

Hardware and System Requirements for LLC Fund Manager

This document explains the system terminology, describes the software, hardware, and network system specifications that are required to run **LLC Fund Manager** software effectively, and illustrates the implementation methods you can use when setting up your **LLC Fund Manager** software:

Notes

- We recommend a dedicated computer server. If the server will be running additional applications, the recommended specifications should be increased accordingly. For additional information and/or questions please feel free to contact our support group at support@loanservicingsoft.com or 1-800-993-1839 x804.
- The requirements outlined in this document represent the minimum hardware and system specifications required to effectively use the **LLC Fund Manager** software. Failure to meet these requirements will noticeably degrade the performance of the software.
- The document was last updated on August 20, 2023.

System Terminology

Client or Workstation	A computer that is connected to the server and relies on the server for data files and network connections.
Dedicated Server Network	A network in which one computer is designated as the server and only handles network administration tasks. Other computers, or clients, are dependent on the server for network connections. A dedicated server is recommended for large networks with more than three users. Dedicated server networks are fast and can handle multiple users.
Network	A physically interconnected group of computers running software that allows them to share files and resources.
Peripheral	An external hardware component added to your computer to extend functionality. Peripherals can include printers, scanners, keyboards, mice, cameras, and more. Peripherals may be wired or wireless.
Printer Server	A computer (either a client or a server) that has a printer physically attached to it. Other workstations may print to the printer via the network, but print jobs are controlled by the print server.
Server	A computer running administrative software that controls access to the network and its resources. The server acts as the network's file cabinet, providing data files to other computers on the network.
Terminal Services	Terminal Services allows a user to access LLC Fund Manager on a remote computer over your network. If your operator workstations (single or multiple locations) access the LLC Fund Manager application via a network connection to a central server, you may have a Terminal Services environment. If the LLC Fund Manager application reside on individual workstations in your office (single or multiple locations), you have a non-Terminal Services environment.

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Software Requirements

Software	Requirement	Notes											
Server Operating System	Windows Server® 2019 (or later version)	Install the latest service pack and critical updates for your operating system. Ensure that your computer is certified for the operating system that you are using.											
Workstation Operating System	<table border="1"> <thead> <tr> <th>Operating System</th> <th>Supported Editions</th> </tr> </thead> <tbody> <tr> <td>Windows® 10 (or later version)</td> <td>All Editions</td> </tr> <tr> <td>Windows 8.1</td> <td>All Editions</td> </tr> </tbody> </table> <p>‡ LLC Fund Manager runs in 32-bit and 64-bit environments. Install the latest service pack and critical updates for your operating system. Ensure that your computer is certified for the operating system that you are using.</p>	Operating System	Supported Editions	Windows® 10 (or later version)	All Editions	Windows 8.1	All Editions						
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SQL Database Server	<table border="1"> <thead> <tr> <th>Number of Users</th> <th>Database Size</th> <th>SQL Database Server</th> </tr> </thead> <tbody> <tr> <td rowspan="2">1 – 25</td> <td>10 GB or less</td> <td>SQL Server 2019 Express (or later)</td> </tr> <tr> <td>10 GB or more</td> <td>SQL Server 2019 Standard (or later) SQL Server 2017 Standard</td> </tr> <tr> <td>25 or more</td> <td>Any size</td> <td>SQL Server 2019 Standard (or later) SQL Server 2017 Standard</td> </tr> </tbody> </table> <p>On seeking the appropriate version of Microsoft SQL Server that best fits your needs, we recommend consulting a Microsoft Certified Technician. There are two versions of Microsoft® SQL Server:</p> <ul style="list-style-type: none"> Express, which is free Standard, which supports more users and bigger databases <p>The version required depends on two factors: the size of your database and the number of users.</p>	Number of Users	Database Size	SQL Database Server	1 – 25	10 GB or less	SQL Server 2019 Express (or later)	10 GB or more	SQL Server 2019 Standard (or later) SQL Server 2017 Standard	25 or more	Any size	SQL Server 2019 Standard (or later) SQL Server 2017 Standard	
Number of Users	Database Size	SQL Database Server											
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25 or more	Any size	SQL Server 2019 Standard (or later) SQL Server 2017 Standard											
Windows Installer	Windows Installer 4.5	Windows Installer 4.5 must be installed on the server and each workstation. You can download and install it for free from Microsoft’s Web site at http://go.microsoft.com/fwlink/?LinkId=123422											
.NET Framework	Microsoft .NET Framework 4.6.2	.NET Framework 4.7 is installed as part of Windows 10. You can download .NET Framework 4.7 for free from Microsoft.											

Workstation Requirements

Refer to “Software Requirements” on page 2 for a complete list of supported operating systems.

Hardware	Requirement
Processor	Intel® Core™ i3-8100 or better
Memory	4 GB or higher
Hard Drive Size	60 GB or higher with at least 4 GB free for the software
Video Adapter & Screen Resolution	1280×1024 pixels (24-bit) or higher
Monitor	17-inch or larger

Server Requirements

Notes:

- **LLC Fund Manager** highly recommends employing certified operating system and networking technicians to install and manage your computer systems. **LLC Fund Manager** does not provide support for your computer systems.
- Microsoft SQL Server Express Edition requires no licensing.
- Memory requirements for Terminal Servers are 500 MB per user.
- Microsoft SQL Server Standard Edition (or higher Edition) may be required if the SQL database is 5 GB in size or larger.

Server hardware requirements vary greatly depending on the number of users. Refer to the hardware requirements that best fit your user group:

1 – 5 Users
(Dedicated Database Server)

Refer to “Software Requirements” on page 2 for a complete list of supported server operating systems and supported SQL server versions and editions.

Dedicated Database Server	Requirement
CPU	Quad-core Intel Xeon® E3-1230 v2 (or similar/higher)
Memory	8 GB
Hard Drive Capacity	146 GB SCSI or SAS (15 K rpm) or Enterprise-class SATA (10 K rpm) 10 GB minimum available space



6 – 20 Users
(Dedicated Database Server)

Refer to “Software Requirements” on page 2 for a complete list of supported server operating systems and supported SQL server versions and editions.

Dedicated Database Server	Requirement
CPU	Quad-core Intel Xeon® E3-1230 v2 (or similar/higher)
Memory	16 GB
Hard Drive Capacity	146 GB SCSI or SAS (15 K rpm) or Enterprise-class SATA (10 K rpm) 10 GB minimum available space

1 – 25 Users
(Combined Database Server/Terminal Server)

If you have more than 20 users, we highly suggest using **LLC Fund Manager** in a Terminal Server environment. Noticeable performance issues arise if you have more than 20 users in a non-Terminal Server environment. Using a Terminal Server offers these benefits:

- Easier software upgrades. Installing and upgrading software is easier on a Terminal Server because, in most cases, the software does not have to be loaded on individual workstations.
- Lower cost of ownership. The cost of a Terminal Server license is one-tenth the cost of a new workstation that meets the **LLC Fund Manager** hardware and system requirements.
- Easier Access. Terminal Server allows you to remotely access applications from anywhere internet access is available.

Refer to “Software Requirements” on page 2 for a complete list of supported server operating systems and supported SQL server versions and editions.

Combined Database Server / Terminal Server Requirement	Requirement
Memory	24 GB plus ½ GB per user
Hard Drive Capacity	146 GB SCSI or SAS (15 K rpm) or Enterprise-class SATA (10 K rpm) 10 GB minimum available space

26-100 Users

(Dedicated Database Server and Terminal Server)

Refer to “Software Requirements” on page 2 for a complete list of supported server operating systems and supported SQL server versions and editions.

Dedicated Database Server	Requirement
CPU	Octa-core Intel Xeon E5-2609 v4
Memory	36 GB
Hard Drive Capacity	146 GB SCSI or SAS (15 K rpm) or Enterprise-class SATA (10 K rpm) 10 GB minimum available space

Dedicated Terminal Server	Requirement
CPU	Two Octa-core Intel Xeon E5-2609 v4
Memory	16 GB plus ½ GB per user
Hard Drive Capacity	146 GB SCSI or SAS (15 K rpm) 10 GB minimum available space

101+ Users Dedicated Database Server and Terminal Server

Refer to “Software Requirements” on page 2 for a complete list of supported server operating systems and supported SQL server versions and editions.

Dedicated Database Server	Requirement
CPU	Octa-core Intel Xeon E5-2609 v4
Memory	16 GB plus ½ GB per user
Hard Drive Capacity	OS: 146 GB SCSI or SAS (15 K rpm) Data: 146 GB SCSI or SAS (15 K rpm) 10 GB minimum available space

Dedicated Terminal Server	Requirement
Terminal Server	One dedicated Terminal Server for every 100 users
CPU	Octa-core Intel Xeon E5-2609 v4
Memory	8 GB plus ½ GB per user
Hard Drive Capacity	146 GB SCSI or SAS (15 K rpm) 10 GB minimum available space

Network Requirements

LLC Fund Manager highly recommends employing certified operating system and networking technicians to install and manage your computer systems. **LLC Fund Manager** does not provide support for networks.

Network Item	Requirement	Notes
Internet Connection	Business-grade, high-speed DSL, cable, or T1 connection	Business-grade, high-speed DSL or cable modems are recommended for Internet access.
Remote Desktop Protocol (RDP)	50 Kbps bandwidth connection or better per RDP client	Use Remote Desktop Connection to access LLC Fund Manager running on a Terminal Server in single and multi-location. Use the TCP/IP protocol and 3389 default port.
SQL Server		Use the TCP/IP protocol and 1433 default port for this service.
SQL Browser		Use the SQL Browser to find SQL Servers on client computers. The SQL Browser listens for incoming requests for SQL Server resources and provides information about SQL Server instances that are installed on the computer. Use the UDP protocol and 1434 default port.

Network Item	Requirement	Notes
Cards	Gigabit ethernet	
Switches	Gigabit transfer rates	LLC Fund Manager does not recommend using hubs.
Wireless	802.11ac business-grade router and 802.11ac wireless network card 802.11n may be used in a Terminal Services environment	Enable wireless security. Purchase your wireless access port and wireless network card from the same manufacturer. Wireless networks offer significantly lower performance and reliability than wired networks; therefore, LLC Fund Manager recommends hard-wired networks in environments where high performance is necessary.

Backup Requirements

LLC Fund Manager recommends using multiple backup methods and backing up your data to multiple files in case one backup file is corrupt. Work with your data backup provider or certified operating system and networking technician to determine which solution is best for you.

Note: Backup is the responsibility of the user.

Backup Method	Recommended Solution
Online	-
Local Backup	For SQL databases: 1. SqlBackupAndFTP http://sqlbackupandftp.com 2. SQL Backup Master https://www.sqlbackupmaster.com

Installation Requirements

LLC Fund Manager software installation requirements are listed below. Adhering to these requirements will greatly improve the **LLC Fund Manager** software installation process.

Note: **LLC Fund Manager** highly recommends employing certified operating system and networking technicians to install and manage your computer systems. **LLC Fund Manager** does not provide support for networks.

Requirement	Notes
Remote Access	We recommend Remote Desktop Protocol (RDP) for remote access through Microsoft Terminal Services
Administrator Access Privileges	

Implementation Methods

You can implement **LLC Fund Manager** software in a terminal services or standalone environment. The figures on page 8 illustrate the main components and data flow of **LLC Fund Manager** software using the terminal services and standalone implementation methods.

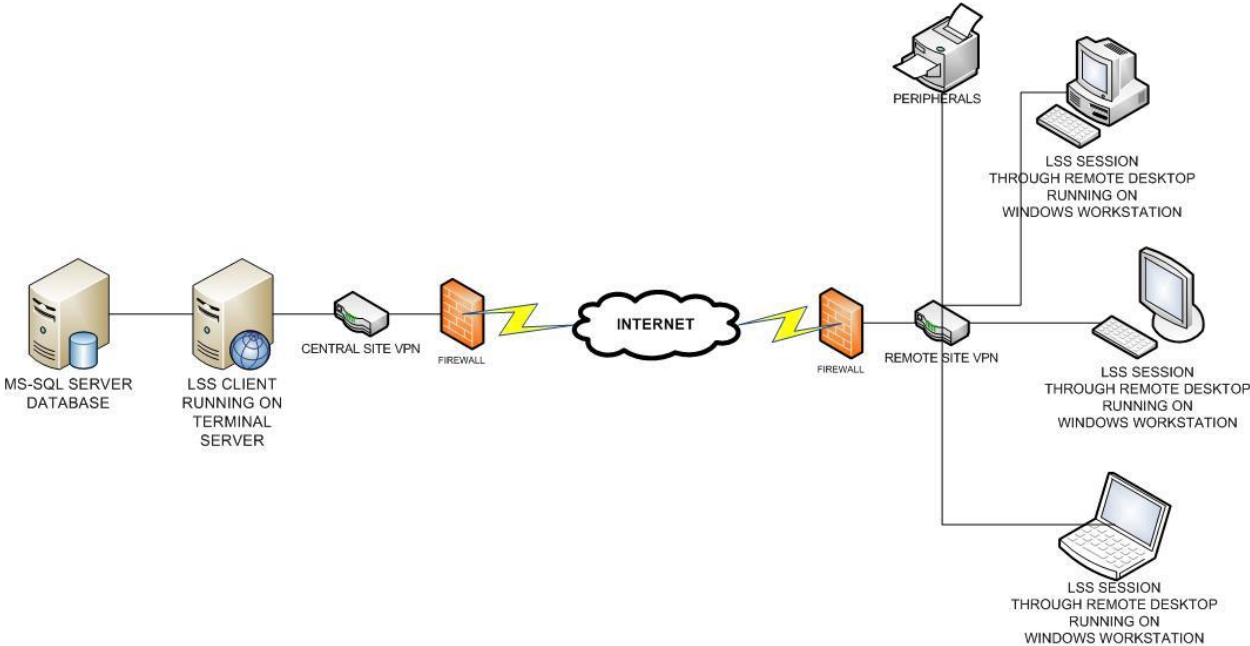


Figure 1-1: LLC Fund Manager Software Terminal Services Implementation Method

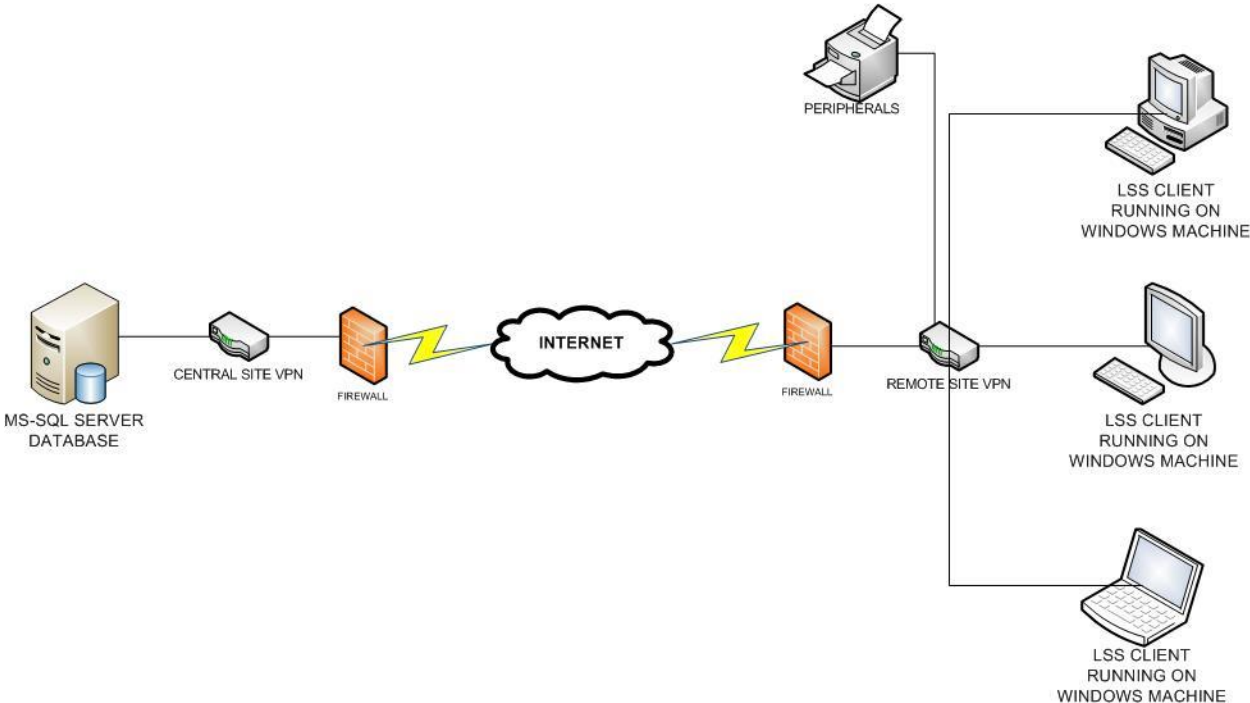


Figure 1-2: LLC Fund Manager Software Standalone Implementation Method

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The features of using terminal services and standalone implementations are detailed in the table below so that you can properly set up the implementation environment of your choice.

Feature	Terminal Services	Standalone
Software Updates	Server only	Server and each client
Additional Terminal Server Licensing	Yes	No
VPN Network Required	Recommended	Yes
Higher-End Workstations Required as Clients	No, but the workstations must meet remote desktop system requirements.	Yes
Thin Client Support Yes	Yes	No
Peripherals Support	Yes, through third-party applications	No

Notes:

- The hardware and software specifications listed in this document are for **LLC Fund Manager** version 20.0.110 software that was available at the time of this publication. As newer system versions are introduced, **LLC Fund Manager** reserves the right to update and modify these recommendations.
- Hardware, memory, and storage requirements can vary greatly, depending on the number of users, network applications, hard disk sizes, connection type, and other issues. RAM recommendations are the minimum requirements and may not be optimal for your operational environment. Your organization should regularly review company hardware and software resources and compare them to current system requirements.
- **LLC Fund Manager** recommends the use of backup and security components for hardware, data, and application redundancy.
- **Backup is the responsibility of the user.**
- Configuration of hardware and application security is the responsibility of the user.