The Exploit Kit Club

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Bad Guys use Exploit Kits a Lot!

- According to recent estimates, most of the malware on the Web is from EKs
- Black Hole is still the most famous, but there are many others: Sweet Orange, Redkit, Nuclear, RIG, ...
- Can we attribute malware sites to specific EKs?
- How can we tell when new EKs come out?

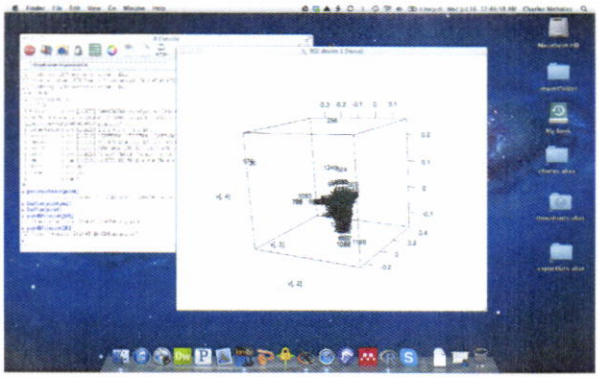
Our Hypotheses:

- If the Javascript code on landing pages is characteristic of the corresponding exploit kits, then similar scripts would be attributable to the same (or related versions of the same) exploit kit.
- Scripts unlike any seen before may indicate a new, unknown exploit kit.
- Landing page analysis may let us better understand this form of malware.

Progress

- Between early April to late July, we collected more than 4GB of pcaps from over 1600 malware domains
- Analysis of raw pcap data using 3-grams and SVD shows that the sessions are not all the same
- Analysis of tcpick output with 4-grams shows two almost duplicates, among other phenomena
- Suricata extracts specific files, including HTML with embedded Javascript, from sessions, analysis pending.

Analysis of tcpick Output



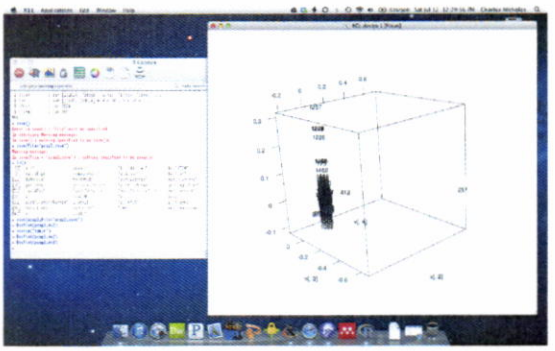
How do EKs Work?

- User is tricked into visiting an infected (but usually harmless) web site
- As a result of a few iframe redirects, such as <iframe src=http://badGuys.R.Us> the user's browser is sent to an EK web site
- A Javascript "landing page" is sent down
- The landing page looks at user's box and tries some exploits
- If any succeed, word is sent back to EK operators

Where to get data?

- Existing malware corpora are unsuitable, since they focus on malicious binary payloads, not on the Javascript code that GETs them
- With their consent, we scrape the web site http://urlquery.net which lists newly discovered malware sites
- When a new site is found, we send a browser inside a VM to go get infected (we hope!), and we capture the packets

Analysis of Raw PCAP



Future Work

- Analysis of extracted Javascript files is planned for near future
- Hoping to tie specific EKs to visual phenomena
- To request a copy of our latest tech report, send email to nicholas@umbc.edu,

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