



PracticeStudioX11[®]

HARDWARE REQUIREMENTS & RECOMMENDATIONS



HARDWARE REQUIREMENTS 07-25-2011

TABLE OF CONTENTS

INTRODUCTION	3
SERVER SPECIFICATION QUICK REFERENCE	3
DEDICATED FILE SERVER SPECIFICATIONS	4
SQL EDITION SPECIFICATIONS	5
TERMINAL SERVICES SERVER SPECIFICATIONS	6
WORKSTATION SPECIFICATIONS	7
OPERATING PRACTICESTUDIO® FROM A TABLET PC	8
NETWORK SPECIFICATIONS	9
MODEM SPECIFICATIONS	10
MAILROOM (FAX SERVER)	10
OTHER SPECIFICATIONS	11
TOUCH SCREEN MONITORS	11
OFFICE PRINTERS	11
PRESCRIPTION AND LAB ORDER PRINTERS	11
SCANNERS	12
POINT OF SALE DEVICES	12
DIGITAL CAMERAS	12
ANTI-VIRUS SOFTWARE	12
VOICE RECOGNITION	13

INTRODUCTION

This document serves as the primary source for hardware requirements and recommendations for the PracticeStudio® X11 suite of products. The *requirements* listed must be followed for PracticeStudio® X11 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 to determine 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® X11 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.

	1-20 Concurrent Users	21-50 Concurrent Users	Over 50 Concurrent Users
1-50 Patients per Day	Server Level 1 SQL Level 1	Server Level 2 SQL Level 1	Server Level 3 SQL Level 1
51-500 Patients per Day	Server Level 1 SQL Level 2	Server Level 2 SQL Level 2	Server Level 3 SQL Level 2
Over 500 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 Dual-Core Processor, 8 GB RAM, 64-bit Windows Server operating system
- **Server Level 2** – Xeon Quad-Core Processor, 16 GB Ram, 64-bit Windows Server operating system
- **Server Level 3** – Dual Xeon Quad-Core Processors, 32 GB Ram, 64-bit Windows Server operating system

SQL SERVER EDITIONS

- **SQL Level 1** – SQL Server 2008 Workgroup Edition
- **SQL Level 2** – SQL Server 2008 Standard Edition
- **SQL Level 3** – SQL Server 2008 Enterprise 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
- 64-Bit Microsoft Windows Server 2008 Standard or higher
- CD-ROM drive
- Tape Backup with enough capacity to back up 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 to unreliable CD/DVD media and the limited capacity of these devices
 - 7 Tapes
 - Full daily backups
 - Incremental backups (including most automated off-site or online backup solutions) are **not** recommended
- All workstations must have Full Control NTFS permissions and Full Control share permissions to the shared PracticeStudio® Data folder
- 100Mbps PCI or onboard Network Interface Card capable of supporting full-duplex operation
- Uninterruptible Power Supply

RUNNING GUIDELINES

- The PracticeStudio® system **must** exist in a Domain environment (**not** a Workgroup environment)
- The PracticeStudio® server should **not** be used as a workstation
- The PracticeStudio® server should **not** perform network infrastructure tasks (e.g. 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 can be used)
- The backup process should utilize full, daily backups
 - Incremental backups, including automated off-site or online incremental backups, are **not** recommended

HARDWARE REQUIREMENTS (UP TO 20 CONCURRENT USERS)

- Intel Xeon Dual-Core Processor or AMD Equivalent
- 8GB RAM

HARDWARE REQUIREMENTS (21-50 CONCURRENT USERS)

- Intel Xeon Quad-Core Processor or AMD Equivalent
- 16GB RAM

HARDWARE REQUIREMENTS (50+ CONCURRENT USERS)

- Dual Intel Xeon Quad-Core Processors or AMD Equivalent
- 32GB RAM+

COMMON RECOMMENDATIONS

- Sound Card with Speakers

SQL EDITION SPECIFICATIONS

PracticeStudio® X11 uses SQL Server as a database backend. The SQL Server edition required depends on the average growth and daily use of the system, which can be roughly measured using the average number of patients per day.

UP TO 50 PATIENTS PER DAY

- SQL Server 2008 Workgroup Edition

51 – 500 PATIENTS PER DAY

- SQL Server 2008 Standard Edition

OVER 500 PATIENTS PER DAY

- SQL Server 2008 Enterprise 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 Dual-Core Xeon processor or AMD Equivalent
- 8GB RAM

REQUIREMENTS (8-16 THIN CLIENTS)

- Intel Quad-Core processor or AMD Equivalent
- 16GB RAM

REQUIREMENTS (17-25 THIN CLIENTS)

- Dual Intel Quad-Core processors or AMD Equivalents
- 32GB RAM

REQUIREMENTS (MORE THAN 25 THIN CLIENTS)

- It is not recommended to host more than 25 thin clients on a single terminal server; instead, it is recommended to use multiple terminal servers in a load-balanced environment

COMMON RECOMMENDATIONS

- Sound Card with Speakers
- Citrix is not needed with Windows Server 2008 Terminal Services if the thin clients will access the terminal server over a VPN
- 500 GB HD space
- 80GB available HD space
- DirectX 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 Patient Media module
 - 7 Tapes
 - Backup to a CD or DVD drive is not recommended due to 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 PracticeStudio Data folder
- Uninterruptible Power Supply
- Windows Server 2008 Standard or higher

WORKSTATION SPECIFICATIONS

These specifications apply to computers that will run PracticeStudio® on a daily basis and are not used as the file server.

Note: Professional, Business, or Ultimate edition operating systems are required to load the PracticeStudio® client. Home Edition operating systems are **not** supported for use as PracticeStudio® workstations.

WORKSTATION REQUIREMENTS

- Supported Operating Systems:
 - Microsoft Windows XP Professional with Service Pack 2
 - Microsoft Windows Vista Business / Ultimate
 - Microsoft Windows 7 Business / Ultimate
- Intel Pentium Dual-Core processor or AMD equivalent
- 1 GB RAM
- 20GB available HD space
- Video card capable of supporting 1024x768 resolution at 16-bit color depth
- Monitor capable of supporting 1024x768 resolution at 16-bit color depth
- 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

- 2+ GB 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 be used primarily with PracticeStudio® EMR (charts)

OPERATING PRACTICESTUDIO® FROM A TABLETPC

In many installations, using TabletPCs is 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 or Windows 7 Business Edition or higher
 - Pentium Dual-Core or AMD equivalent
 - 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
- 2+ GB RAM
- 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, which tethers the TabletPC to a wall
- 1 external CD/DVD drive total
 - Most TabletPCs do not have a built-in CD or DVD-ROM drive
- 1 package extra styluses per TabletPC
 - Most TabletPCs require a proprietary stylus; the styluses are small and prone to misplacement, 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.

SOFTWARE REQUIREMENTS

- The network **must** operate in a Domain Environment
 - Workgroup Environments are **not** supported due to limitations in file sharing, permissions, and credential management
- When using a wireless network, the network must be configured to encrypt network traffic using a HIPAA-compliant encryption protocol

HARDWARE 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

PracticeStudio® has an optional Fax Server component that can be managed from any PracticeStudio® workstation.

Note: Mainpine fax modems are the **only** fax modems supported for use with the PracticeStudio® Fax Server. This requirement ensures the reliability necessary for use in a clinical environment.

REQUIREMENTS

- Mainpine fax card*
 - 1-port fax interface card is sufficient for outbound-only setups (sending faxes only)
 - 2-port fax interface card is recommended for bi-directional setups (sending and receiving faxes)
- Fax card **must** be installed into a PracticeStudio® Workstation or Server
- Dedicated phone line to the Fax Server that does not run through the office PBX (phone system)
 - In a bi-directional setup, two dedicated lines are recommended (one for in-bound faxes, one for out-bound)

* - Mainpine fax cards are internal cards that can be installed onto any single workstation or server within the clinic environment (typically the workstation or server with most convenient access to the dedicated phone lines themselves). Once installed and configured, the fax server can be maintained from any PracticeStudio® Workstation or Server that has been granted the appropriate privileges within PracticeStudio®.

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, Windows Vista, or Windows 7
 - Printers with drivers that are not included with Windows XP / Vista / 7 or that 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® but require a special printer.

REQUIREMENTS

- Printer drivers that are included with Windows XP, Windows Vista, or Windows 7
 - Printers with drivers that are not included with Windows XP / Vista / 7 or that 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)

LABEL OR APPOINTMENT CARD PRINTERS

Address labels and appointment cards may be printed individually using specialized printers.

RECOMMENDED MODELS

- Dymo Labelwriter Twin Turbo
 - Allows both appointment cards and labels to be printed without swapping paper.
- Dymo Labelwriter Turbo
 - Same functionality as Twin Turbo, but requires changing paper to switch between appointment cards and patient labels

SCANNERS

A scanner is needed to 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 patient's 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/7 to see the storage as a drive

ANTIVIRUS SOFTWARE

Because of virus signature mismatches, special consideration must be taken with Antivirus software.

REQUIREMENTS

- Antivirus software that can exclude the PracticeStudio® directories (both server and client) and the temp directory
- Antivirus can **NOT** be run in an active mode on the PracticeStudio® server or on PracticeStudio® workstations
- Scheduled scanning is supported
- Active email scanning is also supported, provided the email server is independent of PracticeStudio® (it is not used as a PracticeStudio® workstation or server)
- Using bundled Antivirus / Antimalware / Intrusion Detection software that is designed for a business environment **is** recommended rather than obtaining separate products for each purpose
- **Note:** The only personal-level (i.e. non-corporate) antivirus software supported for use with PracticeStudio® is Microsoft Security Essentials.

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: _____



MicroFour, Inc.
7118 I-40 West, Bldg D
Amarillo, TX 79106
www.micro4.com

Copyright © 2011 MicroFour, Inc (document version 0725.2011). All rights reserved. Unpublished rights reserved under U. S. copyright laws. MicroFour and the MicroFour logo are trademarks of MicroFour, Inc. All other trademarks are property of their respective owners. ® indicates registration in the United States. Specifications are subject to change without notice. Printed in the U.S.A.