

Informed consent

You are being invited to participate in this survey to help us understand your preferences about a service that protects your internet-connected devices against accessing online threats. Online threats can be untrustworthy websites (e.g., a website that can infect your devices with a virus), phishing (a deceitful link to obtain your personal information), and malicious software (e.g., viruses, spyware, ransomware). Your devices could be subject to these online threats when you visit a website (i.e., www.example.com) or your internet-connected devices connect to the Internet to work. We collect your Internet Protocol (IP) address when filling out this survey as well as the provider who answers your Internet requests. This data will be only used for this purpose, and after the research has concluded, it will be destroyed. We will use the results of this survey for a scientific publication. You can stop the survey anytime, but you will only get paid if you complete the survey. We will not use your data if you withdraw, but we will consider your survey as not completed. We believe there are no known risks associated with this research study. Answering the demographic questions in the survey, such as gender, age, country of residence, and education level, is optional. If you answer these questions, they will be used in anonymized form during the analyses. This study is conducted by [Name] from the [Institution name]. For questions or other remarks, please contact the researcher at [email address].

Before you start the survey, please answer these questions:
Do you participate in the study voluntarily? (i) Yes, (ii) No

Do you consent to the use of the survey responses in an anonymized way for a research publication? (i) Yes, (ii) No

If you answer the demographics questions, do you give permission for the processing of your demographic data for the purposes of the study? (i) Yes, (ii) No

Internet usage

1. How many hours a week do you use your Internet browser on average (e.g., Google Chrome, Mozilla Firefox, Internet Explorer, Microsoft Edge, Opera)? (i) 0-20 hours a week, (ii) 21-40 hours a week, (iii) 41-70 hours a week, (iv) More than 70 hours a week.

2. Which internet-connected devices do you use regularly? (i) Smartphone, (ii) Computer, (iii) Smart lights, (iv) Smart TV, Smart doorbell, (v) Smart speakers Smart watch, (vi) All of the above, (vii) I do not use any internet-connected devices regularly, (viii) Other(s).

Threat exposure

3. Are you aware of any security incidents that affected your internet-connected devices in the last five years (e.g., virus, data theft)? (i) Yes, (ii) No, (iii) I am not sure

4. Have you ever been a victim of phishing (clicking on a deceitful link to obtain your personal information)? (i) Yes, (ii) No, (iii) I am not sure

5. What are the top three threats to your safety online in your opinion? (i) Viruses, (ii) Identity being stolen, (iii) Bank credentials being stolen online, (iv) Password being stolen online, (v), (vi) Phishing (clicking on a deceitful link to obtain your personal information), (vii) Personal data misused, (viii) Downloading a file infected with a virus, (ix) Other(s):

Perceived vulnerability

6. How likely do you think it is that you visit a website that can infect your devices with a virus? [Extremely unlikely - Extremely likely] (5-point scale)

7. How likely do you think it is that you visit a website that can steal your data (e.g., your phone number or card details)? [Extremely unlikely - Extremely likely] (5-point scale)

8. How likely do you think it is that your smart devices (e.g., smart TV, smart doorbells) can have a virus without you noticing it? [Extremely unlikely - Extremely likely] (5-point scale)

Perceived severity

Please rate each statement from severe to not severe:

9. My Internet-connected devices stop working due to a virus: [Extremely severe - Not severe] (5-point scale)

10. My credit card data gets stolen online: [Extremely severe - Not severe] (5-point scale)

11. My login credentials are stolen online: [Extremely severe - Not severe] (5-point scale)

12. My Internet-connected devices infected with viruses are used maliciously to attack some organization (e.g., a bank): [Extremely severe - Not severe] (5-point scale)

Perceived self-efficacy

13. Do you recall setting up security features in your internet-connected devices? (i) Yes, I recall setting up security features, (ii) No, I left the default configuration provided by the manufacturer of my devices, (iii) No, but another person did the security setup of

my devices (e.g., Friends, Family), (iv) No, but we hire an IT professional to do it, (v) Other(s)

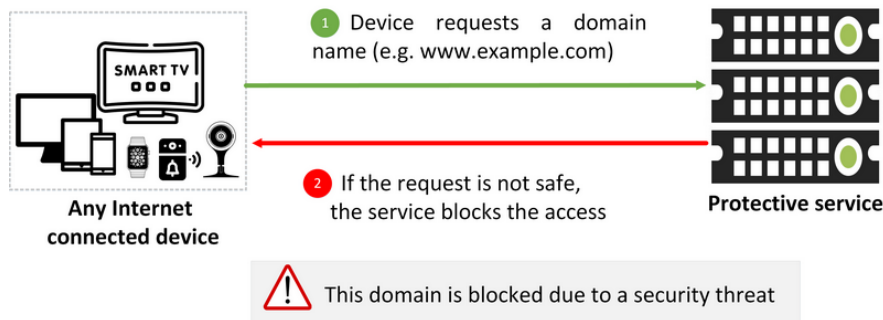
14. Have you (or someone else) ever installed any of these tools to protect your devices from viruses? (i) Antivirus, (ii) Firewall, (iii) Ad blockers, (iv) I do not use any of these tools, (v) I have (or someone else) installed other(s) tools:

15. Do you use parental control tools on your devices (tools that block websites, filter content, impose time limits, and see what kids are doing online) ? (i) Yes, (ii) No

Introducing PDNS service

Please, read the description of the service presented below: Protective DNS service safeguards the devices you connect to the Internet against untrustworthy websites (e.g., a website that can infect your devices with a virus), phishing (clicking on a deceitful link to obtain your personal information), and malicious software (e.g., viruses, spyware, ransomware). The service works even when you might not be using the devices. For example, your smart TV is infected with a virus. Your smart TV can contact malicious domain names (e.g., www.malicious.com) without your knowledge. The Protective DNS service can help to prevent that. However, the service only stops the most common threats that the service collects, not all threats.

The image below explains how this service works:



Protective DNS service uses the Domain Name System (DNS) to block access to domain requests that are not safe.

What is the Domain Name System (DNS)?

The DNS is like a “phonebook”. If you want to talk to someone and you have his name, you will look for his name in the “phonebook” and you will find his contact number.

Smith Leo Main Ave _ _ _ 505-1412
Smith Mary St Martin Ave _ _ _ 574 ~ 3435

Similarly, when your device needs to connect to a domain name (say www.example.com), the DNS will provide the corresponding Internet Protocol (IP) address (e.g., 50.31.214.200). This IP address is then used by your device to establish a connection with the domain name.

www.example.com	_____	50.31.214.200
www.mypage.com	_____	192.168.18.1

How does the Protective DNS service use the Domain Name System (DNS) to block malicious domain names?

If your device tries to connect to an unsafe domain name (say www.malicious.com), Protective DNS service will either redirect to a different IP address or not respond to the request of your device to keep your device safe.

Service related questions

16. Which of the following describes your immediate reaction to a service like "Protective DNS service": (i) Not clear, (ii) Easy to use, (iii) Confusing, (iv) Secure, (v) Not necessary for me (vi) Helpful, (vii) Useless, (viii) Useful, (ix) Other(s):
A1. Please select "Definitely yes" to show that you are paying attention to this question: (i) Definitely Not, (ii) Probably Not, (iii) Might or might not, (iv) Probably yes, (v) Definitely yes

17. Had you ever heard of a service similar to the "Protective DNS service" before filling out this survey? (i) Yes, (ii) No, (iii) Unsure
If Yes is the answer to the previous question:

17.1 Are you currently using a similar service like the "Protective DNS service" described to you? (i) Yes, (ii) No

17.2 What is the name of the service?

18. Do you think a service like "Protective DNS service" can help address the threats to your safety online: [INPUT Q5] [Definitely not - Definitely yes] (5-point scale)

19. Do you think a service like "Protective DNS service" is useful in blocking access to malicious domain names (e.g., www.malicious.com) on your devices when you are not using them? [Not at all useful - Extremely useful] (5-point scale)

20. You answered [INPUT previous question answer]. Can you explain why?

21. Which additional categories would you find useful for a service like the "Protective DNS service" to block on your devices? (i) Advertisement, (ii) Spam emails, (ii)

Illegal streaming download, (iii) I do not find useful to block any additional category, (iv) Other(s):

22. You answered [INPUT previous question answer] for the previous question. Why would you consider useful that a service like the "Protective DNS service" blocks these additional categories?

23. How much time will you be willing to invest in subscribing to a service like the "Protective DNS service" ? (i) 1-20 minutes, (ii) 21-40 minutes, (iii) 41-60 minutes, (iv) More than 60 minutes

24. How concerned would you be about the effectiveness of the service against the most common threats if you were to use a service like the "Protective DNS service"? [Not at all concerned - Extremely concerned] (5-point scale)

25. How concerned would you be about your privacy if you were to use a service like the "Protective DNS service" ? [Not at all concerned - Extremely concerned] (5-point scale)

26. How concerned would you be about how the provider of the service uses the history of the domain names (e.g., www.example.com) that your devices request if you were to use a service like the "Protective DNS service" ? [Not at all concerned - Extremely concerned] (5-point scale)

27. You answered [INPUT previous question answer] for the previous question. Can you explain why?

28. How concerned would you be about knowing what domain names (e.g. www.malicious.com) are being blocked to your Internet-connected devices if you were to use a service like the "Protective DNS service"? [Not at all concerned - Extremely concerned] (5-point scale)

29. You answered [INPUT previous question answer] for the previous question. Can you explain why?

A2. What is the color of a red ball? (i) Red, (ii) Round, (iii) Blue, (iv) Square

30. Which of these providers would you definitely choose to offer you a service like the "Protective DNS service"? (i) Your government, (ii) Your Internet service provider, (iii) A commercial company (e.g., Google, Cloudflare, Quad9), (iv) Other:

31. You answered [INPUT previous questions answer] for the previous question. Can you explain why?

32. Which of these providers would you definitely not choose to offer you a service like the "Protective DNS service"? (i) Your government, (ii) Your Internet service provider, (iii) commercial company (e.g., Google, Cloudflare, Quad9), (iv) Other:

33. You answered [INPUT previous questions answer] for the previous question. Can you explain why?

34. If you will definitely choose [INPUT previous question answer] as the provider of a service like the "Protective DNS service", would you like to pay for the service? (i) Yes, (ii) No

34.1. If Yes is the answer to question 34:

34.2. How much will you be willing to pay monthly? (i) 1%- 5% more of my Internet subscription, (ii) 6%- 10% more of my Internet subscription, (iii) 10%- 15% more of my Internet subscription, (iv) More than 15% of my Internet subscription

34.3. How likely would you be to subscribe to the "Protective DNS service" if it were offered to you today? [Extremely unlikely - Extremely likely] (5-point scale)

If No is the answer to question 34:

34.1 How likely would you be to subscribe to the "Protective DNS service" if it were offered for free to you today? [Extremely unlikely - Extremely likely] (5-point scale)

35. What information would help you to decide whether or not to subscribe to a service like the "Protective DNS service" described to you?

Demographics

36. What gender do you identify with? (i) Female, (ii) Male, (iii) Transgender woman, (iv) Transgender man, (v) Other(s):, (vi) Prefer not to say

37. What is your age? (i) 18-30, (ii) 31-45, (iii) 46-60, (iv) 61 + , (v) Prefer not to answer

38. What is the size of your household? (i) 1-3 people, 4-6 people, (ii) 7-10 people, (iii) 11- more people, (iv) Prefer not to answer

39. How many children live in your home? (i) None, (ii) 1, (iii) 2-4, (iv) More than 4, (v) Prefer not to say

40. Where is your home located? (i) North America, (ii) Central America, (iii) South America, (iv) Europe, (v) Africa, (vi) Asia, (vii) Australia, (viii) Other, (ix) Prefer not to say

41. What is the highest degree or level of education you have completed? (i) None, (ii) High School, (iii) Bachelor's Degree, (iv) Master's Degree, (v) Ph.D. or higher, (vi) Other, (vii) Prefer not to say

42. Which of the following best describes your educational background or job field? (i) I have an education in, or work in, the field of computer science, computer engineering or IT, (ii) I do not have an education in, nor do I work in, the field of computer science, computer engineering or IT, (iii) Prefer not to say