



Troubleshooting Slow Performance in PLATO Web Learning Network

A white paper from PLATO Support Services

April 14, 2005

- PLATO[®] Web Learning Network (PWLN)
- PLATO[®] Client Hosted PLATO Web Learning Network (CHPWLN)

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What Causes Slow Performance in PLATO Web Learning Network?

Introduction

PLATO Learning's Field Engineers are often asked "What can I do about slow performance?" This white paper addresses this question, explains common causes, and provides general guidelines to troubleshoot slow performance.

When writing this white paper, these assumptions were made:

- You are using either PLATO hosted PLATO® Web Learning Network (PWLN) or Client Hosted PLATO® Web Learning Network
- The intended audience is IT personnel who manage networks and workstations

PLATO PWLN Overview

Before we address the question of slow performance, it will be helpful to understand that PWLN comes in two different models. The first is PLATO hosted PWLN, which runs from PLATO Learning's data centers; the second is Client Hosted PWLN, which runs from the servers installed at your own site.

How PWLN Works

PWLN is a web-based product that uses a web browser to run the PLATO® management system and instructional software (courseware). PWLN requires the installation of plug-ins (or add-ons) to your browser in order to use PLATO® instructional software. Because PWLN is a web-based application, it requires more bandwidth, processing power, and memory than standard Internet browsing.

Troubleshooting Guidelines

Two issues that can affect slow performance but are not in your control are Internet [latency](#) and problems with your [Internet Service Provider \(ISP\)](#).

The following guidelines are broken down into the three areas that you *can* control:

- Workstations
- Network
- Client hosted servers (if you are using the client hosted model)

To prevent or resolve problems with slow performance, all three areas must be addressed. Use the troubleshooting charts on the following pages to guide you through what to look for and what to do.

Troubleshooting workstations (PWLN & CHPWLN)

Issue	Problem	What to do
Slow processor	Processors can be overtasked if you have an older computer or run many applications at the same time; this results in delays when applications are loading or running	Make sure your workstations meet the latest system requirements for PWLN or CHPWLN
Memory (RAM)	Minimal memory causes delays in the operating system and in applications	Make sure your workstations meet the latest system requirements for PWLN or CHPWLN
Network card	<ul style="list-style-type: none"> NICs that are configured to run at 10 mb on a 100 mb network will cause slow performance if running network applications Allowing the default setting of auto-negotiate can sometimes cause problems 	<p>The entire network should be configured to run at 100 mbps and full duplex.</p> <p>You may need to manually configure your NIC card to run at 100 mbps and full duplex.</p>
Running other applications	Running other applications or services while users are logged in may result in slow performance	Instruct users not to run other applications or services while they are logged in (Internet, downloading music, games, etc.)
Virus	<ul style="list-style-type: none"> Virus scanning software may cause applications to run slowly A workstation that is infected with a virus may cause slow performance 	Make sure all workstations have antivirus software installed, and run antivirus scans regularly.
Buildup of TEMP files	Over time, the increase of files in TEMP folders may cause applications to run more slowly. Buildup of data in TEMP files eventually <u>slows a processor down</u> as valuable resource space is taken up	Delete TEMP files on a regular basis. You can use Windows Disk Cleanup to remove all temp files at once.
Hard disks are fragmented	<u>Fragmentation</u> occurs over time and can slow down the speed at which data can be accessed	Defragment hard disks monthly Defragmenting Windows XP Defragmenting Windows 2000 Defragmenting Windows 98/ME
Operating system	Out of date operating systems that do not have the latest necessary hotfixes, service packs, or updates can result in slow performance	Download and install the latest Windows updates regularly
Browser related issues	<ul style="list-style-type: none"> Plug-ins that are out of date, corrupted, or not properly installed can cause slow performance Malware (adware, spyware, browser hijackers, etc.) can cause slow performance 	<ul style="list-style-type: none"> Keep plug-ins up to date and make sure they are installed properly. Reinstall plug-ins if needed. Regularly check for malware on all workstations and remove it if found.

Troubleshooting networks (PWLN & CHPWLN)

Issue	Problem	What to do
Hubs	Running low end or 10 mb hubs on a network causes slow performance. Most hubs run at half-duplex, resulting in network collisions and slow performance.	Switches have a greater throughput and efficiency over standard hubs; use switches instead of hubs
Switches	Switches that are configured improperly will cause slow performance. For example, managed switches that are configured differently than the workstations can cause slow performance.	<ul style="list-style-type: none"> • Configure switches to run at full-duplex instead of half-duplex • If workstations are configured at 100 mbps and full duplex, configure switches to run at 100 mbps and full duplex
Bandwidth	If your network bandwidth is too limited and doesn't meet needs, slow performance will result. High network traffic can contribute to slow performance.	<p>Make sure your network has enough bandwidth to accommodate network traffic.</p> <p>Bandwidth – How Much is Enough?</p>
Routers	Routers may become a bottleneck if they are configured improperly and will cause slow performance.	Check your router user documentation or visit your vendor's web site for configuration instructions and troubleshooting info
Firewall	<ul style="list-style-type: none"> • An improperly configured firewall can cause very slow performance when users run iPCD3 or MPAS courseware • Web filters on the firewall may block legitimate content for PWLN/CHPWLN and cause slow performance 	<ul style="list-style-type: none"> • Make sure port 1209 is open; otherwise, iPCD3 and MPAS courseware will run slowly over port 80 • If web filtering is enabled on the firewall, exclude PWLN/CHPWLN content from being filtered
Proxy servers and content filters	<ul style="list-style-type: none"> • Proxy servers that are improperly configured will cause slow performance. • Content filters will block content for legitimate PWLN/CHPWLN traffic, causing slow performance. 	<ul style="list-style-type: none"> • Make sure port 1209 is open through the proxy server • Add exclusions for PWLN/CHWPLN on proxy servers • Add exclusions for PWLN/CHPWLN in the content filter

Troubleshooting client hosted servers (CHPWLN only)

Issue	Problem	What to do
System requirements	Server hardware (processors, memory, NIC, hard drive, etc.) does not meet requirements; servers that do not have dual processors or required memory (RAM) will cause slow performance	<ul style="list-style-type: none"> • Make sure the server meets the latest system and configuration requirements
Dedication	<p>Running other applications or services (DNS, DHCP, etc.) on the CHPWLN server may cause slow performance.</p> <p>Scanning the <code>\PATHWAYS\CW</code> folder when users are running courseware will cause slow performance.</p>	<ul style="list-style-type: none"> • Dedicate the CHPWLN server(s) to run CHPWLN only; do not run other applications or unnecessary services • Do not scan the PATHWAYS\CW folder for viruses when users are running courseware; exclude the PATHWAYS\CW folder from automatic virus scans on the CHPWLN server.
Maintenance	Lack of regular server maintenance can result in slow performance	<ul style="list-style-type: none"> • Reboot the servers weekly to reset services • Make sure PLATO scheduled tasks are running • Make sure PLATO SQL jobs are running (SQL servers only) • Download and install Windows updates regularly

Field Engineering Services

If you do not have your own network administrator to identify problems in your network and troubleshoot slow performance, consider having a certified PLATO Learning Field Engineer work with you onsite.

PLATO Learning's highly trained Field Engineers provide the following fee-based services, customized to your needs:

- Onsite hardware, network, and software installation
- Onsite technical support
- Specialized technical consulting for PLATO Learning software-related issues

Call 800.44.PLATO or e-mail info@plato.com for more information and rates.

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