



Xytech Platform Equipment Guidelines

10.x; 11.x

Xytech Platform [“Platform”] Architecture

Xytech’s Platform solution utilizes a multi-tier architecture, requiring at minimum three server roles: a database server, an application server, and an instance of Microsoft Internet Information Server (“IIS”) web server.

The Platform windows client requires Microsoft Windows™ 10. The Platform Web client is hosted by IIS and accessed using compliant web browsers.

- **The Platform windows client** can be deployed using Microsoft’s ClickOnce™ technology via a URL, or a file share; or can be installed manually (e.g. for deployments utilizing Windows Remote Desktop). For distributed client installations over a high latency network, a remote hosting technology such as Windows Remote Desktop is recommended. In order to utilize the Platform Windows client application on the Macintosh™ or Linux™ platforms a Windows emulator application or a Windows compatible remote desktop solution is required.
- **The Platform Web client** is a web application and can be run on devices that support a current HTML5 compatible web browser. To ensure an acceptable user experience that accesses the complete suite of Platform applications, Xytech recommends that such devices have a minimum screen size of 7 inches (17.8 cm) measured diagonally, with a 9 inch (22.8 cm) or larger screen preferred. For specific applications (Library and Rental Check In/Out/Move), Xytech has provided Layouts that have been optimized for the smaller screens found on hand-held devices.

The Platform Application Server (“AppServer”) software is installed on an instance of Windows Server Operating system. Platform stores its data in the Microsoft SQL database management system. A Microsoft Windows Internet Information Server™ (“IIS”) is required as the host environment for the Platform Help documentation, the Web user interface, and is necessary to utilize the URL option for the Platform Windows ClickOnce™ deployment service.

- If the AppServer is installed on a separate server from the Platform SQL database, Gigabit Ethernet (or faster) connectivity between the application server and the database server is recommended.

For smaller installations (less than thirty users), the database, AppServer, and web server (IIS) can be hosted on a single, suitably configured Windows Server system. For larger installations, or installations with moderate to heavy transaction volumes, Xytech recommends that separate servers (physical or “virtual”, see page 9) be utilized for each

Xytech Systems, LLC

9410 Topanga Canyon Blvd., Suite 200, Chatsworth, CA 91311
+1 818-698-4900



component in the installation. This includes the database server, the AppServer, and IIS. In addition, where fault tolerance or fail-over capabilities are required, multiple DBMS and AppServer instances are necessary, configured in accordance with the customer's environment.

In general, single server solutions are not recommended for Platform implementations where a larger quantity of connections (users, integrations, web services) are to be supported. Additional technical requirements cannot be specified until the customer has provided Xytech with detailed information and analysis specific to the individual installation.

The TCP/IP networking protocol is utilized for all communication between Windows clients and servers. The Web client application utilizes HTTP over any compatible topology. HTTPS can be utilized by applying SSL certificate to the full application stack.

Platform may be deployed either directly on a host computer or on in virtual machine (aka "VM") environment. The Platform SQL Server database may be deployed on either a dedicated SQL Server or as a database instance on a SQL farm.

NOTES: Microsoft .NET framework 4.7.2 is required for all Windows client and server systems in order to utilize Platform v10 and above. This version of .NET framework is incompatible with Microsoft's Windows XP and Server 2003 (and earlier) Operating Systems, and therefore these Operating Systems are not supported and cannot be utilized.

Hardware and Software Guidelines for Client Workstations (Windows)

Item	Minimum	Recommended	Comments
Operating System	Windows 10 Professional with .NET framework 4.7.2	Windows 10 with .NET framework 4.8	A 64bit instance of Windows is required to utilize more than 4 GB of RAM. Windows 7 (and earlier) is not supported for Platform version 10 and above.
Processor	2 GHz or faster CPU	2 GHz or faster dual-core CPU	2.8 GHz or faster dual-core CPU recommended for Scheduling module users.
PC Memory (RAM)	4 GB RAM	8+ GB RAM	8 GB RAM (or greater) is recommended for "power users" who frequently have multiple windows open at once and/or

			need to manage a large quantity of data
Available Hard Disk Space	1 GB	1 GB	
Display Adaptor	1920x1080/1200, 24-bit color or higher	2560x1600 24-bit color or higher	2560x1600 (widescreen) is recommended for schedulers and “power users” that frequently have multiple windows open simultaneously
Display	24 inch (61 cm) color	30 inch (76 cm) color or larger	30 inch (76 cm) widescreen recommended for Scheduling module users
Network Interface	100 Mbps network interface	1000 Mbps (aka “Gigabit”) network interface	TCP/IP protocol required for all network nodes that will require access to Platform services
Web Browser	Google Chrome, Microsoft Edge, Firefox Quantum (current versions). Based on Xytech’s internal evaluations, Google Chrome is the preferred browser to use for the Platform Web user interface.		Microsoft Internet Explorer has been deprecated by Microsoft and is not recommended for any OS.

Hardware and Software Guidelines for Client Workstations (Macintosh)

Item	Minimum	Recommended	Comments
Operating System	Mac OS “Mojave” (10.14) or higher	Mac OS “Big Sur” (11) or higher	
Memory (RAM)	4 GB RAM	8+ GB RAM	If running a virtualization solution, a minimum of 4 GB of RAM is required with at least 2 GB allocated to Windows OS.
Available Hard Disk Space	1 GB	2 GB	If running a virtualization solution, a minimum of 20 GB of free disk space is required
Display Resolution	1920x1080/1200, 24-bit color or higher	2560x1600 24-bit color or higher	2560x1600 (widescreen) is recommended for schedulers and “power users” that frequently have multiple windows open simultaneously.



Monitor	24 inch (61 cm) color	30 inch (76 cm) color or larger	30 inch (76 cm) widescreen recommended for Scheduling module users.
Network Interface	100 Mbps network interface	1000 Mbps (aka "Gigabit") network interface	TCP/IP protocol required for all network nodes that will require access to Platform services.
Web Browsers	Apple Safari, Firefox Quantum or Google Chrome (current versions). Based on Xytech's internal evaluations, Google Chrome is the preferred browser to use for the Platform Web user interface.		
Additional Comments	Use of Macintosh computers to access the Platform Windows client application requires a Windows Terminal Server, or Citrix remote hosting, or a Windows desktop virtualization solution (e.g. VMWare Fusion, etc.). The Web user interface runs directly in the web browser applications		

Hardware and Software Guidelines for iOS devices (iPhone, iPad)

Item	Minimum	Recommended	Comments
Operating System	Current version of iOS as provided by Apple.		
Device Storage	16 GB (more Memory may be required depending on the quantity of other installed Apps and the volume of data on the device)		
Additional Comments	Platform can be accessed on iOS devices using a compliant web browser and the Platform Web user interface. For sites that wish to utilize an iOS device as a remote access client to a Microsoft Remote Desktop, Xytech recommends the current version of the Microsoft iOS Remote Desktop application. This is available from the Apple App Store. For specific applications (Library and Rental Check In/Out/Move), Xytech has provided Layouts that have been optimized for the smaller screens found on hand-held devices. Contact Xytech for assistance with these Layouts and specific hardware recommendations.		

Hardware and Software Guidelines for the SQL Database Server

Item	Minimum	Recommended	Comments
Operating System	Microsoft Windows 2016 Server with .NET Framework v4.7.2	Microsoft Windows 2019 with .NET Framework v4.8	64-bit OS Windows Server 2012 (and earlier) is not supported for Platform v10 and above.
DBMS	Microsoft SQL Server 2019	Microsoft SQL Server 2022	SQL Server 2022 is HIGHLY recommended for performance reasons 64 bit Standard or Enterprise editions. Versions of SQL Server earlier than 2019 are not supported for the Platform v10 and above.
Processor	2.5 GHz dual-core CPU	3.0 GHz dual-core CPU or better	Single dual-core processor supporting up to 50 concurrent users - recommend two additional cores for each additional 50-75 concurrent users.
Memory (RAM)	8 GB RAM This will support up to 25 concurrent users for typical usage. Add 8 GB for each multiple of 25 additional concurrent users.	16 GB RAM or more This will support up to 50 concurrent users for typical usage. Add 8 GB for each multiple of 25 additional concurrent users.	
Hard Disk System	FC/SCSI/SATA/SAS with Hardware RAID	SSD with hardware RAID	For systems with more than 150 users, DB table storage optimization may be required for maximum performance.
Available Hard Disk Space	40 GB	100 GB	Disk usage is based on activity, sizes given are starting points with the realization disk usage will grow over time and should be monitored



Network Interface	100 Mbps network interface	1000 Mbps (aka "Gigabit") network interface	TCP/IP protocol required for all network nodes that will require access to Platform services.
The Platform system natively supports Microsoft SQL Server clustering. Xytech recommends SQL Server clustering for installations which require load balancing and/or fault tolerance.			

Hardware and Software Guidelines for Platform Application Server

Item	Minimum	Recommended	Comments
Operating System	Microsoft Windows 2016 Server with .NET Framework v4.7.2	Microsoft Windows 2019 with .NET Framework v4.8	
Processor	2.8+ GHz dual-core processor	3.0+ GHz quad-core processor	Quad-core processors strongly recommended. Second quad-core processor recommended for greater than 100 users.
Memory (RAM)	8 GB RAM available for Platform	16 GB RAM available for Platform	Additional AppServer(s) are recommended for greater than 100 users.
Hard Disk Space	2 GB available for Platform	2 GB available for Platform	
Network Interface	100 Mbps network interface	1000 Mbps (aka "Gigabit") network interface	TCP/IP protocol required for all network nodes that will require access to Platform services. The Microsoft OLE DB Driver for SQL Server is required to connect to the SQL DBMS.



Additional Comments	Large implementations should run the Platform Application Server on a separate server from the database server to ensure peak performance. For sites that wish to utilize multiple instances of the AppServer for load balancing and/or fault tolerance, additional AppServer instances can be licensed, please contact your Xytech Account Manager for pricing.
----------------------------	--

Hardware & Software Guidelines for Application Server (Windows Remote Desktop Server)

Item	Minimum	Recommended	Comments
Operating System	Microsoft Windows 2016 with .NET Framework v4.7.2	Microsoft Windows 2019 with .NET Framework v4.8	
Application Deployment	Windows Remote Desktop	Windows Remote Desktop	
Processor	2.5 GHz dual-core CPU	2.8GHz quad-core CPU or faster	Quad-core processor strongly recommended
Memory (RAM)	4 GB RAM	8 GB RAM or more	Windows Terminal Services server requires a minimum of 512 MB RAM plus additional RAM for each user to support running their programs on the server. Users require a minimum allocation of 128 MB each.
Hard Disk Space	1 GB	2 GB	
Network Interface	100 Mbps network interface	1000 Mbps (aka "Gigabit") network interface	TCP/IP protocol required for all network nodes that will require access to Platform services. The Microsoft OLE DB Driver for SQL Server



			is required to connect to the SQL DBMS.
Additional Comments	Large implementations may require multiple application servers and must be installed and configured to support load balancing. For sites that wish to utilize an iOS device as a remote access client, Xytech recommends the current version of the Microsoft iOS Remote Desktop application. This is available from the Apple App Store. Xytech does not directly support Microsoft Windows Remote Desktop. Xytech will work with the customer's personnel to ensure Platform is working properly once remote hosting environment is established by the customer.		

Hardware and Software Guidelines for Platform Web/Integration/Help system Server

Item	Minimum	Recommended	Comments
------	---------	-------------	----------

Operating System	Microsoft Windows 2016 Server with .NET Framework v4.7.2 (MSMQ optional), and the IIS (Internet Information Server) Service enabled.	Microsoft Windows 2019 with .NET Framework v4.8 (MSMQ optional), and the IIS (Internet Information Server) Service enabled.	The IIS web server instance must be configured and enabled for operational use in support of the following components: • Platform Web user interface, • Platform Smart Client ClickOnce installation option, • as a host for the Platform online Help system. The MSMQ service is required in message queues are being used for integrations and/or the Platform email notification functionality.
Processor	2.5 GHz dual-core processor or faster	2.8 GHz quad-core processor or faster	
Memory (RAM)	4 GB available for Platform	8 GB or more available for Platform	With a minimum of 1 GB free for Platform Web/API/Data Integration Server applications
Hard Disk System	SCSI/SATA/SAS	SCSI/SATA/SAS	
Hard Disk Space	10 GB available for Platform	10 GB available for Platform	



Network Interface	100 Mbps network interface	1000 Mbps (aka "Gigabit") network interface	TCP/IP protocol required for all network nodes that will require access to Platform services. The Microsoft OLE DB Driver for SQL Server is required to connect to the SQL DBMS.
Additional Comments	This server hardware specification is configured for the exclusive use of the Platform services and processes. If additional services or software not related to Xytech Systems' software are to be installed or supported on this hardware platform, increased CPU, RAM, disk capacity, and Windows user licenses may be required.		

General considerations with regards to the use of Virtual Machines which effect system performance

- When deploying Platform Application Server and/or SQL database server instances on Virtual Machines, the "bare metal" server guidelines detailed in the preceding sections should be increased 20% to 30% to account for Virtual Machine overhead.
- The Virtual Machine instance(s) should be dedicated to Platform and not shared with other applications.
- Each Virtual Machine should be bound to its own network interface card (NIC) so it does not share bandwidth with other Virtual Machines.
- SQL Server should be set to use all available cores (default).
- Map virtual disks directly to physical disks. Avoid dynamic disks.
- Physical disks should not be shared with other Virtual Machines.
- Ideally, each Virtual Machine should have its own controllers and disk array.
- Generally, RAID 10 is more efficient than RAID 5.
- SQL Server log and data should be stored on separate physical disks.
- Taking a snapshot of the Virtual Machines will sever connections with all clients. Snapshots cause SQL I/O to freeze, breaking the connection with the Platform Application Server. Existing client connections are severed as a result and must be re-established; therefore, snapshots should be executed during scheduled maintenance, or during periods of low user activity.
- In summary, the goal is to isolate and/or reduce contention of resource usage between Virtual Machines.

For further information:



- [KB VMware \[1002951\]](#)
- [Microsoft Docs / virtual-machines-windows-sql-performance](#)

IMPORTANT: These guidelines are offered as basic recommendations and are subject to revision without notice. Xytech Systems, LLC makes no warranty or guarantee of system performance or specific suitability of this hardware or software to customer's specific requirements. All Trademarks owned by their respective Parties.