

FileBound Server Hardware Recommendations

Minimum Server Recommendations for FileBound Installations

When setting up a FileBound On-Site installation there are many variables that must be considered when determining the proper hardware. FileBound is a scalable solution that can grow as the needs grow. This scalability can allow FileBound to fit into solutions of different sizes by merely adjusting the hardware that is used to host FileBound. For these reasons, there are no set "Requirements" for servers that are running FileBound, only server "Recommendations". FileBound is a web application comprised of Internet Information Services (IIS), SQL Database and File Servers. Microsoft's requirements for servers running these components will determine the minimum requirements. Below is the information to determine the server recommendations for a FileBound system.

FileBound Installation Levels

Below are installation levels based on the expected usage of FileBound:

<p>SMALL Installations</p> <ul style="list-style-type: none"> » S1 - Less than 1 Million documents and/or 5 Concurrent Users » S2 - Less than 5 Million documents and/or 15 Concurrent Users
<p>MEDIUM Installations</p> <ul style="list-style-type: none"> » M1 - Less than 1 Million documents and/or 25 Concurrent Users » M2 - Less than 5 Million documents and/or 50 Concurrent Users » M3 - Less than 10 Million documents and/or 100 Concurrent Users
<p>LARGE Installations</p> <ul style="list-style-type: none"> » L1 - Less than 1 Million documents and/or 100 Concurrent Users » L2 - More than 1 Million documents and/or 200+ Concurrent Users » L3 - More than 5 Million documents and/or 200+ Concurrent Users <p>NOTE: If utilizing workflow, double the number of expected concurrent users to accurately estimate the installation level.</p>

FileBound Server Classifications

Below are Classification levels based on the servers that can be utilized by FileBound:

Class	Recommendation
C1	Dual-Processor Xeon, 64-bit, .NET 3.5
C2	Dual-Processor, Dual-Core Xeon, 64-bit, .NET 3.5
C3	Dual Processor, Dual or Quad Core Xeon, 64-bit, .NET 3.5

FileBound Server Operating System Recommendations

It is recommended that all servers run a minimum of Windows Server® 2003 or later.

Windows Server® 2003	Windows Server® 2008
<ul style="list-style-type: none"> » Windows Server 2003 Web Edition does not support more than 2 GB of RAM, and therefore cannot be used for a web server with 4 GB of RAM. It also has a limitation on non-web network connections that make it undesirable as a document storage server. 	<ul style="list-style-type: none"> » Windows Server 2008 Standard Edition supports up to 32GB of RAM. This makes it sufficient for a basic FileBound web server and storage server at the same.
<ul style="list-style-type: none"> » Windows Server 2003 Standard Edition supports up to 4 GB of RAM and virtually unlimited network connections. This makes it ideal for a FileBound web server and sufficient for a storage server. 	<ul style="list-style-type: none"> » Windows Server 2008 Enterprise Edition supports up to 2 TB of RAM and virtually unlimited network connections. Using this operating system on a server gives you the ability to upgrade memory as needed.
<ul style="list-style-type: none"> » Windows Server 2003 Enterprise Edition supports up to 64 GB of RAM. Using this operating system on a server gives you the ability to upgrade memory as needed. 	<ul style="list-style-type: none"> » Windows Server 2008 Datacenter Edition supports up to 2 TB of RAM. Using this operating system flexibility to virtualization and scalability.
<ul style="list-style-type: none"> » Windows Storage Server 2003 is optimized for storage environments. 	<p>* FileBound is supported on 32 bit and 64 bit Operating Systems</p>

Larger FileBound installations can utilize more than one web server. A load-balancing solution can be implemented to share the load across the servers. This can be done with DNS, URL redirection or through the use of a hardware appliance. Microsoft offers a free software based balancer with Windows called Microsoft Network Load Balancing. This software adds additional load on the web servers but is a reliable load balancer. The Microsoft NLB solution is fairly easy to install and configure and can be installed to existing servers. A hardware based load balancer is recommended for reliability and fault tolerance. FileBound On-Demand utilizes f5 LTM's for a hardware load-balancing solution.

More information regarding load balancing and load-balancing techniques can be found at the following websites:

<http://technet.microsoft.com/en-us/library/cc758834.aspx>
<http://www.f5.com>

Important Note: When operating FileBound in a load-balanced environment, the server affinity must be configured so that a user continues to use the server they first logged into, for the duration of their session. Subsequent sessions can be redirected to another server as desired by the load balancing methodology.

Microsoft SQL Server® Recommendations

Recommended	Supported SQL Server Versions	Minimum
<ul style="list-style-type: none"> » SQL Server 2005 64-bit SP2 » Windows Server 2003 64-bit » 8 GB Memory or Greater, Minimum 6 GB » Named Instance Recommended for FileBound » Data files (.mdf) and Log Files (.ldf) stored on separate drives 	<ul style="list-style-type: none"> » SQL Server 2005 32 and 64 bit SP2 » SQL Server 2008 32 and 64 bit SP2 	<ul style="list-style-type: none"> » SQL Server 2005 32-bit SP2 » Windows Server 2003 32-bit » 6 GB Memory or Greater » FileBound should be the only database using resources

Minimum recommended memory is 6 GB, with 8 GB strongly encouraged. Typically 2GB is reserved for the operating system, and the remainder for SQL Server. For recommended installs set the minimum memory value to 2GB and maximum to server capacity. For minimum installs configure AWE and set minimum memory to 2GB and maximum to server capacity.

Database backups should be performed daily and index maintenance should be done weekly.

More information regarding SQL Server configuration and best practices can be found at the following website:

<http://technet.microsoft.com/en-us/library/cc966534.aspx>

What Configuration Type Will Be Used?

Each Installation Level can have different configuration types. The different types take into consideration the number of servers that will be used to handle the three major components of FileBound: Web Server, Document Storage and SQL Database. For help in determining the components to be used see the matrix below.

- » **Type A** - Single Server for FileBound, SQL Database, and Document Storage
- » **Type B** - Two Servers, 1 - FileBound/Document Storage, 1 - SQL Database
- » **Type C** - Three Servers, 1 - FileBound, 1 - Document Storage, 1 - SQL Database

TYPE	A	B		C		
OS	Enterprise	Standard	Enterprise	Standard	Storage	Enterprise
USE	All	Web/Doc	SQL	Web	Doc Storage	SQL
LEVEL S1	Server Class: C1 RAM: 4 GB HD Space: 100 GB	Server Class: C1 RAM: 2 GB HD Space: 100 GB	Server Class: C1 RAM: 4 GB HD Space: 72 GB RAID Configuration			
S2	Server Class: C1 RAM: 4 GB HD Space: 500 GB	Server Class: C1 RAM: 4 GB HD Space: 500 GB	Server Class: C1 RAM: 4 GB HD Space: 146 GB RAID Configuration			
M1	Server Class: C2 RAM: 8 GB HD Space: 500 GB	Server Class: C1 RAM: 4 GB HD Space: 500 GB	Server Class: C2 RAM: 4 GB HD Space: 72 GB RAID Configuration	Server Class: C1 RAM: 4 GB HD Space: 36 GB RAID Configuration	Server Class: C1 RAM: 2 GB HD Space: 500 GB	Server Class: C2 RAM: 4 GB HD Space: 72 GB RAID Configuration
M2	Server Class: C2 RAM: 16 GB HD Space: 500 GB	Server Class: C1 RAM: 4 GB HD Space: 500 GB	Server Class: C2 RAM: 8 GB HD Space: 146 GB RAID Configuration	Server Class: C1 RAM: 4 GB HD Space: 36 GB RAID Configuration	Server Class: C1 RAM: 2 GB HD Space: 500 GB	Server Class: C1 RAM: 8 GB HD Space: 146 GB RAID Configuration
M3		Server Class: C1 RAM: 4 GB HD Space: 500 GB	Server Class: C2 RAM: 8 GB HD Space: 300 GB RAID Configuration	Server Class: C1 RAM: 4 GB HD Space: 36 GB RAID Configuration	Server Class: C1 RAM: 2 GB HD Space: 1 TB	Server Class: C1 RAM: 8 GB HD Space: 300 GB RAID Configuration
L1		Server Class: C2 RAM: 4 GB HD Space: 500 GB	Server Class: C2 RAM: 16 GB HD Space: 146 GB RAID Configuration	Server Class: C2 Web-Farm Recommended RAM: 4 GB HD Space: 36 GB RAID Configuration	Server Class: C1 RAM: 2 GB HD Space: 500 GB	Server Class: C2 RAM: 16 GB HD Space: 146 GB RAID Configuration
L2				Server Class: C2 Web-Farm Recommended RAM: 4 GB HD Space: 36 GB RAID Configuration	Server Class: C1 RAM: 2 GB HD Space: 1 TB	Server Class: C3 RAM: 16 GB HD Space: 146 GB RAID Configuration
L3				Server Class: C2 Web-Farm Recommended RAM: 4 GB HD Space: 36 GB RAID Configuration	Server Class: C1 RAM: 2 GB HD Space: 1 TB +	Server Class: C3 RAM: 32 GB HD Space: 300 GB RAID Configuration