Archive file

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(Redirected from [Archive file format](https://en.wikipedia.org/w/index.php?title=Archive_file_format&redirect=no))

In [computing](https://en.wikipedia.org/wiki/Computing), an **archive file** is a [computer file](https://en.wikipedia.org/wiki/Computer_file) that is composed of one or more files along with [metadata](https://en.wikipedia.org/wiki/Metadata). Many archive formats also support compression of member files. Archive files are used to [collect](https://en.wikipedia.org/wiki/Linker_(computing)) multiple data files together into a single file for easier [portability](https://en.wikipedia.org/wiki/Software_portability) and storage, or simply to [compress](https://en.wikipedia.org/wiki/Lossless_compression) files to use less storage space. Archive files often store [directory structures](https://en.wikipedia.org/wiki/Directory_structure), [error detection and correction](https://en.wikipedia.org/wiki/Error_detection_and_correction) information, comments, and some use built-in [encryption](https://en.wikipedia.org/wiki/Encryption).[[1]](https://en.wikipedia.org/wiki/Archive_file#cite_note-1)[[2]](https://en.wikipedia.org/wiki/Archive_file#cite_note-2)[[3]](https://en.wikipedia.org/wiki/Archive_file#cite_note-3)

Applications[[edit](https://en.wikipedia.org/w/index.php?title=Archive_file&action=edit&section=1)]

**Portability**[[edit](https://en.wikipedia.org/w/index.php?title=Archive_file&action=edit&section=2)]

Archive files are particularly useful in that they store [file system](https://en.wikipedia.org/wiki/File_system) data and [metadata](https://en.wikipedia.org/wiki/Metadata) within the contents of a particular file, and thus can be stored on systems or sent over [channels](https://en.wikipedia.org/wiki/Communication_channel) that do not support the file system in question, only file contents – examples include sending a [directory structure](https://en.wikipedia.org/wiki/Directory_structure) over [email](https://en.wikipedia.org/wiki/Email), files with names unsupported on the target file system due to length or characters, and [retaining files' date and time information](https://en.wikiversity.org/wiki/File_management#Time_stamp_preservation).[[4]](https://en.wikipedia.org/wiki/Archive_file#cite_note-4)

A single archive file may contain multiple member files; this can speed [file transfers and other operations](https://en.wikipedia.org/wiki/File_operation) with processing overheads for each file,[[5]](https://en.wikipedia.org/wiki/Archive_file#cite_note-5)[[6]](https://en.wikipedia.org/wiki/Archive_file#cite_note-6) in addition to gains due to compression.

**Software distribution**[[edit](https://en.wikipedia.org/w/index.php?title=Archive_file&action=edit&section=3)]

Beyond archival purposes, archive files are frequently used for packaging software for [distribution](https://en.wikipedia.org/wiki/Software_distribution), as software contents are often naturally spread across several files; the archive is then known as a [*package*](https://en.wikipedia.org/wiki/Software_package_(disambiguation)). While the archival file format is the same, there are additional conventions about contents, such as requiring a [manifest file](https://en.wikipedia.org/wiki/Manifest_file), and the resulting format is known as a [package format](https://en.wikipedia.org/wiki/Package_format).[[7]](https://en.wikipedia.org/wiki/Archive_file#cite_note-7) Examples include [deb](https://en.wikipedia.org/wiki/Deb_(file_format)) for [Debian](https://en.wikipedia.org/wiki/Debian), [JAR](https://en.wikipedia.org/wiki/JAR_(file_format)) for [Java](https://en.wikipedia.org/wiki/Java_(programming_language)), [APK](https://en.wikipedia.org/wiki/APK_(file_format)) for [Android](https://en.wikipedia.org/wiki/Android_(operating_system)), and [self-extracting](https://en.wikipedia.org/wiki/Self-extracting_archive) [Windows Installer](https://en.wikipedia.org/wiki/Windows_Installer) [executables](https://en.wikipedia.org/wiki/Executable_file).

Features[[edit](https://en.wikipedia.org/w/index.php?title=Archive_file&action=edit&section=4)]

Features supported by various kinds of archives include:

* converting [metadata](https://en.wikipedia.org/wiki/Metadata) into data stored inside a file (e.g., file name, permissions, etc.)
* [checksums](https://en.wikipedia.org/wiki/Checksum) to detect errors
* [data compression](https://en.wikipedia.org/wiki/Data_compression)
* file concatenation to store multiple files in a single file
* file patches / updates (when [recording changes since a previous archive](https://en.wikipedia.org/wiki/Incremental_backup))
* [encryption](https://en.wikipedia.org/wiki/Encryption)
* [error correction code](https://en.wikipedia.org/wiki/Error_correction_code) to fix errors
* [splitting a large file into many equal sized files](https://en.wikipedia.org/wiki/File_spanning) for storage or transmission

Some archive programs have self-extraction, self-installation, source volume and medium information, and package notes/description.

The [file extension](https://en.wikipedia.org/wiki/File_extension) or [file header](https://en.wikipedia.org/wiki/File_header) of the archive file are indicators of the [file format](https://en.wikipedia.org/wiki/File_format) used. Computer archive files are created by [file archiver](https://en.wikipedia.org/wiki/File_archiver) software, [optical disc authoring software](https://en.wikipedia.org/wiki/Optical_disc_authoring_software), and [disk image](https://en.wikipedia.org/wiki/Disk_image) software.[[8]](https://en.wikipedia.org/wiki/Archive_file#cite_note-8)

Archive formats[[edit](https://en.wikipedia.org/w/index.php?title=Archive_file&action=edit&section=5)]

An **archive format** is the [file format](https://en.wikipedia.org/wiki/File_format) of an archive file. Some formats are well-defined by their authors and have become conventions supported by multiple vendors and communities.[[9]](https://en.wikipedia.org/wiki/Archive_file#cite_note-9)

**Types**[[edit](https://en.wikipedia.org/w/index.php?title=Archive_file&action=edit&section=6)]

* **Archiving only** formats store [metadata](https://en.wikipedia.org/wiki/Metadata) and [concatenate](https://en.wikipedia.org/wiki/Concatenate) files.
* **Compression only** formats only compress files.
* **Multi-function** formats can store [metadata](https://en.wikipedia.org/wiki/Metadata_discovery), concatenate, compress, encrypt, create error detection and recovery information, and package the archive into self-extracting and self-expanding files.
* **Software packaging** formats are used to create [software packages](https://en.wikipedia.org/wiki/Software_package_(installation)) that may be self-installing files.
* **Disk image** formats are used to create [disk images](https://en.wikipedia.org/wiki/Disk_image) of mass storage volumes.

**Examples**[[edit](https://en.wikipedia.org/w/index.php?title=Archive_file&action=edit&section=7)]

*Further information:*[*List of archive formats*](https://en.wikipedia.org/wiki/List_of_archive_formats)*and*[*Comparison of archive formats*](https://en.wikipedia.org/wiki/Comparison_of_archive_formats)

[Filename extensions](https://en.wikipedia.org/wiki/Filename_extension) used to distinguish different types of archives include [zip](https://en.wikipedia.org/wiki/ZIP_(file_format)), [rar](https://en.wikipedia.org/wiki/RAR_(file_format)" \o "RAR (file format)), [7z](https://en.wikipedia.org/wiki/7z_(file_format)), and [tar](https://en.wikipedia.org/wiki/Tar_(file_format)), the first of which is the most widely implemented.[[10]](https://en.wikipedia.org/wiki/Archive_file#cite_note-10)

Java also introduced a whole family of archive extensions such as [jar](https://en.wikipedia.org/wiki/JAR_(file_format)) and [war](https://en.wikipedia.org/wiki/WAR_(file_format)) (*j* is for Java and *w* is for web). They are used to exchange entire byte-code deployment. Sometimes they are also used to exchange source code and other text, HTML and XML files. By default they are all compressed.[[11]](https://en.wikipedia.org/wiki/Archive_file#cite_note-11)

Error detection and recovery[[edit](https://en.wikipedia.org/w/index.php?title=Archive_file&action=edit&section=8)]

Archive files often include [parity checks](https://en.wikipedia.org/wiki/Parity_check) and other [checksums](https://en.wikipedia.org/wiki/Checksum) for [error detection](https://en.wikipedia.org/wiki/Error_detection), for instance [zip files](https://en.wikipedia.org/wiki/Zip_(file_format)) use a [cyclic redundancy check](https://en.wikipedia.org/wiki/Cyclic_redundancy_check) (CRC). [RAR archives](https://en.wikipedia.org/wiki/RAR_archive) may include additional [error correction](https://en.wikipedia.org/wiki/Error_correction_code) data (called recovery records).[[12]](https://en.wikipedia.org/wiki/Archive_file#cite_note-12)

Archive files that do not natively support recovery records can use separate [parchive](https://en.wikipedia.org/wiki/Parchive" \o "Parchive) (PAR) files that allows for additional error correction and recovery of missing files in a multi-file archive.[[13]](https://en.wikipedia.org/wiki/Archive_file#cite_note-13)

See also[[edit](https://en.wikipedia.org/w/index.php?title=Archive_file&action=edit&section=9)]

* [File archiver](https://en.wikipedia.org/wiki/File_archiver)
* [Disk image](https://en.wikipedia.org/wiki/Disk_image)
* [Digital container format](https://en.wikipedia.org/wiki/Digital_container_format), a similar concept in media files

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