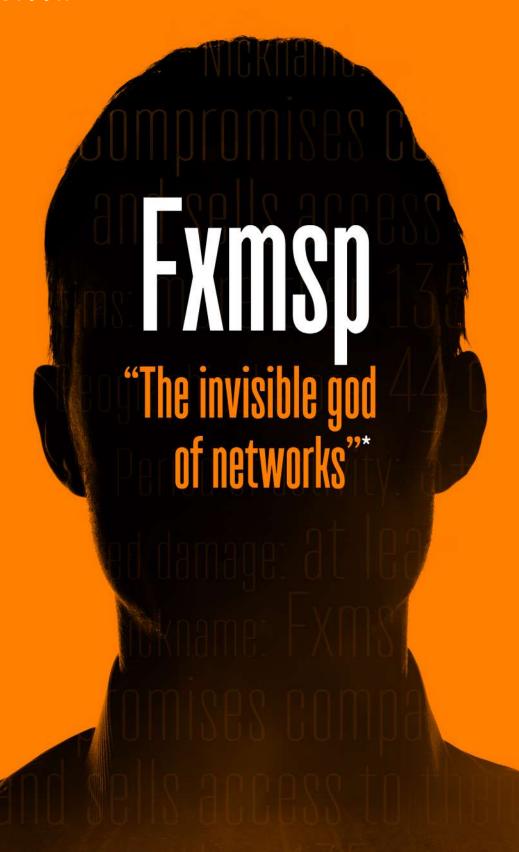
JUNE 2020 GROUP-IB.COM GROUP IB



* "You will become the invisible god of networks..." - the phrase from the ad post used by Lampeduza to promote Fxmsp's services of breaking into corporate networks and selling access to them.

PROFILE

NICKNAME | Fxmsp

ACTIVITY COMPROMISES COMPANY NETWORKS AND SELLS ACCESS TO THEM

VICTIMS MORE THAN 135 COMPANIES

GEOGRAPHICAL SCOPE 44 COUNTRIES

PERIOD OF ACTIVITY 3+ YEARS

TOTAL EARNINGS | AT LEAST \$1.5 MILLION

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APPENDIX 1. LIST OF COMPANIES COMPROMISED BY Fxmsp TO WHICH HE AND HIS ACCOMPLICE SOLD ACCESS*			

Register for a free product tour to test drive all the benefits of Group-IB Threat Intelligence, an advanced framework for attack attribution and protection against threat actors targeting your industry, country & company by contacting us through intelligence@group-ib.com

^{*}The appendix is available in full version only.



INTRODUCTION

In October 2017, an advert was posted on one of the most popular Russian-speaking underground forums, exploit[.]in. The ad was for the sale of access to corporate networks belonging to various companies — a rare underground service at the time. For the first time, a user with an unusual nickname was offering access to all critically important network segments of compromised organizations and announced that a bank was among his victims, which back then was a unique lot.

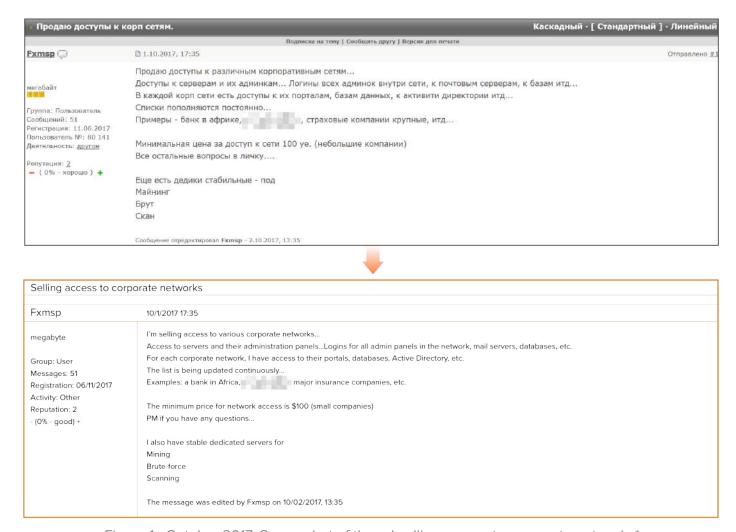


Figure 1 - October 2017. Screenshot of the ad selling access to corporate networks*

The day of October 1, 2017 marked the "birthday" of **Fxmsp** as one of the most famous sellers of access to company networks on underground forums. But his name gained worldwide fame in May 2019, after it was reported that secure networks belonging to three leading antivirus software companies had been compromised. Fxmsp had gained access to fragments of the antivirus software source code, analytical modules, design documents, etc. The lot, according to media reports, was offered for \$300,000. Fxmsp wrote that he had carried out a targeted attack. In just over three years, Fxmsp went from being an ordinary user of a hacker forum who didn't know what to do with the companies to which he'd gained access and who was looking for like-minded individuals to one of

^{*}Hereinafter screenshots from Russian-language underground forums will be provided together with a translation into English.

^{**} https://www.bleepingcomputer.com/news/security/fxmsp-chat-logs-reveal-the-hacked-antivirus-vendors-avs-respond/

the major players of the Russian-speaking underground. Fxmsp soon acquired a loyal customer base and appointed a dedicated sales manager.

By the time that the scandalous news about the hacking of three antivirus vendors came to light, Fxmsp had ended all public activity. The most prolific seller of access remains at large, however, and poses a threat to companies in many industries, regardless of their location. In light of this, Group-IB Threat Intelligence experts decided to release this report, share its expanded version with international law enforcement agencies, and make our materials on Fxmsp's tools and tactics accessible to the general public.

KEY FINDINGS EVOLUTION STAGES

Group-IB's Threat Intelligence specialists analyzed Fxmsp's activity in the Russian-speaking underground from the moment he registered on the first forum in September 2016 to late 2019, when he ceased all public activity. Fxmsp's activities involving the sale of access to corporate networks can be divided into three stages, which are described in the table below:

October 1, 2017 - July 31, 2018

Earnings: \$268,800

1) GATHERING SPEED

All accesses were sold by Fxmsp personally; he carried out his main activity on the underground forum exploit[.]in.

July - October 2018

Earnings: \$1,100,800

COLLABORATIONBETWEEN Fxmsp
AND Lampeduza

Exmsp found an accomplice (a user with the nickname Lampeduza) and appointed him as his sales manager. Lampeduza was involved in advertising and communications with customers; he sold access to companies compromised by Exmsp. The stage ended with the hackers being banned from the forum exploit[.]in.

March 2019 - September 2019

Earnings: \$124,100

PHANTOM MENACE

Lampeduza resumed his activity on other forums. His collaboration with Exmsp continued until the fall of 2019



VICTIM PORTFOLIO: GEOGRAPHICAL SCOPE AND INDUSTRIES

In just over three years, Fxmsp managed to gain access to corporate networks of companies based in more than 44 countries. According to Group-IB Threat Intelligence specialists' estimates, Fxmsp is likely to have made at least 1.5 million dollars throughout his activity. This does not include the 20% of companies to which he offered access without naming the price and the sales he made through private messages.

Fxmsp did not focus on compromising a particular industry and targeted major banks and hotel chains as well as small websites belonging to schools.

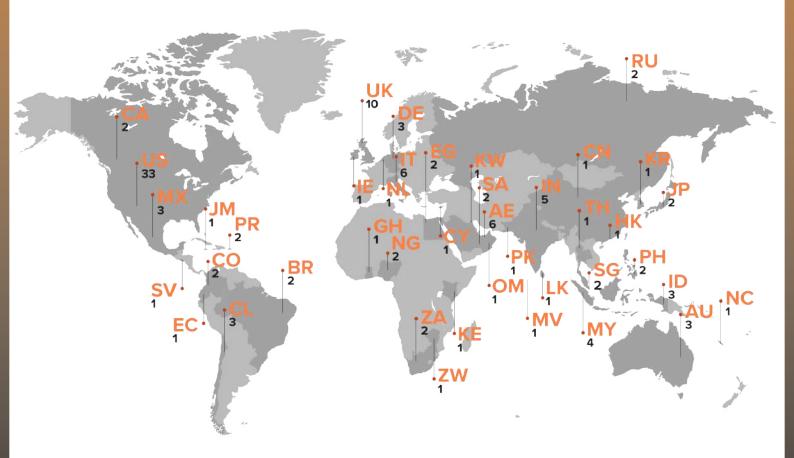


Figure 2 - Geographical distribution of Fxmsp's victims

^{*}The map doesn't include international companies operating in different countries (5) and the companies access to which Fxmsp was selling without specifying their location (8).

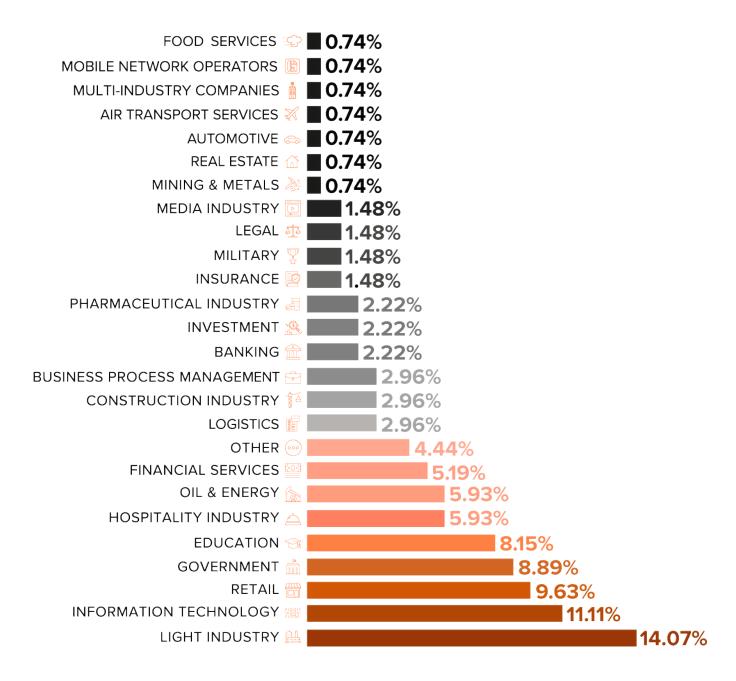


Figure 3 - Distribution of Fxmsp's victims by industry

As seen from Fig. 3, Fxmsp's victims were mainly companies in the light industry, i.e. focused on small production of consumer goods. His second most common targets were companies offering IT services. Retail businesses came third. Interestingly, around 9% of victim networks belonged to state-owned companies.

Four companies attacked by Fxmsp were included in the Fortune Global 500 ranking in 2019.



TIMELINE OF ACTIVITIES ON UNDERGROUND FORUMS

Fxmsp was most active from October 2017 to September 2019. In that time, he publicly advertised the sale of access to corporate networks belonging to 135 companies. The timeline of his posts on underground forums is shown below:

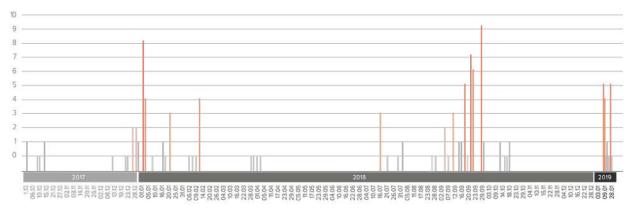


Figure 4 - Timeline of posts advertising the sale of accesses to compromised networks on underground forums

TACTICS, TECHNIQUES, AND PROCEDURES (TTPs)

Unlike most cybercriminals, Fxmsp does not use spear-phishing, nor does he study his victims before the attacks. This fact indicates that his attacks are mass rather than targeted. Nevertheless, the threat actor successfully gains access to networks belonging to large companies. The main stages of Fxmsp's attacks are presented below:

- 1. Scanning of certain IP ranges. Fxmsp uses a relatively common yet simple approach. He scans a range of IP addresses (within a city or a country) for certain open ports. Based on the cybercriminal's messages posted on underground forums, to do so he uses a popular software called **Masscan** as as well as more advanced scanners. The main goal of IP addresses scanning is to identify open **RDP** (remote desktop protocol) ports, particularly 3389. The latter is used to provide remote access to Windows servers and workstations.
- **2.** Attack preparation. After scanning the range of IP addresses and identifying potential victims with open RDP ports, Fxmsp must reduce the amount of input data for brute-force attacks. To this end, he usually uses any programs with the name **RDP Recognizer**. On most remote Windows-based servers, the login screen can be seen together with a list of all accounts on the server. The application in question uses OCR (Optical Character Recognition) to recognize the login details of all accounts on the server. If login details are successfully recognized, the attacker needs only to brute-force passwords.
- **3.** Brute-force attacks. Next, the threat actor uses various programs to carry out brute-force attacks on the victim's server. Brute-force attacks are attempts to guess the RDP password by systematically sorting through all the possible options until the correct one is found. As part of the process, Fxmsp tries possible combinations of characters and searches dictionaries for commonly used or compromised passwords.

- **4.** Persistence. After gaining access to the target device, Fxmsp usually disables the existing antivirus software and firewall, then creates additional accounts. Next, he achieves persistence on the network. Given that in 2017 he was interested in working with Metasploit PRO, we can assume that he uses the **Meterpreter** payload on servers as a backdoor. Fxmsp himself noted in his posts that, when installing backdoors, he set a long interval for connections with C&C servers: once every 15 days.
- **5.** Network reconnaissance. After ensuring persistence on an individual device, Fxmsp continues to explore the network. His next goal is to gain access to the domain controller. We can assume that he was looking for accounts with administrative privileges, which would make it easy to access data of interest. Fxmsp then harvests dumps of all the accounts and attempts to decrypt them. We know that he used **Windows Password Recovery** for decryption on at least one occasion. This tool automatically downloads user databases from SAM or ntds.dit and decrypts hashed passwords.
- **6.** Compromise of backup servers. The cybercriminal's next step is to infect backups. As in the case of the original server, Fxmsp installs backdoors on backups with long intervals. This means that even if the victim notices suspicious activity in the system, they will most likely change passwords and perform a rollback to the backup, which has already been compromised.
- **7.** Monetization. At the main stage of his activity, Fxmsp was selling accesses on underground forums, first on his own, then with the help of his accomplice, **Lampeduza**. At the earlier stages, he installed cryptocurrency mining malware on compromised servers.

Throughout Fxmsp's activity, Group-IB specialists monitored how his attacks evolved by analyzing dozens of his posts. These efforts helped determine the type of tools he used to compromise company networks and establish the exact number of victims and his presumed identity with a high degree of probability. The report ends with a list of **recommendations** to help companies protect against the types of attacks conducted by Fxmsp and similar cybercriminals.





FIRST STEPS IN THE UNDERGROUND

In September 2016, a user with the nickname **Fxmsp** first registered on a hacker forum that was popular at the time, fuckav[.]ru (hxxps://fuckav[.]ru/member.php?u=36898).

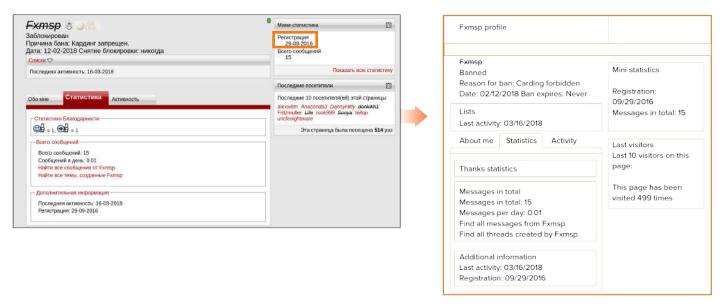


Figure 5 - Screenshot of Fxmsp's user account on fuckav[.]ru. Registration date: September 2016

According to <u>Group-IB's attribution-based Threat Intelligence</u>, Fxmsp was rarely active in the first two months since joining the forum in September 2016, instead likely reading entries and occasionally leaving comments on posts made by other forum users in order to gain experience and find likeminded individuals.

It is highly likely that Fxmsp had already successfully hacked into many corporate networks by that point. He did not know how to monetize the access he had gained, however. He followed a relatively straight-line path. Instead of selling accesses, Fxmsp decided to use the resources belonging to compromised companies to mine cryptocurrency. On November 11, 2016, the cybercriminal wrote his first post about looking for self-propagating persistent cryptomining malware (hxxps://fuckav[.]ru/showthread.php?t=30798).



Figure 6 - November 2016. Screenshot of the post about looking for cryptomining malware

In answer to his question, Fxmsp received a rude reply from another user who was better known at the time, with the nickname **frec**, who told Fxmsp to get to the point instead of asking stupid questions. This is standard practice on underground forums. Individuals who frequent them are not keen on answering questions from newbies and teaching potential competitors.

Soon thereafter, Fxmsp started testing the infamous banking Trojan called Atmos, which was making the cyber rounds at the time.

Atmos is a version of malware called Citadel, which is based on the Trojan Zeus. The malware steals banking data through form grabbers and web injects (it supports Zeus injects). It also intercepts card data from GET and POST requests and has an ATS function. The Trojan has a VNC module, which provides a remote connection to the victim's computer. The Trojan also uses keyloggers/webloggers and a module for stealing files from the victim's device. Apart from that, the Trojan has many other additional functions. In June 2016, its source codes were shared in a public forum.

Usually when hackers take their first steps in the world of cybercrime, they do not think about the fact that they're leaving a digital trail that could lead to their identity being uncovered in the future. This is exactly what happened to Fxmsp. He included his Jabber account, fxmsp@fuckav[.]ru, in his contact information on the forum. Experienced users of underground forums never publish their contact details; they share them only through private messages.

Toward late November that year, Fxmsp published his last post before taking a long break. The post was about looking for self-propagating persistent malware for infecting networks.

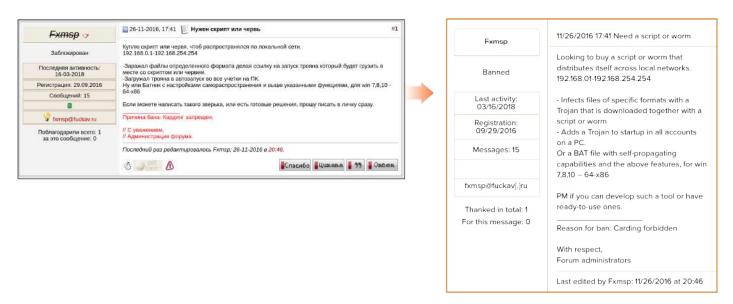


Figure 7 - November 2016. Screenshot of the post about looking for self-propagating malware



Nobody commented on Fxmsp's post, at which point he probably understood that it was pointless to look for cryptomining malware on public forums.

For the next six months, Fxmsp was not active on any forums. In all likelihood, he continued to attack corporate networks, however. The next posts shared by the user with the nickname Fxmsp did not appear until May 2017. In his newest post, Fxmsp explained that he had gained partial access to a large network that was divided into three administrative zones. He said he had managed to gain RDP access to a number of devices.



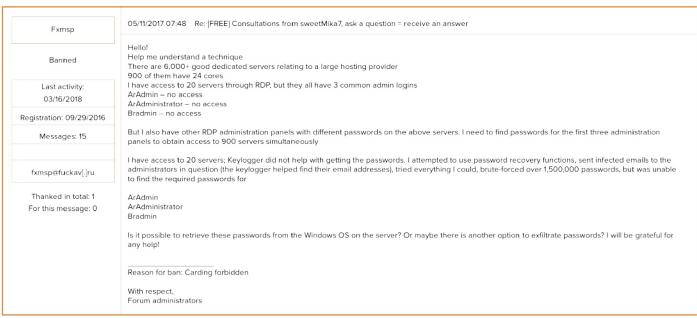


Figure 8 - May 2017. Screenshot of the post about gaining partial access to a large network

Fxmsp understood that brute-force attacks on all 6,000 servers would be pointless, so he once again turned for help to the users of the underground forum. His main goal was to gain access to user accounts of domain administrators. In answer to his appeal, other users recommended going on exploit[.]in, where he could potentially find specialists with the skills to hack password hashes stored in SAM (Security Account Manager) databases.

It is interesting that on the very same day, May 11, 2017, five hours after his first post, Fxmsp announced that his problem had been solved.

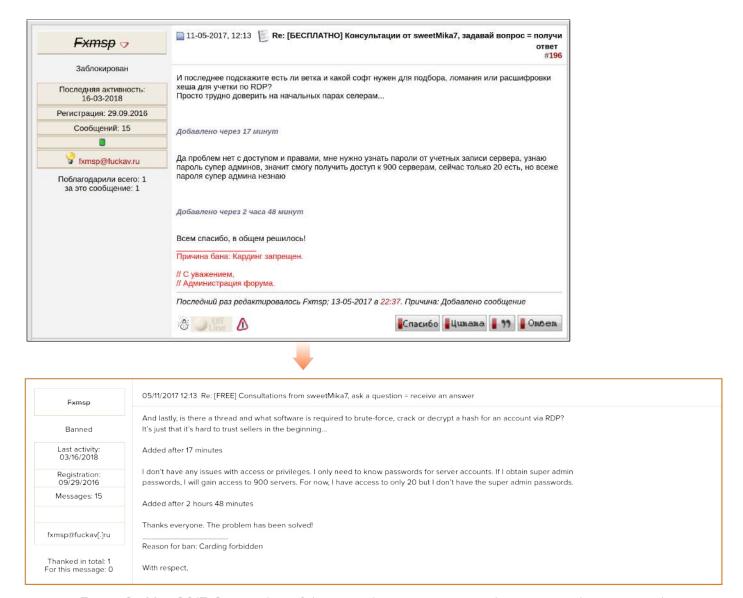


Figure 9 - May 2017. Screenshot of the post about gaining partial access to a large network

Further research revealed that the post in question had been edited. Group-IB's attribution-based Threat Intelligence system makes it possible to monitor all posts on underground forums in real time and gain access to both original posts and all edit history. As such, it was possible to identify one of the tools used by the cybercriminal to conduct attacks on corporate networks: Windows Password Recovery. The latter automatically downloads user information from SAM databases or ntds.dit and decrypts hashed passwords. In Fxmsp's own words, he was able to decrypt the passwords for 90% of accounts thanks to the latest version of the program.



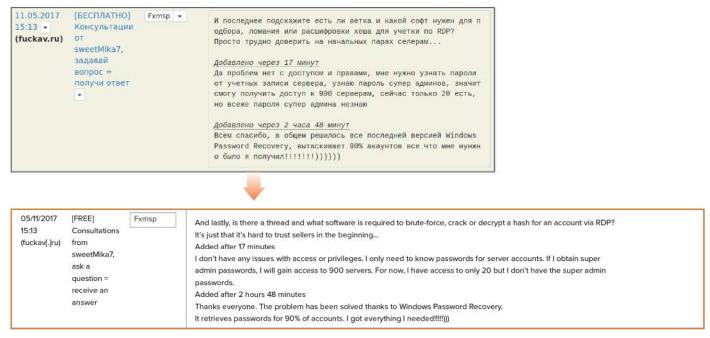


Figure 10 - May 2017. Screenshot of the post describing how the hacker managed to obtain account passwords

In June 2017, the cybercriminal decided to try new ways of compromising networks and began working with a popular pentest software called Metasploit PRO. Fxmsp shared a post on the same forum saying that he was looking for people ready to help him with the malware or join his team on a permanent basis:

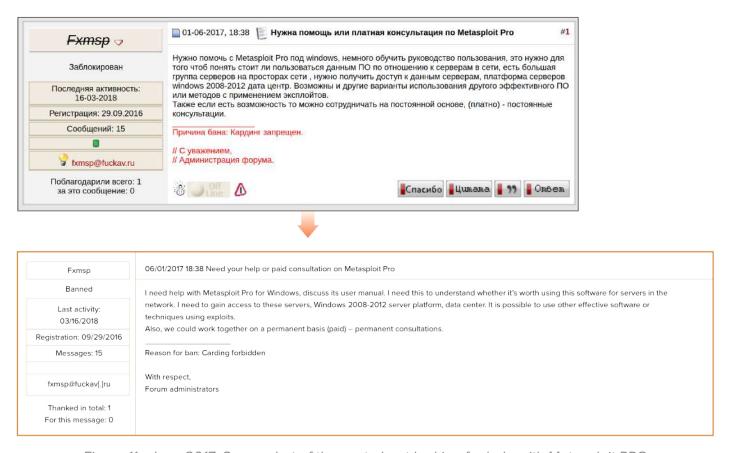
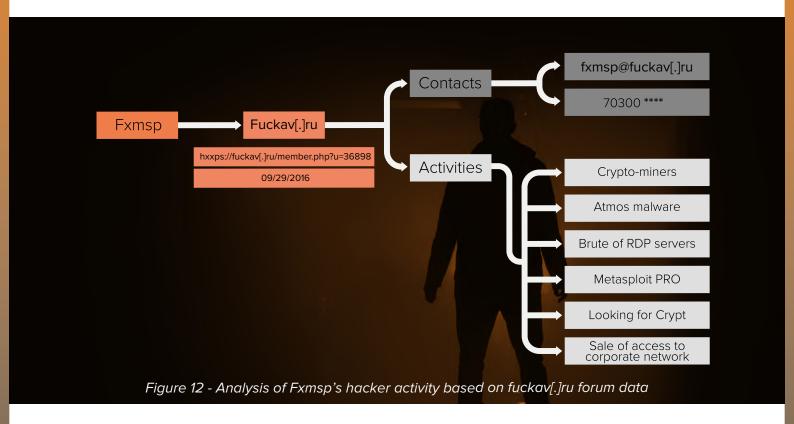
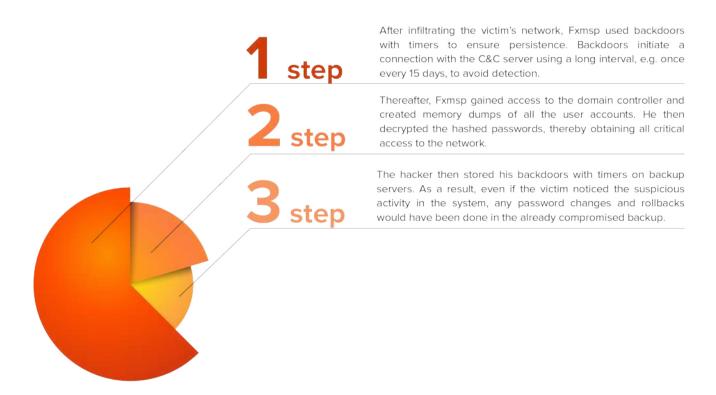


Figure 11 - June 2017. Screenshot of the post about looking for help with Metasploit PRO

The cybercriminal's activity on even one underground forum helps understand his interests and goals. Group-IB specialists were able to recover the contact details that Fxmsp shared at the start of his activity:



While investigating Fxmsp's activity on fuckav[.]ru, Group-IB specialists identified the tools he used to achieve persistence in systems:

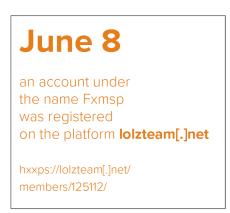




EXPANSION OF ACTIVITY: PRESENCE ON NEW UNDERGROUND FORUMS

In early June 2017, Fxmsp's activity on fuckav[.]ru slowed down. At the same time, Group-IB experts discovered that users with that very nickname were registering on other hacker platforms:

June 6 an account under the name Fxmsp appeared on the forum proxy-base[.]com hxxp://proxy-base[.]com/ members/fxmsp/





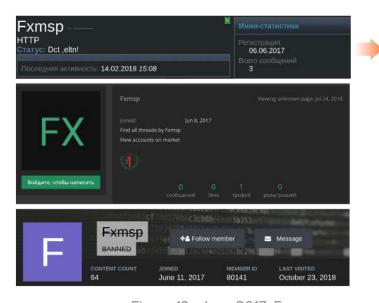
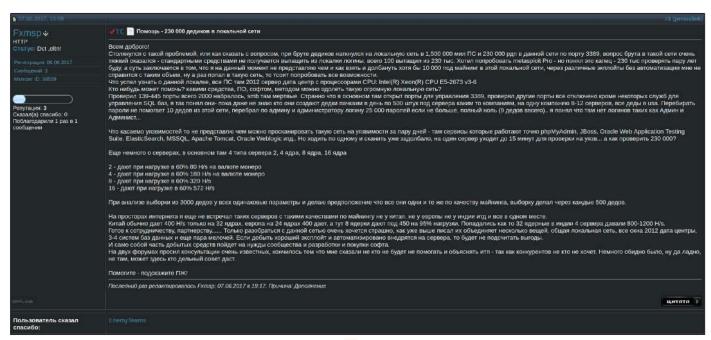




Figure 13 - June 2017. Fxmsp user account on other underground forums

The day after joining proxy-base[.]com, Fxmsp posted another message in which he wrote that he had managed to obtain access to a huge network of 1.5 million devices. By further scanning networks for unsecured RDP (remote desktop protocol) ports, Fxmsp found 230,000 devices with an open port 3389.





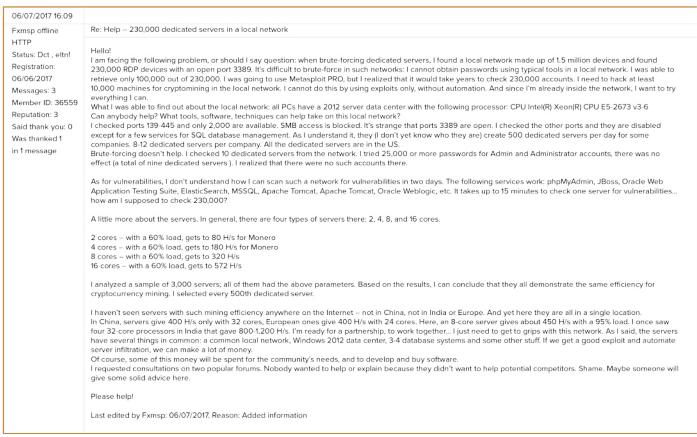


Figure 14 - June 2017. Screenshot of the post about looking for help accessing a large network

It is worth pointing out Fxmsp's confusion. Having gained access to a compromised company, he had no intention of selling that access or using sensitive information in the network for the purpose of reselling it. His only goal was mining the cryptocurrency Monero and he was planning on using the compromised organization's server capacities to do so.

Two users — with the nicknames **zunbah** and **Kibergyry** — expressed their willingness to help.



It is worth noting another post from the same thread: in November 2017, Fxmsp was asked whether the above-mentioned plan had been successful and he replied that, thanks to the DNS (Domain Name System), he had managed to find out who the servers in question belonged to. He had then started checking the networks for specific vulnerabilities, which had helped him gain access to some of the servers, while compromised passwords had helped him access the rest.

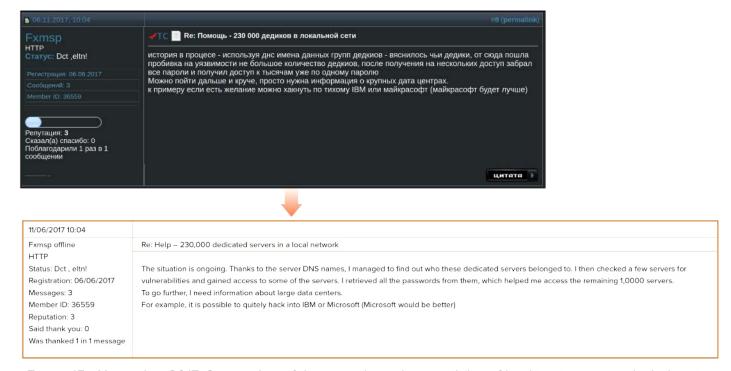
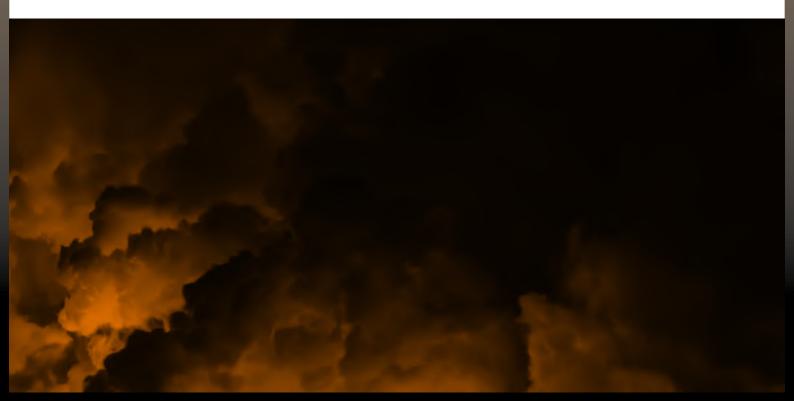


Figure 15 - November 2017. Screenshot of the post about the possibility of hacking into networks belonging to IBM and Microsoft

Having found the solution quickly and convinced of his own success, Fxmsp started boasting and talking about hacking into IBM and Microsoft.





EXPLOIT[.]IN AND THE FIRST ADS FOR THE SALE OF ACCESS TO COMPROMISED NETWORKS

As mentioned above, in June 2017, Fxmsp registered his main account on exploit[.]in, where he refocused his activity and began selling access to compromised corporate networks.

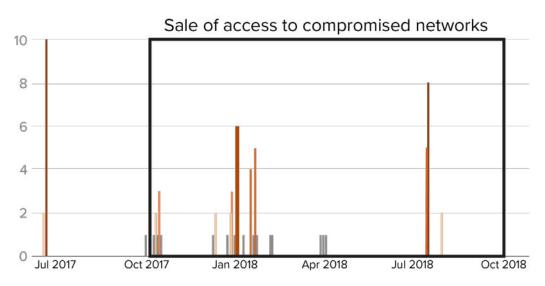


Figure 16 - Fxmsp's activity on exploit[.]in



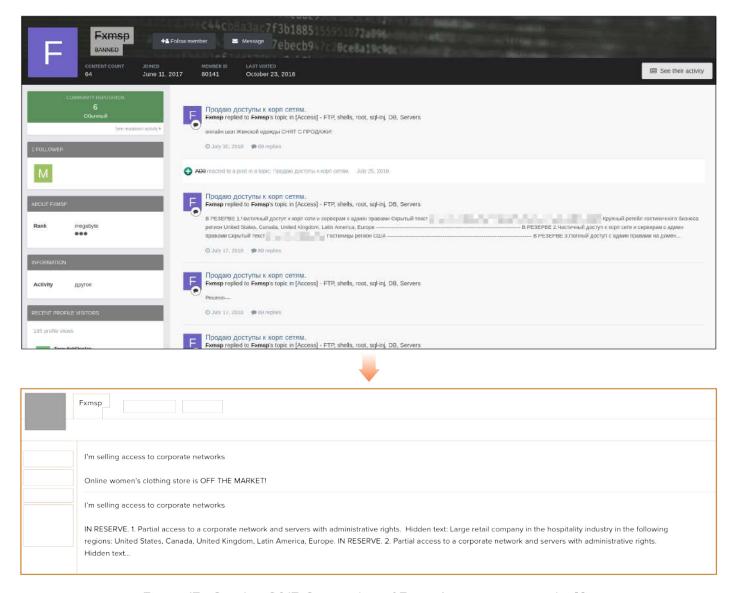


Figure 17 - October 2017. Screenshot of Fxmsp's account on exploit[.]in.

The account was registered on June 11, 2017

It is highly likely that, initially, Fxmsp registered on the forum for other purposes. He was interested in only one question: is it possible to scan a large network linked to stock trading platforms for vulnerabilities. Other users advised him to send specific requests to ports and analyze the server's responses in order to identify devices with vulnerabilities.

Fxmsp: The invisible god of networks



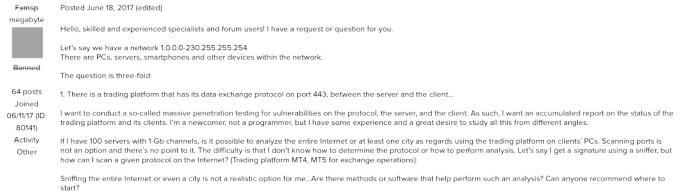


Figure 18 - June 2017. Screenshot of the post about help with scanning networks

After the last message about the subject from June 16, 2017, Fxmsp ceased his activity on forums for three months.

On October 1, 2017, Fxmsp published his first message about the sale of access to corporate networks. Initially, he tried to sell access to networks without naming the companies. The post also did not contain his contact details.



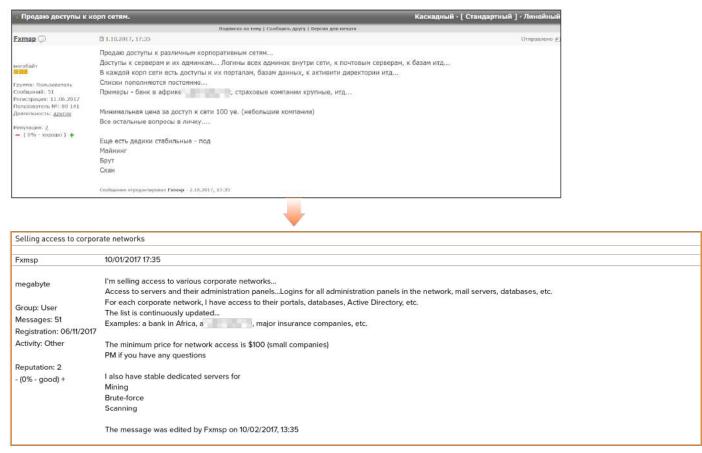


Figure 19 - October 2017. Screenshot of the ad for the sale of access to corporate networks (original version)

This message had been edited later. Fxmsp added his Jabber-account fxmsp541@exploit[.]im but, again, didn't include the names of compromised organizations.



Figure 20 - October 2017. Screenshot of the ad about the sale of access to corporate networks (edited version)

A week after posting the first ad, Fxmsp understood that it would be difficult to find buyers within the underground community without naming his victims. As such, he revealed the name of a bank. The hacker's first victim in the financial industry was a commercial bank in Nigeria.



Figure 21 - October 2017. Screenshot of the ad about the sale of access to a Nigerian bank



Figure 22 - October 2017. Screenshot of the ad about the sale of access to a Nigerian bank (edited version)

Fxmsp shared his another Jabber account, uwerty5411@exploit[.]im, for the first time on October 14, 2017.

Later, it was this information that helped establish his identity.



Figure 23 - October 2017. The first mention of Fxmsp's Jabber account on underground forums

On October 10, 2017, Fxmsp announced that he had gained access to the network belonging to a chain of luxury hotels with locations in the Dominican Republic, Cuba, Panama, the US, European and other countries. According to him, he was able to directly trace hotel guests and access the servers of the security services, the Active Directory, databases, and credit card control panels. The author offered access to 4-10 domain controllers, 600 servers, and 1,000 workstations. Administrator rights were included in the management of the domain controller and the Active Directory. Fxmsp also shared a map showing the hotel locations by country:





Figure 24 - One of the most high-profile cases: the sale of access to the network belonging to a chain of luxury hotels

On December 12, 2017, the author announced that he had gained access to an African bank with a capitalization of \$20 billion. According to him, the access offered comprehensive information about user accounts, passwords, databases, accounts, bank cards, bank accounts, and accounting records.

It should be noted that Fxmsp also tried to sell access in Russia: on December 30, 2017, Fxmsp published an ad for the sale of access through Radmin to an ATM and to the website of a customs office in two different Russian cities. A screenshot of this post can be found in Group-IB's attribution-based Threat Intelligence system:



Figure 25 - December 2017. Screenshot of an ad for the sale of access to an ATM in Russia from Group-IB's internal system for monitoring darknet forums

On January 2, 2018, Fxmsp wrote that the access to the databases was no longer for sale, which usually means that the seller has found a buyer. However, shortly thereafter he edited the message and wrote that he did not work in CIS countries.

Fxmsp: The invisible god of networks

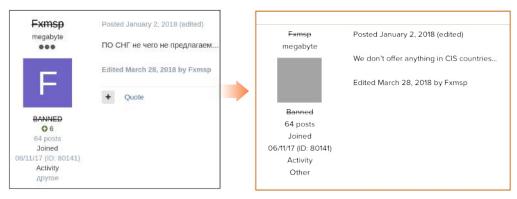


Figure 26 - Screenshot of the edited message in which the author announced that he did not work in CIS countries

Russian hackers have an unspoken rule about not working within Russia and CIS countries. This most likely stems from a fear of ending up behind bars. When you operate in other countries, any potential criminal investigation proceedings will take place in the victim country, which means that the chances of being caught and extradited are minimal, particularly if you choose to target countries that have weak diplomatic ties with Russia, or none at all.

Fxmsp was eventually banned from the forum for violating the rule of not working within Russia. The hacker learned his lesson. He deleted all offers linked to Russia and the ban was lifted.

On January 3, 2018, Fxmsp placed another ad for the sale of access to the network belonging to a company that builds and manages luxury hotels in the US. As before, he shared a map of where the compromised hotels were located:



Figure 27 - Another case involving compromised hotels' networks. Locations of compromised facilities

On January 17, 2018, the hacker shared exactly how many buyers he had at the time: 18. Fxmsp had been forced to show his hand in response to accusations from other users that he did not actually have the access he claimed.





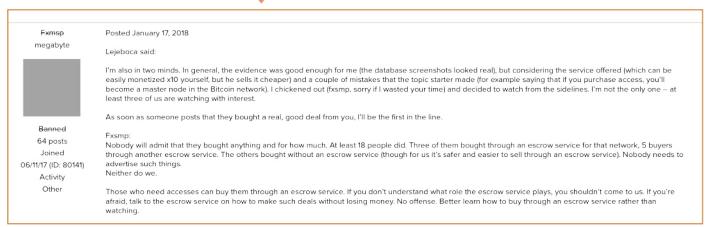


Figure 28 - Screenshot of the post in which Fxmsp shares the number of his current customers

On February 6, 2018, the author of the ad began selling access to the network of an Indian company and its subsidiaries. According to the post author, the company had direct access to its clients and the servers belonging to their partners, which included a few banks and mass media organizations. He named 8 companies, including 2 from the financial sector as examples of such partners and clients.

During the time that he was active on exploit[.]in, from early October 2017 to July 31, 2018, Fxmsp put access to 51 companies in 21 countries up for sale. The cybercriminal shared the price in only 30% of cases. By that time, after 9 months of activity, the minimum average price for all visible accesses that he advertised was \$268,000 (without including the sales he made through private messages).

After publishing an ad for the sale of access to an Indonesian company in April 2018, Fxmsp ceased to be active on forums until mid-July, when he shared his additional Jabber account: fxmsp541@exploit[.]im. In that same month, he published an ad for the sale of access to another five companies and ceased all activity, having appointed a user with the name **Lampeduza** already mentioned in this report as Fxmsp's sales manager.

EPISODE I: COLLABORATION WITH LAMPEDUZA

The user with the nickname **Lampeduza** registered on exploit[.]in on April 10, 2018 (hxxps://exploitinqx4sjro[.]onion/profile/86842-lampeduza/). Lampeduza uses different pseudonyms on different underground platforms, which makes him difficult to track.

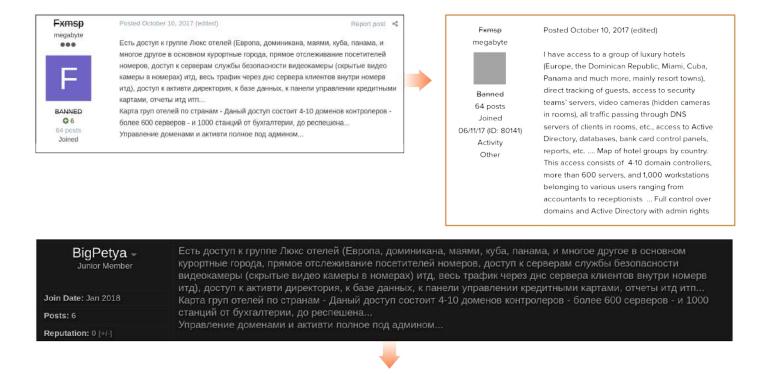
Nevertheless, Group-IB experts were able to identify Lampeduza's nicknames on other forums: **Antony Moricone**, **BigPetya**, **Fivelife**, **Nikolay**, **tor.ter**, **andropov**, and **Gromyko**. Before Fxmsp and Lampeduza started working together, the latter sold bank card dumps (data stored on the card's magnetic strip) as well as login details and passwords to Facebook accounts. He also was interested in hacking into Snapchat accounts. The contact details that Lampeduza provided were in the form of a Jabber account: zeusl1fe@exploit[.]im.

Group-IB researchers were able to make the connection between Lampeduza and Fxmsp because the two of them regularly published almost identical posts around the same time on different forums. For example, the image below shows them selling access to a few of the same companies:



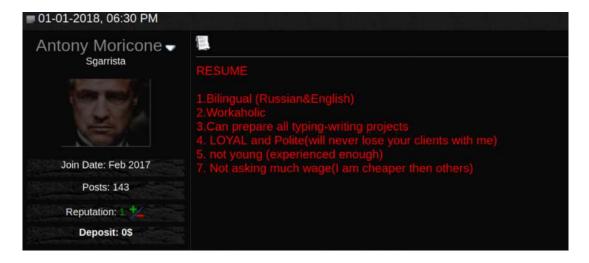






BigPetya Junior Member Join Date: Jan 2018 Posts: 6 Reputation: 0 (+/-) I have access to a group of luxury hotels (Europe, the Dominican Republic, Miami, Cuba, Panama and much more, mainly resort towns), direct tracking of guests, access to security teams' servers, video cameras (hidden cameras in rooms), all traffic passing through DNS servers of clients in rooms, etc., access to Active Directory, databases, bank card control panels, reports, etc. Map of hotel groups by country. This access consists of 4-10 domain controllers, more than 600 servers, and 1,000 workstations belonging to various users ranging from accountants to receptionists ... Full control over domains and Active Directory with admining the servers.

The fact that Fxmsp and Lampeduza were working together was first discovered in early 2018. On January 1, Lampeduza published a post about looking for work on the forum Omerta:



After that, in January 2018, Lampeduza began sharing posts on this forum and others about the sale of access to the very same companies that Fxmsp had mentioned earlier. Access to five companies that had not been mentioned on exploit[.]in was also put up for sale.

In late June 2018, Lampeduza once again posted that he was looking for work. This may have been due to the fact that neither Fxmsp nor Lampeduza advertised any access for sale between April and June 2018.

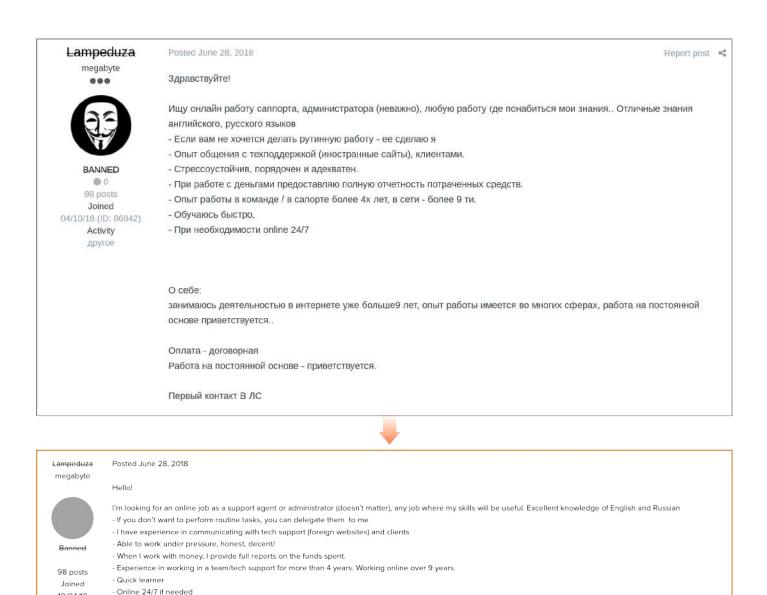


Figure 29 - Screenshot of Lampeduza's post about looking for work

I have been working on the internet for over 9 years. I have experience in many areas. I would prefer a permanent job

10/04/18 (ID: 86842) Activity

Other

Pay – negotiable

First contact in PM

Work on a permanent basis is welcome

In July 2018, Lampeduza and Fxmsp resumed cooperation. On July 16, 2018, a message appeared on an underground forum (en.wt1[.]la) about the sale of access to a corporate network belonging to a multinational retail franchise operator. By analyzing the brands involved, Group-IB specialists were able to determine the company in question. Fxmsp had advertised selling access to this company on exploit[.]in in February 2018. The message was published by a user with the nickname **Fivelife**, whose contact details showed the Jabber account zeusl1fe@exploit[.]im, which Lampeduza had shared on exploit[.]in.





Figure 30 - Screenshot of the message with the list of accesses for sale on wt1[.]|a

Moreover, Lampeduza relaunched sales on the forum Omerta under the nickname **Antony Moricone**. As of now, all his posts published on the forum contain the same text: "del" meaning they were deleted. Nevertheless, Group-IB's attribution-based Threat Intelligence system was able to retrieve the original posts.



Figure 31 - July 2018. Lampeduza's post about the sale of accesses on Omerta retrieved with the help of Group-IB's attribution-based Threat Intelligence system

Fxmsp published the same post on exploit[.]in the same day:

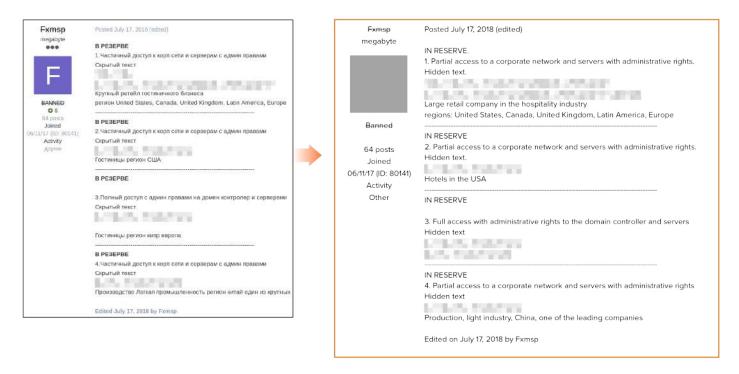


Figure 32- July 2018. Fxmsp's post about the sale of access on exploit[.]in

From late August 2018, Lampeduza ceased all earlier activity on forums and focused on selling access to corporate networks.

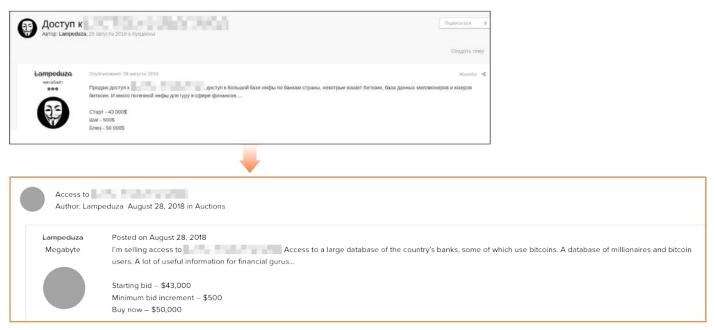


Figure 33 - August 2018. Lampeduza's offer of the sale of access to a government body in an African country



From September 20, 2018, Lampeduza started differentiating target audience and concealing the names of compromised companies from users who had made less than 50 posts:



Figure 34 - September 2018. Restrictions on viewing content

Nevertheless, Group-IB Threat Intelligence specialists were able to retrieve the information about compromised organizations:

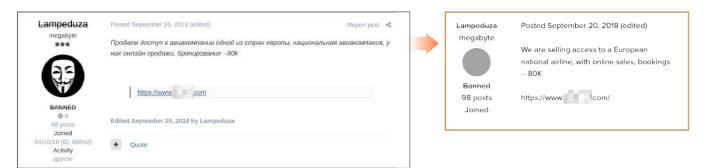


Figure 35 - Hidden information

On September 26, 2018, Lampeduza shared a post about the type of services he was providing and described in detail the advantages of having access to compromised networks. Promoting these services, Lampeduza wrote "[You will have access to the company's] entire network ... You will become THE INVISIBLE GOD OF NETWORKS..."

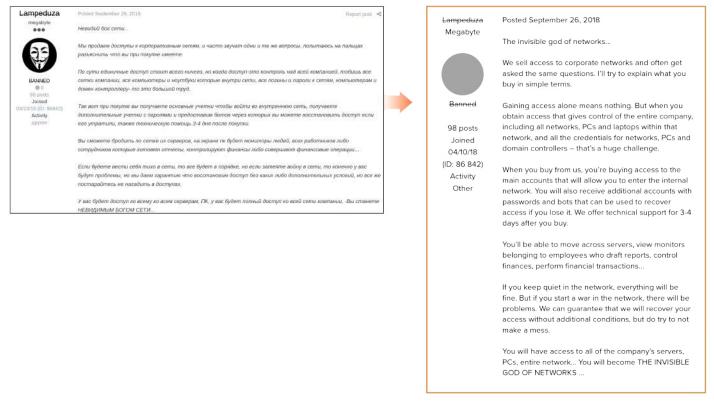
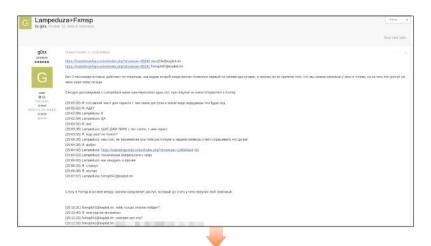


Figure 36 - September 2018. Screenshot of the post with a detailed description of how the co-conspirators sell access

In his message, Lampeduza noted that any access lost can be restored thanks to backdoors left in the network — a method also used by Fxmsp.

Lampeduza was mainly active from late August until November 2018, i.e. after being appointed as sales manager by Fxmsp, until he was banned from exploit[.]in. During this time, posts were shared on the forum advertising the sale of access to 62 new companies. The total price for all the access sold was \$1,100,800.

In late October 2018, Fxmsp and Lampeduza's activity became threatened. It turned out that they were trying to sell access to the same network to several different buyers. This is prohibited on the forum without the buyer's consent. As a result, a user with the name **g0rx** created a topic on the forum in which he described the situation. Such topics are used as a way to resolve disputes between underground community users when a buyer and seller enter into a conflict that requires the intervention of a third party, usually the forum administrator.



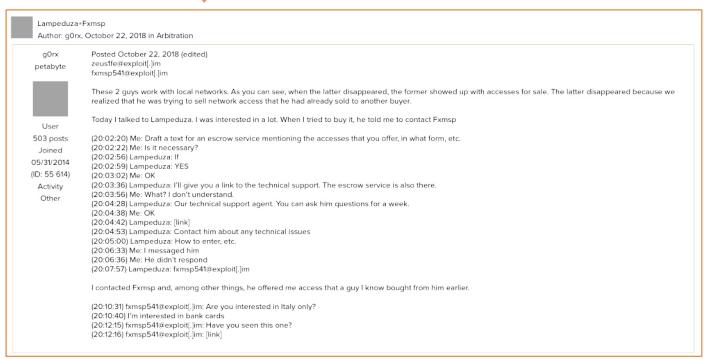


Figure 37 – Screenshot of the post about this cybercriminal group on an underground forum



The user gOrx wrote that someone he knew by the nickname of **mimikatz** had bought access to a corporate network from Fxmsp, but cryptominers were later discovered in it. As already mentioned in the "First steps in the underground" chapter, Fxmsp had indeed installed miners in compromised infrastructures at the start of his career. Moreover, Fxmsp also offered gOrx the opportunity to buy access to the same company.

In his defense, Lampeduza announced that he would cease working with Fxmsp and temporarily stop selling access to compromised networks. As a result on October 24, both users were banned from the main underground forum. The group suspended its activity on all other forums and allegedly focused on "private sales", i.e. they started working only with a limited circle of trusted clients.

In mid-March 2019, the co-conspirators resumed their activity on forums. New messages about the sale of access appeared on several underground message boards. One of these ads is shown on the figure below.



Figure 38 - Screenshot of the new ad for the sale of access to corporate networks

It is also worth noting that on March 21, 2019, the user Antony Moricone posted an ad stating that he was selling access to corporate networks for the purpose of installing cryptocurrency miners within the company:

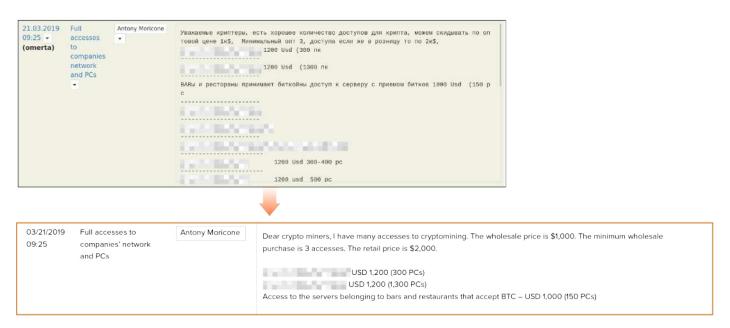


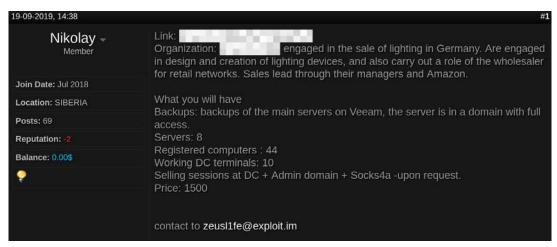
Figure 39 – Screenshot of the new ad selling access

Let us circle back to the beginning of this report: Fxmsp's public activity culminated in April 2019. A company called AdvIntel reported to have received information from Fxmsp that he had compromised networks belonging to three major antivirus software vendors. According to the attacker, he had also exfiltrated the source codes of the antivirus agents, analytics modules, and security plug-ins for browsers from the compromised network. The price for the source code and network access was \$300,000. AdvIntel representatives stated that the attacker's victims were McAfee, Symantec, and Trend Micro. Trend Micro then admitted that unauthorized access had been made to a single testing lab network by a third party, while the former two did not confirm the leak.

EPISODE II: THE PHANTOM MENACE

In May 2019, Lampeduza stated that he no longer worked with Fxmsp and had nothing to do with the leak of source codes belonging to the antivirus software companies. He also said that he had allegedly suspended their cooperation on underground forums due to the media paying more and more attention to Fxmsp. By that time, Lampeduza provided information about compromised companies to regular customers only. Thereafter, Lampeduza once again disappeared from forums for a while, but most likely continued selling accesses provided by Fxmsp through private messages.

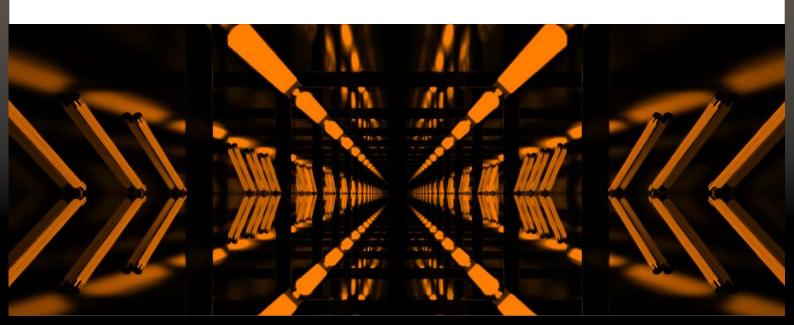
Another public lot appeared several months later. On September 19, 2019, Lampeduza announced that he was ready to sell access to a new corporate network.



Screenshot 40 - September 2019. Screenshot of the new ad about selling access

It is difficult to assess how much money Fxmsp made in that time given that, in 2019, he publicly offered access to corporate networks belonging to only 22 companies. The total price for the services offered was \$124,100.

We can conclude that, despite being banned from exploit[.]in, the cybercriminal group continued its activity between May and September 2019. Moreover, despite his public claims Lampeduza most likely continued to sell access to corporate networks compromised by Fxmsp.





THE FINAL STRAIGHT: END OF FXMSp's OPERATIONS

Lampeduza and Fxmsp officially stopped working together in December 2019. On December 3, 2019, Lampeduza, using one of his alternative nicknames, **Antony Moricone**, published a post on Omerta stating that he was looking for a job as an underground sales manager. It was the same post as the one he had published before he started working with Fxmsp:

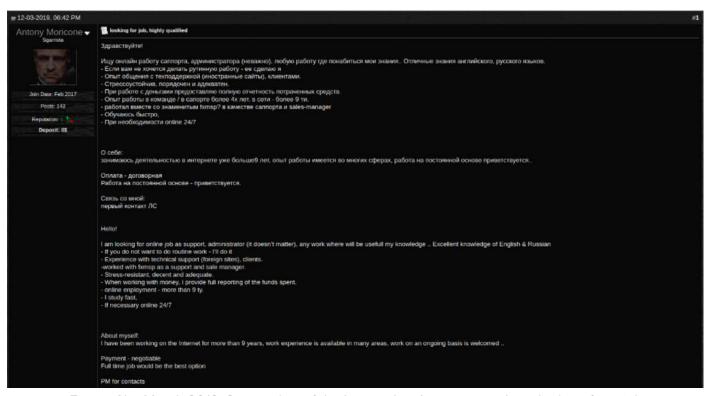


Figure 41 - March 2019. Screenshot of the Lampeduza's message about looking for a job

On December 17, 2019, Lampeduza confirmed to the forum users that Fxmsp had stopped his activity.



Figure 42 - December 2019. Lampeduza confirms that Fxmsp has stopped his activity

FXMSp's PRESUMED IDENTITY: DEANONYMIZATION STAGES

Initially, Fxmsp used the Jabber account **uwerty5411@exploit[.]im** for communicating with other users. Group-IB specialists noticed that this account did not resemble his standard nickname and made a note of this pseudonym for the future. Most of the time, the threat actor used the unique nickname Fxmsp, which ultimately was the basis for establishing his true identity.

As the nickname is rare, Group-IB specialists were able to uncover his email account on the m***.ru platform: Fxmsp@m***[.]ru. The attacker has never mentioned this email on any forums, so it could have been a coincidence, but Group-IB decided to check whether this email address had been used to register any accounts on underground forums. As a result, Group-IB specialists uncovered overlaps with the attacker's accounts. The email had been used to register accounts on the following forums: proxy-base[.]com, lolzteam[.]net, exploit[.]in, and fuckav[.]ru.



Figure 43 - Correlation of m***.ru account with Fxmsp's registration on forums

The address Fxmsp@m***[.]ru was given as the backup email for the email account **fxmsp@b*****[.]ru. The former was also linked to the latter; when linking, it was indicated that the nickname for the m***.ru account begins with a capital letter. This detail is in fact crucial given that the attacker spelled his nickname with a capital letter on all forums.

As such, one more fact served as indirect confirmation that the original email was associated with the nickname that was used on underground forums.

Two Skype accounts are also linked to the email account Fxmsp@m***[.]ru:

- msgp*** (Mich*** Ko***)
- wcypr*** (An*** Ayt***)

Moreover, the account Fxmsp@m***[.]ru was used to register the domain gov360[.]info:



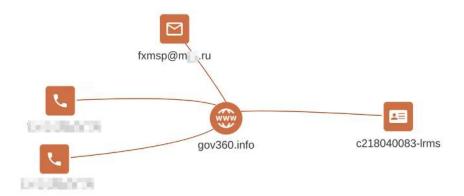


Figure 44 - Screenshot from Group-IB's system showing links between various accounts and a domain name registered using the account Fxmsp@m***[.]ru

In WHOIS data, the name "andej a turchin" appeared in the "Org" field:

Org	andej a turchin hosting telesystems jsc
Address	PRINCESONS AND
City	almata moscow
Zipcode	050000 115093

It is worth noting that in WHOIS data the email is also written with a capital letter:

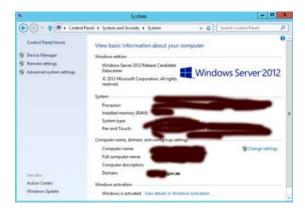
Registrant Fax Ext:
Registrant Email: Fxmsp@m .ru

The phone number +7778316*** was also given. According to the operator's DEF code, the phone number belongs to the company Kcell/Activ in Kazakhstan.

Based on the attacker's Jabber account, Group-IB specialists found a similar account (i.e. similar activity was conducted using this account) registered on proxy-base[.]com (hxxp://proxy-base[.]com/members/uwert/). This fact was mentioned earlier in the report, but the reasoning behind why we believe that it also belongs to the attacker is explained below.

First, the account owner uses a nickname partially similar to the attacker's Jabber account. This factor alone is not proof in itself, however, because "uwerty" is merely a common combination like qwerty with one letter changed. The second — much more important — factor is his activity on the forum. The user was interested in brute-force attacks on RDP servers. He asked the user with the nickname **Montano** (hxxp://proxy-base[.]com/members/montano/) for help. Later, it emerged that Montano had not been able to fulfill the task and instead created fake screenshots to confirm its supposed success; he inserted the domain name that Fxmsp had asked to attack in the screenshots. This is where the fun really begins. Messages exchanged between February 14 and 16, 2018 were published. A fake screenshot was also attached:

Fxmsp: The invisible god of networks



The top-level domain **gov[.]ae** appears on the screenshot. It is worth reiterating that a month earlier, Fxmsp had been selling access to compromised networks in the UAE.

During further research, based on the cybercriminal's main Jabber account and his second detected account on proxy-base[.]com, Group-IB specialists checked the email uwert@m***[.]ru and discovered that it was used to register four domains:

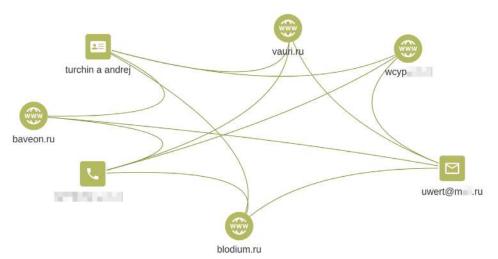


Figure 45 - Verification of connections between various accounts and identification of domains registered using uwert@m***[.]ru

As the figure shows, the domain name **wcypr***[.]ru** overlaps with the Skype username **wcyp***** (**An*** Ayt*****), which was registered using the email account Fxmsp@m***[.]ru.

The above-mentioned name "turchin a andrej" was used to register the account.

Status	registered, delegated, verified
Email	uwert@m .ru
Name	turchin a andrej

The month of birth provided in his Jabber account (uwerty5411@exploit[.]im) was **December**. The set of characters "gdfsgfd" was given as his name.



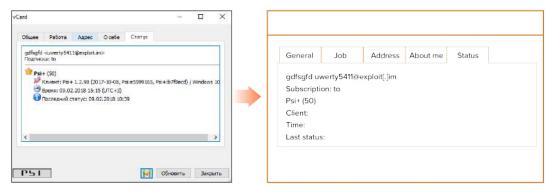


Figure 46 — Screenshot of information from the Jabber account uwerty5411@exploit[.]im

An analysis of the email address Fxmsp@m***[.]ru revealed that it was linked to an account in the Russian social network My World:



An account in the name of Andrey Turchin was discovered on the Russian social network VK.com (hxxps://vk[.]com/id***). The photo from this account matches the photo published on My World.



This account turned out to be linked to the email address **uwert@m***[.]com**.

Moreover, in 2008, uwert@m***[.]ru was used to register the domain 2o2o[.]ru, on which **"Andrey A Turchin"** was also shown as the registrant:

с 2008.08.19 по 2008.12.26	domain:	2020.RU
	nserver:	nsl.agava.net.ru.
	nserver:	ns2.agava.net.ru.
	state:	REGISTERED, DELEGATED, UNVERIFIED
	person:	Andrey A Turchin
	phone:	******
	e-mail:	uwert@m ru
	registrar:	NAUNET-REG-RIPN
	created:	2008.07.13
	paid-till:	2009.07.13
с 2008.07.15 по 2008.08.18	domain:	2020.RU
	nserver:	dnsl.naunet.ru.
	nserver:	dns2.naunet.ru.
	state:	REGISTERED, DELEGATED, UNVERIFIED
	person:	Andrey A Turchin
	phone:	******
	e-mail:	uwert@m .ru
	registrar:	NAUNET-REG-RIPN
	created:	2008.07.13
	paid-till:	2009.07.13

It is worth noting that a different email address supposedly linked to Turchin, **boss@lb***[.]ru**, was also used to register this domain. Group-IB's Graph Network Analysis system showed that this email address was used to register multiple domain names:

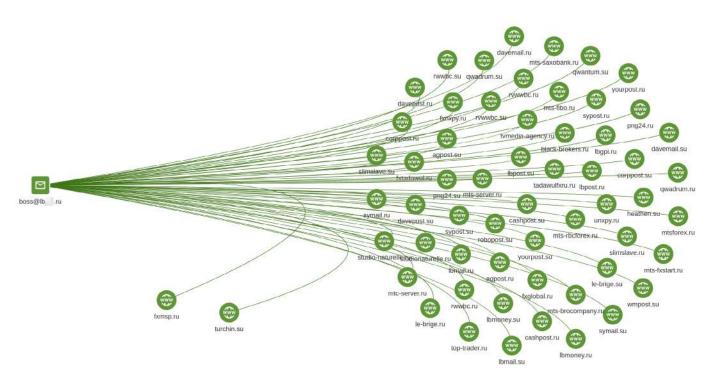
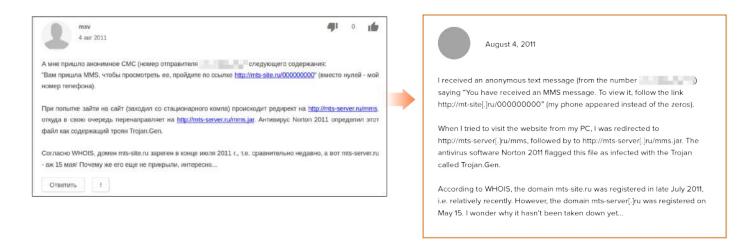


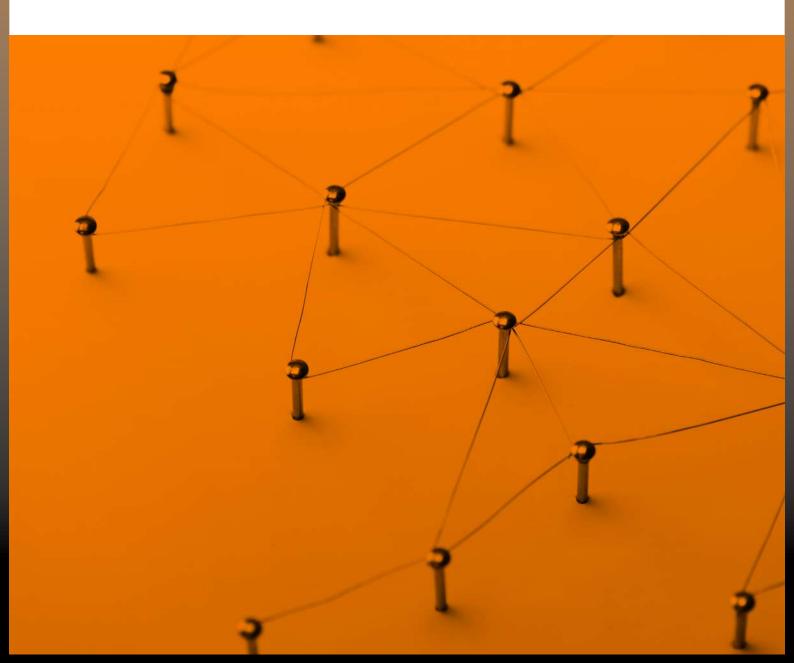
Figure 47 – Screenshot from Group-IB's Graph Network Analysis system: links between the email account boss@ $lb^{***}[.]$ ru and registered domains

Out of this array of more than 60 domains, **turchin[.]ru** and **fxmsp[.]ru** should be singled out. Their names speak for themselves and, once again, they confirm the above links. Most of the detected websites are related to trading on exchanges (especially Forex) and various automated trading systems. Presumably, they could have been used not only for their intended purposes, but also to distribute malicious software. For example, the resource mts-server[.]ru contained a malicious JAR file called "mts-server[.]ru/mms.jar" (fc68d49bb0a0a9c35c19182760f5c274) that was designed to send SMS messages to premium-rate numbers. According to user reports, this malware was spread via SMS campaigns:





Based on the information above, Andrey A. Turchin, born on December ***, **198*****, living in Almaty, Kazakhstan (according to social media profiles, domain registration data, and the phone number), is presumably the attacker who hides under the nickname "Fxmsp". The fact that he uses the same nicknames and the common interests related to exchange platforms both confirm this.



GROUP-IB'S PROFILE: Fxmsp

NAME | Andrey A. Turchin

ACTIVITY Compromises company networks and sells access to them

DOB | 12/***/198***

PLACE OF RESIDENCE | Almaty, Kazakhstan

USERNAMES | Fxmsp, uwert, vidi, bosslb

ICQ 445436*** 703004***

ACCOUNTS ON UNDERGROUND FORUMS

https://lolzteam[.]net/members/125112/ http://proxy-base[.]com/members/fxmsp/ http://proxy-base[.]com/members/uwert/ https://forum.exploit[.]in/index.php?showuser=80141 https://fuckav[.]ru/member.php?u=36898

EMAIL ACCOUNTS

fxmsp@m***[.]ru uwert@m***[.]com uwert@m***[.]ru boss@lb***[.]ru

JABBER ACCOUNTS

uwerty5411@exploit[.]im fxmsp541@exploit[.]im

|GROUP | iB|

RECOMMENDATIONS

At the time of writing, Fxmsp is no longer conducting public activities. It is uncertain, however, whether he is still breaking into company networks and selling access to them. Given the risk, we deem it essential to offer universal recommendations on how to prevent attacks that bear similarities to those conducted by Fxmsp.

As mentioned in the section **"Key findings. Tactics, techniques, and procedures"**, Fxmsp uses open RDP ports as the initial attack vector. We therefore recommend taking the following steps to protect against the types of incidents described in the report:

- 1. Change the default RDP port 3389. Considering that attacks are usually not targeted, hackers often look for connections that use the default port. The port may be edited by changing it to any other.
- 2. Set up account lockout. Given that attackers usually need a huge number of attempts to brute-force passwords and gain access to the RDP, make sure to enable account lockout policies by limiting the number of failed login attempts per user.
- **3.** Check your logins and passwords in public leaks. It is widely known that hackers use compromised data from various leaks to create dictionaries for brute-force attacks. Based on the leaked data, they create so-called combo lists (login and password pairs). As such, preventively checking leaks for your employees' data significantly reduces the likelihood of an attack being successful.
- **4.** Take preventive measures to detect leaked data offered for sale on underground forums. To minimize the impact of data breaches, we recommend using Threat Intelligence systems that automatically monitor the darknet for compromised data related to a certain company. This type of solutions helps organizations take necessary steps to ensure data security and identify the source of the breach.
- **5.** Install specialized software for detecting server anomalies. Such programs help detect new accounts, traffic anomalies, and attempts to gain unauthorized access to any data.
- **6.** Introduce IP address whitelisting. We recommend that access to remote servers be limited to a specific list of IP addresses. If many employees work remotely, it is worth setting up a corporate VPN.
- **7.** Ensure that the name of the last user who logged on is not displayed. Ensure that the name of the last user who logged on is not displayed. To do this, change the group policy in the Active Directory (GPO_name**\ComputerConfiguration\Windows Settings\ Security Settings\ Local Policies\ Security Options**) and disable the parameter "Interactive logon: Do not display last user name."

GROUP IB

Preventing and investigating cybercrime since 2003.