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# MarkLogic Server

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## Installation Guide for All Platforms

MarkLogic 8  
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## 1.0 Requirements and Database Compatibility

This chapter introduces MarkLogic Server, lists the product requirements and supported platforms, and describes the database compatibility with previous releases. It includes the following sections:

- [Introduction](#)
- [MarkLogic Server Assumptions](#)
- [Memory, Disk Space, and Swap Space Requirements](#)
- [Supported Platforms](#)
- [Certified Filesystems](#)
- [Upgrades and Database Compatibility](#)

### 1.1 Introduction

MarkLogic Server is a powerful NoSQL database for harnessing your digital content base, complete with Enterprise features demanded by real world, mission-critical applications. MarkLogic enables you to build complex applications that interact with large volumes of content in JSON, XML, SGML, HTML, and other popular content formats, as well as binary formats. The unique architecture of MarkLogic ensures that your applications are both scalable and high-performance, delivering query results at search-engine speeds while providing transactional integrity over the underlying content repository. MarkLogic can be configured for a distributed environment, enabling you to scale your infrastructure through hardware expansion.

This installation guide explains the procedures needed to install MarkLogic on your system. It is intended for a technical audience, specifically an IT staff with experience in JSON and XML. This document only explains how to install the software, not how to use the software. To learn how to get started using the software, see the rest of the MarkLogic documentation (available on [docs.marklogic.com](http://docs.marklogic.com)), including the following documents:

- *Getting Started With MarkLogic Server*
- *MarkLogic Server Administrator's Guide*
- *MarkLogic Server Application Developer's Guide*
- *MarkLogic Server Search Developer's Guide*
- *JavaScript Reference Guide*
- *MarkLogic XQuery and XSLT Function Reference*
- *MarkLogic Server Release Notes*

## 1.2 MarkLogic Server Assumptions

When MarkLogic installs, it sets memory and other settings based on the size of the computer in which it is running. MarkLogic is a scalable, multi-threaded server product, and as such it assumes it has the entire machine available to it, including the cpu and disk I/O capacity. It is important to follow the guidelines set up in this chapter. Furthermore, MarkLogic assumes there is only one MarkLogic Server process running on any given machine, so it is not recommended to run multiple instances of MarkLogic on a single machine.

## 1.3 Memory, Disk Space, and Swap Space Requirements

Before installing the software, be sure that your system meets the following requirements:

- 512 MB of system memory, minimum. 2 GB or more recommended, depending on database size.

The first time it runs, MarkLogic Server automatically configures itself to the amount of memory on the system, reserving as much as it can for its own use. If you need to change the default configuration, you can manually override these defaults at a later time using the Admin Interface.

- 1.5 times the disk space of the total forest size. Specifically, each forest on a filesystem requires its filesystem to have at least 1.5 times the forest size in disk space (or, for each forest less than 32GB, 3 times the forest size) when the `merge max size` database merge setting is set to the default of 32GB. This translates to 1.5 times the disk space of the source content after it is loaded.

For example, if you plan on loading content that will result in a 100 GB database, reserve at least 150 GB of disk space. The disk space reserve is required for merges.

- On Linux systems, swap space equal to the amount of physical memory on the machine. MarkLogic also recommends setting Linux Huge Pages on Red Hat 5 and Red Hat 6 systems to 3/8 the size of your physical memory. For details on setting up Huge Pages, see <http://magazine.redhat.com/2007/05/29/how-do-i-set-up-hugepages-in-red-hat-enterprise-linux-4/>.

If you have Huge Pages set up on a Linux system, your swap space on that machine should be equal to the size of your physical memory minus the size of your Huge Page (because Linux Huge Pages are not swapped). For example, if you have 64GB of physical memory, and if you have Huge Pages set to 24 GB, then you need swap space of 40 GB (64 - 24).

At system startup on Linux machines, MarkLogic Server logs a message to the `ErrorLog.txt` file showing the Huge Page size, and the message indicates if the size is below the recommended level.

If you are using Red Hat 6, you must turn off Transparent Huge Pages (Transparent Huge Pages are configured automatically by the operating system).

- On Windows systems twice the physical memory is also recommended for the swap (page) file. You configure this in the System Control Panel > Advanced system settings > Performance Settings > Advanced tab. Set the Virtual memory settings on that tab to twice your physical memory.
- On Solaris systems, swap space at least equal to the amount of physical memory on the machine. Swap space equal to twice the amount of physical memory is highly recommended.

For example, if you have a Solaris machine with 32 GB of memory, you should ideally configure the swap space to be 64 GB (and at least 32 GB).

## 1.4 Supported Platforms

MarkLogic Server is supported on the following platforms:

- Microsoft Windows Server 2012 (x64), Microsoft Windows Server 2008 (x64), Windows 7 and 8 64-bit (x64)\*
- Sun Solaris 10 (x64)
- Red Hat Enterprise Linux 6 (x64)\*\* \*\*\* \*\*\*\*
- SUSE Linux Enterprise Server 11 (x64)\*\* \*\*\*
- CentOS 6 (x64)\*\* \*\*\*
- Amazon Linux 2013.03 (x64)\*\* \*\*\*
- Mac OS X 10.8 or 10.9\*\*\*\*\*

\* Microsoft Windows 7 and Windows 8 are supported for development only.

If MarkLogic Server fails to start up on Windows with the error “the application failed to initialize properly (0xc0150002)”, then a dependency is missing from your environment and you need to download and install the following DLL for 64-bit versions of Windows:

<http://www.microsoft.com/downloads/details.aspx?FamilyID=eb4ebe2d-33c0-4a47-9dd4-b9a6d7bd44da&DisplayLang=en>. Additionally, if you get an error on startup saying you need MSVCR100.dll, the

install the Microsoft Visual C++ 2010 SP1 Redistributable Package (x64)

<http://www.microsoft.com/en-us/download/details.aspx?id=13523>.

\*\* The deadline I/O scheduler is required on Red Hat Linux platforms. The deadline scheduler is optimized to ensure efficient disk I/O for multi-threaded processes, and MarkLogic Server can have many simultaneous threads. For information on the deadline scheduler, see the Red Hat documentation (for example, <http://www.redhat.com/magazine/008jun05/features/schedulers/>).

\*\*\*The `redhat-lsb`, `glibc`, and `gdb` packages are required on Red Hat Linux. Additionally, on 64-bit Red Hat Linux, both the 32-bit and the 64-bit `glibc` packages are required.

\*\*\*\*Red Hat Linux 6 (x64) is also supported in a VMWare ESXi 5.0 (installed on bare metal) environment.

\*\*\*\*\*Mac OS X is supported for development only. Conversion (Office and PDF) and entity enrichment are not available on Mac OS X. Mac OS X 10.8 or 10.9 (Mountain Lion or Mavericks) on a 64-bit capable processor is required (<http://support.apple.com/kb/HT3696>).

## 1.5 Certified Filesystems

MarkLogic relies on the operating system for filesystem operations. While any filesystem that works properly (including under heavy load) should work, the following table lists the operating systems along with the filesystems under which they are certified. Other filesystems may work but have not been thoroughly tested by MarkLogic.

Operating System	Certified Filesystems
Linux (all varieties)	EXT3, EXT4, as well as the clustered filesystems for shared-disk failover mentioned in <a href="#">Requirements for Shared-Disk Failover</a> in the <i>Scalability, Availability, and Failover Guide</i> .  <b>Warning</b> Do not use <code>data=writeback</code> with EXT3 and EXT4 filesystems.  NAS is certified on Red Hat 6 and NetAPP.
Sun Solaris	UFS, as well as the clustered filesystems for shared-disk failover mentioned in <a href="#">Requirements for Shared-Disk Failover</a> in the <i>Scalability, Availability, and Failover Guide</i> .
Windows	NTFS
Mac OS	HFS+
All	Hadoop HDFS, Amazon S3 (no journaling with S3)

Additionally, HDFS storage is certified with MarkLogic on the following HDFS platform:

- Cloudera CDH version 4.3

## 1.6 Upgrades and Database Compatibility

MarkLogic 8 supports upgrades from MarkLogic 5, MarkLogic 6, or from MarkLogic 7 or later databases. If you are upgrading from an earlier version of MarkLogic Server, you must first upgrade to 5, 6, or 7 before moving to MarkLogic 8. For the procedure for upgrading, see “Upgrading from Previous Releases” on page 10.

During the upgrade, the security database, the schemas database, and the configuration files are automatically upgraded. The security database is upgraded with the latest execute privileges and the schemas database is upgraded with the latest version of the schemas used by MarkLogic Server. The upgrade occurs as part of the installation procedure.

Databases that contain your own content are also upgraded to work with MarkLogic 8; once you upgrade to MarkLogic 8, you will no longer be able to use that database with previous versions of MarkLogic. MarkLogic Corporation strongly recommends performing a backup of your

databases before upgrading to MarkLogic 8. Additionally, MarkLogic Corporation recommends that you first upgrade to the latest maintenance release of the major version of MarkLogic you are running before upgrading to MarkLogic 8.

For the procedure for upgrading to MarkLogic 8, see “Upgrading from Previous Releases” on page 10. For details about known incompatibilities between MarkLogic 7 and MarkLogic 8, see [Known Incompatibilities with Previous Releases](#) in the *Release Notes*.

This section contains database compatibility information between various releases, and includes the following sections.

- [Prerequisites for Application Services Portion of the Upgrade](#)
- [MarkLogic 8 Databases are Compatible With MarkLogic 6 and MarkLogic 7](#)
- [MarkLogic 8 Database Compatibility With MarkLogic 5](#)

### 1.6.1 Prerequisites for Application Services Portion of the Upgrade

When Upgrading from releases prior to MarkLogic 5 to MarkLogic 8, the upgrade reconfigures the Docs and App Services App Servers, which by default are on port 8000 and port 8002 in older releases. In order for those App Servers to be upgraded, the following conditions must be met:

- Either no App Server is running on port 8000 or the App Server on port 8000 has a root of `Docs/`.
- Either no App Server is running on port 8002 or the App Server on port 8002 has a root of `Apps/` OR `Apps/appbuilder`.

If the above conditions are met, then those App Servers are reconfigured during the MarkLogic 8 upgrade and the resulting configurations have the following settings:

App-Services:

App-Services App Server	
Port	8000
Name	App-Services
Root	Apps/
Error Handler	error-handler.xqy
URL Rewriter	rewriter.xqy
Database	App-Services

Manage:

Manage App Server	
Port	8002
Name	Manage
Root	Apps/
Error Handler	manage/error-handler.xqy
URL Rewriter	manage/rewriter.xqy
Database	App-Services
Privilege	manage

If the conditions are not met, then the upgrade logs an error to the `ErrorLog.txt` file and the Application Services portion of the upgrade is skipped. MarkLogic Server will still operate, but you will not be able to use Query Console, the Management API, and the rest of the Application Services features. To restore the Application Services functionality after a failed upgrade, create two App Servers with the configuration shown above. If you have any problems, contact MarkLogic technical support.

### 1.6.2 MarkLogic 8 Databases are Compatible With MarkLogic 6 and MarkLogic 7

MarkLogic 8 does not require a reindex from MarkLogic 6 or MarkLogic 7 databases. Therefore, if you are upgrading from MarkLogic 6 or MarkLogic 7, the database will not reindex, even if `reindex enable` is set to `true`.

### 1.6.3 MarkLogic 8 Database Compatibility With MarkLogic 5

To take advantage of index improvements, MarkLogic 8 does require a reindex when upgrading from MarkLogic 5 and earlier databases. When you upgrade to MarkLogic 8, all databases with `reindex enable` set to `true` will automatically begin reindexing immediately. If you do not want the databases to reindex, you must set `reindex enable` to `false` *before* upgrading (that is, you must set `reindex enable` to `false` in MarkLogic 5). You can always reindex your content later by changing this setting back to `true` after installing MarkLogic 8.

Also, you can reindex your content a little bit at a time by enabling reindexing for a while, then disabling it for a while, then enabling it, and so on. You might want to use this technique to reindex your database during non-peak hours, for example, over a period of hours or days or weeks, depending on how large your database is. Always ensure that you have the proper system requirements, as defined in “Memory, Disk Space, and Swap Space Requirements” on page 4.

## 2.0 Procedures

This section describes the following procedures to install MarkLogic on your system.

- [Upgrading from Previous Releases](#)
- [Installing MarkLogic Server](#)
- [Starting MarkLogic Server](#)
- [Configuring the First and Subsequent Hosts](#)
- [Entering a License Key](#)
- [Checking for the Correct Software Version](#)
- [Configuring MarkLogic Server on UNIX Systems to Run as a Non-daemon User](#)
- [Removing MarkLogic Server](#)

### 2.1 Upgrading from Previous Releases

If you have previously installed MarkLogic on a machine, you must uninstall the old release before proceeding with the new installation. For information on removing the software, see “Removing MarkLogic Server” on page 28 or the *Installation Guide* from the previous release. This section describes the following information and upgrade paths:

- [Note That Reindexing is On By Default](#)
- [Upgrading from Release 8.0-1 or Later](#)
- [Upgrading from Release 7.0, 6.0, Or 5.0](#)
- [Upgrading from Release 4.2 or earlier](#)

If you are upgrading a cluster to a new release, see [Upgrading a Cluster to a New Maintenance Release of MarkLogic Server](#) in the *Scalability, Availability, and Failover Guide*. The security database and the schemas database must be on the same host, and that host should be the first host you upgrade when upgrading a cluster.

#### 2.1.1 Note That Reindexing is On By Default

Before upgrading to MarkLogic 8 from MarkLogic 5, be aware that database reindexing is enabled by default.

**Note:** If you are upgrading from MarkLogic 6 or MarkLogic 7, a reindex is not required, so you can skip this section.

If you have a very large database, or if you have many databases configured, they will start reindexing after you install MarkLogic 8, as soon as you accept the license key. Reindexing is a CPU and disk-intensive process, and it can take some time. Consequently, it can slow down the machine, particularly if the machine has a slow disk system (for example, a development laptop).

If you want to delay reindexing, set `reindex enable` to `false` in your database configurations *before* you install MarkLogic 8 (that is, you must set `reindex enable` to `false` in MarkLogic 5). MarkLogic 8 will then run in 5.0 compatibility mode until reindexing is enabled and completes. To re-enable indexing, set `reindex enable` to `true` in each of your database configurations after completing the installation (that is, after accepting the license key and after performing the configuration and security database upgrades). After reindexing has been enabled, it will commence immediately and continue until it is done, or until reindexing is disabled. For details about database compatibility, see “Upgrades and Database Compatibility” on page 7.

### 2.1.2 Upgrading from Release 8.0-1 or Later

**Note:** This section does not apply to Early Access (ea) releases.

To upgrade from release 8.0-1 or later to the current MarkLogic 8 release (for example, if you are installing a maintenance release of MarkLogic 8), perform the following basic steps:

1. Shut down MarkLogic 8 (as described in step 1 of “Removing MarkLogic Server” on page 28).
2. Uninstall the old MarkLogic 8 release (as described in “Removing MarkLogic Server” on page 28).
3. Install the new MarkLogic 8 release (as described in “Installing MarkLogic Server” on page 14).

If you are upgrading a cluster to a new release, see [Upgrading a Cluster to a New Maintenance Release of MarkLogic Server](#) in the *Scalability, Availability, and Failover Guide*. The security database and the schemas database must be on the same host, and that host should be the first host you upgrade when upgrading a cluster.

If you are upgrading two clusters that make use of database replication to replicate the security database on the master cluster, then you must enter the following to manually upgrade the security database configuration files on the machine that hosts the replica security database:

```
http://host:8001/security-upgrade-go.xqy?force=true
```

**Warning:** There is no direct upgrade path from Early Access releases of MarkLogic 8 to this release. If you need to move any data from an Early Access release to this release, you must re-create the data in the current release.

### 2.1.3 Upgrading from Release 7.0, 6.0, Or 5.0

MarkLogic 8 installs in the same default directory as MarkLogic 7, MarkLogic 6, and MarkLogic 5, so there is no need to move any old files around. The upgrade to MarkLogic 8 does incorporate an automatic update to the Security database and to the configuration files. The Security database upgrade occurs when you first access the Admin Interface after the MarkLogic 8 installation.

Uninstalling a previous release of MarkLogic does not remove or delete the user data files (the forests and configuration information). When upgrading to MarkLogic 8, you must first uninstall previous releases of MarkLogic Server.

**Note:** If you are upgrading a cluster of two or more servers, you must first upgrade the server in which the Security database is mounted. The Security database must be available before subsequent hosts can join the cluster.

The basic steps to upgrade from MarkLogic 7, MarkLogic 6, or MarkLogic 5 to MarkLogic 8 are as follows:

1. As a precaution, perform database backups on your MarkLogic Server 7.0, 6.0, or 5.0 databases.
2. If you are upgrading from MarkLogic 5 and do not want to reindex a database, disable reindexing for that database before installing the new release (for example, set `reindexer enable` to `false` on the Database Configuration page of the Admin Interface in MarkLogic 5). The entire database will be reindexed after upgrading to MarkLogic 8 unless you disable reindexing. For details, see “Upgrades and Database Compatibility” on page 7. You can always reindex the database later by setting `reindexer enable` database configuration option to `true`.
3. Shut down MarkLogic 7, MarkLogic 6, or MarkLogic 5 (as described in step 1 of “Removing MarkLogic Server” on page 28).
4. Uninstall MarkLogic 7, MarkLogic 6, or MarkLogic 5 (as described in “Removing MarkLogic Server” on page 28).
5. Install MarkLogic 8 (as described in “Installing MarkLogic Server” on page 14).
6. Start MarkLogic 8 (as described in “Starting MarkLogic Server” on page 18).
7. Open the Admin Interface in a browser (<http://localhost:8001/>).
8. When the Admin Interface prompts you to upgrade the Security database and the configuration files, click the button to confirm the upgrade.
9. If you have CPF installed in any database and you want to use any of the new pipelines in MarkLogic 8, then you must reinstall CPF for those databases. To reinstall CPF for a database, in the Admin Interface navigate to Databases -> *database-name* -> Content Processing, click the Install tab, and click the Reinstall button. This loads all of the new pipelines into the triggers database configured for that database.

There are some known application incompatibilities between MarkLogic 8 and MarkLogic 7, as well as some incompatibilities between 6.0 and 5.0. Some of the incompatibilities might require minor code changes to your applications. For details on these incompatibilities, see the [Release Notes](#).

#### **2.1.4 Upgrading from Release 4.2 or earlier**

MarkLogic 8 only supports upgrading from Release 5.0 or later; it does not provide a direct upgrade path for previous releases of MarkLogic Server. If you are upgrading from a 4.2 or earlier release of MarkLogic Server, either install this release as a clean installation or upgrade your existing release to the latest Release 5.0, 6.0, or 7.0 before installing this release. For details on upgrading a Release 4.2 or earlier release, see the *Installation Guide* for MarkLogic Server 4.2. If you are upgrading from 4.2 and do not want to reindex your content, set the `reindexer.enable` to `false` before upgrading. You can run MarkLogic 8 in either 4.2 or 5.0 compatibility mode, as described in “Upgrades and Database Compatibility” on page 7.

## 2.2 Installing MarkLogic Server

This section describes the procedure for installing MarkLogic Server on each platform. Perform the procedure corresponding to the platform to which you are installing.

If you are upgrading a cluster to a new release, see [Upgrading a Cluster to a New Maintenance Release of MarkLogic Server](#) in the *Scalability, Availability, and Failover Guide*. The security database and the schemas database must be on the same host, and that host should be the first host you upgrade when upgrading a cluster.

Platform	Perform the following:
Windows x64	<ol style="list-style-type: none"> <li data-bbox="428 653 1414 800">1. Shut down and uninstall the previous release of MarkLogic Server (if you are upgrading from 7.0, 6.0, or 5.0, see “Upgrading from Release 7.0, 6.0, Or 5.0” on page 12, if you are upgrading from 8.0-1 or later, see “Removing MarkLogic Server” on page 28).</li> <li data-bbox="428 821 1414 926">2. Download the MarkLogic Server installation package to your desktop. The latest installation packages are available from <a href="http://developer.marklogic.com">http://developer.marklogic.com</a>.</li> <li data-bbox="428 947 1414 1094">3. Double click the <code>MarkLogic-8.0-1-amd64.msi</code> icon to start the installer.  <b>Note:</b> If you are installing a release other than 8.0-1, double-click on the appropriately named installer icon.</li> <li data-bbox="428 1136 1414 1167">4. The Welcome page displays. Click Next.</li> <li data-bbox="428 1188 1414 1220">5. Select Typical.</li> <li data-bbox="428 1241 1414 1272">6. Click Install.</li> <li data-bbox="428 1293 1414 1325">7. Click Finish.</li> </ol>

Platform	Perform the following:
Red Hat Linux x64	<ol style="list-style-type: none"> <li data-bbox="423 279 1419 426">1. Shut down and uninstall the previous release of MarkLogic Server (if you are upgrading from 7.0, 6.0, or 5.0, see “Upgrading from Release 7.0, 6.0, Or 5.0” on page 12, if you are upgrading from 8.0-1 or later, see “Removing MarkLogic Server” on page 28).</li> <li data-bbox="423 443 1419 810">2. Download the package to <code>/tmp</code> or another location using your web browser. The latest installation packages are available from the <a href="http://developer.marklogic.com">http://developer.marklogic.com</a>.  <b>Note:</b> If you are using Firefox or another browser that is configured to associate <code>rpm</code> files, the browser will prompt you for the <code>root</code> password (if you are not already running as <code>root</code>) and you can follow the prompts to complete the installation. When the installation is complete, you can skip the next step. Otherwise, continue to the next step.</li> <li data-bbox="423 852 1419 1094">3. As the <code>root</code> user, install the package with the following command:  <pre>rpm -i /tmp/MarkLogic-8.0-1.x86_64.rpm</pre> <b>Note:</b> If you are installing a release other than 8.0-1, replace the characters 8.0-1 in the line above with the appropriate release number.</li> <li data-bbox="423 1136 1419 1272">4. If you are using HDFS, make sure the server is configured to use HDFS with a Hadoop HDFS client and any needed environment variables set in the <code>/etc/sysconfig/MarkLogic</code> file. For details, see <a href="#">HDFS Storage</a> in the <i>Query Performance and Tuning Guide</i>.</li> </ol>

Platform	Perform the following:
Sun Solaris x64	<ol style="list-style-type: none"> <li>1. Shut down and uninstall the previous release of MarkLogic Server (see “Removing MarkLogic Server” on page 28).</li> <li>2. Download the package to <code>/var/spool/pkg</code> using your web browser. The latest installation packages are available from <a href="http://developer.marklogic.com">http://developer.marklogic.com</a>.</li> <li>3. Unpack the compressed tar file in <code>/var/spool/pkg</code> with the following shell commands: <pre style="margin-left: 40px;">% cd /var/spool/pkg % uncompress MARKlogic-8.0-1-amd64.tar.Z % tar xf MARKlogic-8.0-1-amd64.tar % rm MARKlogic-8.0-1-amd64.tar</pre> <p><b>Note:</b> If you are installing a release other than 8.0-1, replace the characters 8.0-1 in the line above with the appropriate release number.</p> </li> <li>4. As the <code>root</code> user, install the package with the following command: <pre style="margin-left: 40px;"># pkgadd MARKlogic</pre> </li> </ol>
Mac OS X	<ol style="list-style-type: none"> <li>1. Download the MarkLogic Server installation package to your desktop. The latest installation packages are available from the <a href="http://developer.marklogic.com">http://developer.marklogic.com</a>.</li> <li>2. Double click the <code>MarkLogic-8.0-1-x86_64.dmg</code> icon to open the folder that contains the <code>MarkLogic-8.0-1-x86_64.pkg</code> installer. Double click on the installer to start.</li> <li>3. The Welcome page displays. Click Continue.</li> <li>4. In the Select a Destination window, select a destination to install MarkLogic Server or Continue to select the default destination.</li> <li>5. In the Installation Type window, click Install. An Installation window appears that displays the progress of the installation.</li> <li>6. When the installation Summary window appears, click Close.</li> <li>7. A MarkLogic control window appears from which you can start/stop MarkLogic Server, open the Admin Interface, and view the Error Log.</li> </ol>

The following table shows the installation directory (<marklogic-dir>) and the default data directory for each platform:

Platform	Installation Directory	Default Data Directory (for configuration and log files)
Windows	c:\Program Files\MarkLogic\	c:\Program Files\MarkLogic\Data
Red Hat Linux	/opt/MarkLogic	/var/opt/MarkLogic
Sun Solaris	/opt/MARKlogic	/var/opt/MARKlogic
Mac OS X	~/Library/MarkLogic	~/Library/Application Support/MarkLogic/Data

The default forest directory is the same as the default data directory if the optional data directory is not specified during forest creation. On UNIX platforms, if you want MarkLogic Server to use another location for its default data directory, make your data directory (/var/opt/MarkLogic on Linux and /var/opt/MARKlogic on Solaris) a soft link to the alternate location.

## 2.3 Starting MarkLogic Server

MarkLogic Server will automatically start when the computer reboots. To start MarkLogic Server without rebooting, perform the following command for the platform on which you are running:

Platform	Perform the following:
Windows	<p>Select Start &gt; Programs &gt; MarkLogic Server &gt; Start MarkLogic Server.</p> <p><b>Note:</b> When you start MarkLogic Server from the Start menu, the Windows service configuration for MarkLogic Server is set to start automatically. Also, if you are using Windows Vista or Windows 7, to start the service you must right-click the Start MarkLogic Server link in the Start menu and choose Run as Administrator, then choose to allow the action.</p>
Red Hat Linux	<p>As the <code>root</code> user, enter the following command:</p> <pre data-bbox="461 974 889 1003">/etc/init.d/MarkLogic start</pre>
Sun Solaris	<p>As the <code>root</code> user, enter the following command:</p> <pre data-bbox="461 1108 889 1138">/etc/init.d/MarkLogic start</pre>
Mac OS X	<p>Select System Preferences &gt; MarkLogic to open the MarkLogic control window. Click Start MarkLogic Server.</p>

This starts all of the App Servers that are configured on your MarkLogic Server.

## 2.4 Configuring the First and Subsequent Hosts

The following configuration procedures differ depending on if you run MarkLogic Server in a cluster configuration or on a single host. The procedures are as follows:

- [Configuring a Single Host or the First Host in a Cluster](#)
- [Configuring an Additional Host in a Cluster](#)
- [Leaving a Cluster and Becoming a Single Host](#)

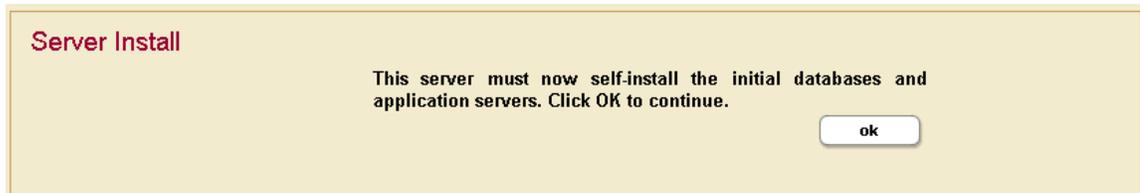
If you are configuring MarkLogic Server as a standalone host, or if this is the first host in a cluster configuration, follow the installation instructions in Section [2.4.1](#). Otherwise, follow the installation instructions in Section [2.4.2](#).

If you are upgrading a cluster to a new release, see [Upgrading a Cluster to a New Maintenance Release of MarkLogic Server](#) in the *Scalability, Availability, and Failover Guide*. The security database and the schemas database must be on the same host, and that host should be the first host you upgrade when upgrading a cluster.

### 2.4.1 Configuring a Single Host or the First Host in a Cluster

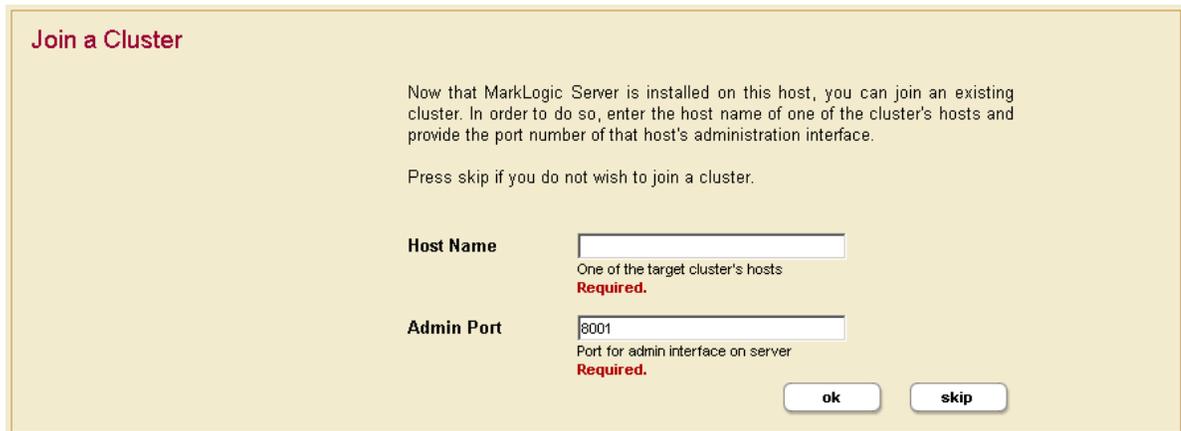
To configure this installation as a single host, or as the first host in a cluster, perform the following steps:

1. Install MarkLogic and start MarkLogic as described in “Installing MarkLogic Server” on page 14 and “Starting MarkLogic Server” on page 18.
2. Log into the Admin Interface in a browser. It is on port 8001 of the host in which MarkLogic is running (for example, on the localhost, `http://localhost:8001`). The Server Install page appears.



3. Click OK to continue.
4. Wait for the server to restart.

5. After the server restarts, you will be prompted to join a cluster.



**Join a Cluster**

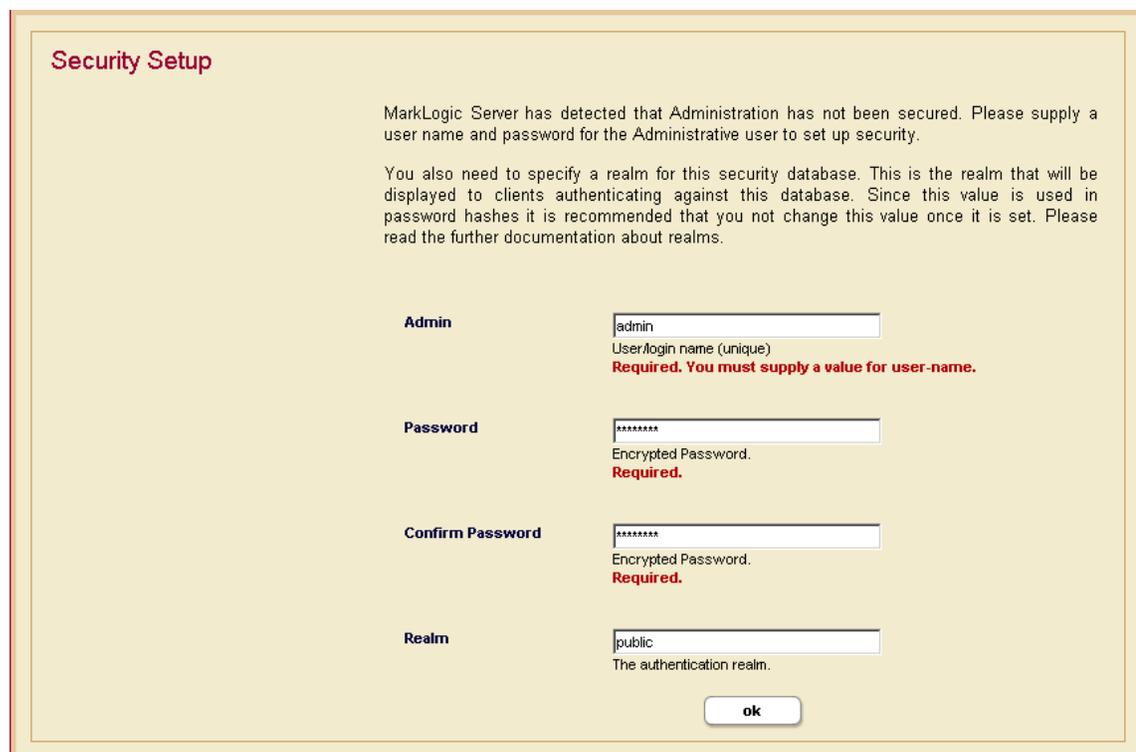
Now that MarkLogic Server is installed on this host, you can join an existing cluster. In order to do so, enter the host name of one of the cluster's hosts and provide the port number of that host's administration interface.

Press skip if you do not wish to join a cluster.

**Host Name**   
One of the target cluster's hosts  
**Required.**

**Admin Port**   
Port for admin interface on server  
**Required.**

6. Click Skip.
7. You will be prompted to create an admin user. Enter the login name and password for the admin user.



**Security Setup**

MarkLogic Server has detected that Administration has not been secured. Please supply a user name and password for the Administrative user to set up security.

You also need to specify a realm for this security database. This is the realm that will be displayed to clients authenticating against this database. Since this value is used in password hashes it is recommended that you not change this value once it is set. Please read the further documentation about realms.

**Admin**   
User/login name (unique)  
**Required. You must supply a value for user-name.**

**Password**   
Encrypted Password.  
**Required.**

**Confirm Password**   
Encrypted Password.  
**Required.**

**Realm**   
The authentication realm.

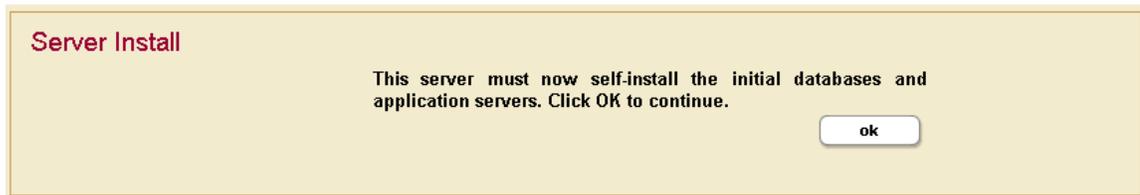
8. Click OK.
9. You will be prompted to log in with your admin username and password.

You will now see the Admin Interface. If you do not need to add any hosts at this time, skip to Section [2.6](#) on page 24.

## 2.4.2 Configuring an Additional Host in a Cluster

All hosts in a cluster have to be on the same platform. To configure this installation as an additional host in a cluster of the same platform, perform the following steps:

1. On the node you want to add to an existing cluster, install MarkLogic and start MarkLogic, as described in “Installing MarkLogic Server” on page 14 and “Starting MarkLogic Server” on page 18.
2. Log into the Admin Interface in a browser. It is on port 8001 of the host in which MarkLogic is running (for example, on the localhost, <http://localhost:8001>). The Server Install page appears.

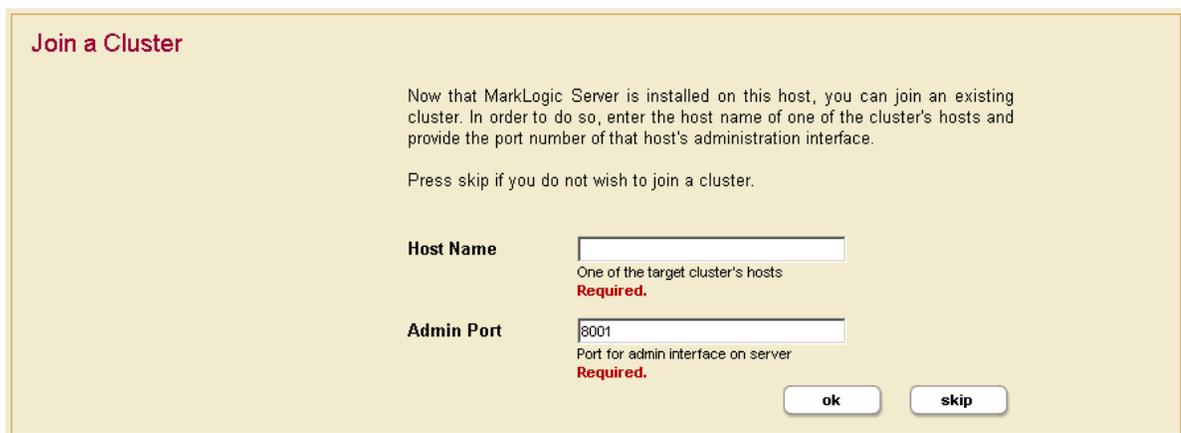


**Server Install**

This server must now self-install the initial databases and application servers. Click OK to continue.

ok

3. Click OK to continue.
4. Wait for the server to restart.
5. After the server restarts, you will be prompted to join a cluster.



**Join a Cluster**

Now that MarkLogic Server is installed on this host, you can join an existing cluster. In order to do so, enter the host name of one of the cluster's hosts and provide the port number of that host's administration interface.

Press skip if you do not wish to join a cluster.

**Host Name**   
One of the target cluster's hosts  
**Required.**

**Admin Port**   
Port for admin interface on server  
**Required.**

ok skip

6. Enter the DNS name or the IP address of one of the machines in the cluster. For instance, if this is the second host you are installing, you can enter the DNS name of the first host you installed.
7. Click OK.
8. You will be prompted for an admin username and password. You can use the admin username and password you created when installing the first host. Click OK.

9. Select a Group to assign this host. Click OK.

**Join a Cluster**

In order to join this MarkLogic cluster, the new host must be assigned to one of the cluster's groups and its name confirmed. Please select a group to join and confirm the new host's name:

**Group**  The groups in the cluster

**Host Name**  The name of the new host in the cluster.

10. Click OK to confirm that you are joining the cluster.

**Join a Cluster**

You are about to join this MarkLogic cluster. To proceed click OK.

11. You have now joined the cluster.

**Joined a Cluster**

**Joined a Cluster**  
**MarkLogic Server**

A new host has joined the MarkLogic cluster. Press ok to transfer cluster configuration information to the new host.

12. Click OK to transfer the cluster configuration information.

You have completed the process to join a cluster and will now see the Admin Interface.

### 2.4.3 Leaving a Cluster and Becoming a Single Host

If your host is currently in a cluster of multiple hosts, and you would like to leave the cluster and switch to a single host environment, follow the steps in this section.

A host cannot leave a cluster if there are still forests assigned to it or if it has any foreign clusters associated with it; you must delete all forests assigned to the host and de-couple any clusters associated with a host before you can leave the cluster. However, you can delete the configuration only for a forest and the forest data will remain on the filesystem, allowing you to add the forest back to the host after changing the configuration. For instructions on adding a forest to a host, see the *Administrator's Guide*.

Perform the following steps to leave the cluster to which a host is connected.

1. Run the Admin Interface from the host you want to remove from the cluster.
2. Click the Hosts icon in the left menu tree. The Host Summary page appears.
3. Click the name of the host you want to remove from the cluster, either from the left menu tree or from the Host Summary page. The Host Configuration page appears:

The screenshot shows the 'Host Configuration' dialog box. At the top, there is a title bar with the text 'Host Configuration' and four tabs: 'Summary', 'Configure', 'Status', and 'Help'. The 'Configure' tab is selected. Below the tabs, there are two buttons: 'ok' and 'cancel'. The main content area is titled 'host -- The host specification.' and contains a 'leave' button. Below this, there are three required fields: 'host name\*' with the value 'raymond.marklogic.com', 'group\*' with a dropdown menu set to 'Default', and 'bind port\*' with the value '7999'. A note at the bottom states '\* -- requires restart of one or more hosts'. There are 'ok' and 'cancel' buttons at the bottom left of the dialog.

**Note:** The Leave button only appears if the Admin Interface is running from this host.

4. Click the Leave button
5. Click OK to confirm leaving the cluster.
6. The host restarts to load the new configuration.
7. Follow the instructions in sections “Configuring a Single Host or the First Host in a Cluster” or “Configuring an Additional Host in a Cluster” as appropriate.

## 2.5 Entering a License Key

MarkLogic will run without a license key, but you should enter a valid key for what you are licensed for after installing MarkLogic. At any time, you can change the license key for a host from the Host Status page. You might need to change the license key if your license key expires, if you need to use some features that are not covered in your existing license key, if you upgrade your hardware with more CPUs and/or more cores, if you need a license that covers a larger database, if you require different languages, or for various other reasons. Changing the license key sometimes results in an automatic restart of MarkLogic (for example, if your new license enables a new language).

To change the license key for a host, perform the following steps using the Admin Interface:

1. Click the Hosts icon on the left tree menu.
2. Click the name of the host in which contains you want to change the license key, either on the tree menu or the summary page. The Host Configuration page appears.
3. Click the Status tab. The Host Status page appears.
4. Click the License Key button. The License Key Entry page appears.
5. Enter your new license key information. For information about licensing of MarkLogic Server, contact your MarkLogic sales representative.
6. After entering valid information in the Licensee and License Key fields, click OK. If it needs to, MarkLogic will automatically restart, and the new license key will take effect.

## 2.6 Checking for the Correct Software Version

After logging in with your admin username and password, the Admin Interface appears. In the left corner of the Admin Interface, the version number and product edition are displayed.

To view more details about the release of MarkLogic Server that is installed and licensed, complete the following steps:

1. Click the Hosts icon on the left tree menu.
2. Select the name of the host you just installed, either from the left menu tree or from the Host Summary page.
3. Click the Status tab. The Host Status page appears.

4. Check that `<version>` is correct.

The screenshot shows the 'Host Status' page in the MarkLogic Admin Interface. The page title is 'Host: raymond.marklogic.com'. Below the title, there are buttons for 'license key', 'restart', and 'shutdown'. The main content area displays a table of host information:

Host	raymond.marklogic.com
Group	Default
Online	Host up since December 5, 2013 3:47:31 PM
Version	7.0-1
License Key	B081-1E63-7583-3C33-A9BB-9E11-EA07-68B9-C15E-A279-93DC-17EA-37B8-F991-3A20
Licensee	raymond
Edition	Essential Enterprise Edition
Environment	production
CPUs	2
Cores	32
Options	conversion, failover, geospatial, alerting, entity enrichment, compartment security, flexible replication, tiered storage, semantics, Spanish, English
Data Directory Available	7,239 MB
Log Space Available	7,239 MB

To begin using MarkLogic Server, see the following document:

- *Getting Started With MarkLogic Server*

Otherwise, you are finished with the Admin Interface for now. You have successfully installed MarkLogic on your system.

## 2.7 Configuring MarkLogic Server on UNIX Systems to Run as a Non-daemon User

On UNIX-based systems (Linux and Solaris), MarkLogic runs as the UNIX user named `daemon`. This section describes how to change a configuration to run as a different named UNIX user. This procedure must be run by the `root` user. Additionally, the `root` user is still required for installing and uninstalling MarkLogic and for starting and stopping MarkLogic from the startup scripts.

To modify an installation to run as a user other than `daemon`, perform the following steps:

1. In a command window on the machine in which you installed MarkLogic, log in as the `root` user.

2. Make sure MarkLogic is stopped. If it is still running, stop it as follows:

Platform	Perform the following to stop MarkLogic:
Red Hat Linux	As the <code>root</code> user, enter the following command:  <code>/etc/init.d/MarkLogic stop</code>
Sun Solaris	As the <code>root</code> user, enter the following command:  <code>/etc/init.d/MarkLogic stop</code>

3. Edit the configuration file for your platform using a text editor such as `vi`.

Platform	Configuration File to Edit
Red Hat Linux	<code>/etc/sysconfig/MarkLogic</code>
Sun Solaris	<code>/etc/MarkLogic.conf</code>

4. In the file, edit the `MARKLOGIC_USER` environment variable to point to the user in which you want MarkLogic Server to run. For example, if you want it to run as a user named `raymond`, change the following line:

```
MARKLOGIC_USER=daemon
```

to the following:

```
MARKLOGIC_USER=raymond
```

5. Save the changes to the `/etc/sysconfig/MarkLogic` or `/etc/MarkLogic.conf` file.
6. If you have not yet started MarkLogic after performing a clean installation (that is, after installing into a directory where MarkLogic has never been installed), then you are done and you can skip the rest of the steps in this procedure. If you have an existing installation (for example, if you are upgrading to a maintenance release), then continue with the following steps.

7. For all of the MarkLogic files owned by `daemon`, you need to change the owner to the new user. This includes all forest data and all of the configuration files. By default, the forest data is in the following directories:

Platform	Default Data Directory (for configuration and log files, and default forest directory)
Red Hat Linux	<code>/var/opt/MarkLogic</code>
Sun Solaris	<code>/var/opt/MARKlogic</code>

For example, on a Linux system, perform a command similar to the following, which changes the owner to the user specified earlier in the `/etc/sysconfig/MarkLogic` file:

```
chown -R raymond /var/opt/MarkLogic
```

8. Make sure to change the owner for all forests in the system, otherwise forests will fail to mount upon startup. Note that the above command only changes the owner for forests installed in the default directory. You need to run a similar command on the data directory for each forest in which a data directory is specified.
9. When you have completed all the file and directory ownership changes, start MarkLogic as described in “Starting MarkLogic Server” on page 18.

Once you have performed this procedure, all new files created by MarkLogic are created with the new user ownership; there will be no need to change any ownership again.

**Warning:** The configuration changes you made to the startup scripts need to be merged in during any upgrade of MarkLogic (because the installation installs a new version of the startup scripts). Under Linux, the uninstallation process saves an old version of the scripts (for example, `/etc/sysconfig/MarkLogic.rpmsave`), so you can use that version to merge in your changes. If you perform a clean installation (not an upgrade installation), however, you will need to run this entire procedure again.

## 2.8 Removing MarkLogic Server

To remove MarkLogic from your system, complete the following steps:

1. Stop MarkLogic by performing the following action based on the platform in which you are running:

Platform	Perform the following:
Windows	Select Start > Programs > MarkLogic Server > Stop MarkLogic Server.  <b>Note:</b> If you are using Windows Vista or Windows 7, to stop the service you must right-click the Stop MarkLogic Server link in the Start menu and choose Run as Administrator, then choose to allow the action.
Red Hat Linux	As the <code>root</code> user, enter the following command:  <pre data-bbox="678 919 1089 951">/etc/init.d/MarkLogic stop</pre>
Sun Solaris	As the <code>root</code> user, enter the following command:  <pre data-bbox="678 1052 1089 1083">/etc/init.d/MarkLogic stop</pre>
Mac OS X	Select System Preferences > MarkLogic to open the MarkLogic control window. Click Stop MarkLogic Server.

2. Once the server is stopped, you can uninstall MarkLogic package by performing the following action based on the platform in which you are running:

Platform	Perform the following:
Windows	Use the Add/Remove Programs Control Panel to uninstall MarkLogic.
Red Hat Linux	As the <code>root</code> user, enter the following command:  <code>rpm -e MarkLogic</code>
Sun Solaris	As the <code>root</code> user, enter the following command:  <code>pkgrm MARKlogic</code>
Mac OS X	<p>No action is necessary when upgrading.</p> <p>If you want to remove the user data and do a fresh install, then remove the following directory:</p> <pre>~/Library/Application Support/MarkLogic/Data</pre> <p>To entirely remove MarkLogic, remove the following directories:</p> <pre>~/Library/MarkLogic ~/Library/Application Support/MarkLogic ~/Library/StartupItems/MarkLogic ~/Library/PreferencePanes/MarkLogic.prefPane</pre> <p>To make Mac OS X completely forget it ever had a MarkLogic installation, run the following command from a terminal window:</p> <pre>sudo pkgutil --forget com.marklogic.server</pre>

**Note:** Using this procedure to remove MarkLogic from your system will not remove user data (configuration information, XQuery files used by HTTP or XDBC servers, or forest content). This data is left in place to simplify the software upgrade process. If you wish to remove the user data, you must do so manually using standard operating system commands.

## 3.0 Copyright

MarkLogic Server 8.0 and supporting products.  
Last updated: February 2, 2015

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This technology is protected by U.S. Patent No. 7,127,469B2, U.S. Patent No. 7,171,404B2, U.S. Patent No. 7,756,858 B2, and U.S. Patent No 7,962,474 B2.

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## 4.0 Technical Support

MarkLogic provides technical support according to the terms detailed in your Software License Agreement or End User License Agreement. For evaluation licenses, MarkLogic may provide support on an “as possible” basis.

For customers with a support contract, we invite you to visit our support website at <http://support.marklogic.com> to access information on known and fixed issues.

For complete product documentation, the latest product release downloads, and other useful information for developers, visit our developer site at <http://developer.marklogic.com>.

If you have questions or comments, you may contact MarkLogic Technical Support at the following email address:

[support@marklogic.com](mailto:support@marklogic.com)

If reporting a query evaluation problem, be sure to include the sample XQuery code.