HARDWARE SPECIFICATIONS

1. Database Server

Component / Number of users	1–10 users	11–25 users	26–50 users	51–99 users	100+ users
Processor – Recommended*	4 Cores @1.6 GHz+	8 Cores @1.6 GHz+	8 Cores @2.26 GHz+	8 Cores @2.26 GHz+	16 Cores @2.26 GHz+
Processor – Minimum*	2 Cores @1.6 GHz+	4 Cores @1.6 GHz+	4 Cores @1.6 GHz+	4 Cores @1.6 GHz+	8 Cores @1.6 GHz+
Single Thread score of Processor#	1450 or above	1450 or above	1450 or above	1450 or above	1450 or above
Memory / RAM – Recommended	16 GB (frequency: DDR4 - 2933)	32 GB (frequency: DDR4 - 2933)	64 GB (frequency: DDR4 - 2933)	64–128 GB (frequency: DDR4 - 2933)	128–160 GB (frequency: DDR4 - 2933)
Memory / RAM – Minimum	8 GB (frequency: DDR4 - 2400)	16 GB (frequency: DDR4 - 2400)	32 GB (frequency: DDR4 - 2400)	64 GB (frequency: DDR4 - 2400)	128 GB (frequency: DDR4 - 2400)
Disk Configuration	● RAID level 1+0 is recommended for optimal performance ● Minimum required is RAID level 5				
Hard Drive – Total Storage (Should be capable of adding more storage)	500 GB SSD SAS-3 (12 Gbps)	1 TB SSD SAS-3 (12 Gbps)	1.5 TB SSD SAS-3 (12 Gbps)	2 TB SSD SAS-3 (12 Gbps)	3 TB SSD SAS-3 (12 Gbps)
	● Recommended Storage for IMS Database drive - PCIe NVMe 3.0 SSD				
Operating System	● Windows® Server 2012 Standard ● Windows® Server 2016				
Network Adapter (1 Gbps)	2 Adapter	2 Adapter	4 Adapter	4 Adapter	4 Adapter
Internet Connectivity	● The server must be connected to the Internet via a high-speed Internet connection (minimum 10 Mbps).				
Notes	● This server should only host IMS software database server. ● To match HIPAA compliance requirements, you can choose any disk encryption method supported by Microsoft Windows Operating Systems.				

HARDWARE SPECIFICATIONS

2. Citrix/2X/Terminal Server (for remote connections)

Component / Number of users	1–10 remote users	11–25 remote users	26–50 remote users	51–99 remote users	
Processor – Recommended*	8 Cores @1.6 GHz+	8 Cores @2.26 GHz+	8 Cores @2.26 GHz+	16 Cores @2.26 GHz+	
Processor – Minimum*	4 Cores @1.6 GHz+	4 Cores @1.6 GHz+	8 Cores @1.6 GHz+	8 Cores @2.26 GHz+	
Single Thread score of Processor#	1450 or above	1450 or above	1450 or above	1450 or above	1450 or above
Memory / RAM – Recommended	16 GB DDR4 - 2933	32 GB DDR4 - 2933	64 GB DDR4 - 2933	128 GB DDR4 - 2933	
Memory / RAM – Minimum	12 GB DDR4 - 2400	24 GB DDR4 - 2400	48 GB DDR4 - 2400	96 GB DDR4 - 2400	
Disk Configuration	● RAID level 1+0 is recommended for optimal performance ● Minimum required is RAID level 5				
Hard Drive – Total Storage (Should be capable of adding more storage)	160 GB SSD SAS-3 (12 Gbps)	250 GB SSD SAS-3 (12 Gbps)	320 GB SSD SAS-3 (12 Gbps)	500 GB SSD SAS-3 (12 Gbps)	
Operating System	● Windows® Server 2012 Standard (along with Terminal Server and Client Access License) or ● Windows® Server 2016				
Network Adapter (1 Gbps)	2 Adapter	2 Adapter	4 Adapter	4 Adapter	
Internet Connectivity	● Business-class broadband Internet connection with 150 Kbps bandwidth per user required for online services.				

+**Note:**
- **The cores mentioned here are physical cores.**
- **If the server is based on virtual environment, consider the following factors for configuring the servers:**
  - Number of physical processor/core vs virtual core assigned
  - Number of other VM that are setup on the same host
- **We do not recommend excessive virtual cores on actual physical processor**

#You can check the single-thread score of the CPU using the following link. https://www.cpubenchmark.net/singleThread.html

HARDWARE SPECIFICATIONS

3. Web Applications Server

Component	Minimum Specifications
Processor	Quad-core (4 cores, 1.6 GHz+ or later)
Memory / RAM	8 GB
Hard Drive	80 GB
Operating System	● Windows® Server 2012 Standard ● Windows® Server 2016
Internet Connectivity	● Broadband Internet connection (10Mbps) ● Static IP address ● Port 80 and 443 should be open
Network Adapter	2 Adapter
Sybase License	1 Sybase license is required to allow Web Server to connect to IMS DB server

HARDWARE SPECIFICATIONS

4. Workstations

Component	Minimum Specifications	Recommended Specifications*
Processor	Intel® i5, 2.70 GHz+	Intel® i7, 2.40 GHz+
Memory / RAM	4 GB	8 GB
Hard Drive	120 GB	250 GB SSD
Operating system	Windows 7 / Windows 8 / Windows 10	
Wired Network	1000 Mbps Ethernet or higher	1000 Mbps Ethernet or higher
Wireless (Wi-Fi)	802.11G or higher	802.11N or higher
Router / Firewall	Secure encrypted connectivity for communication between facilities is required using an IPsec VPN enabled router.	
Ports	The following ports are used for sending and receiving claims through IMS. ● ENS Professional: 3566 ● ENS Institutional: 22 ● AVAILITY: 9922 ● REALMED: 22	

*Recommended for workstations using services like scanning,Dragon dictation, Word Processing, hardware interfaces etc.

The following factors can impact system performance:
● Firewall/antivirus software (even if virus scan is not running, it will scan each file that is downloaded and opened or scanned and saved)
● Insufficient RAM memory
● Hard drive encryption
● Multiple network hops
● Slow network / more traffic on network
● Low space on system partition or working partition
● Background process for services like backup and monitoring.
● Absence of proper system maintenance.

HARDWARE SPECIFICATIONS

5. Peripheral Hardware Specifications

Printers	
Printer	● PCL5 - compatible network printer (All-in-one devices should not be used as a scanner but can be used for printing.)
Label Printer	Dymo LabelWriter 450 Turbo (Single ribbon only. Double ribbon not supported) Zebra ZD410 ● Over the RDP/2x/Citrix sessions, it is mandatory that printer redirects through manufacturer's driver. ● If not using manufacturer's driver then TS Printer is required for proper printer redirection over the remote session.
CHDP Printer	Windows compliant laser printer. We recommend the OKI MICROLINE® 420 **(This unit can work on multiple drivers. Install IBM Pro printer roman 3 drivers. We recommend this for a busy practice.)**
Rx Printers	Brother LaserJet 2170N network printer (to use with non-padded Rx scripts), if you would like to print Rx pads.
Display Devices	
Resolution	Minimum required resolution of the display devices is 1024x768
Scanners and Imaging	
Scanner	Any Twain-compatible scanner is compatible with IMS
Card scanner	DocketPORT DS687 - Duplex DocketPORT PS467 - Simplex
Barcode scanner	Any plug-n-play barcode scanners

HARDWARE SPECIFICATIONS

Signature pad	For use with locally hosted server: ● Topaz model: T-LBK755SE-BBSB-R ● Topaz model: T-LBK755SEBH or T-LBK750SEBH ● Topaz SignatureGem SE 4X5 ● Topaz SignatureGem SE 4X3 ● Topaz SignatureGemSE 4X3 TM-LBK755-BHSB For use with remotely hosted server: ● Topaz model: T-LBK755SE-BBSB-R ● Topaz model: T-LBK755SEBH and the T-LBK750SEBH ● Requires serial cable kit.Topaz part number A-CSA4-2 Note: ● If you disconnect the signature pad from its USB power port, reconnect it to the same USB power port.
Web camera	Any Plug-n-Play webcam, USB 2.0 or higher
Medical devices	
Vital Signs	Welch Allyn – Spot Vital Signs – Lxi Midmark
FeNO (Fractional Nitric Oxide)	Niox Device
Laser Device and Advanced Image analysis system	Hamilton Thorne
EKG	Midmark
Immunoassay Analyzer	● Immulite 1000 ● Immulite 2000 XPi ● Roche Cobas e411 ● Tosoh AIA - 360 ● Tosoh AIA - 900
Spirometry	● Midmark ● Morgan Scientific (Spirometer model is the pneumotrac 6800 with ComPAS software)
Glucose Meter Interface	IDI (Intelligent Diabetic Interface)
Ultrasound Machines	Any ultrasound machine that can generate DICOM files and have internet access
Fluoroscopic/X-ray devices	Any fluoroscopic device that can generate DICOM files and have internet access

HARDWARE SPECIFICATIONS

Network	
Router / Firewall	Discretion of local IT technician For better performance, we recommend Gigabyte switches and routers (10/100/1000)
Networking	Hardwiring your office to the Internet is always the best solution. However, if you seek the convenience of wireless PCs, you do have the option of using them through a Terminal Services connection to a computer that is hardwired to the Internet. Setting up a simple remote connection will give you the flexibility of wireless internet with the dependability of a hardwired Internet connection.
URLs to be whitelisted	● services.meditab.com ● api.medpharmservices.com ● portal.medpharmservices.com ● mps.auth0.com ● *.googleapis.com ● *.google.com ● static.opentok.com

Backup
You are responsible for keeping your data safe and secure. In the unfortunate event that it's compromised, data recovery may be difficult and costly. Backing up your files is the best thing that you can do to protect your office's data, safeguard your patients' information, and preserve your paperless environment. And your understanding of the backup process is crucial to successful data recovery. We strongly encourage that you hire an IT professional to handle your backups. Have a qualified IT technician reach out to our technical support team so that we can help you come up with a unique and customized disaster recovery plan for your office

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SaaS Hardware specifications: https://www.imsclientconnect.com/download/Saas_HW_specificaation_19122018.pdf