Cybersecurity 101
Shania Leonard, IS Auditor
Division of Local Government Audit

CCFO & CMFO Training Event
Knoxville, Tennessee
September 6, 2024

TENNESSEE COMPTROLLER OF THE TREASURY

1

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.

TENNESSEE COMPTROLLER OF THE TREASURY

2

IS Staff

TENNESSEE COMPTROLLER OF THE TREASURY

3

4

About Me ☺

TENNESSEE COMPTROLLER OF THE TREASURY

5

Agenda

- Passwords

- Business Email Compromise

COT CYBER AWARE

TENNESSEE COMPTROLLER OF THE TREASURY

6

Password Game
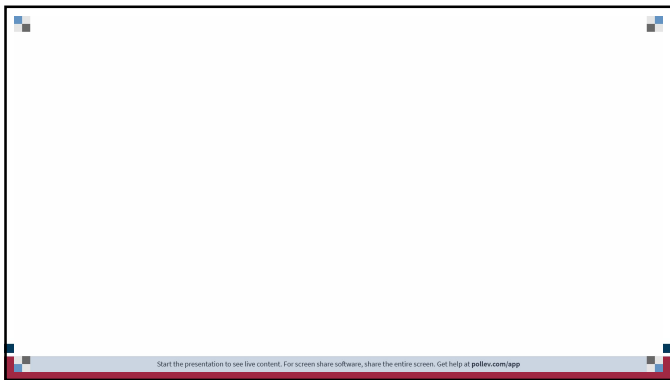
How secure is the password?
A. Weak ☹
B. Moderate 😐
C. Strong ☺

TENNESSEE COMPTROLLER OF THE TREASURY

TENNESSEE
COMPTROLLER
OF THE TREASURY

7

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

8

Summer2024

9

Summer2024

Weak

0%

Moderate

0%

Strong

0%

10

G0ld3nRod

11

G0ldenRod

Weak

0%

Moderate

0%

Strong

0%

12

13

14

15

7H!sIs$ecur3Pwd

Weak

0%

Moderate

0%

Strong

0%

16

ilovepizza

17

ilovepizza

Weak

0%

Moderate

0%

Strong

0%

18

Sun$3t123

19

Sun$3t123

Weak

0%

Moderate

0%

Strong

0%

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

20

#Exmpl3P@ssw0rd1!

21

#Exmpl3P@ssw0rd1!

Weak

0%

Moderate

0%

Strong

0%

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

22

CREATING a STRONG PASSWORD

(and why it's so important)

23

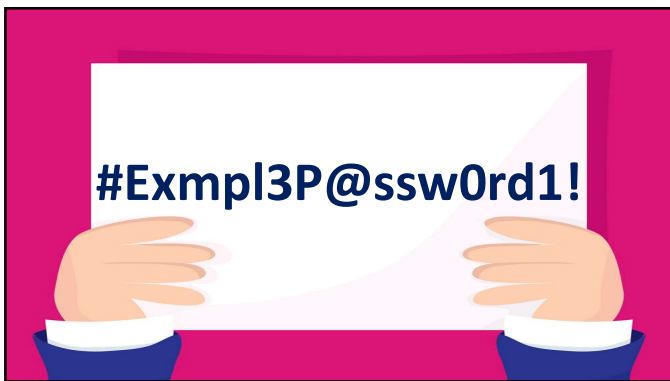
Strong Passwords

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

TENNESSEE COMPTROLLER OF THE TREASURY

TENNESSEE COMPTROLLER OF THE TREASURY

24

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:

one dog licking birthday cake

TENNESSEE COMPTROLLER OF THE TREASURY

25

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:

OneDogLickingBirthdayCake

TENNESSEE COMPTROLLER OF THE TREASURY

26

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 can change the word "one" to "1", change the "i" in "licking" to a "!", put the special character "#" between "licking" and "birthday", and change the "a" in "cake" to an "@" symbol.

A visual phrase may be helpful for example:

1DogL!cking#BirthdayC@ke

TENNESSEE COMPTROLLER OF THE TREASURY

27

The Importance of a Strong Password

i shall use strong passwords.
i shall use strong passwords.
i shall use strong passwords.
i shall use strong passwords.
I 5ha!! u53 $4r0ng-p@5sw0rdz!

Strong passwords are a minimum of 8 characters in length & include uppercase, lowercase, numbers & special characters.

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

TENNESSEE COMPTROLLER OF THE TREASURY

TENNESSEE COMPTROLLER OF THE TREASURY

28

BUSINESS EMAIL COMPROMISE

29

Cybercrime Statistics
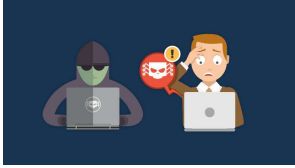
Complaints and Losses over the Last Five Years*

Year	Complaints	Losses
2019	467,361	$3.5 Billion
2020	791,790	$4.2 Billion
2021	847,376	$6.9 Billion
2022	800,944	$10.3 Billion
2023	880,418	$12.5 Billion

3.79 Million
Total Complaints

$37.4 Billion
Total Losses

■ Complaints   ■ Losses

TENNESSEE COMPTROLLER OF THE TREASURY

TENNESSEE COMPTROLLER OF THE TREASURY
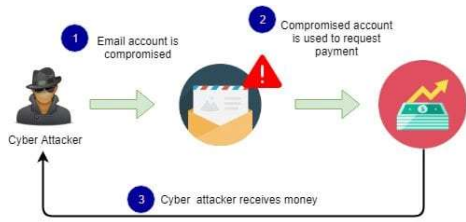
30

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.

TENNESSEE COMPTROLLER OF THE TREASURY

31

1 — Email account is compromised

2 — Compromised account is used to request payment

Cyber Attacker

3 — Cyber attacker receives money

TENNESSEE COMPTROLLER OF THE TREASURY

32

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

TENNESSEE COMPTROLLER OF THE TREASURY

33

Business Email Compromise

In 2023:
- US Local Governments reported 77 complaints resulting in $14.7 million in losses.
- Tennessee reported 6 complaints resulting in $1.5 million in losses.

TENNESSEE COMPTROLLER OF THE TREASURY

34

Business Email Compromise Attacks

35

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 $2.3 millions for the county.
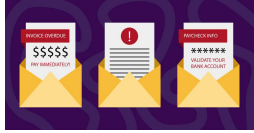
TENNESSEE COMPTROLLER OF THE TREASURY

36

BEC Attacks

In 2021, the City of Jackson experienced a BEC attack where attackers managed to intercept and alter email communications related to a financial transaction. As a result, they redirected funds intended for a legitimate payment into their own accounts.

The city of Jackson suffered a loss of approximately $1.5 million due to this attack.

TENNESSEE COMPTROLLER OF THE TREASURY

TENNESSEE COMPTROLLER OF THE TREASURY

37

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 $3.2 million in losses.

TENNESSEE COMPTROLLER OF THE TREASURY

TENNESSEE COMPTROLLER OF THE TREASURY

38

BEC Attacks

In 2019, the city of New Bedford, Massachusetts experienced a BEC attack where attackers used a fake invoice scheme to defraud the city. As a result, the city lost approximately $3.5 million.

TENNESSEE COMPTROLLER OF THE TREASURY

TENNESSEE COMPTROLLER OF THE TREASURY

39

BEC Attacks

In 2018, the city of Atlanta, Georgia experienced a ransomware attack that severely disrupted municipal services. The ransomware encrypted critical files across the city's network, forcing systems offline and leading to significant recovery efforts. The attack, which did not involve a ransom payment, resulted in an estimated financial loss of around $17 million due to recovery costs and operational downtime.

TENNESSEE COMPTROLLER OF THE TREASURY

40

BEC Attacks

In 2015, Ubiquiti Networks, a wireless technology firm, was hit by a Business Email Compromise (BEC) attack where fraudsters impersonated the CFO to trick employees into transferring about $46.7 million to a fake account. The attackers gained access to the company's email system and sent convincing instructions for the funds transfer.

TENNESSEE COMPTROLLER OF THE TREASURY

41

HOW TO DETECT AND PREVENT BUSINESS EMAIL COMPROMISE

42

How to Prevent BEC Attacks

TENNESSEE COMPTROLLER OF THE TREASURY

43

How to Prevent BEC Attacks

TENNESSEE COMPTROLLER OF THE TREASURY

44

How to Prevent BEC Attacks

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

TENNESSEE COMPTROLLER OF THE TREASURY

45

How to Prevent BEC Attacks

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

TENNESSEE COMPTROLLER OF THE TREASURY

TENNESSEE COMPTROLLER OF THE TREASURY

46

TENNESSEE COMPTROLLER OF THE TREASURY

TENNESSEE COMPTROLLER OF THE TREASURY
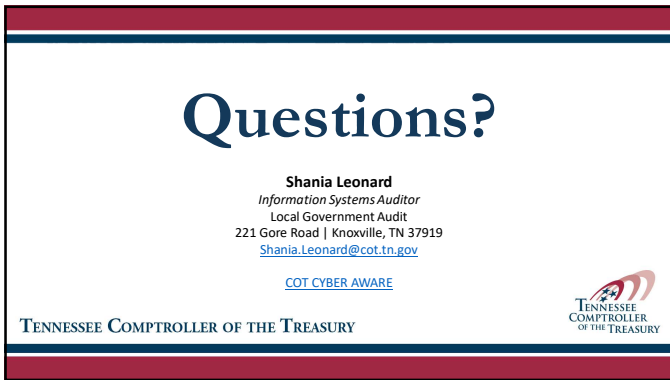
47

Responding to BEC Incident

TENNESSEE COMPTROLLER OF THE TREASURY

TENNESSEE COMPTROLLER OF THE TREASURY

48

49

50