



COMPULINK advantage™

Minimum and Recommended Hardware Requirements



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PREFACE

This document contains minimum requirement for networking, hardware, security and other information for running Compulink Advantage products.

HARDWARE MINIMUM REQUIREMENTS

NOTE: The Charts below are only minimum system requirements, enhancements to these requirements will boost performance depending on the number of workstations, overall system and network configuration. If in doubt, check with your IT consultant or **Compulink** IT support staff at **(805) 716-8677**.

Minimum Requirements: 1 to 9 users

SERVER		
	Minimum	Recommended
Processor	Intel Dual Core or higher	Intel Core i3 or higher
<i>(Processor speed will vary based on availability and office needs)</i>		
Storage	80 GB SATA – 7200 RPM	250 GB SATA – 7200 RPM+ RAID 1 or 5 *
<i>(Storage needs are based on office requirements. Contact IT Support for assistance)</i>		
Memory	8 GB RAM	16 GB RAM
<i>(Amount of RAM or memory varies based on number of workstations and other server tasks – This amount may increase with added EHR functions)</i>		
Operating System	<ul style="list-style-type: none"> Windows 8 Pro, 8.1 Pro Windows 10 Pro, 11 Pro 	<ul style="list-style-type: none"> Windows 2012/R2 Foundation Windows 2012/R2, 2016, 2019, 2022

Minimum Requirements: 10 to 25 users

SERVER		
	Minimum	Recommended
Processor	Intel Dual Core or higher	Intel Core i5 or higher
<i>(Processor speed will vary based on availability and office needs)</i>		
Storage	250 GB SATA – 7200 RPM	500 GB SATA – 7200 RPM+ RAID 5 or 10 ¹ *
<i>(Storage needs are based on office requirements. Contact IT Support for assistance)</i>		
Memory	16 GB RAM	24 GB RAM
<i>(Amount of RAM or memory varies based on number of workstations and other server tasks – This amount may increase with added EHR functions)</i>		
Operating System	<ul style="list-style-type: none"> Windows 2012/R2, 2016, 2019, 2022 	<ul style="list-style-type: none"> Windows 2012/R2, 2016, 2019, 2022

Minimum Requirements: 25 to 50 users

SERVER		
	Minimum	Recommended
Processor	Intel Core i3 or higher	Intel Xeon or Dual Xeon
<i>(Processor speed will vary based on availability and office needs)</i>		
Storage	500 GB SATA – 7200 RPM	1TB SATA - 7200 RPM+ - RAID 5 or 10 ¹ *
<i>(Storage needs are based on office requirements. Contact IT Support for assistance)</i>		
Memory	24 GB RAM	32 GB RAM or higher
<i>(Amount of RAM or memory varies based on number of workstations and other server tasks – This amount may increase with added EHR functions)</i>		
Operating System	<ul style="list-style-type: none"> Windows 2012/R2, 2016, 2019, 2022 	<ul style="list-style-type: none"> Windows 2012/R2, 2016, 2019, 2022 <u>A Redundant/Test Server</u>

Minimum Requirements: 50 to 100 users

SERVER		
	Minimum	Recommended
Processor	Intel Xeon	Intel Dual Xeon
<i>(Processor speed will vary based on availability and office needs)</i>		
Storage	1000 GB SATA – 7200 RPM+	2000 GB SATA - 7200 RPM - RAID 5 or 10 ¹ *
<i>(Storage needs are based on office requirements. Contact IT Support for assistance)</i>		
Memory	32 GB RAM	48 GB RAM+
<i>(Amount of RAM or memory varies based on number of workstations and other server tasks – This amount may increase with added EHR functions)</i>		
Operating System	<ul style="list-style-type: none"> Windows 2012/R2, 2016, 2019, 2022 	<ul style="list-style-type: none"> Windows 2012/R2, 2016, 2019, 2022 <u>A Redundant/Test Server</u>

Minimum Requirements: +100 users

SERVER		
	Minimum	Recommended
Processor	Intel Dual Core or higher	Intel Xeon Dual/Quad Core or higher
<i>(Processor speed will vary based on availability and office needs)</i>		
Storage	2000 GB EIDE – 7200 RPM	3000 GB SATA – 7200 RPM – RAID 10 *
<i>(Storage needs are based on office requirements. Contact IT Support for assistance)</i>		
Memory	48 GB RAM	64 GB RAM
<i>(Amount of RAM or memory varies based on number of workstations and other server tasks – This amount may increase with added EHR functions)</i>		
Operating System	<ul style="list-style-type: none"> Windows 2012/R2, 2016, 2019, 2022 	<ul style="list-style-type: none"> Windows 2012/R2, 2016, 2019, 2022 <u>A Redundant/Test Server</u>

Minimum Requirements: Server and Workstation

WORKSTATION		
	Minimum	Recommended
Processor	Intel Dual Core or higher	Intel Core Duo or higher
<i>(Processor speed will vary based on availability and office needs)</i>		
Storage	40 GB SATA	*120+ GB SSD
<i>(Storage needs are based on current market availability and office needs)</i>		
Memory	4 GB of SDRAM	8 GB of SDRAM
<i>(RAM or memory requirements may vary based on number of tasks and applications)</i>		
Operating System	Windows 8 Professional <i>(non-professional versions may be used in peer-to-peer networks).</i>	<ul style="list-style-type: none"> Windows 8 Pro, 8.1 Pro, 10 Pro, 11 Pro

SERVER and WORKSTATION Components

Display	WSXGA Adapter or 1600 x 1024 or higher with minimum 16 bit Colors	WSXGA Adapter or 1600 x 1024 or higher with minimum 16 bit Colors
Network	100 Mbps Ethernet Network Interface Card (NIC) – Small Workgroups ONLY	1000 Mbps Ethernet Network Interface Card (NIC) (Link aggregation and NIC teaming is recommended for large networks)

Supported Peripherals

*For a list of recommended peripherals, please visit our [Recommended Peripherals](#) page.
If asked for login credentials, ask your COMPULINK representative for access.*

**SSD drives are recommended for performance enhancements, although more costly*

¹RAID 10 is the best option for critical databases, although more costly

NOTE FOR LARGER SYSTEMS: For high availability, virtualization technology and Storage Area Networks are highly recommended by **Compulink**.

NETWORK APPLIANCE

Compulink recommends [SonicWall](#) or [Sophos](#) routers for Internet, VPN and Remote Desktop services connections.

MOBILE DEVICES AND SUGGESTED WIRELESS SOLUTION

Compulink Advantage software has been tested and proven compatible with Tablets, Notebooks and Desktops using wireless connectivity while utilizing Terminal Services or Remote Desktop technology **ONLY**.

Wireless connections with direct connectivity to the Wireless Local Area Network (WLAN) are not supported.

Clients can implement such solution at their own risk. Implementing a wireless connection from the station hosting the databases and another station on the network could cause delay in packet delivery and result in performance issues, database disconnections and data corruption. The use of Windows Terminal Services, and similar products available from proprietary vendors, such as [Thinstuff](#), are necessary with low bandwidth environments.

Apple iPad - Compulink Advantage software supports the use of Apple devices such as iPad in RDP or Terminal Services mode **ONLY**. The use of proprietary applications such as [Microsoft RDP client for iOS](#) may be necessary to provide certain Windows functionalities such as 'right-click' in this type of environment.

Android Devices - Compulink Advantage software supports the use of Android devices in RDP or Terminal Services mode **ONLY**. The use of proprietary applications such as [Microsoft RDP client for Android](#) may be necessary to provide certain Windows functionalities such as 'right-click' in this type of environment.

NETWORK OPERATING SYSTEMS

Compulink Advantage has proven compatibility with the following 32 and 64 bit Network Operating Systems:

- **Windows 8 and 8.1 Pro and Enterprise**
- **Windows 10 Pro and Enterprise**
- **Windows 11 Pro and Enterprise**
- **Windows 2012**
- **Windows 2012 R2**
- **Windows 2016**
- **Windows 2019**
- **Windows 2022**
- **Compulink Advantage** software has been tested and is compatible with **Citrix Metaframe** using Windows Server environments.

Clients with existing **Windows Home** versions may use these operating systems only as a workstation and not in an Active Directory domain environment.

COMPULINK does **NOT** install, recommend or support any versions of **Novell Netware**, **Linux** or **MAC OS** on the server or workstations and does not guarantee compatibility or reliability with any of **Compulink Advantage** products in these environments.

MAC OS

Compulink Advantage software only runs in a Windows environment. MACs can be used only by accessing a Windows Operating System through Terminal Services or Virtual Windows PC. Customer support is only available for troubleshooting the Terminal Services session environment. **Compulink** recommends using [Microsoft RDP Client for MAC](#) for accessing your terminal server(s).

HARDWARE INFORMATION – MISCELLANEOUS

SYSTEM AND HARDWARE REQUIREMENTS

Compulink Advantage software does not require specific hardware or computer systems and will function over most current versions of Windows-based operating systems (see [Network Operating Systems](#)) and Windows-based compatible hardware.

RECOMMENDED COMPUTER ROOM TEMPERATURE AND HUMIDITY

Monitoring the environment in a computer room or data center is vital to ensuring uptime and system reliability. Maintaining recommended temperature and humidity levels in the area where computer systems are placed can increase uptime. Maintaining an ambient temperature range of 68° to 75°F (20° to 24°C) is optimal for system reliability. This temperature range provides a safe environment for equipment to operate in the event of air conditioning or HVAC equipment failure.

Relative humidity (RH) is a term used to describe the amount of water vapor that exists in a gaseous mixture of air and water vapor. In a data center or computer room, maintaining ambient relative humidity levels between 45% and 55% is recommended for optimal performance and reliability.

CABLING

Minimum of Category 5 or 5e Balanced 100 Ω cable and associated connecting hardware whose transmission characteristics are specified up to 100 MHz.

For best performance, 1000 Mbps (1GB) bandwidth from the file server to the switch is recommended. **Compulink** does not supply, install or contract with any network cable installers. It is necessary that a professional and capable cable installer install your network cable prior to the arrival of your computer systems and your **Compulink** Trainer.

ELECTRICAL

Power fluctuation and outages are common; **Compulink** recommends the use of UPS (Uninterruptible Power Supply) on file servers and systems that store your data. Surge protectors are recommended for workstations. Standard Electrical Requirements: 2 standard electrical duplex receptacles (1 circuit per 2 workstations) - maximum of (24) receptacles per circuit

BATTERY BACKUP (Uninterruptible Power Supply)

Uninterruptible power supply units are important for equipment that could be damaged in a power failure. In any business environments with a network application such as **Compulink Advantage** software, networking equipment could also benefit from being on an uninterruptible power supply, as a lack of power to network equipment could prevent communication.

An uninterruptible power supply can ensure that electronic equipment remains operational even if external power was unavailable. It also reduces the chance that a power outage could corrupt data on a server. An appropriate backup power solution is highly recommended for use with **Compulink Advantage** software.

PERMISSIONS

Whether you are using Windows built-in groups or a new group created by the administrator, users of **Compulink Advantage** software must be granted **Read/Write** access to the share where the application resides. It is recommended to grant **FULL Control** to user initially for testing. If there are no issues with functionality, FULL control may be restricted. If security is an issue, the network administrator can place restriction on all other shares on the network while granting **Compulink Advantage** users Read/Write access to the product's parent share (the COMPULINK folder).

Hardware Requirements 2022

PRINTERS

Compulink Advantage software utilizes printers that are properly setup in the Windows environment. A Test Page should be printed from within the Properties Sheet for that printer to confirm the printer's functionality prior to printing from **Compulink Advantage** software.

Some all-in-one (multi-function) INKJET printers/scanners are not compatible with **Compulink Advantage** software.

Compulink Advantage software has been tested successfully with the HP LaserJet and Dell Laser Black and White business printer line. It is recommended that basic printer driver language, such as PCL5 drivers are used.

Postscript and PCL6 drivers may cause printing issues in **Compulink Advantage** software. For generating labels, **Compulink Advantage** software has proven compatibility with Dymo Labelwriter series.

WIDE-AREA-NETWORK CLIENTS: Not all printers are compatible with Terminal Services and RDP protocol. Please consult the printer manufacturer's documentation (see [Remote Printing](#)).

SCANNING AND IMAGES - TWAIN LAN AND WAN DEVICES

Compulink Advantage software utilizes TWAIN compliant devices to capture and transfer images/data to the various sections of the patient's demographic screen or medical records. In most cases, the devices with a TWAIN data source file or ".ds" extension located in Windows "TWAIN_32" directory will enable **Compulink Advantage** software to acquire images from a TWAIN compliant device.

Due to the wide variety of devices and their associated drivers available on the market, it is impossible to guarantee which devices/peripherals will successfully work with Advantage software. **Compulink** recommends the use of peripherals that are tested and researched by our IT lab. Visit [Recommended Peripherals](#) for details.

Wide-Area-Network: Clients utilizing Windows 2008 or Windows 7 will not be able to utilize **Compulink's** remote scanning solution due to enhanced security. Third-party remote scan solution such as [TS SCAN from TerminalWorks](#) is recommended for such environments. Multi-page scanning is ONLY supported in wide-area-network environments with the use of third-party remote scanning solutions, regardless of operating system. Clients may also utilize various third-party solutions such as [Paperport](#) to export images as Multi-Page TIFF and use the import function in the Patient Demographic screen. Contact **Compulink's** IT department for any additional details.

WIRELESS AND REMOTE ACCESS (Wide-Area-Network)

To access **Compulink Advantage** software over the public INTERNET lines, wireless networks and/or a remote location, a VPN (virtual private network) is highly recommended.

Compulink Advantage software utilizes **Remote Desktop Protocol** to provide access to remote and wireless stations. Public Internet lines or wireless networks do not provide sufficient bandwidth to access the **Compulink Advantage** software. Virtual Private Networks such as Microsoft's L2TP/IPSec VPN Client and IPSec tunnels may be mandatory in the future for the security of patient health data.

Compulink recommends [SonicWall](#) or [Sophos](#) routers for Internet, VPN and Remote Desktop services connections.

SECURITY INFORMATION

SECURITY AND ANTI-VIRUS SOLUTION – RECOMMENDATION

Many proprietary software companies provide threat prevention and defense against malware. Enterprise grade solutions, such as Sophos Endpoint Protection, are recommended for use with **Compulink Advantage** software.