



Fusion EMM  
vxl software

Product Technology Document

# Pre-Flight Checks

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This document applies to all versions of Fusion EMM

This document is intended for use by IT administrators or technicians responsible for installing Fusion EMM software. The document outlines the resources that need to be put into place for a successful Fusion EMM installation to occur.

## Basic Fusion pre-requisites

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The following are the pre-requisites for the installation of Fusion EMM.

- Server: Xeon CPU / 8GB RAM min / 320GB HDD min
- Operating System: Windows 2008r2 or Windows 2012 or Windows 2016
- Web Server: Internet Information Services 7.x or above with following components included: IIS Management Console, IIS Management Scripts and Tools, IIS Management Service, Default Document, Directory Browsing, Static Content, HTTP Errors, Static Content Compression, Request Filtering and Web sockets Support
- Framework: .NET Framework 4.5 or above
- Database: Windows SQL Server 2008 or Windows 2012 or above
- Database Editions: Express, Standard or Enterprise
- FTP Server: Any FTP server

The client side browsers supported Internet Explorer, Google Chrome or Firefox although others may work. Javascript support must be enabled on the browser.

Please consult the Installation Guide for exact configurations for any of the above elements. Failure to carry out a proper installation will lead to a failure in Fusion EMM performing as expected.

## Server topologies

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The most important thing to size and configure is the server that will be delivering Fusion EMM. The server can be provisioned using either a physical server or a virtual machine in any of the established virtualization environments, such as VMware or Hyper-V.

There are two forms of installation: single server and split server.

### Single server topology

Single server topologies can be utilised in circumstances where the number of devices is not only low, but reside in a small business environment. This form of topology consists of a single server housing both the web server, database and the Fusion EMM server software.

### Split server topology

In enterprise environments, it is essential to maintain a separate resource for web services and the

database. Therefore, the first server contains the web server and the Fusion EMM software, whilst the second and more powerful server contains the database and accompanying engine.

There are also occasions where you may well have a database infrastructure and decide to host the Fusion database instance within that. This is also supported.

## Server sizing guidelines

<p><b>Up To 1000 Single Server</b></p>	<p>Up to 1000 Devices - All Management Suite Services Hosted on One Server            CPU: Intel Xeon Dual Core or Intel i7 Quad Core 64-bit processor            RAM: 6 GB min            Network Adapter: Gigabit Network adapter            HDD Sizing: 250 GB of free disk space on 7.2K RPM or faster drives or arrays            Heartbeat: 150 seconds            Database: Microsoft SQL Express, Microsoft SQL</p>
<p><b>Up To 2000 Single server</b></p>	<p>CPU: Intel Xeon Quad Core 64-bit processor            RAM: 8 GB min            Network Adapter: Gigabit Network adapter            HDD Sizing: 250 GB of free disk space on 7.2K RPM or faster drives or arrays            Heartbeat: 300 seconds            Database: Microsoft SQL Express, Microsoft SQL</p>
<p><b>Up To 6000 Distributed Server</b></p>	<p><i>Server 1 - The IIS Server</i>            CPU: Intel Xeon Quad Core 64-bit processors            RAM: 16GB Min            Network Adapter: Gigabit Network adapter            HDD Sizing: 250 GB of free disk space on 7.2K RPM or faster drives or arrays            Heartbeat: 900 seconds</p> <p><i>Server 2 - The Database Server</i>            CPU: Dual Intel Xeon Quad Core 64-bit processor            RAM: 32 GB Min            Network Adapter: Gigabit Network adapter            HDD Sizing: 500 GB of free disk space on 7.2K RPM or faster drives or arrays            Database: Microsoft SQL</p>

The server sizing data provided is an example and the figures may vary depending on your particular circumstances, and the settings you use for functions such as heartbeat interval and inventory synchronization. Your experience using the product will enable you to further refine the examples provided.

The heartbeat value is provided in seconds for the higher number of devices of the range. The

ratio [Heartbeat delay in Seconds] / [number of devices] shall not exceed 0.15.

Microsoft SQL Express 2012 has a 10 gigabyte database size limitation. If this limitation is reached, the server will not function properly and the database will no longer be able to write more data. It is possible that each agent could use as much as 1 megabyte or more during its lifecycle, so take great care to monitor the disk usage and upgrade to a full version of SQL prior to reaching the 10 gigabyte limit.

## Firewall and network considerations

In order for Fusion EMM to operate correctly it needs to communicate with devices and FTP servers. Devices in turn also need to communicate with the Fusion EMM server.

In order for this to happen seamlessly, there are several ports that need to be opened on firewalls, routers and VLANs. Failure to do this will result in unexpected behaviour within Fusion EMM.

The following network ports need to be permitted for Fusion EMM server application communication:

- HTTP/S Port 80 / Port 443 for application communication.
- Optional for FTP server: FTP port no 21 or the configured FTPS port

For HTML5 based VNC shadowing, the following port should be opened on the server:

In the installer we have included a script to add an exception to the Windows firewall.

- TCP Ports 9001-9020 are used by the browser to connect to the Fusion EMM server.
- TCP Port 5500 is used by the Fusion EMM agent to connect to the Fusion EMM Server.
- TCP Port 5901 is used for connection within processes on the server itself.
- UDP & TCP Port 9000 on client pc for server initiated device discovery

For Agentless discovery and remote installation (Push) in LAN (Across subnets), the following services, and corresponding ports need to be running, open and permitted on the endpoint:

- File and printer sharing service needs to be running on the endpoint.
- Set windows firewall to allow File and printer sharing service.
- TCP port nos 139, 445 & UDP port nos 137,138

Recommendations for Agentless discovery across VLAN & VPN:

- In case where the endpoints are connected to the network via a VPN, the VPN should be configured to allow NetBIOS broadcast forwarding, or as alternatively WINS should be implemented on each side of VPN.
- In case of VLAN's in a domain environment the WINS/computer browsing service needs to be running on all domain controllers. All endpoints should be configured as WINS clients.

For Wake-On-LAN (WOL) the following settings should be enabled on the endpoint:

- WOL must be enabled in the BIOS.
- The Wake on Magic Packet option must be enabled. This is usually located in the power management tab within the network interface properties, accessed using the Device Manager.
- Simple TCP/IP services should be running.
- Open UDP port for port 9 in Windows firewall settings

For WOL in VLAN:

- Directed broadcasts should be enabled on the router
- Enable and open UDP ports 7 and 9



### About VXL Software

VXL Software is a global company, with offices in Asia, Europe and the USA. VXL Software is a division of VXL Instruments. Established in 1976, VXL is a global leading manufacturer of thin-, zero- and cloud-client devices. VXL Software has locations in the USA, UK, France, Germany, the United Arab Emirates, India and Singapore. VXL Software's Americas Group is headquartered in Houston, Texas. The European headquarters is in Manchester. VXL Software's development team, and the Asia Pacific headquarters, are based in Mumbai, India.

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