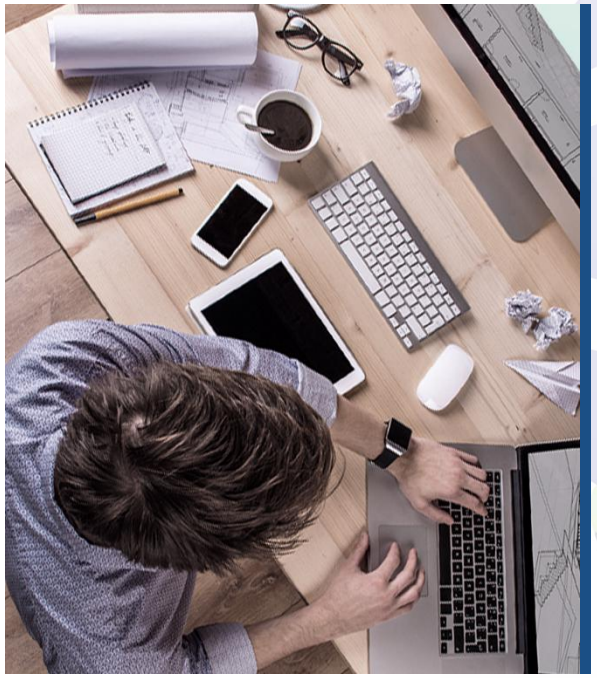
SANGFOR

SANGFOR_NGAF_V8.0.6_Professional

APT Protection



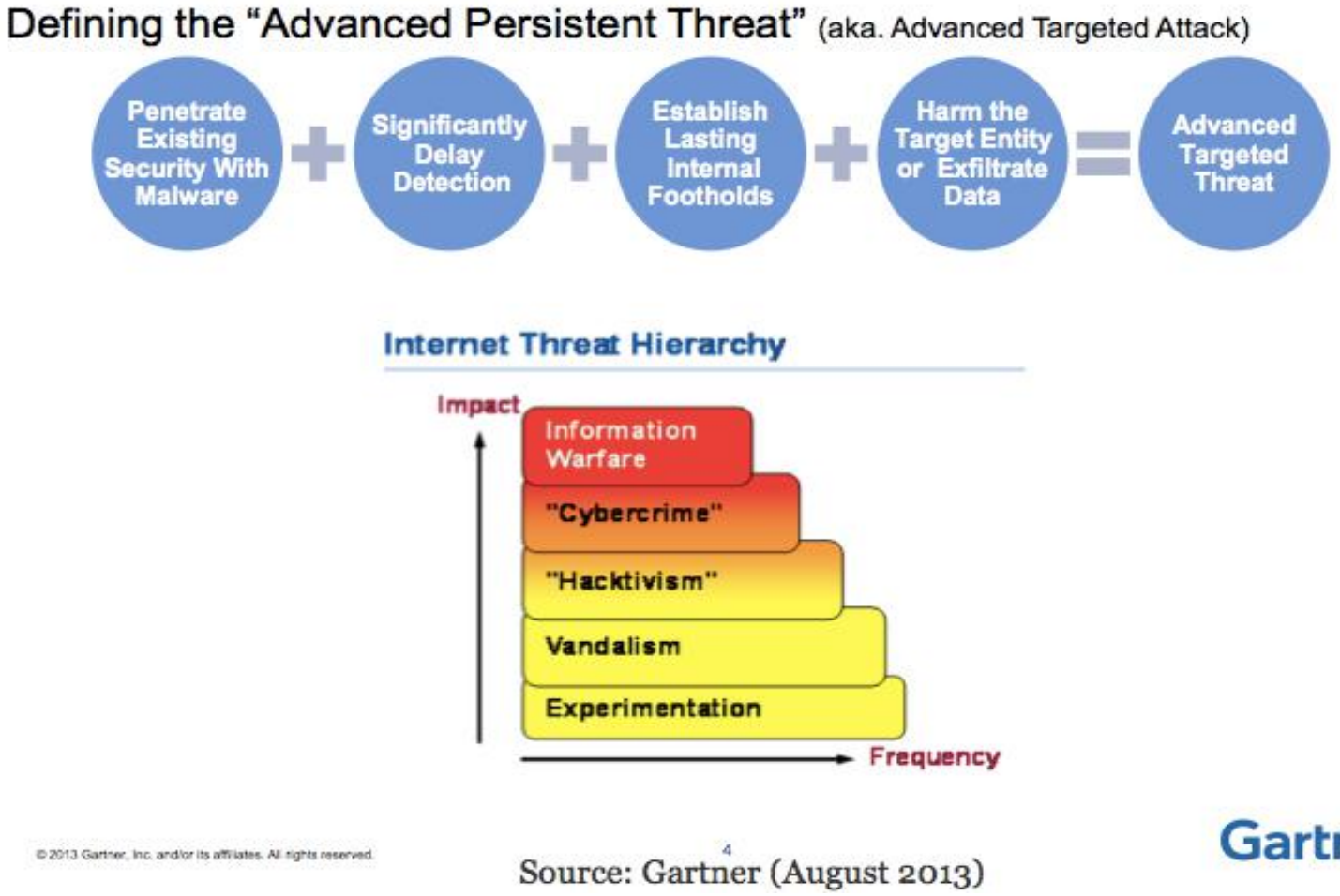
1. APT
2. APT Protection Test
3. APT Misjudgment Troubleshooting

1. APT

SANGFOR
深信服科技

What is APT

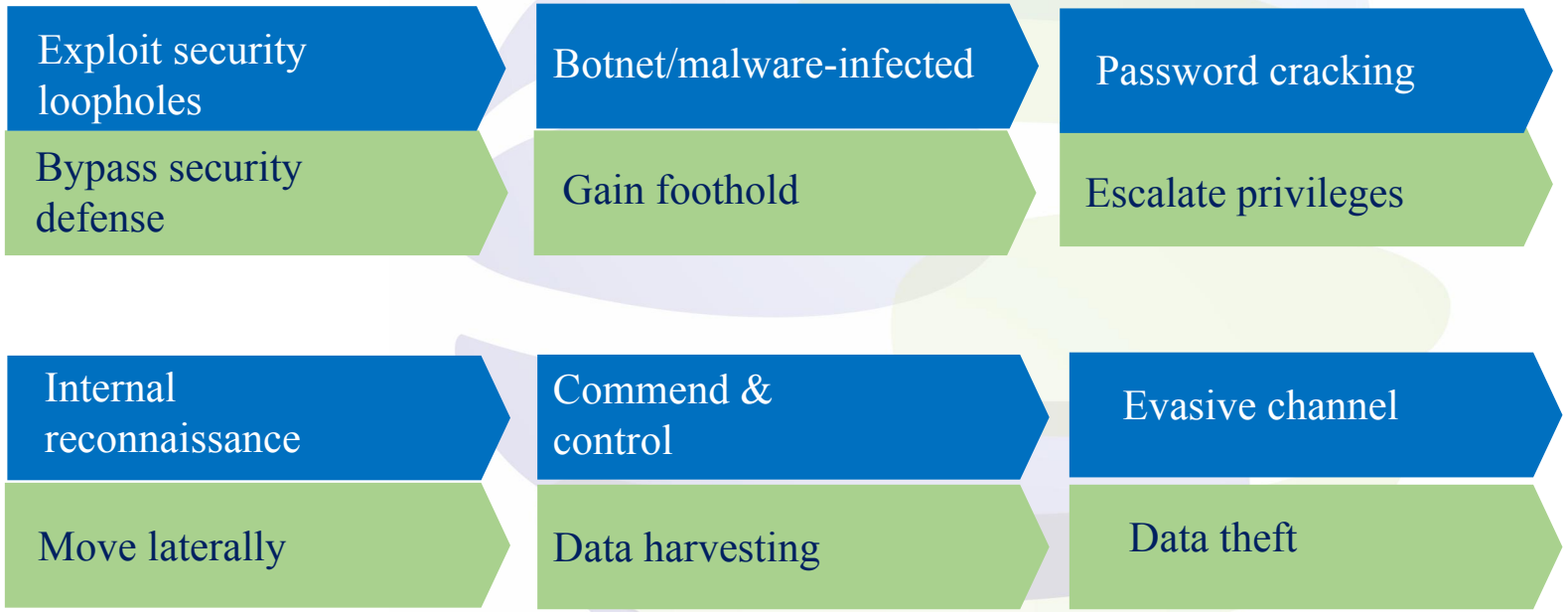
Gartner: Defining Advanced Persistent Threats



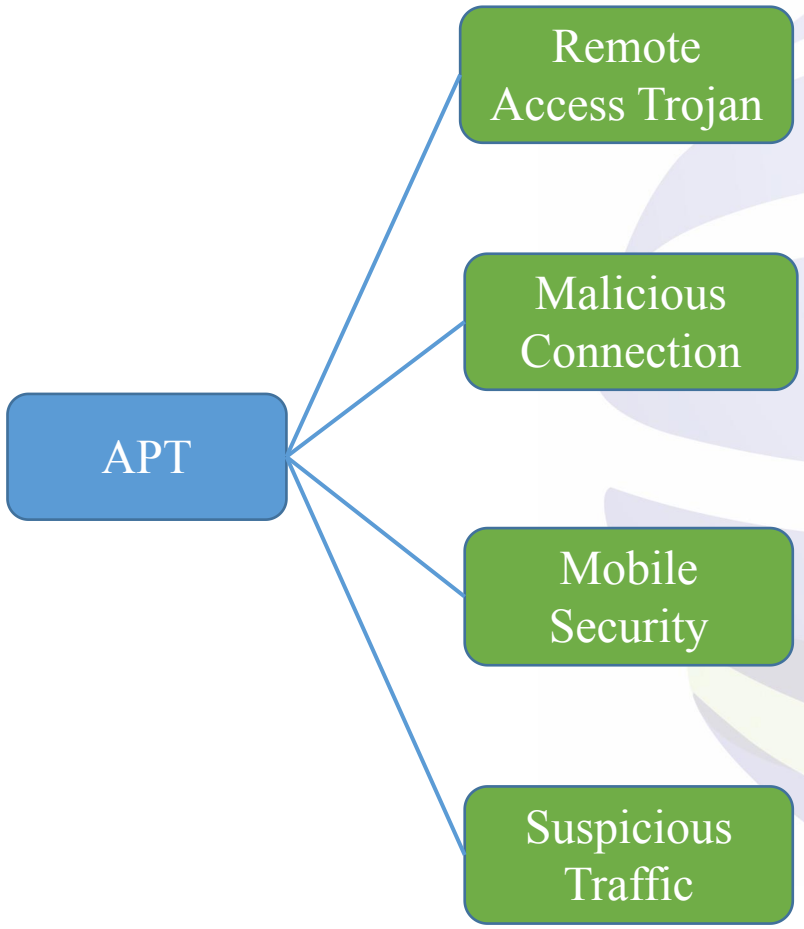
Source: Gartner (August 2013)

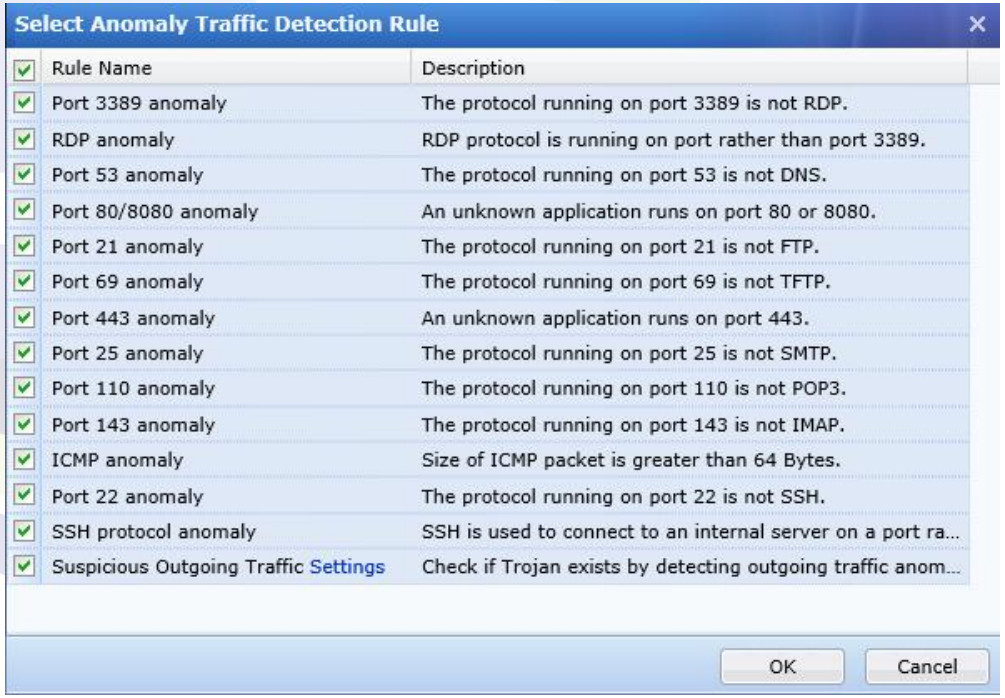
What is APT

SANGFOR: APT is Not An Attack, But a Continuous Process



APT Protection

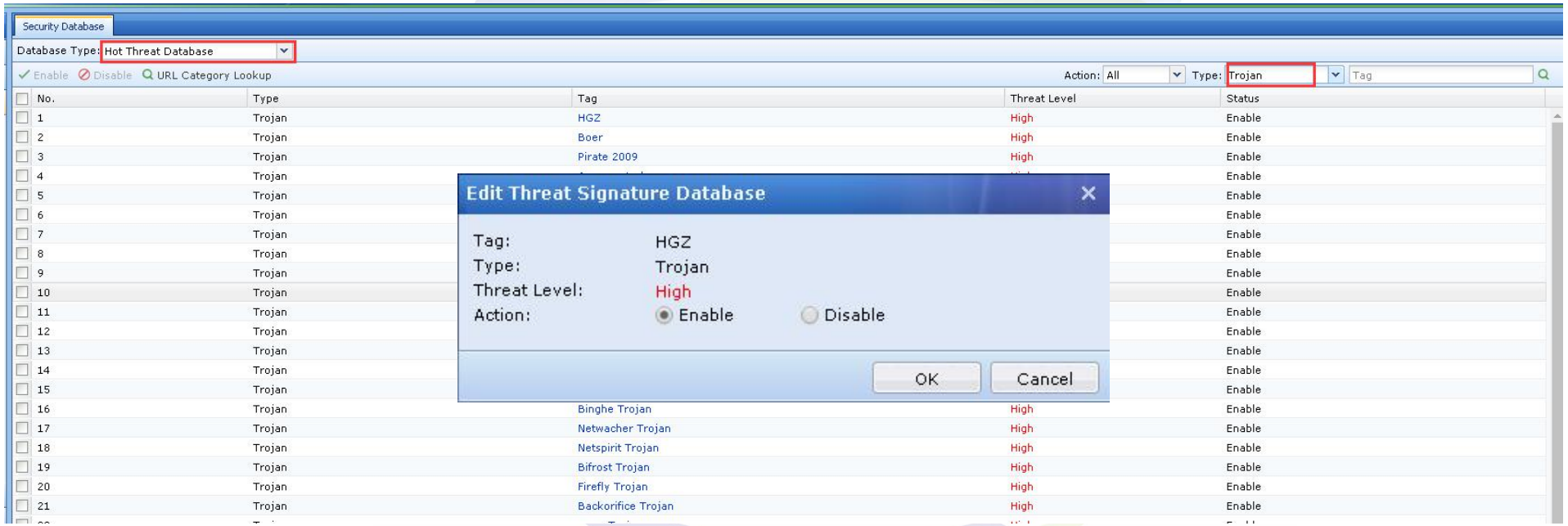




APT Protection

Remote Access Trojan

- Detection based on database for Trojan.
- Path: Objects > Threat Signature Database > Predefined Database



- Detection based on endpoint behavior. (For example, endpoint will send the heartbeat packet to server to keep connection after it was infected.)

APT Protection

Malicious Link

- Detect the URL that may lead to the threat, such as webpage linked to horse, virus download link.
- Malicious link matching process:
  1. Match the white list (allow after matching);
  2. Match the blacklist (built-in database), executing action according to the policy configuration;
  3. Black and white list are not matched, then NGAF reported to the Neural X analysis. If detected the malicious behavior, the cloud sent to the AF action in accordance with the policy;
  4. Cloud update the blacklist to the new version of malicious link database;
- Whitelist is the domain in the Alexa Ranking List, such as google.com

APT Protection

Mobile Security

- Mobile security contains two sub-functions: anti-virus of apk file and mobile botnet detection, to generate two types of log: mobile anti-viruses and mobile botnet.

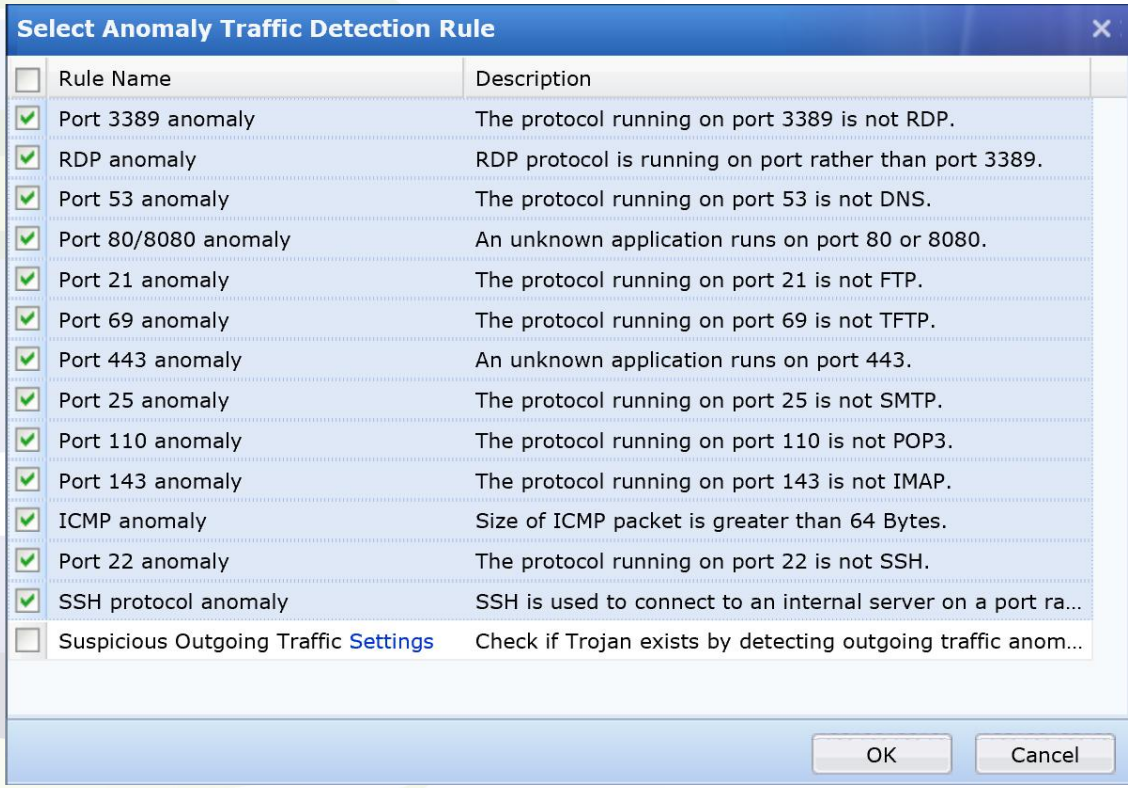
- In addition to the regular detail logs, the mobile anti-virus contains a behavior analysis report, the NGAF reports the virus to the cloud sandbox, and the cloud sandbox generates a report and sends the report to the NGAF.

- If the NGAF can not access the Internet, the mobile virus behavior analysis report will not be generated.

APT Protection

Suspicious Traffic

- Abnormal traffic is two-way identification, log suspicious traffic only and do not deny;
- Abnormal traffic can only identify SSH and RDP reverse shell, other protocols can not identify the reverse shell;
- IPs in the exclude IP list f APT still identify reverse shell of SSH and RDP;

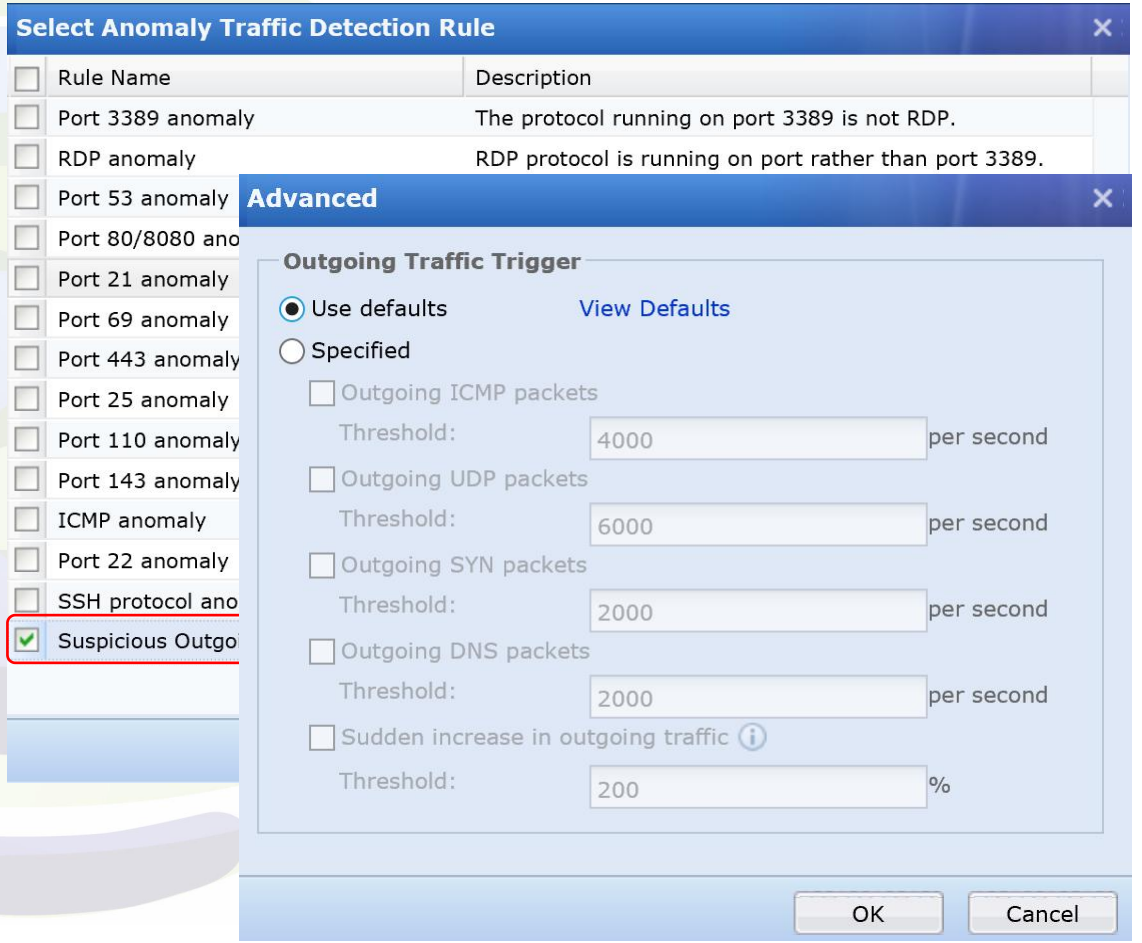


APT Protection

Suspicious Traffic

- Suspicious outgoing traffic is a heuristic dos attack detection, it can detect the unchanged source IP SYN flood, ICMP flood, DNS flood and UDP flood attacks, does not support syn+ack flood and ack flood.

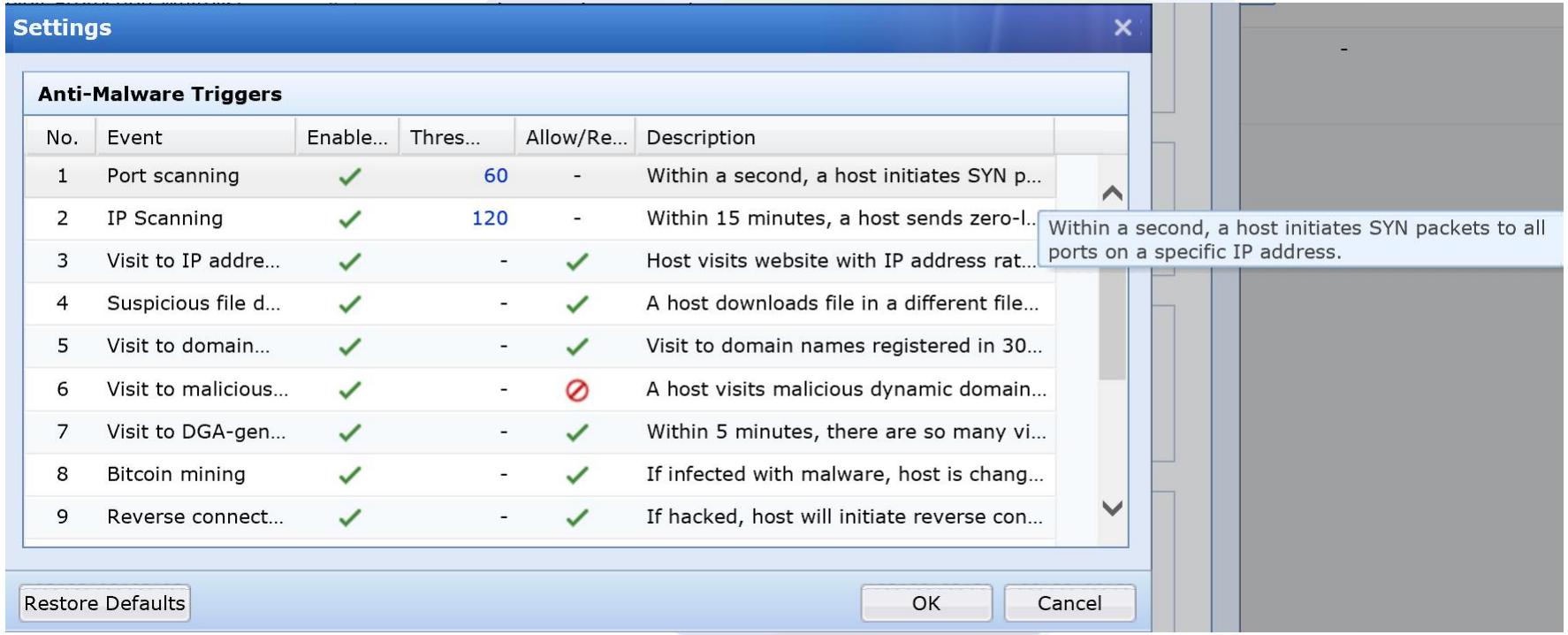
- Suspicious outgoing traffic features is that when the specific protocol packet outgoing pps exceeds the configured threshold, to judge whether is suspicious by detecting whether the packet is a one-way traffic, whether there is a normal response or other ways, then capture around 5 minutes packets to analyse the conclusion.



APT Protection

Auxiliary functions: Malware detection

By detecting for suspicious behaviors, it locates the possible bot-infected hosts and logs the events.

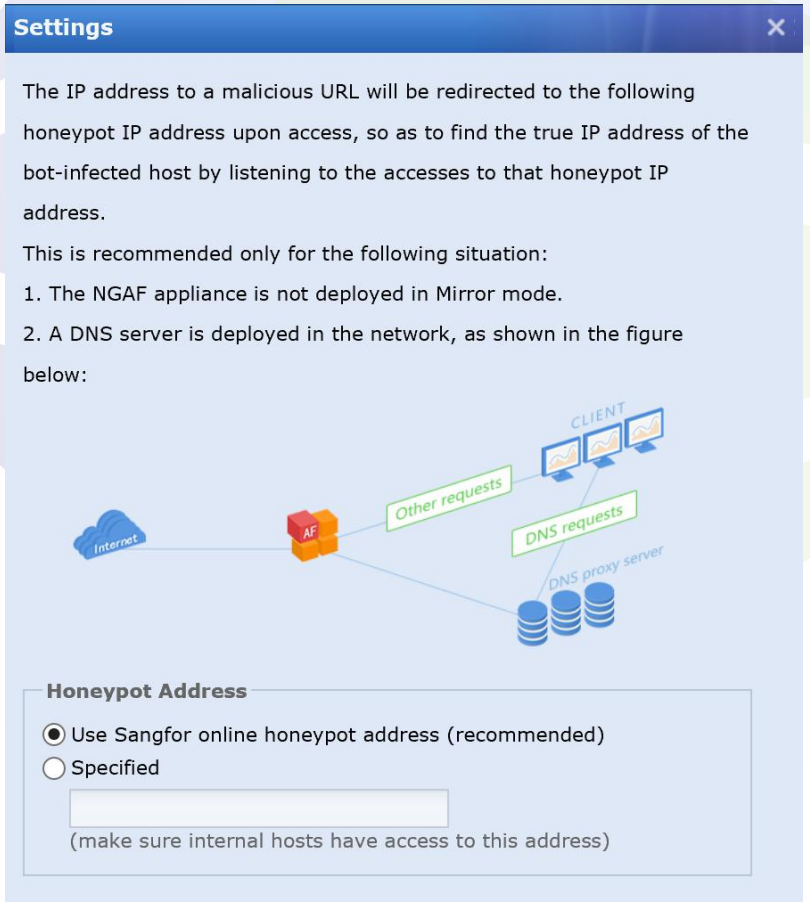


Log only, does not deny.

APT Protection

Auxiliary functions: DNS redirections of malware URLs

It is also called DNS sinkhole used in scenario with DNS proxy server to find the true IP address of bot-infected internal host.



2. APT Protection Test

SANGFOR
深信服科技

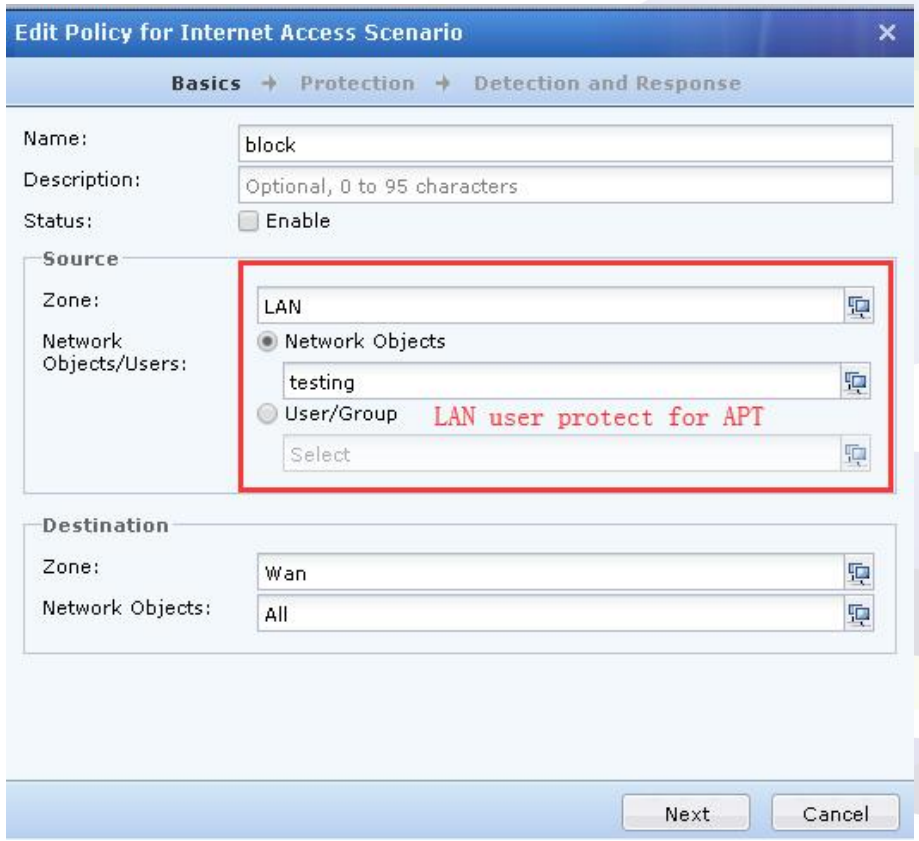
APT Protection Test

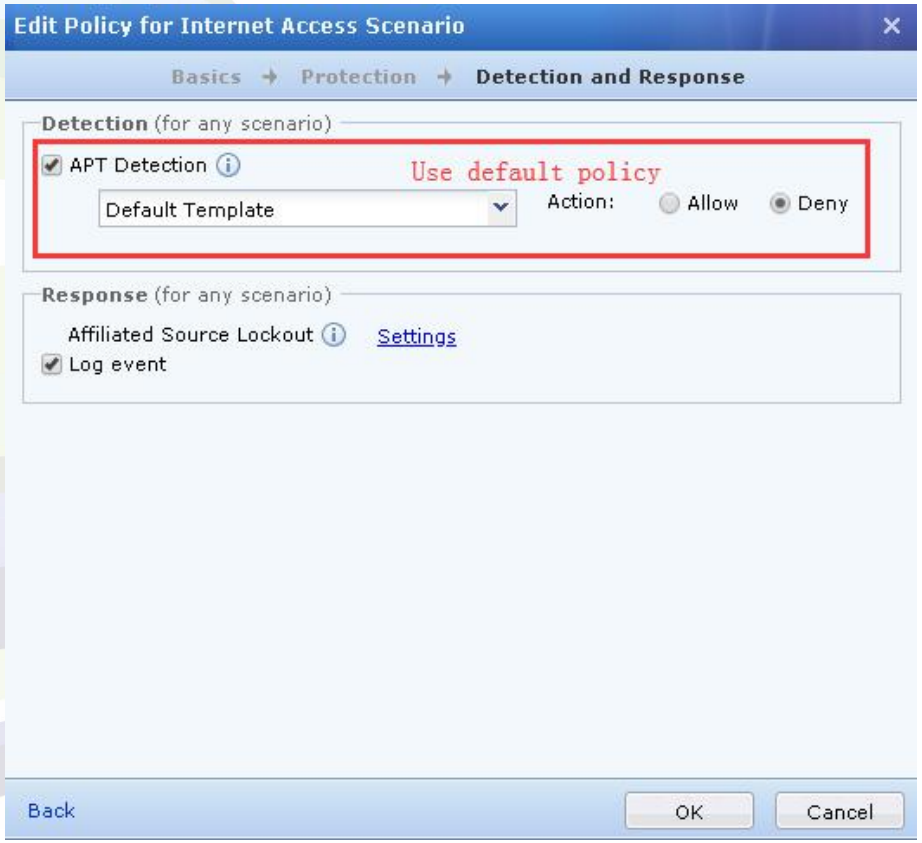
Network Diagram

NGAF deploy as route mode, test PC simulate as an botnet infected client and access the internet via NGAF.
(Network setting, application control policy and NAT are omitted.)

APT Protection Test

Policy settings
Path: Policies > Network Security > Policies





APT Protection Test

Login to NGAF internal report center to check logs after PC accessed some malicious links

APT

Filter | Export Logs

Filter: Period (2017-12-17 00:00~2017-12-17 23:59) | Src zone (All) | Src IP/user (All) | Dst zone (All) | ID(All) | Type (All) | Threat level (High,Medium,Low,Info) | Action (Allow,Deny)

No.	Date	Type	Source IP/User	Dst IP	Dst Lo...	Threat...	Acti...	Description	Data Packet	Risk Det...	Details	Whitelist	Locked
1	2017-12-17 19:28:13	Botnet	172.17.1.10	195.38.13...	Germany	High	Deny	Host 172.17.1.10 accessed C&C address: f...	View	View	View	Add	Add
2	2017-12-17 19:27:49	Botnet	172.17.1.10	-	-	High	Deny	Sangfor security engir					
3	2017-12-17 19:27:49	Botnet	172.17.1.10	-	-	High	Deny	Sangfor security engir					
4	2017-12-17 19:27:40	Botnet	172.17.1.10	89.185.44....	France	High	Deny	Host 172.17.1.10 acce					
5	2017-12-17 19:27:39	Botnet	172.17.1.10	89.185.44....	France	High	Deny	Host 172.17.1.10 acce					
6	2017-12-17 19:23:08	Botnet	172.17.1.10	195.38.13...	Germany	High	Deny	Host 172.17.1.10 acce					
7	2017-12-17 19:23:07	Botnet	172.17.1.10	195.38.13...	Germany	High	Deny	Host 172.17.1.10 acce					
8	2017-12-17 19:16:24	Botnet	172.17.1.10	89.223.10...	Russia	High	Deny	Sangfor security engir					
9	2017-12-17 19:14:54	Botnet	172.17.1.10	115.231.1...	China	High	Deny	Sangfor security engir					
10	2017-12-17 19:14:40	Botnet	172.17.1.10	-	-	High	Deny	Sangfor security engir					
11	2017-12-17 19:11:19	Botnet	172.17.1.10	89.223.10...	Russia	High	Deny	Sangfor security engir					
12	2017-12-17 19:11:18	Botnet	172.17.1.10	89.223.10...	Russia	High	Deny	Sangfor security engir					
13	2017-12-17 19:09:49	Botnet	172.17.1.10	115.231.1...	China	High	Deny	Sangfor security engir					
14	2017-12-17 19:09:49	Botnet	172.17.1.10	115.231.1...	China	High	Deny	Sangfor security engir					
15	2017-12-17 19:09:35	Botnet	172.17.1.10	-	-	High	Deny	Sangfor security engir					
16	2017-12-17 19:09:34	Botnet	172.17.1.10	-	-	High	Deny	Sangfor security engir					

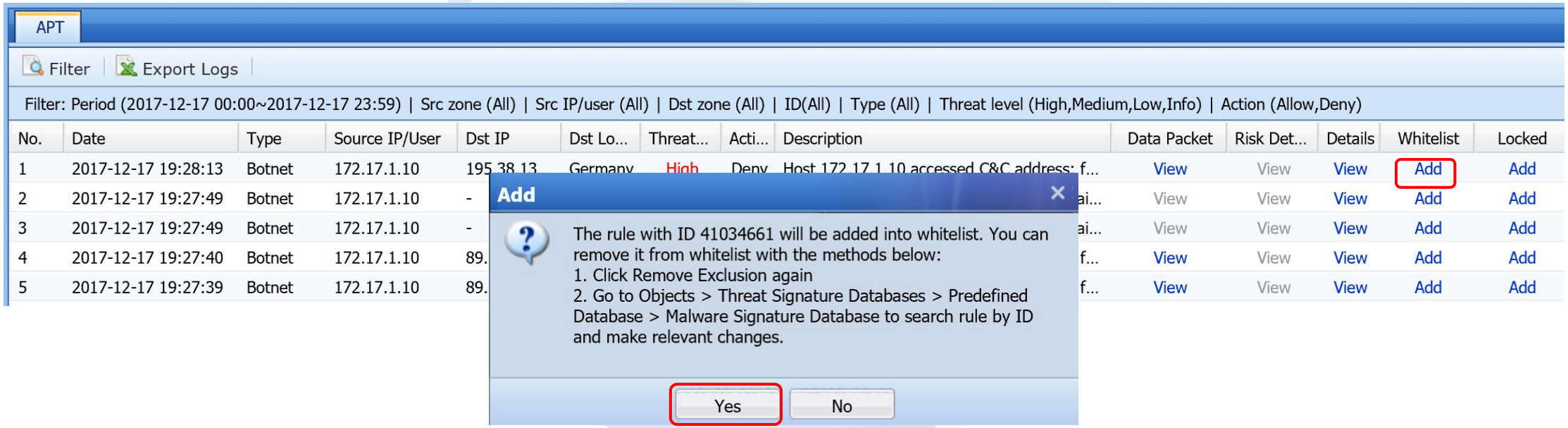
No. 1

Date:	2017-12-17 19:28:13
Type:	Botnet
Protocol:	TCP
URL/Directory:	futureinterest.org/
Src Zone:	LAN
Source IP/User:	172.17.1.10
Group:	-
Src Port:	55304
Dst Zone:	WAN
Dst IP:	195.38.137.100
Dst Location:	Germany
Dst Port:	80
Rule ID:	41034661
Policy Name:	APT
Threat Level:	High
Action:	Deny
Description:	Host 172.17.1.10 accessed C&C address: futureinterest.org/, which is proved by virustotal. Host may be infected with virus botnet.malware.

APT Protection Excluded List

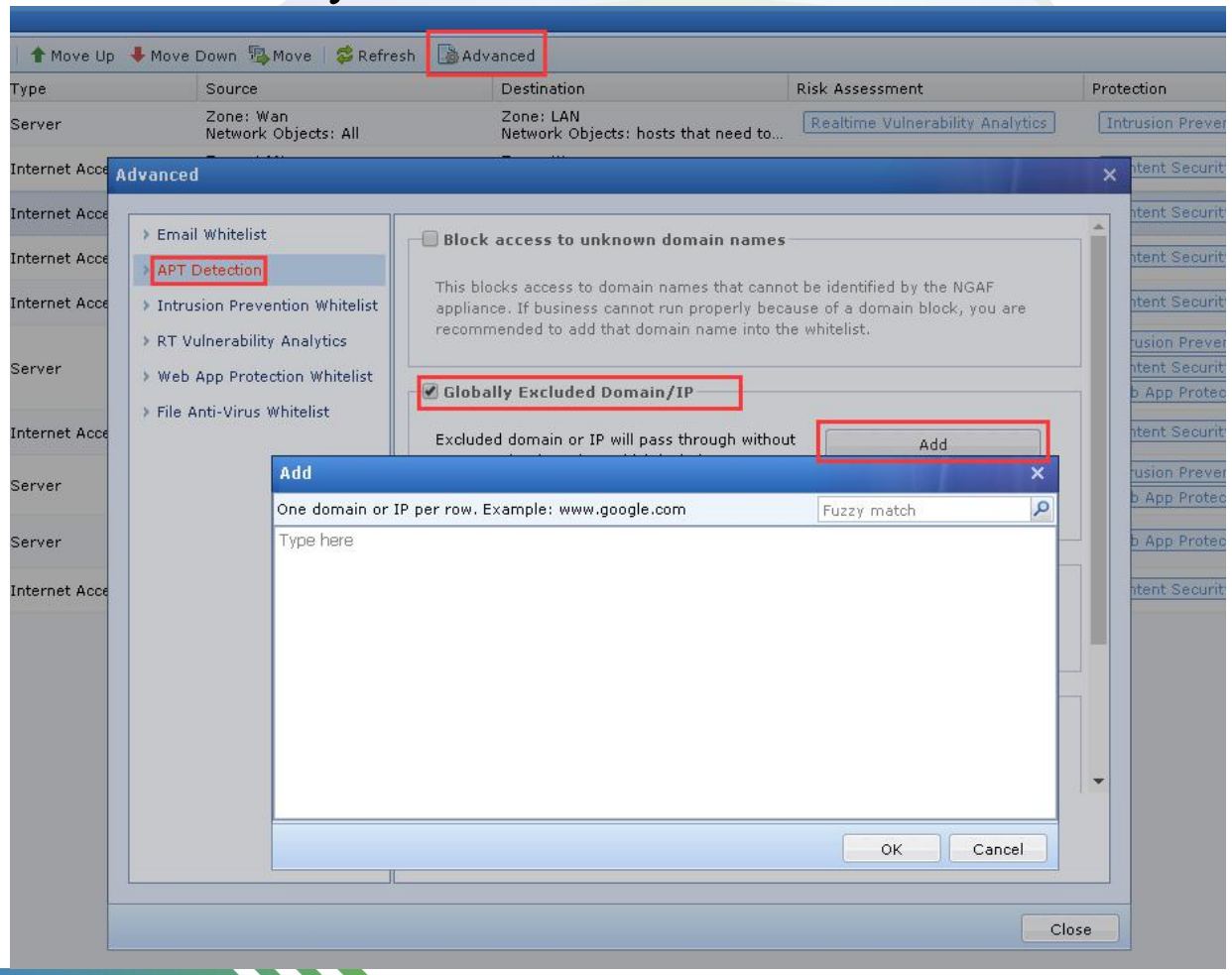
There are two ways to exclude IP/domain of NGAF APT protection if there is misjudgment:

- If the traffic of a terminal is misjudged by NGAF database, you can find the logs to click 'Add' of whitelist button to exclude this IP/domain



APT Protection Test

- You can exclude the specified IP under the APT module, then this IP will not be intercepted by the APT policy.
- Path: Policies > Network Security > Policies > Advance

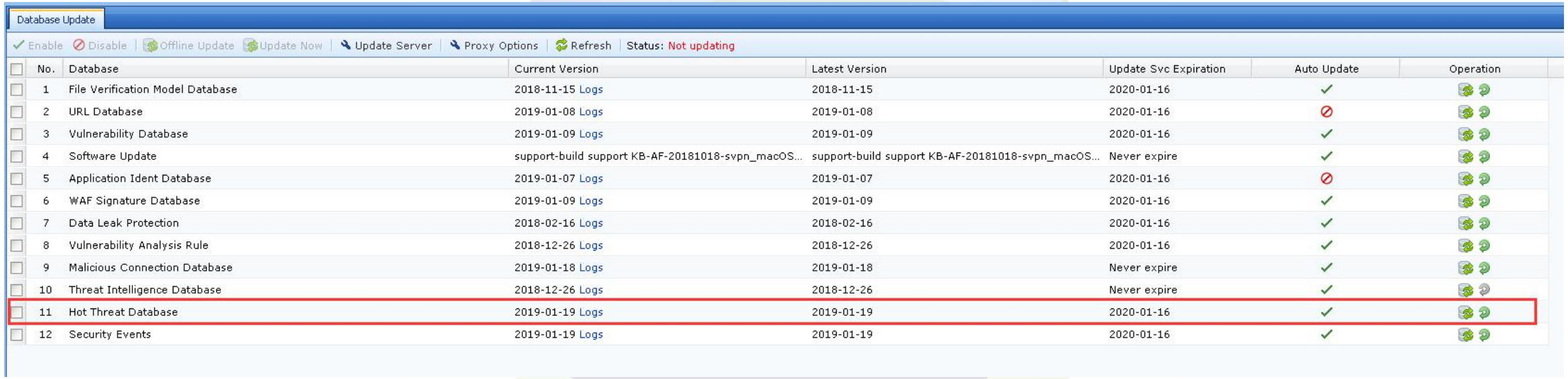


3. APT Misjudgment Troubleshooting

SANGFOR
深信服科技

APT Misjudgment Troubleshooting

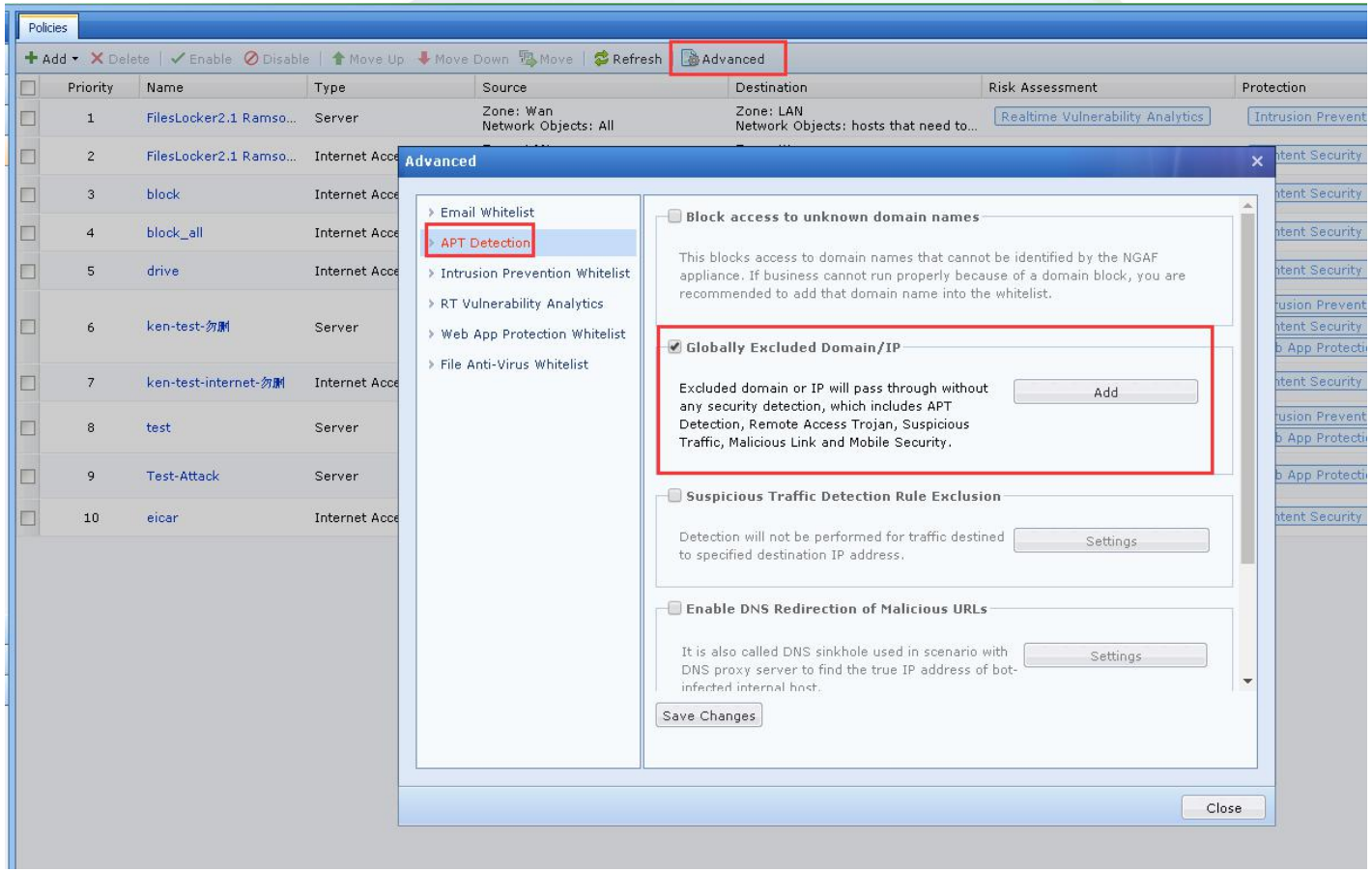
- Check the Hot Threat Database version is upgraded to latest version
- Path: System > Maintenance > Update > Database Update



No.	Database	Current Version	Latest Version	Update Svc Expiration	Auto Update	Operation
1	File Verification Model Database	2018-11-15 Logs	2018-11-15	2020-01-16	✓	
2	URL Database	2019-01-08 Logs	2019-01-08	2020-01-16	⊘	
3	Vulnerability Database	2019-01-09 Logs	2019-01-09	2020-01-16	✓	
4	Software Update	support-build support KB-AF-20181018-svpn_macOS...	support-build support KB-AF-20181018-svpn_macOS...	Never expire	✓	
5	Application Ident Database	2019-01-07 Logs	2019-01-07	2020-01-16	⊘	
6	WAF Signature Database	2019-01-09 Logs	2019-01-09	2020-01-16	✓	
7	Data Leak Protection	2018-02-16 Logs	2018-02-16	2020-01-16	✓	
8	Vulnerability Analysis Rule	2018-12-26 Logs	2018-12-26	2020-01-16	✓	
9	Malicious Connection Database	2019-01-18 Logs	2019-01-18	Never expire	✓	
10	Threat Intelligence Database	2018-12-26 Logs	2018-12-26	Never expire	✓	
11	Hot Threat Database	2019-01-19 Logs	2019-01-19	2020-01-16	✓	
12	Security Events	2019-01-19 Logs	2019-01-19	2020-01-16	✓	

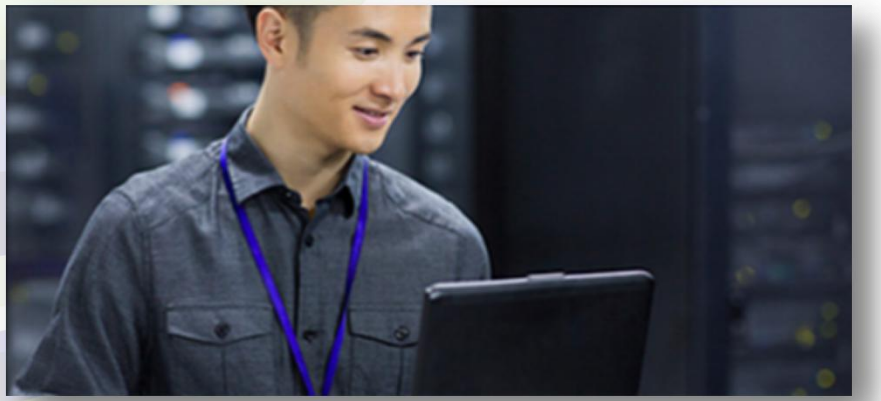
APT Misjudgment Troubleshooting

- Add those misjudgment domain to whitelist
- Path: Policies> Network Security > Policies



Thank you !

tech.support@sangfor.com
community.sangfor.com



Sangfor Technologies (Headquarters)
Block A1, Nanshan iPark, No.1001
Xueyuan Road, Nanshan District,
Shenzhen, Guangdong Province,
P. R. China (518055)