.NET Framework 4

**Peverify.exe (PEVerify Tool)**

Updated: April 2011

The PEVerify tool helps developers who generate Microsoft intermediate language (MSIL) (such as compiler writers, script engine developers, and so on) to determine whether their MSIL code and associated metadata meet type safety requirements. Some compilers generate verifiably type-safe code only if you avoid using certain language constructs. If, as a developer, you are using such a compiler, you may want to verify that you have not compromised the type safety of your code. In this situation, you can run the PEVerify tool on your files to check the MSIL and metadata.

This tool is automatically installed with Visual Studio and with the Windows SDK. To run the tool, we recommend that you use the Visual Studio Command Prompt or the Windows SDK Command Prompt (CMD Shell). These utilities enable you to run the tool easily, without navigating to the installation folder. For more information, see [Visual Studio and Windows SDK Command Prompts](http://msdn.microsoft.com/en-us/library/ms229859.aspx).

* If you have Visual Studio installed on your computer: On the taskbar, click **Start**, click **All Programs**, click **Visual Studio**, click **Visual Studio Tools**, and then click **Visual Studio Command Prompt**.

-or-

If you have the Windows SDK installed on your computer: On the taskbar, click **Start**, click **All Programs**, click the folder for the Windows SDK, and then click **Command Prompt** (or **CMD Shell**).

* At the command prompt, type the following:

peverify filename [options]

Description: http://i.msdn.microsoft.com/Global/Images/clear.gifParameters

|  |  |  |
| --- | --- | --- |
| **Argument** | **Description** | |
| *filename* | The portable executable (PE) file for which to check the MSIL and metadata. | |
| **Option** | | **Description** |
| **/break=***maxErrorCount* | | Aborts verification after *maxErrorCount* errors.  This parameter is not supported in .NET Framework version 2.0 or later. |
| **/clock** | | Measures and reports the following verification times in milliseconds:  **MD Val. cycle**  Metadata validation cycle  **MD Val. pure**  Metadata validation pure  **IL Ver. cycle**  Microsoft intermediate language (MSIL) verification cycle  **IL Ver pure**  MSIL verification pure  The **MD Val. cycle** and **IL Ver. cycle** times include the time required to perform necessary startup and shutdown procedures. The **MD Val. pure** and **IL Ver pure** times reflect the time required to perform the validation or verification only. |
| **/help** | | Displays command syntax and options for the tool. |
| **/hresult** | | Displays error codes in hexadecimal format. |
| **/ignore=***hex.code* [, *hex.code*] | | Ignores the specified error codes. |
| **/ignore=@***responseFile* | | Ignores the error codes listed in the specified response file. |
| **/il** | | Performs MSIL type safety verification checks for methods implemented in the assembly specified by *filename*. The tool returns detailed descriptions for each problem found unless you specify the **/quiet** option. |
| **/md** | | Performs metadata validation checks on the assembly specified by *filename*. This walks the full metadata structure within the file and reports all validation problems encountered. |
| **/nologo** | | Suppresses the display of product version and copyright information. |
| **/nosymbols** | | In the .NET Framework version 2.0, suppresses line numbers for backward compatibility. |
| **/quiet** | | Specifies quiet mode; suppresses output of the verification problem reports. Peverify.exe still reports whether the file is type safe, but does not report information on problems preventing type safety verification. |
| **/transparent** | | Verify only the transparent methods. |
| **/unique** | | Ignores repeating error codes. |
| **/verbose** | | In the .NET Framework version 2.0, displays additional information in MSIL verification messages. |
| **/?** | | Displays command syntax and options for the tool. |

Description: http://i.msdn.microsoft.com/Global/Images/clear.gifRemarks

The common language runtime relies on the type-safe execution of application code to help enforce security and isolation mechanisms. Normally, code that is not [verifiably type safe](http://msdn.microsoft.com/en-us/library/hbzz1a9a.aspx) cannot run, although you can set security policy to allow the execution of trusted but unverifiable code.

If neither the **/md** nor **/il** options are specified, Peverify.exe performs both types of checks. Peverify.exe performs **/md** checks first. If there are no errors, **/il** checks are made. If you specify both **/md** and **/il**, **/il** checks are made even if there are errors in the metadata. Thus, if there are no metadata errors, **peverify** *filename* is equivalent to **peverify** *filename* **/md** **/il**.

Peverify.exe performs comprehensive MSIL verification checks based on dataflow analysis plus a list of several hundred rules on valid metadata. For detailed information on the checks Peverify.exe performs, see the "Metadata Validation Specification" and the "MSIL Instruction Set Specification" in the Tools Developers Guide folder in the Windows Software Development Kit (SDK).

Note that the .NET Framework version 2.0 or later supports verifiable byref returns specified using the following MSIL instructions: dup, ldsflda, ldflda, ldelema, call and unbox.

Description: http://i.msdn.microsoft.com/Global/Images/clear.gifExamples

The following command performs metadata validation checks and MSIL type safety verification checks for methods implemented in the assembly myAssembly.exe.

[Copy Code](javascript:CopyCode('ctl00_MTCS_main_ctl25_ctl00_ctl00_code');" \o "Copy Code)

peverify myAssembly.exe /md /il

Upon successful completion of the above request, Peverify.exe displays the following message.

[Copy Code](javascript:CopyCode('ctl00_MTCS_main_ctl25_ctl00_ctl01_code');" \o "Copy Code)

All classes and methods in myAssembly.exe Verified

The following command performs metadata validation checks and MSIL type safety verification checks for methods implemented in the assembly myAssembly.exe. The tool displays the time required to perform these checks.

[Copy Code](javascript:CopyCode('ctl00_MTCS_main_ctl25_ctl00_ctl02_code');" \o "Copy Code)

peverify myAssembly.exe /md /il /clock

Upon successful completion of the above request, Peverify.exe displays the following message.

[Copy Code](javascript:CopyCode('ctl00_MTCS_main_ctl25_ctl00_ctl03_code');" \o "Copy Code)

All classes and methods in myAssembly.exe Verified

Timing: Total run 320 msec

MD Val.cycle 40 msec

MD Val.pure 10 msec

IL Ver.cycle 270 msec

IL Ver.pure 230 msec

The following command performs metadata validation checks and MSIL type safety verification checks for methods implemented in the assembly myAssembly.exe. Peverify.exe stops, however, when it reaches the maximum error count of 100. The tool also ignores the specified error codes.

[Copy Code](javascript:CopyCode('ctl00_MTCS_main_ctl25_ctl00_ctl04_code');" \o "Copy Code)

peverify myAssembly.exe /break=100 /ignore=0x12345678,0xABCD1234

The following command produces the same result as the above previous example, but specifies the error codes to ignore in the response file ignoreErrors.rsp.

[Copy Code](javascript:CopyCode('ctl00_MTCS_main_ctl25_ctl00_ctl05_code');" \o "Copy Code)

peverify myAssembly.exe /break=100 /ignore@ignoreErrors.rsp

The response file can contain a comma-separated list of error codes.

[Copy Code](javascript:CopyCode('ctl00_MTCS_main_ctl25_ctl00_ctl06_code');" \o "Copy Code)

0x12345678, 0xABCD1234

Alternatively, the response file can be formatted with one error code per line.

[Copy Code](javascript:CopyCode('ctl00_MTCS_main_ctl25_ctl00_ctl07_code');" \o "Copy Code)

0x12345678

0xABCD1234