Hacking NASA

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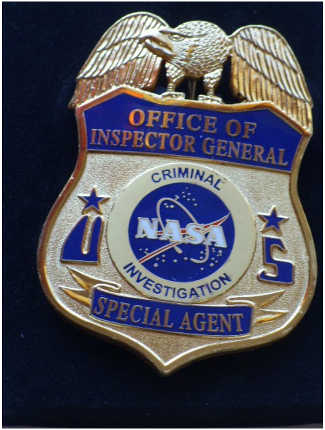
Why NASA?

- Proving l33t h4x0r 5k1ll5
- Hacking for profit
- Gathering intelligence

Why hack NASA?

Many of the technologies developed and utilized by NASA are just as useful for military purposes as they are for civil space applications, he said. While our nations defense and intelligence communities guard the front door and prevent network intrusions that could steal or corrupt sensitive information, NASA could essentially become an unlocked back door without persistent vigilance.
- Subcommittee Chairman Rep. Paul Braun

OIG Investigation



Attacks in 2011

- 5,408 incidents of installed malicious software or unauthorized access
- 47 APT attacks
  - 13 successfully compromised computers
  - One hack captured 150 emplpoyee credentials
  - Groups or organizations aiming to misbehave

Advanced State of the art intelligence technology and intrusion techniques

Persistent One goal in life...

Threat Capability and intent

Attacks in 2011

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    4. modify system logs to conceal their actions

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- Lots of moving parts
- 10 computers released with sensitive data still stored on disk
- 1% of all NASA laptops are encrypted

Sources

http://oig.nasa.gov/congressional/FINAL_written_statement_for_%20IT_%20hearing_February_26_edit_v2.pdf

http://gizmodo.com/5892408/how-secure-are-nasas-servers

http://www.technewsworld.com/story/science/74569.html

http://www.zmescience.com/space/nasa-hacked-06032012/

http://en.wikipedia.org/wiki/Advanced_persistent_threat

Questions?