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Title	Increasing The Per-Process Memory Limit in Windows XP Professional for Pro/ENGINEER.						
Product	Pro/ENGINEER	Module	MEMORY_USE	TPI ID	111330	Created	01-NOV-01
Workstation	Windows XP			Reported In Release		Reported In Datecode	
SPR	None			Resolved In Release		Resolved In Datecode	

Description

32-bit operating systems are limited to a maximum of 4 gigabytes (GB) of memory addressing. The actual amount of memory that a single 32-bit application running on a 32-bit operating system can access is generally less than 4GB and closer to 2GB. Certain 32-bit operating systems provide ways of enabling larger per-process memory addressing. This document describes the PTC-supported Microsoft procedure for enabling larger memory addressing under Windows XP Professional (32-bit).

Please note that PTC will also be releasing a version of Pro/ENGINEER 2001 for Windows XP Professional 64-bit. 64-bit operating systems and applications can address approximately 18,446,744,073 GB of memory. Currently, there are shipping versions of Pro/ENGINEER 2001 that support 64-bit on Sun and HP UNIX operating systems.

Resolution

The following describes the Microsoft's recommended procedure for increasing the per-process memory limit to 3 GB.

*** Please note that improper modification of boot.ini can render the operating system inoperable. PTC assumes no responsibility for corruption of boot.ini by improper use of BOOTCFG or manual editing. ***

1. Modify the boot.ini on the workstation to include the /3GB switch using BOOTCFG

Windows XP has added a tool called BOOTCFG that can be used to edit the boot.ini file (rather than manually editing the boot.ini file as described in step 4). For more information on BOOTCFG, see:

<http://support.microsoft.com/default.aspx?scid=kb;en-us;Q291980>

The following technique can be used to add the /3GB switch to the boot.ini file. From a command prompt, enter the following to add the 3GB switch to the end of the first line of the operating system entry in the boot.ini file (requires administrative privileges):

```
BOOTCFG /Raw "/3GB" /A /ID 1
```

Where:

/Raw Specifies the OS options for the boot entry. The previous OS options will be modified.

"/3GB" The 3GB switch

/A Specifies that the OS options entered with the /Raw switch will be appended to the existing OS options.

/ID The boot id. It specifies the boot entry id in the OS Load Options section of the boot.ini file to add the OS options to. The boot entry ID number can be obtained from performing the command: BOOTCFG /Query (this displays the contents of the boot.ini file) at the command prompt.

A reboot is required after editing the boot.ini file. Verify after reboot that the /3GB switch has been added to the boot.ini file. The computer's total virtual memory must then be increased to at least 3 GB in order to enable the switch.

2. Install Pro/ENGINEER locally

Perform a local Pro/ENGINEER installation of Release 2001, datecode 2001360 or later. Make sure you create a backup copy of <Pro/ENGINEER_loadpoint>/<machine_type>/obj/xtop.exe before patching so you can restore normal operation should the file become unusable.

3. Patch <Pro/ENGINEER_loadpoint>/<machine_type>/obj/xtop.exe using IMAGECFG.

As of Release 2001, build 2001440 or later of Pro/ENGINEER, IMAGECFG can be found in: <Pro/ENGINEER_loadpoint>/<machine_type>/obj directory. Imagecfg is also available in the Windows 2000 Resource Kit. For example, to modify the target file xtop.exe:

```
Imagecfg -l xtop.exe
```

At this point, the process is complete. Pro/ENGINEER should be able to access more than 2GB of memory.

4. Removing the /3GB switch

If you wish to undo steps 1 - 3 above, follow this procedure:

Select Start, Control Panel, and double click on the System icon. Select the Advanced tab, and the Settings button in the "Startup and Recovery" section. Select the Edit button from the "System Startup" section. The boot.ini file will launch in an editor. Remove the "/3GB" from the end of the appropriate boot entry line under the [operating systems] section. Save and close the file. Select OK from the "Startup and Recovery" section. Select the Start button, select Run, and enter "msconfig" and select OK. Select the BOOT.INI tab and verify that the change to the boot.ini file was made. Reboot the computer.

Restore your original version of xtop.exe (prior to the IMAGECFG).

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