



Benchmarking of parental control tools for the online protection of children

SIP-Bench III

4th CYCLE STUDY REPORT

Executive Summary

SAFER INTERNET PROGRAMME

Empowering and Protecting Children Online

March 2017

The Study is Funded by the European Union, through the “Safer Internet Programme” 2008-2012 <http://ec.europa.eu/saferinternet>

The Study Report has been prepared by INNOVA Srl in collaboration with Cybion Srl and Stiftung Digitale Chancen (hereafter named as “the Consortium”) for the European Commission Directorate General for Communications Networks, Content and Technology – DG CONNECT.

The document provides a concise summary of the results of the 4th benchmarking testing cycle carried out during the period July-December 2016 and more broadly reported in the 4th Cycle Study Report available on-line at: <http://www.sipbench.eu/>

NOTICE

The study aims to benchmark the main functionalities, effectiveness, usability and security of most currently used filtering software from a technical and ‘fit-for purpose’ point of view, without any commercial or profit-related concern. The European Union, the European Commission or any person acting on their behalf are not responsible for the accurateness, completeness, use of the information contained in this study, nor shall they be liable for any loss, including consequential loss, that might derive from such use or from the findings of the study themselves.

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It has to be pointed out that during the tests the content sent or received by the children/teenagers was not taken into consideration. Filtering of such content would violate privacy rights.

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1. The 4th benchmarking cycle

This report is the Executive Summary of the 4th Cycle Study Report published in the framework of the *SIP-Bench III – “Benchmarking of parental control tools for the online protection of children”* project, funded by the European Commission in the framework of the Safer Internet Programme 2008-2012.

The testing cycle has been carried out on a set of **25 parental control tools**, available on the market, in the period July-December 2016 and conducted by Cybion Srl and Stiftung Digitale Chancen, under the coordination of INNOVA Srl.

The testing cycle, through a vendor/supplier-independent comparative benchmarking exercise, was aimed to assess some main areas of performance of tools:

- **Functionality** to assess which are the functionalities provided by each tool to address need and requirements of users;
- **Effectiveness** to assess how each tool blocks harmful content and allows non-harmful content;
- **Usability** to assess if each tool can be easily installed, configured, used and maintained by average users; and
- **Security** to verify whether the tool prevents the user from by-passing or disabling the filter through a specific set of actions.

The full results of the study are available on-line through a **searchable database** on the project website that allows a search of tools by device, operating system, age-group, language. The search is also allowed according to additional features such as: price, content filtering, keywords, usage restriction, time and blocking message. The search engine is aimed to help and guide users (PARENTS) in the decision making process.

25 parental control tools were tested in the 4th testing cycle: 10 PC/MAC parental control tools, 10 parental control tools for mobile devices, 5 so called “Alternative” parental control tools. A complete list of tools is provided in Table 1 below.

The selection of tools was made to address parents’ needs in terms of devices used (PCs, mobile phones), operating systems (Windows, Mac), languages, and type of solutions (default systems like Microsoft Vista parental control, client software, ISP solutions).

The full results of the study are available online in the 4th Cycle Study Report at: www.sipbench.eu.

Table 1 - List of Parental Control Tools tested in the SIP-BENCH III 4th benchmarking cycle

Device	Tool Name (Version)	Company	System
PC/Mac	Witigo Parental Filter	Witigo/Profil Technology	Linux
	Mac Os X Parental Controls	Apple	Mac OS X
	ContentBarrier X9	intego	Mac OS 10.8
	McAfee Total Protection	McAfee Inc	Win 7 and up
	F-Secure Internet Security (2016)	F-Secure GmbH	Win7
	Norton Family Premier	Symantec Corporation	Win 7 and up
	Netintelligence Online Child Safety	iomart Cloud Services Ltd 2016	Win XP, Vista, 7
	Panda Global Protection (2016)	Panda Security	Win 7 and up
	Qustodio/Qustodio Premium	Qustodio LLC	Win 7 and up
	Kaspersky Safe Kids	Kaspersky	Win XP and up
Mobile	Qustodio (Mobile)	Qustodio LLC	iOS 7 and up
	Curbi (2.0.2)	Systemic Pty Ltd	iOS 9.2 and up
	WebProtectMe Safe Browser	DigiTar Inc.	iOS 8.1 and up
	Familoop (iOS 2.3 (updated May 2016)	Familoop	iOS 8.0 and up
	Norton Family parental control	NortonMobile	Android 4.0 and up
	F-Secure Mobile Security (16.3.012820 - June 2016)	F-Secure Corporation	Android 4.0 and up
	Mobicip Safe Browser (Android (updated June 2016)	Mobicip LLC	Android 2.3 and up
	Parentsaround (Mobile) (Android 2.604 (updated June 2016)	ARS Nova Systems	Android 2.3 and up
	Xooloo Parental Control (Android 1.2.0 (updated February 2015) ¹	Xooloo SAS	Android 4.2 - 5
	Surfie Kids (1.05576)	Puresight Technologies Ltd.	Android 2.3 and up
Alternative	Magic Desktop (9)	Easybits Software AS	Win 7 and up
	Surfgarten (1.0.1) ²	Dt. Telekom AG	iOS 5 and up
	Zoodles	Inquisitive Minds, Inc.	Windows; Mac OS X; Android 1.6 and up;
	Maxthon Kid-Safe Browser	Maxthon (Asia) Ltd.	Android 2.2 and up
	JumpTo Secure Kids	Jumpto Media Inc.	Win 7 and up

¹ The new Version 2.5.09 of Xooloo has become available only in February 2017, after the closure of the 4th SIP-BENCH III benchmarking cycle.

² As of December 2016, Dt. Telekom does not longer provide Surfgarten. For further information please refer to <https://itunes.apple.com/de/app/surfgarten/id660667553?mt=8>

2. Elements assessed during the benchmarking tests

- ➔ Two main different classes of age have been taken into consideration (≤ 12 years old and ≥ 13 years old).
- ➔ Functionality coverage has been measured considering the number of functionalities offered by each tool against a set list of potential functionalities.
- ➔ Effectiveness has been measured with reference to: topic of the content, language, Web type, and social media used and age of the user/s.
- ➔ The tools' effectiveness has been assessed in terms of their performance in blocking harmful content and allowing non-harmful content and measured against the following performance features:
 - Sensitivity – Under-blocking (% of missed bad content)
 - Specificity – Over-blocking (% of dropped good content)
- ➔ Usability has been measured considering installation and configuration processes and usage.
- ➔ The tools have been tested in terms of Security to check if they prevent the user from by-passing or disabling the filter through a specific set of actions (e.g. using an alternative browser, disabling or uninstalling the software without a password, closing the filtering tool through the Task Manager, accessing pages through the Google Cache, etc.).

An overview of the performance emerged from the tests of the 25 tools is provided in Table 2 below.

Table 2 – PERFORMANCE OVERVIEW OF PARENTAL CONTROL TOOLS TESTED IN THE 4TH BENCHMARKING CYCLE

Device	Tool Name	Effectiveness		Usability	Security
		≤12	≥13		
PC / MAC	ContentBarrier X9	1.8	1.8	2.84	1
	F-Secure Internet Security	2.2	2.2	2.67	1
	Kaspersky Safe Kids	2.0	2.0	3.03	1
	Mac Os X Parental Controls ³	1.8	1.8	3.03	4
	McAfee Total Protection	2.0	2.0	2.90	1
	Netintelligence Online Child Safety	2.2	2.1	2.63	1
	Norton Family Premier	2.1	2.0	3.52	1
	Panda Global Protection (2016)	1.6	1.6	2.47	1
	Qustodio_Qustodio Premium	2.3	2.3	2.91	1
	Witigo Parental Filter	1.7	1.5	2.43	1
Mobile	Curbi	1.7	1.7	2.13	1
	Familoop	1.9	1.9	2.57	1
	F-Secure Mobile Security	2.2	2.2	2.51	1
	Mobicip Safe Browser	2.0	2.0	2.51	4
	Norton Family parental control	2.4	2.4	2.90	1
	Parentsaround (Mobile)	1.6	1.6	2.69	1
	Qustodio (Mobile)	1.8	1.8	2.87	1
	Surfie Kids	2.5	2.5	2.86	1
	WebProtectMe Safe Browser	2.1	2.1	3.04	1
Xooloo (Mobile)	n/a	n/a	2.21	4	
Alternative Tools	JumpTo Secure Kids	2.5	2.5	1.20	4
	Magic Desktop	2.5	2.5	2.10	4
	Maxthon Kid-Safe Browser	n/a	n/a	1.60	4
	Surfgarten	n/a	n/a	2.10	4
	Zoodles Premium	n/a	n/a	2.10	2

³ The same system is implemented in iOS (iPad, iPhone).

Scoring method

In Table 2 tools are grouped per device used. The list is not a ranking. It just gives an overview of results obtained by testing the tools and marks (in bold) the tool in each group that reached the highest score in each performance area.

Scoring methods applied are as it follows:

- ☞ **Functionality**: the performance of each tool is measured through a % of 'functionality coverage', that means how many functionalities are offered by the tool against a set of functionalities tested.
- ☞ **Effectiveness**: an overall score is assigned to each age class as the result of the average performance of the two content topic types. The scoring scale considers both the under blocking (harmful pages which are not blocked) and over blocking (non-harmful pages which are blocked). The overall score ranges from 0 (Very weak) to 4 (Excellent) as it follows:
 - 0 = Very weak: the tool is less effective than a random tool
 - 1 = Weak: the tool has a low effectiveness and answers very partially to parents needs
 - 2 = Fair: the tool has a fair level of filtering, nonetheless a non-small part of the content is not correctly filtered
 - 3 = Good: the tool offers a good level of filtering, but part of the content is not correctly filtered.
 - 4 = Excellent: the tool offers a very good level of filtering and satisfies the parents' needs in terms of effectiveness.
- ☞ **Usability**: results refer to three different processes: Installation (I), Configuration/Re-configuration (C) and Usage (U). The scores are scaled from 0 (worst performance) to 4 points (best performance).
- ☞ **Security**: The score is assigned to the tool according to the issues raised while testing:
 - 0 = Issues making the tool easily non operative
 - 1 = Critical or severe issues
 - 2 = Issues requiring some computer skills
 - 3 = Minor issues
 - 4 = No issues identified

3. Summary of the main findings of the 4th benchmarking cycle

- ☞ **A single perfect tool does not exist:** each PARENT should look for the tool that best matches with his/her needs and that adequately balance the areas of performance.
- ☞ Test results on the four areas of **performance vary substantially** among the different tools, even within the same device category.
- ☞ **None** of the 25 tested tools **scores better in two or more areas of performance** against the other tools.
- ☞ Not **any** of the tested tools reaches the **complete functionality** tested. The highest coverage percentage is 67 % for PC tools, 60 % for mobile tools and only 43 % for Alternative tools. To make a suitable selection of the tool addressing specific needs, it would be useful to check all the functionalities offered and the related results achieved with the tests. Through a YES/NO list provided in the full Study Report it is possible to check how many functionalities each tool is able to offer or how many tools offer a specific functionality.
- ☞ Some functionalities are embedded in the operating system (iOS for example).
- ☞ The overall **effectiveness**, in general, is **low**. Over blocking and under blocking rates perform oppositely: tools with a low over-blocking rate have a high under-blocking rate where, in principle, the lower the level of both under-blocking/over-blocking, the better is the tool.
- ☞ The **adult content** is better filtered than the other categories. It is the most common category included by default in each tested tool.
- ☞ **User-generated content** (Social Media and Web 2.0) is very badly filtered by almost all tools with traditional techniques (black list and URL filtering) since it is provided on an encoded basis, it is difficult to categorise and it is not always included in the black lists.
- ☞ **English** is the language the tools work better with.
- ☞ Not all the tested tools provide filtering settings according to the age and the sex of the child. This explains why **Effectiveness** among the two **classes of age** is quite **similar**.
- ☞ **Security scores** almost **the same** for PC and mobile devices tools. Higher scores are registered for Alternative tools, and this is obvious given the nature of these tools working as a 'protected' environment.
- ☞ **Usability** scores are **higher** for **PC and mobile tools** than for Alternative tools.

4. Conclusions

- ☞ Parental control tools are only a **part of the ecosystem** for children safety.
- ☞ Parental control tools work best when used **openly and honestly in partnership with kids**, not as a stealth spying method.
- ☞ Parental controls tools should be understood as **facilitators** for parent-child discussions on what entails appropriate and inappropriate content and behaviours.
- ☞ **Parents' involvement** in the tool **configuration** process is **crucial**.
- ☞ The tools testing process is designed considering a **virtual scenario** in which the user can access directly to any remote website; however this is something difficult in the real context.
- ☞ Each **tool**, if properly chosen and configured, is **good for a specific purpose**.
- ☞ **A single perfect tool does not exist**: none, in fact, of the 25 tools tested in the 4th benchmarking cycle **scores better in two or more areas of performance** against the other tools.
- ☞ Each PARENT should look therefore for the tool that best matches his/her own needs. A balance should be found in the tool **selection process** among needs, taking into account results achieved with the tests in the four areas of performance.
- ☞ The main challenge for future applications is to **ensure filtering of user-generated content and Web 2.0 content** and improve performance of parental control tools in this area.
- ☞ A focus should be put on enhancing children's opportunities on the Internet, while coping with their **improved and growing skills and resilience** to potential harm.