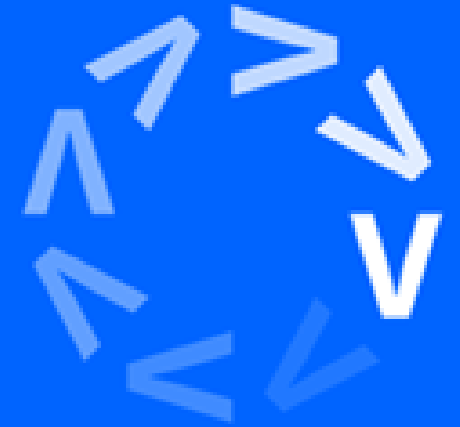


# 2018 Enterprise Computing Conference

## Enterprise Knights of IBM Z

IBM digital badges on mainframe cybersecurity

IBM Volunteers #SkillsBuild



Bryan Childs

[bchilds@us.ibm.com](mailto:bchilds@us.ibm.com)

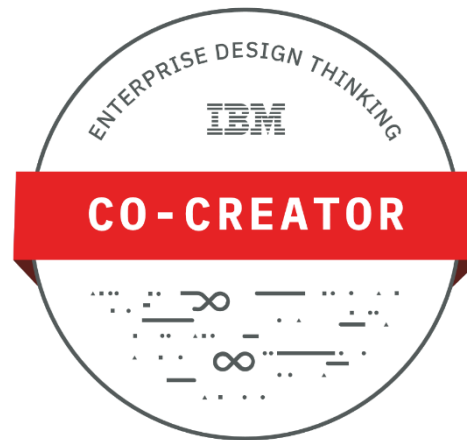
IBM Z Center for Secure Engineering





## Why did we do this?

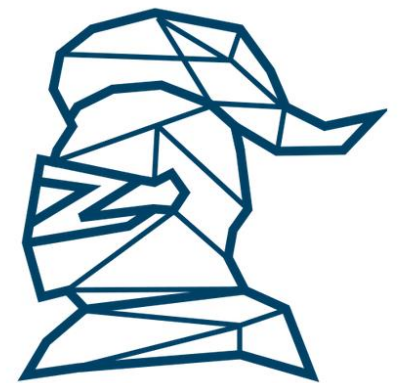
- Request from an IBM Z client for better education on secure coding
- Began an Enterprise Design Thinking project to discover the needs
- Expanded discussions to include secure service & configuration





<http://www.ibm.biz/ek-ibmz>

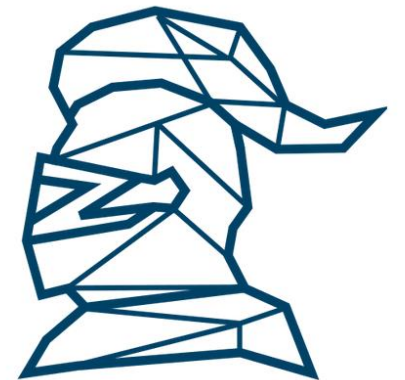
- Holistic view of security on IBM Z
- Lightning video format – about 5 minutes each
- Multiple-choice questions to check your knowledge
- Grassroots effort from z/OS Development





## The Z Escape!

- A set of collaborative “Escape Room” experiences on IBM Z Security
- Enterprise Knights videos used as clues
- Ongoing offering from the IBM Poughkeepsie Client Experience Center
- Cybersecurity STEM kit available via IBM Volunteers





## New IBM Z Secure Engineering badges

- Participate in the Z Escape
- Ace the online certification exam from curriculum videos
- Provide real-world experience leveraging the material
- Facilitate a Z Escape workshop for others to learn





# Data Breach at MockUp Services Enterprise (M.U.S.E.)!





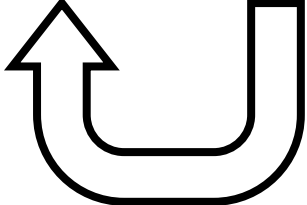
## Z Escape: Code





# Z Escape: Code

abcdefghijklmnopqrstuvwxyz

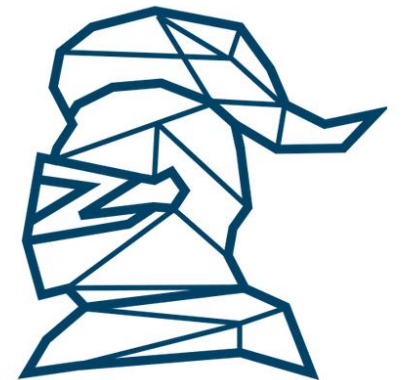






\*\* THIS PC ROUTINE CAN ONLY BE CALLED BY AUTHORIZED CALLERS  
\*\* IT SETS THE ACEEPRIV AND ACEESPEC BITS FOR AUTHORIZATION  
\*\* DEAUTH PC ROUTINE SHOULD BE CALLED AFTER TO RESET STATUS

```
AUTHEM CSECT  
  L 1,X'224'  
  L 1,X'6C'(1)  
  L 1,X'C8'(1)  
  OI X'26'(1),X'82'  
  PR  
  END AUTHEM
```





\* PC TABLE ENTRY FOR AUTHEM

```
ET1 ETDEF AKM=(0:15),EKM=(0),PC=STACKING,ROUTINE=0,TYPE=ENTRY,      X
          STATE=SUPERVISOR,EK=0
```

\* PC TABLE ENTRY FOR DEAUTH

```
ET2 ETDEF AKM=(0:15),EKM=(0),PC=STACKING,ROUTINE=0,TYPE=ENTRY,      X
          STATE=SUPERVISOR,EK=0
```

\* PC TABLE ENTRY FOR SAFEAUTH

```
ET3 ETDEF AKM=(0:15),EKM=(0:15),PC=STACKING,ROUTINE=0,TYPE=ENTRY,    X
          STATE=SUPERVISOR,EK=0
```





- \*\* THIS PC ROUTINE CAN BE CALLED BY UNAUTHORIZED CALLERS
- \*\* IT SETS THE HIGH ORDER BIT FOR VALID CONTROL BLOCKS ONLY
- \*\* BY CHECKING THAT THE CONTROL BLOCK EYE CATCHER IS CORRECT

SAFEAUTH CSECT

BALR 12,0

USING \*,12

L 1,X'6C'(1)

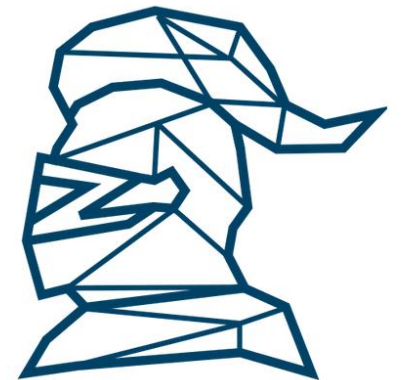
LA 11,CATCHER

CLC 0(8,11),X'10'(1)

BNL NOTSAFE

L 1,X'C8'(1)

OI X'26'(1),X'80'



# 2018 Enterprise Computing Conference

## Enterprise Knights of IBM Z



L 2,0(4)

LTR 2,2

BZ NOTSAFE

LR 6,2

LR 7,0

LR 8,1

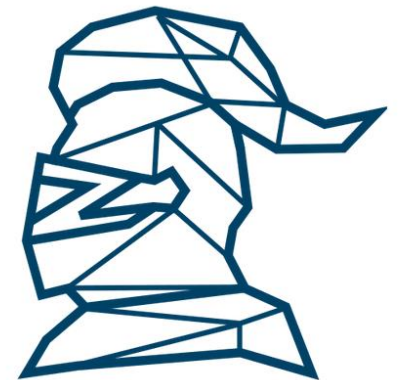
LR 9,0

MVCL 6,8

NOTSAFE PR

CATCHER DC CL8 'SAFEAUTH'

END SAFEAUTH





## Thank you!

- Sign up now for Z Escape: Service & Z Escape: Configuration!
- We hope you enjoy the videos, the games, & the badges!
- We are all the Enterprise Knights of IBM Z

