Hardware Specifications

IMPROMED®

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Introduction

Impromed hardware standards are determined by evaluating currently available hardware. We've provided two options for each hardware standard—good and best. Good hardware will get you through the immediate future. Best hardware will be more likely to last longer in the future. Covetrus® reserves the right to modify or change the recommended hardware specifications at any time without prior notice.

Covetrus provides support for Impromed (Infinity) and Impromed Equine (Triple Crown) practice management software. When necessary, versions will be listed to ensure that the requirements needed are accurate for all supported versions of the software.

Covetrus recommends business-class computers and printers. Covetrus hardware offers approved and tested models. Discount store, home quality and (non-professional) custom-built machines are not recommended. Before making the decision to buy a custom-built machine from a non-commercial company, please ensure they are properly certified and that they use only the highest quality, business class components.

Using home-based components is highly discouraged. Purchasing business-class machines will increase reliability, performance and productivity within your office. Covetrus cannot reasonably guarantee compatibility with every printer brand and model. Please consult with our hardware sales team for information.

If your business is storing large quantities of binary information (images, forms, and take-home instructions) within the database, Covetrus recommends the use of a dedicated server. Storing large quantities of binary information within a database requires the server to use more resources to manage the database and may yield less than desirable operating performance when using a non-dedicated server.

Impromed Server Specifications

Non-dedicated Servers 1 – 10 Users		
	Good	**Best**
Processor	Intel® i7 - 10700 2.9GHz w/ TPM Motherboard *	Intel i7-12700 1.6GHz w/ TPM Motherboard *
Operating System	Windows 11 Pro (64-bit)	Windows 11 Pro (64-bit)
Memory	32GB DDR4-2400	128GB DDR5-5600 UDIMM
Storage	2 - 1TB SATA III 6Gb/s SSD -RAID 1	2 - 2TB SATA III 6Gb/s SSD RAID 1
Networking	Gigabit Ethernet	2.5G Ethernet
Video	Onboard VGA 1920 x 1080	HDMI™ and Display Port (w/ VGA Adapter)
Optical Drive	SATA DVD-R/W	SATA DVD-R/W
Power Supply	650W	650W
Monitor	22" LCD/LED	22" LCD/LED
Battery Backup	1000 VA BBU	1000 VA BBU
Devices	USB keyboard and mouse	USB keyboard and mouse
USB Ports	2 USB 3.0 and 4 USB 2.0	2 USB 3.2 Gen 2, 1 USB 3.2 Gen 1, 4 USB 2.0

The AMD processor with a similar core count and speed is acceptable in lieu of the Intel processor.

IMPROMED HARDWARE SPECIFICATIONS

Domain Servers 1 – 15 Users (no terminal services)		
	Good	**Best**
Processor (Hyper-threaded)	Intel i7 - 12700 2.1GHz w/ TPM Motherboard*	Single Intel Xeon® E-2356G 3.2GHz*
Operating System	Server 2019	Server 2022
Memory	64GB DDR4 -3200 Non-ECC	128GB DDR4-3200 ECC UDIMM
Storage	2 - 2TB SATA III 6Gb/s SSD - RAID 1	4 - 2TB SAS 12Gb/s HDD - RAID 5
RAID Controller	Onboard VGA port or VGA Adapter	PCIe 12Gb/s w/ cache & BBU
Networking	Gigabit Ethernet	Dual Gigabit Ethernet (PAIRED)
Video	Onboard VGA port or VGA Adapter	Onboard VGA port or VGA Adapter
Optical Drive	SATA DVD-R/W	SATA DVD-RW
Power Supply	500W	668W
Monitor	19" LCD/LED	22" LCD/LED
Battery Backup	1000 VA	1500 VA
Virtual Machines (VM)	VDC1 & VSQL	VDC1 & VSQL
Recommended VM Replication Server	Yes	Yes
USB Ports	*2 USB 3.0 and 4 USB 2.0*	*2 USB 3.2 Gen 1 and 4 USB 2.0*

* The AMD processor with a similar core count and speed is acceptable in lieu of the Intel processor.

VM Replication, unlike simple SQL data replication, requires both host servers are running the same operating system.

IMPROMED HARDWARE SPECIFICATIONS

Domain Servers 15 – 25 Users		
	Good	**Best**
Processor (Hyper-threaded)	Single Intel Xeon E2246G 3.6GHz*	Single Intel Xeon E-2356G 3.2GHz*
Operating System	Server 2019	Server 2022
Memory	64GB DDR4-3200 ECC UDIMM	128GB DDR4-3200 ECC UDIMM
Storage	4 x 1TB 12Gb/s SAS HDD - RAID 5	4 x 4TB 12Gb/s SAS HDD - RAID 5
RAID Controller	PCIe 12Gb/s w/ cache & BBU	PCIe 12Gb/s w/ cache & BBU
Networking	Dual Gigabit Ethernet (PAIRED)	Dual Gigabit Ethernet (PAIRED)
Video	Onboard VGA Port	Onboard VGA Port
Optical Drive	SATA DVD-RW	SATA DVD-RW
Power Supply	650W	668W
Monitor	19” LCD	22” LCD/LED
Battery Backup	1500 VA	1500 VA
Virtual Machines (VM)	VDC1 & VSQL (or VTS)	VDC1 & VSQL (or VTS)
Backup DC as a VM on a replication server recommended	Yes	Yes
RDS (Terminal Services) as a VM on a replication server recommended	Yes (VDC2 \ VTS)	Yes (VDC2 \ VTS)
USB Ports	2 USB 3.0 and 4 USB 2.0	2 USB 3.2 Gen 1 and 4 USB 2.0

The AMD processor with a similar core count and speed is acceptable in lieu of the Intel processor.

VM Replication, unlike simple SQL data replication, requires both host servers are running the same operating system.

Domain Servers 25+ Users	Good	Best
Processor (Hyper-threaded)	Single Intel Xeon E-2356G 3.2GHz*	Intel Xeon SILVER 4309Y 2.8GHZ*
Operating System	Server 2019	Server 2022
Memory	128GB DDR4-3200 ECC UDIMM	256GB DDR4-3200 ECC RDIMM
Storage	4 - 2TB SAS 12Gb/s HDD	4 - 4TB SAS 12Gb/s HDD
RAID Controller	PCIe 12Gb/s w/ cache & BBU	PCIe 12Gb/s w/ cache & BBU
Networking	Dual Gigabit Ethernet (PAIRED)	Dual Gigabit Ethernet (PAIRED)
Video	Onboard w/ VGA port	Onboard w/ VGA port
Optical Drive	SATA DVD-RW	SATA DVD-RW
Power Supply	668 W	Redundant Dual 900W
Monitor	22" LED/LCD	22" LED/LCD
Battery Backup	1500 VA	1500 VA
Virtual Machines (VM)	VDC1 & VSQL	VDC1 & VSQL
Recommended VM Replication Server	Yes (VDC2 as a backup domain controller)	Yes (VDC2 as a backup domain controller)
RDS (Terminal Services) as a VM on a replication server recommended	Yes (VDC2 \ VTS)	Yes (VDC2 \ VTS)
USB Ports	2 USB 3.0 and 4 USB 2.0	2 USB 3.2 Gen 1 and 4 USB 2.0

The AMD processor with a similar core count and speed is acceptable in lieu of the Intel processor.

VM Replication, unlike simple SQL data replication, requires both host servers are running the same operating system.

IMPROMED HARDWARE SPECIFICATIONS

⚠️ **For VM replication, both servers MUST have the same host operating system.**

Virtual Machine Configuration 64 GB Baseline Recommendations (Server 2016 & 2019)	
Virtual domain controller (VDC1)	Static/Start-up 8 GB RAM, 2 Processors, 250 GB Fixed VHDx
Virtual domain controller w/ SQL (VDC1)	Static/Start-up 48 GB RAM, 4 Processors, 400 GB Fixed VHDx
Virtual SQL Server on Host w/ 64GB RAM four 1TB HDD - R5	Static/Start-up 48 GB RAM, 4 Processors, 400 GB Fixed VHDx
Virtual SQL server (VSQL) w/ Host 128GB RAM & Four 2TB HDD - R5	*Static/Start-up 96GB RAM, Four V-cores, 800GB Fixed VHDx*
Backup domain controller (VDC2)	Static/Start-up 8 GB RAM, 2 Processors, 250 GB Fixed VHDx
Virtual terminal server (VTS)	Static/Start-up 12 GB RAM, 4 Processors, 250 GB Fixed VHDx
Remote access	Impromed Support must have remote access to the host server with Administrator rights

Server Operating Systems Compatibility

Covetrus requires all operating systems to be on the most recent major release. Specified legacy versions of Impromed may run in limited functionality on newer operating systems while waiting to upgrade to new versions of Impromed.

✔ = Compatible   **X** = Incompatible   ✖ = Limited Capabilities*   **EOL** = Microsoft® ends support in 2025

Operating systems recommended for different environments

Operating System Versions	Server Environments			
	Metal Box Roles		Virtual Machine Roles	
	Non-dedicated Servers	Host Server	Domain Controller	SQL Standard or Terminal Services
Windows 11 Professional	✔	**X**	**X**	**X**
Windows Server 2016 Standard	**X**	✔	✔	✔
Windows Server 2019 Standard	**X**	✔	✔	✔
Windows Server 2022 Standard	**X**	✔	✔	✔

*Limited Capabilities indicates specified versions of Impromed and Impromed Equine may run in limited functionality on Windows servers.

Operating system versions for Impromed software

✔ = Compatible   **X** = Incompatible   ✖ = Limited Capabilities*   **EOL** = Microsoft ending support in 2027

Impromed / Impromed Equine Versions	Windows Server Standard		
	2016 **(EOL)**	2019	2022
19.10.0 - and higher	✔	✔	✔

*Limited Capabilities indicates specified versions of Impromed and Impromed Equine may run in limited functionality on Windows servers.

⚠ **If a version of Windows Server is not listed, Impromed platforms may have limited capabilities, or not function at all.**

Legacy Server Operating Systems

Any client running Microsoft Windows Server 2012R2 or older will not be able to purchase any Microsoft server related licensing. They must be running Microsoft Windows Server 2016 / 2019 / 2022, provided by Covetrus, to purchase additional Windows CALS and Terminal Services.

Workstation Specifications

Desktops		
	Good	**Best**
Processor	Intel i5 - 10400 10th Gen w/ TPM Motherboard*	Intel i7 - 12700 2.1GHz 12th Gen w/ TPM Motherboard*
Operating System	Windows 11 Pro (64-bit)	Windows 11 Pro (64-bit)
Memory	8GB DDR4-2400	16GB DDR4-3200
Storage	250GB SSD	500GB SSD
Networking	Gigabit Ethernet	Gigabit Ethernet
Video	Onboard 1920 x 1080 VGA or w/ VGA Adapter	Onboard 1920 x 1080 VGA or w/ VGA Adapter
Monitor	22" LCD/LED	22" LCD/LED
Wireless	No	No

The AMD processor with a similar core count and speed is acceptable in lieu of the Intel processor.

Impromed recommends these components as a minimum specification. Adding additional memory can prepare the practice for future releases.

IMPROMED HARDWARE SPECIFICATIONS

Tablet / Laptop / Notebook		
	Good	**Best**
Processor	Intel i5 10th Gen w/ TPM*	Intel i7 12th Gen w/ TPM*
Operating System	Windows 11 Pro (64-bit)	Windows 11 Pro (64-bit)
Memory	8GB DDR4-2400	16GB DDR4-3200
Storage	250GB SSD	500GB SSD
Networking	Gigabit Ethernet (Except Tablets)	Gigabit Ethernet (Except Tablets)
Video	On Processor	On Processor
Monitor	12.1" / 15.4" / 15.4"	12.1" / 17" / 17"
Wireless	802.11AC	802.11AX

* The AMD processor with a similar core count and speed is acceptable in lieu of the Intel processor.

⚠️ **If you are looking to use Impromed or Impromed Equine Mobile edition, please contact Covetrus Hardware Sales for specifications and review.**

Smart Devices (iPads and tablets) - Terminal Services Only	
Apps	Remote Desktop Client (supports a terminal server environment)
Adapters	802.11AX Wireless
Display	10" Touch Screen or larger

Workstation Operating Systems Compatibility

✔ = Compatible   ✖ = Incompatible   ✖ = Limited Capabilities   **EOL** = Microsoft ends support in 2025

Impromed / Impromed Equine Versions	Workstation Operating System
	Windows 11 Pro
22.22.0 and higher	✔

Note: *Older versions not listed are no longer supported on modern Windows desktop operating systems (newer than Windows 10).*

⚠ **Covetrus recommends all operating systems to be on the most recent major release.**

If a version of an operating system is not listed, Impromed platforms do NOT support it.

Microsoft® SQL

As a Microsoft Gold Independent Software Vendor, Covetrus, Inc. has the rights to distribute Microsoft SQL Server Standard Runtime at a reduced cost to its customers.

Microsoft SQL Server has updates and needs to be maintained in order to remain secure with the latest features provided by Microsoft. To ensure the integrity of the program, the Software must have its own SQL instance. Because of this close integration there exists the possibility of conflicts and the need to troubleshoot and repair certain aspects of the operating system. Below we have included tables that show what versions of SQL Server are compatible with Software and Operating Systems.

Covetrus recommends all SQL versions to be on the most recent major release.

✔ = Compatible　　**X** = Incompatible　　**EOL** = Microsoft ending support

Impromed / Impromed Equine Software Versions	SQL Version			
	2016 **EOL 2026**	2017 **EOL 2027**	2019	2022
19.10.0 and higher	✔	✔	✔	✔

Your version of Impromed may be labeled Infinity. Impromed Equine may be labeled Triple Crown.

All SQL versions listed are standard and above. Impromed and Impromed Equine are not supported using any SQL Express release.

In the table below, the service pack numbers correspond to the Operating System, not the SQL service packs. After installing any SQL, please make sure to install any available service packs.

✔ = Compatible   **X** = Incompatible   **EOL** = Microsoft ending support

Operating System Versions	SQL Version			
	2016 **(EOL 2026)**	2017 **(EOL 2027)**	2019	2022
Windows 11 Professional	**X**	✔	✔	✔
Windows Server 2016 **(EOL 2027)**	✔	✔	✔	✔
Windows Server 2019	✔	✔	✔	✔
Windows Server 2022	**X**	✔	✔	✔

⚠ **For database replication, both servers MUST have identical SQL versions between the servers.**

Networking Specifications

Network outlets

All desktops and domain servers should have their own network outlets. Each network device (server, workstation, printer, print server and/or router) should have their own dedicated line to the main network switch the server is connected to. If there are multiple network ports on the server, each one needs an independent line to the main network switch.

Switches

Gigabit switch along with Cat 5e or Cat 6 cables. Make sure you have enough ports on your switch to support all computers, routers, printers, and print servers.

Routers

Industry standard routers along with a Cat 5e or Cat 6 cable. If multiple locations are being used, please use VPN Routers.

Wireless	
Wireless Router*	Wireless performance depends on the practice environment (Wireless interference reference: **https://www.actiontec.com/wifihelp/wifi-networking/interference-affecting-wireless-network/**). Please use the standards for an 802.11N Network. Wireless routers should be rated for 802.11AC with a minimum rating of AC1700.
Wireless Antenna*	
Display*	

*Covetrus does not support or recommend any desktop workstations using wireless connections. Wireless mesh networks are supported with terminal connections only.

Additional Hardware Specifications

Data backups

We recommend three external USB hard drives: one daily (data backup), two weekly complete system state image backups. One of the weekly backups should be rotated off premise each week. Covetrus Local Backup and Covetrus Online Backup can be used as an effective solution to facilitate local and online backups. Refer to **"Data Backup" on page 20** for more information about backup solutions.

Document Printers

Business grade printers with driver support for current Windows Server and Workstation Operating Systems. Impromed and Impromed Equine work best when using PCL based drivers.

Print Servers

Use Print Servers when possible so printers are not directly connected to the workstations using them. If the Print Server is NOT built into the printer, please ensure the printer functions can be supported using a print server by checking with the printer manufacturer (i.e. DYMO printers do not work with most common USB print servers because of their power save feature).

Label printers

- Zebra ZD411 (203dpi) USB only

If any label printer is selected outside of the above models, additional charges for label formats and testing may occur. We do not support Internal printer network, wireless or Bluetooth® modes of printing.

Signature pads

- Topaz LBK462-HSB-R (USB)
- Topaz LBK462-B-R (Serial)*
- Topaz LBK462-BSB-R (USB Virtual Serial)*

*Works with Virtual/Hosted Solutions

Bar code scanner with stand

Hand held or hands free operation, used for point of- sale, document processing, inventory control, and card reading

- 650 nanometer laser reader, long range, and short range capability

Scanners

Direct to PDF, for example, either the FUJITSU Scansnap iX1300 and iX1500.

Software Specifications

Word Processor		
	Good	**Best**
Microsoft	2019 Home & Business or higher	2021 Home & Business

Please make sure that all word processing software is installed on the workstation if any integration with Impromed software is desired.

Collaboration Tools

We recommend using any reputable third party solution managed by your IT professional.

Anti-Virus

Anti-Virus only, Internet security suites are not recommended. Scans should run local drives only and installed on all servers and workstations.

Here is a sample of our firewall exclusions:

- SQL Server Services
- SQLSVR.exe (the actual program exe that runs SQL)
- SQLBrowser.exe (the SQL Browser service announcing the server name to computers on the network)
- External Integrations that run on other computers
- Impromed Universal Lab reader
- DICOM integration
- Impromed Database Manager
- Impromed Easy Updater Service - Limited to the latest releases and qualified editions

Some basic antivirus application exclusions to not be scanned, should include, but not be limited to:

- The practice management software install directory
  (i.e. [C:\Program Files (x86)\Impromed] (Note this may be different for older versions).

- Frequently accessed Files for the application i.e. the Impromed Global share:
  \\ServerName\iDocs

- The SQL Database Path i.e. C:\Impromed

- The SQL Database Backup Location i.e. C:\iBackup

Data Backup

It is your responsibility to backup your Impromed data and electronic documents. Reasons for backing up your data includes loss of data from a natural disaster, human error, computer and system failure. Covetrus provides backup solutions, but we do recommend you work with your local IT professional to come up with a disaster recovery plan and best practices for backing up your data.

Covetrus Backup Solutions

Covetrus does provide some backup solutions that can be used to backup your Impromed data. Again, please work with your local IT professional to come up with the backup solution that works best for your business.

Impromed Database Manager

Covetrus provides daily maintenance of the Impromed database with a SQL backup and check with the Impromed Database Manager (IDM). The backup can contain periodic updates throughout the day. The check is generally done outside of business hours for a veterinary business and validates the integrity of the data. For more information about the IDM, contact Impromed Support at 800.925.7171.

Data Backup

The Covetrus Data Backup provides an automated service to store your data remotely. For more information about this backup solution, contact Sales at 888.280.2221.

Support Tools

Use the Impromed Support Tools to run and verify manual backups. For more information, contact Impromed Support at 800.925.7171.

Database Replication

The Impromed/Impromed Equine Admin Tools provide an additional sense of security by ensuring data is replicated to a backup server. During a complete server loss, this secondary server can be used by all of the remaining workstations. For more information, contact Hardware Sales at 855.478.7920 opt 4.

Virtual Machine (VM) Replication

Inquire about setting up VM Replication for your dual server environment.

Appendix A: Hardware Worksheet

Please verify your hardware meets the following criteria:

☐ **Workstation specifications** are compatible with your Software version.

☐ You have installed the correct **Microsoft SQL** Version that works with the Windows Operating System installed on your server(s) and workstation(s).

☐ **Server specifications** meet or exceed the recommended requirements.

☐ Verify all of your **software specifications, networking specifications**, and **additional hardware specifications** items meet or exceed the requirements listed on the previous pages. For ease, please use this and the following pages for writing down your existing server and workstation specifications.

Internet Information	
Type:	
Provider:	
Speed:	

Support Contact for Local / Third Party Hardware

Server Information	
Processor:	
Memory:	
Drives:	
Display:	
Adapters:	
Power Supply:	
Operating System:	
Input Devices:	
Battery Backup:	
SQL Version:	

Workstations

Processor:	
Memory:	
Drives:	
Display:	
Power Supply:	
Adapters:	
Operating System:	
Input Devices:	
Battery Backup:	

Workstations

Processor:	
Memory:	
Drives:	
Display:	
Power Supply:	
Adapters:	
Operating System:	
Input Devices:	
Battery Backup:	

Workstations

Processor:	
Memory:	
Drives:	
Display:	
Power Supply:	
Adapters:	
Operating System:	
Input Devices:	
Battery Backup:	

Tablet PC / Laptop / Notebook	
Laptop / Notebook	
Processor:	
Drives:	
Table PC Display:	
Laptop Display:	
Docking Station:	

Backups

Printers

Networking	
Switch:	
Router:	
Cabling:	
Patch Panel:	

Please list as much information as possible for the following:

Additional Software (QuickBooks, Microsoft Office, etc.)

Integrations (DICOM, Labs, etc.)

Appendix B: Hosted Server Solution

Internet Information	
Type	Business Class
Speed	• Minimum upload at host for 10 remote desktop connections is 3 Mbps • For each additional 4 remote connections, add an additional 512 kbps • Remote location download speed is a minimum 10 Mbps
Networking requirements	1. Hardware/point-to-point VPN 2. Print Servers for all printers 3. Proper DNS resolution across VPN

Virtual/hosted solution

Configuration Notes

☐ Verify the servers used in the data center can access one another.

☐ Impromed Customer Support will require an administrative desktop login for each server.

☐ Printers should be installed on the Terminal Server at the data center over the VPN.

☐ VHD size for virtual or data center servers should be at least 100GB:

　☐ 30GB for OS plus 20GB Shares and growth plus 5 x initial DB size (DB + IBU {2 x DB} plus Replication snapshot {1 x DB size} plus DB Growth estimate {1 x DB Size}).

　☐ VHD that can be scaled should start at this and be increased dynamically as needed.

Advantages for virtual/hosted server solutions

• Data is located off-site to prevent failure due to in-hospital issues.

• Virtual systems are "scalable" and easily upgraded if the host setup has enough resources to spare.

• Office staff is not needed to do maintenance on the server.

• Dedicated server support team (24/7 Support of the connection to this system is required).

• Updates are faster as RDP will be needed for connections; therefore, fewer stations will need client applications updated.

Disadvantages for off-site or cloud-based hosted server solutions

- Loss of internet connection means loss of access to data and ability to do business.

- An off-site server will not be supported opening Software locally on the stations.
  It has to be over RDP.

- Owners are not in possession or control of their data/server.

  ◊ You are leasing server space and required software, if provided, by the cloud service; you own nothing.

  ◊ NO local access to backups. If a copy of your data is needed, you have wait for it to be uploaded and/or downloaded to a place where it can be accessed.

  ◊ Physical security of your client's information is no longer in the owner's hands; you have to rely on the service hired to ensure security of personal information.

- Limits the amount of support Impromed is able to provide.

- COST - For the redundant setup a data center typically provides, (duplicating servers across states and time zones) most offices cannot justify the cost.

- The backup solution will need to be reviewed with Impromed prior to the installation.

Multi-Site/Multi-Practice

- Covetrus will not support running practice management software locally on a computer when the server is in another physical location (i.e. over a VPN).

- Connection Speeds - Typically performance issues with RDP are a result of insufficient UPLOAD speeds at the offices.

Point-to-Point VPN

Covetrus recommends the use of Point-to-Point VPN between the server and the local office.

- This will help with printer connection.

- This helps with paperless/paper-light setups for scanned files and share access.

- Proper DNS resolution across VPN includes the ability for computers at the remote location to resolve the server name to IP address at the hosted location.

- Needed for all integrations including labs, lab requests, DICOM, etc.