



Avast Antivirus Nitro Update Reviewer's Guide

June 2016



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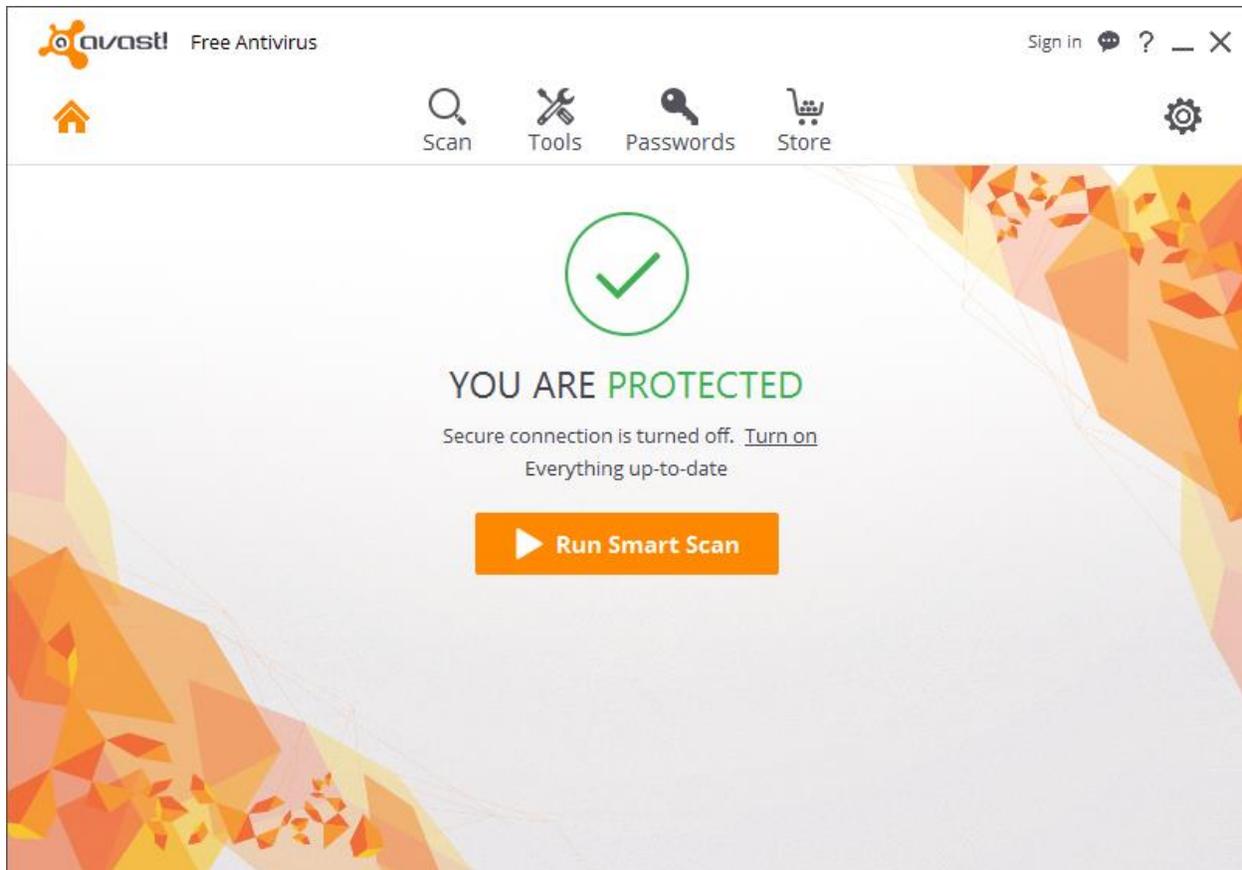
11. IN SUMMARY

1. INTRODUCING THE AVAST ANTIVIRUS NITRO UPDATE



The antivirus software used and loved around the world is getting an upgrade. The Avast Nitro Update takes all the PC protection users depend on and gives it a boost, making things lighter, faster, and with stronger security than ever before. The Avast Nitro Update keeps users' PCs at their best and won't slow them down while protecting them from the hackers and malware that seek to do them harm.

The Avast Antivirus Nitro Update identifies and analyzes threats **in the cloud**, rather than using the PC's processor. As a result, the PC has more processing power left for whatever the user wants to do on their device without interruption and with minimal impact.



The Avast Nitro Update introduces our newest proprietary technology, **CyberCapture**, which offers increased threat detection and analysis. At a time when the security landscape is rapidly changing, and threats are becoming more sophisticated, the ability to identify and respond to threats that have never been seen before in real time is mission critical for consumer protection. With the new CyberCapture feature running in the cloud, users benefit from zero-second protection against unrecognized files. Rather than waiting for the latest update, files are shared with the Avast Threat Labs for real-time analysis, providing a first-response line of defense against new threats.

The Avast Nitro Update also includes **improved Home Network Security**, which protects the entry point to the home network: the router. Home Network Security allows Avast to scan everything connected to a router, such as printers, smart TVs and webcams. In the Avast Nitro Update, the Home Network Security feature can detect new types of router vulnerabilities, as well as detect CSRF attacks on routers. This extra security means that web activities, such as online banking or shopping, are even safer.

Additionally, Avast has **enhanced the performance of Avast's SafeZone browser**, which is now available as a part of all Avast Antivirus products. The new, updated browser helps users surf



the Internet faster and provides the safest, most private browsing experience by creating isolated browsing sessions when on banking or financial sites and by blocking ads.

Avast Cleanup, now a product that works independently on any PC whether or not Avast Antivirus has been installed, has a new fresh, easy-to-use software interface. Avast Cleanup intelligently detects everything users don't need, from leftover files and unnecessary junk to their most recent browsing history. It offers powerful, smart junk detection, so issues can easily be solved as they arise.

Cybercriminals are constantly evolving and developing new tactics, and we need to stay one step ahead of them. To provide more convenient threat detection and continuous security, we will now release new automatic security updates and features on a monthly basis.

It's Avast for the future, and the future's looking bright.



2. NEW PROTECTION: CyberCapture

The average lifespan of today's malware is just a few hours. Many malware authors are now using server polymorphism, where one malware attack instance targets a single user before the code morphs and attacks the next user. Cyberattacks have become a lucrative business for cybercriminals and to maximize profit, criminals focus on quick and fast campaigns in order to hit the maximum number of victims within the shortest possible time frame. With our **new CyberCapture technology**, we address this problem.

Avast's CyberCapture technology is one of our most innovative features that allows us to detect yet-unknown files that might be a threat and analyze them in real time. Whereas older technology ran locally on the user's PC, CyberCapture now runs in the cloud.

While developing CyberCapture, we put a great deal of effort into shortening the time between malware discovery and the deployment of a detection. With CyberCapture, we now introduce zero-second protection, which detects unrecognized files quickly.

CyberCapture is a cloud-based smart file scanner. Rather than relying on the latest definition updates, CyberCapture isolates unknown files in a safe environment and automatically establishes a two-way communication channel with the Avast Threat Labs. This allows for immediate analysis, providing a first-response line of defense against new threats.

To analyze the file, Avast clears away all the false code and misdirection that malware creators use to mask malware's true intentions. By peeling away layers of obfuscated code, CyberCapture is able to observe the binary level commands inside malware and better understand the instructions hidden there. While CyberCapture is studying a file, a user can run it before CyberCapture has finished its analysis; however, we strongly recommend against this.

Once a file is analyzed, Avast provides the user with an update as to whether a file is considered "safe" or "dangerous."



3. HOME NETWORK SECURITY - *updated*

Avast is always looking to the future to both predict and solve tomorrow's biggest cyberthreats. As the world is growing more interconnected than ever before, with phones, TVs, home security and even thermostats being connected to the Internet, we're aware that entire networks need to be protected, not just the PC.

Yet, most Internet routers -- the keystone to your home network -- are riddled with security issues, which makes most easy pickings for hackers. [A study conducted by Tripwire](#) showed that 80% of the best-selling routers have easily exploitable vulnerabilities. Furthermore, the most basic login credentials, such as having both the username and the password "admin", or admin/password, or even admin/<no-password>, are used for more than 50% of all routers worldwide. An additional 25% of consumers use their address, birthday, name, or family name for router passwords. As a result, more than 75% of all routers are vulnerable to simple password attacks, which is basically an open invitation to malicious hackers.

Home Network Security helps solve this issue by scanning a user's home network and routers for potential security issues. In the Avast Nitro Update, Avast completely rewrote Home Network Security's detection engine; this created a stronger DNS hijacking detector and allows scans to run in parallel to identify threats faster. The engine now supports address resolution protocol (ARP) scans and port scans, performed from the kernel driver, which makes scans ten times faster than in previous versions.

Utilizing Avast Web Shield, Home Network Security can automatically block cross-site request forgery (CSRF) attacks on the router. CSRF exploits take advantage of website vulnerabilities that enable cybercriminals to transmit an unauthorized command to a website. The command looks like it was sent from a user that the website knows and trusts. This way, cybercriminals can impersonate the user and, for example, transfer money in the user's name without the user's knowledge. Using CSRF requests, attackers are able to make changes to routers remotely, in order to overwrite DNS settings or redirect traffic to attacker-controlled sites (usually fake banking sites) to then steal banking passwords.

These are just a few examples of the twelve new threats that Home Network Security can discover.

Home Network Security also identifies weak Wi-Fi passwords, vulnerable routers, compromised Internet connections, and enabled, but not protected, IPv6. Finally, it lists all the devices on the network so users can make sure that only trusted devices are connected. Once an issue arises, we will offer solutions to the user on how to resolve it and keep their network secure.



Home Network Security will also check if new devices connect to our users' network and notifies them of any changes. This comes in handy in the case that a neighbor is trying to use their Wi-Fi.

This proactive approach to security highlights our ongoing commitment to provide users with 360 degrees of protection, both now and in the future.

4. UPDATED TOOLS

We're thrilled that our SafeZone browser is now available for all our free users to enhance their protection while browsing the web, adding an extra layer of security during their shopping and banking activities and giving them the option to optimize their privacy and speed with features like Ad Blocker.

Moreover, Avast Passwords is now also available for Mac, so users can create and manage strong passwords no matter if they use Apple, PC, Android or iOS.

The Avast Nitro Update includes additional security and optimization tools, such as SecureLine VPN, which now accesses 25 servers in 18 countries, and Avast Cleanup, which has resolved compatibility issues by no longer booting in Linux and no longer requires users to restart their computers.

4.1 SafeZone Browser - *updated*

Since the last version of Avast, we have made SafeZone browser free for all our antivirus users. The browser has been enhanced, so people can browse, bank and shop smoothly and safely.

SafeZone is a secure browser that people can use every day. It protects users' privacy from those that want to track them and keeps them secure from malware and hackers.

Why Use SafeZone browser instead of Chrome or Firefox?

SafeZone is a browser that works like any other browser, giving people access to the Internet. What makes it different is that it has safety features built in to protect their privacy, prevent hacker attacks and make browsing an overall better experience.

SafeZone browser will:

- Filter out web pages that have a poor reputation
- Block annoying ads
- Allow users to download videos from YouTube



- Stop malicious extensions from being added to their browser
- Protect users on banking sites by isolating their browser session so that it can't be tracked

Safer banking than with a standard browser

Whenever people are using SafeZone to browse the Internet, it automatically opens banking sites in *Bank Mode*. *Bank Mode* isolates the browsing session and protects it from those that could log the keystrokes, eavesdrop on the network and capture any passwords or other personal data. People can also manually open *Bank Mode* on any site with a simple click on the browser.

Where to find SafeZone browser

Every Avast Antivirus software product comes with SafeZone browser included.

If a user has already installed Avast Antivirus, SafeZone can be accessed directly from the Avast Tools menu. Users can simply go to **Avast program > Tools > SafeZone**. If users don't have Avast yet, they can first download Avast Antivirus and then access the Tools menu.

4.2 Cleanup - *updated*

Avast Cleanup, now a product that works independently on any PC whether Avast Antivirus is installed or not, has a new fresh, easy-to-use software interface.

Avast Cleanup intelligently detects everything users don't need — from leftover files and unnecessary junk to their most recent browsing history. It offers powerful, smart junk detection so issues can easily be solved as they arise.

In summation, Avast Cleanup allows users to scan and scrap unused, unnecessary files that take up excess space and slow down their boot time. Cleanup allows users to free their PC of up to 30GB of junk.

By disabling startup apps, scheduled tasks and background services, Avast Cleanup can speed up a PC's boot time. Additionally, Avast Cleanup scans and defragments the registry. For a faster and smoother browsing experience, Avast Cleanup helps the user get rid of site tracking cookies to stop targeted advertising, clears the browser cache and gets rid of browsing history.

Moreover, Cleanup can disable unneeded programs, fine-tune settings and remove unwanted browser add-ons.

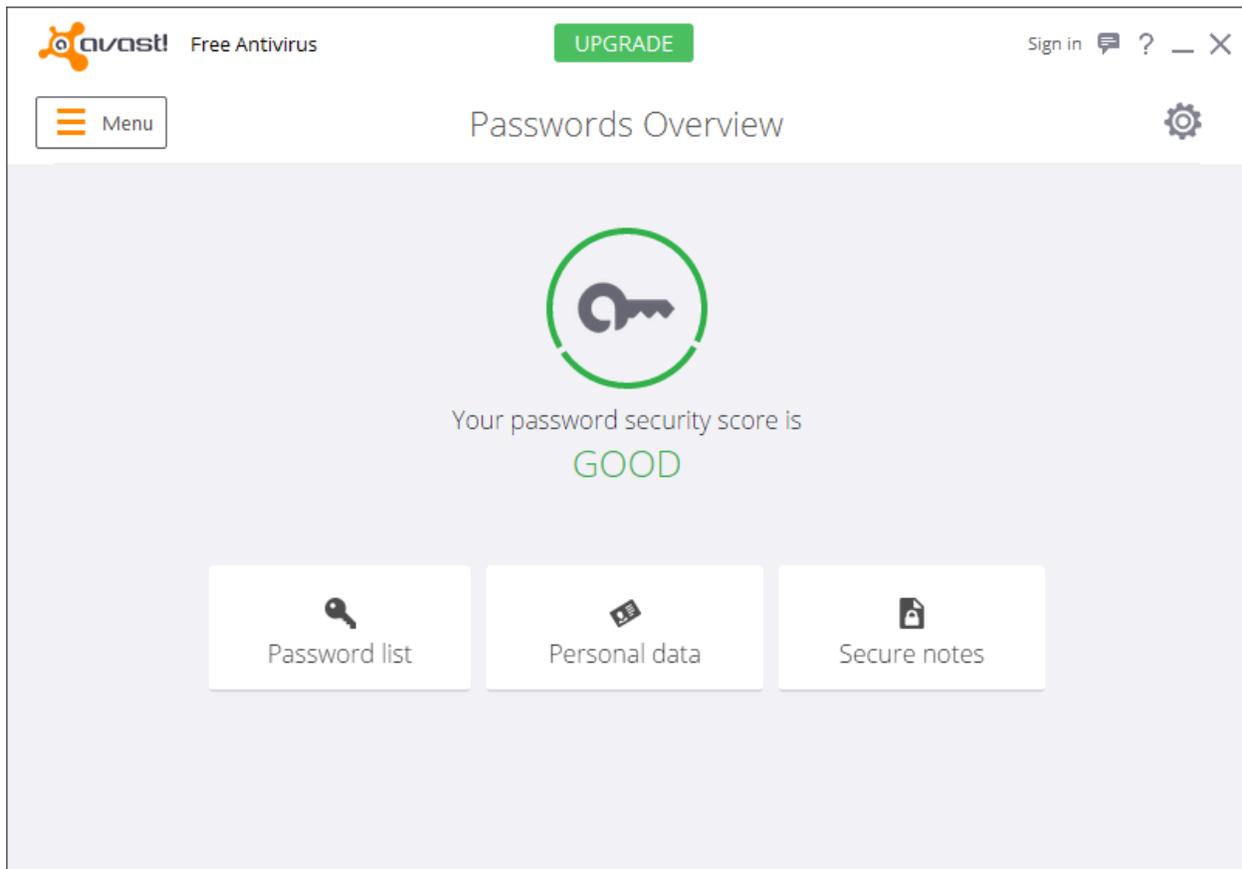


Customers can use real-time monitoring to remove residual files after a program has been uninstalled and can schedule daily, weekly or monthly automatic cleanups to remove junk, disable potentially dangerous apps and tweak the system to ensure that their computers are always top-notch.

4.3 Passwords - *updated*

Avast Passwords is easy-to-use software that makes managing your passwords a safe and convenient affair. With the Avast Nitro Update, Avast Passwords is now also available for Mac.

Avast Passwords can be used either exclusively on one device, with all data stored on that device, or it can be synced across all of the user's devices (PC, Android, iOS, and now, Mac) via the Avast Account. If it is, all data is encrypted and stored on Avast's secure servers.



Approximately 80% of all users have passwords stored on their browser, where they are easy for spies and hackers to access. Most users either aren't aware of the danger or are too fond of the convenience to care. Avast Passwords, however, offers the best of both worlds -- it keeps the user's passwords in one convenient location, locked behind one master password. When



unlocked, Avast Passwords will then auto-fill users' information every time they go to log into an account online with the same speed and convenience as a browser.

Avast Passwords also comes with several other features, such as monitoring if any of the user's passwords have been leaked by comparing them to a database of stolen passwords, and warning the user if their passwords are vulnerable. It also comes with a password strength checker, a safe password generator, and Secure Notes, which is a digital notepad safely hidden away from the rest of the world.

In order to sync Avast Passwords across devices, users need to connect their machines through their Avast Account. This will also allow them to set their master password and install browser extensions (Chrome, Firefox, IE, and SafeZone on PCs; Chrome, Opera and some native browsers on Android devices; Safari on iOS, and now also on Macs; manual installation is required in all cases).

Avast Passwords Premium, at USD 9.99/year, comes with even more features, including One Touch Login, which allows users to easily unlock their desktop passwords from their phones while also maintaining the security of all accounts. On top of that, Avast Passwords Premium will automatically notify the users if any of their passwords have been leaked – no need to check manually.

Passwords getting leaked or stolen can do more than compromise accounts -- it can ruin lives. With Avast Passwords, however, those fears are a thing of the past.

4.4 SecureLine VPN (Optional Add-On) - *updated*

Avast SecureLine VPN provides a secure connection when using any type of network, be it a user's home network or public Wi-Fi. The VPN encrypts all communication, anonymizes browsing, privatizes uploads and downloads and makes emails, logins, messages, and credit card details invisible. SecureLine VPN now has 25 servers in 18 countries around the world that users can choose from, which means faster connections for users in most countries.

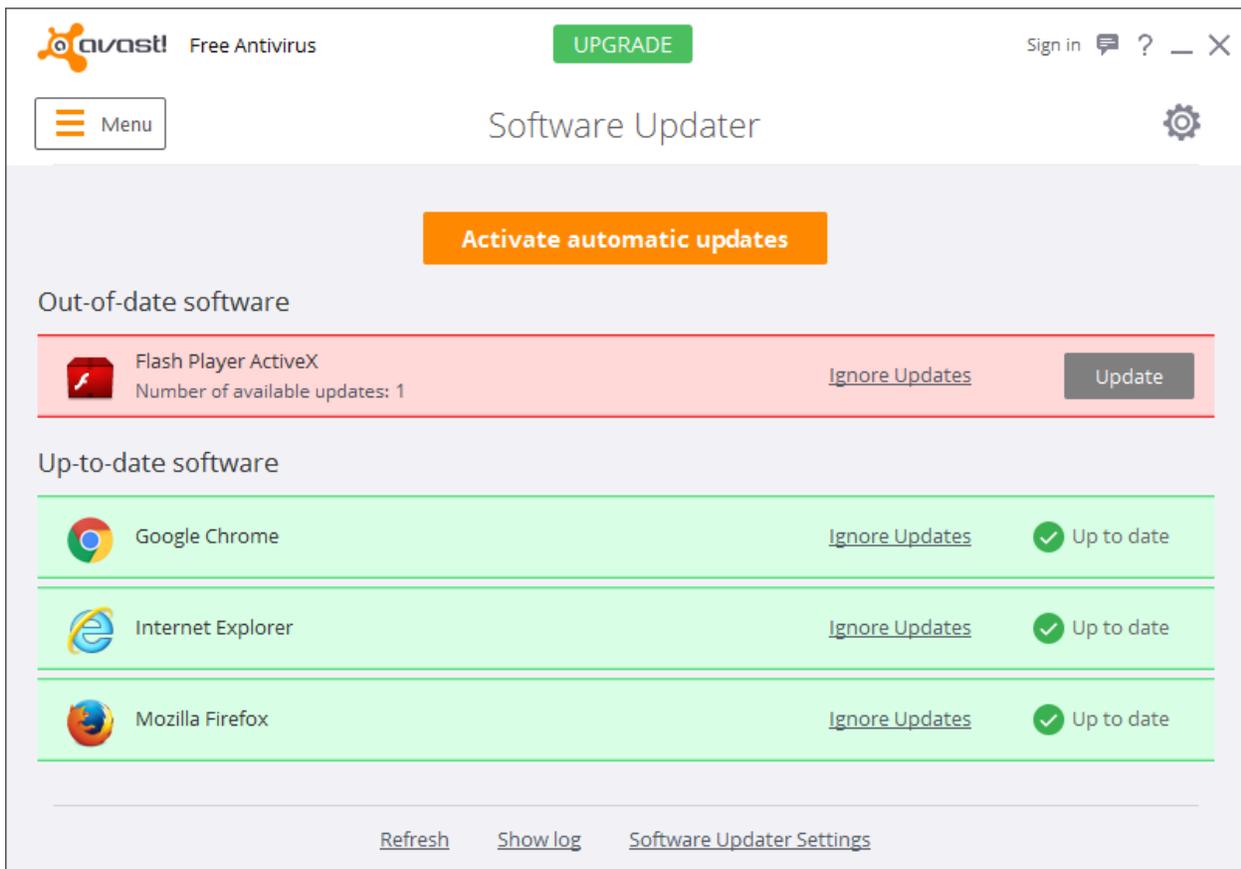


5. USER EXPERIENCE

Making our customers' experience the best it can be is what matters most. With light, easy-to-use, top performing software, we strive to enhance our users' experience.

5.1 Software Updater

Software updates can be a real hassle, as they interrupt work and disrupt system functions. Because they can be so annoying, many users postpone installing them, which leaves their devices vulnerable. Many PC users are not aware that cybercriminals take advantage of vulnerabilities in common software such as Internet browsers, Flash Player, Skype and other programs used daily. Through security flaws, hackers can access a user's system to install malware like spyware and adware to their system, which can affect a system's performance or lead to identity theft. Therefore, it is important to keep software updated. Avast makes software updates easy with Software Updater.



Helping users update faster than ever, Avast pre-downloads all necessary updates to our



Software Updater unobtrusively, without disturbing system functions. When the download is complete, we notify the user, who can then upgrade their software with a simple click.

We can also update third-party software quickly. We download trusted application updates for software like desktop inboxes and browsers via our own servers, and when they're ready, users can update their applications with ease and convenience.

5.2 Customer Feedback Form

In addition to offering 24/7 customer service through the online forum and direct calls to our support team, Avast also offers a feedback form directly within our products. Using the form, our users can notify us about bugs or tell us what they would like to see in future versions of our products. We're always happy to listen and consider what they have to say.

5.3 Avast Account

The Avast Account is an easy-to-use console that connects and manages a user's devices from one convenient, cloud-based location. It also lets users sync their passwords with our secure password manager, Avast Passwords.

From the Avast Account console, users can add devices to their network, purchase additional services and check the status of all their protected devices. It sports a simple design with widgets that provide information clearly and smooths the user's experience.

Additionally, if a user needs to reinstall an application or expand their protection to a new device, the Avast Account can save them the trouble of trying to dig up an old license with the easy, one-click installation option. As part of a user's Avast Account, the license key is easy to find and activate, meaning that a user's device doesn't need to go unprotected any longer than necessary.

To get an Avast Account, users only need to register and set one up. From then on, they can enjoy all the functions listed above and more, such as logging in over Facebook.

The Avast Account features can be accessed from the Avast User Interface or downloaded from <https://my.avast.com>.



6. FEATURES

To protect users from multiple attack vectors, it is necessary to offer several security layers. To that end, Avast Antivirus also includes features that protect users from DNS attacks, spam emails, and data loss with features like Secure DNS, Rescue Disk, Data Shredder and Anti-Spam.

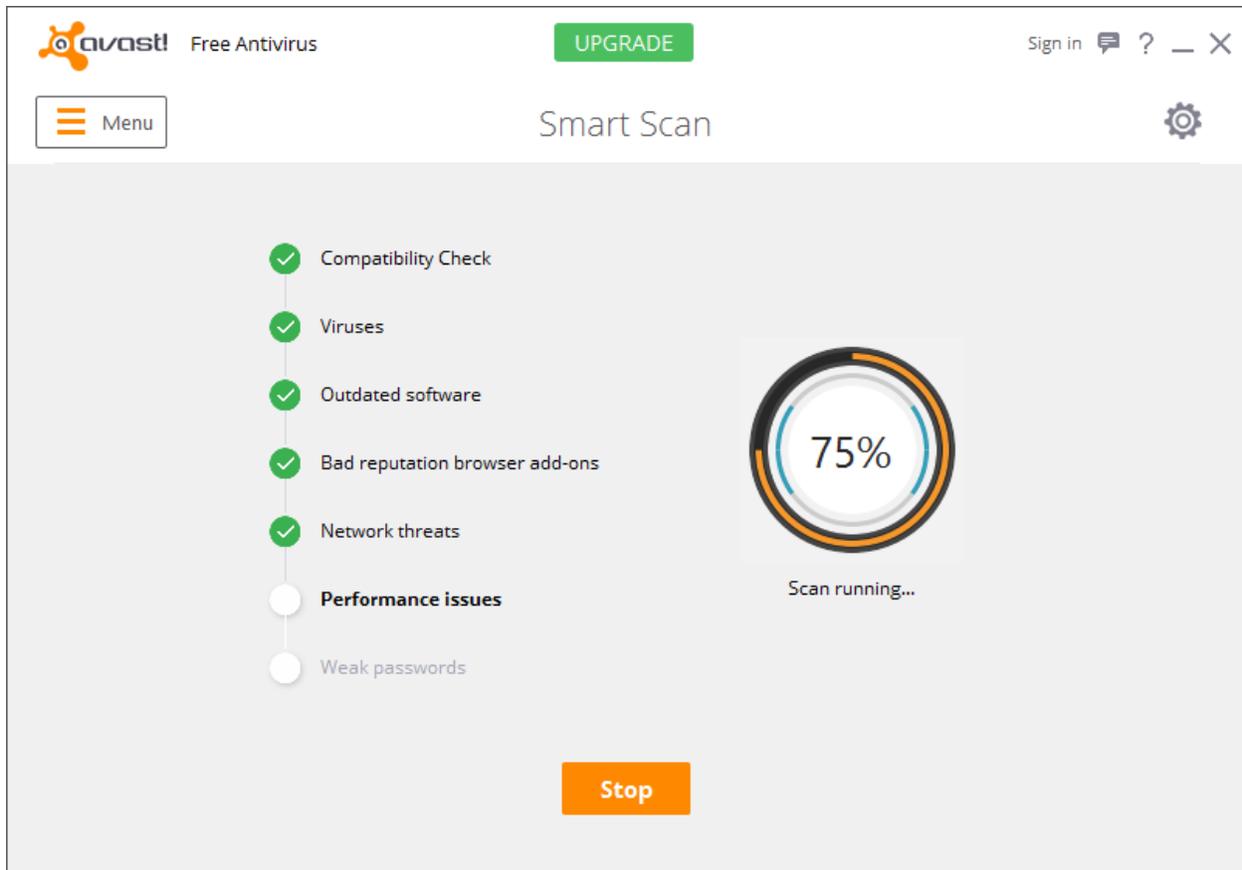
6.1 Secure DNS

One of the biggest risks that users face on any Wi-Fi network is DNS hijacking. Malware exploits vulnerabilities in a user's router and surreptitiously redirects them away from their intended destination, such as their bank's website, to a fake site that looks just like the real thing. When the user tries to log in, thieves capture the user's login details and uses them to access the real site.

Avast, however, has everything users need to keep their browsers honest. Secure DNS, which is available in Avast's paid Pro, Internet Security, and Premier products, stops this malware in its tracks by encrypting the traffic between an Avast-protected device and our DNS server. This way, users can relax knowing that they'll always go to the right destination every time.

6.2 Smart Scan

Smart Scan lets users scan for a plethora of issues with one click and to discover features that could further improve their PC. To speed up the scanning process, Smart Scan combines scans for viruses, software updates, network problems, new features and performance issues into one concentrated scan. Once completed, it shows the itemized results and, if there are any issues, offers tools and suggestions to fix them. It doesn't get any easier than that.



6.3 Rescue Disk

Any time malware invades your PC, it's a major headache. People can lose hours worth of time or giant chunks of their saved data while trying to purge it from their system. To smooth this process out, Avast allows users to create a version of their Avast installation and save it to a USB, CD or DVD. This way, if a user's PC becomes so infected that it can't even run Avast properly, the user has the disk version ready to give their PC a clean reboot and restore its functionality.

The Rescue Disk is built on Windows PE (a pre-installation environment), which allows users to boot a PC even when there's no functioning OS. The Rescue Disk function is available in all Avast products and is an integral part of the remediation module.



6.4 Data Shredder

Even deleting a file doesn't remove it for good -- and it's no challenge at all for someone to recover deleted files on recovered hard drives. Avast Data Shredder, however, encrypts deleted data, so even if it's recovered, no one can learn anything from the files.

6.5 Anti-Spam - *updated*

Spam isn't just annoying -- it can be a security risk, offering users phishing links built specifically to exploit PC or credit card data. These emails try to convince users they're from legitimate senders, but our anti-spam technology catches them every time, protecting our user's data, time, and orderly inboxes.

With the Avast Nitro Update, users can now choose whether they want to activate the anti-spam technology, which is now deactivated by default.



7. PROTECTION

We define protection as anything that defends against attack, invasion, danger, loss or annoyance. The first step for unbeatable protection is to not let anything through without first ensuring that it's safe. The new CyberCapture feature achieves this by providing instant protection from unrecognized files, sending them to the Avast Threat Labs to check they're safe while warning the user against opening them.

With Avast Web Shield's HTTPS Scanning feature, Avast scans all HTTPS sites for potential malware and threats. An independent study by Concordia University in Montreal, Canada, published in April 2016, has shown that Avast provides the market's most secure HTTPS Scanner -- improvements the study suggests have already been implemented by Avast in November 2015.

Apart from that, we also provide hardware-based virtualization, or a virtual "test area", to run suspicious software. Meanwhile, PUP detection makes sure users don't have unwanted software slowing down their computers.

7.1 HTTPS Scanning

As more and more online services are moving to HTTPS-by-default or even HTTPS-exclusive, hackers and malware are increasingly targeting these sites. That's why it's imperative for security software to check even these encrypted websites. To address this, our trusted Web Shield technology scans HTTPS sites for malware and other dangers without any man in the middle (MITM). Instead of replacing a site's certificate with an Avast certificate, as we had been doing in the past, the Avast Web Shield has been keeping the site's original certificate since November 2015. This means no need to whitelist sites that won't accept an Avast certificate, so users won't be blocked from otherwise trustworthy websites. This change now means we offer the strongest HTTPS security without having to sacrifice convenience.

HTTPS scanning detects and decrypts TLS/SSL-protected traffic. Additionally, this feature adds compatibility for SPDY+HTTPS/HTTP 2.0 traffic.

In a nutshell, we make HTTPS sites safer without disrupting users' browsing experience.

Users can adjust or disable HTTPS scanning in their Web Shield settings.



7.2 PUPs Detection

Potential Unwanted Programs (PUPs), such as toolbars and advertising networks that a user installs without knowing, can slow down a PC. While PUPs are not really malware, users often don't know about them or don't use/need them.

To help keep these in check, Avast offers Avast Browser Cleanup, which can activate or deactivate installed PUPs. Avast Browser Cleanup scans a user's browsers and identifies all poorly rated add-ons, extensions, search engines and toolbars that it may find. From there, it allows users to disable them, remove them or just leave them be.

7.3 Hardened Mode (whitelisting)

When users trigger Hardened Mode, otherwise known as whitelisting, the program begins blocking files from executing when it's uncertain if the files are safe or not. There are two levels of severity the user can set Hardened Mode to:

- Moderate, which simply blocks files that would normally go through the CyberCapture process
- Aggressive, which won't run any applications with low prevalence (or any application that very few Avast users have installed and used)

Using data collected by our 230 million users, we can determine if an application's reputation is good or not. Since all the processing and rule checks are done in the definition updates, users enjoy greater flexibility without suffering any interruptions. In Hardened Mode, if Avast detects an issue while trying to run an application, a message will appear warning the user that their PC may be at risk if they choose to continue.

7.4 Streaming Updates

While we now do much of our heavy lifting on the Avast cloud, we continue to keep local agents up to date with regular definition updates. This is especially important for when users find themselves offline. We send more than 200 micro-updates per day – approximately one every six minutes – and have expanded the types of signatures provided over streaming updates to include DynaGen and manually created signatures, along with TrojanGen/EvoGen, URL blocks and whitelist signatures. In short, we're delivering near real-time signature updates to protect against the newest emerging malware.



7.5 Firewall

While Windows offers a free firewall, it is not nearly robust enough for most security needs and offers very few configuration options. The Avast Firewall, on the other hand, offers better outbound protection and configurability than Windows, while remaining nice and invisible to the user. The silent firewall also uses crowd-sourced data from our 230 million global users to identify what file types and applications are whitelisted, even those from remote corners of the world. The firewall feature is available in Avast Internet Security and Avast Premier.

8. EXISTING TOOL: Avast Online Security

Avast Online Security features a number of browser plug-ins, such as a Do Not Track, which identifies tracking software and lets the user decide whether or not to allow that software to keep tracking them. For each website a user visits, they'll see a number attached to the Avast plug-in icon (located in the right corner of their browser menu bar). When users click on the number, they'll see a list of all the tracking and analytics programs that are trying to follow them. From there, they can enable or disable them as they choose, creating a selectively private online browsing experience. While most modern browsers already come with some form of Do Not Track support, Avast's is very different: instead of relying on HTTP DNT headers, it uses proprietary technology that servers can't override.

Each of our browser plug-ins also include an Anti-phishing feature that blocks webpages from loading if Avast detects malware or phishing sites. The SiteCorrect function corrects typos in URLs to prevent users from accidentally going to websites they didn't intend to visit.

The Chrome browser plug-in is distributed via the Chrome Web Store or the program installer. Similarly, the Firefox plug-in is available from the Firefox store or the program installer. Both of these can be used independently of Avast. Plug-ins for Internet Explorer and Safari are offered in the program installer only.



9. OVERVIEW OF PRODUCTS

Avast offers four antivirus products: Free, Pro, Internet Security, and Premier. The table below shows which features come with each product.

	Free	Pro	Internet Security	Premier
Antivirus	✓	✓	✓	✓
Anti-spyware	✓	✓	✓	✓
Streaming Updates	✓	✓	✓	✓
Hardened Mode	✓	✓	✓	✓
CyberCapture	✓	✓	✓	✓
Do Not Track, SiteCorrect, Anti-phishing, Anti-malware	✓	✓	✓	✓
Home Network Security	✓	✓	✓	✓
HTTPS Scanning	✓	✓	✓	✓
Smart Scan	✓	✓	✓	✓
Passwords	✓	✓	✓	✓
SafeZone Browser	✓	✓	✓	✓
Software Updater	Manual	Manual	Manual	Automatic
Sandbox		✓	✓	✓
SecureDNS		✓	✓	✓
Anti-spam			✓	✓
Firewall			✓	✓
Data Shredder				✓
Cleanup	Paid add-on	Paid add-on	Paid add-on	Paid add-on
SecureLine VPN	Paid add-on	Paid add-on	Paid add-on	Paid add-on



10. COMMUNITY IQ

Our users are an essential part of our ability to provide the best security available. It all starts with listening and reacting quickly to their feedback.

230 million devices worldwide currently use Avast products. This allows us to always stay ahead of the curve as users automatically send malware and suspicious file activity to the Avast Threat Labs for detailed analysis. This results in automatic micro-updates that we send back to users throughout each day, creating an information loop.

On top of this, tens of thousands of people visit the Avast user forum (<http://forum.avast.com>) every day. Users who answer the most queries, also known as Avast evangelists, essentially run the forum. Through this community involvement, along with self-service FAQ tools and free email support, the forum can handle any and all issues visitors may have. Better still, the open communication with our community means that users can quickly send vital information to the Avast Threats Labs experts so they can get a leg up on tracking threats to identify their scope and severity.

This lets Avast continue to embrace its objective of offering the best antivirus product in the world while building a wider, deeper user base. It's a win-win for everyone -- except malware producers, of course.

11. IN SUMMARY

As threats evolve faster, it's imperative to have faster, more secure real-time protection. The Avast Nitro Update for our flagship antivirus products delivers a new lightweight file size that speeds up downloads and utilizes less RAM and CPU cycles so that it does not slow you down.

We are keeping users secure with the most up-to-date, cutting-edge technology, such as CyberCapture and SafeZone browser -- now new and improved for the most private browsing available.

The Avast Antivirus Nitro Update is the latest example of how we are looking out for you wherever you are with easy-to-use security products that keep you safe and help you perform at your best.