RSA GLOBAL SUMMIT 2014

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Deploying Security Analytics Tips & Tricks to Achieve Ludicrous Speed

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About Me

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- Deployment: Medium to large networks
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Overview

- Why use Security Analytics?
- Network Forensics Objectives And Tips
- First Things First – Pre-deployment Decisions
- Tuning SA
- Backing Up SA
- Automation With nwconsole And Malware Analysis
- Remote Logging

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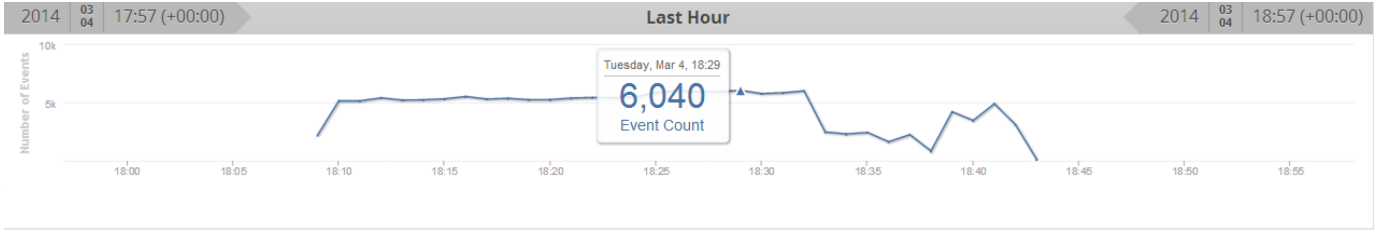
Network Forensics Objectives in SA

- The Goal Is To Provide Information For Response
  - What, When, Where, How, And Possibly Who/Why
- Forensics Is All About Meta
  - Creating, Querying, And Reporting
- Keep Only Forensically Sound Meta For Analysis
  - Query Response Slows Down A Lot



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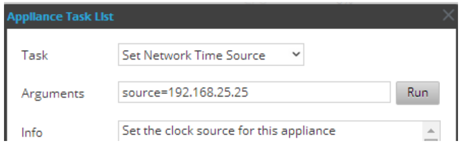
Network Forensics Tips In SA

- First, Appliances Time Must Be Accurate



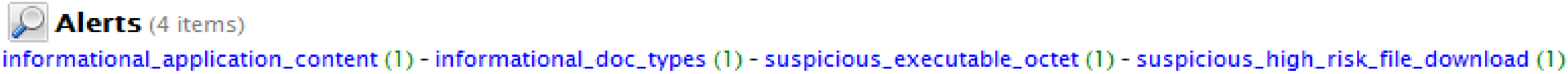
Appliance Task List

Task: Set Network Time Source

Arguments: source=192.168.25.25

Info: Set the clock source for this appliance

- Identify What Meta Can Be Stitched Together To Answer



Alerts (4 items)

informational_application_content (1) - informational_doc_types (1) - suspicious_executable_octet (1) - suspicious_high_risk_file_download (1)

- Example:
  - alias.host = adobe.flash-player-v12.com && directory = /update && filename = ‘exe.exe’

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First Things First

- Retention - How Long Do You Want (Need) Data?
  - Packet And Meta Retention May Be Different
- Capture Speed And Length
  - Under 1 GB → Default Interface Is Good
  - > 1 GB+ → Must Use A 10 GB Card
  - Test The Decoder Interface Capture Length
    - `root@decoder:~# tcpdump -ni eth1 'len >=1514'`
- Retention + Speed Determine Number Of Decoders And Concentrators

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Network Forensics Deployment Models

- Basic Setup
  - 1 Broker
  - 1 Concentrator
  - 1 Decoder
    - 1+ DAC
  - Optional
    - Malware Analysis
    - Visualize

- Complex Setup
  - 1 Broker
  - 1 or More Concentrators
  - 2+ Decoders
    - Multiple DAC
  - 1 Malware Analysis
  - Visualize (optional)

Tuning SA - Offloading

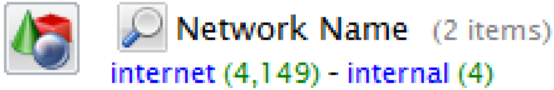
- TCP Offloading And Network Capture Effects Can Be Significant
  - Offload Processing Of The Entire TCP/IP Stack To The NIC
  - Used Primarily With High-speed Network Interfaces (Gigabit & 10 Gigabit Ethernet Controller)
- **ethtool -k eth(1-5)** To Check Card Status

Recommended 1 GB Card Configuration

```
/etc/init.d/rc.local
/usr/sbin/ethtool -K eth1 gso off
/usr/sbin/ethtool -K eth1 gro off
```

Tuning SA - Network Model

- Tuning The Network Model Is Worth The Effort
- Identify IP Ranges And Names



Network Name (2 items)

internet (4,149) - internal (4)

- Categorize & Prioritize Business Assets and Networks
  - Create Metadata Feeds
  - Identify Which Networks Should Never Exchange Data
- Track Anomalies
  - Generate Automated Reports Or Notifications

```
<key description="Network Name" format="Text" level="IndexKeys" name="netname"/>
```

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Tuning SA - Index Meta

- Not All Meta Is Indexed!
  - streams = 1 → Detect Portscan Activity
  - tcp.flags → Detect Inbound Backscatter Activity
    - select ip.src where tcp.flags = 18 && streams =1
  - tcp.srcport and udp.srcport
    - select ip.src where tcp.srcport = 0 || tcp.srcport = 6000 && streams = 1
  - ASN = 872 → Portscan By ASN Top 10 Target Ports
    - select asn.src where streams = 1 then lookup_and_add ('tcp.dstport','asn.src',10)

```
<key description="TCP Source Port" level="IndexNone" name="tcp.srcport" />
```

Tuning SA - Improve Decoder Performance

- Filter Packets (Proto 47, 50, 51) At The Decoder
- Unless You Have The Private Key; Keep Metadata And Truncate SSL Payload
- Turn Off Meta And Delete Non-used Parsers
- Use Custom Snort Rules When Needed
- Increase Decoder Kernel Cache Memory to 1GB

```
/etc/sysctl.conf
vm.min_free_kbytes =  1048576
```

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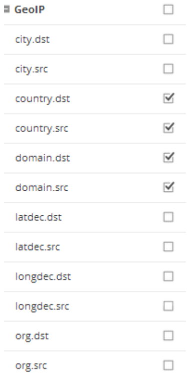
Tuning SA - Parsers Affecting Performance

- Some Parsers Are Known To Affect Capture
  - DNS, GeoIP, And Mail
- Evaluate These To Determine If You Have 100% Collection



GeoIP □
city.dst □
city.src □
country.dst ☑
country.src ☑
domain.dst ☑
domain.src ☑
latdec.dst □
latdec.src □
longdec.dst □
longdec.src □
org.dst □
org.src □

```
Mar 10 16:47:12 TDC-Decoder nw[2806]: [Parse] [warning] Parser ethernet_oui loaded
without callbacks
Mar 10 16:47:12 TDC-Decoder nw[2806]: [Parse] [warning] Parser spectrum_lua loaded
without callbacks
Mar 10 16:47:12 TDC-Decoder nw[2806]: [Parse] [warning] Parser TLD_lua loaded
without callbacks
```

Backing Up SA

- Not Perfect But Worth Doing
- Copy These Configuration Folders/Files
  - /etc/netwitness
  - /etc/ntp.conf
  - /etc/hosts
  - /home/rsasoc -> Reports
  - /var/lib/netwitness/uax -> Server Configuration

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Automation With NwConsole

- Copy Binary From Decoder To A Workstation And Script Advanced Use Cases
  - Automated File Carving
  - Inbound Attachment Extraction
  - Carve Session ID As pcap

```
sdk open nw://admin:netwitness@192.168.25.50:50005
sdk output /home/Executables
sdk content session=now-u where="filetype=windows_executable"
render=files includeFileTypes=.exe maxDirSize=1000000
```

Automation With Malware Analysis

- Adjust Decoder And Malware Analysis Settings
  - Tune In Decoder App Rules
  - Process Just The Data You Want Analyzed
    - Create A Feed With HP, Win Updates, etc To Remove Unwanted Files
- Move Files To This Directory
  - /var/lib/rsamalware/spectrum/infectedZipWatch/pendingUpload
- Create Hash Lists For Good & Bad In CSV Format
  - /var/lib/rsamalware/spectrum/hasWatch

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Remote Logging

- Syslog RSA SA devices To A SIEM Of Your Choice
  - Log Queries Executed By Users
  - Monitor Device Status Including Collection
- Broker Reporting Engine - CEF Format To ArcSight

```
CEF:0|NetWitness|SA|10.3.2|${name}|${name}|5| rt={#time:MMM dd yyyy
HH:mm:ss} externalId={#sessionid} proto={#ip.proto} deviceDirection=0
src={#ip.src} spt={#udp.srcport} shost={#alias.host} dst={#ip.dst}
dpt={#udp.dstport} dvchost={#did} cat=/Security
```

Summary

- Tune, Tune, Tune, Never Stop Tuning
- Forensics Is All About Meta
- Keep Only Forensically Sound Meta For Analysis
- Retention - How Long Do You Want (Need) Data?
- Categorize & Prioritize Business Assets and Networks
- Automate Tasks With NwConsole

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THANK YOU

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