

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Office of the Vice Chancellor for Research

Office for the Protection of Research Subjects
528 East Green Street
Suite 203
Champaign, IL 61820



April 21, 2015

Michael Bailey
Electrical & Computer Eng
442 CSL
1308 W. Main
Urbana, IL 61801

RE: *Testing the Malicious USB Anecdote*
IRB Protocol Number: 15445

Dear Dr. Bailey:

Thank you very much for forwarding the modifications to the University of Illinois at Urbana-Champaign Institutional Review Board (IRB) office for your project entitled *Testing the Malicious USB Anecdote*. I will officially note for the record that these major modifications to the original project, as noted in your correspondence received April 8, 2015: revising instruments to use an existing technology risk assessment scale with modifications for open ended questions, adding demographic questions which should not be identifiable; and modifying debriefing language per collaboration with CITES; and removing Tischer from debrief/consent letters so contact is solely Dr. Bailey; and specifying 30 sites where the flash drives would be dropped off on campus and, indicating that some drives will be labeled to indicate they may contain confidential information; and indicating the 'user agent string' for web browser would be collected (not identifiable unless person makes it so); and users who don't consent to field study will have data flagged instead of being immediately deleted to allow users to change their minds without re-submitting initial survey data until the one month consent period has passed; and making various changes to the IRB-1 to reflect changes in experimental procedures (adding question about UIUC student status, detailing various ways subjects may receive remuneration, increasing compensation/time for AMT workers to \$1.50 from \$1.00) and related changes; and modifying consent letters as appropriate to reflect the changes above, , have been approved. The expiration date for this protocol, IRB number 15445, is 02/22/2016. The risk designation applied to your project is *no more than minimal risk*.

As your modifications involved changes to consent form(s), I am attaching the revised form(s) with date-stamp approval. Please note that copies of date-stamped consent forms must be used in obtaining informed consent. If modification of the consent form(s) is needed, please submit the revised consent form(s) for IRB review and approval. Upon approval, a date-stamped copy will be returned to you for your use.

Please note that additional modifications to your project need to be submitted to the IRB for review and approval before the modifications are initiated. To submit modifications to your protocol, please complete the IRB Research Amendment Form (see <http://irb.illinois.edu/?q=forms-and-instructions/research-amendments.html>). Unless modifications are made to this project, no further submittals are required to the IRB.

We appreciate your conscientious adherence to the requirements of human subjects research. If you have any questions about the IRB process, or if you need assistance at any time, please feel free to contact me at the OPRS office, or visit our Web site at <http://www.irb.illinois.edu>.

Sincerely,

Anita Balgopal, PhD
Director, Office for the Protection of Research Subjects

Attachment(s)

c: Matthew Tischer

The USB drive that you have picked up is a device that is being used in a research study.

Please do not share any information about this study with others for a period of seven (7) days, as it may otherwise affect the results of the study.

Coordinated Science Laboratory
1308 West Main St.
Urbana, IL 61801

This study is entitled ``Testing the Malicious USB Anecdote'' and is being conducted by Dr. Michael Bailey in the Electrical and Computer Engineering Department of the University of Illinois, Urbana-Champaign. This page is designed to explain the purpose of the study and provide you with an opportunity to complete a survey for additional compensation. In addition, we provide this page to allow you to withdraw yourself from the study if you do not wish to participate or contact information if you wish to provide feedback about the study.

Purpose of the Study

In the computer security community, it is commonly believed that an attacker can gain access to an organization by installing malicious software (like viruses) on USB flash drives and leaving the drives in a place such as a parking lot. People would then pick up the drives and insert them into their own computers, infecting the computers and allowing the attacker to gain access to the organization.

Our study seeks to determine whether people do place unknown flash drives into their computers, and, if so, why. We hope to use the results from this study to better inform organizations about how to protect against this attack vector. In addition, we hope to learn how people think about situations like this, so that we can take steps to keep their information safe.

Experiment

In order to effectively test this hypothesis, we have placed many USB flash drives like the one you plugged in in various public locations. When you click on one of the files on the USB drive, we send some information about the USB drive, the file that you clicked on, and the time that you clicked on it to our servers. We do not collect any other information about your computer, files or programs you are running, or any of your data. We also do not collect any information that could be used to identify you, such as your IP address.

Deception

This study involved deception; we hid the true purpose of the USB drives (to help us collect data for this study) when we left them in public. We believe that this deception was necessary in order to see how people react when they find an unknown USB drive in the real world.

Risks

Risks to you are considered minimal. If the USB flash drives (or this website) were infected by a third party, it would be possible for malicious software (such as viruses or keyloggers) to be installed on your system. However, we have taken multiple precautions to protect against this risk. When we were configuring the flash drives, we only plugged them into computers that would not infect them. In addition, the flash drives only contain HTML files that cannot execute any malicious code on your computer. We have also taken precautions to ensure that this website has not been hacked.

As such, these flash drives should contain no malicious software. However, we recommend that you use an antivirus program to scan your computer whenever you plug in an unknown device. Some examples of antivirus programs are:

- Malwarebytes on Windows XP [1]
- Microsoft Security Essentials on Windows Vista and 7 [2]
- Windows Defender (preinstalled) on Windows 8 and 8.1 [3]

For more information on this attack, please see [4][5][6].

Follow-Up Survey

As understanding why people pick up known USB flash drives is a key part of the study, we would also like to invite you to participate in a follow-up survey. We intend to use the information from this survey to determine how you perceive risks about various technologies and to learn why you picked up the USB drive. If you would like to participate in this survey, please click the ``Participate in Survey'' button below. You will be sent to a page to allow you to participate in the survey.

Compensation

You may keep the USB drive that you have found, even if you choose to withdraw from the study. You may keep the drive regardless of whether you complete the survey or not.

If you fully complete the follow-up survey, we will compensate you by giving you a \$10 electronic gift card from Amazon.com or \$10 in cash if you meet the researchers at a predefined place and time. Further details are discussed in the introduction page to the survey.

Participation

Your participation in this study is voluntary. You have the right to withdraw from participation at any time without any penalty. If you wish to withdraw from the study, please click the ``Withdraw from Study'' button below. If you withdraw from the study, we will delete any information we have collected about the USB drive that you have picked up and will not use it in our analysis of the data.

If you do not consent to the study (by clicking the ``Consent to Study'' button or ``Participate in Survey'' buttons below) by <END DATE>, your data will automatically be deleted.

This study is designed for participants of at least 18 years of age. If you are not at least 18 years of age, please do not click on either the ``Consent to Study'' button or ``Participate in Survey'' buttons below; we will delete your data after <END DATE>.

Contact Information

If you have any questions or concerns about the study, you may contact Dr. Michael Bailey at mdbailey@illinois.edu or (217) 244-8830.

If you have any questions about your rights as a research participant or if you have a concern or complaint about this study, you may contact the University of Illinois Institutional Review Board by emailing irb@illinois.edu or calling (217) 333-2670. You may call the phone number collect if you identify yourself as a research participant.

If you find any portion of the study emotionally distressing, you may contact the researchers or the IRB using the contact information listed above.

Confidentiality

As mentioned in the "Experiment" section, we only collect data about the USB drive, the file that you clicked on, and the time that you clicked on it. We do not collect any other information about your computer, files or programs you are running, or any of your data. We also do not collect any information that could be used to identify you, such as your IP address. We will keep any data that we collect on our secure servers, and a limited number of research team members will have access to the data during data collection.

- Withdraw from Study
- Consent to Study
- Participate in Survey

[1] <https://www.malwarebytes.org/>

[2] <http://windows.microsoft.com/en-us/windows/security-essentials-download>

[3] <http://windows.microsoft.com/en-us/windows/using-defender#1TC=windows-8>

[4] http://en.wikipedia.org/wiki/USB_flash_drive_security

[5] <http://www.computerworld.com/article/2510014/security0/government-tests-show-security-s-people-problem.html>

[6] <http://arstechnica.com/security/2014/07/this-thumbdrive-hacks-computers-badusb-exploit-makes-devices-turn-evil/>

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APPROVED CONSENT
VALID UNTIL

FEB 22 2016

You are invited to participate in a study entitled "Testing the Malicious USB Anecdote". This study is being conducted by Dr. Michael Bailey in the Electrical and Computer Engineering Department of the University of Illinois, Urbana-Champaign.

Coordinated Science Laboratory
1308 West Main St.
Urbana, IL 61801

The purpose of this study is to determine why people pick up unknown USB flash drives and insert them into their computers. Your participation in this study will help us to determine why this is the case.

We estimate that it will take you about 35 minutes to complete the following survey. You are free to contact the investigator at the above address to discuss the survey.

Risks to the participants are considered minimal. There are no costs for participating. We will compensate you by sending you a \$10 electronic Amazon gift card if you complete the entire survey. We will not track the IP address that you have used to connect to this survey, and we have enabled SSL encryption in this survey, so your survey responses should be securely transmitted to SurveyMonkey. A limited number of research team members will have access to the data during data collection.

In this survey, you will be asked questions about how likely you are to engage in certain hypothetical situations. Some of these items include activities that describe sensitive content, such as "having an affair with a married man/woman", and some may be considered illegal in your jurisdiction, such as "driving a car without wearing a seat belt". You will also be asked how often you perform various computer behaviors in real life. You may choose to omit your answer to any individual question without penalty or reduced compensation by choosing the option "Prefer not to answer".

Some of the items in this instrument are designed to assess whether you are fully reading all of the questions. If you come across one of these items, please follow what it says. There is only one correct answer to each of these items. If you select the wrong answer to any item, you may not be compensated for your participation.

You must complete the entire survey in order to receive the \$10 Amazon electronic gift card. In order for us to send you the gift card, we collect your email address at the end of the survey. While this email address will be securely transmitted to SurveyMonkey's servers, it is also linked to your survey responses. As such, we advise that you use an email address that cannot be linked to any of your personal information (such as social network profiles). You can create a new email address using websites such as

<https://www.outlook.com>
<https://overview.mail.yahoo.com>

We will not attempt to de-anonymize your email address at any point during the study.

If you do not wish to provide your email address, you may meet the investigators at a predefined place and time in order to receive \$10 in cash compensation. You will be able to see this place and time when you complete the survey and choose how to be compensated.

Your participation in this study is voluntary. You have the right to withdraw from participation at any time without any penalty. If you wish to withdraw from the study or have any questions, you may contact the investigator. You may choose not to take the survey by closing this window; however, you will not be compensated if you do so.

This study is designed for participants of at least 18 years of age. If you are not at least 18 years of age, please close this window.

If you have any questions, please contact Dr. Michael Bailey at mdbailey@illinois.edu or (217) 244-8830.

If you have any questions about your rights as a research participant or if you have a concern or complaint about this study, you may contact the University of Illinois Institutional Review Board by emailing irb@illinois.edu or calling (217) 333-2670. You may call the phone number collect if you identify yourself as a research participant.

I have read and understood this consent letter and voluntarily agree to participate (click on 'next' to provide consent and proceed to the questionnaire).

Next

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FEB 22 2016

RECEIVED

APR 16 2015

INST REVIEW BOARD

You are invited to participate in a study entitled "A Scale to Predict Technology Risk". This study is being conducted by Matthew Tischer and Dr. Michael Bailey in the Electrical and Computer Engineering Department of the University of Illinois, Urbana-Champaign.

Coordinated Science Laboratory
1308 West Main St.
Urbana, IL 61801

The purpose of this study is to investigate risk attitudes online. We estimate that it will take you about 20 minutes to complete the following survey. You are free to contact the investigators at the above address to discuss the survey.

Risks to the participants are considered minimal. There are no costs for participating. You will be paid \$1.50 for completing this HIT, but will not otherwise benefit from participating. An anonymized version of your Mechanical Turk account information will be kept while we collect data for tracking purposes only. We will not track the IP address that you have used to connect to this survey, and we have enabled SSL encryption in this survey, so your survey responses should be securely transmitted to SurveyMonkey. A limited number of research team members will have access to the data during data collection. The anonymized Mechanical Turk account information will be stripped from the final dataset and will not be published in any form.

Previous work [1] has shown that Mechanical Turk's design can be exploited to reveal personally identifying information about you. In particular, the authors showed that Amazon wish lists, book reviews and tagged Amazon products can be found by querying your Turker ID on the web. More surprisingly, some Turkers "even have a public Amazon profile page, containing their real name and sometimes even a photo". We will not attempt to de-anonymize your Turker ID at any point in our study. However, if you return this HIT by accident and contact us using a real email address to request compensation, we will be able to connect your email address to your Turker ID and survey responses.

In this survey, you will be asked questions about how you likely you are to engage in certain hypothetical situations. Some of these items include activities that describe sensitive content, such as "having an affair with a married man/woman", and some may be considered illegal in your jurisdiction, such as "driving a car without wearing a seat belt". You will also be asked how often you perform various computer behaviors in real life. You may choose to omit your answer to any individual question without penalty or reduced compensation by choosing the option "Prefer not to answer".

Some of the items in this instrument are designed to assess whether you are fully reading all of the questions. If you come across one of these items, please follow what it says. There is only one correct answer to each of these items. If you select the wrong answer to any item, you may not be compensated for your participation.

Your participation in this study is voluntary. You have the right to withdraw from participation at any time without any penalty. If you wish to withdraw from the study or have any questions, you may contact the investigators listed below. You may choose not to take the survey by closing this window; however, you will not be compensated if you do so.

If you have any questions, please contact Matt Tischer at tischer1@illinois.edu or Dr. Michael Bailey at mdbailey@illinois.edu or (217) 244-8830.

If you have any questions about your rights as a research participant or if you have a concern or complaint about this study, you may contact the University of Illinois Institutional Review Board by emailing irb@illinois.edu or calling (217) 333-2670. You may call the phone number collect if you identify yourself as a research participant.

[1] See <http://crowdresearch.org/blog/?p=5177>

I have read and understood this consent letter and voluntarily agree to participate (click on 'next' to provide consent and proceed to the questionnaire).

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