

Security Awareness

AGENDA

- Why Security Awareness is Essential?
- What is Security Awareness?
- What is the challenges?
- How do we start?
- Topics Covered

WHY SECURITY AWARENESS IS ESSENTIAL?



**Human error
causes alarming
rise of 93% of
data breaches
globally**

Infysec Solutions Private Limited

WHAT IS SECURITY AWARENESS?

- The knowledge and attitude members of an organization possess regarding the protection of the physical, and especially informational, assets of that organization.
- The advantage of knowing what types of security issues and incidents employees may face in the day-to-day routine of their corporate function

WHAT IS THE CHALLENGE?

Major Challenges	Responses	%
Communication	113	15.98%
Employee Engagement	101	14.29%
Time	95	13.44%
Culture	85	12.02%
Resources	83	11.74%
Upper Management Support	80	11.32%
Other	66	9.34%
Money	42	5.94%
Enforceability of Program	31	4.38%
Staff	11	1.56%
Total	707	100%

WHAT IS THE CHALLENGE?

Awareness is not a technical solution, it's a human solution. You need to talk with, engage, and collaborate with others - and that takes time.

HOW DO WE START?

- Become aware
 - Know how to identify a potential issues
 - Use sound judgement
- Learn and practice good security habits
 - Incorporate secure practices into your everyday routine
 - Encourage others to do so as well
- Report anything unusual
 - Notify the appropriate contacts if you become aware of security incidents

TOPICS COVERED

- > Avoiding Dangerous Attachments
- > Avoiding Dangerous Links
- > Phishing
- > Social Engineering
- > Passwords
- > Access Rights
- > Protecting Against Ransomware

AVOIDING DANGEROUS ATTACHMENTS

AVOIDING DANGEROUS ATTACHMENTS



They can spread malicious software.

Attackers use methods to entice you to open malicious email attachments through fear, curiosity, and urgency. Once you open a malicious attachment, malicious software (malware) can be installed without your consent or knowledge.

AVOIDING DANGEROUS ATTACHMENTS



They can compromise your device's security.

The malware can enable attackers to access, control, and record information stored on your device.

Some malware will even scan your device for email addresses and send the infected message to them.

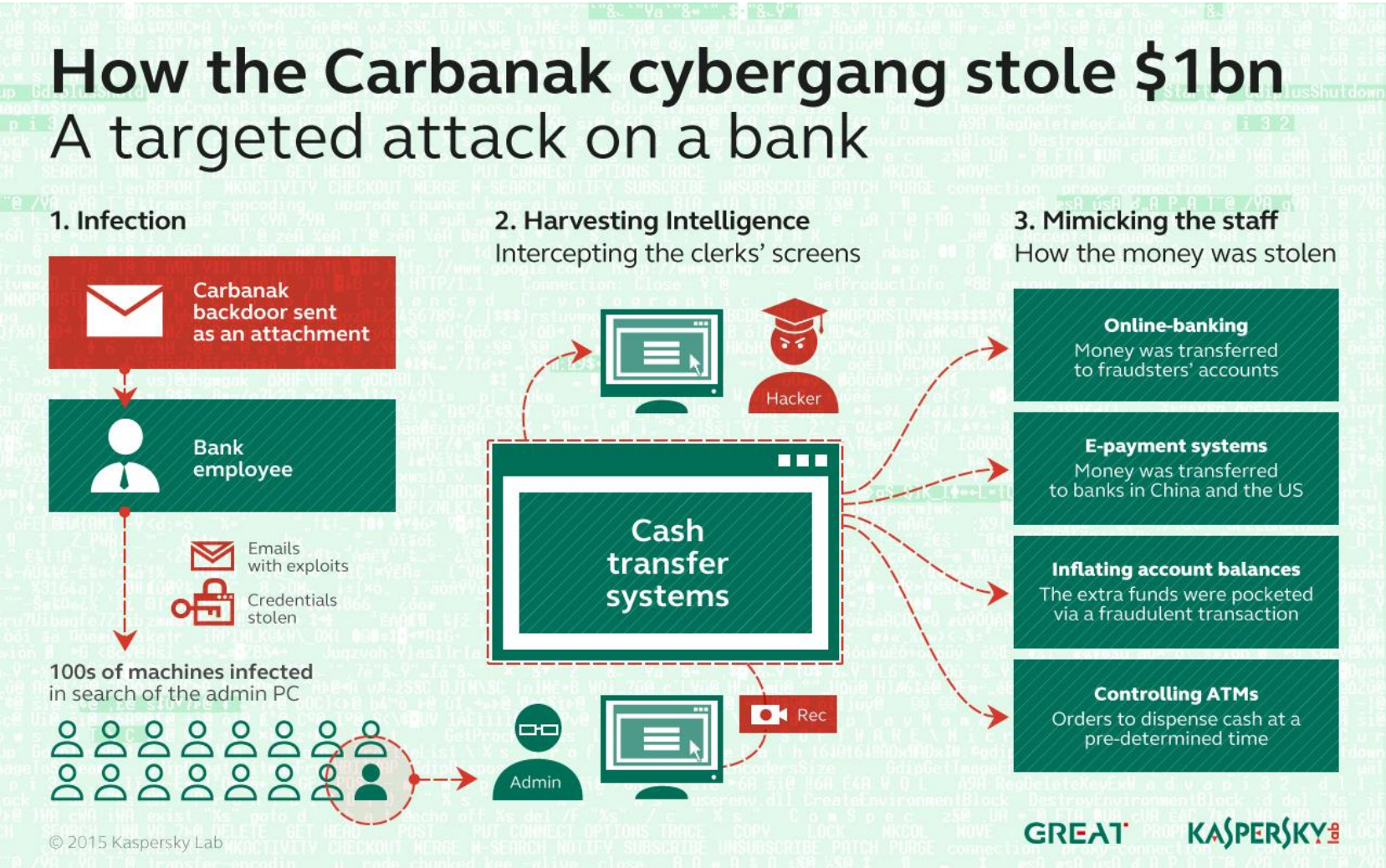
AVOIDING DANGEROUS ATTACHMENTS



They can also compromise your employer's network.

Malware can quickly spread through your employer's networks via your device. This enables attackers to quickly acquire and leak sensitive or confidential data.

AVOIDING DANGEROUS ATTACHMENTS



AVOIDING DANGEROUS ATTACHMENTS

How Do I Avoid Malicious Attachments?

Treat any email attachment with a healthy suspicion.

Attackers count on our curiosity, so resist the urge to download attachments even if the sender looks familiar.

Ask your IT team how you can safely open email attachments without risking your data.

You can also follow these actions if you receive an email attachment.

What to Do If You Receive an Email Attachment



Check the Content



Seek Confirmation



Do an Online Search



Report It



AVOIDING DANGEROUS LINKS

AVOIDING DANGEROUS LINKS

Attackers Manipulate URLs to Trick Users





Manipulating a URL goes beyond using the right words to trick you. Attackers will often change links in other ways to look like valid URLs.

If you see any of these warning signs in an email link, look, but don't click unless you are absolutely certain you can trust the URL.

Warning Signs	
 <p>Shortened URLs</p>	 <p>Number-based links</p>
 <p>Look-alikes</p>	 <p>Hyphens</p>

AVOIDING DANGEROUS LINKS

What to Do Instead of Clicking

- 1**  Only click on email links if you're expecting them (such as a product confirmation order).
- 2**  If you trust the name of the organization who sent the email, type the URL you know and trust into your browser or use your bookmark. This way you can see if there's something that needs taking care of without the risk of navigating to a dangerous site.
- 3**  Make hovering over links a habit. Rest your cursor over the link and read the URL that appears, but do not click the link.
- 4**  Use your favorite search engine to verify the site. When you search for a fraudulent domain, the top result's domain should match what you've entered.

PHISING

PHISING

From: prodia.co.id [<mailto:naem.arifee@lidingo.se>]
Sent: 23 April 2018 8:43
To: Surya Darma
Subject: Alert: "10 Incoming Messages Pending" (surya.darma@prodia.co.id)

]

Mail Quota: (99% Full)

Attention: [surya.darma](#)

The size limit of 4096 MB for mailbox 'surya.darma@astragraphia.co.id' has been exceeded. Incoming mail is currently being rejected. To upgrade for more Megabytes [MB].

[Upgrade Email Quota](#)

Note: This upgrade is required immediately after receiving this message
Thank you,
prodia.co.id

[Click me..](#)

PHISHING

Secure | <https://macrohgeqicom.000webhostapp.com/mailboxQuota/boxMrenewal.php?rand=13InboxLightaspxn.1774256418&fid.4.125289964...> ☆

Kaspersky
Small Office Security

ACCESS DENIED

The requested URL cannot be provided

URL:
<https://macrohgeqicom.000webhostapp.com/<...>>

Blocked by Web Anti-Virus

Reason: phishing URL

[Click here if you believe that the web page has been blocked by mistake.](#)

Detection method: databases

Message generated at: 13:05:15

[Click me..](#)

PHISHING

How Do I Identify Phishing Emails?

Choose a topic. Review all highlighted text for each topic to continue.



Sender

The header can offer clues to help you recognize a scam.

✓ Completed
Review



Context

Every email has a purpose.

✓ Completed
Review



Content

It's the small details.





✓ Completed
Review

PHISHING

How Do I Handle These Emails?

There are a few actions you can take if you suspect an email is a phish.

Select an action to learn more.

Email Actions	
 Investigate It	 Report It
 Keep It	 Delete It

SOCIAL ENGINEERING

What Is Social Engineering?

Social engineering is a type of security attack where scammers trick people into giving them access to sensitive information

Social engineers have the same goal as hackers, but they focus on tricking people rather than breaking into networks

Sometimes the easiest way for scammers to gain the information they want is to ask for it



Social Engineering Attack Methods



✓ **Online and Phone**



✓ **Human Interaction**



✓ **Passive Tactics**

Fraudulent communications like phishing emails and smishing (fake SMS/texts) messages entice, trick, and scare users into clicking

From: Account Services

Your account has been frozen due to unusual activity. [Click here](#) to reset your password and unlock your account

These messages look legitimate but contain hidden dangers:

- Malicious links
- Infected attachments
- Requests for login credentials or personal data



Social Engineering Attack Methods



✓ Online and Phone



✓ Human Interaction



✓ Passive Tactics

A social engineer visits a location using a false identity, such as a contractor or even an employee. These attacks attempt to gain access to files, the network, or other sensitive information or infrastructure.

“ Hi, I'm a technician from your HVAC service department, and we received word that there's insufficient cooling in some of your equipment rooms.

I need to measure the temperatures to evaluate the problem. Can you show me where to go? ”



Social Engineering Attack Methods



✓ **Online and Phone**



✓ **Human Interaction**



✓ **Passive Tactics**

Not all social engineering attacks involve being social or high-tech. Social engineers can learn a lot just by perusing the dumpsters behind your workplace.

Information such as invoices, telephone directories, confidential documents, printed emails, and much more sensitive information can be found.

Social engineers can also find and use discarded computers or mobile devices to retrieve sensitive information.



PASSWORDS



Why is password strength important?



Choosing a strong password is the first line of defense in securing personal and business data.

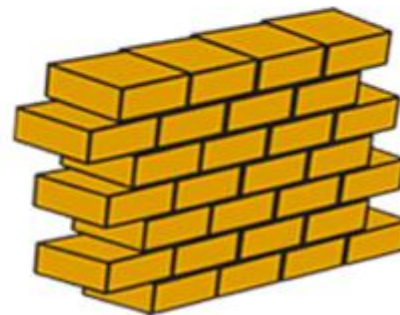
PASSWORDS

- > Select a good one
 - At least 7 characters
 - Mixture of upper and lowercase characters
 - Mixture of alpha and numeric characters
 - Don't use dictionary words
- > Keep password safe
- > Change them often
- > Don't share or reuse passwords
- > Two Factor Authentication (2FA)

How do I create a strong password?

This lesson will teach you how to create two types of strong passwords:

1. Insertion
2. Phrase-based



ACCESS RIGHTS

ACCESS RIGHTS



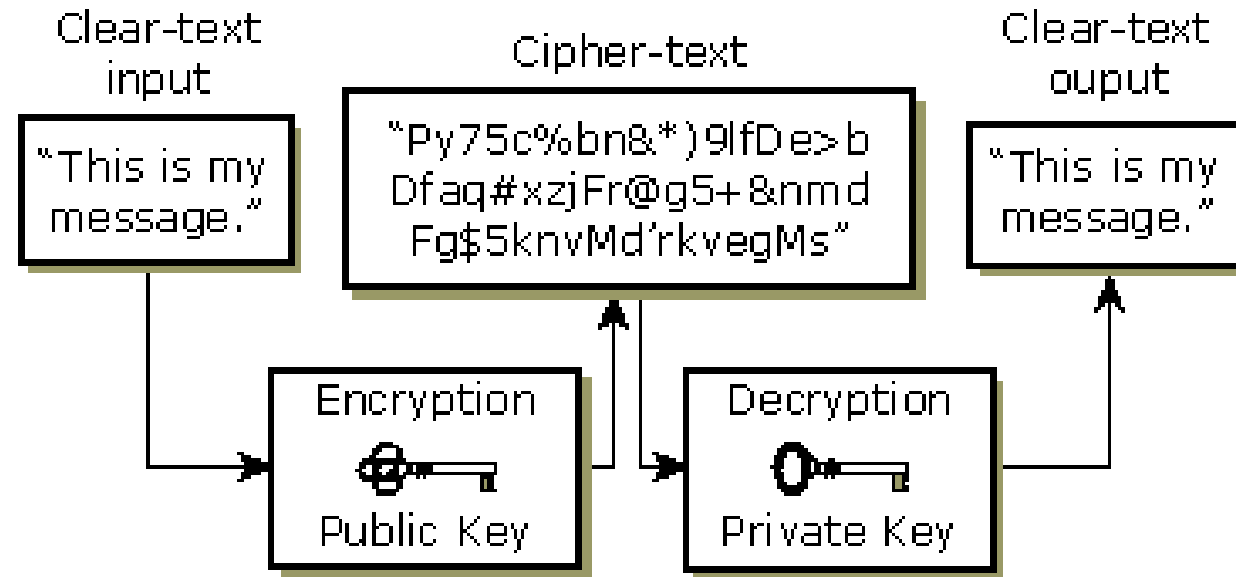
MALICIOUS & ACCIDENTAL

INSIDERS

- Excessive privileges
- Unmanaged passwords
- Accounts hijacked by attackers

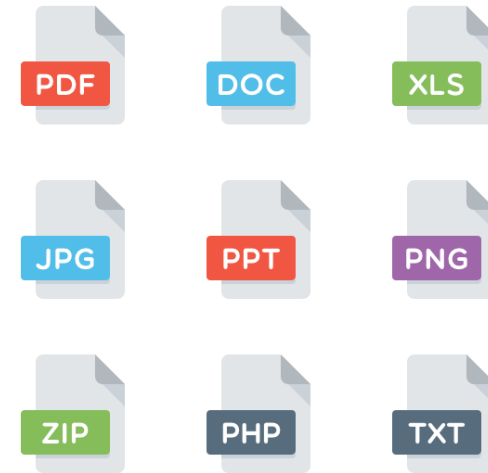
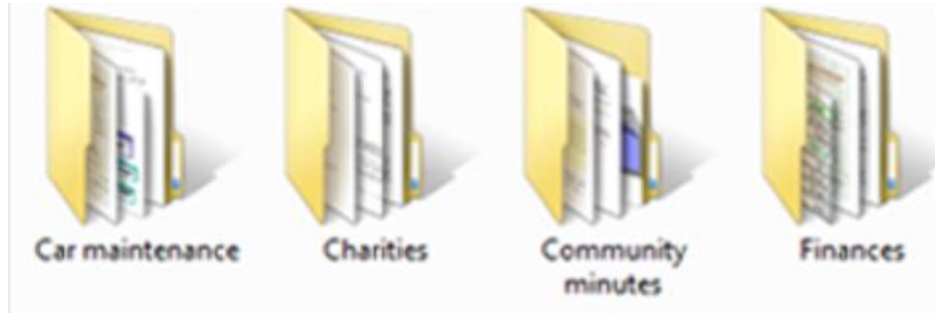
PROTECTING AGAINST RANSOMWARE

INTRODUCTION



IT WAS GOOD IN THE BEGINNING

INTRODUCTION



IT WAS DESIGNED AND BUILT TO PROTECT
YOUR DATA CONFIDENTIALITY

WHAT IS RANSOMWARE



IT IS A MODIFIED ENCRYPTION TECHNOLOGY

MOTIVE AND AGENDA OF RANSOMWARE - EXAMPLES

The screenshot shows a web browser window titled 'JANUS - Start'. The main content is a black page with green text and boxes. At the top, a green box contains the text 'PROFIT FROM PETYA & MISCHA!'. Below this are four columns of text, each with a green header box: 'HIGH INFECTION RATES', 'PROVABLY FAIR', 'FREE CRYPTING SERVICE', and 'EASY ADMINISTRATION'. At the bottom, there is a 'PAYMENT SHARE' section with a table and an example calculation. The footer contains copyright information for JANUS Cybercrime Solutions.

PROFIT FROM PETYA & MISCHA!

HIGH INFECTION RATES
PETYA comes bundled with his little brother MISCHA. Since PETYA can't do his evil work without administrative privileges, MISCHA launches when those can't be obtained.
PETYA does a low level encryption of the disk, which is a completely new technique in ransomware. MISCHA acts as an traditional file-based ransomware. For more informations see our FAQ.

PROVABLY FAIR
As professional cybercriminals, we know that you can't trust anyone. So we developed a payment system based on multisig addresses, where no one (including us) can rip you off.
For more informations see our FAQ.

FREE CRYPTING SERVICE
We provide you FUD crypted binaries, and that 24/7. No need to buy shitty crypters or waste your money on expensive crypting services.
Additionally, for our distributors with the highest volume, we provide a private stub. That means a even more stable infection rate. For more informations see our FAQ.

EASY ADMINISTRATION
Administrative Tasks like viewing the latest infections, setting the ransom price or recrypting your binary can be done with an clean and simple web-interface.
We also have an qualified support, which will help you with any problems. Since this project is still in beta, we are open for any bug-report or feature-request.

PAYMENT SHARE
Your share on the payments you have generated is calculated with the following table. The more volume you generate in one week, the more share on the profit you get.
Example: If you generate a volume of 125 BTC, you get a payout of 106.25 BTC. That are at the moment about 45,000 USD! To get a volume over 100 BTC is not a big deal with the right technique!

Volume/Week	Share
<5 BTC	25%
<25 BTC	50%
<125 BTC	75%
>=125 BTC	85%

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COMMERCIAL

The screenshot shows a terminal window with a black background and white text. The text reads: 'All your file system has been encrypted. Any revers engineering attempts wont help you to recover your data. In order to recover all your data contact us by email and pay the ransom.' Below this, it says 'Your personal id:' followed by a long alphanumeric string. At the bottom, it says 'If you already purchased your key, please enter it below.' and 'Key: _'.

All your file system has been encrypted.
Any revers engineering attempts wont help you to recover your data.
In order to recover all your data contact us by email
and pay the ransom.

Your personal id:
CCdeFE-3a9Ee0-D77bBA-K2RG5u-SkTXTS-rnFiwK-gY6EW9-BUWnDj-sJw8rb-
UUwmmR-9iFfof-Zx83WS-c6thcp-HKn2DU-m39Ra3

If you already purchased your key, please enter it below.

Key: _

TARGETED ATTACK

GENERAL ANATOMY OF RANSOMWARE

1. Installation



2. C&C Connection

3. Handshake & Keys

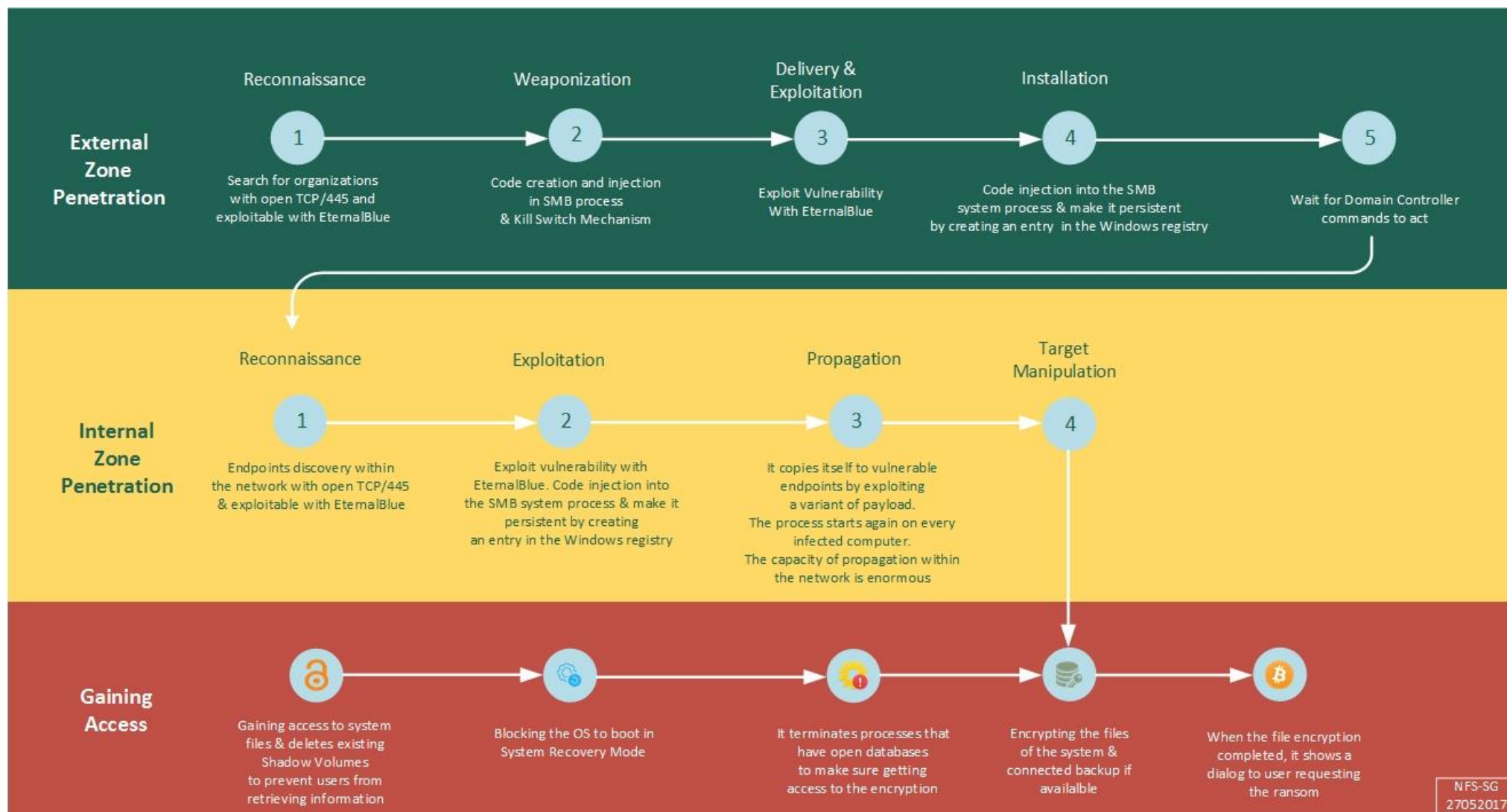


4. Encryption

5. Extortion



THE ANATOMY OF WANNACRY



WANNACRY RANSOMWARE

- **First** worming Ransomware & **Largest** infection in history
- **WannaCrypt** incorporates leaked **Equation** exploit to self-spread
- **Drastically** decreased by Monday (15th May)
- **Kill Switches** save the day (for now)

WANNACRY RANSOMWARE

VARIANTS & KILL-SWITCHES

- iuqerfsodp9ifjaposdfjhgosurijfaewrwergwea.com
- ifferfsodp9ifjaposdfjhgosurijfaewrwergwea.com
- ayyлмаотjhsstasdfasdfasdfasdfasdfasdf.com
- A no kill switch version hasn't been detected in the wild yet

WANNACRY RANSOMWARE

THE FIRST 6 HOURS

- **More than 7,000 machines** – during the 1st hour only
- **10,000** – number of machines stopped from infecting further machines & having their data destroyed

WANNACRY RANSOMWARE

VICTIM STATISTIC

- **Kaspersky Security Network (KSN)** – 74 countries affected
- **MalwareTech + Comae Sinkhole** – 378,075 (prevented)
- Propagation is exponential – the more machines infected, the faster WannaCry multiplies

WANNACRY RANSOMWARE – LAZARUS GROUP

The Geography of financial attacks by Lazarus group

The malware by Lazarus group, infamous for its theft of \$81 million from Central Bank of Bangladesh, has been active since at least 2009. It has been spotted in the last couple of years in at least 18 countries.



WANNACRY RANSOMWARE – IDENTICAL ARRAY USED

Function name

- 7 CDC::CDC(void)
- 7 CDC::DeleteDC(void)
- 7 CDC::SelectObject(HDC, void*)
- 7 CDC::Attach(HDC, void*)
- 7 CDC::CDC(void)
- 7 AfGetModuleState(void)
- 7 CWnd::SetWindowPos(CWnd const*, in
- 7 CWinApp::WinHelpA(ulong, uint)
- 7 CWinApp::OnDDECommand(char*)
- 7 CWinApp::OnWaitCursor(int)
- 7 CWinApp::DoMessageBox(char const*
- 7 CWinApp::SaveAllModified(void)
- 7 CWinApp::InitApplication(void)
- 7 CWinApp::AddToRecentFilesList(char co
- 7 CWinApp::OpenDocumentFile(char con
- 7 CWinThread::Delete(void)
- 7 CWinThread::GetMainWnd(void)
- 7 CWinThread::ProcessMessageFilter(int)
- 7 CWinApp::ProcessWndProcException(C
- 7 CWinApp::ExitInstance(void)
- 7 CWinThread::IdleMessageTag(MSG*)
- 7 CWinApp::OnIdle(long)
- 7 CWinThread::PumpMessage(void)
- 7 CWinThread::PreTranslateMessage(msg
- 7 CWinApp::Run(void)
- 7 CWndTarget::OnFinalRelease(void)
- 7 CWinApp::GetRuntimeClass(void)
- 7 CWinApp::WinApp(char const*)
- 7 CWinApp::~WinApp(void)
- 7 CWinApp::Enable3dControls(void)
- 7 AfEnableControlContainer(COCCMana
- 7 CBrush::GetRuntimeClass(void)
- 7 AfWndResourceHandle(char const*, cf
- 7 CMenu::FromHandle(HMENU*)
- 7 CString::Format(char const*, ...)
- 7 CString::operator=(char const*)
- 7 CDC::SelectObject(CBrush*)
- 7 CBrush::CBrush(ulong)
- 7 CWnd::GetDlgCtrlID(void)
- 7 CDialog::OnCColor(CDC*, CWnd*, uin
- 7 CProgressCtrl::GetRuntimeClass(void)
- 7 WinMain(uxxx)

Line 408 of 555

000076C8 0040F6C8 : .idata:0040F6C8 (Synchronized with IDA View-A)

3e6de9e2baac930949647c399818e7a2caea2626df6a468407854aaa515eed9

Output window

00F598: force zero offsets in structures

00F598: can't rename byte as '00 00 04 00 Table' because it contains a bad character '0'.

Python

Function name

- 7 sub_10001900
- 7 sub_10001970
- 7 sub_10001980
- 7 sub_10001990
- 7 sub_100019A0
- 7 sub_100019B0
- 7 sub_100019C0
- 7 sub_100019D0
- 7 sub_100019E0
- 7 sub_100019F0
- 7 sub_10001A00
- 7 sub_10001A10
- 7 sub_10001A20
- 7 sub_10001A30
- 7 sub_10001A40
- 7 sub_10001A50
- 7 sub_10001A60
- 7 sub_10001A70
- 7 sub_10001A80
- 7 sub_10001A90
- 7 sub_10001AA0
- 7 sub_10001AB0
- 7 sub_10001AC0
- 7 sub_10001AD0
- 7 sub_10001AE0
- 7 sub_10001AF0
- 7 sub_10001B00
- 7 sub_10001B10
- 7 sub_10001B20
- 7 sub_10001B30
- 7 sub_10001B40
- 7 sub_10001B50
- 7 sub_10001B60
- 7 sub_10001B70
- 7 sub_10001B80
- 7 sub_10001B90
- 7 sub_10001BA0
- 7 sub_10001BB0
- 7 sub_10001BC0
- 7 sub_10001BD0
- 7 sub_10001BE0
- 7 sub_10001BF0
- 7 sub_10001C00
- 7 sub_10001C10
- 7 sub_10001C20
- 7 sub_10001C30
- 7 sub_10001C40
- 7 sub_10001C50
- 7 sub_10001C60
- 7 sub_10001C70
- 7 sub_10001C80
- 7 sub_10001C90
- 7 sub_10001CA0
- 7 sub_10001CB0
- 7 sub_10001CC0
- 7 sub_10001CD0
- 7 sub_10001CE0
- 7 sub_10001CF0
- 7 sub_10001D00
- 7 sub_10001D10
- 7 sub_10001D20
- 7 sub_10001D30
- 7 sub_10001D40
- 7 sub_10001D50
- 7 sub_10001D60
- 7 sub_10001D70
- 7 sub_10001D80
- 7 sub_10001D90
- 7 sub_10001DA0
- 7 sub_10001DB0
- 7 sub_10001DC0
- 7 sub_10001DD0
- 7 sub_10001DE0
- 7 sub_10001DF0
- 7 sub_10001E00
- 7 sub_10001E10
- 7 sub_10001E20
- 7 sub_10001E30
- 7 sub_10001E40
- 7 sub_10001E50
- 7 sub_10001E60
- 7 sub_10001E70
- 7 sub_10001E80
- 7 sub_10001E90
- 7 sub_10001EA0
- 7 sub_10001EB0
- 7 sub_10001EC0
- 7 sub_10001ED0
- 7 sub_10001EE0
- 7 sub_10001EF0
- 7 sub_10001F00
- 7 sub_10001F10
- 7 sub_10001F20
- 7 sub_10001F30
- 7 sub_10001F40
- 7 sub_10001F50
- 7 sub_10001F60
- 7 sub_10001F70
- 7 sub_10001F80
- 7 sub_10001F90
- 7 sub_10001FA0
- 7 sub_10001FB0
- 7 sub_10001FC0
- 7 sub_10001FD0
- 7 sub_10001FE0
- 7 sub_10001FF0

Occurrences of binary: 01 00 ...

60012B44 10012B44 : .data:ch_dll_main (Synchronized with IDA View-A)

766d7d591b9ec1204518723a1e5940fd6ac777f606ed64e731fd91b04c3d9fc

Output window

1000136C: using guessed type _DWORD __cdecl sub_1000136C(_DWORD, _DWORD, _DWORD);

1001336C: using guessed type int (__stdcall __cdecl_1001336C)(_DWORD);

Python

WANNACRY RANSOMWARE – FAQ

- **Does the WannaCRY need admin privileges** – no, the infection is done via kernel exploitation which ensure total control of the machine to the attacker.
- **Can encrypted files be recovered** – No viable solution to recover the encrypted files had been found yet. Private key is destroyed in memory very early.
- **Did Microsoft released patches for those vulnerabilities** – Yes, MS17-010 in March (Vista+), KB4012598 on Friday 14 (< Vista)

BIG MISTAKES – KASPERKY LAB USERS

Kaspersky Endpoint Security 10 for Windows

Kaspersky Security Network

Protection and Control Settings Desktop 8.1, y

- Endpoint control
- Anti-Virus protection
 - File Anti-Virus
 - Mail Anti-Virus
 - Web Anti-Virus
 - IM Anti-Virus
 - System Watcher**
 - Firewall
 - Network Attack Blocker
- Advanced Settings

Enable System Watcher ⓘ
System Watcher receives information about application for threats that may be missing from anti-virus database

Enable Exploit Prevention

– **Operating mode** –

Do not monitor the activity of applications that have

– **Action on threat detection** –

On detecting malware activity:

Select action automatically ▾

– **Rollback of malware actions** –

Roll back malware actions during disinfection

Kaspersky Endpoint Security 10 for Windows

Kaspersky Security Network

Protection and Control Settings Desktop 8.1, you

- Endpoint control
- Application Startup Control
- Application Privilege Control**
- Vulnerability Monitor
- Device Control
- Web Control
- Anti-Virus protection
- Advanced Settings

Enable Application Privilege Control

This component keeps track of application activities in the applications depending on their status.

Configure application rules and protected resources:

Update control rules for previously unknown applications

Trust applications that have a digital signature

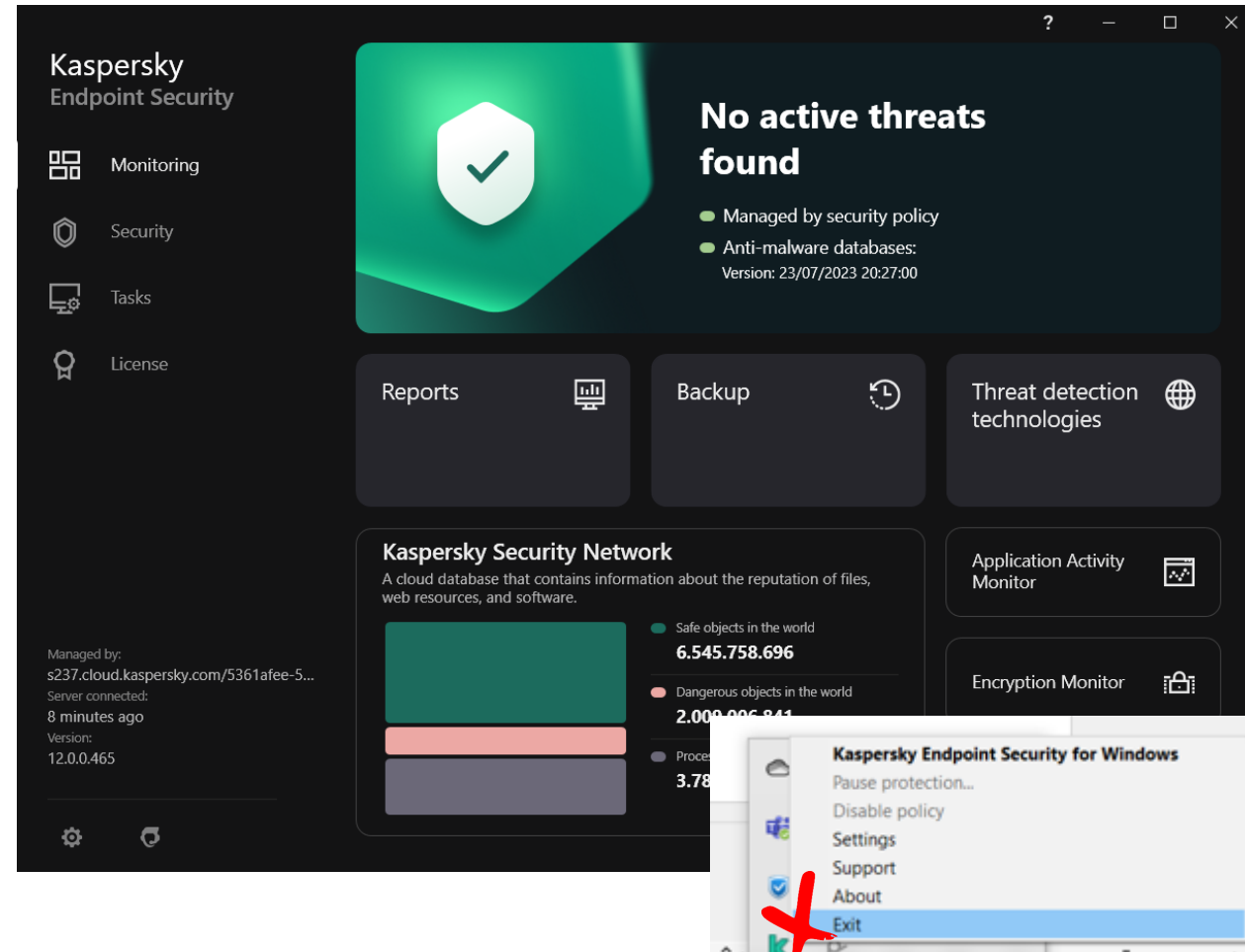
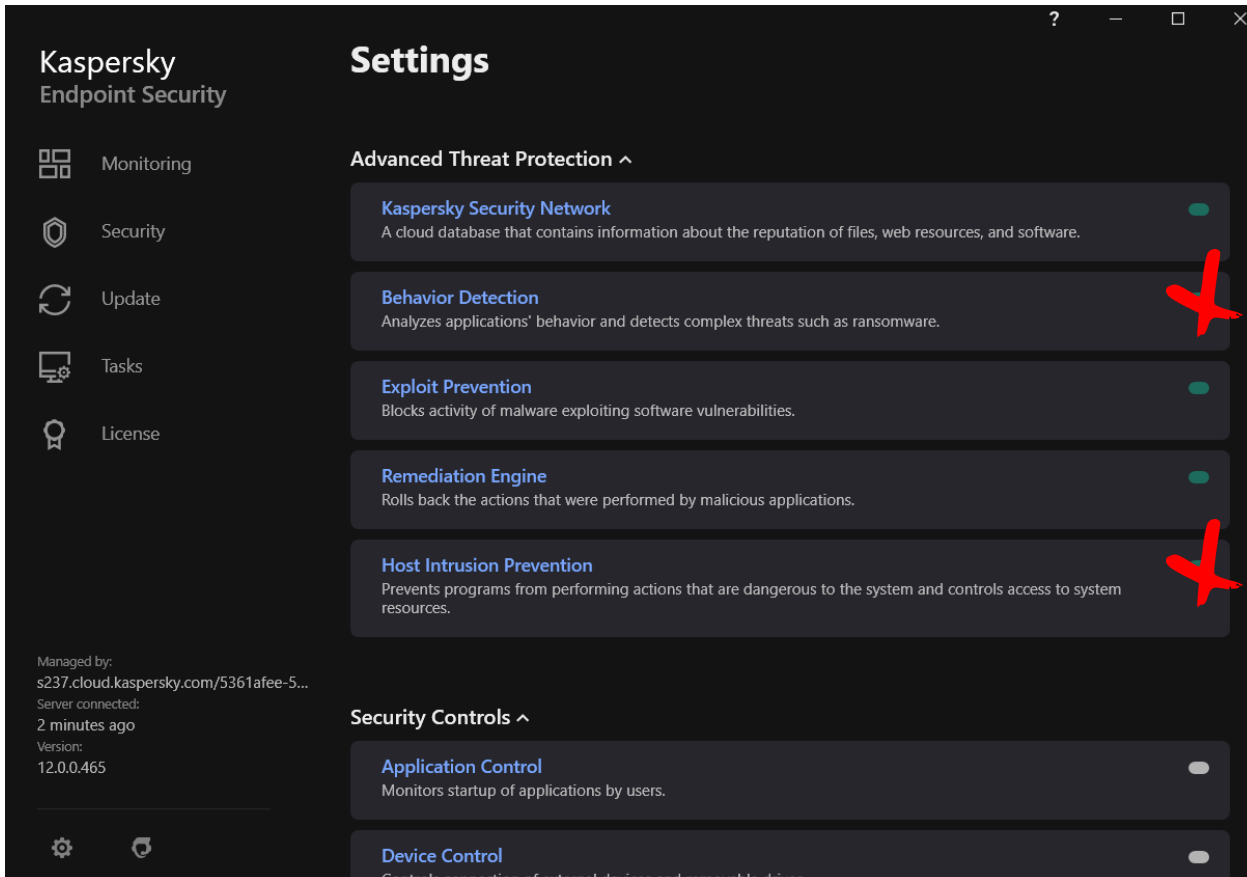
For unknown applications:

Automatically move to group: Low Restricted ▾

Use heuristic analysis to define group

Maximum time to define group:

BIG MISTAKES – KASPERKY LAB USERS



RANSOMWARE MITIGATION – TRADITIONAL WAY



EDUCATE YOUR USERS

RANSOMWARE MITIGATION – TRADITIONAL WAY



DO REGULAR OFFLINE BACKUP AND TEST IT

RANSOMWARE MITIGATION – SOFTWARE UPDATES



CVE-2017-0281

[Learn more at National Vulnerability Database \(NVD\)](#)

• Severity Rating • Fix Information • Vulnerable Software Versions • SCAP Mappings

Description

Microsoft Office 2007 SP3, Office 2010 SP2, Office 2013 SP1, Office 2016, Office Online Server 2016, Office Web Apps 2010 SP2, Office Web Apps 2013 SP1, Project Server 2013 SP1, SharePoint Enterprise Server 2013 SP1, SharePoint Enterprise Server 2016, SharePoint Foundation 2013 SP1, Sharepoint Server 2010 SP2, Word 2016, and Skype for Business 2016 allow a remote code execution vulnerability when the software fails to properly handle objects in memory, aka "Office Remote Code Execution Vulnerability". This CVE ID is unique from CVE-2017-0261 and CVE-2017-0262.

References

Note: [References](#) are provided for the convenience of the reader to help distinguish between vulnerabilities. The list is not intended to be complete.

- [CONFIRM: https://portal.msrc.microsoft.com/en-US/security-guidance/advisory/CVE-2017-0281](https://portal.msrc.microsoft.com/en-US/security-guidance/advisory/CVE-2017-0281)

UPDATE ALL OPERATING SYSTEM(S) AND APPLICATION(S)
ON ALL NODES

RANSOMWARE MITIGATION – POLICIES ENFORCEMENT

- 1. Manage the use** of the Internet – for example according to the job role
- 2. Control access** to corporate data – again, according to the job or department
- 3. Manage the launch of the programs** – using Application Control technologies that help you to block or permit programs
- 4. Segment your network**

MAKE SURE THAT PROPER POLICIES ARE ENFORCED

WANNACRY MITIGATION – PATCH INSTALLATION

1. Install **Patch**
2. Make sure that **MS-17-010** is installed
3. **KB4012598** - Emergency patch released by Microsoft for XP & 2003
4. Disable **SMBv1**

IF POSSIBLE, AVOID USING OPERATING SYSTEM
WHICH IS **END OF LIFE**

WANNACRY MITIGATION – NETWORK AND ENDPOINT

1. Network Level: block incoming traffic to **TCP/445**
2. Deploy “**Strong Heuristic**” Anti-Malware Solution
3. Free Antiransom Tool is available for business
<https://go.kaspersky.com/Anti-ransomware-tool.html>
4. Kaspersky Lab users: make sure System Watcher is not disabled(**ON** by default)

KASPERSKY LAB ADAPTIVE SECURITY STRATEGY



Now



User

IT Support/Admins

IT Security

Should be



User

IT Support/Admins

IT Security

Q&A

LET'S TALK?

Ary Pryanto

Klabs Certified Consultant

www.vstecsindo.net

