

# h2inc+ Manual

## About h2inc+

This tool is a Win32 PE console application used to convert C header files into MASM style include files.

The main purpose is to convert Win32 header files, but it should work with any C header file.

## Features

1. A set of list files is used to allow fine-tuning of the include files to be generated. They collect all useful information that can be used for further passes.
2. Large C header sets can be converted in one pass (e.g. the Win32 headers included in the PSDK).
3. Prototypes can be written so that the include file is suitable for both dynamic linking to a DLL (using the IAT entries) and static linking to a library.
4. Alternatively, h2inc+ can write a .DEF file which can then be converted to an import library using a tool such as POLIB.

## Known Restrictions

In certain cases, the conversion may not be entirely accurate. It is inevitable that some places will require manual adjustments.

- It is important to note that not all C header file declarations can be translated to MASM. For instance, MASM does not support the concept of inline functions.
- In certain circumstances, h2inc+ is required to "count" braces. This can impede the evaluation of expressions within #if preprocessor commands, as h2inc+ is unable to process these commands. Consequently, h2inc+ may become confused and generate erroneous results.
- h2inc+ does not recognise C++ specific syntax as its original purpose was to convert C header files. Consequently, some C++-specific keywords may prove confusing for h2inc+.
- "far" and "near" qualifiers are skipped while rendering, which means that this tool is not suitable for 16-bit includes.
- Macros in C header files will not be converted in a reliable manner and may therefore require manual adjustments.

## Installation

No special installation process needed. Simply create a directory and copy the files h2inc+.exe, h2inc+.ini and all knowledge lists into that directory.

## Usage

Open a command line console in this directory and enter the following command:

```
h2inc+ [Options] Filespec
```

where:

Options: (preceded by '-' or '/')

- @[name]: specify an environment variable or ASCII file that contains further options
- a: add @align to STRUCT/UNION declarations.  
This adds @align as an alignment parameter for STRUCT/UNION declarations. Initially, @align is defined as an empty string, but include files pshpackX.inc will change it. This is handled in a similar way to Microsoft VC. Set this option if you want to ensure VC compatibility.
- b: batch mode without user interaction
- c: include comments in output.  
Copy comments found in source files to the created .inc files
- d[0]1|2|3]: define \_\_declspec(dllimport) handling (default = 0)
  - 0: decide depending on values in h2inc+.ini  
Depending on values found in h2inc+.ini, section [Prototype Qualifiers], h2inc+ will create either true MASM prototypes or externdefs referencing IAT entries, which is slightly faster
  - 1: always assume \_\_declspec(dllimport) is set  
This will force h2inc+ to always create externdefs referencing IAT entries.
  - 2: always assume \_\_declspec(dllimport) is not set  
This will force h2inc+ to always create true MASM prototypes.
  - 3: if possible, use @DefProto macro to define prototypes  
This may reduce file size compared to option -d0 or -d1 and makes the generated includes more readable, but more importantly it will allow to link statically or dynamically with one include file version and still use the fastest calling mechanism for both methods.
- e: write full decorated names of function prototypes to a def-file
- h | -?: show usage help
- I[directory list]: specify additional directories to search for header files
- i: process #include lines
- k[0]1|2|3|4|5]: set default calling convention for prototypes
  - 0: CDECL
  - 1: STDCALL
  - 2: PASCAL
  - 3: SYSCALL
  - 4: FASTCALL
  - 5: VECTORCALL
- l: Load previously generated lists, default is from ini-file
- m: generate untyped structure members (DWORDs/QWORDs)
- o[directory]: set the output directory (default is the current directory)
- p: generate untyped parameters (DWORDs/QWORDs) in prototypes  
Without this option the types are copied from the source file.
- s[0]1|2|3|4]: selective output (default = all)
  - 0: constants and enums
  - 1: prototypes
  - 2: typedefs
  - 3: structs/unions
  - 4: externals

-V[0|1|2|3]: verbosity (default = 0)  
0: Silent  
1: Important messages only  
2: Less-important messages  
3: All messages  
-W[0|1|2|3]: set warning level (default = 0)  
0: No warnings  
1: Severe warnings only  
2: Severe and some less-severe warnings  
3: All warnings  
-y: overwrite existing .inc files without confirmation

Filespec:  
e.g. ".\h\\*.h"

**Example:**

```
h2inc+ -c -p -l -y -d3 -l -V1 -W2 -l ".\h\um_10.0.22621.0" -o ".\inc" ".\h\MasterInclude.h"
```

**Note:** paths must be enclosed in quotation marks.

Biterider, 21.05.2024