UNITED STATES DISTRICT COURT

for the

Middle District of North Carolina

In the Matter of the Se (Briefly describe the property to or identify the person by name	210 2 11 2 0) Case N	10.1:21MJ67
COMPUTERS INFECTED WITH	EMOTET MALWARE	}	1.000
APPLICATION FOR A WA	RRANT BY TELEP	HONE OR OTHER	RELIABLE ELECTRONIC MEANS
penalty of perjury that I have rease property to be searched and give its local	on to believe that on t	ey for the government he following person o	t, request a search warrant and state under property (identify the person or describe the
See Attachment A			
located in the	District of	Multiple	, there is now concealed (identify the
person or describe the property to be seiz	ed);		
See Attachment B			
f property designed	ne; of crime, or other item for use, intended for ested or a person who violation of: Computer Fraud Conspiracy to Co	ms illegally possessed use, or used in commi is unlawfully restraine Offense	tting a crime; ed. Description
	hed sheet.		
Delayed notice of 18 U.S.C. § 3103a, the	days (give exact end	ing date if more than 30 da forth on the attached s	
		11	Applicant's signature
		Blai	r Newman, Special Agent, FBI
		Dial	Printed name and title
A manual to builty was the second	adams with the second	er in o	
Attested to by the applicant in acco		rements of Fed. R. Cr.	

City and state: Greensboro, North Carolina L. Patrick Auld, United States Magistrate Judge

Printed name and title

ATTACHMENT B PARTICULAR THINGS TO BE SEIZED

This warrant authorizes the search of the electronic storage media identified in Attachment A and the seizure or copying from the electronic storage media identified in Attachment A electronically stored information that constitutes evidence and/or instrumentalities of the Emotet botnet computer fraud and conspiracy in violation of Title 18, United States Code, Sections 1030(a)(5)(A) (computer fraud) and 371 (conspiracy to commit computer fraud), in that remote access techniques may be used:

- 1. To search the electronic storage media identified in Attachment A and to seize or copy from the electronic storage media identified in Attachment A any electronically stored information, such as encryption keys and server lists, used by the administrators of the Emotet botnet to communicate with computers that are part of the Emotet botnet infrastructure; and
- 2. To search the electronic storage media identified in Attachment A and to seize or copy from the electronic storage media identified in Attachment A any electronically stored information, such as IP addresses and routing information, necessary to determine whether any electronic storage media identified in Attachment A continues to be controlled by the

administrators of the Emotet botnet after the seizure or copying of the electronically stored information in Paragraph 1.

This warrant does not authorize the seizure of any tangible property. Except as provided in Paragraphs 1 and 2, this warrant does not authorize the seizure or copying of any content from the electronic storage media identified in Attachment A or the alteration of the functionality of the electronic storage media identified in Attachment A.

IN THE UNITED STATES DISTRICT COURT FOR THE MIDDLE DISTRICT OF NORTH CAROLINA

IN RE APPLICATION FOR A WARRANT TO SEARCH COMPUTERS INFECTED WITH EMOTET MALWARE

Case No. 1:21 M 567

AFFIDAVIT IN SUPPORT OF AN APPLICATION UNDER RULE 41(b)(6)(B) FOR A SEARCH WARRANT

I, Blair Newman, a Special Agent with the Federal Bureau of Investigation ("FBI"), being first duly sworn, hereby depose and state as follows:

INTRODUCTION

1. FBI is investigating the Emotet malicious software ("malware") and its associated botnet. Given its worldwide impact, FBI is collaborating with foreign law enforcement agencies, which have gained access to Emotet-linked servers that are physically located in their respective jurisdictions. A foreign law enforcement agency¹ has replaced a file on one of these servers, located overseas, with a law enforcement-created file. The file has been and will be downloaded by victim computers (i.e., "bots") throughout the world, including thousands of active victim computers that appear to be located in the United States, during the normal operation of Emotet. In order to receive the

¹ This foreign law enforcement agency is viewed as trustworthy and reliable, based on the experience of the FBI.

file, a victim computer must be powered on and attempt to communicate with the Emotet server on which law enforcement has replaced the file. The law enforcement file provides victim computers with new instructions that untether them from the Emotet botnet and prevent the botnet administrators from communicating with infected computers; it does so by changing the malware's encryption keys and replacing a list of servers controlled by the botnet's administrators with a list of servers controlled by foreign law enforcement.

- 2. Law enforcement previously obtained three warrants related to this operation, 21MJ29, 21MJ35, and 21MJ47 (hereinafter the "prior warrants"). They authorized the seizure or copying of electronically stored information that constitutes evidence and/or instrumentalities of the Emotet botnet computer fraud and conspiracy from identified computers infected with the Emotet malware that are located in the United States. The most recent authorization, under warrant 21MJ47, expired on February 19, 2021.
- 3. From on or about January 26, 2021, through February 19, 2021, approximately 2,000 computers located in the United States have received the law enforcement file, as authorized by the prior warrants. However, thousands of computers in the United States known to have been in an active state of Emotet malware infection between April 1, 2020, and January 22, 2021, have yet not received the law enforcement file.

- 4. Therefore, I make this affidavit in support of an application for a warrant under Federal Rule of Criminal Procedure 41(b)(6)(B) to use remote access techniques to search infected computers that are located in the United States, further identified in Attachment A, and to seize or copy electronically stored information that constitutes evidence and/or instrumentalities of the Emotet malware and botnet, further described in Attachment B.
- 5. This warrant does not authorize the collection of content of communications from the infected computers, nor does it authorize law enforcement officers to alter the infected computers' operating systems, files, or software, except as expressly provided in this affidavit.
- 6. The facts in this affidavit come from my personal observations, my training and experience, and information obtained from other witnesses and agents, including foreign law enforcement officers. This affidavit is intended to show merely that there is sufficient probable cause for the requested warrant and does not set forth all of my knowledge about this matter.
- 7. Based on my training and experience and the facts as set forth in this affidavit, there is probable cause to believe that violations of Title 18, United States Code, Sections 1030(a)(5)(A) (computer fraud) and 371 (conspiracy to commit computer fraud) have been committed in the Middle District of North Carolina and elsewhere.

AGENT BACKGROUND

8. I am a Special Agent with the Federal Bureau of Investigation ("FBI") and have been since May 2019. I am currently assigned to the Cyber Squad in the Raleigh Resident Agency of the Charlotte Division. Previously, from May 2016 to May 2019, I was an FBI Staff Operations Specialist assigned to a Cyber Squad in the New York Office. I have participated in investigations of criminal offenses involving computer and wire fraud, as well as conspiracy, and I am familiar with the means and methods used to commit such offenses. I am an "investigative or law enforcement officer" within the meaning of 18 U.S.C. § 2510; that is, an officer of the United States of America who is empowered to investigate and make arrests for offenses alleged in this warrant.

STATUTORY AUTHORITY

9. Federal Rule of Criminal Procedure 41(b)(6)(B) provides that "a magistrate judge with authority in any district where activities related to a crime may have occurred has authority to issue a warrant to use remote access to search electronic storage media and to seize or copy electronically stored information located within or outside that district if . . . (B) in an investigation of a violation of 18 U.S.C. § 1030(a)(5), the media are protected computers that have been damaged without authorization and are located in five or more districts."

- 10. Title 18, United States Code, Section 1030(a)(5)(A) provides that whoever "knowingly causes the transmission of a program, information, code, or command, and as a result of such conduct, intentionally causes damage without authorization, to a protected computer ... shall be punished as provided in subsection (c) of this section." Section 1030(e)(2)(B) defines a "protected computer" as a computer "which is used in or affecting interstate or foreign commerce or communication, including a computer located outside the United States that is used in a manner that affects interstate or foreign commerce or communication of the United States[.]" Section 1030(e)(8) defines "damage" as "any impairment to the integrity or availability of data, a program, a system, or information[.]"
- 11. Title 18, United States Code, Section 371 provides: "If two or more persons conspire either to commit any offense against the United States, or to defraud the United States, or any agency thereof in any manner or for any purpose, and one or more of such persons do any act to effect the object of the conspiracy, each shall be fined under this title or imprisoned not more than five years, or both."

PROBABLE CAUSE

A. Overview of the Emotet Malware and Botnet

12. Emotet is a family of malware that targets critical industries worldwide, including banking, e-commerce, healthcare, academia,

government, and technology. Emotet malware primarily infects victim computers through spam email messages containing malicious attachments or hyperlinks. Once it has infected a victim computer, Emotet can deliver additional malware to the infected computer, such as ransomware or malware that steals financial credentials. The computers infected with Emotet malware are part of a botnet (i.e., a network of compromised computers), meaning the perpetrators can remotely control all of the infected computers in a coordinated manner. The owners and operators of the victim computers are typically unaware of the infection.

- 13. For example, in 2017, the computer network of a school district in the Middle District of North Carolina was infected with the Emotet malware. The Emotet infection caused damage to the school's computers, including but not limited to the school's network, which was disabled for approximately two weeks. In addition, the infection caused more than \$1.4 million in Iosses, including but not limited to the cost of virus mitigation services and replacement computers. From 2017 to the present, there have been numerous other victims throughout North Carolina and the United States, to include computer networks of local, state, tribal, and federal governmental units, corporations, and networks related to critical infrastructure.
- 14. Administrators of the Emotet botnet use a system of tiered servers, described here as Tier 1, Tier 2, and Tier 3, to communicate with the Emotet

malware installed on infected computers. Tier 1 servers are typically compromised web servers belonging to what appear to be unknowing third parties. Tier 2 and Tier 3 servers are rented and controlled by the perpetrators. The primary function of the Tier 1 and Tier 2 servers is to forward communications containing encrypted data between infected computers and Tier 3 servers.

15. Emotet malware installed on infected computers contains a list of dozens of Tier 1 servers identified by Internet Protocol ("IP") address. At regular intervals, roughly every fifteen minutes, the Emotet malware directs victim computers to attempt to communicate with each Tier 1 server in turn (i.e., "beaconing"). After establishing a communication channel, the malware uses the victim computer to send and receive communications to the tiered servers. The Tier 3 servers host control panels used by the perpetrators to send instructions to infected computers; for example, to download an updated version of the Emotet malware or another type of malware, such as ransomware. Data sent in those communications is encrypted using a key known to the perpetrators.

B. Remote Access, Searches, and Seizures

16. Foreign law enforcement agents, working in coordination with the FBI, have gained lawful access to some of Emotet's Tier 2 and Tier 3 servers physically located in their respective jurisdictions. Through such access,

foreign law enforcement agents² identified the IP addresses of approximately 1.6 million computers worldwide that appear to have been infected with Emotet malware between April 1, 2020 and January 22, 2021, meaning those computers were in a state of infection, not necessarily that the initial infection occurred during that time period. Of those, over 45,000 infected computers appear to be both currently-infected and located in the United States, according to publicly available Whois records and IP address geolocation

17. These computers have been identified as infected with the Emotet malware because they communicated through the Internet with servers that are part of the Emotet botnet infrastructure during the relevant time period. The Emotet malware, as described above, contains a list of dozens of IP addresses of Tier 1 servers, as well as the keys to encrypt communications with those servers. Only infected computers, therefore, are capable of successfully communicating with the Emotet Tier 2 and Tier 3 servers that foreign law enforcement agents have accessed.

18. Infected computers located in the United States constitute "protected computers" within the meaning of Rule 41(b)(6)(B) and \$1030(e)(2)(B) because they are used in or affecting interstate or foreign commerce or communication, based on their connection to the Internet. The

² This information provided by foreign law enforcement agents is reliable, based on the experience of the FBI.

infected computers have been "damaged" within the meaning of Rule 41(b)(6)(B) and § 1030(e)(8) because the Emotet malware has impaired the integrity and availability of data, programs, systems, and information on the infected computers.

- 19. The thousands of presumptively U.S.-based infected computers appear to be located in five or more judicial districts, according to publicly available Whois records and IP address geolocation. These districts include, but are not limited to, the following: Southern District of Florida; District of Massachusetts; District of New Jersey; Eastern District of New York; Southern District of Ohio; District of Rhode Island; District of South Dakota; and District of South Carolina.
- 20. Leveraging their access to Tier 2 and Tier 3 servers, agents from a trusted foreign law enforcement partner, with whom the FBI is collaborating, have replaced Emotet malware on servers physically located in their jurisdiction with a file created by law enforcement (hereinafter the "law enforcement file"). This warrant would reauthorize this action for the next two weeks, with the intent that computers in the United States that are infected by the Emotet malware, and have not yet received the law enforcement file, will download the file via Tier 2 and Tier 3 servers during an already-programmed Emotet update.

- 21. The law enforcement file will prevent the administrators of the Emotet botnet from communicating with infected computers by changing the malware's encryption keys and replacing a list of servers controlled by the perpetrators with a list of servers controlled by law enforcement. This warrant therefore authorizes law enforcement officers to seize or copy from the infected computers any electronically stored information, including the encryption keys and server lists, used by the administrators of the Emotet botnet to communicate with computers that are part of the Emotet botnet infrastructure.
- 22. Infected computers that have downloaded the law enforcement file will then attempt to establish communication with servers controlled by the trusted law enforcement partner, rather than Emotet Tier 1 servers. In addition, data sent in those communications will be encrypted using a key known to law enforcement. This warrant therefore authorizes law enforcement officers to seize or copy from the infected computers any electronically stored information, including IP addresses and routing information, necessary to determine whether the infected computer continues to be controlled by the administrators of the Emotet botnet.
- 23. The law enforcement-controlled servers that will replace the Emotet Tier 1 servers will serve as a dead end; that is, they will not further route communications from infected computers. The servers will not capture

content from the infected computers. They will, however, record the IP address and associated routing information of the infected computers for victim notification purposes. U.S. authorities will seek separate pen-trap orders, pursuant to 18 U.S.C. §§ 3121–3127, to the extent any of the law enforcement servers are operated within the United States.

- 24. The law enforcement file does not collect content from the infected computers, nor does it alter the functionality of the infected computers' operating systems, files, or software, except as expressly provided in this affidavit. The law enforcement file does not remediate malware that was already installed on the infected computer through Emotet, such as ransomware or malware that steals financial credentials; however, it is designed to prevent additional malware from being installed on the infected computer by untethering the victim computer from the botnet.
- 25. As noted above, foreign law enforcement agents, not FBI agents, have replaced the Emotet malware, which is stored on a server located overseas, with the file created by law enforcement. I seek this warrant out of an abundance of caution, however, in the event U.S. authorities and foreign law enforcement agents may potentially be deemed to be working as part of a joint venture.

TIME AND MANNER OF EXECUTION

- 26. I request, pursuant to Rule 41(e)(2), that the Court authorize the distribution of the law enforcement file to computers infected with Emotet malware in the United States for a period of fourteen days, beginning on or about February 22, 2021.
- 27. Because infected computers may attempt to communicate with servers that are part of the Emotet botnet infrastructure at any time, good cause exists to permit the execution of the requested warrant at any time in the day or night.

CONCLUSION

28. I submit that this affidavit supports probable cause for a warrant to use remote access to search electronic storage media described in Attachment A and to seize or copy electronically stored information described in Attachment B.

Respectfully submitted,

Blair Newman Special Agent

Federal Bureau of Investigation

Dated: February 22, 2021

Pursuant to Rule 4.1 of the Federal Rules of Criminal Procedure, the affiant appeared before me via reliable electronic means (telephone), was placed under oath, and attested to the contents of this written affidavit.

L. Patrick Auld

United States Magistrate Judge Middle District of North Carolina

UNITED STATES DISTRICT COURT

for the

Middle District of North Carolina

(Briefly	the Matter of the Search of describe the property to be searched ntify the person by name and address)	Case No. 1:21M367
COMPUTER	RS INFECTED WITH EMOTET MALWARE	(
	SEARCH AND SE	ZURE WARRANT
To: Any auth	orized law enforcement officer	
of the following p	cation by a federal law enforcement officer or a person or property located in the r describe the property to be searched and give its location	District of Multiple
See Attachme		
I find that described above, a See Attachme	and that such search will reveal (identify the person	ablish probable cause to search and seize the person or property or describe the property to be seized):
	E COMMANDED to execute this warrant on or time 6:00 a.m. to 10:00 p.m.	or before 03/08/21 (not to exceed 14 days) in the day or night because good cause has been established.
Unless de person from whom property was taken	n, or from whose premises, the property was tal	e a copy of the warrant and a receipt for the property taken to the cen, or leave the copy and receipt at the place where the
The office as required by law	er executing this warrant, or an officer present d and promptly return this warrant and inventory	uring the execution of the warrant, must prepare an inventory to The Honorable L. Patrick Auld (United States Magistrate Judge)
§ 2705 (except for property, will be s	delay of trial), and authorize the officer execut earched or seized (check the appropriate box)	otification may have an adverse result listed in 18 U.S.C. ing this warrant to delay notice to the person who, or whose ing, the later specific date of
Date and time issu	-1 / 1 25	Judge's signature
City and state:	Greensboro, North Carolina	L. Patrick Auld, U.S. Magistrate Judge Printed name and title

	Return	
Case No.: 121 M367	Date and time warrant executed:	Copy of warrant and inventory left with:
Inventory made in the presen	ce of :	
Inventory of the property take	en and name of any person(s) seized:	
	Certification	
designated judge.	y of perjury that this inventory is correct	and was returned along with the original warrant to the
Date:		Executing officer's signature
		Printed name and title

ATTACHMENT B PARTICULAR THINGS TO BE SEIZED

This warrant authorizes the search of the electronic storage media identified in Attachment A and the seizure or copying from the electronic storage media identified in Attachment A electronically stored information that constitutes evidence and/or instrumentalities of the Emotet botnet computer fraud and conspiracy in violation of Title 18, United States Code, Sections 1030(a)(5)(A) (computer fraud) and 371 (conspiracy to commit computer fraud), in that remote access techniques may be used:

- 1. To search the electronic storage media identified in Attachment A and to seize or copy from the electronic storage media identified in Attachment A any electronically stored information, such as encryption keys and server lists, used by the administrators of the Emotet botnet to communicate with computers that are part of the Emotet botnet infrastructure; and
- 2. To search the electronic storage media identified in Attachment A and to seize or copy from the electronic storage media identified in Attachment A any electronically stored information, such as IP addresses and routing information, necessary to determine whether any electronic storage media identified in Attachment A continues to be controlled by the

administrators of the Emotet botnet after the seizure or copying of the electronically stored information in Paragraph 1.

This warrant does not authorize the seizure of any tangible property. Except as provided in Paragraphs 1 and 2, this warrant does not authorize the seizure or copying of any content from the electronic storage media identified in Attachment A or the alteration of the functionality of the electronic storage media identified in Attachment A.

IN THE UNITED STATES DISTRICT COURT FOR THE MIDDLE DISTRICT OF NORTH CAROLINA

IN THE MATTER OF THE SEARCH OF COMPUTERS INFECTED WITH THE EMOTET MALWARE

Case No. 1:21MJ67

MOTION TO SEAL BY REDACTION

NOW COMES the United States of America, by Sandra J. Hairston, Acting United States Attorney for the Middle District of North Carolina, through his assistant, Eric L. Iverson, and respectfully moves this Honorable Court, to seal the IP addresses in the above-referenced warrant and affidavit. Such sealing is within the inherent power of the court to control papers filed with it, Baltimore Sun Co. v. Goetz, 886 F.2d 60, 64 (4th Cir. 1989), and appropriate to protect the privacy of victims, Title 18 U.S.C. § 3771(8). In support whereof, the government shows unto the court the following:

- Computers associated with the IP addresses were compromised by the Emotet malware.
- (2) If the IP addresses were made public, any individual would be able to conduct a Whois lookup and determine the hosting provider for any given IP address.

WHEREFORE, the government respectfully moves that this Honorable Court seal by redaction the related search warrant materials.

Respectfully submitted this 31st day of March, 2021.

SANDRA J. HAIRSTON ACTING UNITED STATES ATTORNEY

Oightally signed by ERIC IVERSON
Date: 2021.03,31 15:31:43
-04'00'

ERIC L. IVERSON
ASSISTANT UNITED STATES ATTORNEY
North Carolina State Bar No. 46703
United States Attorney's Office
Middle District of North Carolina
101 S. Edgeworth Street, 4th Floor
Greensboro, North Carolina 27401
Phone: (336) 333-5351

IN THE UNITED STATES DISTRICT COURT FOR THE MIDDLE DISTRICT OF NORTH CAROLINA

IN THE MATTER OF THE SEARCH OF COMPUTERS INFECTED WITH THE EMOTET MALWARE

Case No. 1:21MJ67

ORDER

The government having moved that the IP addresses listed in the search warrant materials filed in this case be sealed by redaction and the court being apprised of the reasons therefor, IT IS HEREBY ORDERED that the IP addresses in the search warrant materials be sealed by redaction.

The Court has inherent authority to order the sealing of a search warrant affidavit. Baltimore Sun Co. v. Goetz, 886 F.2d 60, 64 (4th Cir. 1989). Sealing is appropriate to protect victims' privacy. Title 18 U.S.C. § 3771(8).

On the showing before the court, the court considers that the government has made a <u>prima facie</u> showing that justifies sealing the search warrant materials.

The search warrant materials shall be placed under seal by the clerk.

L. PATRICK AULD

United States Magistrate Judge

Date 0

UNITED STATES DISTRICT COURT

for the

Middle District of North Carolina

	In the Matter of the Search of (Briefly describe the property to be searched or identify the person by name and address)) Case No. / 2/M3	67
C	COMPUTERS INFECTED WITH EMOTET MALWARE		
	SEARCH AND SE	IZURE WARRANT	
To:	Any authorized law enforcement officer		
	An application by a federal law enforcement officer or a following person or property located in the by the person or describe the property to be searched and give its location.	District of	ests the search Multiple
Se	ee Attachment A		
	I find that the affidavit(s), or any recorded testimony, est bed above, and that such search will reveal (identify the person see Attachment B		d seize the person or property
o	YOU ARE COMMANDED to execute this warrant on of in the daytime 6:00 a.m. to 10:00 p.m.	or before 03/08/21 in the day or night because good ca	(not to exceed 14 days) nuse has been established.
	Unless delayed notice is authorized below, you must give from whom, or from whose premises, the property was talty was taken.		
as requ	The officer executing this warrant, or an officer present during the law and promptly return this warrant and inventory		L, Patrick Auld
§ 2705	Pursuant to 18 U.S.C. § 3103a(b), I find that immediate not (except for delay of trial), and authorize the officer executery, will be searched or seized (check the appropriate box)		
	for days (not to exceed 30) until, the facts justify and time issued:	ring, the later specific date of	ALO.
	d state: Greensboro, North Carolina	Judge's s	

Printed name and title

AO 93 (Rev. 11/13) Search and Seizure Warrant (Page 2)

	Return	
Case No.:	Date and time warrant executed:	Copy of warrant and inventory left with:
1:21m567	Between 02/22/2021 and 03/08/2021	Will be made available online
Inventory made in the present	ce of:	
Inventory of the property take	en and name of any person(s) seized:	
See attached inventor	y.	
		11
		- 1
	Certification	
I declare under penalty designated judge.	y of perjury that this inventory is correct and	I was returned along with the original warrant to the
dongnatou juugo.		
	2.3	
Date: 03/23/2021	Bia	in fla-
	\mathcal{O}	Executing officer's signature
	Blair	Newman, Special Agent Printed name and title
		Printea name ana title

ATTACHMENT B PARTICULAR THINGS TO BE SEIZED

This warrant authorizes the search of the electronic storage media identified in Attachment A and the seizure or copying from the electronic storage media identified in Attachment A electronically stored information that constitutes evidence and/or instrumentalities of the Emotet botnet computer fraud and conspiracy in violation of Title 18, United States Code, Sections 1030(a)(5)(A) (computer fraud) and 371 (conspiracy to commit computer fraud), in that remote access techniques may be used:

- 1. To search the electronic storage media identified in Attachment A and to seize or copy from the electronic storage media identified in Attachment A any electronically stored information, such as encryption keys and server lists, used by the administrators of the Emotet botnet to communicate with computers that are part of the Emotet botnet infrastructure; and
- 2. To search the electronic storage media identified in Attachment A and to seize or copy from the electronic storage media identified in Attachment A any electronically stored information, such as IP addresses and routing information, necessary to determine whether any electronic storage media identified in Attachment A continues to be controlled by the

administrators of the Emotet botnet after the seizure or copying of the electronically stored information in Paragraph 1.

This warrant does not authorize the seizure of any tangible property. Except as provided in Paragraphs 1 and 2, this warrant does not authorize the seizure or copying of any content from the electronic storage media identified in Attachment A or the alteration of the functionality of the electronic storage media identified in Attachment A.