**Unit 7**

**Internet security**

What do you know about hackers and hacker attacks? Have you heard about the recent attack named “WanaCryptor”?

*Reading comprehension*

*1. Read the text “5 things we learned from WanaCryptor, the biggest ransomware attack in internet history” and match paragraph headings with paragraphs:*

a. **The killswitch was a simple URL check**

**b. Preventing and recovering from this kind of attack is expensive and complicated**

**c. It was based on a leaked NSA "cyber-weapon"**

**d. It preyed upon un-patched computers**

**e. It spread without exploiting user interactions**

***2.*** *Which paragraph tells us about:*

1. the main reason why WanaCryptor was so successful?
2. the scale of the sisaster?
3. companies like Microsoft trying to blame users for not updating their software?
4. what kind of exploit is used in this worm?
5. a surprising fact of Microsoft releasing a patch for Windows XP?
6. finding a killswitch for the worm?

*3. Put the sentences, summarizing the main idea of each paragraph, in the correct order:*

1. The worm was aimed at a specific domain and it could be stopped by checking its Internet address.
2. The main reason for the worm’s success were many bugs in modern software.
3. The worm attacked only PCs and used the exploit created by American defence specialists.
4. Microsoft was fast to release security updates for its software.
5. With this worm a user doesn’t even have to click on any link, all it needs is the Internet.
6. The worm attacked many countries, but was stopped quite fast.

*4. Answer the questions on the text in your own words:*

1. How much was the ransom the worm demanded?
2. What kind of group are Shadow Brokers?
3. In what way is this attack different from fishing?
4. What helps it attack local networks?
5. What does WannaCry check first?
6. How did the British researcher stop the attack?
7. When did Microsoft release the first security patch against this kind of attack?
8. Why does the author think it is unfair to blame users in such cases?

*5. Summarize the main ideas of the text in 12-15 sentences using paragraph headings as a plan.*

**Five things we learned from** **WannaCryptor, the biggest ransomware attack in internet history**

On May12, 2017, some hospitals in the United Kingdom were struck with [a peculiar attack](http://www.popsci.com/ransomware-hack-affects-hospitals): computers taken over, data inside encrypted and held ransom, all for the measly payment of just $300. The attack spread rapidly, hitting 150 countries and shutting down everything from telecoms in Spain to the Interior Ministry in Russia. And then, through a stroke of luck, the WannaCryptor attack was stalled in its tracks, a killswitch discovered by happenstance just in time for the weekend. What, exactly are we to make of the largest ransomware attack in history?

**1.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

The worm, known variously as WannaCry, WanaCryptor, and WannaCrypt, targets computers running Microsoft operating systems. It is built on an exploit named [EternalBlue](https://arstechnica.com/security/2017/04/nsa-leaking-shadow-brokers-just-dumped-its-most-damaging-release-yet/" \t "_blank), one of many NSA “cyber-weapons” released by a group known as the Shadow Brokers, who first started leaking NSA [tools late last summer](http://www.popsci.com/who-hacked-nsa).

**2.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Unlike [phishing](http://www.popsci.com/massive-phishing-scheme-just-hijacked-gmail-accounts-by-disguising-itself-as-shared-google-doc) or spearphishing attacks, where a computer is compromised because a user clicks a link in a targeted email, WannaCry works without exploiting any human error.

Kasperksey Lab, a well-known cybersecurity company, wrote in [a richly detailed FAQ about the attack](https://securelist.com/blog/research/78411/wannacry-faq-what-you-need-to-know-today/) that “Perhaps the main reason why Wannacry was so successful is the fact that the EternalBlue exploit works over the Internet without requiring any user interaction." Because it strikes over networks, it can still wreak havoc inside a local network even with the killswitch active, as the killswitch needs the internet to work.

**3.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Before WannaCry spreads, it checks to see if it can connect to a specific domain. If the domain is registered and occupied, it’s done, and proceeds no further. If it fails to connect, then WannaCry spreads as it was designed to do, infecting machines and demanding ransom.

The killswitch was discovered by a young computer security researcher in the United Kingom, who registered the domain specified in the WannaCry programming, and then routed traffic to it to a sinkhole server, meant for trapping botnets. This security researcher wrote a great write-up of the experience of catching WannaCry.

**4.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Microsoft released patches for the vulnerable operating systems that can prevent the present version of WannaCry from infecting patched computers. The first patch that protects against attacks like this was released in March, though not every user automatically downloads and installs all patches or software updates. Microsoft reactively released a patch for Windows XP, a 16-year-old operating system that is no longer officially supported, yet still used in many computers. In customer guidance released about the attack, Microsoft recommends [automatically updating](https://blogs.technet.microsoft.com/msrc/2017/05/12/customer-guidance-for-wannacrypt-attacks/) as a proactive measure.

**5.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

WannaCry worked because of a complex mishmash of circumstances. The availability of bitcoin as a way to pay [ransoms](https://twitter.com/collinskeith/status/864536166451871744) to anonymous criminals certainly helped, as did the exploit developed by the NSA itself. Both took place in a context where people and organizations still use old software, and it’s easy for companies like Microsoft to shift blame onto the NSA for making the exploit and on users for not patching security.

“Technology is shipped so full of holes that a huge part of the industry is a massive crew of highly-trained professionals working flat out to plug all the leaks, writes cybersecurity expert [Stilgherrian](http://www.zdnet.com/article/hey-cyber-techbros-smugly-yelling-patch-and-back-up-wont-fix-ransomware/" \t "_blank). “Then, when customers inevitably slip and sink into in this torrent of faults, the vendors and cybersecurity professionals blame them for being unable to swim.”

*Vocabulary activities*

1. *Study the vocabulary list for this unit and try to single out the words related to IT. You might need to use a dictionary to check the meaning of some words:*

(to) demand ransom, (to) encrypt data, (to) take over a computer, (to) stall in one’s tracks, (to) discover by happenstance, a ransomware attack, a worm, an exploit, (to) leak, phishing, (to) wreak havoc, a killswitch, a domain, (to) route traffic, (to) release a security patch, a customer guidance, a mishmash, (to) blame, (to) ship, a vendor

1. Match the words with their definitions:

|  |  |
| --- | --- |
| 1. (to) demand ransom | 1. (to) code information |
| 1. (to) encrypt data | 1. (to) ask somebody to pay money using threat |
| 1. (to) take over a computer | 1. (to) be lucky to find out |
| 1. (to) stall in one’s tracks | 1. an attack aiming to get money |
| 1. (to) discover by happenstance | 1. (to) give out |
| 1. a ransomware attack | 1. a kind of computer virus |
| 1. a worm | 1. (to) direct traffic |
| 1. an exploit | 1. (to) say that it’s somebody’s fault |
| 1. (to) leak | 1. mixture |
| 1. phishing | 1. (to) gain control over a computer |
| 1. (to) wreak havoc | 1. (to) prevent from moving further |
| 1. a killswitch | 1. a group of files increasing security of a program |
| 1. a domain | 1. a set of instructions for customers |
| 1. (to) route traffic | 1. software using a program’s vulnerability to attack it |
| 1. (to) release a security patch | 1. (to) send |
| 1. customer guidance | 1. a seller |
| 1. a mishmash | 1. using false identity to access confidential data |
| 1. (to) blame | 1. (to) cause great damage |
| 1. (to) ship | 1. a method to quickly stop something |
| 1. a vendor | 1. a group of computers on a network |

*3. Make up all possible collocations using the vocabulary list, for example: (to) leak a worm*

*4. Paraphrase the sentences using the active vocabulary:*

1. The hacker attack caused great damage to the system.
2. It was an attack with the aim of making subscribers pay money to hackers.
3. We do not know the IP-address of this network.
4. They made confidential information available to everybody.
5. The traffic was directed to a particular server.
6. The dangerous virus was stopped from spreading.
7. It was a bit of luck that the anti-virus was created.
8. This set of instructions explains to them how to use the equipment.
9. The provider sent us a group of files to strengthen the system’s security.
10. They sent us an e-mail using a false identity to make us give them confidential information.
11. It was a strange mixture of different styles.
12. We used a special method to quickly switch off the equipment.

*5. Finish the sentences using your own ideas:*

1. They demanded ransom for …
2. The data was encrypted, so …
3. If you haven’t read the customer guidance, …
4. As soon as you transfer money, the online vendor …
5. Microsoft released a security patch to …
6. This phishing attempt had the purpose to …
7. The worm was stalled in its tracks, so …
8. The virus was discovered by happenstance and …
9. The traffic was routed to a specific server to …
10. This hacker group was blamed in …
11. If they demand ransom, we …
12. One employee leaked confidential data and …

*Speaking*

Using the Internet as a source of information, prepare a short (7-8 minutes) presentation for the group on the topic, related to Internet security.

**Grammar**

**The Gerund**

Although the term might sound foreign, the gerund is a common part of speech that most of us use every day, whether we know it or not. The gerund looks exactly the same as a present participle, but it is useful to understand the difference between the two. To find gerunds in sentences, just look for **a verb + ing that is used as a noun**. It’s that simple.

*Swimming in the ocean has been Sharon’s passion since she was five years old.*

As a noun the gerund may function in a sentence as

•the subject: *Programming* is my favorite subject.

•the direct object: I suggest *sending* an e-mail message.

•the prepositional object (after prepositions of, for, before, by, in, besides, instead of, without, after and so on): He is fond of *playing* computer games.

•the predicate noun: Our aim is *solving* this problem.

The Gerund can be modified by a noun or a pronoun in the possessive case:

We know of George *Bool’s having introduced* a theory of logic, now known as Bool’s algebra.

**The Gerund is used after certain verbs and phrases:**

avoid, delay, deny, dislike, enjoy, excuse, finish, forgive, give up, go on, keep on, mention, miss, mind, practice, put off, postpone, be busy, be worth, can’t help, it’s no use, spend/waste, prevent,

recall, quit, tolerate, suggest, understand, save, recollect, stand, admit, anticipate, consider, appreciate, fancy etc.

**The Gerund is used after certain words with prepositions:**

dream

approve count

hear depend on thank for

inform insist be responsible

know rely

speak

think get used

be afraid of look forward to

be capable object

be fond get accustomed

be proud

be tired

consist

assist be disappointed

believe astonished at

result in be surprised

succeed

interested

the following verbs can be followed by -ing or to… with no difference in meaning :

**begin, continue, intend, start, bother etc.**

I like *painting/to paint.*

Some verbs can be followed by- ing or to… with a difference in meaning:

|  |  |  |
| --- | --- | --- |
|  | + inf | +-ing |
| **forget**  **remember**  **mean**  **go on**  **regret**  **try**  **want**  **stop**  **hate**  **be afraid** | forget to do sth  remember to do sth  intend to do  finish doing sth and start  doing sth else  be sorry to do  do one’s best, attempt  wish  pause temporarily  hate what one is about to do  be too frightened to do | forget a past event  recall a past event  involve  continue  have second thoughts  about sth already done  do sth as an experiment  sth needs to be done  finish, cease  feel sorry for what one is doing  be afraid of what mayhappen |

Remember *to back up* your copy.(= don’t forget to back up)

I don’t remember *backing up* your copy.(= I don’t recall this event.)

As a **verb** the gerund may:

•take a direct and an indirect **object**: A data structure is a means of *representing* data in a computer.

•be modified by an **adverb** or an adverbial phrase: The task of computer designers consists in *organizing* a system properly.

•be used **in the Indefinite (Active and Passive)** and **the Perfect (Active and Passive**) forms:

|  |  |  |  |
| --- | --- | --- | --- |
|  | ACTIVE | PASSIVE |  |
| **Indefinite** | doing | being done | refers to the present or future |
| **Perfect** | having done | having been done | the action of the Gerund happened before the action of the verb |

He likes *working* on a computer.

We know of programs *being written* by him.

We can use Indefinite Gerund instead of Perfect Gerund without difference in meaning.

*After having finished* school he entered the university.

*After finishing* school he entered the university

**Exercises.**

1. *Find examples of the Gerund in the text. Translate these sentences. Explain the use of the gerund in them.*
2. *Choose the correct item.*

1. In 1937 Howard H. Aiken started… a computer at Harvard University.

1) to develop 2) developing

3) having developed 4) being developed

2. Atanasoff suggested… vacuum tubes rather than electromechanical relays.

1) to use 2) using of

3) using 4) having used

3. John von Neumann proposed… the instructions for the computer as numbers.

1) to code 2) coding of

3) to code of 4) coding

4. The first microcomputer, the Altair 8800,was proposed… a kit form.

1) to have 2) having of

3) having 4) to having

5. The user could add or subtract…wheels of Pascal’s calculator.

1) turning 2) to turn

3) by turning 4) being turned

6. These capabilities made the Mac easy to use… in computers.

1) not training 2) without training

3) after training 4) being trained

1. *Gerund or Infinitive*

1) A lot of people are worried about \_\_\_\_\_\_\_their jobs. (lose) 2) He agreed \_\_\_\_\_\_\_ a new car. (buy) 3) The question is easy \_\_\_\_\_\_\_ (answer) 4) Not everybody can afford \_\_\_\_\_\_\_ to university. (go) 5) I look forward to \_\_\_\_\_\_\_ you at the weekend. (see) 6) Are you thinking of \_\_\_\_\_\_\_ London? (visit) 7) He apologized for \_\_\_\_\_\_\_ so late. (arrive) 8) Stop \_\_\_\_\_\_\_ noise, please; I’m studying. (make) 9) She doesn't mind \_\_\_\_\_\_\_ the night shift. (work) 10) I learned \_\_\_\_\_\_ the bike at the age of 5.(ride)

1. *Use the verbs in brackets to fill the gaps.*

1 We arranged \_\_\_\_\_\_\_\_\_\_\_\_\_ under the station clock at half nine. ( to meet ) 2 I always try to avoid \_\_\_\_\_\_\_\_\_\_\_\_\_ him whenever I can. ( to see ) 3 I long \_\_\_\_\_\_\_\_\_\_\_\_\_ in Scotland again. ( to be ) 4 My Mum demanded \_\_\_\_\_\_\_\_\_\_\_\_\_ the manager. ( to see ) 5 My brother denied \_\_\_\_\_\_\_\_\_\_\_\_\_ my chocolate mousse. Maybe his hamster ate it. ( to eat ) 6 I tried \_\_\_\_\_\_\_\_\_\_\_\_\_ but I just couldn't. ( to understand ) 7 In the end I gave up \_\_\_\_\_\_\_\_\_\_\_\_\_ to persuade her. ( to try ) 8 Charlie was pretending \_\_\_\_\_\_\_\_\_\_\_\_\_ a chicken. ( to be ) 9 They chose \_\_\_\_\_\_\_\_\_\_\_\_\_ in a cheap hotel but spend more money on meals. ( to stay) 10 We like Galicia so much that we keep \_\_\_\_\_\_\_\_\_\_\_\_\_ back there. ( to go ) 11 He deserves \_\_\_\_\_\_\_\_\_\_\_\_\_ severely punished. ( to be ) 12 When we visit my aunt, they expect me \_\_\_\_\_\_\_\_\_\_\_\_\_ on my best behaviour. ( to be ) 13 I didn't mean \_\_\_\_\_\_\_\_\_\_\_\_\_ her feelings. I'm really sorry. ( to hurt ) 14 I always put off \_\_\_\_\_\_\_\_\_\_\_\_\_ my homework until the last possible moment. ( to do ) 15 He goes on \_\_\_\_\_\_\_\_\_\_\_\_\_ me the same thing over and over again. ( to tell ) 16 I can't stand \_\_\_\_\_\_\_\_\_\_\_\_\_ in the queue at the baker's. ( to wait ) 17 The firemen managed \_\_\_\_\_\_\_\_\_\_\_\_\_ the fire pretty quickly. ( to put out ) 18 I never risk \_\_\_\_\_\_\_\_\_\_\_\_\_ through that part of town. ( to go ) 19 Clare offered \_\_\_\_\_\_\_\_\_\_\_\_\_ me to the airport, which was very kind of her. ( to take ) 20 Dad threatened \_\_\_\_\_\_\_\_\_\_\_\_\_ my pocket money if I didn't do my homework. ( to stop )

1. *Put the verb into the gerund or the infinitive with -to*
2. I couldn’t sleep so I tried \_\_\_\_\_\_\_\_\_\_\_\_\_ (drink) some hot milk.
3. She tried \_\_\_\_\_\_\_\_\_\_\_\_\_ (reach) the book on the high shelf, but she was too small.
4. They tried \_\_\_\_\_\_\_\_\_\_\_\_\_ (get) to the party on time but the bus was delayed.
5. We tried \_\_\_\_\_\_\_\_\_\_\_\_\_ (open) the window, but it was so hot outside it didn’t help.
6. He tried \_\_\_\_\_\_\_\_\_\_\_\_\_ (get) a job in a newspaper firm but they wouldn’t hire him.
7. He tried \_\_\_\_\_\_\_\_\_\_\_\_\_ (get) a job in a newspaper firm but he still wasn’t satisfied.
8. You should stop \_\_\_\_\_\_\_\_\_\_\_\_\_ (smoke), it’s not good for your health.
9. We stopped \_\_\_\_\_\_\_\_\_\_\_\_\_ (study) because we were tired.
10. They will stop \_\_\_\_\_\_\_\_\_\_\_\_\_ (have) lunch at twelve.
11. We stopped \_\_\_\_\_\_\_\_\_\_\_\_\_ (have) a rest, because we were really sleepy.
12. Oh no! I forgot \_\_\_\_\_\_\_\_\_\_\_\_\_ (buy) milk.
13. Please don’t forget \_\_\_\_\_\_\_\_\_\_\_\_\_ (pick) up some juice on your way home.
14. I forget \_\_\_\_\_\_\_\_\_\_\_\_\_ (lock) the door, but I’m sure I must have locked it.
15. Have we studied this before? I’ve forgotten \_\_\_\_\_\_\_\_\_\_\_\_\_ (learn) it.
16. Please remember \_\_\_\_\_\_\_\_\_\_\_\_\_ (bring) your homework.
17. I remember \_\_\_\_\_\_\_\_\_\_\_\_\_ (go) to the beach as a child.
18. Finally I remembered \_\_\_\_\_\_\_\_\_\_\_\_\_ (bring) your book! Here it is.
19. Do you remember \_\_\_\_\_\_\_\_\_\_\_\_\_ (eat) steak in that little restaurant in Rome?
20. I regret \_\_\_\_\_\_\_\_\_\_\_\_\_ (tell) you that the train has been delayed.
21. I regret \_\_\_\_\_\_\_\_\_\_\_\_\_ (tell) Julie my secret; now she has told everyone.
22. *There is one mistake in each of the following sentences. Correct it.*
23. The way of solve this problem is very difficult.
24. After to perform calculations a computer displays a result.
25. Blaze Pascal`s merit consists in his construct the first mechanical computer.
26. On performing the reasonable operations on a computer we solve different kinds of problems for our national economy.
27. Logical operations consist with comparing, selecting, sorting, matching and determining.
28. We were able to translate this text without use a dictionary.
29. He started to learning computer when he was six.
30. *Complete these sentences with the correct form of the verb in brackets*
    1. Don’t switch on without (check) the A drive for a floppy.
    2. The Caps Lock key allows you (type) all in capitals.
    3. You’ll have to get used (change) your password each month.
    4. Changing the motherboard lets your computer (work) faster.
    5. They tried (hack into) the Pentagon’s computers.
    6. You can get advice by (phone) their help line.
    7. The mouse wheel enables you (scroll) up and down the documents.
    8. He objected to (pay) for long distance calls to use the Internet.
    9. I want (learn) how to program XML.
    10. Before (switch off), make sure you have saved your work*.*
31. *How to protect your computer from WanaCryptor ? Write 150 words using the active vocabulary and grammar of the lesson*.