

ZIP Compression Brought to New Life

The benefits that UPX can give to ZIP archive format.

The ZIP compression format was born in 1989 from the great mind of Philip Katz, who conceived this compression algorithm to answer to **SEA**, that was claiming a patent infringement on its **ARC** compression algorithm; Philip Katz was developing a small DOS utility named **PKARC** which was able to read and decompress .arc files. Anybody used that utility until SEA asked Philip Katz to stop development and distribution of PKARC; the answer from Philip Katz was **PKZIP** (and **PKUNZIP**) and almost suddenly everybody started using it for free. That event signed (almost) the death of the ARC compression format. Unfortunately, Katz died in 2000 when ZIP became a standard *de facto* and he was just in time to see what ZIP files means for the Internet age.

Today ZIP is not the best compression format around but it is still used by million of users and it is still free for everyone, when other compression software give better compression performances upon the payment of a fee to use them. **RAR** and **ACE** are surely better than **ZIP** but third parties developers are not allowed to use their compression algorithms but only the extraction one; this means that if you want to compress data by the best way, then you will have to pay. The only free alternative is **7-zip**, an open source algorithm and software conceived by Igor Pavlov. In some cases 7-zip performs even better than **WinRAR** or **WinACE** and it is surely ready to be widely used just as it happened to ZIP in the early days of the Internet.

Anyway someone is still trying to enhance it but results are quite controversial. The first attempt to enhance ZIP format comes by **WinZip Computing**, authors of WinZip, because they have added new features to the ZIP algorithm used by WinZip 9 but this version of ZIP results to be not compatible with the standard ZIP algorithm used in other software; these new features are **AES encryption applied to each single file in a ZIP archive** and **Enhanced Deflate compression method**.

In both cases ZIP files made by WinZip 9 can be read by other ZIP softwares but files cannot be extracted: you will have to use WinZip 9 again (WZ 8.1 won't work). AES encryption protects files better than standard ZIP password encryption, and today users need better protection for their works, but this need for safety must not be translated in new problems for users that need to send out their

zip files over then Internet: not everybody is using WinZip today for many different reasons, so WZ9 archives could be received by people using WZ 8.1 or other software. That's why **ZipGenius** can create encrypted self-extracting files: if someone receives an encrypted SFX, he/she won't need ZipGenius to decrypt it, because a small executable attached to the archive will provide this feature.

Anyway, today users also need better compression in terms of compression ratio and ZIP seems to be quite obsolete in this field. Just look the **picture on the right**. This test is based on a true real-life action, an action that every user is likely to do: I have compressed the installation folder of **Acrobat® Reader 6.0** (29.7 MB) using ZipGenius, WinRAR and WinZIP and the best compression levels they could offer.

As you see, 7-zip offer the highest compression ratio (anyway it is the slowest algorithm) and all other compression formats gave better results than ZIP; moreover, different ZIP softwares gave

	AC6-7zip.7z ZipGenius 7z File 9,841 KB	ZipGenius 5.5.1.340 7-zip format
	AC6-WRAR.rar ZipGenius Rar File 10,762 KB	
	AC6-CAB.cab ZipGenius Cab File 11,169 KB	
	AC6-SQX.sqx ZipGenius SQX File 13,569 KB	
	AC6-ZIP.zip 13,880 KB	ZipGenius 5.5.1.340 Brutal compression level
	AC6-WZIP.zip 14,026 KB	WinZip 9 Final Maximum Level (Portable)

different results: ZipGenius' Brutal compression level achieved some extra size reduction over WinZip's Maximum Level (Portable version). WinZip 9 has two Maximum levels: **Portable**, that you should use to create standard ZIP files, and **Enhanced Deflate**, which gives extra compression but that could create compatibility problems (WinZip warns about this chance).

Anyway, ZIP is at the last place and today users frequently zips entire folders full of applications. Executable files (.EXE) cannot be fully compressed through the common ZIP algorithm because it was born mainly to compress text files, not applications, and you see the result: modern algorithms compress better.

So, is ZIP going to die? Not for ZipGenius, at least.

ZipGenius 6 introduces a new feature called **"UPX precompression"**. **UPX** is an open source executable packer used by many developers to reduce the size of their applications before they can distribute them, and ZipGenius itself is compressed with UPX (size if zipgenius.exe goes from 6.176 bytes to just **1601 bytes**); anyway the most known software aren't *UPXed* so it is possible to compress them if you need to archive them.

I repeated the same test using WinZip's Maximum Level (Enhanced Deflate) and ZipGenius' new **Brutal+UPX** level. You can see the result in the *picture on the right*. In this case ZG 6 goes beyond and compresses even better than **SQX** format, but this good result is twice as good because **WZ's Enh. Deflate is not portable to other zip**

software or older versions of WZ; on the contrary, **ZG's Brutal+UPX level produces smaller and PORTABLE archives**. This test shows as ZIP could be brought to new life by just adding compression techniques that are already around and available to the public.

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	AC6-WRAR.rar ZipGenius Rar File 10.762 KB	
	AC6-CAB.cab ZipGenius Cab File 11.169 KB	
	AC6-ZIP-UPX.zip 12.975 KB	ZipGenius 6 Brutal + UPX level
	AC6-SQX.sqx ZipGenius SQX File 13.569 KB	
	AC6-WZIP_ED.zip 13.805 KB	WinZip 9 Final Max. Level (Enh. Deflate)
	AC6-ZIP.zip 13.880 KB	ZipGenius 5.5.1.340 Brutal compression level
	AC6-WZIP.zip 14.026 KB	WinZip 9 Final Maximum Level (Portable)

Matteo Riso

Developer of ZipGenius – <http://www.zipgenius.it>

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WinZip: <http://www.winzip.com>

WinRar: <http://www.rarsoft.com>

WinAce: <http://www.winace.com>

7-zip: <http://www.7-zip.org>

ZipGenius uses ComponentAce's ZipForge (<http://www.componentace.com>)