

## Common Object File Format COFF (Microsoft Corporation)

Windows NT uses a special format for the executable (image) files and object files. The format used in these files are referred to as Portable Executable (PE) or Common Object File Format (COFF) files. The name Portable Executable refers to the fact that executable files can run on more than one platform. This article describes in detail the internal features of PE/COFF file formats and its parameters.

### MORE INFORMATION

The PE/COFF file headers consist of a MS-DOS stub, file signature, COFF Header,...

The PE/COFF file headers consist of a MS-DOS stub, file signature, COFF Header, and Optional Header. An object file contains only the COFF Header, but an image file contains all the headers described above. The most important of these headers is the COFF header. The table below describes the information stored in the COFF header.

Offset	Size	Field	Description
0	2	Machine	Number identifying type of target machine.
2	2	Number of Sections	Number of sections; indicates size of the Section Table, which immediately follows the headers.
4	4	Time/Date Stamp	Time and date the file was created.
8	4	Pointer to Symbol Table	Offset, within the COFF file, of the symbol table.
12	4	Number of Symbols	Number of entries in the symbol table. This data can be used in locating the string table, which immediately follows the symbol table.
16	2	Optional Header Size	Size of the optional header, which is included for executable files but not object files. An object file should have a value of 0 here.
18	2	Characteristics	Flags indicating attributes of the file.

Windows NT Software Development Kit (SDK) provides a utility called DUMPBIN. DUMPBIN is a 32-bit tool that displays information about 32-bit Common Object File Format (COFF) binary files. DUMPBIN runs only from a command prompt. You can use DUMPBIN to examine the following kinds of COFF files: object files, standard libraries of COFF objects, executable files, and dynamic-link library (DLL) files.

To run DUMPBIN, use the following syntax:

```
DUMPBIN [options] [files]
```

The following are options parameters and definitions for DUMPBIN:

```
/ALL  
/ARCHIVEMEMBERS  
/DISASM  
/EXPORTS  
/HEADERS  
/IMPORTS  
/LINENUMBERS  
/LINKERMEMBER[:{1|2}]  
/OUT:filename  
/PDATA
```

# Common Object File Format COFF

(Microsoft Corporation)

/RAWDATA[:{NONE|BYTES|SHORTS|LONGS}[,#]]

/RELOCATIONS

/SECTION:name

/SUMMARY

/SYMBOLS

Options	Definition
/ALL	Setting this option causes DUMPBIN to display all available information except code disassembly.
/ARCHIVEMEMBERS	Setting this option causes DUMPBIN to display minimal information about member objects in a library.
/DISASM	Setting this option causes DUMPBIN to show disassembly of code sections, using symbols if present in the file.
/EXPORTS	This option causes DUMPBIN to list all definitions exported from an executable file or DLL.
/HEADERS	Setting this option causes DUMPBIN to display the file header and the header for each section. When used with a library, displays the header for each member object.
/IMPORTS	This option causes DUMPBIN to list all definitions imported to an executable file or DLL.
/LINENUMBERS	Setting this option causes DUMPBIN to show COFF line numbers. Line numbers exist in an object file if it was compiled with /Zi. An executable file or DLL contains COFF line numbers if it was linked with /DEBUG and /DEBUGTYPE:COFF option.
/LINKERMEMBER [[:{1 2}]]	Setting this option causes DUMPBIN to list public symbols defined in a library. Specify the 1 argument to display symbols in object order, along with their offsets. Specify the 2 argument to display offsets and index numbers of objects, then list the symbols in alphabetical order along with the object index for each. To get both outputs, specify /LINKERMEMBER without the number argument.
/OUT:<filename>	This option specifies a filename for the output.
/RAWDATA [[:{BYTES SHORTS LONGS NONE}[[,number]]]	Setting this option causes DUMPBIN to display the raw contents of each section in the file. The arguments control the format of the display, as follows:  Argument - Result BYTES - The default. Contents are displayed in hexadecimal bytes, and also as ASCII if they have a printed representation. SHORTS - Contents are displayed in hexadecimal words. LONGS - Contents are displayed in hexadecimal longwords.

## Common Object File Format COFF

(Microsoft Corporation)

- NONE - Raw data is suppressed. This is useful to control the output of /ALL.
- number - Displayed lines are set to a width that holds number values per line.

/RELOCATIONS      Setting this option causes DUMPBIN to display any relocations in the object or image.

/SECTION: <section>

This option restricts the output to information on the specified section.

/SUMMARY          Setting this option causes DUMPBIN to display minimal information about sections, including total size. This option is the default if no other option is specified in a DUMPBIN command.

/SYMBOLS          Setting this option causes DUMPBIN to display the COFF symbol table. Symbol tables exist in all object files. A COFF symbol table appears in an image file only if it is linked with /DEBUG /DEBUGTYPE:COFF