



Ivanti Endpoint Security 8.5 Update 2

System Requirements Guide

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Endpoint Security

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Notices

Version Information

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Table of Contents

| | |
|--|-----------|
| System Requirements..... | 7 |
| Supported Operating Systems..... | 7 |
| Supported Languages and Locales..... | 8 |
| Software Requirements..... | 9 |
| Web Browser Requirements..... | 10 |
| SQL Server Requirements..... | 11 |
| IIS Requirements..... | 12 |
| .NET Framework Requirements..... | 13 |
| Hardware Requirements..... | 13 |
| Network Requirements..... | 14 |
| Recommended Configurations..... | 15 |
| Combined Ivanti Endpoint Security Application and Database Server..... | 16 |
| Separated Ivanti Endpoint Security Application and Database Servers..... | 17 |
| Chapter 2: Agent Requirements..... | 21 |
| Supported Endpoint Operating Systems..... | 21 |
| Windows Endpoint Operating Systems..... | 22 |
| Mac Endpoint Operating Systems..... | 23 |
| Linux Endpoint Operating Systems..... | 24 |
| UNIX Endpoint Operating Systems..... | 24 |
| Supported Endpoint Browsers..... | 25 |
| Windows Endpoint Requirements..... | 25 |
| Linux, UNIX, or Mac Endpoint Requirements..... | 27 |
| Agent Locales and Internationalization..... | 30 |
| Supported Endpoint Module Operating Systems..... | 31 |
| Windows Endpoint Supported Modules..... | 31 |
| Linux, UNIX, and Mac Supported Modules..... | 32 |
| Chapter 3: Recommended Configurations..... | 33 |
| Ivanti Endpoint Security Server Components..... | 34 |
| Combined Ivanti Endpoint Security Application and Database Server..... | 34 |
| Separated Ivanti Endpoint Security Application and Database Servers..... | 36 |
| Recommended Server Configuration Information..... | 38 |



System Requirements

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

On servers that do not meet recommended system requirements, Ivanti Endpoint Security will not perform optimally, or may not install.

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

For all platforms, we recommend that you upgrade to the latest Service Pack and critical updates to ensure the best compatibility and security. For some Windows Operating Systems, installation of the latest service pack may be required.

Supported Operating Systems

The Ivanti Endpoint Security server is supported on a number of Microsoft Windows operating systems.

Table 1: Supported Operating Systems

| Operating System | Edition | Data Width |
|---|--|---------------------|
| Microsoft Windows Server 2016 | Standard Datacenter | 64-bit |
| Microsoft Windows Server 2012 R2 ¹ | Standard ² Datacenter ² Foundation | 64-bit |
| Microsoft Windows Server 2012 ¹ | Standard ² Datacenter ² Foundation | 64-bit |
| Microsoft Windows Server 2008 R2 SP1 ³ | Standard ² Enterprise ² | 64-bit |
| Microsoft Windows Server 2008 SP2 ³ | Web Standard Enterprise | 64-bit ⁴ |

| Operating System | Edition | Data Width |
|--|---------|------------|
| <ol style="list-style-type: none"> 1. Initial installation of Ivanti Endpoint Security on this family of operating systems when Core mode is enabled is not supported; a GUI is required. However, following installation, general operation of Ivanti Endpoint Security while Core mode is enabled is supported. For more information on enabling and disabling Core mode on Windows 2012 and 2012 R2 servers, see Ivanti Community Article 59234 (Converting Windows Server 2012 from a Server with a GUI mode to Core mode). 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. 4. New installations of Ivanti Endpoint Security are only supported on the 64-bit version of this operating system. However, if upgrading to 8.5 Update 2 from a prior supported version of Ivanti Endpoint Security, the 32-bit version of this operating system is still supported. | | |

Supported Languages and Locales

Ivanti Endpoint Security 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.

Ivanti Endpoint Security is installable on the following locales. The installer is available only in English.

Table 2: 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 Ivanti Endpoint Security, you can use a translated UI by selecting one of the following languages in your Web browser.

Table 3: 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 Ivanti Endpoint Security server requires other software to operate. Review the listed software requirements to confirm your server has the required software.

Before you begin installation of Ivanti Endpoint Security 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 10 |

Ivanti Endpoint Security requires additional, supplemental software, but the Ivanti Endpoint Security will install it for you during installation:

| Software | Documentation |
|---|---|
| <ul style="list-style-type: none"> Microsoft SQL Server Microsoft .NET Framework Microsoft Windows Installer Microsoft Silverlight 5.0 Microsoft Visual C++ 2010 SP1 Redistributable Package (x86 and x64) Microsoft Visual C++ 2012 Update 4 Redistributable Package (x86 and x64) | <ul style="list-style-type: none"> SQL Server Requirements on page 11 .NET Framework Requirements on page 13 IIS Requirements on page 12 .NET Framework Requirements on page 13 |

Note: Although Ivanti Endpoint Security installs an instance of SQL Server 2014, (x64), installing an instance yourself is best practice when supporting an enterprise environment.

Web Browser Requirements

You need one of several specific Web browsers to use the Ivanti Endpoint Security Web console after installation.

Table 4: Supported Web Browsers

| Supported Browser | Supported Versions |
|-----------------------------|---|
| Google Chrome | 53 and higher |
| Microsoft Edge | EdgeHTML 14 and higher |
| Microsoft Internet Explorer | 9 and higher |
| Mozilla Firefox | 31 Extended Support Release and higher Support cannot be guaranteed due to the accelerated release cycle of Mozilla Firefox Rapid Release. |

Important:

- Microsoft Silverlight 5.0 is also required to use Ivanti Installation Manager.
- Google Chrome and Microsoft Edge are currently incompatible with these Ivanti Endpoint Security features:
 - Patch & Remediation Patch Package Editor
 - Device Control Media Hasher
 - Install Manager

SQL Server Requirements

Ivanti Endpoint Security requires an instance of Microsoft SQL Server to store its data. Multiple version of SQL Server are supported.

Table 5: Supported Database Servers

| Database | Data Width | Edition |
|----------------------------------|------------|--|
| SQL Server 2016 | x86/x64 | <ul style="list-style-type: none"> Express Standard Enterprise |
| SQL Server 2014 SP1 | x86/x64 | <ul style="list-style-type: none"> Express Standard Enterprise Business Intelligence |
| SQL Server 2014 | x86/x64 | <ul style="list-style-type: none"> Express Standard Enterprise Business Intelligence |
| SQL Server 2012 and later | x86/x64 | <ul style="list-style-type: none"> Express Standard Enterprise |
| SQL Server 2008 R2 SP1 and later | x86/x64 | <ul style="list-style-type: none"> Express Standard Enterprise |
| SQL Server 2008 SP2 and later | x86/x64 | <ul style="list-style-type: none"> Express Standard Enterprise |

Note:

- Ivanti recommends using the latest service pack available for your instance of SQL Server.
- If installing to a 64-bit server, Ivanti recommends installing using a supported preexisting instance of SQL Server that supports 64-bit architecture.
- For evaluation installs, Ivanti Endpoint Security installs an instance of SQL Server 2014 Express SP1, which you can later upgrade to Standard or Enterprise before adding Ivanti Endpoint Security to a production environment. If you are evaluating Ivanti Endpoint Security, and you have no intent of using SQL Server 2014 Express SP1, your evaluation installation of Ivanti Endpoint Security should use your preferred version of SQL Server.

You can install one of the supported database servers instances listed above in the following locations relative to the Ivanti Endpoint Security server.

Table 6: Supported Database Instance Install Locations

| Location |
|---|
| <ul style="list-style-type: none"> On the target Ivanti Endpoint Security server itself, as installed by the Ivanti server installer, which installs an instance of SQL Server 2014 Express SP1 (x64). On the target Ivanti server itself, using a preexisting instance of SQL Server. On a remote server that the Ivanti server remotely connects to, using a preexisting instance of SQL Server. |
| <p>Important: When installing Ivanti Endpoint Security using an existing SQL Server instance, the instance collation must be set to one of the following values:</p> <ul style="list-style-type: none"> SQL_Latin1_General_CP1_CI_AS Latin1_General_CI_AS |

IIS Requirements

Before you can install Ivanti Endpoint Security, Microsoft Internet Information Services 7.0 or later must be installed.

Table 7: Internet Information Services (IIS) Requirements

| Required IIS Version | Operating System Family | Microsoft Documentation |
|--|----------------------------------|---|
| Microsoft Internet Information Services 7.0+ | 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 |

.NET Framework Requirements

Ivanti Endpoint Security requires installation of .NET Framework 4.6.

Table 8: .NET Framework Requirements

| Required .NET Framework Version | Operating System Family |
|---|---|
| <ul style="list-style-type: none"> Microsoft .NET Framework 4.6. | <ul style="list-style-type: none"> Microsoft Windows Server 2008 R2 SP1 Microsoft Windows Server 2008 SP2 Microsoft Windows Server 2012 Microsoft Windows Server 2012 R2 Microsoft Windows Server 2016 |
| <p>Note: Ivanti Endpoint Security provides the .NET Framework 4.6 installer during installation or upgrade (reboot required). However, pre-requisites must be installed on some Operating Systems prior to this.</p> | |

Hardware Requirements

The Ivanti Endpoint Security server must meet or exceed the specified hardware requirements.

Note:

- Installing the Ivanti Endpoint Security server on a dedicated server is recommended.
- The minimum hardware recommendation is designed for trial environments of 50 endpoints. For a Ivanti Endpoint Security configuration ideal for your environment, see [Recommended Configurations](#) on page 15.
- 2.0 GHz dual-core processor
- 4 GB RAM
- 50 GB or more hard drive space
 - RAID 1 disk array
 - 7200 RPM drive speed
- 1 Gbps Network Card

Network Requirements

Your Ivanti Endpoint Security server needs access to specific websites and network services.

Network Requirement

Server Role:

Your Ivanti Endpoint Security *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://gssnews.lumension.com>
- <https://leicapi-lemss.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 Ivanti Community Article 51165 ([New Content Architecture](#)) and Ivanti Community Article 58310 ([Global Subscription Server and GSS Repository Information](#)) 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 Support for a recommended configuration.

Network Discovery
Windows Services:

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

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

Network Requirement

Encryption Protocols: Ivanti Endpoint Security uses Transport Layer Security for communication between the Ivanti Endpoint Security Server and the Ivanti Endpoint Security Agent: TLS 1.0, 1.1, and 1.2. Ivanti Endpoint Security prompts you to enable these protocols during installation.

Recommended Configurations

Ivanti recommends different hardware and software requirements customized for your Ivanti Endpoint Security network setup.

Server Configuration Considerations

Ivanti Endpoint Security requires two main components to function:

- **Ivanti Endpoint Security Application Server:** This server is responsible for Web site, replication services, and endpoint distribution services.
- **Ivanti Endpoint Security 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 Ivanti Endpoint Security 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 Ivanti Endpoint Security Application and Database Server](#) on page 16

- **Separate Application and Database Servers:** In configurations where the Ivanti Endpoint Security 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 Ivanti Endpoint Security Application and Database Servers](#) on page 17

Endpoint Scaling Considerations

Regardless of your Ivanti Endpoint Security 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 databases, refer to [Move System Databases](http://msdn.microsoft.com/en-us/library/ms345408.aspx) (<http://msdn.microsoft.com/en-us/library/ms345408.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 Ivanti Endpoint Security Application and Database Server

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

The following table lists the recommended hardware and software for you Ivanti Endpoint Security network.

Note: Installation on a physical server is assumed. If installing to virtual environment, refer to Ivanti Community Article 58253 ([Lumension products installed on virtual machines](#)).

Combined Server Recommended Configuration

| Endpoint Count | | < 50 | < 500 | < 1,000 | < 5,000 | < 10,000 ¹ |
|----------------|--------------------------------|-----------------------|-----------------|-----------------|-----------------|-----------------------|
| Software | Operating System | Windows 2012 R2 | Windows 2012 R2 | Windows 2012 R2 | Windows 2012 R2 | Windows 2012 R2 |
| | Operating System Edition | Standard | Standard | Standard | Standard | Standard |
| | Operating System Architecture | x64 | x64 | x64 | x64 | x64 |
| | Database Server | SQL 2016 | SQL 2016 | SQL 2016 | SQL 2016 | SQL 2016 |
| | Database Server Edition | Standard ² | Standard | Standard | Standard | Enterprise |
| | Database Server Architecture | 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 |

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

1. If you are managing 10000+ endpoints, contact Ivanti Support (<https://community.ivanti.com/community/contact-support>) 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 Ivanti Endpoint Security 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 Ivanti Community Article 58253 ([Lumension products installed on virtual machines](#)).

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 2012 R2 | Windows 2012 R2 | Windows 2012 R2 | Windows 2012 R2 | Windows 2012 R2 |

| Endpoint Count | | < 50 | < 500 | < 1,000 | < 5,000 | < 10,000 ¹ |
|---|------------------------------------|----------|----------|------------|------------|-----------------------|
| | 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 |
| | 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"> 1. If you are managing 10000+ endpoints, contact Ivanti Support (https://community.ivanti.com/community/contact-support) for a recommended configuration. 2. A Sandy Bridge Xeon+ or AMD equivalent is recommended. On virtualized servers, 2x the assigned cores is recommended. 3. On virtualized servers, 2x RAM is recommended for networks supporting 1000+ endpoints. 4. 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 2012 R2 | Windows 2012 R2 | Windows 2012 R2 | Windows 2012 R2 | Windows 2012 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 | |
|---------------------|------------------------------------|-----------------------|----------|----------------|------------------|-----------------------|--|
| | Database Server | SQL 2016 | SQL 2016 | SQL 2016 | SQL 2016 | SQL 2016 | |
| | Database Server Architecture | 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 | |
| | 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 Ivanti Support (<https://community.ivanti.com/community/contact-support>) 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.

Chapter 2

Agent Requirements

In this chapter:

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

The Ivanti Endpoint Security 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 Ivanti Endpoint Security Agent. The following sections include system requirements that you should verify prior to installing the Ivanti Endpoint Security Agent. The complete list of requirements are listed in the following topics:

- [Supported Endpoint Operating Systems](#) on page 21
- [Supported Endpoint Browsers](#) on page 25
- [Windows Endpoint Requirements](#) on page 25
- [Linux, UNIX, or Mac Endpoint Requirements](#) on page 27
- [Agent Locales and Internationalization](#) on page 30
- [Supported Endpoint Module Operating Systems](#) on page 31

Supported Endpoint Operating Systems

The Ivanti Endpoint Security Agent is supported on most operating systems used in enterprise environments.

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

- [Windows Endpoint Operating Systems](#) on page 22
- [Mac Endpoint Operating Systems](#) on page 23
- [Linux Endpoint Operating Systems](#) on page 24
- [UNIX Endpoint Operating Systems](#) on page 24

Windows Endpoint Operating Systems

Ivanti Endpoint Security Agent 8.5 Update 2 can be installed on most windows platforms.

Supported Windows Operating Systems

| Supported Operating Systems | Supported Editions |
|---|---|
| <p>Windows 10 (32- and 64-bit).</p> <p>For specific Windows 10 version support refer to the following articles:</p> <p>Ivanti Endpoint Security Windows 10 Version Support Matrix</p> <p>Microsoft Support Windows Lifecycle Fact Sheet</p> | <ul style="list-style-type: none"> • Education • Education N • Enterprise • Enterprise N • Enterprise 2015 Long Term Servicing Branch (LTSB) • Enterprise N 2015 LTSB • Professional • Professional N |
| Windows 8.1 (32- and 64-bit) | <ul style="list-style-type: none"> • Enterprise • Enterprise N • Professional¹ • Professional N |
| Windows Embedded 8.1 (32- and 64-bit) | <ul style="list-style-type: none"> • Industry Pro • Industry Enterprise |
| Windows 7 SP1 (32- and 64-bit) | <ul style="list-style-type: none"> • Professional • Enterprise • Ultimate |

1. This edition is also supported when Windows Media Center is installed.
2. When installing the Device Control module on this edition, SP1 or later is required.

Supported Windows Server Operating Systems

| Supported Operating Systems | Supported Editions |
|--|--|
| Windows Server 2016 (32- and 64-bit) | <ul style="list-style-type: none"> • Standard¹ • Datacenter • Essentials |
| Windows Server 2012 R2 (32- and 64-bit) | <ul style="list-style-type: none"> • Standard¹ • Datacenter¹ • Foundation • Essentials |
| Windows Server 2012 (32- and 64-bit) | <ul style="list-style-type: none"> • Standard¹ • Datacenter¹ • Foundation • Essentials |
| Windows Storage Server 2012 (32- and 64-bit) | <ul style="list-style-type: none"> • Standard • Workgroup |
| Windows Server 2008 R2 SP1 (32- and 64-bit) | <ul style="list-style-type: none"> • Enterprise • Standard • Web |

1. Core mode for this edition is supported.

Mac Endpoint Operating Systems

A different agent, the Patch Agent 8.3057, can be installed on many different versions of Mac operating systems. This version of the agent offers only Patch and Remediation functionality.

Table 9: Supported Mac Endpoint Operating Systems

| Supported Operating Systems | Supported Editions |
|-----------------------------|--------------------|
| macOS 10.12 | All |
| Mac OS X 10.11 | All |
| Mac OS X 10.10 | All |

| Supported Operating Systems | Supported Editions |
|-----------------------------|--------------------|
| Mac OS X 10.9 | All |

Note: Additional older Mac operating systems are still supported, but only on Patch Agent for Linux, UNIX, and Mac version 8.1016. See Ivanti Community Article 57964 ([Patch Agent 8.3032 for Linux, Unix, and Mac](#)) for more information.

Linux Endpoint Operating Systems

A different agent, the Patch Agent 8.3057, can be installed on many different versions of Linux. This version of the agent offers only Patch and Remediation functionality.

Table 10: Supported Linux Endpoint Operating Systems

| Supported Operating Systems | Supported Editions |
|-----------------------------------|---|
| CentOS Linux 5.5-7.x | |
| Oracle Enterprise Linux 5.5-7.x | |
| Red Hat Enterprise Linux 5.5-7.x | Server |
| SUSE Linux Enterprise 10 SP2-12 | <ul style="list-style-type: none"> • Desktop • Server |
| Ubuntu Linux 14.04 LTS, 16.04 LTS | <ul style="list-style-type: none"> • Desktop • Server |

Note:

- The operating systems listed above are only supported on Intel processors.
- Additional older Linux operating systems are still supported, but only on Patch Agent for Linux, UNIX, and Mac version 8.1016. See Ivanti Community Article 57964 ([Patch Agent 8.3032 for Linux, Unix, and Mac](#)) for more information.

UNIX Endpoint Operating Systems

A different agent, the Patch Agent 8.3057, can be installed on many different versions of UNIX. This version of the agent offers only Patch and Remediation functionality.

Table 11: Supported UNIX Endpoint Operating Systems

| Supported Operating System | Supported Editions | Supported Processors |
|----------------------------|--------------------|----------------------|
| IBM AIX 7.1 | All | Power |

| Supported Operating System | Supported Editions | Supported Processors |
|----------------------------|--------------------|--|
| IBM AIX 6.1 | All | Power |
| Oracle Solaris 10 Update 9 | All | <ul style="list-style-type: none"> • Intel • SPARC |
| Oracle Solaris 11.x | All | <ul style="list-style-type: none"> • Intel • SPARC |

Note: Additional older Unix operating systems are still supported, but only on Patch Agent for Linux, UNIX, and Mac version 8.1016. See Ivanti Community Article 57964 ([Patch Agent 8.3032 for Linux, Unix, and Mac](#)) for more information.

Supported Endpoint Browsers

Ivanti Endpoint Security is an Internet application that conforms to standard Web conventions. Ivanti recommends you download the most recent version of the Ivanti Endpoint Security Agent installer using a supported Web browser.

Table 12: Supported Web Browsers

| Supported Browser | Supported Versions |
|-----------------------------|---|
| Google Chrome | 53 and higher |
| Microsoft Edge | EdgeHTML 14 and higher |
| Microsoft Internet Explorer | 9 and higher |
| Mozilla Firefox | 31 Extended Support Release and higher Support cannot be guaranteed due to the accelerated release cycle of Mozilla Firefox Rapid Release. |

Windows Endpoint Requirements

Before installing the Ivanti Endpoint Security Agent on a supported Windows endpoint, ensure that it meets the necessary hardware and software requirements.

Processor 800 MHz or higher

Note: Minimum of 2 CPU cores is recommended for optimal performance during intensive operations like Discover Applicable Updates (DAU) or AntiVirus scans.

| | |
|---------------------------|--|
| Physical RAM | 1 GB (minimum) Note: Your Ivanti Endpoint Security 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 Ivanti Endpoint Security server. |
| Antivirus | Ensure any third-party antivirus software on the endpoint computer is disabled prior to Ivanti Endpoint Security Agent installation. |
| Port Requirements | <ul style="list-style-type: none">• Port 80 This must be open for Ivanti Endpoint Security module downloads.• Port 443 This must be open for Ivanti Endpoint Security policy download and general communication.• Ephemeral ports This is used to listen for Notification Manager connection requests (Patch and Remediation) only.<ul style="list-style-type: none">• 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 13: .NET Framework Version

| Operating System | .Net Framework Version |
|---------------------------------------|------------------------|
| Microsoft Windows 10 | 4.0+ |
| Microsoft Windows 8.1 | 4.0+ |
| Microsoft Windows Server 2012 R2 | 4.0+ |
| Microsoft Windows Server 2012 | 4.0+ |
| Microsoft Windows Storage Server 2012 | 4.0+ |
| Microsoft Windows 7 | 3.0+ |
| Microsoft Windows Server 2008 R2 | 3.0+ |

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.

Linux, UNIX, or Mac Endpoint Requirements

Before installing the Ivanti Endpoint Security Agent on a supported Linux, UNIX, or Mac 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 Ivanti Endpoint Security 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 /tmp directory (/var/tmp on Oracle Solaris) with 100 MB of free space.• 50 MB of free space for the agent installation directory.• Ivanti Endpoint Security also recommends 100 Mb of unused disk space to download and install content. |
| Java Libraries | Ensure you have the appropriate Java libraries installed: <ul style="list-style-type: none">• All UNIX endpoints and Mac OS X endpoints prior to version 10.7.3: Oracle Java Runtime Environment (JRE) 7 or later.• Mac OS X endpoints versions 10.7.3 and higher: Oracle Java Development Kit (JDK) 7 or later.• Linux endpoints: Oracle JRE 7 or later. Note: OpenJDK 7 can be substituted for Oracle Java JRE on the following operating systems: <ul style="list-style-type: none">• CentOS Linux• Oracle Enterprise Linux• Red Hat Enterprise Linux• SUSE Linux Enterprise Refer to IcedTea Project (http://openjdk.java.net/projects/icedtea/) for additional information. |
| Perl | Perl is needed for Linux content. Perl is automatically installed for all open-source Linux operating systems unless uninstalled. 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. |
| Network Connection | A 10 Mbps network connection with access to the Ivanti Endpoint Security server. |

| | |
|--------------------------|--|
| 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 Ivanti Endpoint Security module downloads.• Port 443. This must be open for Ivanti Endpoint Security 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 Ivanti Endpoint Security 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 Supported Modules](#) on page 31
- [Linux, UNIX, and Mac Supported Modules](#) on page 32

A list of module abbreviations within the tables:

| | |
|------------|--|
| PR | Ivanti Patch and Remediation |
| LAC | Ivanti Application Control |
| DC | Ivanti Device Control |
| AV | Ivanti AntiVirus |
| PM | Ivanti Power Management |
| WOL | Ivanti Wake on LAN |
| SCM | Ivanti Security Configuration Management |
| RSM | Ivanti Remote Systems Management |

Windows Endpoint Supported Modules

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

Table 14: Supported Endpoint Windows Operating Systems by Module

| Operating System ¹ | Modules ² | | | | | | | |
|----------------------------------|----------------------|-----|----|----|----|-----|-----|-----|
| | PR | LAC | DC | AV | PM | WOL | SCM | RSM |
| Microsoft Windows 10 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Microsoft Windows 8.1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Microsoft Windows Server 2012 R2 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Microsoft Windows Server 2012 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

| Operating System ¹ | Modules ² | | | | | | | |
|--|----------------------|-----|----|----|----|-----|-----|-----|
| | PR | LAC | DC | AV | PM | WOL | SCM | RSM |
| Microsoft Windows Storage Server 2012 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Microsoft Windows 7 SP1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Microsoft Windows Server 2008 R2 SP1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| <ol style="list-style-type: none"> 1. Refer to Supported Endpoint Operating Systems on page 21 for a complete list of operating system versions. 2. Refer to Supported Endpoint Module Operating Systems on page 31 for a list of module abbreviation definitions. | | | | | | | | |

Linux, UNIX, and Mac Supported Modules

Ivanti offers a version of the agent for Linux, UNIX, and Mac that provides Patch and Remediation functionality.

Patch Agent for Linux, UNIX, and Mac supports functionality for the Patch and Remediation module and *only* the Patch and Remediation module. All other Ivanti Endpoint Security modules are not supported for these platforms.

Chapter

3

Recommended Configurations

In this chapter:

- Ivanti Endpoint Security Server Components
- Combined Ivanti Endpoint Security Application and Database Server
- Separated Ivanti Endpoint Security Application and Database Servers
- Recommended Server Configuration Information

Ivanti recommends different hardware and software requirements customized for your Ivanti Endpoint Security network setup.

Server Configuration Considerations

Ivanti Endpoint Security requires two main components to function:

- **Ivanti Endpoint Security Application Server:** This server is responsible for Web site, replication services, and endpoint distribution services.
- **Ivanti Endpoint Security 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 Ivanti Endpoint Security 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 Ivanti Endpoint Security Application and Database Server](#) on page 16

- **Separate Application and Database Servers:** In configurations where the Ivanti Endpoint Security 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 Ivanti Endpoint Security Application and Database Servers](#) on page 17

Endpoint Scaling Considerations

Regardless of your Ivanti Endpoint Security 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 databases, refer to [Move System Databases](http://msdn.microsoft.com/en-us/library/ms345408.aspx) (<http://msdn.microsoft.com/en-us/library/ms345408.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>).

Ivanti Endpoint Security Server Components

The Ivanti Endpoint Security server contains the following components: the Ivanti Endpoint Security Application Server and the Ivanti Endpoint Security Database Server.

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

The following list describes each server component.

| | |
|--|--|
| Ivanti Endpoint Security Application Server | This server is responsible for Web site, replication services, and endpoint distribution services. |
| Ivanti Endpoint Security Database Server | This server is responsible for SQL database and stored procedures. |

Combined Ivanti Endpoint Security Application and Database Server

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

The following table lists the recommended hardware and software for your Ivanti Endpoint Security network.

Note: Installation on a physical server is assumed. If installing to virtual environment, refer to Ivanti Community Article 58253 ([Lumension products installed on virtual machines](#)).

Combined Server Recommended Configuration

| Endpoint Count | | < 50 | < 500 | < 1,000 | < 5,000 | < 10,000¹ | |
|-----------------------|------------------------------------|-----------------------|-----------------|-------------------|-------------------|--------------------------------|--|
| Software | Operating System | Windows 2012 R2 | Windows 2012 R2 | Windows 2012 R2 | Windows 2012 R2 | Windows 2012 R2 | |
| | Operating System Edition | Standard | Standard | Standard | Standard | Standard | |
| | Operating System Architecture | x64 | x64 | x64 | x64 | x64 | |
| | Database Server | SQL 2016 | SQL 2016 | SQL 2016 | SQL 2016 | SQL 2016 | |
| | Database Server Edition | Standard ² | Standard | Standard | Standard | Enterprise | |
| | Database Server Architecture | 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 | |
| | Temp DB | N/A | N/A | N/A | RAID 0 - 250GB | SSD - 240GB | |

| Endpoint Count | < 50 | < 500 | < 1,000 | < 5,000 | < 10,000 ¹ |
|---|------|-------|---------|---------|-----------------------|
| <ol style="list-style-type: none"> 1. If you are managing 10000+ endpoints, contact Ivanti Support (https://community.ivanti.com/community/contact-support) 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. | | | | | |

Separated Ivanti Endpoint Security 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 Ivanti Community Article 58253 ([Lumension products installed on virtual machines](#)).

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 2012 R2 | Windows 2012 R2 | Windows 2012 R2 | Windows 2012 R2 | Windows 2012 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"> 1. If you are managing 10000+ endpoints, contact Ivanti Support (https://community.ivanti.com/community/contact-support) for a recommended configuration. 2. A Sandy Bridge Xeon+ or AMD equivalent is recommended. On virtualized servers, 2x the assigned cores is recommended. 3. On virtualized servers, 2x RAM is recommended for networks supporting 1000+ endpoints. 4. 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 2012 R2 | Windows 2012 R2 | Windows 2012 R2 | Windows 2012 R2 | Windows 2012 R2 |
| | Operating System Edition | Standard | Standard | Standard | Standard | Standard |
| | Operating System Architecture | x64 | x64 | x64 | x64 | x64 |
| | Database Server | SQL 2016 | SQL 2016 | SQL 2016 | SQL 2016 | SQL 2016 |
| | Database Server Architecture | 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 Ivanti Support (https://community.ivanti.com/community/contact-support) 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. | | | | | | |

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](http://msdn.microsoft.com/en-us/library/aa366778(VS.85).aspx#physical_memory_limits_windows_server_2003)).
- For additional information about moving SQL Server 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](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) (<http://technet.microsoft.com/en-us/library/cc966534.aspx>).