

Changes with *PNS Gateway* URL filter

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Abstract

PNS Gateway has always provided support for the usage of a category-based URL filter, leveraging an up to date database. However, *PNS Gateway*, from version 7.0.5 on, offers a new, more customizable filter as well.





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1. Problem statement

An extensive, well-functioning, categorizing URL filter is a fundamental service in relation to information security. In the lack of the URL filter, any unwanted network traffic puts additional load on any security gateway. In addition, by using a proper URL filter we can reduce the access to any content that poses potential threat to our company network.

The *PNS Gateway* provides an even more extensive URL filter from version 7.0.5 on, but for its proper functioning, it is necessary to manually match the new filter categories with the categories defined in the previous version of the URL filter. Following the update to *PNS Gateway* version 7.0.5, the filter categories defined in the previous version are still present in the configuration, but will be grouped to the uncategorized elements. For the elements of the 'uncategorized' category, the operations defined for this group earlier apply (for example, acceptance, prohibition, redirection). If it is not configured otherwise, the elements will be accepted.

It is also important to consider that the handling of whitelist/blacklist has also changed.



2. The solution

The usage of this highly extensive and effective categorizing URL filter from *PNS Gateway* version 7.0.5 requires that we manually match the new filter categories with the corresponding old filter categories.

We also need to make changes in the definition of whitelist and blacklist.



3. Technical details of the solution

Prior to the update, we need to check whether we have the necessary, at least 1.7 GB free space on the partition including the `"/var/lib/vela/urlfilter/"` folder. Following the update, the new database utilizes close to 850 MB space. After the update of *Management Server* (MS) to version 7.0.5, when signing in to *Management Console* (MC), the following notification is displayed reminding on the changes with the URL filter.

- Step 1. Choose the proper URL filter proxy under *PNS component* → *Proxies* tab.
- Step 2. Edit the *self.url_category* under the *Attribute* column of the menu item.
You can find the filter categories from the previous version of the URL filter under the *Key* menu item. These items now belong to the 'uncategorized' group category.

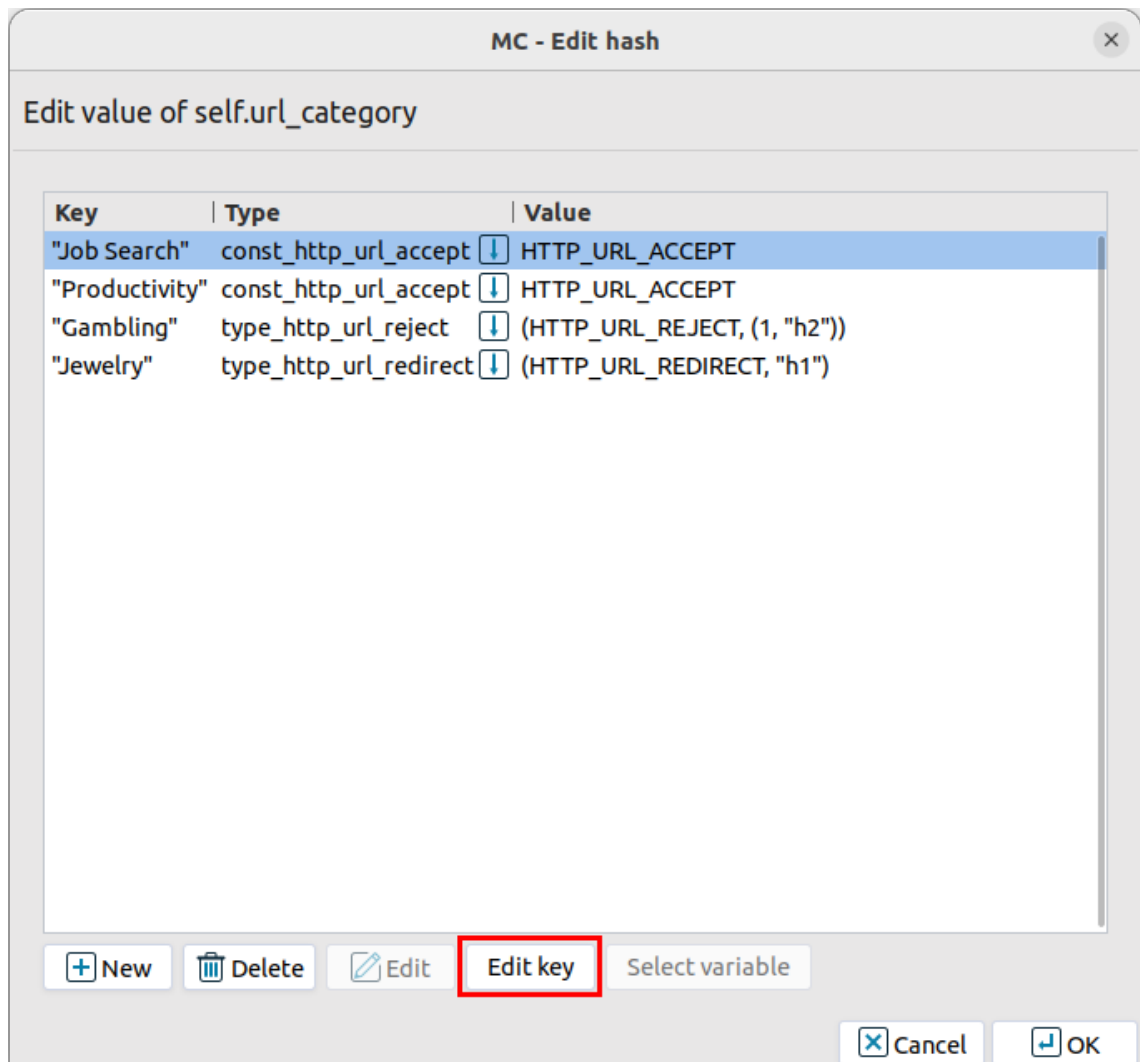


Figure 1. *self.url_category* attribute with the old categories yet

- Step 3. Click the *Edit key* button and the selection menu of the new filter categories will be displayed:

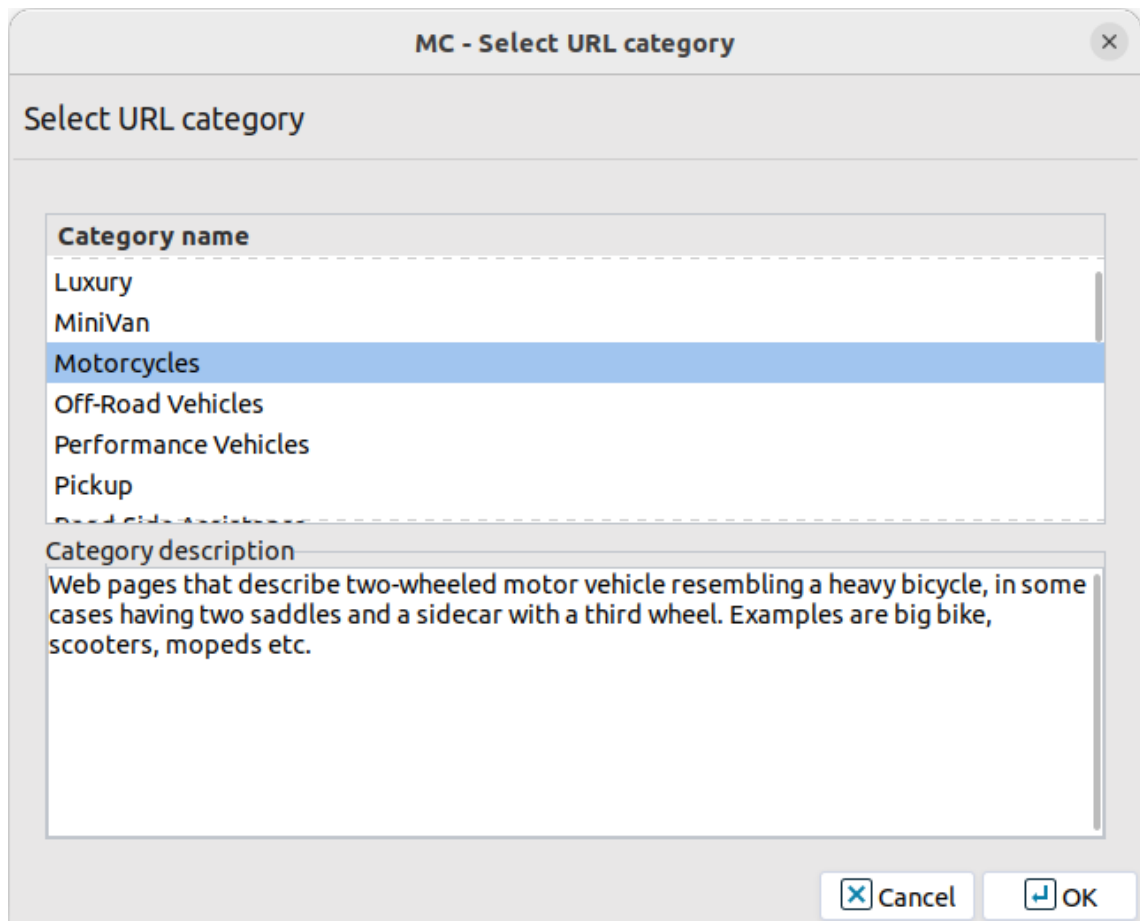


Figure 2. The selection menu of the new categories

- Step 4. Choose the new filter category corresponding to the old one, from the list. For finding the corresponding filter categories, see the document, listing the new filter categories in the *Appendix* of this document. It is not necessary to change all the filter categories at once. The remaining elements will still remain as 'uncategorized' elements in the background.

While searching for the filter categories, it might be helpful to use the *Ctrl + F* key combination. Alternatively, when starting typing, the findings matching the first keystrokes will pop up in a list of highlights. Among these highlighted matches we can choose with the 'up' and 'down' arrows.

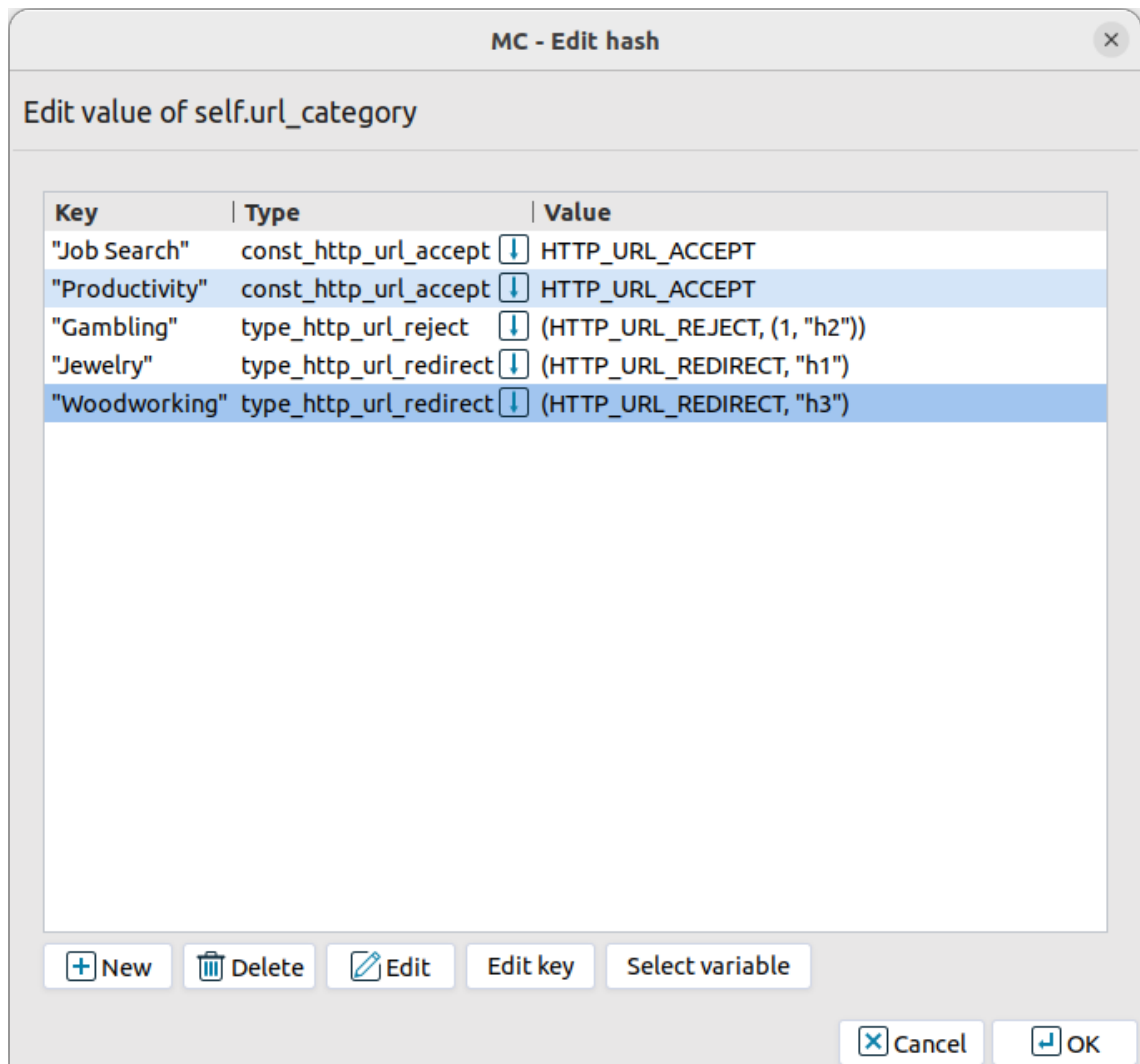


Figure 3. self.url_category attribute with partly new categories

Step 5. Create a blacklist and whitelist if necessary. From *PNS Gateway* version 7.0.5, this can be achieved with the help of a free text editor, on the *PNS Node* → *New* → *Text editor* → *URL filter* *black* and *whitelists* path.

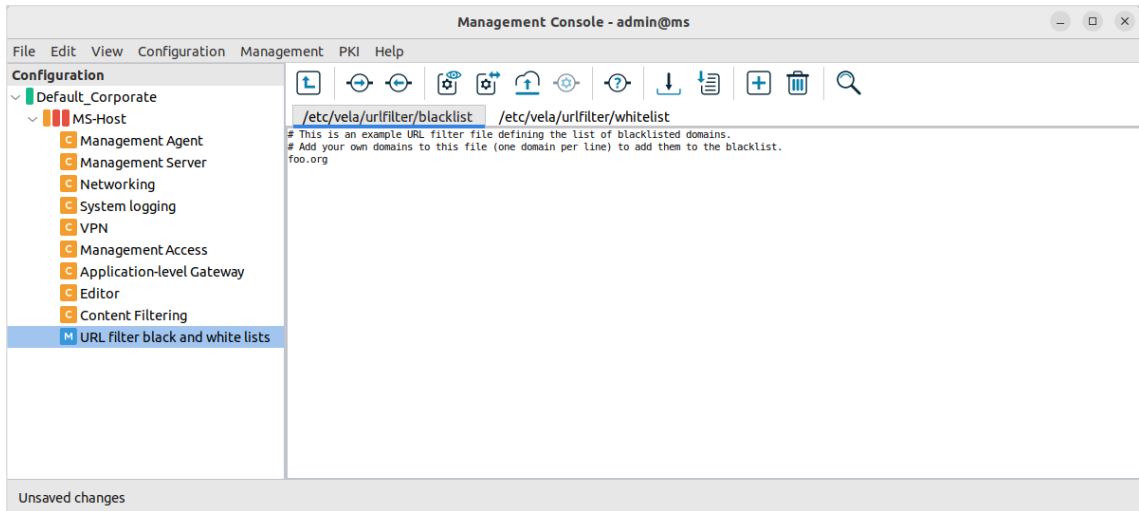


Figure 4. Editor for URL filter blacklist and whitelist

The choices for blacklist, whitelist or * options are also added the URL category list:

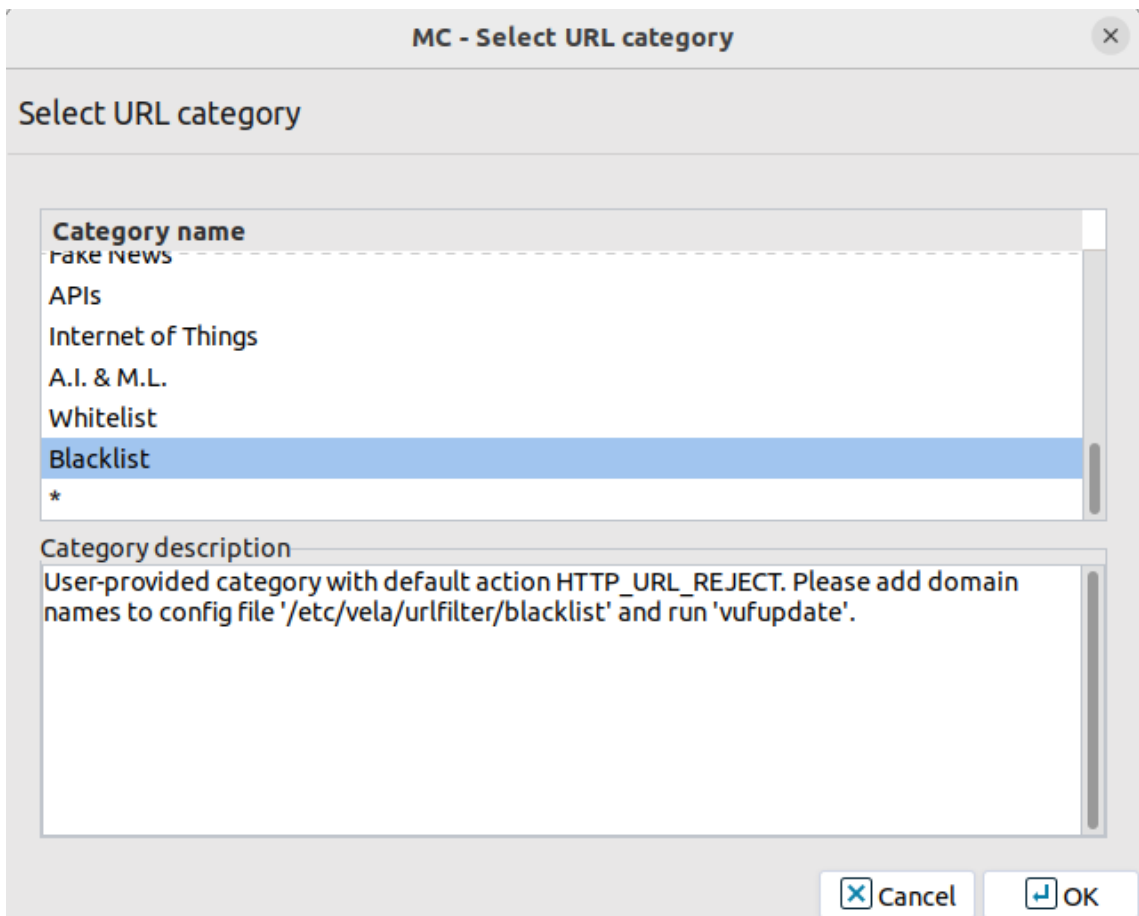


Figure 5. The 'whitelist' and 'blacklist' options are at the end of the category list

Step 6. After clicking the *Commit* button, validate the changes with the *Check configuration* option.

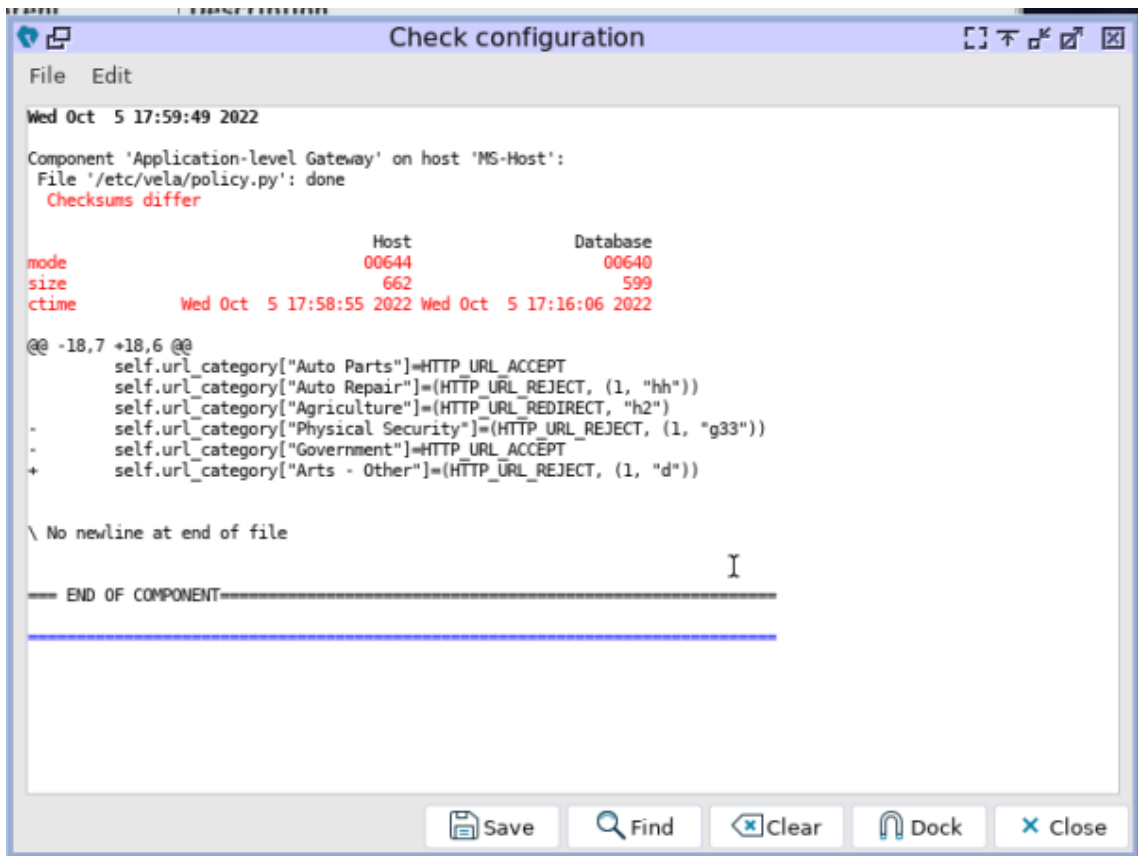


Figure 6. Validating configuration

The update of the URL filter database is performed by the `zavupdate` command, run by the `cron` job, every day at 11 pm by default. Use the same login name and password necessary for accessing the `apt repo`. All these ensure a solution that can be updated more easily.



4. Conclusion

Although the introduction of the new URL filter requires manual matching of the new filter categories with the corresponding old ones, it ensures the usage of a more reliable and more advanced URL filter solution with the information security solution of the *PNS Gateway*.



5. Appendix

Adult	Aggressive	Arts	Automotive	Business	Careers
Abortion	Military	Fine Art	Auto Parts	Agriculture	Career Advice
Abortion Pro Choice	Violence	Arts - Other	Auto Repair	Biotechnology	Career Planning
Abortion Pro Life	Weapons		Buying/Selling Cars	Business Software	College
Child Inappropriate	Aggressive - Other		Car Culture	Construction	Financial Aid
Gambling			Certified Pre-Owned	Forestry	Job Fairs
Gay, Lesbia or Bisexual			Convertible	Government	Job Search
Lingerie, Suggestive and Pinap			Coupe	Green Solutions & Conservation	Nursing
Nudity			Crosso	Home & Office Furnishings	Resume Writing/Advice
Pornography			ver	Human Resources	Scholarships
			Diesel	Manufacturing	Telecommuting
			Electric Vehicled		U.S. Military

Adult	Aggressive	Arts	Automotive	Business	Careers
R-Rated Sex and Erotic Sex Education and Pregnancy Tobacco			Hatchback Hybrid Luxury MiniVan Motorcycles Off-Road Vehicles Performance Vehicles Pickup Road-Side Assistance Sedan Trucks & Accessories Vintage Cars Wagon Automotive - Other	Marketing Services Metals Physical Security Productivity Retirement Homes & Assisted Living Shipping & Logistics Business - Other	Careers - Other

Table 1. URL filter categories (A-C)

Criminal Activities	Dynamic	Education	Entertainment	Family and Parenting	Fashion
Child Abuse Images Criminal Skills Hacking Hate Speech Illegal Drugs	Anonymizer Chat Community Forums Instant Messenger Login Screens	7-12 Education Adult Education Art History College Administration College Life Distance Learning	Entertainment News & Celebrity Sites Entertainment Venues & Events Humor Movies	Adoption Babies and Toddlers Daycare/Pre School Eldercare Family Internet	Accessories Beauty Body Art Clothing Fashion Jewelry



Criminal Activities	Dynamic	Education	Entertainment	Family and Parenting	Fashion
Marijuana	Personal Pages & Blogs	Educational Institutions	Music	Parenting - K-6 Kids	Swimsuits
Piracy & Copyright Theft	Photo Sharing	Educational Materials & Studies	Streaming & Downloadable Audio	Parenting Teens	Fashion - Other
School Cheating	Professional Networking	English as a 2nd Language	Streaming & Downloadable Video	Pregnancy	
Self Harm	Redirect	Graduate School	Television	Special Needs Kids	
Torrent Repository	Social Networking	Homeschooling	Entertainment - Other	Family & Parenting - Other	
Criminal Activities - Other	Text Messaging & SMS	Homework/Study Tips			
	Translator	K-6 Educators			
	Web-based Email	Language Learning			
	Web-based Greeting Card	Literature & Books			
		Private School			
		Reference Materials & Maps			
		Special Education			
		Studying Business			
		Tutoring			
		Wikis			
		Education - Other			

Table 2. URL filter categories (C-F)

Finance	Food and Drink	Health	Hobbies and Interests	House and Garden	Kids



Finance	Food and Drink	Health	Hobbies and Interests	House and Garden	Kids
Accounting	American Cuisine	A.D.D.	Art/Technology	Appliances	Games
Banking	Barbecues & Grilling	AIDS/HIV	Arts & Crafts	Entertaining	Kid's Pag
Beginning Investing					Toys

Finance	Food and Drink	Health	Hobbies and Interests	House and Garden	Kids
Credit/Debt & Loans	Cajun/Creole	Allergies	Beadwork	Environmental Safety	Kids - Other
Financial News	Chinese Cuisine	Alternative Medicine	Birdwatching	Gardening	
Financial Planning	Cocktails/Beer	Arthritis	Board Games/Puzzles	Home Repair	
Hedge Fund	Coffee/Tea	Asthma	Candle & Soap Making	Home Theater	
Insurance	Cuisine-Specific	Autism/PDD	Card Games	Interior Decorating	
Investing	Desserts & Baking	Bipolar Disorder	Cartoons, Anime & Comic Books	Landscaping	
Mutual Funds	Dining Out	Brain Tumor	Chess	Remodeling & Construction	
Online Financial Tools & Quotes	Food Allergies	Cancer	Cigars	Home & Garden - Other	
Options	French Cuisine	Children's Health	Collecting		
Retirement Planning	Health/Low fat Cooking	Cholesterol	Comic Books		
Stocks	Italian Cuisine	Chronic Fatigue	Drawing/Sketching		
Tax Planning	Japanese Cuisine	Chronic Pain	Freelance Writing		
Finance - Other	Mexican Cuisine	Cold & Flu	Genealogy		
	Vegan	Cosmetic Surgery	Getting Published		
	Vegetarian	Deafness	Guitar		
	Winer	Dental Care	Home Recording		
	Food & Drink - Other	Depression	Investors & Patents		
		Dermatology	Jewelry Making		
		Diabetes	Magic & Illusion		
		Disorders	Needlework		
		Epilepsy	Painting		
		Exercise	Photography		
		GERD/Acid Reflux			
		Headaches/Migraines			



Finance	Food and Drink	Health	Hobbies and Interests	House and Garden	Kids
		Heart Disease	Radio		
		Herbs for Health	Roleplaying Games		
		Holistic Healing	Sci-Fi & Fantasy		
		IBS/Crohn's Disease	Scrapbooking		
		Incest/Abuse Support	Screenwriting		
		Incontinence	Stamps & Coins		
		Infertility	Themes		
		Men's Health	Video & Computer Games		
		Nutrition & Diet	Woodworking		
		Orthopedics	Hobbies & Interests - Other		
		Panic/Anxiety			
		Pediatrics			
		Pharmaceuticals			
		Physical Therapy			
		Psychology/Psychiatry			
		Self-help & Addiction			
		Senior Health			
		Sexuality			
		Sleep Disorders			
		Smoking Cessation			
		Supplements & Compounds			
		Syndrome			



Finance	Food and Drink	Health	Hobbies and Interests	House and Garden	Kids
		Thyroid Disease Weight Loss Women's Health Health - Other			

Table 3. URL filter categories (F-K)

Lifestyle	Malicious	Miscellaneous	News, Portal and Search	Online Ads	Pets
Dating & Relationships	Ad Fraud	Content Server	Image Search	Pay-to-Surf	Aquariums
Divorce Support	Botnet	No Content Found	International News	Online Ads - Other	Birds
Ethnic Specific	Command and Control Centers	Parked & For Sale Domains	Local News		Cats
Marriage	Compromised & Links To Malware	Private IP Address	Magazines		Dogs
Parks, Rec Facilities & Gyms	Malware Call-Home	Unreachable	National News		Large Animals
Senior Living	Malware Distribution Point	Miscellaneous - Other	Portal Sites		Reptiles
Teens			Search Engines		Veterinary Medicine
Weddings					



Lifestyle	Malicious	Miscellaneous	News, Portal and Search	Online Ads	Pets
Lifestyle - Other	Phishing/Fraud Spam URLs Spyware & Questionable Software		News, Portal & Search - Other		Pets - Other

Table 4. URL filter categories (L-P)

Public, Government and Law	Real Estate	Religion	Science	Shopping
Advocacy Groups & Trade Associations	Apartments	Alternative Religions	Anatomy	Auctions & Marketplaces
Commentary	Architects	Atheism & Agnosticism	Astrology and Horoscopes	Catalogs
Government Sponsored	Buying/Selling Homes	Buddhism	Biology	Contests & Surveys
Immigration	Real Estate - Other	Catholicism	Botany	Shopping - Online
Legal Issues		Christianity	Chemistry	Engines
Philanthropic Organizations		Hinduism	Weather	Product Reviews & Price Comparisons
Politics		Islam	Geography	Coupons
Social & Affiliation Organizations		Judaism	Geology	Shopping - Other
U.S. Government Resources		Latter-Day Saints	Paranormal Phenomena	
Public, Government & Law - Other		Non-traditional Religion and Occult	Physics	
		Pagan/Wiccan	Space/Astronomy	
		Religio - Other	Science - Other	

Table 5. URL filter categories (P-S)

Sports	Technology	Travel
Auto Racing	3-D Graphics	Adventure Travel
Baseball	Animation	Africa



Sports	Technology	Travel
Bicycling	Antivirus Software	Air Travel
Bodybuilding	C/C++	Australia & New Zealand
Boxing	Cameras & Camcorders	Bed & Breakfast
Canoeing/Kayaking	Computer Certification	Budget Travel
Cheerleading	Computer Networking	Business Travel
Climbing	Computer Peripherals	By US Locale
Cricket	Computer Reviews	Camping
Figure Skating	Databases	Canada
Fly Fishing	Desktop Publishing	Caribbean
Football	Desktop Video	Cruises
Freshwater Fishing	File Repositories	Eastern Europe
Game & Fish	Graphics Software	Europe
Golf	Home Video/DVD	Travel - Other
Horse Racing	Information Security	France
Horses	Internet Phone & VOIP	Greece
Inline Skating	Internet Technology	Honeymoons/Getaways
Martial Arts	Java	Hotels
Mountain Biking	Javascript	Italy
NASCAR Racing	Linux	Japan
Olympics	Mac OS	Mexico & Central America
Sports - Other	Technology - Other	National Parks
Paintball	Mac Support	Navigation
Power & Motorcycles	Mobile Phones	South America
Pro Basketball	MP3/MIDI	Spas
Pro Ice Hockey	Net Conferencing	Theme Parks
Rodeo	Net for Beginners	Traveling with Kids

Sports	Technology	Travel
Rugby	Network Security	United Kingdom
Running/Jogging	Palmtops/PDAs	
Sailing	PC Support	
Saltwater Fishing	Peer-to-Peer	
Scuba Diving	Personal Storage	
Skateboarding	Portable	
Skiing	Entertainment	
Snowboarding	Remote Access	
Sport Hunting	Shareware/Freeware	
Surfing/Bodyboarding	Unix	
Swimming	Utilities	
Table Tennis/Ping-Pong	Visual Basic	
Tennis	Web Clip Art	
Volleyball	Web Design/HTML	
Walking	Web Hosting, ISP & Telco	
Waterski/Wakeboard	Windows	
World Soccer	Online Information Management	

Table 6. URL filter categories (S-T)