views of the Tennessee Comptroller of the Treasury, his representatives, or the Tennessee Department of Audit.

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About Us



Jason Mumpower



Jim Arnette

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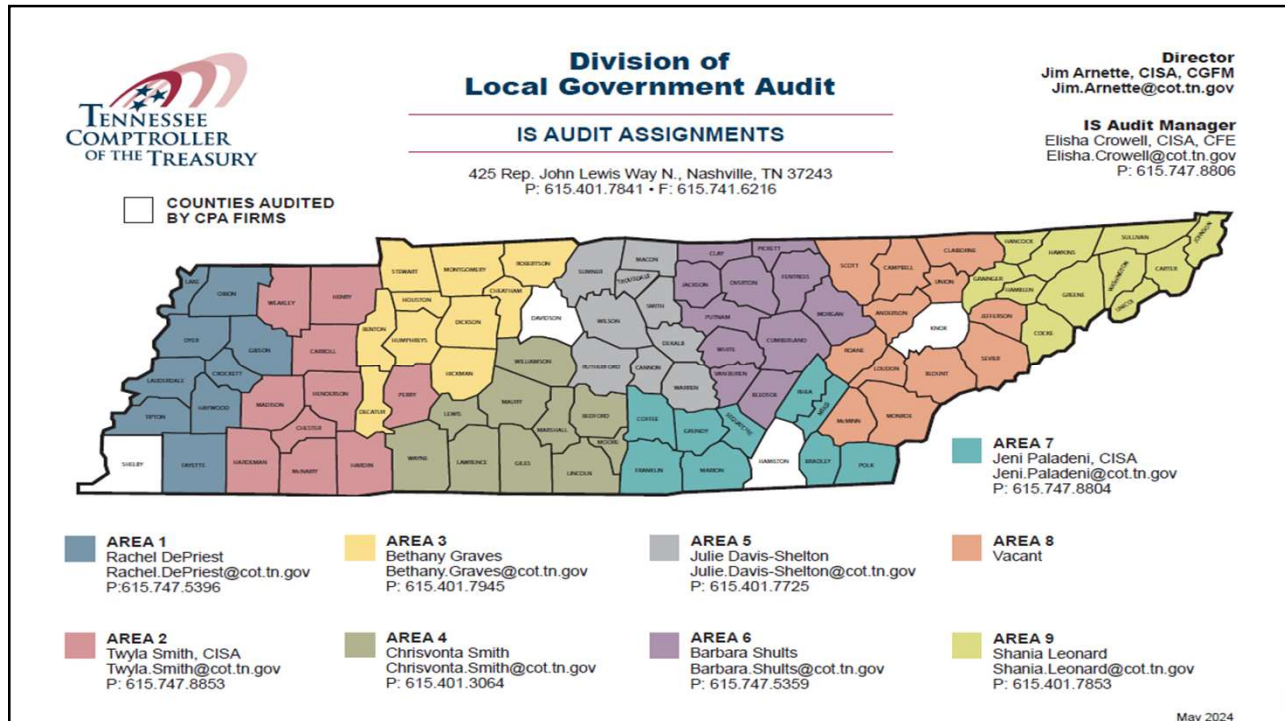
IS Staff



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Agenda

- Passwords
- Business Email Compromise

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Password Game

How secure is the password?

- A. Weak 😞
- B. Moderate 😐
- C. Strong 😊

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Summer2024

Weak	<input type="text"/>	0
Moderate	<input type="text"/>	0
Strong	<input type="text"/>	0

Start the presentation to see live content. For screen share software, share the entire screen. Get help at pollev.com/app

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Sun\$3t123

Weak 0

Moderate 0

Strong 0

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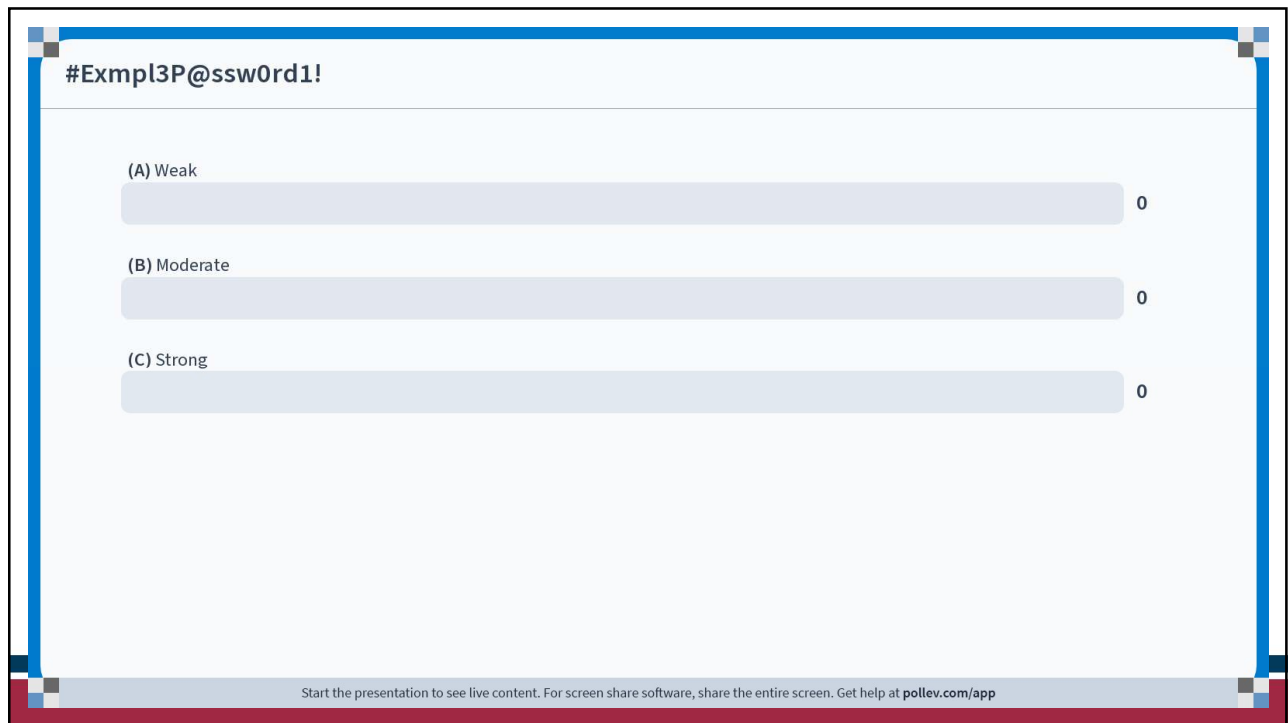
#Exmpl3P@ssw0rd1!

(A) Weak 0

(B) Moderate 0

(C) Strong 0

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TIME IT TAKES A HACKER TO BRUTE FORCE YOUR PASSWORD IN 2024

Hardware: 12 x RTX 4090 | Password hash: bcrypt

Number of Characters	Numbers Only	Lowercase Letters	Upper and Lowercase Letters	Numbers, Upper and Lowercase Letters	Numbers, Upper and Lowercase Letters, Symbols
4	Instantly	Instantly	3 secs	6 secs	9 secs
5	Instantly	4 secs	2 mins	6 mins	10 mins
6	Instantly	2 mins	2 hours	6 hours	12 hours
7	4 secs	50 mins	4 days	2 weeks	1 month
8	37 secs	22 hours	8 months	3 years	7 years
9	6 mins	3 weeks	33 years	161 years	479 years
10	1 hour	2 years	1k years	9k years	33k years
11	10 hours	44 years	89k years	618k years	2m years
12	4 days	1k years	4m years	38m years	164m years
13	1 month	29k years	241m years	2bn years	11bn years
14	1 year	766k years	12bn years	147bn years	805bn years
15	12 years	19m years	652bn years	9tn years	56tn years
16	119 years	517m years	33tn years	566tn years	3qd years
17	1k years	13bn years	1qd years	35qd years	276qd years
18	11k years	350bn years	91qd years	2qn years	19qn years

 [Learn more about this at hivesystems.com/password](https://hivesystems.com/password)

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Strong Passwords

Combination of:

- Letters (upper & lower)
- Numbers
- Special Characters (*!@#?%^&\$)
- Minimum of 8 characters long



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How to Create a Strong Password

Pass Phrase

One way to create a strong, memorable password is to use a meaningful phrase.

Follow these steps:

1. Choose a memorable, unique phrase that is made of at least 3 words, two of which should be 4 or more characters long.

A visual phrase may be helpful for example:

Two goats kissing at yoga



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How to Create a Strong Password

Pass Phrase

One way to create a strong, memorable password is to use a meaningful phrase.

Follow these steps:

2. Now add uppercase letters and remove the spaces between the letters.

A visual phrase may be helpful for example:

TwoGoatsKissingAtYoga



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How to Create a Strong Password

Pass Phrase

One way to create a strong, memorable password is to use a meaningful phrase.

Follow these steps:

3. Finally, add a special character and number. In this case, we change the word "Two" to "2", put the special character "#" between "Goats" and "Kissing", change the first "s" to a "\$" in "Kissing", change "At" to @ symbol.

A visual phrase may be helpful for example:

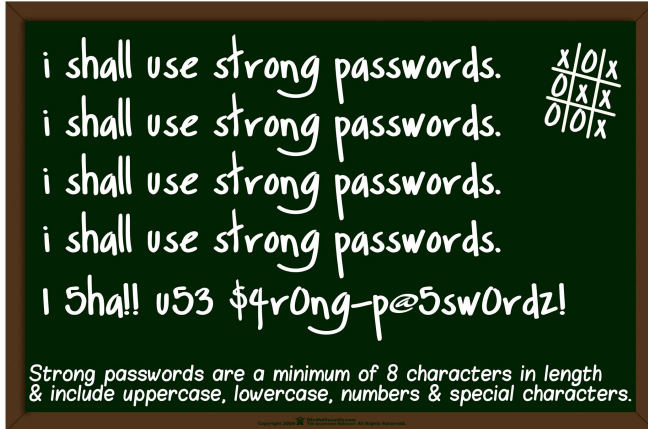
2Goats#Ki\$sing@Yoga



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The Importance of a Strong Password



1. Protect Against Unauthorized Access
2. Defends Against Common Attacks
3. Prevents Identity Theft
4. Secures Personal and Financial Data
5. Maintains Account Integrity
6. Supports Overall Cybersecurity



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Cybercrime Statistics



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Business Email Compromise

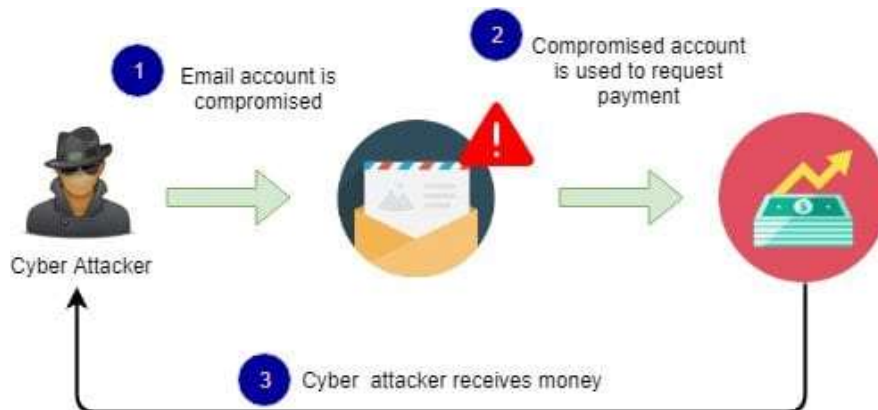


Business Email Compromise is a type of cybercrime where the attackers gain access to business email accounts to steal sensitive information or funds.

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Email Spoof

mayor@madisoncountyttn.gov



mayor@madisoncountyttn.com



financedirector@yahoo.com



financedirect0r@yahoo.com



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Common Types of BEC Attacks



CEO Fraud: Impersonating executives to request fund transfers



Account Compromise: Hacking an employee's email for fraudulent requests



Vendor Email Compromise: Altering invoice details for payment redirection



Attorney Impersonation: Using urgency and authority to facilitate transfers

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Business Email Compromise



In 2023:

- US Local Governments reported 21,000 complaints resulting in \$2.9 billion in losses.

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Business Email Compromise Attacks

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BEC Attacks



In 2020, Rutherford County in Tennessee experienced a BEC attack where scammers gained access to email accounts of county employees. They used this access to impersonate officials and orchestrate fraudulent wire transfers. The attack led to significant financial losses of \$1.6 million for the county.

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BEC Attacks



In 2021, the City of Jackson experienced a BEC attack. The attacker impersonated a vendor working with the city. By doing so, the attacker tricked city officials into transferring approximately \$400,000 to a fraudulent account, believing it to be a legitimate payment for services.

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BEC Attacks



In 2019, the City of Memphis in Tennessee experienced a BEC attack where attackers targeted the city's finance department by compromising email accounts and using them to impersonate officials. This led to fraudulent wire transfers, resulting in approximately \$60,000 in losses.

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How to Prevent BEC Attacks



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Over 80% of cyber breaches occur due to weak or stolen passwords

1. What is Multi-Factor Authentication (MFA)?
 Passwords alone are ineffective in securing your most sensitive online assets, as they have become too easy for threat actors to access. MFA is an important security enhancement that requires a user to verify their identity by providing more than just a username and password.

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MFA requires a user to provide a combination of two or more of the following:



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How to Prevent BEC Attacks



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How to Prevent BEC Attacks



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Educate and Train Employees

- Conduct Regular Training
- Simulate Phishing, Spoofing, Impersonation, and Fake Invoices.



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How to Prevent BEC Attacks



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- Protect Against Social Engineering
- Monitor and Respond to Threats
- Secure Financial Transactions
- Regularly Update and Patch Systems
- Review and Improve Policies



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Responding to BEC Incident



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The screenshot shows the top portion of the 'COT Cyber Aware' website. At the top left is the logo for the Tennessee Comptroller of the Treasury, with the text 'Local Government Audit' next to it. To the right is a search bar labeled 'Search Comptroller' and a 'Go to Comptroller.TN.gov' link. Below this is a red navigation bar with links for 'About Us', 'Office Functions', 'Boards', 'Find a Report', 'Maps', 'Careers', 'News', and 'Contact Us'. The main content area features the title 'COT Cyber Aware' and a large hero image. The hero image depicts two cartoon characters, a woman and a man, standing in front of a laptop. The laptop screen displays the 'COT CYBER AWARE' logo. Below the hero image, the text reads 'Welcome to Cyber Aware' with a link 'Click here to play introductory video'.

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The screenshot shows the header and a news article snippet from the CISA website. The header includes the CISA logo (Cybersecurity & Infrastructure Security Agency) and the text 'America's Cyber Defense Agency' and 'NATIONAL COORDINATOR FOR CRITICAL INFRASTRUCTURE SECURITY AND RESILIENCE'. A search bar is located on the right. Below the header is a blue navigation bar with links for 'Topics', 'Spotlight', 'Resources & Tools', 'News & Events', 'Careers', and 'About'. The main content area features the URL 'WWW.CISA.GOV' and social media share icons. A news article snippet is displayed with the title 'JOINT ODNI, FBI, AND CISA STATEMENT ON IRANIAN ELECTION INFLUENCE EFFORTS'. The article text reads: 'We have observed increasingly aggressive Iranian activity during this election cycle, specifically involving influence operations targeting the American public and cyber operations targeting Presidential campaigns.' Below the text is a button labeled 'READ THE STATEMENT' with a right-pointing arrow.

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Questions, Comments or Snide Remarks

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tncot.cc/cyberaware

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