



System Requirements Guide

Lumension Endpoint Management and Security Suite 8.0



Notices

Version Information

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Preface

About This Document

This System Requirements Guide is a resource written for all users of Lumension Endpoint Management and Security Suite 8.0. This document defines the concepts and procedures for installing, configuring, implementing, and using Lumension Endpoint Management and Security Suite 8.0.

Tip: Lumension documentation is updated on a regular basis. To acquire the latest version of this or any other published document, please refer to the *Lumension Customer Portal* (<http://portal.lumension.com/>).

Typographical Conventions

The following conventions are used throughout this documentation to help you identify various information types.

Table 1: Typographical Conventions

Convention	Usage
bold	Buttons, menu items, window and screen objects.
<i>bold italics</i>	Wizard names, window names, and page names.
<i>italics</i>	New terms, options, and variables.
MONOSPACE UPPERCASE	Keyboard keys.
BOLD UPPERCASE	SQL Commands.
monospace	File names, path names, programs, executables, command syntax, and property names.



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submit a ticket:

Registered users can open a support ticket via the *customer portal* (<http://support.lumension.com/>).

Lumension customers without a support account should contact our *support team* (support@lumension.com) to have an account created.

Note: For additional contact information, please visit the *Contact Lumension* page at <http://www.lumension.com/contact-us.aspx>.



System Requirements

Before installing Lumension Endpoint Management and Security Suite, verify that the targets meets hardware, software, and network requirements.

On servers that do not meet recommended system requirements If your target server does not meet the system requirements, Lumension EMSS will not perform optimally, or may not install.

Review all hardware, software, and network requirements before proceeding with installation.

Supported Operating Systems

The Lumension Endpoint Management and Security Suite server is supported on a number of Microsoft Windows operating systems.

Table 2: Supported Operating Systems

Operating System	Edition	Data Width
Microsoft Windows Server 2012 R2 ¹ Important: When installing Lumension EMSS on Windows Server 2012 R2, download and install Mozilla Firefox 24.x Extended Support Release <i>before</i> installation. The default Web browser installed on this operating system, Internet Explorer 11, is not supported because it is incompatible with Microsoft Silverlight, which is used to install Lumension EMSS modules.	Standard ² Datacenter ² Foundation	64 bit
Microsoft Windows Server 2012 ¹	Standard ² Datacenter ² Foundation	64 bit
Microsoft Windows Web Server 2008 R2	Web	64 bit
Microsoft Windows Server R2 2008 SP1 + ³	Standard ² Enterprise ²	64 bit
Microsoft Windows Server 2008 SP2 + ³	Web Standard Enterprise	32/64 bit
Microsoft Windows Server R2 2003 SP2 +	Standard Enterprise	32 bit



Operating System	Edition	Data Width
Microsoft Windows Server 2003 SP2 +	Web Standard Enterprise	32 bit
<ol style="list-style-type: none"> 1. Initial installation of Lumension EMSS on this family of operating systems when Core mode is enabled is not supported; a GUI is required. However, following installation, general operation of Lumension EMSS while Core mode is enabled is supported. For more information on enabling and disabling Core mode on Windows 2012 and 2012 R2 servers, see Lumension KnowledgeBase Article 1642 (http://www.lumension.com/kb/1642). 2. The Hyper-V edition of this operating system edition is supported, however, the Microsoft Hyper-V Server 2012 stand-alone edition is not. 3. The Datacenter and Core editions of this operating system family <i>are not</i> supported. 		

Supported Languages and Locales

Lumension Endpoint Management and Security Suite can only be installed on servers for certain languages and locales. Ensure the target server you are installing on uses one of the listed languages and locales.

Lumension EMSS is installable on the following locales. The installer is available only in English.

Table 3: Server Supported Locales

Language	Locale Identifier
• English: United States	• en-us
• English: Australia	• en-au
• English: Belize	• en-bz
• English: Canada	• en-ca
• English: India	• en-in
• English: Ireland	• en-ie
• English: Jamaica	• en-jm
• English: New Zealand	• en-nz
• English: Philippines	• en-ph
• English: Singapore	• en-sg
• English: South Africa	• en-az
• English: United Kingdom	• en-gb
• German: Germany	• de-de
• Spanish: Spain (Modern Sort)	• es-es



After installing Lumension EMSS, you can use a translated UI by selecting one of the following languages in your Web browser.

Table 4: Server Supported Languages

Language	Language Identifier
<ul style="list-style-type: none"> English: United States French: France German: Germany Spanish: Spain (Modern Sort) 	<ul style="list-style-type: none"> en-us fr-fr de-de es-es

Software Requirements

Your Lumension Endpoint Management and Security Suite server requires other software to operate. Review the listed software requirements to confirm your server has the required software.

Before you begin installation of Lumension EMSS you must install the following software on your server or another supported location:

Software	Documentation
<ul style="list-style-type: none"> Supported Web Browsers 	<ul style="list-style-type: none"> Web Browser Requirements on page 12

Lumension EMSS requires additional, supplemental software, but the Lumension EMSS will install it for you during installation:

Software	Documentation
<ul style="list-style-type: none"> Microsoft SQL Server Microsoft Internet Information Services Microsoft .NET Framework Microsoft Windows Installer Other Software Requirements 	<ul style="list-style-type: none"> SQL Server Requirements on page 13 IIS Requirements on page 14 .NET Framework Requirements on page 15 Windows Installer Requirements on page 15 Microsoft Silverlight 4.0+ Microsoft C++ 2010 SP1 Redistributable Package (x86)

Note: Although Lumension EMSS installs and instance of SQL Server 2008 R2, SP1 Express Edition (x86), installing and instance yourself is best practice when supporting an enterprise environment.



Web Browser Requirements

You need one of several specific Web browsers to use the Lumension Endpoint Management and Security Suite Web console after installation.

Table 5: Supported Web Browsers

Supported Browser	Supported Versions
Microsoft Internet Explorer	<ul style="list-style-type: none">• 10 with Compatibility View• 9 with Compatibility View• 8 with Compatibility View• How to enable Compatibility View in IE 10• How to enable Compatibility View in IE 9• How to enable Compatibility View in IE 8
Mozilla Firefox	24.x Extended Support Release

Important:

- Microsoft Silverlight 4.0+ is also required to use Lumension Installation Manager.
- Due to the accelerated release cycle of the Mozilla Firefox Rapid Release, support cannot be guaranteed.



SQL Server Requirements

Lumension Endpoint Management and Security Suite requires an instance of Microsoft SQL Server to store its data. Multiple version of SQL Server are supported.

You can use an instance of any of the following versions.

Table 6: Supported Database Servers

Database	Data Width	Edition
SQL Server 2012	x86/x64	<ul style="list-style-type: none"> Express SP1+ Standard SP1+ Enterprise SP1+
SQL Server 2008 R2	x86/x64	<ul style="list-style-type: none"> Express SP1+ Standard SP1+ Enterprise SP1+
SQL Server 2008	x86/x64	<ul style="list-style-type: none"> Express SP2+ Standard SP2+ Enterprise SP2+
SQL Server 2005	x86	<ul style="list-style-type: none"> Express SP3+ Standard SP3+ Enterprise with SP3+

Note:

- Lumension recommends using the latest service pack available for your instance of SQL Server. If installing to a 64-bit server, Lumension recommends installing using a supported preexisting instance of SQL Server that supports 64-bit architecture.
- Lumension does not recommend using SQL Server 2005 when setting up a new Lumension EMSS server. SQL Server 2005 is near end-of-life, and it will not be supported for Lumension EMSS releases after 8.0.



You can install one of the supported database servers instances listed above in the following locations relative to the Lumension EMSS server.

Table 7: Supported Database Instance Install Locations

Location
<ul style="list-style-type: none"> • On the target Lumension server itself, as installed by the Lumension server installer, which installs an instance of SQL Server 2008 R2 SP1, Express Edition (x86). • On the target Lumension server itself, using a preexisting instance of SQL Server. • On a remote server that the Lumension server remotely connects to, using a preexisting instance of SQL Server.
<p>Important:</p> <ul style="list-style-type: none"> • When installing Lumension EMSS using an existing SQL Server instance, the instance collation must be set to one of the following values: <ul style="list-style-type: none"> • SQL_Latin1_General_CP1_CI_AS • Latin1_General_CI_AS • If your server has a preexisting installation of SQL Express 2008 R2 SP2, refer to Lumension KnowledgeBase Article 1644 (http://www.lumension.com/kb/1644) for additional information prior to installing Lumension EMSS.

IIS Requirements

Before you can install Lumension EMSS, Microsoft Internet Information Services 6.0 or later must be installed.

Table 8: Internet Information Services (IIS) Requirements

Required IIS Version	Operating System Family	Microsoft Documentation
Microsoft Internet Information Services 6.0+	Microsoft Windows Server 2012 R2	http://www.iis.net/learn/install/installing-iis-85/installing-iis-85-on-windows-server-2012-r2
	Microsoft Windows Server 2012	http://www.iis.net/learn/get-started/whats-new-in-iis-8/installing-iis-8-on-windows-server-2012
	Microsoft Windows Server 2008 R2	http://technet.microsoft.com/en-us/library/cc771209.aspx
	Microsoft Windows Server 2008	http://technet.microsoft.com/en-us/library/cc771209(WS.10).aspx
	Microsoft Windows Server 2003 R2	http://support.microsoft.com/kb/324742
	Microsoft Windows Server 2003	http://support.microsoft.com/kb/324742



.NET Framework Requirements

Lumension EMSS requires installation of .NET Framework 4.0 with KB 2836939.

Microsoft Windows Server 2012 and 2012 R2 use .NET 4.5, which comes installed by default.

Table 9: .NET Framework Requirements

Required .NET Framework Version	Operating System Family
Microsoft .NET Framework 4.5+	<ul style="list-style-type: none"> • Microsoft Windows Server 2012 R2 • Microsoft Windows Server 2012
Microsoft .NET Framework 4.0 with KB 2836939	<ul style="list-style-type: none"> • Microsoft Windows Web Server 2008 R2 • Microsoft Windows Server 2008 R2 SP1+ • Microsoft Windows Server 2008 R2 SP1+ • Microsoft Windows Server 2008 SP2+ • Microsoft Windows Server 2003 R2 SP2+ • Microsoft Windows Server 2003 SP2+

Windows Installer Requirements

When installing Lumension EMSS on older supported operating systems, Microsoft Windows Installer is required.

Table 10: Windows Installer Requirements

Required Windows Installer Version	Operating System Family
Microsoft Windows Installer 2.0+	<ul style="list-style-type: none"> • Microsoft Windows Server 2003 R2 SP2+ • Microsoft Windows Server 2003 SP2+



Hardware Requirements

The Lumension Endpoint Management and Security Suite server must meet or exceed the specified hardware requirements.

Note:

- Installing the Lumension EMSS server on a dedicated server is recommended.
 - The minimum hardware recommendation is designed for trial environments of 50 endpoints. For a Lumension EMSS configuration ideal for your environment, see [Recommended Configurations](#) on page 18.
-
- 2.0 GHz dual-core processor
 - 4 GB RAM
 - 2 hard drives
 - RAID 1 disk array
 - 7200 RPM drive speed
 - 1 Gbps Network Card



Network Requirements

Your Lumension EMSS server needs access to specific websites and network services.

Network Requirement

Server Role:

Your Lumension EMSS *should not* be a domain controller.

Firewall Access URLs
for replication and agent
communication:

- <https://cdn.securegss.net>
- <http://cache.patchlinksecure.net>
- <http://cache.lumension.com>
- <http://leicapi-lemss.lumension.com>
- <http://gssnews.lumension.com>
- [Lumension Endpoint Intelligence Center \(<http://leic.lumension.com>\)](http://leic.lumension.com)
- <http://download.windowsupdate.com>
- <http://www.download.windowsupdate.com> (For Microsoft content)
- <http://go.microsoft.com> (For Microsoft content)
- <http://ardownload.adobe.com> (For Adobe content)
- <http://swupdl.adobe.com> (For Adobe content)
- <http://armdl.adobe.com> (For Adobe content)
- <http://download.adobe.com> (For Adobe content)
-

Important:

- Refer to [Lumension KnowledgeBase Article 539 \(<http://www.lumension.com/kb/539>\)](http://www.lumension.com/kb/539) and [Lumension KnowledgeBase Article 334 \(<http://www.lumension.com/kb/334>\)](http://www.lumension.com/kb/334) for additional URLs and IP Addresses which may be required depending upon your configuration and content subscriptions.
- The firewalls on your server may require modification to access these URLs. If your corporate policies do not allow you to make the necessary firewall modifications, please contact [Lumension Support \(\[support@lumension.com\]\(mailto:support@lumension.com\)\)](mailto:support@lumension.com) for a recommended configuration.

Network Discovery Windows
Services:

Lumension EMSS uses the server Network Discovery Windows Services to discover other computers and devices on your network and installation. At time of install, the Lumension EMSS installer prompts you to enable these services:

- DNS Client
- Function Discovery Resource Publication
- SSDP Discovery
- UPnP Device Host



Recommended Configurations

Lumension recommends different hardware and software requirements customized for your Lumension Endpoint Management and Security Suite network setup.

Server Configuration Considerations

Lumension EMSS requires two main components to function:

- **Lumension EMSS Application Server:** This server is responsible for Web site, replication services, and endpoint distribution services.
- **Lumension EMSS Database Server:** This server is responsible for SQL database and stored procedures.

These servers can be installed on a single server, or on two, separate servers.

- **Combined Application and Database Server:** In configurations where the Lumension EMSS application and database are installed on the same server, the server requires both high processing power and disk speed, as it performs both application and database functions.

[Combined Lumension EMSS Application and Database Server](#) on page 19

- **Separate Application and Database Servers:** In configurations where the Lumension EMSS application and database are installed on separate servers, the server requirements are different. Although processing and software requirements on both servers remain the same, the database requires increased HDD specifications, as it executes disk-intensive functions.

[Separated Lumension EMSS Application and Database Servers](#) on page 20

Endpoint Scaling Considerations

Regardless of your Lumension EMSS application and database configuration, your server (or servers) require increasingly high-end hardware and software to offset increased load from endpoints. Use better hardware in environments with a high endpoint count.

Additional Considerations

- For additional information about the physical memory limits for Windows releases, refer to *[Memory Limits for Windows Releases](http://msdn.microsoft.com/en-us/library/windows/desktop/aa366778(v=vs.85).aspx)* ([http://msdn.microsoft.com/en-us/library/windows/desktop/aa366778\(v=vs.85\).aspx](http://msdn.microsoft.com/en-us/library/windows/desktop/aa366778(v=vs.85).aspx)).
- For additional information about moving SQL Server 2012, 2008, and 2005 system databases, refer to *[Move System Databases](http://msdn.microsoft.com/en-us/library/ms345408(v=sql.110).aspx)* ([http://msdn.microsoft.com/en-us/library/ms345408\(v=sql.110\).aspx](http://msdn.microsoft.com/en-us/library/ms345408(v=sql.110).aspx)).
- For additional information about Microsoft's top ten best practices for storage, refer to *[Storage Top Ten Best Practices](http://technet.microsoft.com/en-us/library/cc966534.aspx)* (<http://technet.microsoft.com/en-us/library/cc966534.aspx>).



Combined Lumension EMSS Application and Database Server

For optimal performance, the hardware and software supporting Lumension Endpoint Management and Security Suite should be scaled to your endpoint count.

The following table lists the recommended hardware and software for you Lumension EMSS network.

Note: Installation on a physical server is assumed. If installing to virtual environment, refer to [Lumension KnowledgeBase Article 258](http://www.lumension.com/kb/258) (<http://www.lumension.com/kb/258>).

Combined Server Recommended Configuration

Endpoint Count		< 50	< 500	< 1,000	< 5,000	< 10,000 ¹	
Software	Operating System	Windows 2008 R2	Windows 2008 R2	Windows 2008 R2	Windows 2008 R2	Windows 2008 R2	
	Operating System Edition	Standard	Standard	Standard	Standard	Standard	
	Operating System Architecture	x64	x64	x64	x64	x64	
	Database Server	SQL 2008 R2	SQL 2008 R2	SQL 2008 R2	SQL 2008 R2	SQL 2008 R2	
	Database Server Edition	Standard ²	Standard	Standard	Standard	Enterprise	
	Database Server Architecture	x86/x64	x64	x64	x64	x64	
Hardware	Core Architecture ³	2	2	4	8	16	
	Core Speed (GHz)	2.0+	2.0+	2.0+	2.0+	2.0+	
	RAM (GB) ⁴	4	4	8	16	32	
	Network (LAN)	1 Gb/s	1 Gb/s	1 Gb/s	1 Gb/s	1 Gb/s	
	Disk Array ⁵	RAID 1	RAID 1	Multiple RAID	Multiple RAID	Multiple RAID	
	# Hard Drives	2	2	4	6	8	
	Drive Speed (RPM)	7200	7200	10k/SSD	10k/SSD	15k/SSD	
	Hard Drive Volume Breakdown						
	OS/Data	250GB	500GB	N/A	N/A	N/A	
	OS	N/A	N/A	RAID 1 - 250GB	RAID 1 - 250GB	RAID 1 - 250GB	
	Data	N/A	N/A	RAID 1 - 500GB	RAID 1/SSD - 1TB	RAID 10/SSD - 1TB	



Endpoint Count		< 50	< 500	< 1,000	< 5,000	< 10,000 ¹
	Temp DB	N/A	N/A	N/A	RAID 0 - 250GB	SSD - 240GB
<ol style="list-style-type: none"> If you are managing 10000+ endpoints, contact Lumension Support (http://support.lumension.com) for a recommended configuration. Evaluation customers should use Express edition with Advanced Services. A Sandy Bridge Xeon+ or AMD equivalent is recommended. On virtualized servers, 2x the assigned cores is recommended. On virtualized servers, 2x RAM is recommended for networks supporting 1000+ endpoints. Due to performance issues, do not use RAID 5 configurations. Replace the disk array with a shared SAN, an enterprise-class SSD, or another enterprise storage solution. <ul style="list-style-type: none"> 1000 IOPS minimum sustained performance is recommended. A dedicated array or LUN is recommended. 						

Separated Lumension EMSS Application and Database Servers

When the Application Server and Database Server are installed on two physical servers, then each servers recommended hardware requirements will increase according to the number of managed endpoints in your network.

Review the following information when the components are installed on separate servers.

Note: Installation on a physical server is assumed. If installing to virtual environment, refer to [Lumension KnowledgeBase Article 258 \(http://www.lumension.com/kb/258\)](http://www.lumension.com/kb/258).

Recommended Application Server Configuration

The following table lists the recommended configuration for the Application Server.

Endpoint Count		< 50	< 500	< 1,000	< 5,000	< 10,000 ¹
Software	Operating System	Windows 2008 R2	Windows 2008 R2	Windows 2008 R2	Windows 2008 R2	Windows 2008 R2
	Operating System Edition	Standard	Standard	Standard	Standard	Standard
	Operating System Architecture	x64	x64	x64	x64	x64
Application Server Hardware	Core Architecture ²	2	2	4	8	16
	Core Speed (GHz)	2.0+	2.0+	2.0+	2.0+	2.0+
	RAM (GB) ³	4	4	8	16	16
	Network (LAN)	1 Gb/s	1 Gb/s	1 Gb/s	1 Gb/s	1 Gb/s



Endpoint Count		< 50	< 500	< 1,000	< 5,000	< 10,000 ¹
	Disk Array ⁴	RAID 1	RAID 1	RAID 1/SSD	RAID 1/SSD	RAID 1/SSD
	# Hard Drives	2	2	2	2	2
	Drive Speed (RPM)	7200	7200	10k/SSD	10k/SSD	10k/SSD
Hard Drive Volume Breakdown						
	OS/Data (GB)	250	500	500	500	500
<ol style="list-style-type: none"> If you are managing 10000+ endpoints, contact Lumension Support (http://support.lumension.com) for a recommended configuration. A Sandy Bridge Xeon+ or AMD equivalent is recommended. On virtualized servers, 2x the assigned cores is recommended. On virtualized servers, 2x RAM is recommended for networks supporting 1000+ endpoints. Due to performance issues, do not use RAID 5 configurations. Replace the disk array with a shared SAN, an enterprise-class SSD, or another enterprise storage solution. <ul style="list-style-type: none"> 1000 IOPS minimum sustained performance is recommended. A dedicated array or LUN is recommended. 						

Recommended SQL Server Configuration

The following table lists the recommended configuration for the Database Server.

Endpoint Count		< 50	< 500	< 1,000	< 5,000	< 10,000 ¹
Software	Operating System	Windows 2008 R2	Windows 2008 R2	Windows 2008 R2	Windows 2008 R2	Windows 2008 R2
	Operating System Edition	Standard	Standard	Standard	Standard	Standard
	Operating System Architecture	x64	x64	x64	x64	x64
	Database Server	SQL 2008 R2	SQL 2008 R2	SQL 2008 R2	SQL 2008 R2	SQL 2008 R2
	Database Server Architecture	x86/x64	x64	x64	x64	x64
	Database Server Edition	Standard ²	Standard	Standard	Standard	Enterprise
SQL Server Hardware	Core Architecture ³	2	2	4	8	16
	Core Speed (GHz)	2.0+	2.0+	2.0+	2.0+	2.0+
	RAM (GB) ⁴	4	4	8	16	32
	Network (LAN)	1 Gb/s	1 Gb/s	1 Gb/s	1 Gb/s	1 Gb/s



Endpoint Count		< 50	< 500	< 1,000	< 5,000	< 10,000 ¹
	Disk Array ⁵	RAID 1	RAID 1	Multiple RAID	Multiple RAID	Multiple RAID
	# Hard Drives	2	2	4	6	8
	Drive Speed (RPM)	7200	7200	10k/SSD	10k/SSD	15k/SSD
Hard Drive Volume Breakdown						
	OS/Data (GB)	250	500	N/A	N/A	N/A
	OS (GB)	N/A	N/A	RAID 1 - 250	RAID 1 - 250	RAID 1 - 250
	Data	N/A	N/A	RAID 1 - 500GB	RAID 1/SSD - 1TB	RAID 10/SSD - 1TB
	Temp DB (GB)	N/A	N/A	N/A	RAID 0 - 250	SSD - 240
<ol style="list-style-type: none"> 1. If you are managing 10000+ endpoints, contact Lumension Support (http://support.lumension.com) for a recommended configuration. 2. Evaluation customers should use Express edition with Advanced Services. 3. A Sandy Bridge Xeon+ or AMD equivalent is recommended. On virtualized servers, 2x the assigned cores is recommended. 4. On virtualized servers, 2x RAM is recommended for networks supporting 1000+ endpoints. 5. Due to performance issues, do not use RAID 5 configurations. Replace the disk array with a shared SAN, an enterprise-class SSD, or another enterprise storage solution. <ul style="list-style-type: none"> • 1000 IOPS minimum sustained performance is recommended. • A dedicated array or LUN is recommended. 						



Chapter 2

Agent Requirements

In this chapter:

- Supported Endpoint Operating Systems
- Supported Endpoint Browsers
- Windows Endpoint Requirements
- Mac, Linux, or UNIX Endpoint Requirements
- Agent Locales and Internationalization
- Supported Endpoint Module Operating Systems

The Lumension Endpoint Management and Security Suite Agent is supported on a variety of operating systems and platforms. Before installing the agent on an endpoint, ensure that system meets the agent requirements.

Your endpoints must meet the hardware and software requirements for the Lumension Endpoint Management and Security Suite Agent. The following sections include system requirements that you should verify prior to installing the Lumension EMSS Agent. The complete list of requirements are listed in the following topics:

- [Supported Endpoint Operating Systems](#) on page 23
- [Supported Endpoint Browsers](#) on page 28
- [Windows Endpoint Requirements](#) on page 28
- [Mac, Linux, or UNIX Endpoint Requirements](#) on page 30
- [Agent Locales and Internationalization](#) on page 32
- [Supported Endpoint Module Operating Systems](#) on page 33

Supported Endpoint Operating Systems

Lumension Endpoint Management and Security Suite Agent functionality is supported on a variety of operating systems.

The agent is supported on endpoints that contain one of the supported endpoint operating system types:

- [Windows Endpoint Operating Systems](#) on page 24
- [Mac Endpoint Operating Systems](#) on page 25
- [Linux Endpoint Operating System](#) on page 26
- [UNIX Endpoint Operating System](#) on page 27



Windows Endpoint Operating Systems

The following table lists supported Windows platforms on which the Lumension Endpoint Management and Security Suite Agent is supported.

Table 11: Supported Windows Endpoint Operating Systems

Supported OS Versions	Supported Editions	Supported Processors	Data Width	Supported Agent
Windows Server 2012 R2	<ul style="list-style-type: none"> • Standard¹ • Datacenter¹ • Foundation • Essentials 	Intel	64 bit	Lumension EMSS 8.0
Windows 8.1	<ul style="list-style-type: none"> • Enterprise • Enterprise N • Professional² • Professional N 	Intel	32/64 bit	Lumension EMSS 8.0
Windows Storage Server 2012	<ul style="list-style-type: none"> • Standard • Workgroup 	Intel	64 bit	Lumension EMSS 8.0
Windows Server 2012	<ul style="list-style-type: none"> • Standard¹ • Datacenter¹ • Foundation • Essentials 	Intel	64 bit	Lumension EMSS 8.0
Windows 8	<ul style="list-style-type: none"> • Enterprise • Enterprise N • Professional² • Professional N 	Intel	32/64 bit	Lumension EMSS 8.0
Windows Server 2008 R2	<ul style="list-style-type: none"> • Enterprise • Standard • Web 	Intel	64 bit	Lumension EMSS 8.0
Windows Server 2008	<ul style="list-style-type: none"> • Enterprise • Standard • Web 	Intel	32/64 bit	Lumension EMSS 8.0



Supported OS Versions	Supported Editions	Supported Processors	Data Width	Supported Agent
Windows 7	<ul style="list-style-type: none"> Enterprise Standard Web 	Intel	32/64 bit	Lumension EMSS 8.0
Windows Vista ³	<ul style="list-style-type: none"> Business Enterprise Ultimate 	Intel	32/64 bit	Lumension EMSS 8.0
Windows Server 2003 SP1+	<ul style="list-style-type: none"> Enterprise⁴ Standard⁴ Web 	Intel	32/64 bit	Lumension EMSS 8.0
Windows Server 2003 R2	<ul style="list-style-type: none"> Enterprise⁴ Standard⁴ Web 	Intel	32/64 bit	Lumension EMSS 8.0
Windows XP SP2+ ⁵	Professional	Intel	32/64 bit	Lumension EMSS 8.0

¹Core mode for this edition is supported.

²This edition is also supported when Windows Media Center is installed.

³When installing the Device Control endpoint module on these editions, SP1+ is required.

⁴When installing the Device Control endpoint module on these editions, SP2+ is required.

⁵On Windows XP SP2 endpoints, the Microsoft Windows Installer 3.1 or higher must be present on the endpoint prior to installing or upgrading to the Lumension EMSS 8.0 Agent. Refer to [Lumension KnowledgeBase Article 1644 \(http://www.lumension.com/kb/1644\)](http://www.lumension.com/kb/1644) for additional information.

Mac Endpoint Operating Systems

The following table lists supported Mac platforms on which the Lumension Endpoint Management and Security Suite Agent is supported.

Table 12: Supported Mac Endpoint Operating Systems

Supported OS Versions	Supported Editions	Supported Processor(s)	Supported Agent
Mac OS X 10.8	All	Intel	Patch Agent for Linux, UNIX, and Mac 7.0306
Mac OS X 10.7	All	Intel	Patch Agent for Linux, UNIX, and Mac 7.0306



Supported OS Versions	Supported Editions	Supported Processor(s)	Supported Agent
Mac OS X 10.6	All	Intel	Patch Agent for Linux, UNIX, and Mac 7.0306

Linux Endpoint Operating System

The following table lists supported Linux platforms on which the Lumension Endpoint Management and Security Suite Agent is supported.

Table 13: Supported Linux Endpoint Operating Systems

Supported OS Versions	Supported Editions	Supported Processor(s)	Supported Agent
CentOS Linux 6	Server	Intel	Patch Agent for Linux, UNIX, and Mac 7.0306
CentOS Linux 5	Server	Intel	Patch Agent for Linux, UNIX, and Mac 7.0306
Oracle Linux 6	Server	Intel	Patch Agent for Linux, UNIX, and Mac 7.0306
Oracle Linux 5	Server	Intel	Patch Agent for Linux, UNIX, and Mac 7.0306
Novell SUSE Linux 11	<ul style="list-style-type: none"> • Desktop • Server 	Intel	Patch Agent for Linux, UNIX, and Mac 7.0306
Novell SUSE Linux 10	<ul style="list-style-type: none"> • Desktop • Server 	Intel	Patch Agent for Linux, UNIX, and Mac 7.0306
Red Hat Enterprise Linux 6	<ul style="list-style-type: none"> • Desktop • Server 	Intel	Patch Agent for Linux, UNIX, and Mac 7.0306
Red Hat Enterprise Linux 5	<ul style="list-style-type: none"> • Desktop • Server 	Intel	Patch Agent for Linux, UNIX, and Mac 7.0306



UNIX Endpoint Operating System

The following table lists supported UNIX platforms on which the Lumension Endpoint Management and Security Suite Agent is supported.

Table 14: Supported UNIX Endpoint Operating Systems

Supported OS Versions	Supported Editions	Supported Processor(s)	Supported Agent
Oracle Solaris 11	All	<ul style="list-style-type: none"> Intel SPARC 	Patch Agent for Linux, UNIX, and Mac 7.0306
Oracle Solaris 10	All	<ul style="list-style-type: none"> Intel SPARC 	Patch Agent for Linux, UNIX, and Mac 7.0306
Hewlett Packard HP-UX 11.31	All	<ul style="list-style-type: none"> PA-RISC Itanium 	Patch Agent for Linux, UNIX, and Mac 7.0306
Hewlett Packard HP-UX 11.23	All	PA-RISC	Patch Agent for Linux, UNIX, and Mac 7.0306
Hewlett Packard HP-UX 11.11	All	PA-RISC	Patch Agent for Linux, UNIX, and Mac 7.0306
IBM AIX 7.1	All	Power	Patch Agent for Linux, UNIX, and Mac 7.0306
IBM AIX 6.1	All	Power	Patch Agent for Linux, UNIX, and Mac 7.0306



Supported Endpoint Browsers

Lumension Endpoint Management and Security Suite (Lumension EMSS) is an Internet application that conforms to standard Web conventions. Lumension recommends you download the most recent version of the Lumension EMSS Agent installer using a supported Web browser.

Table 15: Supported Web Browsers

Supported Browser	Supported Versions
Microsoft Internet Explorer	<ul style="list-style-type: none"> • 10 with Compatibility View • 9 with Compatibility View • 8 with Compatibility View • How to enable Compatibility View in IE 10 • How to enable Compatibility View in IE 9 • How to enable Compatibility View in IE 8
Mozilla Firefox	24.x Extended Support Release

Windows Endpoint Requirements

Before installing the Lumension Endpoint Management and Security Suite (Lumension EMSS) Agent on a supported Windows endpoint, ensure that it meets the necessary hardware and software requirements.

Processor	500 MHz or higher for Windows XP SP2+ and Windows Server 2003 SP1+ 800 MHz or higher for Windows Vista and later
Physical RAM	256 MB for Windows XP SP2+ and Windows Server 2003 SP1+ (minimum) 1 GB for Windows Vista and later (minimum)
	Note: Your Lumension EMSS endpoint may require additional RAM depending on the RAM requirements of other applications installed.
Free Disk Space	1 GB of free space
Network Connection	A 10 Mbps network connection with access to the Lumension Endpoint Management and Security Suite server.



Antivirus

Ensure any third-party antivirus software on the endpoint computer is disabled prior to Lumension EMSS Agent installation.

Port Requirements

- Port 80
This must be open for Lumension EMSS module downloads.
- Port 443
This must be open for Lumension EMSS policy download and general communication.
- Ephemeral ports
This is used to listen for Notification Manager connection requests (Patch and Remediation) only.
 - For Windows XP and Windows Server 2003, open ports 1024-4999.
 - For Windows Vista and later, open ports 49152-65535.

Microsoft .NET Framework

Microsoft .NET Framework (is required for Patch and Remediation only). The required version of the .NET Framework changes according to operating system.

Table 16: .NET Framework Version

Operating System	.Net Framework Version
Microsoft Windows 8	4.0+
Microsoft Windows Storage Server 2012	4.0+
Microsoft Windows Server 2012	4.0+
Microsoft Windows Server 2012 R2	4.0+
Microsoft Windows 7	3.0+
Microsoft Windows Server 2008 R2	3.0+
Microsoft Windows Vista	3.0+
Microsoft Windows Server 2008	3.0+
Microsoft Windows 2003 SP1+	2.0+
Microsoft Windows XP SP2+	2.0+

Other Software Requirements

Windows Installer 3.1 or later

Microsoft Visual C++ 2010 Redistributable Package or later

Note: If not installed at time of agent installation, the Microsoft Visual C++ 2010 Redistributable Package is installed during agent installation.



Mac, Linux, or UNIX Endpoint Requirements

Before installing the Lumension EMSS Agent on a supported Mac, Linux, or UNIX endpoint, ensure that it meets the necessary hardware and software requirements.

Processor	500 MHz processor or higher
Physical RAM	256 MBs or greater
	Note: Your Lumension EMSS endpoint may require additional RAM depending on the RAM requirements of other applications installed.
Disk Requirements	<ul style="list-style-type: none"> • Presence of a <code>/tmp</code> directory (<code>/var/tmp</code> on Oracle Solaris) with 100 MB of free space. • 50 MB of free space for the agent installation directory. • Lumension EMSS also recommends 100 Mb of unused disk space to download and install content.
Java Runtime Environment (JRE)	<ul style="list-style-type: none"> • Ensure Java Runtime Environment (JRE) 1.5.0 or later is installed. Refer to Java Frequently Asked Questions (http://www.java.com/en/download/faq/whatis_java.xml) for additional information. <p>Note: IcedTea/Open JDK can be substituted for Oracle Java JRE on the following operating systems:</p> <ul style="list-style-type: none"> • Mac OS X (versions 10.8 and 10.7 only) • Cent OS Linux • Novell SUSE Linux • Oracle Linux • Red Hat Enterprise Linux (version 6 only) <p>Refer to IcedTea Project (http://openjdk.java.net/projects/icedtea/) for additional information.</p>
Perl	<p>Perl is needed for Linux content. Perl is automatically installed for all open-source Linux operating systems unless uninstalled.</p> <p>Tip: To determine if you have perl installed, type <code>perl -v</code> on a command line. Refer to Perl Download (http://www.perl.org/get.html) to download.</p>
Network Connection	A 10 Mbps network connection with access to the Lumension Endpoint Management and Security Suite server. Refer to Supported Endpoint Browsers on page 28 for a list of supported browsers.



Antivirus	Ensure any antivirus software installed on the applicable endpoint computer is disabled.
Port Requirements	<ul style="list-style-type: none">• Port 80. This must be open for Lumension EMSS module downloads.• Port 443. This must be open for Lumension EMSS policy download and general communication.• Ports 49152–65535. These ports are used as listener ports for <i>check now</i> commands, which are server-sent requests that agents use to check for tasks. Closing these ports delays agent tasks until they check in themselves.



Agent Locales and Internationalization

The Lumension Endpoint Management and Security Suite Agent is localized and internationalized for a variety of languages.

The agent has been fully localized and translated for the following locales.

- en-AU: English (Australia)
- en-BZ: English (Belize)
- en-CA: English (Canada)
- en-IN: English (India)
- en-IE: English (Ireland)
- en-JM: English (Jamaica)
- en-NZ: English (New Zealand)
- en-PH: English (Philippines)
- en-SG: English (Singapore)
- en-ZA: English (South Africa)
- en-GB: English (United Kingdom)
- en-US: English (United States)
- fr-FR: French (France)
- de-DE: German (Germany)
- it-IT: Italian (Italy)
- ja-JP: Japanese (Japan)
- nl-NL: Dutch (Netherlands)
- pt-BE: Portuguese (Brazil)
- ru-RU: Russian (Russia)
- es-ES: Spanish (Spain)
- sv-SE: Swedish (Sweden)
- zh-CN / zh-CHS: Chinese (China [Simplified])
- zh-TW / zh-CHT: Chinese (Taiwan [Traditional])

Note: The agent has been internationalized to operate in the following locales. However, the agent UI text has not been translated. English text is displayed.

- da-DA: Danish (Denmark)
- fi-FI: Finnish (Finland)
- ko-KR: Korean (Korea)
- no-NO: Norwegian - Nynorsk (Norway)



Supported Endpoint Module Operating Systems

The modules that you can install vary by operating system and your licensing.

- [Windows Endpoint Operating Systems](#) on page 33
- [Mac Endpoint Operating Systems](#) on page 34
- [Linux Endpoint Operating Systems](#) on page 35
- [UNIX Endpoint Operating Systems](#) on page 36

A list of module abbreviations within the tables:

LPR: Lumension Patch and Remediation

LAC: Lumension Application Control

LDC: Lumension Device Control

LAV: Lumension AntiVirus

LPM: Lumension Power Management

WOL: Lumension Wake on LAN

SCM: Lumension Security Configuration Management

RSM: Lumension Remote Systems Management

LMDM: Lumension Mobile Device Management

Windows Endpoint Operating Systems

The following table lists the modules you can install on endpoints that contain a Windows operating system.

Table 17: Supported Endpoint Windows Operating Systems by Module

Operating System ⁽¹⁾	Modules ⁽²⁾								
	LPR	LAC	LDC	LAV	LPM	WOL	SCM	RSM	LMDM
Microsoft Windows 8.1	✓	✓	✓	✓	✓	✓	✓	✓	•
Microsoft Windows 8	✓	✓	✓	✓	✓	✓	✓	✓	•
Microsoft Windows Server 2012	✓	✓	✓	✓	✓	✓	✓	✓	•
Microsoft Windows Server 2012 R2	✓	✓	✓	✓	✓	✓	✓	✓	•



Operating System ⁽¹⁾	Modules ⁽²⁾								
	LPR	LAC	LDC	LAV	LPM	WOL	SCM	RSM	LMDM
Microsoft Windows Storage Server 2012	✓	✓	✓	✓	✓	✓	✓	✓	•
Microsoft Windows 7	✓	✓	✓	✓	✓	✓	✓	✓	•
Microsoft Windows Server 2008 R2	✓	✓	✓	✓	✓	✓	✓	✓	•
Microsoft Windows Vista	✓	✓	✓	✓	✓	✓	✓	✓	•
Microsoft Windows Server 2003 R2	✓	✓	✓	✓	✓	✓	✓	✓	•
Microsoft Windows Server 2003 SP1+	✓	✓	✓	✓	✓	✓	✓	✓	•
Microsoft Windows XP SP2+	✓	✓	✓	✓	✓	✓	✓	✓	•
<p>(1) Refer to Supported Endpoint Operating Systems on page 23 for a complete list of operating system versions.</p> <p>(2) Refer to Supported Endpoint Module Operating Systems on page 33 for a list of module abbreviation definitions.</p>									

Mac Endpoint Operating Systems

The following table lists the modules you can install on endpoints that contain a Mac operating system.

Table 18: Supported Endpoint Mac Operating Systems by Module

Operating System ⁽¹⁾	Modules ⁽²⁾								
	LPR	LAC	LDC	LAV	LPM	WOL	SCM	RSM	LMDM
Mac OS X 10.8	✓	•	•	•	•	•	•	•	•
Mac OS X 10.7	✓	•	•	•	•	•	•	•	•



Operating System ⁽¹⁾	Modules ⁽²⁾								
	LPR	LAC	LDC	LAV	LPM	WOL	SCM	RSM	LMDM
Mac OS X 10.6	✓	•	•	•	•	•	•	•	•
Mac OS X 10.5	✓	•	•	•	•	•	•	•	•
Mac OS X 10.4	✓	•	•	•	•	•	•	•	•
Mac OS X 10.3	✓	•	•	•	•	•	•	•	•

(1) Refer to [Supported Endpoint Operating Systems](#) on page 23 for a complete list of operating system versions.

(2) Refer to [Supported Endpoint Module Operating Systems](#) on page 33 for a list of module abbreviation definitions.

Linux Endpoint Operating Systems

The following table lists the modules you can install on endpoints that contain a Linux operating system.

Table 19: Supported Endpoint Linux Operating Systems by Module

Operating System ⁽¹⁾	Modules ⁽²⁾								
	LPR	LAC	LDC	LAV	LPM	WOL	SCM	RSM	LMDM
Cent OS Linux 6	✓	•	•	•	•	•	•	•	•
Cent OS Linux 5	✓	•	•	•	•	•	•	•	•
Oracle Linux 11	✓	•	•	•	•	•	•	•	•
Oracle Linux 10	✓	•	•	•	•	•	•	•	•
Novell SUSE Linux 11	✓	•	•	•	•	•	•	•	•
Novell SUSE Linux 10	✓	•	•	•	•	•	•	•	•
Red Hat Enterprise Linux 6	✓	•	•	•	•	•	•	•	•
Red Hat Enterprise Linux 5	✓	•	•	•	•	•	•	•	•



Operating System ⁽¹⁾	Modules ⁽²⁾								
	LPR	LAC	LDC	LAV	LPM	WOL	SCM	RSM	LMDM
<p>(1) Refer to Supported Endpoint Operating Systems on page 23 for a complete list of operating system versions.</p> <p>(2) Refer to Supported Endpoint Module Operating Systems on page 33 for a list of module abbreviation definitions.</p>									

UNIX Endpoint Operating Systems

The following table lists the modules you can install on endpoints that contain a UNIX operating system.

Table 20: Supported Endpoint UNIX Operating Systems by Module

Operating System ⁽¹⁾	Modules ⁽²⁾								
	LPR	LAC	LDC	LAV	LPM	WOL	SCM	RSM	LMDM
Oracle Solaris 11	✓	•	•	•	•	•	•	•	•
Oracle Solaris 10	✓	•	•	•	•	•	•	•	•
HP-UX 11.31	✓	•	•	•	•	•	•	•	•
HP-UX 11.23	✓	•	•	•	•	•	•	•	•
HP-UX 11.11	✓	•	•	•	•	•	•	•	•
IBM AIX 7.1	✓	•	•	•	•	•	•	•	•
IBM AIX 6.1	✓	•	•	•	•	•	•	•	•
<p>(1) Refer to Supported Endpoint Operating Systems on page 23 for a complete list of operating system versions.</p> <p>(2) Refer to Supported Endpoint Module Operating Systems on page 33 for a list of module abbreviation definitions.</p>									



Chapter

3

Recommended Configurations

In this chapter:

- Lumension Endpoint Management and Security Suite Server Components
- Combined Lumension EMSS Application and Database Server
- Separated Lumension EMSS Application and Database Servers
- Recommended Server Configuration Information

Lumension recommends different hardware and software requirements customized for your Lumension Endpoint Management and Security Suite network setup.

Server Configuration Considerations

Lumension EMSS requires two main components to function:

- **Lumension EMSS Application Server:** This server is responsible for Web site, replication services, and endpoint distribution services.
- **Lumension EMSS Database Server:** This server is responsible for SQL database and stored procedures.

These servers can be installed on a single server, or on two, separate servers.

- **Combined Application and Database Server:** In configurations where the Lumension EMSS application and database are installed on the same server, the server requires both high processing power and disk speed, as it performs both application and database functions.

[Combined Lumension EMSS Application and Database Server](#) on page 19

- **Separate Application and Database Servers:** In configurations where the Lumension EMSS application and database are installed on separate servers, the server requirements are different. Although processing and software requirements on both servers remain the same, the database requires increased HDD specifications, as it executes disk-intensive functions.

[Separated Lumension EMSS Application and Database Servers](#) on page 20



Endpoint Scaling Considerations

Regardless of your Lumension EMSS application and database configuration, your server (or servers) require increasingly high-end hardware and software to offset increased load from endpoints. Use better hardware in environments with a high endpoint count.

Additional Considerations

- For additional information about the physical memory limits for Windows releases, refer to *Memory Limits for Windows Releases* ([http://msdn.microsoft.com/en-us/library/windows/desktop/aa366778\(v=vs.85\).aspx](http://msdn.microsoft.com/en-us/library/windows/desktop/aa366778(v=vs.85).aspx)).
- For additional information about moving SQL Server 2012, 2008, and 2005 system databases, refer to *Move System Databases* ([http://msdn.microsoft.com/en-us/library/ms345408\(v=sql.110\).aspx](http://msdn.microsoft.com/en-us/library/ms345408(v=sql.110).aspx)).
- For additional information about Microsoft's top ten best practices for storage, refer to *Storage Top Ten Best Practices* (<http://technet.microsoft.com/en-us/library/cc966534.aspx>).

Lumension Endpoint Management and Security Suite Server Components

The Lumension Endpoint Management and Security Suite server contains the following components: the Lumension Endpoint Management and Security Suite Application Server and the Lumension Endpoint Management and Security Suite Database Server.

These components may share a physical server or operate on separate physical servers.

The following list describes each server component.

Lumension Endpoint Management and Security Suite Application Server	This server is responsible for Web site, replication services, and endpoint distribution services.
Lumension Endpoint Management and Security Suite Database Server	This server is responsible for SQL database and stored procedures.



Combined Lumension EMSS Application and Database Server

For optimal performance, the hardware and software supporting Lumension Endpoint Management and Security Suite should be scaled to your endpoint count.

The following table lists the recommended hardware and software for you Lumension EMSS network.

Note: Installation on a physical server is assumed. If installing to virtual environment, refer to [Lumension KnowledgeBase Article 258 \(http://www.lumension.com/kb/258\)](http://www.lumension.com/kb/258).

Combined Server Recommended Configuration

Endpoint Count		< 50	< 500	< 1,000	< 5,000	< 10,000 ¹	
Software	Operating System	Windows 2008 R2	Windows 2008 R2	Windows 2008 R2	Windows 2008 R2	Windows 2008 R2	
	Operating System Edition	Standard	Standard	Standard	Standard	Standard	
	Operating System Architecture	x64	x64	x64	x64	x64	
	Database Server	SQL 2008 R2	SQL 2008 R2	SQL 2008 R2	SQL 2008 R2	SQL 2008 R2	
	Database Server Edition	Standard ²	Standard	Standard	Standard	Enterprise	
	Database Server Architecture	x86/x64	x64	x64	x64	x64	
Hardware	Core Architecture ³	2	2	4	8	16	
	Core Speed (GHz)	2.0+	2.0+	2.0+	2.0+	2.0+	
	RAM (GB) ⁴	4	4	8	16	32	
	Network (LAN)	1 Gb/s	1 Gb/s	1 Gb/s	1 Gb/s	1 Gb/s	
	Disk Array ⁵	RAID 1	RAID 1	Multiple RAID	Multiple RAID	Multiple RAID	
	# Hard Drives	2	2	4	6	8	
	Drive Speed (RPM)	7200	7200	10k/SSD	10k/SSD	15k/SSD	
	Hard Drive Volume Breakdown						
	OS/Data	250GB	500GB	N/A	N/A	N/A	
	OS	N/A	N/A	RAID 1 - 250GB	RAID 1 - 250GB	RAID 1 - 250GB	



Endpoint Count		< 50	< 500	< 1,000	< 5,000	< 10,000 ¹
	Data	N/A	N/A	RAID 1 - 500GB	RAID 1/ SSD - 1TB	RAID 10/ SSD - 1TB
	Temp DB	N/A	N/A	N/A	RAID 0 - 250GB	SSD - 240GB

1. If you are managing 10000+ endpoints, contact [Lumension Support \(http://support.lumension.com\)](http://support.lumension.com) for a recommended configuration.
2. Evaluation customers should use Express edition with Advanced Services.
3. A Sandy Bridge Xeon+ or AMD equivalent is recommended. On virtualized servers, 2x the assigned cores is recommended.
4. On virtualized servers, 2x RAM is recommended for networks supporting 1000+ endpoints.
5. Due to performance issues, do not use RAID 5 configurations. Replace the disk array with a shared SAN, an enterprise-class SSD, or another enterprise storage solution.
 - 1000 IOPS minimum sustained performance is recommended.
 - A dedicated array or LUN is recommended.

Separated Lumension EMSS Application and Database Servers

When the Application Server and Database Server are installed on two physical servers, then each servers recommended hardware requirements will increase according to the number of managed endpoints in your network.

Review the following information when the components are installed on separate servers.

Note: Installation on a physical server is assumed. If installing to virtual environment, refer to [Lumension KnowledgeBase Article 258 \(http://www.lumension.com/kb/258\)](http://www.lumension.com/kb/258).

Recommended Application Server Configuration

The following table lists the recommended configuration for the Application Server.

Endpoint Count		< 50	< 500	< 1,000	< 5,000	< 10,000 ¹
Software	Operating System	Windows 2008 R2	Windows 2008 R2	Windows 2008 R2	Windows 2008 R2	Windows 2008 R2
	Operating System Edition	Standard	Standard	Standard	Standard	Standard
	Operating System Architecture	x64	x64	x64	x64	x64



Endpoint Count		< 50	< 500	< 1,000	< 5,000	< 10,000 ¹
Application Server Hardware	Core Architecture ²	2	2	4	8	16
	Core Speed (GHz)	2.0+	2.0+	2.0+	2.0+	2.0+
	RAM (GB) ³	4	4	8	16	16
	Network (LAN)	1 Gb/s	1 Gb/s	1 Gb/s	1 Gb/s	1 Gb/s
	Disk Array ⁴	RAID 1	RAID 1	RAID 1/SSD	RAID 1/SSD	RAID 1/SSD
	# Hard Drives	2	2	2	2	2
	Drive Speed (RPM)	7200	7200	10k/SSD	10k/SSD	10k/SSD
	Hard Drive Volume Breakdown					
OS/Data (GB)	250	500	500	500	500	
<ol style="list-style-type: none"> If you are managing 10000+ endpoints, contact Lumension Support (http://support.lumension.com) for a recommended configuration. A Sandy Bridge Xeon+ or AMD equivalent is recommended. On virtualized servers, 2x the assigned cores is recommended. On virtualized servers, 2x RAM is recommended for networks supporting 1000+ endpoints. Due to performance issues, do not use RAID 5 configurations. Replace the disk array with a shared SAN, an enterprise-class SSD, or another enterprise storage solution. <ul style="list-style-type: none"> 1000 IOPS minimum sustained performance is recommended. A dedicated array or LUN is recommended. 						

Recommended SQL Server Configuration

The following table lists the recommended configuration for the Database Server.

Endpoint Count		< 50	< 500	< 1,000	< 5,000	< 10,000 ¹
Software	Operating System	Windows 2008 R2	Windows 2008 R2	Windows 2008 R2	Windows 2008 R2	Windows 2008 R2
	Operating System Edition	Standard	Standard	Standard	Standard	Standard
	Operating System Architecture	x64	x64	x64	x64	x64
	Database Server	SQL 2008 R2	SQL 2008 R2	SQL 2008 R2	SQL 2008 R2	SQL 2008 R2
	Database Server Architecture	x86/x64	x64	x64	x64	x64
	Database Server Edition	Standard ²	Standard	Standard	Standard	Enterprise



Endpoint Count		< 50	< 500	< 1,000	< 5,000	< 10,000 ¹	
SQL Server Hardware	Core Architecture ³	2	2	4	8	16	
	Core Speed (GHz)	2.0+	2.0+	2.0+	2.0+	2.0+	
	RAM (GB) ⁴	4	4	8	16	32	
	Network (LAN)	1 Gb/s	1 Gb/s	1 Gb/s	1 Gb/s	1 Gb/s	
	Disk Array ⁵	RAID 1	RAID 1	Multiple RAID	Multiple RAID	Multiple RAID	
	# Hard Drives	2	2	4	6	8	
	Drive Speed (RPM)	7200	7200	10k/SSD	10k/SSD	15k/SSD	
	Hard Drive Volume Breakdown						
	OS/Data (GB)	250	500	N/A	N/A	N/A	
	OS (GB)	N/A	N/A	RAID 1 - 250	RAID 1 - 250	RAID 1 - 250	
	Data	N/A	N/A	RAID 1 - 500GB	RAID 1/SSD - 1TB	RAID 10/SSD - 1TB	
	Temp DB (GB)	N/A	N/A	N/A	RAID 0 - 250	SSD - 240	

1. If you are managing 10000+ endpoints, contact [Lumension Support \(http://support.lumension.com\)](http://support.lumension.com) for a recommended configuration.
2. Evaluation customers should use Express edition with Advanced Services.
3. A Sandy Bridge Xeon+ or AMD equivalent is recommended. On virtualized servers, 2x the assigned cores is recommended.
4. On virtualized servers, 2x RAM is recommended for networks supporting 1000+ endpoints.
5. Due to performance issues, do not use RAID 5 configurations. Replace the disk array with a shared SAN, an enterprise-class SSD, or another enterprise storage solution.
 - 1000 IOPS minimum sustained performance is recommended.
 - A dedicated array or LUN is recommended.



Recommended Server Configuration Information

Additional server configuration may be needed for physical memory limits, SQL Server system databases, and storage practices.

- For additional information about the physical memory limits for Windows releases, refer to *Memory Limits for Windows Releases* ([http://msdn.microsoft.com/en-us/library/aa366778\(VS.85\).aspx#physical_memory_limits_windows_server_2003](http://msdn.microsoft.com/en-us/library/aa366778(VS.85).aspx#physical_memory_limits_windows_server_2003)).
- For additional information about moving SQL Server 2008 system databases, refer to *Moving System Databases* ([http://msdn.microsoft.com/en-us/library/ms345408\(v=SQL.100\).aspx](http://msdn.microsoft.com/en-us/library/ms345408(v=SQL.100).aspx)).
- For additional information about Microsoft's top ten best practices for storage, refer to *Storage Top Ten Best Practices* (<http://technet.microsoft.com/en-us/library/cc966534.aspx>).



