Q System Requirements

Q is fully browser based and utilizes the latest web technologies. To take full advantage of new technology it is important that our clients meet or exceed the requirements provided herein. This document provides the minimum and recommended system requirements necessary to provide your users with full functionality. It is important to note that minimum requirements are necessary to operate the system under minimum load. It is strongly suggested that your district meet or exceed the recommended requirements.

Minimum Client System Requirements

Browser/Software	Version
Edge	27.x
Google Chrome	48.x
Internet Explorer	11.x
Mozilla Firefox	45.x
Safari (Mac OS only)	9.x
Adobe Acrobat Reader	9.x
Microsoft Excel/Word	2003
1024 x 768 resolution	

* Q generates OpenXML standard files for Office functionality. To use Office 2003 users must download and install the Microsoft Office Compatibility Pack for Word, Excel, and PowerPoint 2007 File Formats Minimum versions are supported by Aequitas as long as they are still commercially supported by their respective vendors. If any of the versions listed should become unsupported then the closest supported version becomes the minimum version.

Recommended Client System Requirements

Browser/Software	Version
Edge	38.x
Google Chrome	54.x
Internet Explorer	11.x
Mozilla Firefox	47.x
Safari (Mac OS only)	10.x
Adobe Acrobat Reader	DC
Microsoft Excel/Word	2016
1280 x 1024 resolution or higher	

*Please note that the underlying assumption is that the device running these minimum/recommended versions meets or exceeds the minimum requirements by the software listed.

General Infrastructure Recommendations

- Incorporate additional hardware/software needed to accommodate your current backup & recovery and DR policies.
- All server based operating systems must be 64-bit
- SQL Server should include at least a standard 64-bit license. Memory is a relatively inexpensive commodity and adding more memory is often cheaper than spending time tuning individual queries and procedures. As a general recommendation, if the resources exist, more memory on your SQL Server will greatly increase database performance.

- To increase performance of your web services, add more web servers. More web servers provide separation of memory pools, protection from run-away threads and generally better performance than increasing resources on a single web server.

Minimum Infrastructure System Requirements

As Q is deployed and new modules are implemented the workload placed on your web servers will increase. The specifications provided are for a baseline district (approximately 25,000 ADA). Larger districts should minimally meet the recommended requirements adjusted based on the appropriate percentages. All web servers must be configured behind some form of load balancing (e.g. NLB, HAProxy or a hardware appliance). Non-persistent round robin configurations such as DNS are not supported.

Database Server

- SQL Server 2012 Standard
- Windows Server 2012 R2
- 4 2.0GHz CPUs
- 32 GB RAM
- 1 GB Network Connection
- Disk space will vary depending on your database size and backup requirements
- Configured using generally accepted SQL Server standards

2 x Web Servers

- Windows Web Server 2012 R2
- 4 2.0GHz CPUs
- 8 GB RAM
- 1 GB Network Connection
- 100 GB Free Disk Space
- SQL Server Report Viewer Distributable (2010)
- .NET 4.5 Runtime
- Application Server Role
- Web Server (IIS) Role
- SSL highly recommended unless handled by your load balancer

Load Balancing

- Network Load Balancing (NLB)

Recommended Sever System Requirements

Database Server

- SQL Server 2016 Standard
- Windows Server 2012 R2
- 8 2.4GHz CPUs
- 64 GB RAM
- 10 GB Network Connection
- Disk space will vary depending on your database size and backup requirements
- Configured using generally accepted SQL Server standards

4 x Web Servers

- Windows Web Server 2012 R2
- 8 2.4GHz CPUs
- 8 GB RAM
- 10 GB Network Connection
- 200 GB Free Disk Space
- SQL Server Report Viewer Distributable (2010)
- .NET 4.5 Runtime
- Application Server Role with IIS support
- Web Server (IIS) Role

Load Balancing

- Redundant dedicated load balancers (hardware or software) rated for your expected transaction load.
- Offloaded SSL. Servicing SSL requests directly on IIS will reduce its performance by approximately 20-30%.
- Idle timeouts should be configured so that they are greater than your application timeout. This will allow the webservers to control the timeout and insure users receive the appropriate timeout warnings.
- Persistence should be configured and must be equal to or greater than your web application timeout. This will prevent requests from being routed to different servers during the user's session.