

# F-SECURE ADBLOCKER

## Delivering ad-free browsing

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F-Secure ADBLOCKER is a free app that offers users the ability to block third-party advertising while surfing online using the Safari web browser on iOS devices (9.0 and above).

This whitepaper provides an outline of the benefits of using adblocking to enhance the user's web browsing experience. It also provides an overview of how F-Secure ADBLOCKER works, including how it identifies web content as third-party advertising in order to block it from display.

**F-SECURE LABS**  
Technology whitepaper



## F-SECURE ADBLOCKER IN BRIEF

Many websites on the modern Internet have advertising content on their webpages. When this material is provided by an external advertising agency, it is known as **third-party advertising**.

While some users find that such advertising can be relevant and provide useful supplementary content (for example, helpful discount offers or event notices), others find it irrelevant, annoying or intrusive. In addition, excessive or resource-intensive advertising, such as videos or rapidly refreshing banners, can be an undesirable drain on bandwidth use and battery consumption.

There is also currently very little transparency about how third-party advertising content is sourced and delivered. Most websites or advertising services provide little insight into what data is collected or used in order to select the appropriate advertising content to be displayed. Such targeted advertising raises privacy concerns, as the user is given no way to control what personal data they may or may not want to share in return for the content.

In the worst-case scenario, the networks that deliver advertising content to client websites may be infiltrated and exploited by attackers to expose innocent site visitors to malicious ads and other threats.

We believe that consumers deserve a better browsing experience. Our answer is **F-Secure ADBLOCKER**, a free app that offers users the ability to block third-party advertising when browsing online using the Safari web browser app on iOS devices (versions 9.0 and above). In keeping with F-Secure's core values, F-Secure ADBLOCKER is also designed to preserve the user's privacy and security – it does not track or record what websites the user visits, or what ads are blocked.

## DISCLAIMERS

- ◆ The purpose of this document is to help customers better understand how F-Secure products function, and the benefits F-Secure ADBLOCKER provides. This document is not designed to be a legally binding agreement that defines the content of products and services provided by F-Secure Corporation.
- ◆ F-Secure ADBLOCKER, as any of our other products and services, is a constantly evolving set of software, systems and processes. This document may become partly inaccurate as this evolution takes place. F-Secure Corporation will update this document every time major changes are made to our products, systems or processes. The latest version will always be available on F-Secure's website.
- ◆ Any metrics or diagrams presented in this document are valid at the time of publication. Metrics or diagrams may change over time. Presented metrics should therefore be interpreted as approximate ballpark figures.

## F-SECURE ADBLOCKER BENEFITS

### Surf faster

Third-party advertising can often negatively impact how fast a webpage loads in your browser, because the page has to ‘pull’ the advertising from an external ad server before it can finish loading. By blocking third-party advertising (or for that matter, other extraneous content such as trackers, analytics, beacons and so on) from displaying, a webpage is able to load faster. This notable increase in loading speed was demonstrated in an experiment <sup>[1]</sup> performed by F-Secure Labs in 2015. In the test, the Tracking Protection feature in our Freedom app (which is functionally similar to adblocking in F-Secure ADBLOCKER) was used to block website trackers, resulting in the webpages loading almost twice as fast. A similar experiment <sup>[2]</sup> performed by The New York Times comparing the loading speeds of news websites on a mobile device also demonstrated the positive effects of adblocking.

### Save bandwidth and battery

Even after a webpage has fully loaded, some third-party ads on it may reload again and again to display new content. This ‘repeated refreshing’ can impact bandwidth use and battery consumption. Blocking these draining ads allows you to save bandwidth and battery life. This improvement in resource use was also noted in the experiments carried out by F-Secure Labs <sup>[1]</sup> and The New York Times <sup>[2]</sup> that were mentioned above.

### Safer web browsing

In the past few years, there have been incidents <sup>[3]</sup> where attackers exploited third-party advertising networks in order to redirect unsuspecting users and expose them to malicious ads and other threats. For most users, it is very hard to distinguish between ‘safe’ and ‘unsafe’ ads. By blocking third-party advertising with F-Secure ADBLOCKER, users can sidestep the issue entirely and enjoy a safer browsing experience.

### Privacy

All F-Secure products are designed to abide by our privacy and security principles. If a product’s performance would be improved by collecting user telemetry or statistics, such data is collected with explicit user consent, in line with our [privacy principles](#), and anonymized so that no details can be traced back to a particular user. For F-Secure ADBLOCKER, concern for privacy means that we do not see, track or record the websites the user visits, or the ads that are blocked. Anonymized data related to how the user interacts with the app (such as when the user launches the app or taps on promotion links within the app) may only be sent if the user explicitly grants permission for such data-gathering during installation.

### Choice

One important benefit we want our customers to have is the power of choice. We want our users to have tools they can use to safely enhance the way they use the Internet. With F-Secure ADBLOCKER, our users can make their own decisions about when their web browsing experience might be augmented by advertising, and when it is best seen ad-free. F-Secure ADBLOCKER can be switched on or off as needed. This provides an additional layer of content control when used together with the Safari browser’s own content blocking functionality, which can also be turned on or off when viewing a website.

### Ease of use

Not everyone who uses the Internet is a ‘gadget wizard’ - but that doesn’t mean that they shouldn’t have the opportunity to improve their online experience. We understand and appreciate the importance of making our products easy to use. F-Secure ADBLOCKER is designed to be accessible and easy to use, so that the move to an ad-free web browsing life is smooth and effortless.

### Free

F-Secure ADBLOCKER is completely **free** - no trials, no hidden catches.

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## REFERENCES

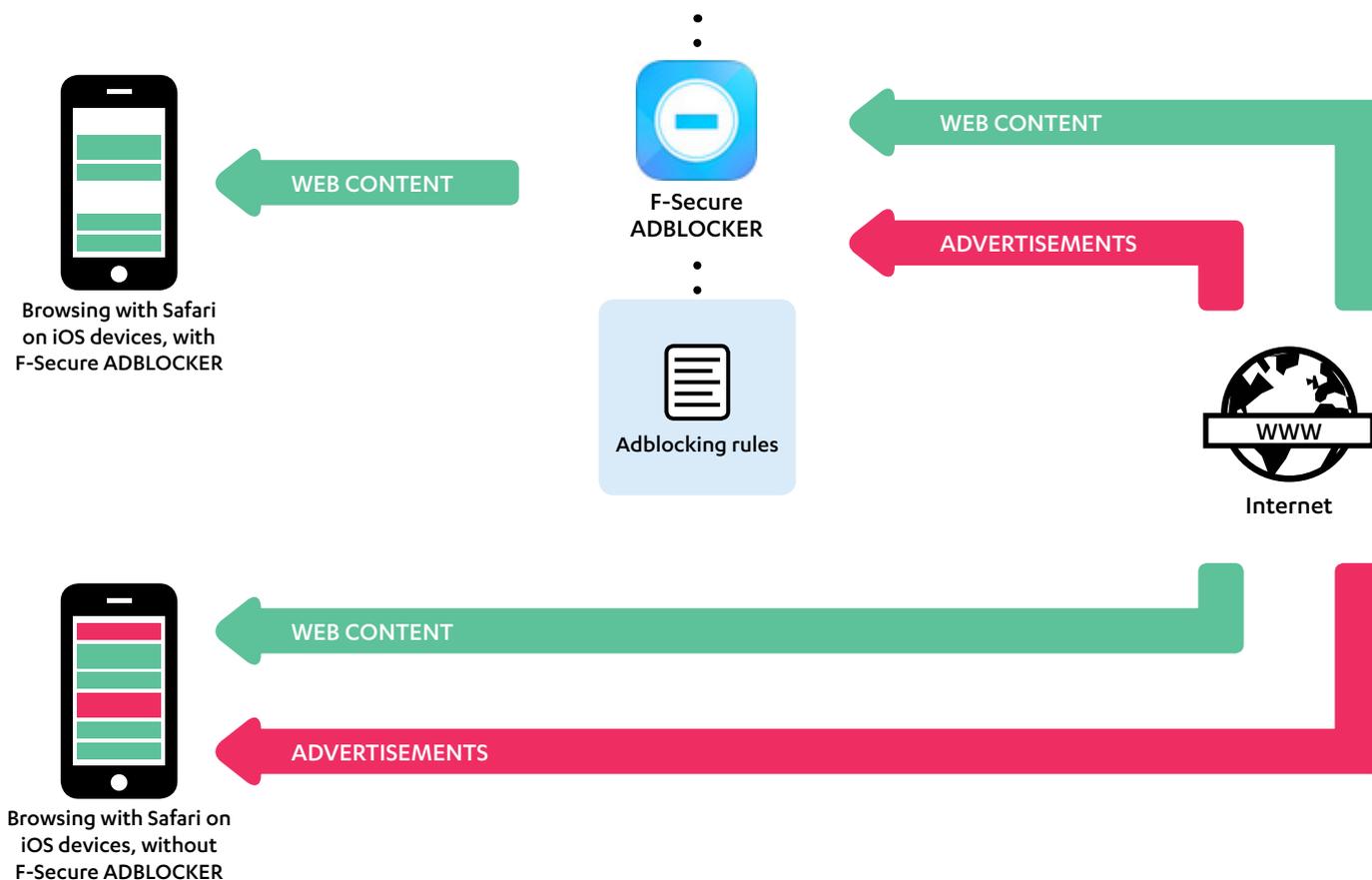
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## HOW DOES ADBLOCKING WORK?

### Overview

Figure 1 (below) illustrates the difference between an iOS device using F-Secure ADBLOCKER to browse an ad-heavy webpage in the Safari web browser, and a device viewing the same page without the assistance of the app. F-Secure ADBLOCKER uses **adblocking rules**, or instructions related to blocking the ad content, to ensure that only the appropriate web content is displayed.

**FIGURE 1: HOW F-SECURE ADBLOCKER WORKS**



F-Secure ADBLOCKER's rules depend on intelligence provided by the **Web Reputation database**, a massive and continuously-updated database. This database is an integral part of [F-Secure Security Cloud](#), an online information repository that powers many of our products. The Web Reputation database is where we store data about websites, servers and other web resources, including the details that identify ad-serving websites and URLs.

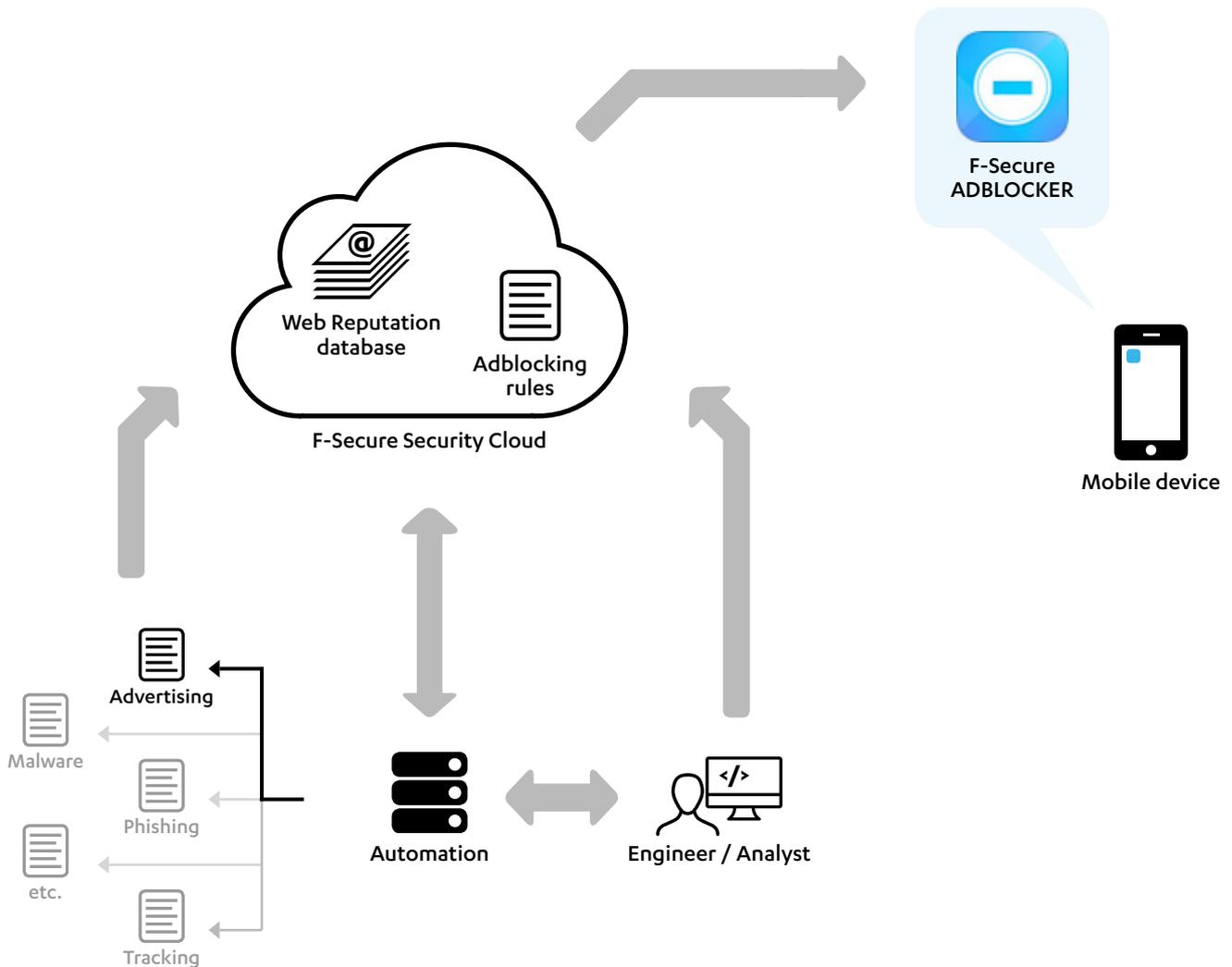
Whenever a site classification is added or modified in the Web Reputation database, the change is fed to the Security Cloud as an update, so that it can be distributed to the users of our products virtually instantaneously. Each time the user launches F-Secure ADBLOCKER, the app first fetches the latest updates to its adblocking rules via the Security Cloud, ensuring that it always has the latest available intelligence.

Once the adblocking rules have the latest updates, F-Secure ADBLOCKER passes the adblocking rules and related information to the Safari web browser app, which executes them and blocks content originating from the identified ad servers. F-Secure ADBLOCKER provides its rules only to the Safari app, and does not perform any adblocking in any other apps on the device.

## How do we produce the adblocking rules?

Figure 2 illustrates how we provide the intelligence that underlies the adblocking rules used by F-Secure ADBLOCKER. This process begins with the list of websites we gather and store in our **Web Reputation database**. Some of this data is gathered from paying customers of other F-Secure products, who consciously choose to share anonymized data with us about the websites they browse, in order to better improve the security of our products for all customers. We also draw on information shared by industry partners, our own automated systems, and other sources.

**FIGURE 2: PRODUCING THE ADBLOCKING RULES**



Once gathered, the data is analyzed by numerous automation systems to classify the sites into various categories: **malware, phishing, advertising, tracking**, and so on. Since websites and the technology behind them are constantly evolving, the automated systems we use for website categorization must also evolve accordingly. This is where a human touch comes in, as dedicated engineers and malware analysts ensure that any inaccuracies in the systems are corrected and websites are properly classified.

F-Secure ADBLOCKER essentially leverages the vast amount of information gathered by packaging the list of websites categorized as **advertising** into a format (i.e., the adblocking rules) that can be used by the Safari app to block such content. We also closely evaluate the rules' aggressiveness to ensure minimal impact on the user experience, while blocking the most rampant and intrusive ads.

One important consideration is that first-party advertising – that is, advertising content that is native to a website rather than sourced from an external domain – is not necessarily blocked, as such advertising is typically integrated into a website's content from the start. F-Secure ADBLOCKER focuses on third-party advertising content, which is typically sourced from a server external to the original domain.

## SECURITY AND PRIVACY

Privacy is one of F-Secure's core values. Privacy is carefully considered during all product planning and development work. We collect only the minimum amount of data from clients necessary to provide our services. Every transferred piece of data must be justifiable from a threat fighting perspective or for keeping services alive, and data is never collected without user consent or for presumed future needs. In the case of F-Secure ADBLOCKER, the app does not record the sites users visit or which ads are blocked.

F-Secure ADBLOCKER connects to the Web Reputation database via **F-Secure Security Cloud** in order to obtain the necessary intelligence for its adblocking rules. As such, the principles that underlie Security Cloud's operations are reproduced below to maintain transparency and address any security or privacy concerns. More information is also available in the original whitepaper, [F-Secure Security Cloud: Purpose, function and benefits \(PDF\)](#).

### PRIVACY PRINCIPLES

<b>Minimize upstream of technical data</b>	Data about the customer's computer or device is not transferred and collected unless the data is essential for providing the protection service.
<b>Do not upstream personal data</b>	The system is designed to not send any information that can identify the person using the computer or device. Such data is not needed for the operation of Security Cloud. Security Cloud-enabled clients use several algorithms to prevent private data from being transmitted and filter out such data from, for example, URLs and file paths.
<b>Use anonymous identifiers</b>	Clients generate unique anonymous IDs that can't be connected to the user's, license owner's, or device owner's true identity. These kinds of IDs are used when repetitive connections from the same device need to be tracked.
<b>Prevent backend data consolidation</b>	Clients use several different unique anonymous IDs for different connections to Security Cloud. This makes it impossible for F-Secure Corporation to profile users by comparing user IDs from different systems.
<b>Do not store IP-addresses</b>	The customer's IP-address is never stored. City-level geo-mapping may be done and the result stored if it is beneficial for providing the service.
<b>Do not trust the network</b>	All network transfers are encrypted using strong crypto. Asymmetric encryption is used for authentication when appropriate.

### SECURITY PRINCIPLES

<b>Secure by design</b>	A system is never secure unless it has been designed to be secure. Security can't be added as the last feature in a project. This is something that is acknowledged when developing Security Cloud and its related systems.
<b>Encrypted network traffic</b>	Data is never transferred in plaintext over the Internet. Encryption is, in addition, used to ensure the integrity of various objects. F-Secure utilizes a mixture of generally available crypto libraries and protocols, and customized crypto code.
<b>Separated malware environments</b>	Storing and testing malicious software is a challenging task that we have over 20 years of experience in. All malware handling is performed in networks separated from the Internet and other F-Secure networks. Storage and testing networks are separated from each other, and files are transferred using strictly controlled methods.
<b>Professional monitoring</b>	All critical systems in Security Cloud are monitored by F-Secure personnel. All systems storing or testing malware are hosted by F-Secure itself.
<b>Controlled access</b>	Only a limited number of F-Secure employees have access to Security Cloud's critical systems. Such access is granted, revoked and documented according to a documented and controlled process.
<b>Open attitude</b>	The most fundamental principle in all security work is an open and humble attitude. We have put a lot of effort into securing Security Cloud, but the work is never finished. A secure system can only be maintained by promoting an open attitude where problems in the system are reported, analyzed and fixed promptly. This attitude includes public openness if we encounter incidents that put customer security in jeopardy.

## SEE ALSO

### **F-Secure privacy principles**

[https://www.f-secure.com/en/web/legal\\_global/privacy/principles](https://www.f-secure.com/en/web/legal_global/privacy/principles)

### **Contact information**

If you have any further questions about F-Secure ADBLOCKER, please contact:

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# SWITCH ON FREEDOM

F-Secure has been defending tens of millions of people around the globe from digital threats for over 25 years. Our award-winning products protect people and companies against everything from crimeware to corporate cyberattacks, and are available from over 6000 resellers and 200 operators in more than 40 countries.

We're on a mission to help people connect safely with the world around them, so join the movement and switch on freedom!

Founded in 1988, F-Secure is listed on NASDAQ OMX Helsinki Ltd.



**F-Secure.**