



PracticeStudio X10

HARDWARE REQUIREMENTS & RECOMMENDATIONS



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INTRODUCTION

This document serves as the primary source for hardware requirements and recommendations for the PracticeStudio® X10 suite of products. The requirements listed must be followed for PracticeStudio® X10 to operate properly. The recommendations are not requirements but a set of guidelines that MicroFour has found will greatly improve the customer’s experience with the product; the recommendations are the “general cases” rather than the “exceptions” and should be followed unless a valid reason can be found for not doing so.

SERVER SPECIFICATION QUICK REFERENCE

Use the graph below in determining hardware and SQL Server edition requirements. The listed levels are described in detail below the graph, and should be used as guidelines when evaluating the needs of a specific system.

Since PracticeStudio® X10 centralizes many of its processes on the PracticeStudio® server machine, the largest system-wide benefits can be seen by investing in the hardware and software recommendations related to the PracticeStudio® server.

	1-10 Workstations	11-20 Workstations	Over 20 Workstations
1-20 Patients per Day	Server Level 1 SQL Level 1	Server Level 2 SQL Level 1	Server Level 3 SQL Level 1
21 – 50 Patients per Day	Server Level 1 SQL Level 2	Server Level 2 SQL Level 2	Server Level 3 SQL Level 2
Over 50 Patients per Day	Server Level 1 SQL Level 3	Server Level 3 SQL Level 3	Server Level 3 SQL Level 3

SERVER HARDWARE

- **Server Level 1** – Xeon Processor, 4 GB RAM, 32-bit Windows Server operating system
- **Server Level 2** – Xeon Dual-Core Processor, 4 GB Ram, 32-bit or 64-bit Windows Server operating system
- **Server Level 3** – Xeon Quad-Core Processor, 8 GB Ram, 64-bit Windows Server operating system.

SQL SERVER EDITIONS

- **SQL Level 1** – SQL Server 2008 Express
- **SQL Level 2** – SQL Server 2008 Workgroup Edition
- **SQL Level 3** – SQL Server 2008 Standard Edition

DEDICATED FILE SERVER SPECIFICATIONS

A Dedicated File Server is not used as a workstation. Hardware requirements for the Dedicated File Server depend upon the number of workstations that will be accessing the file server.

COMMON REQUIREMENTS

- 500 GB HD space
 - RAID 5 or RAID 1 configuration recommended
- Mouse
- Microsoft Windows Server 2008 Standard or higher
- CD-ROM drive
- Tape Backup with enough capacity to backup all PracticeStudio® data
 - Minimum 20 GB, Up to 160GB+ depending upon the number of documents scanned into the system
 - Backup to a CD or DVD drive is not recommended due unreliable CD/DVD media and the limited capacity of these devices
 - 7 Tapes
- All workstations must have Full Control NTFS permissions and Full Control share permissions to the shared Practice Studio Data folder
- 100Mbps PCI or onboard Network Interface Card capable of supporting full-duplex operation
- Uninterruptible Power Supply

RUNNING GUIDELINES

- The PracticeStudio® server should **not** be used as a workstation
- The PracticeStudio® server should **not** perform network infrastructure tasks (i.e. Domain Controller, Exchange Server, etc.)
- The PracticeStudio® server should **not** be used as a server for 3rd party applications
- The PracticeStudio® server should **not** have active virus scanning running (scheduled scans may be used)

HARDWARE REQUIREMENTS (UP TO 10 WORKSTATIONS)

- Intel Xeon Processor or AMD Equivalent
- 4GB RAM

HARDWARE REQUIREMENTS (11-20 WORKSTATIONS)

- Intel Xeon Dual-Core Processor or AMD Equivalent
- 4GB RAM

HARDWARE REQUIREMENTS (21+ WORKSTATIONS)

- Intel Xeon Quad-Core Processor or AMD Equivalent
- 8GB RAM+
- 64-bit Version of Windows Server 2008 Standard Edition

COMMON RECOMENDATIONS

- Sound Card with Speakers

SQL EDITION SPECIFICATIONS

PracticeStudio® X10 uses SQL server as a database backend. The SQL Server edition required depends on the average growth and daily use of the system, which may be roughly measured using average patients per day.

UP TO 20 PATIENTS PER DAY

- SQL Server 2008 Express Edition*
*Express Edition is Microsoft's free version of SQL Server and has resource and file-size limitations. On average, a low daily patient clinic can run on Express edition for 2 years before approaching the resource limits of SQL 2008 Express. This average may vary depending on system use.

21 – 50 PATIENTS PER DAY

- SQL Server 2008 Workgroup Edition

OVER 50 PATIENTS PER DAY

- SQL Server 2008 Standard Edition

TERMINAL SERVICES SERVER SPECIFICATIONS

A Terminal Services Server is needed to allow remote users (thin clients) to connect to the PracticeStudio® network.

REQUIREMENTS (UP TO 7 THIN CLIENTS)

- Intel Xeon processor or AMD Equivalent
- 4GB RAM
- 500 GB HD space
- 80GB available HD space
- Direct X 10 Compatible Video Card
- Monitor capable of supporting 1024x768 resolution at 16-bit color depth
- Mouse
- Microsoft Word
- CD-ROM drive
- Tape Backup with enough capacity to backup all PracticeStudio® data
 - Minimum 20 GB, Up to 160GB+ depending upon the number of documents scanned into the system using the ChartGallery module
 - 7 Tapes
 - Backup to a CD or DVD drive is not recommended due unreliable CD/DVD media and the limited capacity of these devices
- 100Mbps PCI or onboard Network Interface Card capable of supporting full-duplex operation
- All workstations must have Full Control NTFS permissions and Full Control share permissions to the Practice Studio Data folder
- Uninterruptible Power Supply
- Windows Server 2008 Standard or higher

REQUIREMENTS (8+ THIN CLIENTS)

- Intel Xeon Dual Core processor or AMD Equivalent
- 4GB RAM
- 500 GB HD space
- 80GB available HD space
- Direct X 10 Compatible Video Card
- Monitor capable of supporting 1024x768 resolution at 16-bit color depth
- Mouse
- Microsoft Word
- CD-ROM drive
- Tape Backup with enough capacity to backup all PracticeStudio® data
 - Minimum 20 GB, Up to 160GB+ depending upon the number of documents scanned into the system using the ChartGallery module
 - 7 Tapes
 - Backup to a CD or DVD drive is not recommended due unreliable CD/DVD media and the limited capacity of these devices
- 100Mbps PCI or onboard Network Interface Card capable of supporting full-duplex operation
- All workstations must have Full Control NTFS permissions and Full Control share permissions to the Practice Studio Data folder
- Uninterruptible Power Supply
- Windows Server 2008 Standard or higher

COMMON RECOMMENDATIONS

- Sound Card w/Speakers
- Citrix is not needed with Windows Server 2008 Terminal Services if the thin clients will access the terminal server over a VPN.

WORKSTATION SPECIFICATIONS (WINDOWS XP)

These specifications apply to computers that will run PracticeStudio® on a daily basis and are not used as the file server (if the workstation is also the file server, see “Peer-to-Peer Server” specifications in this document).

REQUIREMENTS

- Pentium 4 - 2.0GHz+ class processor
- 512 MB RAM
- 20GB available HD space
- 8MB video card capable of supporting 1024x768 resolution at 16-bit color depth
- Monitor capable of supporting 1024x768 resolution at 16-bit color depth
- Microsoft Windows XP Professional with Service Pack 2
- Microsoft Word
- 100Mbps PCI or onboard Network Interface Card capable of supporting full-duplex operation
- Read/Write access to local registry, primary hard drive, and PracticeStudio® local and shared folders.

RECOMMENDATIONS

- 17" monitor capable of supporting 1024x768 resolution at 16-bit color depth
 - 1024x768 can be difficult to read on a monitor smaller than 17"
- Touch Screen Monitor if the workstation will primarily be used with ChartPower

WORKSTATION SPECIFICATIONS (WINDOWS VISTA)

These specifications apply to computers that will run PracticeStudio® on a daily basis and are not used as the file server (if the workstation is also the file server, see "Peer-to-Peer Server" specifications in this document).

REQUIREMENTS

- Pentium 4 2.8GHz+ class processor
- 1GB RAM
- 20GB available HD space
- 64MB video card capable of supporting 1024x768 resolution at 16-bit color depth
- Monitor capable of supporting 1024x768 resolution at 16-bit color depth
- Microsoft Windows Vista Business or higher (Home editions not supported)
- Microsoft Word
- 100Mbps PCI or onboard Network Interface Card capable of supporting full-duplex operation
- Read/Write access to local registry, primary hard drive, and PracticeStudio® local and shared folders.

RECOMMENDATIONS

- 2GB RAM
- Modern DirectX 10 Capable video card
- 17" monitor capable of supporting 1024x768 resolution at 16-bit color depth
 - 1024x768 can be difficult to read on a monitor smaller than 17"
- Touch Screen Monitor if the workstation will primarily be used with ChartPower

OPERATING PRACTICESTUDIO® FROM A TABLETPC

In many installations TabletPCs are found to be more desirable than having a workstation in each exam room. PracticeStudio® operates properly in a wireless TabletPC environment but has additional requirements.

REQUIREMENTS

- TabletPC(s) with the following:
 - Microsoft Windows XP Tablet Edition / Vista Business Edition or higher
 - Pentium 4 - 2.0GHz+ or Pentium M - 1.5GHz+ processor
 - 1GB RAM
 - 1024x768 resolution at 16-bit color depth
 - 20GB available HD space
 - 802.11n or greater wireless network card
 - Extended runtime Li-Ion battery
- Wireless Access Point

RECOMMENDATIONS

- Toshiba Portégé series TabletPCs
- 1 spare extended runtime Li-Ion battery per TabletPC
 - Under heavy load, one battery will last about ½ day
- 1 external battery charger per TabletPC
 - Without the external battery charger, the batteries must be installed in the TabletPC to charge, tethering the TabletPC to the wall
- 1 external CD/DVD drive total
 - Most TabletPCs do not have a built-in CD or DVD-ROM drive
- 1 external 1.44MB floppy drive
 - Needed by PracticeStudio® if the UPP or Activation Disk will be installed from the TabletPC
- 1 package extra styluses per TabletPC
 - Most TabletPCs require a proprietary stylus; the styluses are small and prone to being misplaced, rendering the TabletPC unusable if there is not an extra stylus available

NETWORK SPECIFICATIONS

PracticeStudio® is truly only as stable as the network on which it runs. Therefore, very strict requirements have been set in the area of networking. The requirements encompass wired network equipment, wireless network equipment, and cabling.

REQUIREMENTS

- 100Mbps switched network or higher
 - A 10Mbps network or a shared (hub) network will not provide optimal response time from the server
- Up to 20 workstations
 - 1 x 24-port 100Mbps switch (or)
 - 2 x 16-port 100Mbps switches
- More than 20 workstations
 - 1 x 48-port 100Mbps switch (or)
 - 2 x 24-port 100Mbps switches
- Cabling that meets or exceeds Category 5e specifications
- Wireless Networking
 - 802.11n or greater
 - 64- or 128-bit encryption (WPA encryption recommended)

CABLING RECOMMENDATIONS

- If the number of workstations exceeds 25, response times to the server can be improved using 1Gbps uplinks to the server and between the network switches
- Have cable installed by a certified network professional who can verify and guarantee his/her work
- If cabling is already installed, have it tested by a certified network professional

MODEM SPECIFICATIONS

MAILROOM (FAX SERVER)

MicroFour MailRoom provides Fax Services that are needed in order to allow faxing/emailing of prescriptions, SOAP notes, narratives, and other documents from PracticeStudio®.

REQUIREMENTS

- A dedicated Windows XP Service Pack 2 or Windows Vista, networked workstation (all requirements from “Workstation Specifications”)
- Windows XP Service Pack 2: internal modem with Windows XP WHQL certified drivers
- Dedicated phone line to the Fax Server that does not run through the office PBX (phone system)

RECOMMENDATIONS

- Microsoft Windows XP Service Pack 2 or Windows Vista is installed on the Fax Server
 - Internal modem with Intel chipset only
 - Both USB modems and Creative Labs chip set modems do NOT work with MicroFour MailRoom with Windows XP Service Pack 2 due to driver support problems and will generally cause system instability

OTHER SPECIFICATIONS

TOUCH SCREEN MONITORS

Touch Screen Monitors are recommended for computers that will run PracticeStudio EMR regularly.

REQUIREMENTS

- Support for 1024x768 resolution at a 16-bit color depth
- Mouse click emulation using a USB, PS/2, or Serial interface

RECOMMENDATIONS

- 17” Touch Screen Monitor
 - 1024x768 resolution can be very difficult to read on a monitor smaller than 17”

OFFICE PRINTERS

Most documents printed from PracticeStudio® use a regular office printer.

REQUIREMENTS

- Minimum 6 to 8 page per minute laser printer
- A duty cycle of at least 30,000 pages per month
- Printer drivers that are included with Windows XP or Windows Vista
 - Printers with drivers that are not included with Windows XP / Windows Vista or have not passed the Windows Hardware Quality Lab (WHQL) will not be supported

RECOMMENDATIONS

- Laser Printers are recommended over InkJet Printers for many reasons including speed and duty cycle

PRESCRIPTION OR LAB ORDER PRINTERS

Prescriptions and Lab Orders can be printed from PracticeStudio® and require a special printer.

REQUIREMENTS

- Printer drivers that are included with Windows XP or Windows Vista
 - Printers with drivers that are not included with Windows XP / Windows Vista or have not passed the Windows Hardware Quality Lab (WHQL) will not be supported

RECOMMENDATIONS

- “Auto-Cut” feature included with printer
- 10 Rolls of paper minimum
- Recommended models:
 - Star Micronics 800 Series Printer (Thermal Printer)
 - Ithaca POSjet 1000 Printer (Ink Jet)

SCANNERS

A scanner is needed scan documents into the system using the Patient Media module.

REQUIREMENTS

- TWAIN compliant drivers
- Transparency adapter if scanning X-Rays

RECOMMENDATIONS

- Canon DR-2580C or TWAIN compliant 30+ ppm high-speed scanner

POINT OF SALE DEVICES

There are three hardware components that are supported for point-of-sale from within PracticeStudio®.

CASH DRAWER

- OPOS (OLE for Point Of Sale) Compliant USB Cash Drawer
- Recommended brand – MS-Cash Drawer

MAGNETIC STRIP READER (CREDIT CARD SWIPER)

- OPOS (OLE for Point Of Sale) Compliant USB Magnetic Strip Reader
- Recommended brand – ID Tech

SIGNATURE PAD

- Topaz Siglite 4x3 LCD, dual serial/HID USB, back light LCD display, RoHS
- Model Number: **T-LBK750-BHSB-R**

DIGITAL CAMERAS

A Digital Camera allows a picture to easily be added to a patients file.

REQUIREMENTS

- TWAIN compliant drivers
- Non-proprietary image file format
 - The camera must use a standard file format (JPEG, TIFF, BMP, PNG, etc.)

RECOMMENDATIONS

- Cameras that allow Windows XP/Vista to see the storage as a drive are best.

ANTI-VIRUS SOFTWARE

Due to virus signature mismatches, special consideration must be taken with Anti-Virus software.

REQUIREMENTS

- Anti-Virus software that can exclude the PracticeStudio® directory and the temp directory
- Anti-Virus can NOT be run in an active mode on the PracticeStudio® server or on PracticeStudio® workstations.
- Active virus scanning Scheduled scanning is supported.
- Active e-mail scanning is also supported, provided the e-mail server is independent of PracticeStudio® (it is not used as a PracticeStudio® workstation or server)

PracticeStudio X10 on Windows XP vs. Windows Vista

There are some notable differences between the two OS versions and how certain virus packages treat temporary files. The security changes drastically between XP and Vista especially in the area of temporary files and the permissions granted. On XP, the temporary files for each logged in user MUST be added to the exception list otherwise an error may occur when running X10 reports. You will know when you need to add these exceptions as most reports will produce an error indicating a temporary DLL file is not found. It would look something like this:

```
FileNotFoundException  
Could not find file 'c:\Documents and Settings\UserName\Local Settings\Temp\ckpcu_rr.dll'
```

Note that the file name as well as the temp path will change based on the logged-in user. Once the exceptions are added to the anti-virus software, this error will go away.

Important Note: This same scenario on a Windows Vista machine does not persist and the exceptions typically do not have to be added.

Conclusion

PracticeStudio X10 has been tested on a Windows Vista machine with each of the following anti-virus packages: AVG, McAfee Corporate, and Symantec EndPoint. In all cases, once properly setup, PracticeStudio X10 worked while real-time anti-virus was turned on. That being said, it is STILL recommended to disable the real-time anti-virus software as there will always be undesirable behavior at some point. But in the instances where this is not an option, it is possible

to make these work in concert. Again, it is strongly recommended to disable real-time anti-virus software to help with performance and stability in the Windows environment.

VOICE RECOGNITION

A 3rd party Voice Recognition software suite can be interfaced with the ScribeMate module of PracticeStudio.

REQUIREMENTS

- None

RECOMMENDATIONS

- Dragon Naturally Speaking v6.0 or greater

CONCLUSION

This document lists the PracticeStudio® hardware specifications for many different categories as well as recommendations where appropriate. These requirements and recommendations must be followed in order for PracticeStudio® to operate properly.

Acknowledged Receipt of Hardware Requirements and Recommendations

The undersigned hereby acknowledges receipt of the PracticeStudio® Hardware Requirements and Recommendations document, and also acknowledges that unless these requirements and recommendations are followed and implemented at the clinic, the PracticeStudio® software will not function as designed and could potentially result in lost or corrupt data.

Signed By: _____ Date: _____

Printed Name: _____

