

# Analysis of Internet Usage in India, Antivirus Programs and its Features and Risks Associated with Popular Download Managers

Mayank R. Kothawade, Dr. Preeti Agawal

Assistant professor, Director-G. H. Rasoni Institute of business Management, Jalgaon

**Abstract:** Due to proliferation of mobile and handheld devices the usage of internet is continuously increasing at a same time the share of internet usage through desktop computers is equally remarkable. Augmented access of internet through such devices inviting several risks. Hackers are always keeping eyes on the activities performed by the internet users to commit their attacks. It is challenging to select the appropriate security tool or software.

**Keywords:** Heuristics, IDS (Intrusion Detection System), IDM (Internet Download Manager), IPS (Intrusion Detection System), Virus Bulletin, AV-Comparatives, AV Test

## 1. Introduction:

Day by day internet users continue to grow with or without understanding the security concerns associated with it. There are hundreds of devices, tools and applications available today to shield the sensitive information of an organization as well as individual from the external attacks. Such attacks especially involve virus attacks. Varying nature and types of viruses are continuously raising the challenges to the internet users. Under such crucial circumstances, it is very important to opt a perfect antivirus program or tool to protect personal or organizational data. The downloading is one of the most preferred activity of an end user. While downloading several types of “Download Managers” are used by the internet users and hence it becomes important to understand the vulnerabilities associated with them.

## 2. Objectives:

1. To understand the proportion and year wise growth of internet users in India.
2. To recognize the key features of antivirus softwares widely used in current scenario.
3. To analyze the vulnerabilities associated with widespread download managers with respect to key virus attacks.

## 3. Internet Users in India:

According to internet live statistics there are total 462,124,989 internet users in India and 3,424,971,237 users in the world by 2016. Following table shows the details laid by International Telecommunication Union (ITU), World Bank, and United Nations Population Division<sup>[1]</sup> Table 1.1 shows the significant growth of internet users i.e. 108,010,242 in 2016 compared to 2015. [Refer table 1.1]

Facts and figures are clear enough to understand the situation. It prompts the researcher to focus the security context.

**Table 1 - Internet Users in India**

Year	Internet Users	Penetration (% of Pop)	Total Population	Non-Users (Internetless)	1Y User Change	1Y User Change	Population Change
2016	462,124,989	34.80%	1,326,801,576	864,676,587	30.50%	108,010,242	1.20%
2015	354,114,747	27%	1,311,050,527	956,935,780	51.90%	120,962,270	1.22%
2014	233,152,478	18%	1,295,291,543	1,062,139,065	20.70%	39,948,148	1.23%
2013	193,204,330	15.10%	1,279,498,874	1,086,294,544	21.50%	34,243,984	1.26%
2012	158,960,346	12.60%	1,263,589,639	1,104,629,293	26.50%	33,342,533	1.29%
2011	125,617,813	10.10%	1,247,446,011	1,121,828,198	36.10%	33,293,976	1.34%
2010	92,323,838	7.50%	1,230,984,504	1,138,660,666	48.50%	30,157,710	1.38%
2009	62,166,128	5.10%	1,214,182,182	1,152,016,054	18.60%	9,734,457	1.43%
2008	52,431,671	4.40%	1,197,070,109	1,144,638,438	12.50%	5,834,088	1.47%
2007	46,597,582	4%	1,179,685,631	1,133,088,049	42.90%	13,995,197	1.51%
2006	32,602,386	2.80%	1,162,088,305	1,129,485,919	19.30%	5,275,016	1.55%
2005	27,327,370	2.40%	1,144,326,293	1,116,998,923	22.80%	5,067,787	1.59%
2004	22,259,583	2%	1,126,419,321	1,104,159,738	19.10%	3,567,041	1.63%
2003	18,692,542	1.70%	1,108,369,577	1,089,677,035	11.50%	1,926,786	1.67%
2002	16,765,756	1.50%	1,090,189,358	1,073,423,602	136.90%	9,689,725	1.71%
2001	7,076,031	0.70%	1,071,888,190	1,064,812,159	27.30%	1,518,576	1.75%

Table 1 - Internet Users in India

Year	Internet Users	Penetration (% of Pop)	Total Population	Non-Users (Internetless)	1Y User Change	1Y User Change	Population Change
2000	5,557,455	0.50%	1,053,481,072	1,047,923,617	96.50%	2,729,647	1.79%

Source: <http://www.internetlivestats.com>

#### 4. Analysis of Antivirus Programs:

There are plenty of ways available with the attacker to enter into the organizational or personal devices which is possible because of the negligence of the users. The attacks are basically carried out in two different ways i.e. Passive attacks and Active attacks.

- Passive attacks: No actual damage is made to the victims' device or information it is sort of spying.
- Active attacks: Actual damage to the resources in all the possible ways.

It is very important to timely know that the attack is committed. By keeping the continuous track and monitoring of such individual and corporate resources is possible due ample security measures, But one of the primary measure is an appropriate antivirus program. Selection of a correct antivirus program is the biggest challenge today. This paper explores the fifty five popular antivirus programs with eighteen key features associated with them. <sup>[2]</sup>

##### 4.1 Antivirus software:

- AhnLab V3 Internet Security
- Avast Free Antivirus
- Avast Pro Antivirus
- Avast Internet Security
- Avast Premier
- AVG Antivirus FREE
- AVG Antivirus
- AVG Internet Security
- Avira Antivirus FREE
- Avira Internet Security
- Bitdefender Antivirus Free
- Bitdefender Antivirus Plus
- Bitdefender Internet Security
- ZoneAlarm PRO Antivirus + Firewall
- ZoneAlarm Extreme Security
- ClamWin
- Comodo Antivirus
- Comodo Antivirus Advanced
- Comodo Internet Security
- Dr.Web Anti-virus
- Dr.Web Security Space
- ESET NOD32 Antivirus
- ESET Smart Security
- F-Secure Antivirus
- F-Secure Internet Security
- F-PROT Antivirus
- FortiClient
- G DATA Antivirus
- G DATA Internet Security
- Kaspersky Anti-Virus
- Kaspersky Internet Security
- Kaspersky Total Security
- McAfee Antivirus
- McAfee Internet Security
- Windows Defender
- NANO Antivirus
- Panda Antivirus Pro
- Panda Internet Security
- Panda Antivirus Free
- 360 Total Security
- Quick Heal Total Security
- Sophos Anti-Virus
- Sophos End-user Protection
- Immune
- Norton Antivirus
- Norton Internet Security
- Spyware Doctor with Antivirus
- Titanium Antivirus Plus
- Titanium Internet Security
- Trust Port Antivirus
- Trust Port Internet Security
- Trust Port Total Protection
- Vba32 Antivirus
- Secure Anywhere Antivirus
- Secure Anywhere Internet Security Plus and Complete

##### 4.2 Features associated with antivirus programs:

- On-demand Scan
- On-access Scan
- Boot-time Scan
- Heuristics
- CloudAV
- Firewall
- IDS
- IPS
- Email Security
- AntiSpam
- Web protection
- Macro protection
- Live Update
- Support
- Virus Bulletin VB100
- AV Comparatives
- AV Test
- Access Type

Table 2 - Antivirus software and features

Sr.	Company	Antivirus Software	On-demand Scan	On-access Scan	Boot-time Scan	Heuristics	CloudAV	Firewall	IDS	IPS	Email Security	AntiSpam	Web protection	Macro protection	Live Update	Support	Virus Bulletin VB100	AV Comparatives	AV Test	Access Type
1	AhnLab	AhnLab V3 Internet Security	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non-free
2	Avast	Avast Free Antivirus	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Free
3	Avast	Avast Pro Antivirus	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	#	#	Triaware
4	Avast	Avast Internet Security	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	#	#	#	Triaware
5	Avast	Avast Premier	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	#	#	#	Triaware
6	AVG Technologies (avast)	AVG Antivirus FREE	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non-free
7	AVG Technologies (avast)	AVG Antivirus	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non-free
8	AVG Technologies (avast)	AVG Internet Security	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non-free
9	Avira	Avira Antivirus FREE	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Free
10	Avira	Avira Internet Security	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non-free
11	BitDefender	BitDefender Antivirus Free	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	No	Yes	Yes	Yes	No	No	Free
12	BitDefender	BitDefender Antivirus Plus	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Non-free
13	BitDefender	BitDefender Internet Security	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non-free
14	Check Point	ZoneAlarm PRO Antivirus + Firewall	Yes	Yes	No	Yes	No	Yes	No	No	No	No	No	Yes	Yes	No	Yes	No	No	Non-free
15	Check Point	ZoneAlarm Extreme Security	Yes	Yes	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Non-free
16	ClamWin	ClamWin	Yes	Yes	Yes	Yes	No	No	No	No	Yes	No	No	No	Yes	Yes	No	No	No	Free
17	Comodo Group	Comodo Antivirus	Yes	Yes	No	Yes	No	No	No	No	No	No	No	No	Yes	No	No	No	No	Free
18	Comodo Group	Comodo Antivirus Advanced	Yes	Yes	No	Yes	No	No	No	No	No	No	Yes	No	Yes	No	No	No	No	Non-free
19	Comodo Group	Comodo Internet Security	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non-free
20	Dr.Web	Dr.Web Antivirus	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Triaware
21	Dr.Web	Dr.Web Security Space	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non-free
22	ESET	ESET NOD32 Antivirus	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non-free
23	ESET	ESET Smart Security	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non-free
24	F-Secure	F-Secure Antivirus	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non-free
25	F-Secure	F-Secure Internet Security	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non-free
26	FRISK Software	F-PROT Antivirus	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non-free
27	Fortinet	FortiClient	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Free
28	G Data Software	G DATA AntiVirus	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non-free
29	G Data Software	G DATA InternetSecurity	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non-free
30	Kaspersky Lab	Kaspersky Anti-Virus	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Non-free
31	Kaspersky Lab	Kaspersky Internet Security	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non-free
32	Kaspersky Lab	Kaspersky Total Security	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non-free
33	McAfee	McAfee Antivirus	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non-free
34	McAfee	McAfee Internet Security	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non-free
35	Microsoft	Windows Defender	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Free
36	NANO Security Ltd	NANO Antivirus	Yes	Yes	No	No	No	No	No	No	No	No	Yes	No	Yes	Yes	Yes	No	No	Free
37	Panda Security	Panda Antivirus Pro	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Non-free
38	Panda Security	Panda Internet Security	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non-free
39	Panda Security	Panda Antivirus Free	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non-free
40	Qihoo 360	360 Total Security	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non-free
41	Quick Heal	Quick Heal Total Security	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non-free
42	Sophos	Sophos Anti-Virus	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non-free
43	Sophos	Sophos EndUser Protection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non-free
44	Cisco	Immunity	Yes	Yes	No	No	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No	No	Free
45	Symantec	Norton AntiVirus	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	No	No	Yes	Yes	Yes	No	No	Non-free
46	Symantec	Norton Internet Security	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non-free
47	Symantec	Symantec Doctor with AntiVirus	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	Non-free
48	Trend Micro	Titanium Antivirus Plus	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Non-free
49	Trend Micro	Titanium Internet Security	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Non-free
50	TrustPort	TrustPort Antivirus	Yes	Yes	No	Yes	No	Yes	No	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	Triaware
51	TrustPort	TrustPort Internet Security	Yes	Yes	No	Yes	No	Yes	No	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	Triaware
52	TrustPort	TrustPort Total Protection	Yes	Yes	No	Yes	No	Yes	No	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	Triaware
53	VirusBlokAda	Vba32 AntiVirus	Yes	Yes	No	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	Non-free
54	Webroot	SecureAnywhere AntiVirus	Yes	Yes	No	Yes	Yes	Yes	No	Yes	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Triaware
55	Webroot	SecureAnywhere Internet Security Plus and Complete	Yes	Yes	No	Yes	Yes	Yes	No	Yes	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Non-free

# Indicates no information available

sSource: <https://en.wikipedia.org>

**Virus Bulletin** is a magazine about the prevention, detection and removal of malware and spam. It regularly features analyses of the latest virus threats, articles exploring new developments in the fight against viruses, interviews with anti-virus experts, and evaluations of current anti-malware products.<sup>[3]</sup>

**AV-Comparatives** is an Austrian independent organization that tests and assesses antivirus software, regularly releasing charts and reports that are freely available to the public and the media.<sup>[4][5]</sup> Antivirus vendors have to meet various requirements regarding trustworthiness and reliability in order to take part in the tests. AV-Comparatives issues relevant awards, based on antivirus software's comprehensive performance according to multiple testing criteria<sup>[6][7]</sup>

*AV-Test* is an independent organization which evaluates and rates antivirus and security suite software <sup>[8]</sup> for Microsoft Windows and Android operating systems, <sup>[9]</sup> according to a variety of criteria. Every other month, the researchers publish the results of their testing, <sup>[10][11]</sup> where they list which products they awarded their certification. <sup>[12][13]</sup>

**Table 3: Antivirus Usage**

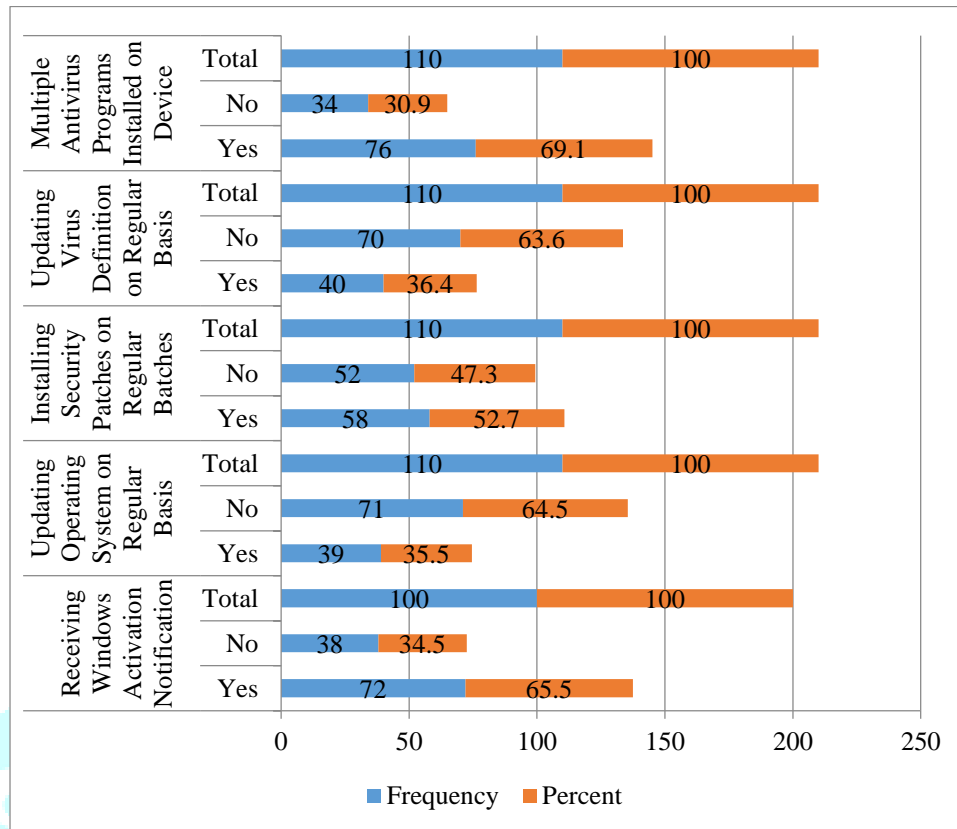
Sr.	Antivirus Program	Usage	Sr.	Antivirus Program	Usage
1	AhnLab V3 Internet Security	0.2%	29	G DATA Internet Security	0%
2	Avast Free Antivirus	1.2%	30	Kaspersky Anti-Virus	3.1%
3	Avast Pro Antivirus	0.6%	31	Kaspersky Internet Security	2.8%
4	Avast Internet Security	0.4%	32	Kaspersky Total Security	1.6%
5	Avast Premier	0.3%	33	McAfee Antivirus	3.9%
6	AVG Antivirus FREE	3.1%	34	McAfee Internet Security	3.6%
7	AVG Antivirus	3.5%	35	Windows Defender	10.6%
8	AVG Internet Security	3.2%	36	NANO Antivirus	1%
9	Avira Antivirus FREE	0.3%	37	Panda Antivirus Pro	1.2%
10	Avira Internet Security	0.2%	38	Panda Internet Security	1.1%
11	Bitdefender Antivirus Free	0.3%	39	Panda Antivirus Free	2.4%
12	Bitdefender Antivirus Plus	0%	40	360 Total Security	14.3%
13	Bitdefender Internet Security	0%	41	Quick Heal Total Security	27.4%
14	ZoneAlarm PRO Antivirus + Firewall	1.4%	42	Sophos Anti-Virus	0%
15	ZoneAlarm Extreme Security	1.2%	43	Sophos End-user Protection	0%
16	ClamWin	0%	44	Immune	0%
17	Comodo Antivirus	0.2%	45	Norton Antivirus	0.8%
18	Comodo Antivirus Advanced	0.2%	46	Norton Internet Security	0.5%
19	Comodo Internet Security	0.2%	47	Spyware Doctor with Antivirus	1.1%
20	Dr.Web Anti-virus	0.4%	48	Titanium Antivirus Plus	0%
21	Dr.Web Security Space	0.1%	49	Titanium Internet Security	0.1%
22	ESET NOD32 Antivirus	0%	50	Trust Port Antivirus	0%
23	ESET Smart Security	0%	51	Trust Port Internet Security	0%
24	F-Secure Antivirus	2.4%	52	Trust Port Total Protection	0%
25	F-Secure Internet Security	2.1%	53	Vba32 Antivirus	0%
26	F-PROT Antivirus	1.7%	54	Secure Anywhere Antivirus	0%
27	FortiClient	1.3%	55	Secure Anywhere Internet Security Plus and Complete	0%
28	G DATA Antivirus	0%		<b>Total</b>	<b>100%</b>

As shown in the above table it can be easily seen that Quick Heal Total Security antivirus mostly preferred by 27.4% of users, 14.3 users prefer 360 Total Security whereas Windows Defender is favored by 10.6% of users.

Table 4 gives the overview of device configuration set by user. Table clearly shows that 65.5% users supported that they received windows activation notification that means they are not using genuine operating system. Only 35.5% users' update their operating system on regular basis and just 52.5% users installing security patches on regular basis. Percentage of updating virus definition on regular basis is low i.e. 36.4%. Surprisingly 69.1% users have installed more than one antivirus program on their devices.

<b>Table 4 - Device configuration</b>			
Variable	Response options	Frequency	Percent
Receiving Windows Activation Notification	Yes	72	65.5
	No	38	34.5
	Total	100.0	100.0
Updating Operating System on Regular Basis	Yes	39	35.5
	No	71	64.5
	Total	110	100.0
Installing Security Patches on Regular Batches	Yes	58	52.7
	No	52	47.3
	Total	110	100.0
Updating Virus Definition on Regular Basis	Yes	40	36.4
	No	70	63.6
	Total	110	100.0
Multiple Antivirus Programs Installed on Device	Yes	76	69.1
	No	34	30.9
	Total	110	100.0

Graph 1: Device Configuration



## 5. Download Managers:

Download manager is a computer program used to download stand-alone files from internet for storage. Some download managers also be used to speed up the downloading speed. [14] Download manager offers great contribution towards rising cyber security threats as most of the internet users are using different types of downloaders to download freeware's, sharewares, pirated softwares, games, movies and for many other such activities. At this stage it is crucial to understand, weather the download managers used are really secure? Is there any security breach allied to them? By considering this scenario researcher highlighted upon the security issues w.r.t. virus attacks specially compare to Adware, Malware & Spyware.

Table 5 clearly explains security issues and access types of eighteen download managers. It also depicts extent to which such tools are useful. As shown in table it is observed that;

- 4K Video Downloader, Folx, Free Download Manager, Free Studio, Getright, Go!Zila and Jdownloader with GPLv2 are completely secure.
- BitComet, FlashGate, Freemake Video Downloader, Internet Download Accelerator and JDownloader with GPL are susceptible to the attacks.
- Where as in case of the download managers like DownlodStudio, DownThemAll, Internet Download Manager and Shareaza the security issues are completely unknown which clearly signposts how such download managers are unreliable and risky.

**Table 5 : Security of download manager**

Sr	Manager	Does it stop Adware, Malware and Spyware?	Access Type
1	4K Video Downloader	No	Proprietary / Freemium
2	BitComet	Adware from version 0.85 to 0.97; Potentially sensitive information reported to BC Servers	Proprietary / freeware
3	DownloadStudio	Unknown	Shareware / \$24.95
4	DownThemAll!	Unknown	GPL /
5	FlashGet	Cydoor Pop-up ads,banners	Proprietary / Freeware
6	Folx	No	Shareware / \$19.95
7	Free Download Manager	No	Proprietary / Freeware after version 5.0 and newer
8	Free Studio	No	Proprietary / Freeware
9	Freemake Video Downloader	Offers to install sponsored software upon installation changing default search engine and browsers homepage	Proprietary / Freeware

Table 5 : Security of download manager

Sr	Manager	Does it stop Adware, Malware and Spyware?	Access Type
10	GetRight	No	Proprietary / \$49.95 for Pro
11	Go!Zilla	None as of Version 5; Aureate adware prior to that	Proprietary / \$19.95
12	Internet Download Accelerator	Adware on free version	Proprietary / Freeware, \$9.95 single/\$24.95 family pack for Pro
13	Internet Download Manager	Unknown	Proprietary / \$24.95 lifetime for 1 PC
14	JDownloader	Yes, comes bundled but can install even when not ticking yes	GPL [General Public License]
		Adware Mobogenie (optional install); Adware browser hijacker Mysearchdial (optional install)	
		No	GPLv2
15	KGet	Unknown	GPL
16	MiniDM	Unknown	Proprietary / Freeware
17	MLDonkey	Unknown	GPL
18	Shareaza	Original Client: Unknown	GPL

Source: <https://en.wikipedia.org>

	Download manager with complete security from Adware, Malware and Spyware
	Download managers partially secure Adware, Malware and Spyware
	Download managers with no idea whether protect from Adware, Malware and Spyware

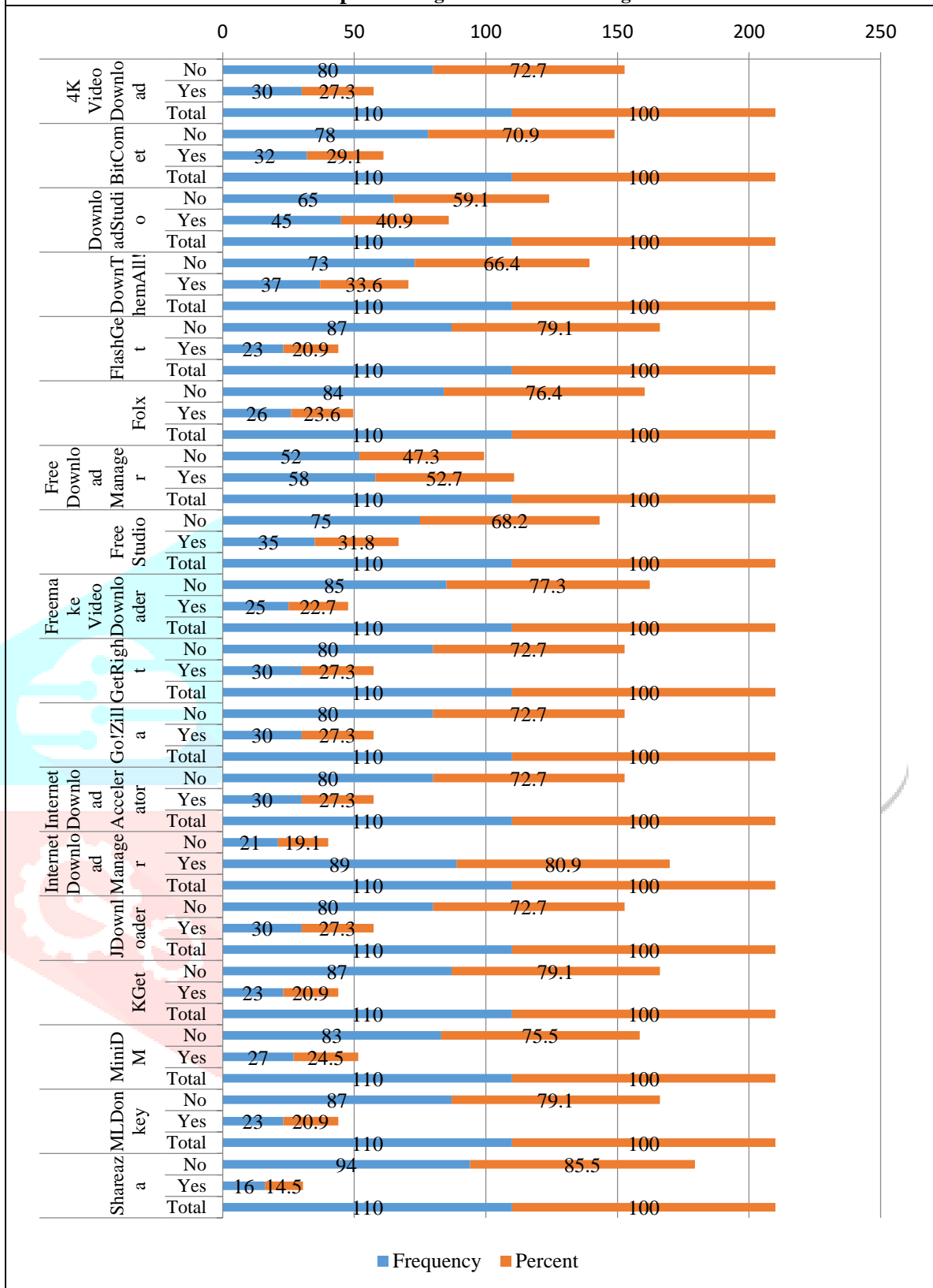
Table 6 - Usage of Download Manager

Download Manager	Response options	Frequency	Percent
4K Video Download	No	80	72.7
	Yes	30	27.3
	Total	110	100.0
BitComet	No	78	70.9
	Yes	32	29.1
	Total	110	100.0
DownloadStudio	No	65	59.1
	Yes	45	40.9
	Total	110	100.0
DownThemAll!	No	73	66.4
	Yes	37	33.6
	Total	110	100.0
FlashGet	No	87	79.1
	Yes	23	20.9
	Total	110	100.0
Folx	No	84	76.4
	Yes	26	23.6
	Total	110	100.0
Free Download Manager	No	52	47.3
	Yes	58	52.7
	Total	110	100.0
Free Studio	No	75	68.2
	Yes	35	31.8
	Total	110	100.0
Freemake Video Downloader	No	85	77.3
	Yes	25	22.7
	Total	110	100.0
GetRight	No	80	72.7
	Yes	30	27.3
	Total	110	100.0
Go!Zilla	No	80	72.7
	Yes	30	27.3
	Total	110	100.0
Internet Download Accelerator	No	80	72.7
	Yes	30	27.3

	Total	110	100.0
Internet Download Manager	No	21	19.1
	Yes	89	80.9
	Total	110	100.0
JDownloader	No	80	72.7
	Yes	30	27.3
	Total	110	100.0
KGet	No	87	79.1
	Yes	23	20.9
	Total	110	100.0
MiniDM	No	83	75.5
	Yes	27	24.5
	Total	110	100.0
MLDonkey	No	87	79.1
	Yes	23	20.9
	Total	110	100.0
Shareaza	No	94	85.5
	Yes	16	14.5
	Total	110	100.0



**Graph 2 - Usage of Download Manager**



From table 6 it can be seen that Internet download manager is the most popular download manager used by 80.9% internet users. Security of Internet download manager is unknown which itself indicates that IDM is prone to Adware, Malware and Spyware attacks.

**6. Conclusion:** Security of the data or device is not solely based on what type of measures implemented by the internet users. Understanding of security features accompanying with such measures and the identification of proper measure by getting personal and organizational needs is the biggest challenge.

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