

A photograph of a doctor in a white lab coat, wearing a stethoscope and a watch, holding a smartphone. The image is overlaid with a semi-transparent blue and purple gradient.

Provation[®] MD and Provation[®] MultiCaregiver Technical Specification

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The following information outlines the recommended hardware and third party software needed for a *typical* installation of Provation MD software, version 5.0. Sections denoted as “Beta Feature” have hardware and/or software components that are subject to change while the feature is being beta tested, defer to the “Beta Disclaimer” at the end of this document. These specifications will change based on a number of factors, including, but not limited to:

• Number of annual procedures	• Number of concurrent users
• Number of images stored per procedure	• Annual growth of procedure volume
• Features being implemented	• Back-up methodology/strategy
• Number of scanned pages per procedure	• Image quality desired

Provation MD and Provation MultiCaregiver Servers

Database Server

- Provation database resides on this server
- Windows Server 2012 R2 - Standard or Datacenter Editions
- Windows Server 2016 - Standard or Datacenter Editions
 - Support added in 5.0.420
- Windows Server 2019 - Standard or Datacenter Editions
 - Support added in 5.0.460
- Microsoft .NET Framework 4.8
- Processors:
 - Physical Servers: Two Multi-Core Processors
 - Virtual Servers: Minimum of 4 Virtual CPU's
 - See Oracle in 3rd Party Software section below for more information regarding Oracle CPU licensing
- 8 GB RAM (minimum)
- Tier/Level 1 storage for optimum performance is recommended
 - GB required based on number of procedures, images per case and documents
 - Additional storage for external Image, Attachments and RMAN store
 - Sizing may be impacted streaming video or scanning feature
 - Consult with Provation to size appropriately
- Backup solution for specified directories
 - Images and other external files that are captured during procedures are stored outside the Oracle database in order to reduce the overall size of the native Oracle database and to minimize the time associated with the database backup process.
 - Service account is required for external images storage
- Unix/Linux can be used to house the Oracle database – refer to Database Requirements document for additional information
- Server must be named using Unicode character support [(A-Z) (a-z) (0-9) and hyphens]
- Antivirus exclusions are listed below (your drive letter may vary):
 - X:\Oracle (including all sub directories)
 - X:\Export (including all sub directories)

Application Server

- Provation Web Services and application components reside on this server
- Windows Server 2012 R2 - Standard or Datacenter Editions
- Windows Server 2016 - Standard or Datacenter Editions

- Support added in 5.0.420
- Windows Server 2019 - Standard or Datacenter Editions
 - Support added in 5.0.460
- Processors:
 - Physical Servers: Two Multi-Core Processors
 - Virtual Servers: Minimum of 4 Virtual CPU's
- 8 GB RAM (minimum)
- Minimum 50 GB primary partition and 50 GB data partition
 - Some features may require additional space. Provation will help estimate if these features are identified during implementation.
- Internet Information Services (Web Server IIS Role)
- Provation MD .NET Services can be configured to run under SSL
 - Client is responsible for obtaining, configuring and maintaining the SSL certificate
 - TLS v1.2 fully supported as of update 5.0.450
- Microsoft .NET Framework 3.5 (required for the Oracle client) and 4.8
- Microsoft Visual C++ 2019 (required for the Oracle client)
- Server cannot be configured as a domain controller
- Server must be named using Unicode character support [(A-Z) (a-z) (0-9) and hyphens]
- Automated Adenoma Detection Rate Feature:
 - Server must be able to send/receive communications on <https://provation.healthlanguage.com>
- Streaming Video feature:
 - Desktop Experience Windows feature required
 - Video Repository may be located on the server or network storage
- Windows Fax Services (Fax Server Role)
- Faxing hardware required:
 - For sites with virtual servers a DIGI DEVICE ONE SP is recommended - <https://www.digi.com/products/serial-servers/serial-device-servers/digionesp>
 - Fax Modem – recommended - <https://www.usr.com/en/products/56k-dialup-modem/usr5686g/>
 - DB9 Female/DB25 Male Modem Cable
An example of this cable is Tripp Lite 6ft AT Serial Modem Cable Gold Connectors DB25M to DB9F M/F 6' Part number: P404-006
 - POTS Phone Line
- Permissions note:
 - NETWORK SERVICE and IUSR users must have full control of any Provation software application directories and files in the Inetpub\wwwroot root
 - Check the files themselves and not just the folders
 - NETWORK_SERVICE account must have full control to C:\WINDOWS\Temp\
- Antivirus exclusions are listed below (your drive letter may vary):
 - X:\Inetpub\wwwroot (including all sub directories)
 - X:\Interface (including all sub directories)
 - X:\Oracle (including all sub directories)
 - Some antivirus some may need to be disabled during initial installation or updating of the Provation software. Please work with your technical resource to determine if this is needed with your AV solution.

Test Server (Required for customers with interfaces and/or MultiCaregiver)

- Includes all software and applications residing on Database and Application Server
- Client must work with Provation to size the server appropriately
- Windows Server 2012 R2 - Standard or Datacenter Editions
- Windows Server 2016 - Standard or Datacenter Editions
 - Support added in 5.0.420

- Windows Server 2019 - Standard or Datacenter Editions
 - Support added in 5.0.460
- 4 GB RAM (minimum)
- Processors:
 - Physical Servers: Single Multi-Core Processors
 - Virtual Servers: Minimum of 2 Virtual CPU's
- Drive space should be similar to production database server
- THIS SERVER IS NOT SIZED TO BE USED IN A PRODUCTION ENVIRONMENT

Provation MD and Provation MultiCaregiver Workstations/Laptops

Provation MD: High Definition Still Image and Video Capture Workstation Specifications

- Windows 10 Enterprise/Professional
- Microsoft .NET Framework 4.8
- Intel multi-core processor (within last 2 processor generations)
- 4 GB RAM
- 80 GB free hard drive space
- Image Capture Card/Device (*see page 6 for technical specifications*)
 - dPict HDS requires a mini tower to accommodate the card
 - INOGENI requires USB 3.0
 - Magewell USB 3.0 or 2.0
- Integrated serial port OR a supported USB to Serial adapter
- Display must support minimum 1024 x 768 resolution
- Windows Media Player
- Adobe Acrobat Reader DC or greater
- Streaming Video requirements:
 - One or more Quad Core Intel processors (within last 2 processor generations)
 - 1 TB SSD drive with Max Sequential Read/Write Speeds of 500+ MB/sec
 - Video clips can be uploaded to a central video repository location for permanent storage and access from other PVMD computers. This can be done on the Provation database server or on another network storage location. Clips are compressed on the workstation then uploaded to the video repository.
 - Consult with Provation to size appropriately
 - VisioForge is the compression software and is automatically installed in version 460+

Provation MD: Note Documentation Workstation Specifications

- Windows 10 Enterprise/Professional
- Microsoft .NET Framework 4.8
- Intel multi-core processor
- 4 GB RAM
- 20 GB free hard drive space
- Video card capable of 1024 x 768 display at 32-bit color
- Display must support minimum 1024 x 768 resolution
- Windows Edge with IE Mode (if using launch MultiCaregiver from within Provation MD feature)
 - Microsoft recently announced that the Internet Explorer 11 desktop application will be retired on June 15, 2022. Microsoft Edge with IE mode (Internet Explorer mode) is officially replacing the Internet Explorer 11 desktop application on Windows 10. As a result, the Internet Explorer 11 desktop application will go out of support and be retired. Currently, Provation MultiCaregiver is fully supported on Microsoft Edge running with IE mode. After June of 2022, Microsoft Edge with IE mode will be the only supported browser for Provation MultiCaregiver.
- Adobe Acrobat Reader DC or greater
- Windows Fax Services (add-on component)
 - Only required if not faxing from the application server
 - Remote desktop not supported for Workstation Faxing
 - Fax modem is required if faxing from a dedicated Provation MD documentation workstation

Provation MultiCaregiver: Desktop/Laptop Specifications (Provation MD not supported)

- Windows 10 Enterprise/Professional
- Windows Edge with IE Mode
 - Microsoft recently announced that the Internet Explorer 11 desktop application will be retired on June 15, 2022. Microsoft Edge with IE mode (Internet Explorer mode) is officially replacing the Internet Explorer 11 desktop application on Windows 10. As a result, the Internet Explorer 11 desktop application will go out of support and be retired. Currently, Provation MultiCaregiver is fully supported on Microsoft Edge running with IE mode. After June of 2022, Microsoft Edge with IE mode will be the only supported browser for Provation MultiCaregiver.
- Microsoft .NET Framework 4.8
- Adobe Acrobat Reader DC or greater
- Intel processor (within last 2 processor generations)
- Minimum of 1 USB Port
- Integrated serial port OR a supported USB to Serial adapter (used for interface to vitals monitor)
- 8 GB of RAM
- Display must support minimum 1024 x 768 resolution
- Workstations must be able to resolve the application server by name.

General Security and Power Setting Configurations

Provation MD

- Administrative rights needed to install/update software on servers and install software on clients.
- Power settings disabled (both OS and BIOS) ¹
- Screen savers (of any kind) disabled ²
- Write access to COM1 ³
- Read/Write/Modify/Delete to C:\ProgramData\Provation Medical ⁴
- Read/Write/Modify/Delete to the <Install_drive:\Program Files\Provation Medical\5.0> directory ⁵
- Read/Write/Modify/Delete to C:\Windows\Temp\
- Read/Write/Modify/Delete to C:\Users\<Logged_In_User>\AppData\Local\Temp\
- *Roaming profiles that would revoke any of the above, disabled ⁶*

Provation MultiCaregiver

- Internet Explorer 11 settings
 - Ability to download and run signed ActiveX controls
 - Check for newer versions of stored pages every visit to the page
 - No passwords should be saved
 - Pop-up blockers disabled for Provation MultiCaregiver website
 - Enable and store cookies – cookies should not be deleted when IE is closed.
 - MultiCaregiver website may need to be added to your firewall rules
 - PCs should be enabled to sync time with Application Server
 - Auto Complete turned off
 - Compatibility view turned on for Local Intranet sites
- Read/Write/Modify/Delete to C:\Users\CurrentUser\AppData\Roaming\Provation Medical⁴
- The Provation software application server must be able to resolve nslookup commands of clients
- For more information on Internet Explorer settings please reference the Knowledge Base article: <https://community.provationmedical.com/s/article/What-are-the-recommended-settings-in-Internet-Explorer-version-11-for-MultiCaregiver>
- Microsoft Edge
 - In version 5.0.490+ we now support MultiCaregiver in the Microsoft Edge browser. Please visit this Knowledge Base article for more information and settings: <https://community.provationmedical.com/s/article/What-are-the-recommended-settings-for-Provation-Multicaregiver-MCG-to-work-within-the-Edge-browser>

Printers

Provation MD / Provation MultiCaregiver: Network Printer Specifications

- For color printing we recommend high resolution/photo quality
- Capable of collating

Provation MultiCaregiver: Label Printer Specifications

- Supported Model – Dymo LabelWriter 450
 - 1 1/8 " x 3 1/2 " - 30252 Address Labels
- For Custom Label setup please refer to your Provation technical resource

Image Capture Cards/Devices

Customers may go to the Provation Customer Community to obtain the supported driver for the image capture device:

<https://community.provationmedical.com>. Keeping a spare Image Capture device(s) is recommended.

- dPict Aexeon HDS
 - Requires PCIe x8 or x16 PCI Express slot
 - Board size is full height - 6.60"(length) x 4.20" (height)
 - Captures standard and high definition stills and video
 - 3G-SDI cable required for high definition
 - Supported on Windows 10

- INOGENI 3GSDI to USB 3.0 Converter
 - No driver installation is necessary
 - Will work on all motherboards and USB 3.0 chipsets
 - 3GSDI for HD resolution signals up to 1080p60
 - Still Image Capture supported in Provation MD version 5.0.380+
 - Video Streaming supported in Provation MD version 5.0.390+
 - Supported on Windows 10

- Magewell USB Capture SDI Plus
 - Supported in Provation MD version 5.0.430
 - Connects via BNC SD/HD/3G SDI and USB 3.0 or 2.0
 - Part number 32050
 - Supported on Windows 10

Legacy Image Capture Cards

- dPict Aexeon PCI and PCIe (Standard Definition only)

DICOM Capable Image Capture Devices

- Please refer to the Provation Customer Community for the *DICOM Conformance Statement* and the *Supported Scopes list*

Third Party Software

<p><i>Oracle Database Specifications</i></p> <ul style="list-style-type: none"> Supported Oracle Database Standard Edition versions : 12.1.0.2/12.2.0.1/19c (12.2.0.4) <ul style="list-style-type: none"> Oracle 12.2.0.1 with Provation v5.0.420+ and Windows 2016 installations Oracle 19c with Provation v5.0.460+ and Windows 2019 or Windows 2016 installations Legacy Oracle versions : 12.1.0.1 Named User licensing (check with your Sales Representative to ensure an accurate count) CPU licensing is available for clients where there are more than 100 named-users or it is not possible to get an accurate count of users Value Based Pricing is available for virtual environments Refer to the Provation Database Requirements Guide available from Provation for a more detailed outline of database requirements Server snapshots are not a supported type of backup (per Oracle). Your DBA may wish to utilize their own backup strategy. If you do not have a DBA, please consult the Provation Customer Community for more information on this topic. Please refer to this Knowledge Base for additional and updated information: https://community.provationmedical.com/s/article/What-backup-strategies-are-supported-by-Provation
<p><i>Orion Symphonia Specifications</i></p> <ul style="list-style-type: none"> Version 3.8 HL7 Message Mapper Required for some HL7 Interfaces Must be purchased directly from Provation
<p><i>Lead Technologies</i></p> <ul style="list-style-type: none"> Required for DICOM Enabled Image Capture Devices, Outbound DICOM interface and Inbound Echo DICOM SR measurements interface Must be purchased directly from Provation
<p><i>PixTools Scanning software</i></p> <ul style="list-style-type: none"> Required for scanning documents into the Provation Patient Chart Licensed per scanning workstation Must be purchased directly from Provation
<p><i>Orion Health Rhapsody Integration Engine Specifications</i></p> <ul style="list-style-type: none"> Version 5.x Required for advanced HL7 message integration (if facility does not have one) Licensed by communication point (2 minimum) Must be purchased directly from Provation
<p><i>NextGen Connect Integration Engine - Mirth</i></p> <ul style="list-style-type: none"> Version 3.x Requires Java 8 Open source Required for advanced HL7 message integration

Minimum Network Performance Recommendations

- Latency: Maximum 25ms* latency round trip on a standard ping packet
- Packet Loss: Less than 1% packet loss
- Bandwidth: Bandwidth recommendations will vary depending upon the number of concurrent users (per location)
 - The application works best on a 100 Mbps (or better) network, however, if that bandwidth is not available, Provation can provide calculations to estimate needs

*Some Provation customers have seen acceptable application performance with network latency up to 40ms. Latency beyond 40ms results in unsatisfactory application performance.

Miscellaneous Hardware

Provation Tested USB to Serial Converters

- US Converters – USB Serial Adapter (Ultimate) – Part: XS880
- Blackbox - USB Solo (USB to Serial) – Part: IC199A-R3

Remote Image Capture Foot Pedal

- Water resistant interior sealed switch
- 30' cord
- Required model – custom made and available only from Provation
- Used for signaling computer to capture image

Fluoroscopy/Endoscopic Ultrasound Switchbox

- 2 to 4-way S-Video or Composite switch box
- Includes composite and/or S-Video cables
- May include S-Video-Composite Converters

Signature Pads

- Provation MD physician signature capture
 - Used for capturing provider electronic bitmap signatures
 - Topaz SignatureGem 4x5 (Z-T-S751-B-R)
 - Connects via serial port
 - Not supported with MultiCaregiver
 - Supported in Windows 10
- Provation MultiCaregiver patient consent forms and Provation MD physician signature capture
 - Used for capturing electronic patient signatures for consent forms and provider electronic bitmap signatures
 - Required Models –
 - Topaz SignatureGem 4x5 LCD (T-LBK766SE-BHSB-R)
 - Connects via USB
 - Supported in 10
 - Topaz SignatureGem 1x5 LCD (T-L460-HSB-R)
 - Connects via USB
 - Supported in 10
 - Topaz SignatureGem 1 x 5 (T-LBK-462-BSB-R)
 - Connects via USB
 - Supported in 10

Scanning Hardware

- ISIS certified scanners are required

Consult your Provation technical resource for an estimate of drive space that will be needed to store scanned documents.

Remote Connectivity Requirements

Remote Access Options

- Preferred – SecureLink
 - Secure, auditable, and efficient remote access solution available from Provation
- Acceptable – customer provided secure remote access solution that includes source IP address security and/or 2FA via Provation email domain, encryption consistent with HIPAA best practices (i.e. AES 128 bit encryption or better), access accounts controlled by licensee, and is auditable by licensee
- Access must allow for unattended entry to server consoles
- Screen sharing programs such as WebEx, Skype, etc., are not acceptable remote access solutions for servers

Remote Hosted Practice Management Systems and/or EHRs

- Applies to customers where these systems may be located off-site and a secure communication tunnel has been established with the facility
- Remote system must be able to provide secure communication path

GoToAssist

- Users may go to <https://www.provationmedical.com/support/> from their browser and follow instructions. This program is initiated by the end user and it allows the Provation Customer Support Representative to remotely access the end users' computer.

Citrix Information

NOTE: Procurement, setup, licensing, and support of Citrix environments are the sole responsibility of the customer.

<i>Citrix</i>
<ul style="list-style-type: none"> • Hardware Requirements <ul style="list-style-type: none"> ○ Per Citrix hardware requirement ○ Testing has shown memory usage for each instance of Provation MD to be 300 MB to 350 MB of RAM • Software Requirements <ul style="list-style-type: none"> ○ Per Citrix hardware requirement ○ Provation MD has been successfully deployed by customers using Citrix versions 6.5, 7.6 and 19.09. We have had customers successfully deploy onto 7.15 but Provation has not tested against this version. • Configuration Requirements <ul style="list-style-type: none"> ○ Per Citrix software requirements • Solution Benefits <ul style="list-style-type: none"> ○ Full access low bandwidth option ○ Centralized deployment • <u>Not supported for:</u> <ul style="list-style-type: none"> ○ MultiCaregiver, image capture, video playback, document scanning, electronic signature capture using the Topaz signature pad and vitals monitor interface.

MISC

The “Tech Spec for Provation MD & MultiCaregiver” is based on current available hardware from common, commercial vendors (e.g. Dell, HP, IBM). If you have existing hardware that you feel may meet the hardware requirements for the deployment of the Provation software solution please work with Provation technical resources to discuss options.

Refer to your Customer Support Handbook for a more detailed description of the roles and responsibilities of the client for installation, maintenance, and support of hardware and 3rd party software.

Referenced Websites:

- Provation Customer Portal: <https://community.provationmedical.com/s>

Appendix A – Workstations/Laptops: General Configurations

The purpose of this appendix is to provide further information and details related to the *Workstations/Laptops: General Configurations* recommendations and requirements outlined on page 4 within this document.

¹ Power settings disabled (both OS and BIOS)

To ensure the PC does not hibernate due to lack of user interaction, which would interrupt the image capture view and processing during a procedure. Applies only to pc's used for image capture.

² Screen savers (of any kind) disabled

To ensure the PC does not introduce a screensaver due to lack of user interaction, which would interrupt the image capture view and processing during a procedure. Applies only to pc's used for image capture.

³ Write access to serial port

To enable the image capture cable from the scope image processing device to communicate with the ProVation MD image capture PC; sending the image capture signal from the scope button to the ProVation MD image capture PC. Applies only to pc's used for image capture.

⁴ Directory specific access (varies by OS)

ProVation temporarily writes files to these directories during image capture, vitals capture and note generation.

⁵ Read/Write/Modify/Delete to the <Install_drive:\Program Files\ProVation Medical\5.0> directory (ProVation MD client)

This access enables ProVation MD to run properly and to process the software maintenance updates.

⁶ Roaming profiles that would revoke any of the above, disabled

This relates to Active Directory whereby roaming files should be disabled to ensure the roaming files would not overwrite settings like disabling the screen saver, etc.

Beta Disclaimer:

“Beta” by definition is a pre-release version that is not fully qualified for general available use and continues to undergo testing prior to official release. Beta software is provided on an “as-is” and “as available” basis and exclusively at the risk of the user. ProVation Medical, Inc. is not responsible for any errors or bugs associated with the Beta software that may negatively affect users’ computer systems. ProVation Medical, Inc. makes no representations or warranties of any kind that the Beta software will operate uninterrupted or without error or that it is suitable for use in a live clinical setting. ProVation Medical, Inc. makes no representation, warranty or guarantee, express or implied, about the suitability or usability of the Beta software to or for the purposes intended by the user. Users accept any and all risks by using it. ProVation Medical, Inc. will not be held responsible or liable for any loss or damage, whether such loss or damage is direct, indirect, special or consequential, suffered by any party as a result of its use of the Beta software. By installing the Beta software the user agrees to ProVation Medical, Inc.’s foregoing disclaimer provisions. If you do not agree to this disclaimer then do not download or upload, and do not use, the beta software.

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