



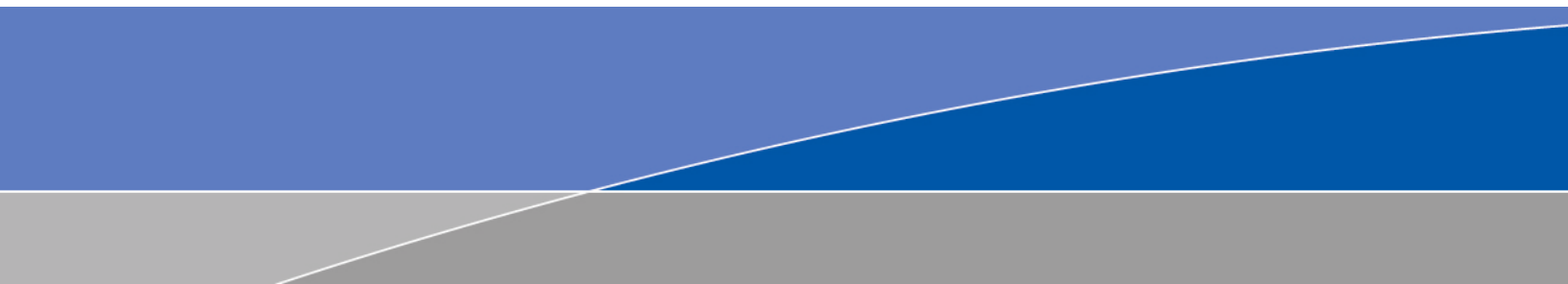
# Citrix StorageLink Installation Guide

This document describes how to install Citrix® StorageLink™

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Author: Citrix Engineering and Program Management

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Citrix StorageLink Installation Guide  
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Citrix, Inc.  
851 West Cypress Creek Road  
Fort Lauderdale, FL 33309  
United States of America

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# Intended Audience

The guide is intended for Virtual Storage Manager users, experienced developers, and testers of software applications. This document assumes the reader is familiar with the following topics: If you have comments about this documentation, submit your feedback to:

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# Document Feedback

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# Citrix StorageLink Documentation

The following documents are provided with Citrix StorageLink:

*Citrix StorageLink Installation Guide*

*Citrix StorageLink User's Guide*

*Citrix StorageLink PowerShell Guide*

*Citrix StorageLink Release Notes*

In addition, StorageLink Manager has a Windows Help system.

# Introduction to Citrix StorageLink

Citrix StorageLink is part of the Citrix Essentials for Hyper-V product offering. Citrix Essentials is enterprise-class virtual infrastructure that enhances the scalability and agility of Microsoft Hyper-V and Virtual Machine Manager with simplified storage set-up and operation, powerful virtual machine lifecycle management, and dynamic server provisioning. Move applications into production faster with automated lab development, test and deployment tools. Increase business agility and speed new servers into production quickly with built-in virtual machine cloning and snapshot support; then dynamically provision workloads to both virtual and physical servers from a single master VHD image. Citrix Essentials enables IT Professionals to accelerate virtualization projects using Hyper-V quickly, with less effort, and scale as business needs grow.

Citrix StorageLink is an enterprise class virtualization storage resource management service for Microsoft Hyper-V deployments. StorageLink accelerates application delivery by automating complex virtual machine storage resource management operations allowing the user to Leverage advanced storage services to rapidly bring new virtual machines online, simplified storage management, improve storage utilization and lowering TCO. Users create virtual machines from pre-defined virtual machine templates that identify the hardware and storage resources required by the virtual machine,

## Components

The core of Citrix StorageLink is the *StorageLink Gateway*, which runs on a Windows 2003/2008 server (physical or virtual machine) and serves as a platform for managing your storage and virtual machines.

There are three ways to manage and use the rich feature set provided by StorageLink Gateway:

- the *StorageLink Manager*, a MMC-based graphical user interface
- the *StorageLink CLI*, a command-line interface that can be used in a Windows Command Prompt
- the *StorageLink PowerShell plug-in* for Windows PowerShell, the new command line shell and task-based scripting technology from Microsoft

All components can be installed on the same system, or on separate physical or virtual machines running Windows 2003/2008 or Vista.

This guide is an overview for using Citrix StorageLink Manager. The *Citrix StorageLink PowerShell Guide* describes the PowerShell plug-in.

# Overview

## Feature overview

Citrix StorageLink has a number of key features that help simplify the lifecycle management of applications and virtual machines in your virtualized infrastructure. These key features include:

- **Rapid VM creation (UI).** StorageLink allows you to form golden images (virtual machine templates) from storage volumes (LUNs) in your storage arrays along with data LUNs to enable rapid VM creation of complex servers by leveraging the cloning and snapshot capabilities of the underlying storage array hardware.
- **Improved storage utilization.** This allows administrators to easily add capacity and improve utilization of their storage hardware investment by leveraging thin provisioning capabilities inherent in most modern storage arrays.
- **Lower TCO.** StorageLink automates the configuration and provisioning of VM storage; Using templates the provisioned storage is matched to the VM storage resources requirements; StorageLink reduces manual error prone tasks and ensures the VM has the necessary storage it needs.

StorageLink provides the user with a graphical user interface, a command line interface and Windows PowerShell support.

StorageLink graphically displays storage assets, virtualization hosts, host HBAs, and fabric information.

## System Requirements

### StorageLink Gateway

The StorageLink Gateway can be installed on a physical or virtual machine.

**Note:** If you are using the Windows firewall, your firewall will be disabled automatically. If you are using a 3<sup>rd</sup> party firewall, you must manually create a firewall rule to open port 21605, or disable your firewall all together. Another alternative is to run both the Citrix StorageLink Manager and the Citrix StorageLink service on the same machine.

<b>Operating system</b>	Microsoft Windows 2008 (recommended), 2003, or Vista
<b>RAM</b>	1 GB or more

<b>Operating system</b>	Microsoft Windows 2008 (recommended), 2003, or Vista
<b>Disk space</b>	minimum of 100 MB for Gateway installation

## StorageLink Manager

StorageLink Manager can be installed on a physical or virtual machine.

<b>Operating system</b>	Microsoft Windows 2008 (recommended), 2003, or Vista
<b>RAM</b>	1 GB or more
<b>Disk space</b>	minimum of 100 MB

## Software prerequisites

<b>Prerequisite</b>	<b>Description</b>
Microsoft Management Console 3.0	(required for StorageLink Manager) <a href="http://www.microsoft.com/downloads/details.aspx?FamilyID=61fc1c66-06f2-463c-82a2-cf20902ffae0&amp;displaylang=en">http://www.microsoft.com/downloads/details.aspx?FamilyID=61fc1c66-06f2-463c-82a2-cf20902ffae0&amp;displaylang=en</a>

Prerequisite	Description
<p>SQL – SQL lite or Microsoft SQL Server</p>	<p>The StorageLink Gateway deploys with a simple embedded SQLite database but that can be swapped out for pre-installed Microsoft's SQL Server if you so choose. There is a script called <code>cs1_db_config.cmd</code> to help you configure the StorageLink Gateway database. The supported databases are embedded SQLite, Microsoft SQL Server 2008, and Microsoft SQL Server 2005. For Microsoft SQL Server, only Windows Authentication mode is supported.</p> <p>For setting up the StorageLink Gateway with Microsoft SQL Server, the script syntax is:</p> <pre>cs1_db_config mssql [Database Server Name] [Database Instance Name] [Database Name]</pre> <p>Also please remember to attach the StorageLink Gateway Microsoft SQL database files (<code>cs1_db.mdf</code> and <code>cs1_db_1.ldf</code>) to your Microsoft SQL Server database instance. The StorageLink Gateway Microsoft SQL database files are in the <code>&lt;% StorageLink Gateway Install Directory %\database&gt;</code> directory, which by default is <code>C:\Program Files (x86)\Citrix\StorageLink\database</code></p> <p>For setting up StorageLink Gateway with Embedded SQLite, the script syntax is:</p> <pre>cs1_db_config.cmd sqlite [StorageLink Gateway Install Directory]</pre> <p>The default StorageLink Gateway installation directory is <code>c:\Program Files (x86)\Citrix\StorageLink</code></p>
<p>Microsoft Windows PowerShell</p>	<p>required to use the StorageLink PowerShell plug-in</p> <p>On Windows 2008 the Windows PowerShell feature needs to be added. This can be done from the <i>Windows Server Manager</i> under <i>Features</i>. Previous to Windows 2008, Windows PowerShell needs to be downloaded from Microsoft and installed.</p>

## Installation Process

In summary, the installation process for Citrix Gateway goes as follows:

1. *Install and apply Citrix License Server* – the StorageLink Gateway and StorageLink Manager require that you install Citrix License Server and apply that license to your host.
2. *Install StorageLink Gateway* – this is the first step for using StorageLink. The StorageLink Gateway can be installed on Windows 2003 Server or Windows 2008 Server.
3. *Install StorageLink Manager* – the StorageLink Manager is installed next. It is the graphical user interface used to interface with the StorageLink Gateway.

Either before or after StorageLink installation, the overall environment needs to be set up for use with StorageLink:

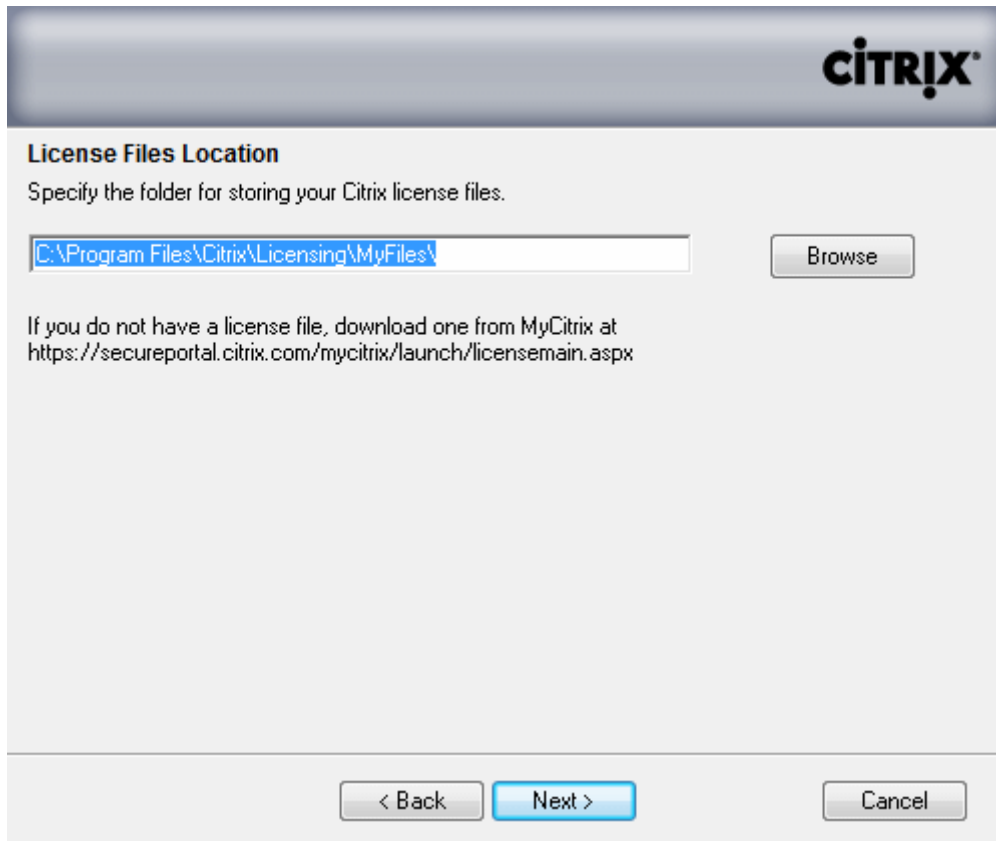
- One of the supported storage systems must be available
- One or more hypervisor hosts running Windows 2008 Server must be available

Configuration of storage systems and hypervisor hosts is described in detail in the *Citrix StorageLink User Guide*.

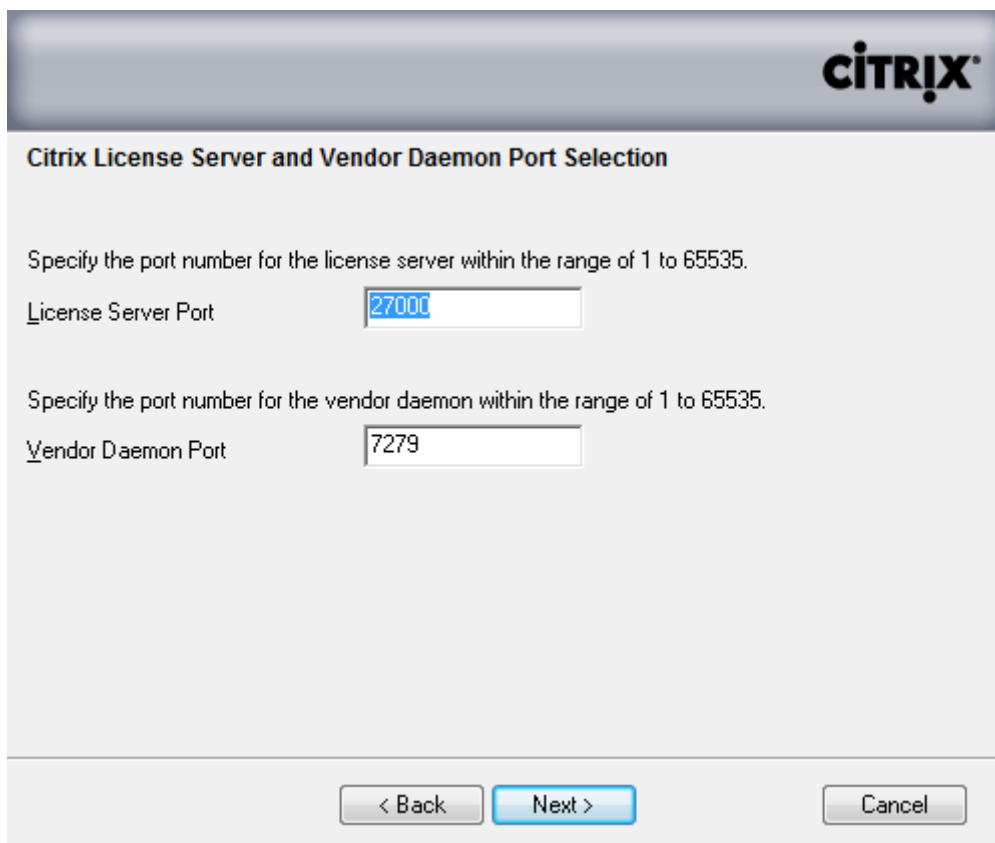
To begin the installation process, insert the DVD into the DVD drive. If autorun is disabled on your machine, browse to the drive and launch autorun.exe.

## Installing Citrix Licensing Server

1. From the autorun home screen, select *Install Citrix License Server*.
2. When prompted with the security warning, select *Run*.
3. If prompted with the *Internet Explorer – Security Warning*, message, select *Run*.
4. Click *Next* at the bottom of the *Welcome* screen to continue.
5. Select “I accept the license agreement” and then click *Next* to continue.
6. Use the default installation path or click *Browse* to browse to your preferred installation destination, and then click *Next* to continue.
7. Select the features you would like to install. All features are selected by default. Click *Next* to continue.
8. Select the folder where you would like the license files stored or just continue to use the default value C:\Program Files (x86)\Citrix\Licensing\MyFiles\. Click *Next* to continue.



9. Enter the port number for the license server and the port number for the daemon, or just continue to use the default values (recommended). Click *Next* to continue.



10. The installer has gathered the necessary information and is ready to begin installing the software. Click *Next* to continue.
11. The installation has completed. Click *Finish* at the bottom of the screen to exit the installation.

## Installing the license file

1. Copy the license file from DVD. Navigate to *LicenseFiles* and select the file *CEHVTP\_Exp\_04-05-09.lic*
2. Copy this file to *C:\program files\Citrix\Licensing\MyFiles* (or wherever you installed License Server).
3. Tickle the LS to reread the license file:

```
lmreread -c @localhost
```

For documentation about Citrix License Server select *View Citrix License Server Guide*, from the installation home screen.

# Installing the StorageLink Gateway

There are two choices on the installation home screen for StorageLink Gateway: the Enterprise edition and the Platinum edition.

1. Log on to your Microsoft Windows host as the Administrator user or as a user who is a member of the Windows Administrators group. The Gateway installation process will ask you for your Administrator account login information as the Gateway must run at an elevated permission level in order for it to manage other hosts in the environment.
2. Insert the DVD created with the iso image downloaded from the early release site.
3. Click the appropriate button: *Install Virtual Storage Manager Gateway (Enterprise Edition)* or *Install Virtual Storage Manager Gateway (Platinum Edition)* from the autorun screen.
4. When prompted with the security warning, select *Run*.
5. If prompted with the Internet Explorer – Security Warning, select *Run*.
6. Click the *Next* button at the bottom of the *Welcome* screen to continue.
7. Select “I accept the terms and license agreement” and then click *Next* at the bottom of the License Agreement screen to continue.
8. When prompted, enter the location of the License host and click *Next* to continue.
9. Use the default installation path or click *Change...* to browse to your preferred installation destination, and then click *Next* at the bottom of the *Destination Folder* screen to continue.
10. The installer has gathered the necessary information and is ready to begin installing the software. Click *Install* at the bottom of the *Ready to Install the Program* program screen to continue.
11. The installation has completed. You may optionally choose to launch StorageLink by selecting the checkbox next to “Launch Citrix StorageLink Gateway”. Click the “Finish” button at the bottom of the Setup wizard complete page of the wizard to complete the installation.

# Installing StorageLink Manager

1. Select *Install Virtual Storage Client* from the autorun screen.
2. When prompted with the security warning, select *Run*.
3. If prompted with the Internet Explorer – Security Warning, select *Run*.
4. Click *Next* at the bottom of the Welcome screen to continue.
5. Select “I accept the terms and license agreement” and then click *Next* at the bottom of the *License Agreement* screen to continue.
6. Use the default installation path or click *Change...* to browse to your preferred installation destination, and then click *Next* at the bottom of the *Destination Folder* screen to continue.

7. The installer has gathered the necessary information and is ready to begin installing the software. Click *Install* at the bottom of the *Ready to Install* screen to continue.
8. The installation has completed. Click *Finish* at the bottom of the screen to complete the installation.

## Getting Started with StorageLink

The following tasks need to be performed before using StorageLink. Details can be found in the *Citrix StorageLink User Guide*.

- **Configure your hypervisor hosts** – first, enable each server to function as a Hyper-V host. To do so, open the Server Manager and click on the *Roles* node in the tree in the left pane; then in the right, click on *Add Role* to launch the *Add Roles* wizard, and select *Hyper-V* from the list of roles the wizard presents. Enabling this role requires a reboot. After the reboot, make sure that you open Hyper-V Manager and accept the EULA that it will present to you on first launch. Second, enable the iSCSI initiator. From the *Start* menu, select *Administrative Tools > iSCSI initiator*, and confirm that you do want to enable the iSCSI initiator service when so prompted.
- **Connect to the StorageLink Gateway** – first step is to connect the administrative console to the StorageLink Gateway (can also be done through the StorageLink command line or PowerShell interfaces).
- **Connect to your Hypervisor hosts** – once the StorageLink Gateway and StorageLink Manager are installed you need to Add you hypervisor (Hyper-V) host through the StorageLink Manager (can also be done through the StorageLink command line or PowerShell interfaces).
- **Add Storage Array Adaptor** – in order to interface with your storage modules, they must be added to the StorageLink Gateway through the StorageLink GUI (can also be done through the command line or PowerShell interfaces).
- **Create a Storage Repository** – create a storage repository using the Storage repository Wizard (can also be done through the StorageLink command line or PowerShell interfaces).

Please refer to the *Citrix StorageLink User Guide* for more detailed information about using StorageLink.

## Citrix Worldwide

### Worldwide headquarters

Citrix Systems, Inc.  
851 West Cypress Creek Road  
Fort Lauderdale, FL 33309  
USA  
T +1 800 393 1888  
T +1 954 267 3000

### Regional headquarters

#### Americas

Citrix Silicon Valley  
4988 Great America Parkway  
Santa Clara, CA 95054  
USA  
T +1 408 790 8000

#### Europe

Citrix Systems International GmbH  
Rheinweg 9  
8200 Schaffhausen  
Switzerland  
T +41 52 635 7700

#### Asia Pacific

Citrix Systems Hong Kong Ltd.  
Suite 3201, 32nd Floor  
One International Finance Centre  
1 Harbour View Street  
Central  
Hong Kong  
T +852 2100 5000

#### Citrix Online division

5385 Hollister Avenue  
Santa Barbara, CA 93111  
USA  
T +1 805 690 6400

[www.citrix.com](http://www.citrix.com)

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