

## Detecting 64 bit vs 32 bit Windows

Before starting to look at this, its important to be clear about what you mean by "64 bit". You can have a 64 bit CPU, a 64 bit operating system and a 64 bit process running. It is equally possible to have 64 bit CPU, a 32 bit operating system installed and a 16 bit process running.

The table below shows a few of the combinations you may need to account for:

	CPU Hardware	Operating System	Process
Windows 3.1	16	16	16
<b>Windows 95/NT</b>	<b>32</b>	<b>32</b>	<b>32</b>
Windows XP (16 bit compatibility)	32	32	16
Windows XP	32	32	32
<b>Windows XP on new hardware</b>	<b>64</b>	<b>32</b>	<b>32</b>
Windows 7/2008 on old hardware	32	32	32
Windows 7/2008 (32 bit compatibility)	64	64	32 (WOW)
<b>Windows 7/2008</b>	<b>64</b>	<b>64</b>	<b>64</b>

## Detect 64 bit processor hardware

In Vista and greater, you can use `wmic os get osarchitecture`, or in WMI `Win32_ComputerSystem/OSArchitecture` sadly this is not supported in XP or 2003

There are a number of promising looking options in WMI and Systeminfo, but they all pertain to the OS not the CPU.

## Detect a 64 bit Operating System

```
:: Installed OS
Set _Bitness=64
IF %PROCESSOR_ARCHITECTURE% == x86 (
    IF NOT DEFINED PROCESSOR_ARCHITEW6432 Set _Bitness=32
)
Echo Operating System is %_Bitness% bit
```

Via David Wang's blog post: [Detect OS Bitness](#)

## Detect a 64 bit Process

On Windows 7, running `C:\windows\SysWOW64\cmd.exe` will launch a 32 bit instance of CMD.exe even if the OS is 64 bit. Applications that are compiled for a 32 bit processor will run in a similar way. We can detect this with the

`%PROCESSOR_ARCHITECTURE%` [environment](#) variable.

```
:: Process
If %PROCESSOR_ARCHITECTURE% == x86 (
    Set _ps_bitness=32
) ELSE ( Set _ps_bitness=64)
Echo Process is %_ps_bitness% Bit
```

## Program Files location for 32 bit applications

```
:: Program Files location for 32 bit apps
If DEFINED ProgramFiles(x86) Set _programs=%ProgramFiles(x86)%
If Not DEFINED ProgramFiles(x86) Set _programs=%ProgramFiles%
Echo Program Files location for 32 bit apps:
Echo %_programs%
```

## Program Files location for 64 bit applications

```
:: Program Files location for 64 bit apps
```

```
Echo %ProgramFiles%
```

When writing installation scripts its generally a good idea to have separate installers for 32 bit and 64 bit applications, one day you may need the option to install the 32 bit version on a 64 bit OS.

*"It's not so much that we're afraid of change or so in love with the old ways, but it's that place in between that we fear... it's like being between trapezes" ~ Marilyn Ferguson*

**Related:**

[Q556009](#) - How to check if a computer is running a 32 bit or 64 bit Operating System.

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