

## Microsoft's AARD Code

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Déjà vu all over again???? From Wikipedia, the free encyclopedia  
Windows 3.1 was released April 6, 1992. At that time, one had to boot DOS and then load Windows. In January of 1992, DR-DOS was being wildly accepted as a better DOS than MS-DOS. Not liking the loss of market share, Microsoft (led by Bill Gates) decided to sabotage the competition.

The **AARD code** was a segment of code in a [beta release](#) of [Microsoft Windows 3.1](#) that would determine whether Windows was running on [MS-DOS](#) or [PC DOS](#), rather than a competing product such as [DR-DOS](#), and would result in a cryptic error message in the latter case. This [XOR-encrypted](#), [self-modifying](#), and deliberately obfuscated machine code used a variety of undocumented DOS structures and functions to perform its work, and appeared in the installer, [WIN.COM](#), and several other executables in the OS.

The AARD code was originally discovered by [Geoff Chappell](#) on 17 April 1992 and then further analyzed and documented in a joint effort with Andrew Schulman. The name was derived from Microsoft programmer Aaron R. Reynolds (1955–2008), who used "AARD" to sign his work; "AARD" was found in the machine code of the installer. Microsoft disabled the AARD code for the final release of Windows 3.1, but did not remove it, so that it could have become reactivated later by the change of a single byte in an installed system, thereby constituting a "[smoking gun](#)".

DR-DOS publisher [Digital Research](#) released a [patch](#) to enable the AARD tests to pass on its operating system in 1992.

The rationale for the AARD code came to light when internal memos were released during the [United States v. Microsoft Corp.](#) antitrust case in 1999. Internal memos released by Microsoft revealed that the specific focus of these tests was [DR-DOS](#). At one point, Microsoft CEO [Bill Gates](#) sent a memo to a number of employees, reading "You never sent me a response on the question of what things an app would do that would make it run with MS-DOS and not run with DR-DOS. Is there [\[sic\]](#) feature they have that might get in our way?" Microsoft Senior Vice President [Brad Silverberg](#) later sent another memo, stating: "What the [user] is supposed to do is feel uncomfortable, and when he has bugs, suspect that the problem is DR-DOS and then go out to buy MS-DOS."

Following the purchase of DR-DOS by [Novell](#) and its renaming to "Novell DOS", Microsoft Co-President [Jim Allchin](#) stated in a memo, "If you're going to kill someone there isn't much reason to get all worked up about it and angry. Any discussions beforehand are a waste of time. We need to smile at Novell while we pull the trigger."

What had been DR-DOS changed hands again. The new owner, [Caldera, Inc.](#), began a lawsuit against Microsoft over the AARD code, [Caldera v. Microsoft](#), which was later settled. It was believed that the settlement ran in the order of \$150 million but was revealed in November 2009 with the release of the Settlement Agreement to be \$280 million.

Today, few people are aware of the above piece of history. Having shot, killed and buried the competition, when MS was assessed the DR-DOS funeral fee, instead of crying all the way to the bank, likely it was with a smile and a smirk about what had become chump change to MS.

### **What's the point?**

Achieving commercial success by making "shrewd business moves" is often applauded by Wall Street even if they are unlikely to win any "nice guy" awards. As noted on Wikipedia, [https://en.wikipedia.org/wiki/Microsoft\\_litigation#Caldera\\_v\\_Microsoft](https://en.wikipedia.org/wiki/Microsoft_litigation#Caldera_v_Microsoft), the DR-DOS episode was not an isolated incidence. Indeed, current Windows 10 events reminded me of this history.

What am I talking about? Two of my favorite, free, programs. The first, Irfanview, is a free program that I have praised for years. While primarily a program that displays, manipulates and converts an amazing range of still image file types, it also addresses a few audio and video file types. In addition, it contains a number of utility routines that I frequently use. It crams an impressive amount of functionality into a relatively small amount of program code. Amongst which is a Slide Show routine with many options. Copy Shop, which scans and prints a document in one continuous pass. Single and batch scanning routines. Screen Shot cropping. And a really fast to load and play, image viewer and MP3 player. Those are a few examples of its array of capabilities. Much more information is available on Wikipedia: <https://en.wikipedia.org/wiki/IrfanView>. A more awe-inspiring comment on its range of functions has to do with keyboard shortcuts. Depending on which routines are in use, there are close to two hundred, that's 200, keyboard shortcuts. And, yes, I know how hard it is to remember 20 keyboard shortcuts, much less 200. But if I use an application a lot, some are worth remembering. One Windows 10 keyboard shortcut that I find myself using a lot is the Windows key + d command. That takes you back to the desktop, regardless of how many windows you have open or which one is active.

The second free program is 'VLC media player', AKA 'VideoLan media player', commonly referred to simply as VLC. Best known as the premier player of most existing video file types. Less well known is its ability to play a very large number of different audio file formats. If you don't already use this program, or at least know about it, you should visit: [https://en.wikipedia.org/wiki/VLC\\_media\\_player](https://en.wikipedia.org/wiki/VLC_media_player). There, you will learn what the 'C' in VLC stood for. You will learn about its 22-year history, evolution and the long list of formats and platforms it supports. If you Google VLC reviews, you will find that they are overwhelmingly both effusive and positive.

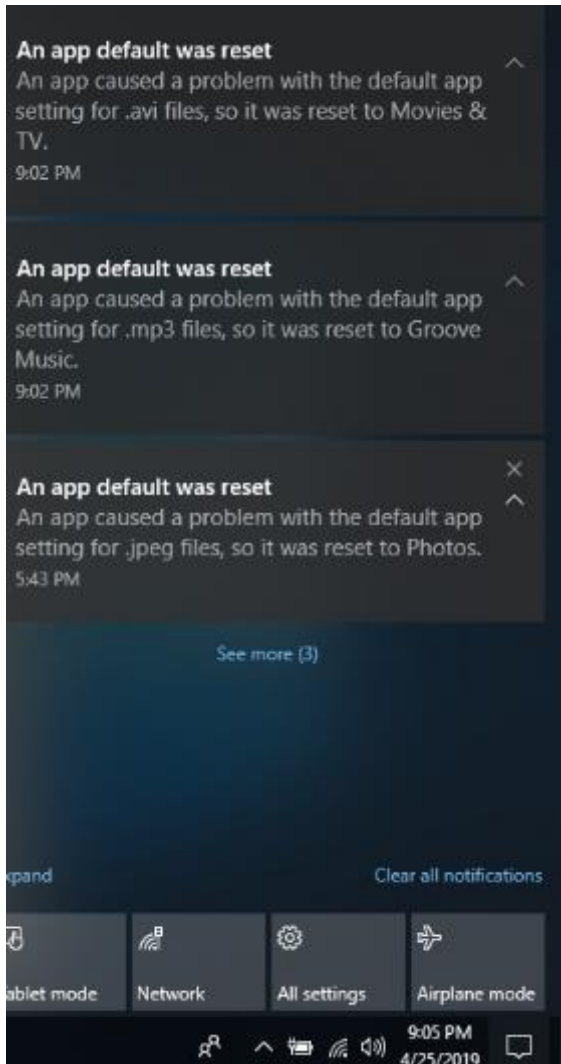
Both of these programs, and several others, have been around for years. Both have been coded by some very smart people. VLC in particular is a **Free and open-source software** program. A full definition and explanation of that description is available at: [https://en.wikipedia.org/wiki/Free\\_and\\_open-source\\_software](https://en.wikipedia.org/wiki/Free_and_open-source_software). Basically that means that the smartest (granted, and dumbest) programmers in the world can look at the source code for VLC. They can and do, find errors, coding that can be improved, submit additions to VLC and/or simply look for inspiration in some very clever code.

### **How does that relate to AARD code?**

These two programs, and others, have been subject to an interesting occurrence in Windows 10 for some time. Say for instance that you are at a friend's house and she wants to show you a recently taken picture. You are impressed with the fact that almost as soon as you heard the second click on the icon, the picture is displayed on the screen. That's fast! She then shows the several ways you can quickly navigate between displayed files in a folder, zoom in/out, rotate, crop, etc. So when you get home, you Google 'Irfanview download.' You learn that it is available from a lot of download sites, including the authors. One of them will likely be [www.MajorGeeks.com](http://www.MajorGeeks.com), my personal favorite, and you will notice there are two parts to Irfanview. The main program and



Irfanview plugins, which is much larger. You see each one is available in both 32 bit and 64-bit versions. You download both in the version that matches your OS, install the main program, install the plugins, and run the program. One of the setup screens lets you choose which file types will be associated with Irfanview as the default application. Choosing 'All' works well. Windows will go through your files and change the icon by the file name to the Irfanview icon: With the program up and running, you double click on a .jpg file and up pops your picture. A little while later, a little box pops up in the bottom right corner of your screen. If you notice it at all, you hardly have time to read it before it disappears. If you click on the messages icon at the right end of the taskbar it will show up there. It will open and display the message one time and then go away. This is what you might have missed:



After that message popped up, Windows went back through your files and changed the icon next to your jpg pictures to the icon for 'Photos.' The same type of thing happens with the MP3 files and the video files.

You can go into settings and change it back to Irfanview, or VLC, or whatever your favorite program is that suffered the same fate. Soon after you do that, or perhaps not till after you re-boot, Windows 10 will pop out the "An app default was reset" window and change everything to: THE MICROSOFT DEFAULT APP.

Now, if you have been a computer geek for a few decades, like me, you suspect the only problem my Irfanview app and the other apps caused was having the audacity to install themselves as a default app in competition with the Microsoft app. It strikes me that there is some similarity between what is happening in Windows 10 and what happened to DR-DOS in Windows 3.1. There is one notable difference between the two scenarios, with the AARD code, a phony error code was generated. With Windows 10, there is no error code. The implied message is: "We are

Microsoft, trust us, when we say your APP caused a problem, there is something wrong with your APP."

To paraphrase the internal memo quoted in the AARD finding: : "What the [user] is supposed to do is feel uncomfortable, and when he has bugs, suspect that the problem is (with his APP) and then stick with the default Microsoft APP." That is exactly what I would guess a huge number of Windows 10 users have done. This URL is just one of several where users were complaining.

<https://answers.microsoft.com/en-us/windows/forum/all/windows-10-issues-with-setting-photo-viewer/5ec485ad-199f-4d7f-880a-42039ac3b4cf>

While at that URL and others, there are a number of useless suggestions and a couple of workarounds that do work, one thing stands out by its ABSENCE. "Your APP violated Microsoft Windows 10 programming guidelines by doing this..... and causing error code xxxxx." Another thing that seems odd, the following URL is dated February 23,

2016: [https://answers.microsoft.com/en-us/windows/forum/windows\\_10-start/an-app-default-was-reset/cee24e42-f55e-47e7-b88c-30698f8b6706](https://answers.microsoft.com/en-us/windows/forum/windows_10-start/an-app-default-was-reset/cee24e42-f55e-47e7-b88c-30698f8b6706)

Consider that last week I did a clean install of the latest release of Windows 10, version 1809. That when I ran that installation, and installed the latest versions of Irfanview and VLC, that is the installation from which I obtained the above screenshot. That means that at least THREE YEARS has gone by since "An app default was reset" started showing in Windows 10. Can anyone honestly believe that considering the sheer number, quality, and experience of the programmers writing, reviewing, and donating to the VLC code, that if Microsoft told them what "problem" the VLC app (and the other apps) actually caused, it would have been fixed years ago!

So how do you fix this issue? Windows 10 will not let you go to Setting, Apps, select Groove and choose uninstall. I tried that! So I Googled the problem. As I am sure you are aware, how you word a query in Google can result in very different answers. I don't remember how I worded my question, but one of the first responses referenced using Powershell and displayed the command lines to uninstall Groove Music. I cut and pasted the lines into Powershell, and uninstalled Groove Music, Photos, and Movies&TV. When there was no MS default music app to reset itself to, Windows 10 stopped complaining about the Irfanview MP3 music player, and the Irfanview MP3 music player continued to function just fine. Ditto the other two, and I was happy. My immediate problem solved, I stopped researching the problem.

While writing this article, I did some more Googling of the subject and was impressed with the number of different apps the complaints were about, the huge number of complaints overall, the length of time the issue has existed, the number of times non-functional or silly solutions were presented, the few workarounds that actually work, and the length of time that MS has seemingly stonewalled the issue. One find of possible interest to those that are skittish about editing the Registry or using Command lines, checkout this URL: <https://www.thewindowsclub.com/stop-windows-10-resetting-default-apps>.

There you can download and run a free program called " **Stop Resetting My Apps**" that deals with six of the more frequent complaints. The reviews I looked at were mostly favorable. Caveat emptor, do your own due diligence.