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the adventures of

alice & bob

Password Secrets Revealed!

All you want to know but are afraid to ask...

Microsoft® Most Valuable Professional MVP

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STEP SPRINGBOARD SERIES TECHNICAL EXPERT PANEL

CQURE Security WorldWide

Agenda

What are passwords for… nothing!

Things you should remember

Bad and even worse password usage scenarios!

What to expect?

- Life without passwords…
- Passwords in the Web
- Protected Storage
- Passwords in the Operating System
- Wireless (In) Security
- Rainbow tables
- Cracking toolkit
- Summary

… would be beautiful, but it is not

- Strong passwords or / and user awareness

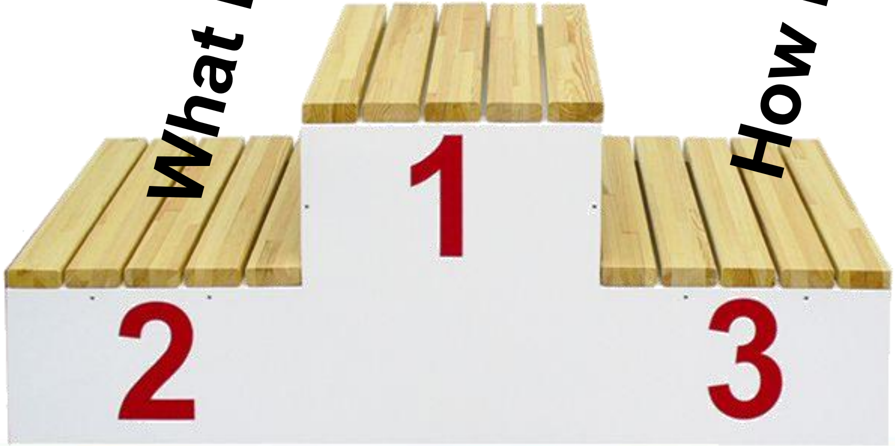
Complexity Characters	Letters (Lower)	Letters (Upper & Lower)	Letters (All) & Digits	Letters & Digits & Special
6	308,915,776	19,770,609,664	56,800,235,584	304,006,671,424
8	208,827,064,576	53,459,728,531,456	218,340,105,584,896	2,044,140,858,654,976
10	141,167,095,653,376	144,555,105,949,057,024	839,299,365,868,340,224	13,744,803,133,596,058,624
12	95,428,956,661,682,176	390,877,006,486,250,192,896	3,226,266,762,397,899,821,056	92,420,056,270,299,898,187,776

Time to crack passwords

Complexity Characters	Letters (Lower)	Letters (Upper & Lower)	Letters (All) & Digits	Letters & Digits & Special
6	154,4 seconds	164,7 hours		
8	29 hours	…	…	…
10	816 days	…	…	…
12	51152123 years	…	…	87918622783,7 years

Avg. password cracking: 2 millions per second

3 cryptography basics



What is the alghoritm?

Where is the key?

How long is the key?

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Passwords in the Web: Inside the SSL Tunnel

DEMO

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Protected Storage Internals

- Now: Read-Only
- DPAPI
  - Data Blob + Entropy
  - Master Key
  - User Password

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Crack Basics: Windows

- Locally: Security Accounts Manager
- Domain: NTDS.dit
- Direct reading? Why not?
  - SAMInside, Cain, ERD Commander, pwdump + L0phtCrack, john the ripper
- PSTORE

SAM (Tools), DefineDosDevice, System Privileges, SAPD, Notification Package, GINA.DLL, Computer Password

DEMO

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Tools for Recognition

- AIRODUMP-NG
- NetStumbler
- ViStumbler
- More
- … and more

Wireless (In) Security: Recognition & Attack

DEMO

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Rainbow Tables

- OphCrack
- RainbowCrack

- Available in free editions!

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Password Cracking Tools

- Linux
  - John the Ripper (http://www.openwall.com/john/)
- Windows
  - John the Ripper
  - SamInside / Passwords Pro (http://www.insidepro.com)
  - Cain (http://www.oxid.it/cain.html)
  - LC5 / pwdump
  - Top 10 Tools: http://sectools.org/crackers.html

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Summary

- Have your own dictionary file
- Use well-designed password policies
- Train users – show them what may happen if their password is revealed
- Test your users’ passwords

Q&A

Resources

- Good Rainbow Tables:
  - http://www.insidepro.com/tables.php
  - http://www.freerainbowtables.com/en/tables/ntlm/
  - https://www.objectif-securite.ch/en/
- Wireless Hacking:
  - http://wpa-crack.com
  - http://wpa.darkircop.org