# MediaBeacon 21.03

# Complete Installation Guide







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# 1. Welcome to MediaBeacon's Installation Guide

Welcome to MediaBeacon's guide for installing our product. This guide reviews installation and serverlevel configuration options of our product.

Using this Guide

- To navigate through this guide, use the # icons to expand the Table of Contents panel, and click the topic name to read that entry.
- To search across all topic for a text string, use the search field in the upper left corner.
- To download a PDF version of the complete guide, click the "PDF Version" link in the upper right corner of the page.
- To return to the list of all MediaBeacon documentation, click "Other MediaBeacon documentation" in the upper right corner of the page.

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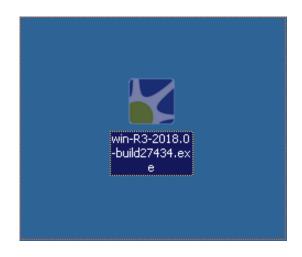
### 1.2. MediaBeacon Installation Guides

MediaBeacon Installation References

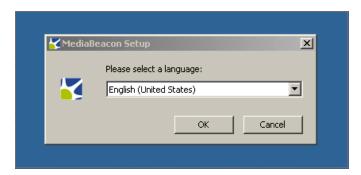
#### 1.2.1. Installing MediaBeacon for Windows

#### Installing MediaBeacon on Windows

**1.** Double-click the installer application. This will be typically be located in the Downloads folder for the Windows user.



2. Select the language that you would like to use for the MediaBeacon Quick Install process and click "OK".



**3.** MediaBeacon Setup will first check that you have the prerequisite programs installed on your computer. The most common prerequisite programs are the Java Runtime Environment, Ghostscript, and QuickTime. The resulting dialog box will let you know if there are missing prerequisites.



- 4. Click the "Next >" button to view a list of the missing prerequisites in the Prerequisites Wizard.
- 5. If there are no missing prerequisites, the Prerequisites Wizard will still appear, but the action for the prerequisite will display as Skip since it is already installed. If there are missing prerequisites, click the checkbox to the left of the prerequisite installation name and click "Next >" to install the selected application, or open the website for installation instructions if Flash is the selected application. Leave the checkbox blank to skip the installation of that prerequisite. Note: For the quick install to be successful, 'Quicktime Engine' and 'Flash Player' are the only prerequisites that can be skipped (unchecked) without being installed, but they should only be skipped if you have a specific reason. If the prerequisite is already present, it will automatically be set to the 'Skip' action and the 'Version' column will indicate that an acceptable version is already in place.

next to a prerequisite to select it for	application to run. Click on the check b	iox
	install or to skip it.	
Name	Version	Action
Java Runtime Environment 64 bit	Required: between 1.8 and 1.8	Skip
Quicktime Engine	Required: any. Found: nothing.	Skip
Flash Player	Required: any. Found: nothing.	Skip
Visual C++ 2008 Redistributable (	. Required: any. Found an accept	Skip
Visual C++ 2005 SP1 Redistributa	. Required, any, round, nothing,	Skip
Press the Finish button to install the main	application.	
Press the Finish button to install the main	application.	

Prerequisites These programs are needed for next to a prerequisite to select it	the application to run. Click on the check bo for install or to skip it.	IX
Name	Version	Action
—	it Required: between 1.8 and 1.8 Required: any. Found: nothing. Required: any. Found: nothing. e ( Required: any. Found an accept ta Required: any. Found: nothing.	Install Install Skip Skip Install
Press the Next button to install the p	rerequisites.	

- 6. After installing the selected prerequisites, click "Finish".
- 7. The next dialog is the "MediaBeacon Setup Wizard." Click "Next >" to continue.

Welcome to the MediaBeacon Setup Wizard
The Setup Wizard will install MediaBeacon on your computer. Click "Next" to continue or "Cancel" to exit the Setup Wizard.
<back next=""> Cancel</back>

8. Read through the license agreement and accept the terms by clicking "I accept the terms in the License Agreement". Click "Next >" to continue with the installation.

MediaBeacon Setup	<u>&gt;</u>
End-User License Agreement	
Please read the following license	e agreement carefully
MEDIAREACON® SOFTW	ARE END USER LICENSE AGREEMENT
MEDIADEACONG SOFTWA	
	End User License Agreement (hereinafter
	B EULA") is a legal agreement between a are strongly encouraged to familiarize yourself
	r to the installation and use of MediaBeacon®
(hereinafter referred to as "the	e Software").
BrighTech, Inc. is willing to li	icense the Software and the accompanying
	ion that you accept and agree to ALL of the
<ul> <li>I accept the terms in the Lice</li> </ul>	
O I do not accept the terms in	the License Agreement
dvanced Installer	
avanced Installer	
	< Back Next > Cancel

**9.** Next, you will need to select the Installation Folder that MediaBeacon will be installed into. By default, a folder named "MediaBeacon" will be created in your Program Files directory on your Windows system volume information folder. You can choose to use the created MediaBeacon folder or choose a different folder by clicking on the "Browse" button. Once you've selected the folder that MediaBeacon will be installed to, click "Next>".

MediaBeacon Setup		
Select Installation Folder		
This is the folder where MediaBeacor	n will be installed.	
To install in this folder, click "Next". T "Browse".	o install to a different folder,	enter it below or click
<u>E</u> older:		
C:\Program Files\MediaBeacon\Media	Beacon\	Browse
Advanced Installer		
	< Back Ne	xt > Cancel



**10.** Click "Install" to install MediaBeacon.

Ready to Install		
-	o begin the MediaBeacon installation	
Click "Install" to begin the in installation settings, click "Ba	stallation. If you want to review or change any ack". Click "Cancel" to exit the wizard.	/ of your
Advanced Installer		

**Note:** If an "Installer Information" error occurs at this point, informing the user of "a problem with this Windows Installer package".

**11.** Click "Finish" to exit the MediaBeacon Setup Wizard.

Completing the MediaBeacon Setup Wizard
Click the "Finish" button to exit the Setup Wizard.
< Back Finish Cancel



**12.** Next, double-click the desktop shortcut or navigate from the Start Menu to start the application.

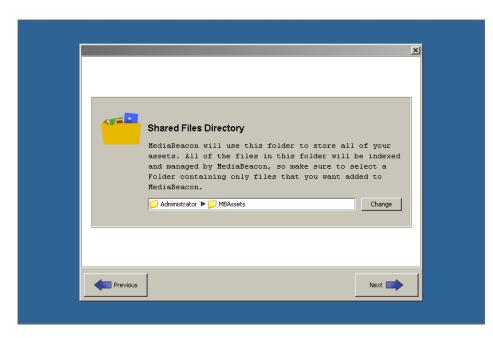


**13.** MediaBeacon will display several additional screens on the first run after installation. First, you will need to read through the license agreement, click "I agree to above license", and click "Next" to continue.

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Previous Next 🗪	ATTENTION: MediaBeacon® End User License Agreement (hereinafter referred to as MediaBeacon® EUL is a legal agreement between BrighTech, Inc. and you. You are strongly encouraged to familiarize yours with this legal document prior to the installation and use of MediaBeacon® (hereinafter referred to as the Software). BrighTech, Inc. is willing to license the Software and the accompanying documentation on the condition	A) Hif he
	Next	⇒

14. Next, select the "Shared Files Directory" that will store all of your assets. By default, a folder called "MBAssets" will be created in your Home directory. If you want to choose a different folder, click the "Change" button. When you have selected the desired folder to be the Shared Files Directory, click "Next" to continue.





**15.** If the "MBAssets" folder does not already exist, MediaBeacon will ask permission to create it. Click "Yes" to create the folder.



**16.** Next, the "Web Address" configuration dialog box will appear. Click "Next" to accept the defaults and use the "Automatic address selection".



17. MediaBeacon allows you to use email notifications for various actions. The next screen allows you to set up email preferences. In the "External SMTP server" field, add the address of your SMTP server. In the "Sender's E-mail address" field, add the email address to use as the sender. In the "Sender's full name" field, add the name for the sender. Select a maximum attachment size (MB) from the drop down list that will prevent MediaBeacon from sending an email if it goes over the size limit. After selecting your preferences, click "Next".

		MediaBeacon can use E-mail to deliver assets or to send you notifications about actions taken in MediaBeacon. To use E-mail, configure a server below. C Disable E-mail in MediaBeacon Use this computer as an SMTP server (must be configured externally) C External SMTP server: (must be configured externally) C External SMTP server: Sender's E-mail address: Mediabeacon@loc Sender's full name: Maximum attachment size (MB): Authentication Options		
--	--	---	--	--

**18.** Next, the "Password Setup" dialog box will appear. Here you must specify the MBAdmin, or root, password. This password is used to login to MediaBeacon to perform administrative tasks. Click "Next" after you add your password.

	Password Setup         MediaBeacon must be set up with the         administrative password, and may optionally use a         guest password. If the guest password is not         enabled, anyone will be able to view your         MediaBeacon assets.         Administrator:       MBAdmin         Password:	X
Previous	Next	

**19.** Next, you will need to select the proper XMP Acceleration mode for your environment. You should select "Accelerated" unless you have been told otherwise by your MediaBeacon representative.

Note: In order to manage a large number of files, MediaBeacon has developed a unique method of accelerating the write of the metadata for each file into the file system. This acceleration works outside of the standard XMP specification, but is crucial for reasonable response times on larger databases. This setting only affects the way the files are stored on the server. Files are always downloaded in a completely compatible format.

Accelerated Speed Optimized
Compatibility Speed

- **20.**Click "Next" to finish the installation and launch MediaBeacon.
- **21.** The first time you launch the software, you will be required to enter a valid license. Your MediaBeacon representative should provide you with the license and should be contacted if you have any issues activating the software. Enter the license information and click "Enter License". **Note: The name of the licensor is case-sensitive**

MediaB	eacon
	Thank you for using MediaBeacon!
This software its local dist	is licensed to you by BrighTech, Inc., or ributor.
	You have 0 days left
Your Name	
License Key	
-	

22. You must activate the license immediately, either by phone or online via the "Activate" and then "Activate Now" buttons. Note: If your server does not have external internet access, you can use the Activate by phone option. For this option, you will call MediaBeacon and get a string to enter over the phone to activate





23. Successful activation allows full use of the application for the allotted license period.

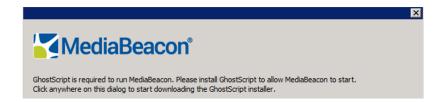


**24.**To configure HTML5 video options. Select HTML5 to use HTML5 in the web interface to help play videos. Optional WebM support allows you to use an external video converter but requires configuration to work properly. You can leave these blank or click "Apply" to apply the selected options and then click "Done".

	<b>MediaBeaco</b>	٦		
HTML5 Vic	eo Support			
	on now supports HTML5 in browser ) to do this later or disable this you			
control pa		nay to the nado Fronies in	-iodiabodcon-	
Profiles su	port			
	HTMLS Video			
	will install the necessary HTML5 vide ort Ogg and Mpeg4 H.264 formats.	o components and also add	profiles to	
C Optio	nal WebM support			
This	will add webm profile to support we	om video.		
This	requires FFmpeg or another conver	ter tool installed on your sys	tem.	
			Cancel	Apply



**25.** After confirming your settings, press Start MediaBeacon. A prompt window will appear for users to install GhostScript. Click the window will download the installer to your system.



**26.** Run through and install GhostScript through the downloaded file. Then close the MediaBeacon application, re-open it, and press Start MediaBeacon.



**27.** The following dialog will provide you with the option and instructions for disabling auto login, if desired. Click "Continue" to go through the steps of disabling auto login, or click "Cancel" to keep auto login enabled. Then, click "Done" and you will be ready to configure your database and related settings in the Enterprise page.

Congratulations!	You are ready to run MediaBeacon!
Automatic Login	
1. Click Continue and in	"Users must enter a username and password to use this comput
[	Continue

**28.** Then, click "Done" and you will be ready to configure your database and related settings in the Enterprise tab of the admin GUI.

# ESK0 😯

Med	авеа	con				
	Sharing	Admin	XMP	Enterprise	R3Search	]
Start MediaB	eacon		I	Memory: 68 o	f 2,048 MB	
asswords						
Admin Passwo	ord ••••					
dvanced Settii	ngs					
Maximum Mei Priority of Pre			total 6,	144 MB)		Repair Database
	ith external aring on Me	••		onfigure		View Logs
Start MediaBea	J		\$	]	C	Movie Profiles
Append co	opyright to o	outgoing fi	les	Configure		
	age statistic					

\*Please Note: After installing MediaBeacon, the first start will take several minutes, do not exit out or stop the process until it is complete. You can view progress at the bottom of the admin GUI.

#### 1.2.2. Running MediaBeacon as a Windows Service

MediaBeacon can be run as a service on Windows. The following are intended to intended to be basic setup instructions.

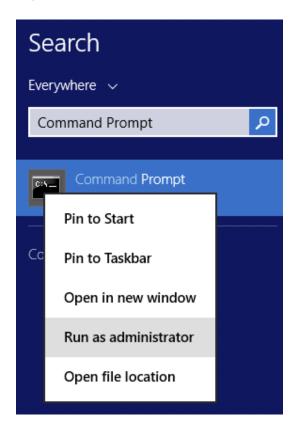
Note that these instructions will need to be followed after any installation or upgrade of the MediaBeacon application.

#### **Windows Service Installation**

- **1.** Ensure MediaBeacon is configured and running properly before proceeding with service installation steps.
  - **a.** Note: To run MediaBeacon as a service, the service must be installed using the same Windows user account that was used for the initial MediaBeacon application installation
- 2. Stop MediaBeacon:
  - a. In the MediaBeacon Server GUI application.
    - a. Under the "Admin" tab: Click "Stop MediaBeacon".
  - **b.** Open the Task Manager:
    - a. Ensure that no tasks named "Java(TM) Platform SE Binary" are running.
  - c. Exit the MediaBeacon Server GUI application.
- **3.** Open a command prompt. The application must be run as the "Administrator". To do so:



- a. Press the windows key
- b. Click the search icon, enter "Command Prompt"
- c. Right-click Command Prompt and choose "Run as administrator"



- 4. Determine if MediaBeacon services are installed on the system.
  - a. sc query mediabeacon
- **5.** If any service for MediaBeacon is shown:
  - **a.** Change directory to the MediaBeacon installation, which is typically C:\Program Files \MediaBeacon\MediaBeacon.
    - a. cd C:\Program Files\MediaBeacon\MediaBeacon
  - **b.** Uninstall using the following command.
    - a. bin\prunsrv.exe //DS//mediabeacon
- 6. Edit etc\mb\_inst.bat.
  - a. Notes:
    - **a.** Ensure you are using a plain text editor.
    - **b.** In a standard install this is located at: C:\Program Files\MediaBeacon\MediaBeacon\etc \mb\_inst.bat.
  - b. Confirm that the various file paths to MediaBeacon's binaries are accurate. The C:\Program Files\mediabeacon\mediabeacon strings should be replaced with the actual install location if MediaBeacon is installed to a non-default location:
    - a. PR\_INSTALL line.
    - **b.** PR\_CLASSPATH line, multiple paths.
    - c. PR\_LIBRARYPATH line, multiple paths.

- d. The line under "REM Install Service".
- e. PR\_JVMOPTIONS line, the C:\Program Files\MediaBeacon\MediaBeacon strings should be replaced with the actual install location ifMediaBeacon is installed to a non-default location:
  - a. -Dmb.root=C:\Program Files\Mediabeacon;-Dmb.force.mb.service=true;-Dfile.encoding=UTF-8;
- **c.** Update the PR\_JVMMX variable to match the "Maximum Memory" set on the Admin tab of the MediaBeacon Server GUI application (which, in turn, should be set to a value appropriate to the server's use and resources). The default value of 4096 for the PR\_JVMMX variable typically matches the default in the MediaBeacon application. If you're unsure of a proper value for your environment, please contact MediaBeacon Support.
- **d.** Do NOT, codify the PR\_SERVICEUSER and PR\_SERVICEPASSWORD lines. These will be set in subsequent steps.
- 7. In the Command Prompt, run etc\mb\_inst.bat to install the service.
  - a. etc\mb\_inst.bat
  - **b.** Note, use "Run as administrator" method, as above.
- **8.** Set MediaBeacon service account information:
  - **a.** Open the Services application.
  - b. Right-click MediaBeacon service, choose "Properties".
  - c. Click "Log On" tab.
  - **d.** Enter the username and password of the windows user that the service will be run under. Note: This must match the Windows user account that was used for initial application install.
  - e. Click "Apply", Click "OK".

MediaBeaco	on Properties (Local Computer)
General Log On Recov	very Dependencies
Log on as:	
Local System accoun     Allow service to in	<b>it</b> teract with desktop
This account:	.\Administrator Browse
Password:	•••••
Confirm password:	•••••
	OK Cancel Apply

- **9.** Optional: Set the MediaBeaconservice's Recovery options:
  - **a.** Open the Services application.
  - **b.** Right-click MediaBeacon service, choose "Properties".
  - **c.** Click "Recovery" tab.
  - **d.** First failure: Restart the Service.
  - e. Second failure: Restart the Service.
  - f. Subsequent failures: Restart the Service.
  - **g.** Reset fail count after: 0 days.
  - **h.** Restart service after: 1 minutes.
  - i. Click "Apply", Click "OK".

MediaBeacon Properties (Local Computer)					
General Log On Recovery	General Log On Recovery Dependencies				
Select the computer's response actions.	e if this service fails. <u>Help me set up recovery</u>				
First failure:	Restart the Service				
Second failure: Restart the Service V					
Subsequent failures: Restart the Service V					
Reset fail count after: 0 days					
Restart service after:	1 minutes				
Enable actions for stops wit	h errors. Restart Computer Options				
- Run program					
Program:					
Browse					
Command line parameters:					
Append fail count to end	of command line (/fail=%1%)				
[[	OK Cancel Apply				

j. Start MediaBeacon service: See instructions below.

#### Starting and Stopping MediaBeacon Running as a Service in Windows

#### Starting

- **1.** Open "Services" application:
  - a. Right-click MediaBeacon service, choose "Start".
  - **b.** MediaBeacon is now starting and needs no further intervention.
- **2.** OPTIONAL: to monitor MediaBeacon's startup:
  - **a.** Open MediaBeacon Server GUI application.





- **a.** In the MediaBeacon Server GUI application, startup is indicated by
  - **a.** The Start/Stop button (Under the "Admin" tab) is labeled "Stop MediaBeacon".
  - **b.** The fly out panel is displayed.

MediaBeacon 📃 🗖 🗙
MediaBeacon
Sharing         Admin         Enterprise         XMP         R3Search           Stop MediaBeacon         Memory: 1,356 of 4,096 MB         Preview system has 3 requests scheduled
Passwords Admin Password
Advanced Settings  Priority of Preview System High  Preview with external applications Configure Enable sharing on MediaBeacon startup Start MediaBeacon Manually  View Logs
Append copyright to outgoing files Configure Enable usage statistics Movie Profiles
About License Apply
[1 of 1] - Verify All: Estimated completion - 34% Scanning C:\Users\Administrator\MBAssets\ Ŏ

#### Stopping

- **1.** Open "Services" application:
  - a. Right-click MediaBeacon service, choose "Stop".

Microsoft Stop     Microsoft Pause     Multimed Resume     Net.Tcp P Restart	es In es so rvice s rela	Status Running	Startup Type Automatic Manual Manual Manual	Log On As .\Administ Local Syste Network S	
Name Descrip MediaBea Microsoft Stop Microsoft Pause Microsoft Resume S Nutrimed Res	es In es so rvice		Automatic Manual Manual Manual	Administ Local Syste Local Syste Network S	
Q. Network A     All Tasks     All Tas	es abi ins a twor es o es Dir es th s an rvice	Running Running Running	Manual Disabled Manual Manual Manual (Trig Manual Automatic Automatic	Local Syste Local Service Local Syste Network S Local Syste Local Syste Local Service Network S Local Service	

**b.** Wait for shutdown progress bar to finish.

Q.		Services			-	x
File Action View	Help					
(+ +) 🖬 🗎 (	à 📑 🛛 🖬 🕨 🖬 🕪					
Services (Local)	Name	Description	Status	Startup Type	Log On As	^
	Service Control	3	nning	Automatic	.\Administ	
	Service Control			Manual	Local Syste	
Windows is atten	npting to stop the following service on La	cal Computer		Manual	Local Syste	
	····· ································			Manual	Network S	
MediaBeacon				Manual	Local Syste	
_				Disabled	Local Service	≡
				Manual	Local Syste	
				Manual	Network S	
	Close			Manual	Local Syste	
				Manual (Trig	Local Syste	
	🔍 Network List Service	Identifies th	Running	Manual	Local Service	
	Network Location Awareness	Collects an	Running	Automatic	Network S	
	A Notwork Store Interface Cor	This convice	Dunning	Automatic	Local Service	$\mathbf{\Sigma}$
	Extended Standard /					

- 2. Open "Task Manager" application.
  - **a.** Ensure that no tasks named "Java(TM) Platform SE Binary" are running.

	Task Manager			
File Options View				
Processes Performance Users Det	tails Services			
<b>A</b>		0%	32%	
Name	Status	CPU	Memory	
🛃 Java Update Checker (32 bit)		0%	1.8 MB	-
📓 Java Update Scheduler (32 bit)	)	0%	1.2 MB	
🕌 Java(TM) Platform SE binary		0%	316.5 MB	
🛃 Java(TM) Platform SE binary	0%	642.5 MB		
🛓 Java(TM) Platform SE binary	0%	950.3 MB		
Fewer details				End task

- **3.** Shutdown MediaBeacon Server GUI application, if applicable:
  - **a.** Under the "Admin" tab: The Start/Stop button will be greyed out and say "Stop MediaBeacon" (indicating that is shut down)

Stop MediaBeacon Passwords	Memory: 31 of 2,048	3 MB 0 requests scheduled
Admin Password Advanced Settings Priority of Preview System Hig Preview with external app	lications Configure	Repair Database
Enable sharing on MediaBe Start MediaBeacon Manually     Append copyright to outgo     Enable usage statistics	<ul> <li>✓</li> </ul>	View Logs Wovie Profiles
		About License Apply

**b.** Exit the MediaBeacon Server GUI application using the "X" icon in upper left of application window.

### 1.3. MediaBeacon System Requirements

#### Hardware

ESKO

The following are the minimum requirements for MediaBeacon on a distributed system configuration with roughly 500k assets and about 200 concurrent users. MediaBeacon requires high throughput and low latency connections of no more than 1500ms for database access, 1000ms for disk access, and 5ms for connections to distributed components. These are minimum requirements, so hardware capabilities can be increased as needed.

Hardware recommendations for the production, staging, and development environments in a distributed setup are:

Server Type	Production	Staging	Development
MediaBeacon Primary Server	16GB RAM, 8 Core CPU	8GB RAM, 4 Core CPU	4GB RAM, 2 Core CPU
Enterprise Search Engine	16GB RAM, 8 Core CPU	8GB RAM, 4 Core CPU	N/A
User Concurrency Pack	16GB RAM, 4 Core CPU (each)	8GB RAM, 4 Core CPU (each)	N/A
Preview	16GB RAM, 8 Core CPU	8 GB RAM, 4 CPU	N/A

#### Software

#### **Operating Systems**

- Windows Server 2008 R2+
- MacOS 10.10+

#### **Supported Database Types**

- Microsoft SQL Server 2008+
- MySQL5.5+

#### **Supported Browsers**

- Chrome 85+
- Mozilla Firefox 83+
- Safari 13+
- Microsoft Edge 85+
- Apple iOS 13+
- Android 11+



#### **Compatible Versions of Third Party Integrations**

- Aspera 3.7
- Vantage 5+ with license for Vantage Transcode, Vantage Analysis, and Metadata Conversion
- Microsoft Office 2011+
- LibreOffice

#### Software Included in Installation Package

- QuickTime x86, 7.1.0.210
- Java JRE 8, x64, 1.8.0\_45
- Graphicsmagick, 1.3.18
- Imagemagick, 7.0.11
- Visual C++ Redistributable 2005 SP1, 8.0.56336
- Visual C++ Redistributable and 2008, 9.0.21022

#### **No Longer Supported**

- Chrome 47-79
- Firefox 43-74
- Safari 9.0-11
- Internet Explorer

### 2. Webhead\_Manual\_MediaBeacon\_R3volution\_8.6

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Esko Software BV

Kortrijksesteenweg 1095

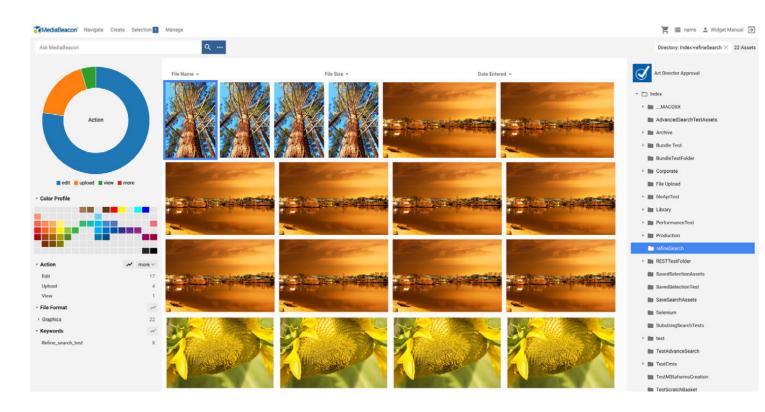
B - 9051 Gent

info.eur@esko.com

### 2.2. Introduction

#### MediaBeacon





A MediaBeacon webhead is a copy of the MediaBeacon web interface that is deployed in an external appserver (e.g. Tomcat, WebSphere, WebLogic, etc.). Webheads have several main uses:

- Creating multiple web interfaces for load balancing and handling more concurrent user sessions.
- Advanced configuration. For example, administrators have more granular control of memory and other settings in Tomcat versus the built-in Jetty web server.
- Advanced configuration. For example, an administrator could theoretically modify the webapp contents in an external server, whereas MediaBeacon's built-in webapp is read-only.

This manual provides basic information on how to install an external MediaBeacon webhead. For configuration questions not addressed here, please contact MediaBeacon Support.

Please email us at support@mediabeacon.com if you find any incorrect or missing information. Send screenshots and/or refer to page numbers in this document where applicable.

### 2.3. Webhead Installation: Windows

This section will guide administrators through the process of installing a MediaBeacon webhead on Windows.MediaBeacon supports Windows 2008 R2 – Windows Server 2012. 64-bit is required.

To follow these instructions, install the core MediaBeacon application and download the matching webhead .war file.

- 1. If the webhead is being deployed on a separate server from MediaBeacon, be sure to install a matching version of Java, either through the MediaBeacon installer or manual download.
- 2. Copy these files from a core MediaBeacon installation (e.g. C:\Program Files\ MediaBeacon \MediaBeacon\lib) to the JRE's library extensions (e.g. C:\Program Files\Java\jre1.8.0\_91\lib\ext):



- jniwrap.jar
- slf4j-api.jar
- winpack.jar
- hfscharset.jar
- **3.** Download and install Tomcat 8.0. Files and documentation are available here: http://tomcat.apache.org/.
- 4. Copy these files from a core MediaBeacon installation (e.g. C:\Program Files\ MediaBeacon \MediaBeacon\lib) to the Tomcat 'bin' folder (e.g. C:\Program Files\Apache Software Foundation \Tomcat 8.0\bin):
  - jniwrap.dll
  - jniwrap.lic
  - jniwrap64.dll
- **5.** Once Tomcat is installed, open the "Configure Tomcat" application. In the "Java" tab, set the "Maximum Memory Pool" to 1024 MB. For higher loads, more memory may be required. Contact MediaBeacon Support with any questions.

Apache Tomcat 7.0 Tomcat7 Properties	×
General Log On Logging Java Startup Shutdown	
Use default	
Java Virtual Machine:	
C:\Program Files\Java\jre7\bin\server\jvm.dll	
Java Classpath:	
C:\Program Files\Apache Software Foundation\Tomcat 7.0\bin\bootstrap	
Java Options:	
-Dcatalina.home =C: \Program Files \Apache Software Foundation \Tom -Dcatalina.base =C: \Program Files \Apache Software Foundation \Tom -Djava.endorsed.dirs =C: \Program Files \Apache Software Foundation -Djava.io.tmpdir =C: \Program Files \Apache Software Foundation \Tom	
Initial memory pool: MB	
Maximum memory pool: 1024 MB	
Thread stack size: KB	
OK Cancel Apply	

6. If using MySQL, locate the MySQL connector in the MediaBeacon installation. This file will be available afterMediaBeacon has connected to MySQL for the first time: C:\Program Files \MediaBeacon\MediaBeacon\lib\mysql-connector-java- 5.1.34-bin.jar



✓ J · Computer • Lo	cal Disk (C:)    Program Files     Apache Software Foundati	on • Tomcat 7.0 • lib	▼ 100	Search lib	
ganize 🔻 🋃 Open 🔻 Ne	ew folder			•	
Favorites	Name *	Date modified	Туре	Size	
E Desktop	📓 el-api.jar	1/10/2013 4:54 PM	Executable Jar File	46 KB	
Downloads	jasper.jar	1/10/2013 4:54 PM	Executable Jar File	583 KB	
🔚 Recent Places	jasper-el.jar	1/10/2013 4:54 PM	Executable Jar File	121 KB	
	jsp-api.jar	1/10/2013 4:54 PM	Executable Jar File	87 KB	
Libraries	📓 mysql-connector-java-5. 1. 22-bin. jar	2/13/2013 3:48 PM	Executable Jar File	814 KB	
<ul> <li>Documents</li> <li>Music</li> <li>Pictures</li> <li>Videos</li> </ul>	📓 servlet-api.jar	1/10/2013 4:54 PM	Executable Jar File	174 KB	
	iomcat-api.jar	1/10/2013 4:54 PM	Executable Jar File	7 KB	
	iomcat-coyote.jar	1/10/2013 4:54 PM	Executable Jar File	758 KB	
	iomcat-dbcp.jar	1/10/2013 4:54 PM	Executable Jar File	230 KB	
Computer	iomcat-i18n-es.jar	1/10/2013 4:54 PM	Executable Jar File	76 KB	
🏭 Local Disk (C:)	🔳 tomcat-i18n-fr.jar	1/10/2013 4:54 PM	Executable Jar File	48 KB	
👽 Network	📓 tomcat-i18n-ja.jar	1/10/2013 4:54 PM	Executable Jar File	51 KB	
	iomcat-jdbc.jar	1/10/2013 4:54 PM	Executable Jar File	121 KB	
	i tomcat-util.jar	1/10/2013 4:54 PM	Executable Jar File	23 KB	

- 7. Rename the .war file to match the URL that should be used for accessing the webhead. For example, webhead.war will be accessed at http://localhost:8080/ webhead.
- 8. Copy the renamed .war file to: C:\Program Files\Apache Software Foundation\Tomcat 8.0\webapps.

webapps				
→ 🕞 → Local Disk (C:) →	<ul> <li>Program Files          <ul> <li>Apache Software Foundation</li> </ul> </li> </ul>	n 🔻 Tomcat 7.0 👻 webapps 👻	👻 🛃 Searc	h webapps
ganize 🔻 📄 Open New fol	der			= • 🔟
Favorites	Name *	Date modified	Туре	Size
E Desktop	Jacob docs	2/11/2013 2:57 PM	File folder	
Downloads	) manager	2/11/2013 2:57 PM	File folder	
📳 Recent Places	NOOT	2/11/2013 2:57 PM	File folder	
Libraries	webhead.war	2/8/2013 3:24 PM	WAR File	114,637 Ki
Documents  Music  Pictures Videos  Computer  Local Disk (C:)				
Network				



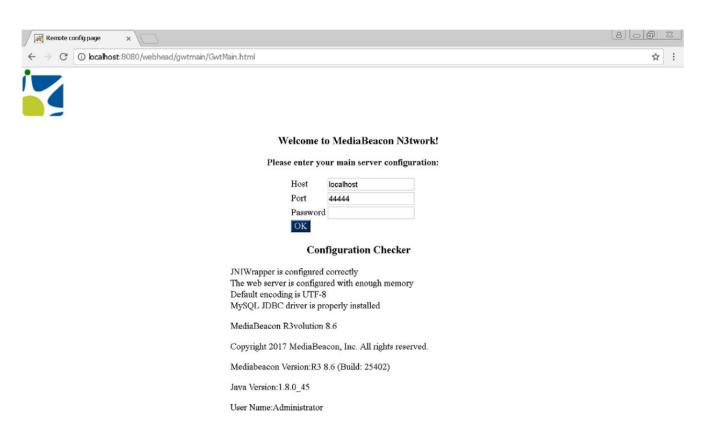
- **9.** MediaBeacon 8.x will not accept connections from external applications unless they are explicitly whitelisted on the main server. To allow a connection from the webapp:
  - a. Go to the "Enterprise" tab on the main MediaBeacon server and click "Applications".
  - b. Click "Add" and manually enter the IP address for the webapp. Alternatively, click "Discover External Applications." This will open a temporary 2-minute window during which remote applications are allowed to connect to MediaBeacon, automatically adding them to the whitelist.
  - c. Click "OK".

	eacon		_ []
haring Admin Ent		R3Search	
		plication Addresses	X
IP Address 10.10.2.239	Service	Last Connection Time	Remove
Discover Extern	al Application	s Add	OK
Links			Apply

- 10. Launch Tomcat.
- 11. Navigate to http://localhost:8080/webhead in a web browser (or whatever URL is appropriate, based on the name of the .war file). The browser will be redirected to remote\_config.jsp for a first-time setup.

### ESK0 😌

#### MediaBeacon



There shouldn't be any red icons in the Configuration Checker area. Enter the following information:

1. Host:

Enter the IP address of the core MediaBeacon server relative to the webhead server. If they're both running on the same machine, **localhost** is fine.

2. Port:

Use 44444, unless the value for the SOA port was changed on the "Enterprise" tab of the MediaBeacon R3volution server-side GUI application.

3. Password:

The password is set via the "Change Remote Password" button on the "Enterprise" tab of the MediaBeacon R3volution server-side GUI application.

🖌 MediaBeacon					
MediaBe	eacon®				
Sharing Admin Enter	prise XMP R	.3Search			
File server: Alternate	Data Stream	File System	•		
🗆 Disable internal Pre	eview System				
Change Remote Pas	sword	Applicatio	ons	Port: 44	444
Database type	Set Passw	ord	:	×	
Host	New Passwo		*****		3306
Database	Retype Pass	word ****	*****	- inections	95
User Advanced JDBC:	r [	OK	Cancel	com:33	Verify
Authentication: Stand	dard	•	]		
Links					Apply

**12.** After entering the Host, Port, and Password, click "OK." A "Continue" button will display if the webhead was able to connect to the main MediaBeacon server.

Welcome to MediaBeacon N3twork!			
Please enter your main server configuration:			
Host	localhost		
Port	44444		
Password			
Application	OK is successfully configured. Continue		

**13.** Click "Continue" to proceed to the MediaBeacon login screen. The webhead is now available for use.



M	ediaBeacon®
Username	
Password	
0-1	Log in

### 2.4. Port Information

Below are the default ports used to connect:

- Connects to MediaBeacon R3volution core: 44444, 44445, and 44446.
- Connects to R3Search node(s): 30000.
- Connects to Zookeeper(s): 31000.
- Connects to the database.
- Connects to external authentication server, if in use (Active Directory, LDAP, etc.).



# 3. Remote MediaBeacon Preview Nodes

### 3.1. Introduction

MediaBeacon's R3volution product has been designed to grow from one server with multiple applications to a multi-server cluster. Additional servers on the LAN that are connected to the main instance of MediaBeacon are called Remote MediaBeacon Nodes. These are individual applications that are designed to offload processes from the primary MediaBeacon server and to increase the speed with which certain operations are performed. The Nodes are available as an option with MediaBeacon's N3twork Application Bundle and include the Importer Node, Preview Node, and Events Node. Each node can be installed and configured on designated hardware and collaborates with the main MediaBeacon services. Remote MediaBeacon Nodes are available for MediaBeacon Enterprise Pro only. As the demands grow for MediaBeacon to perform tasks faster and more efficiently, additional nodes can be added.

**Note:** Additional fees may apply for any or all additional nodes added to the system. Nodes are part of the licensing agreement with MediaBeacon, Inc.

This document will describe the Preview Node and outline the process for installation, configuration, and setup, with detailed step-by-step instructions. Further training is available by contacting a MediaBeacon representative or accessing the MediaBeacon resources page: <a href="https://www.mediabeacon.com/resources">https://www.mediabeacon.com/resources</a>.

#### Note:

For additional information or technical questions, please contact the MediaBeacon sales and support team:

sales@mediabeacon.com support@mediabeacon.com https://www.mediabeacon.com/resources

### 3.2. Description

The *MediaBeacon Preview* application allows the offloading of asset previewing and conversion from the main MediaBeacon R3volution server. Dedicated servers running *MediaBeacon Preview* are referred to internally as "preview nodes". There can be several nodes attached to a single MediaBeacon server.

### 3.3. Initial configuration

There are a few requirements that have to be met in order to use the Preview service:

- 1. Preview must be able to access the same database as the primary MediaBeacon server.
- 2. Preview must be able to mount the Shared Files Directory from the primary MediaBeacon server.
- **3.** The IP address of the Remote Preview Node must be whitelisted on the "Enterprise" tab under "Applications" of the main MediaBeacon server.
- 4. On Mac, install Java 8, which is required to run MediaBeacon 8.0. Download it from:



http://www.oracle.com/technetwork/java/javase/downloads/jre8-downloads-2133155.html

#### 3.3.1. Database Requirements

When configuring the database settings within MediaBeacon, be sure to use a hostname or IP address that is accessible outside of the primary MediaBeacon server. If 127.0.0.1 or localhost is used as the host, Preview assumes that the database is on the same system as itself, and not the primary server.

🗹 External database		
Database type	MySQL	
Host	192.168.1.199	Port 3306
Database	MB251	Connections 95
User	root	Password ••••
Advanced JDBC:	jdbc:mysql://192.168.1.199:3306/	MB251?useUn Verify

Above is an example of a valid database configuration on the MediaBeacon server.

#### 3.3.2. Database Ports

For the database server, make sure the necessary port is open for database access between the database and the Preview node (typically '3306' for MySQL, '1521' for Oracle, and '1433' for Microsoft SQL Server). Verify that database logins are allowed from the Preview node and using the same database authentication information as the main MediaBeacon server. If MediaBeacon is using MySQL, Preview will need to download the JDBC driver and restart. This is an automatic process that requires access to the internet.

#### 3.3.3. MediaBeacon Ports

	Sharing	Admin	Enterprise	XMP	R3Search	
File server:	Macintosh A	FP. Wind	ows CIFS Serve	r 🛟		
		-				
🗹 External SO	A application	S				
🗌 Disable in	ternal Preview	v System			🗹 Enable extern	al archiving
Change Rer	note Passwor	d)	Applications		Port: 4444	4



Next, verify that the necessary ports are open on the main MediaBeacon server and the database server in order to allow the remote Preview server to connect to them. On the main MediaBeacon server, make sure the "External SOA applications" checkbox is checked under the Enterprise tab of the MediaBeacon server-side Admin Console, and that the port designated in the "Port:" field, and the port above it are allowed through any firewalls between the MediaBeacon server and Preview (the default port is '44444' so both 44444 and 44445 need to be open). Be sure to click on the *Change Remote Password* button in the *External SOA Applications* area and set a password in the windows that pops up. Make a note of this password, as it will be needed to connect Preview to the MediaBeacon server. After making the changes, restart MediaBeacon.

### 3.4. Preview Node Configuration

000	MediaBeacon Converter	
	on°	
Please select a server and attach	to it.	Attach Server
Maximum Memory: 512 💌 Priority of Preview System Hig	gh 🔹	Movie Profiles
🗹 Preview with external applica	tions Configure	
Start converter service		Apply
Settings Start MediaBeacon Manually	\$	
Automatically launch Media	Beacon on start	
	Start View Log	

Here is Preview on initial launch:

### **3.4.1. External Application**

MediaBeacon Preview requires external applications to preview certain asset types.

#### Windows

- Adobe InDesign (CS5, CS5.5, CS6, CC, CC 2014, CC 2015)
- Adobe InDesign Server
- Microsoft Excel (Office 2007+)



- Microsoft PowerPoint (Office 2007+)
- Microsoft Word (Office 2007+)
- Apache Open Office
- Adobe DNG Converter (handles RAW camera files)
- Adobe Flash (CS5, CS5.5, CS6, CC 2014, CC 2015)

Once the desired applications have been installed on the Preview node, click the *Preview with external applications* checkbox and then the *Configure* button to bring up the window to the right. Choose the applications that Preview should use, and then restart the Preview application for the changes to take effect.

Ensure that the setup here matches that of the main MediaBeacon R3 server.

#### 3.4.2. Start Converter Service

Checking this box allows the MediaBeacon Preview instance to field Loading Dock requests. If the MediaBeacon environment in question has the *Disable internal Preview System* checkbox set (on the *Enterprise* tab of the main MediaBeacon R3volution application), it should be noted that at least one of the MB Preview instances in the environment needs the *Start converter service* checkbox set for the Loading Dock to function. Otherwise all requests (whether conversions or *No Change* downloads) will sit and not become available for download

### 3.4.3. Movie Profiles

• • •		Movie Profiles
Thumbnail Option	15	
Maximum Frame	Width: 116	Maximum Frame Height: 116
Capture Mode	Repeat	♣ Interval 00 : 00 : 05
Profile	Format	Description Prepare Use f Helper App
MOV 320x240	QuickTime Movie	QuickTime Movie – 🗹 🗹
H.264	QuickTime Movie	n/a 🗹 🗌
Cell Phone	3G	Smart phone transc 🗹 🗌
FLC	FLC	n/a 🗹 🗌
Add format		Edit     Delete
		HTML5 Apply

To configure video transcoding and video preview options, click on *Movie Profiles* to bring up the above window, which is identical to the one in the main MediaBeacon application. Ensure that the setup here matches that of the main MediaBeacon R3 server. If there are different codecs available, or different options for the codecs, check that the main MediaBeacon R3 server and preview node have the same



versions of QuickTime and any third-party codecs installed. Again, any changes here will require a restart of the MediaBeacon Preview application.

#### 3.4.4. Launch Settings

Next, configure the launch settings. There are four options for launching Preview: Manually, On Login, On Boot, On Boot + Reload.

Settings		
Start MediaBeacor	✓ Manually	
	On Login	
Automatically	On Boot	start
	On Boot + Reload	

**Manually:** This option requires a user to manually launch the Preview application after the host system has finished booting up.

**On Login:** This will cause the Preview application to launch automatically upon login to the user account on the Preview server.

**Automatically launch on start**: This checkbox will automatically start the Preview service when the Preview GUI is launched, eliminating the need for the user to click on "Start."

### 3.5. Connecting Preview to MediaBeacon

#### 3.5.1. Mount 'Shared Files Directory'

Once Preview has been configured, mount MediaBeacon's *Shared Files Directory* to Preview's server with full read and write permissions via AFP or SMB. To do this on a Macintosh, press *Command-k*, enter the server's IP or hostname, and select the correct directory. On Windows, the remote directory must be mapped as a drive letter.

#### 3.5.2. Whitelist Remote IP

By default, the main MediaBeacon server will disallow all remote connections from external applications. Before attaching to the main server, be sure to enter the Remote Preview Node's IP address in the "Enterprise" tab under "Applications". Alternatively, click "Discover External Applications." This will open a temporary 2-minute window during which the main server will accept incoming connections. Attaching to the server during the time will automatically add the Remote Preview Node to the whitelist.

#### MediaBeacon

# ESK0 🕄

• •	Authorized External Application Addresses	5
192.168.0.1		Remove
192.168.0.2		Remove
192.168.0.3		Remove
192.168.0.4		Remove
Discover Exte	ernal Applications Add	ОК

#### 3.5.3. Attach MediaBeacon Server

Next, connect to the main MediaBeacon server by clicking *Attach Server* on the Remote Preview Node. MediaBeacon Preview will automatically show all available MediaBeacon servers it can attach to.

# ESK0 🕄

000	MediaBeacon Converter	
	Beacon	
	00	
Please select a server a	192.168.192.154 Version:8.6 X	Attach Server
	192, 168, 192, 152 Version: 8.6 X	
Maximum Memory:	192.168.192.156 Version:8.6 X	
Priority of Preview Sys		Movie Profiles
I Preview with exter		
Start converter ser		Apply
Settings	Custom server	
Start MediaBeacon	44444	]
Automatically lau	Join	
	Start View Log	

Select appropriate server from the list, click *Join*, and enter the password. This password is set by clicking "Change Remote Password" in the *External SOA Applications* area of the main MediaBeacon server.

MediaBeacon N3twork uses Zero Configuration technology for dynamic discovery of nodes and XML-RPC for passing configuration. If the server doesn't show in the list, it's likely that a firewall is blocking the zero-config protocol used to generate the list, or the Preview node is on a different subnet than the main MediaBeacon server. In either case, simply check the *Custom server* checkbox and type the IP or hostname of the server in the field given, then click *Join*.

Note that port '44444' is just the default MediaBeacon uses for communications between the MediaBeacon server and Preview. If this port is unavailable it is possible to set another value in the *External SOA Applications* area and put that same port in this configuration dialog.

#### 3.5.4. Starting Preview

After the password is accepted, Preview will automatically find the *Shared Files Directory* that's mounted on the preview node. Click *Start*. Preview will now start handling preview requests queued in the database for the main application.

### 3.6. Logging

#### MediaBeacon

# ESK0 🕄

	logfile	
[8/20/09 2 [8/20/09 2	2:50:25 PMJ MediaBeaconNetwork retchConfiguration: from http://192.168.1.37:44444 2:50:37 PMJ MediaBeaconNetwork fetchConfiguration: from http://192.168.1.37:44444 2:50:49 PMJ MediaBeaconNetwork fetchConfiguration: from http://192.168.1.37:44444 2:51:01 PMJ MediaBeaconNetwork fetchConfiguration: from http://192.168.1.37:44444 2:51:13 PMJ MediaBeaconNetwork fetchConfiguration: from http://192.168.1.37:44444 2:51:25 PMJ MediaBeaconNetwork fetchConfiguration: from http://192.168.1.37:44444 2:51:37 PMJ MediaBeaconNetwork fetchConfiguration: from http://192.168.1.37:44444 2:51:49 PMJ MediaBeaconNetwork fetchConfiguration: from http://192.168.1.37:44444 2:52:20 PMJ MediaBeaconNetwork fetchConfiguration: from http://192.168.1.37:44444 2:52:22 PMJ MediaBeaconNetwork fetchConfiguration: from http://192.168.1.37:44444 2:52:23 PMJ MediaBeaconNetwork fetchConfiguration: from http://192.168.1.37:44444 2:52:25 PMJ MediaBeaconNetwork fetchConfiguration: from http://192.168.1.37:44444 2:52:25 PMJ MediaBeaconNetwork fetchConfiguration: from http://192.168.1.37:44444 2:52:55 PMJ MediaBeaconNetwork fetchConfiguration: from http://192.168.1.37:44444 2:52:55 PMJ MediaBeaconNetwork fetchConfiguration: from http://192.168.1.37:44444 2:53:30 PMJ MediaBeaconNetwork fetchConfiguration: from http://192.168.1.37:44444 2:53:31 PMJ MediaBeaconNetwork fetchConfiguration: from http://192.168.1.37:44444 2:53:32 PMJ MediaBeaconNetwork fetchConfiguration: from http://192.168.1.37:44444 2:53:33 PMJ MediaBeaconNetwork fetchConfiguration: from http://192.168.1.37:44444 2:53:57 PMJ MediaBeaconNetwork fetchConfiguration: from http://192.168.1.37:44444	
	2:54:21 PM] MediaBeaconNetwork fetchConfiguration: from http://192.168.1.37:44444	4

Above is a screen shot of the logging system, accessible from the *View log* ... button. The logging system is like that used in MediaBeacon. If there are issues with previews, check the logs on the Preview node that handled the request.

### 3.7. Port Information

Below are the default ports used to connect.

- Connects to MediaBeacon R3volution core: 44444, 44445, and 44446.
- Connects to the database.
- Connects to the file system.

### 3.8. Running as a Windows Service

Before attempting to set this up, make sure you have MB Preview configured and working (not as a Windows service). This assumes you have attached to Core MediaBeacon R3volution already.

- 1. Edit the file 'etc\mb\_preview\_inst.bat' by doing the following:
  - Correct the path for Java.
  - Correct the paths for the MB Preview install location.
  - Correct the value for 'mb.mount.point'.
  - Select a good value for maximum memory ('PR\_JVMMX', units are MegaBytes).
  - Correct the value for the OS account that runs MediaBeacon ('PR\_SERVICEUSER').



- 2. In Windows' services area (ex. run 'services.msc' in Windows 'Run...' menu), use the LogOn tab in the 'MediaBeacon-Preview' service's Properties to set appropriate password for the OS account being used. Leave the default '\*\*\*\*\*\*\*' placeholder in the .bat and set the password after service install to avoid storing the plain text password.
- **3.** In the same Properties area, use the Recovery tab to set the three dropdown menus to 'Restart the Service' so it recovers automatically in the case of a crash.
- **4.** Make sure MB Preview isn't running ('Stop' button in MB Preview GUI, check in Task Manager that there aren't stray 'java.exe' processes, kill them if so), then start the service in Windows' Services UI.
- **5.** Check that 'prunsrv.exe' shows in the 'Details' tab of Task Manager, and that the subordinate 'java.exe' that launches comes up OK.

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# 4. MediaBeacon R3volution R3search Cluster Manual 8.6

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### 4.2. Introduction

R3Search is MediaBeacon's built-in enterprise search engine. R3Search is fast, powerful, and is designed to grow with your enterprise and data set. Whenever assets are added to the system, R3Search automatically updates its search index and correlates the new asset with all other existing assets. This index of asset relationships powers the facet search, QuickSearch, Color Search, Date Search, Metrics, and other MediaBeacon search tools.

For increased performance, especially with large data sets, R3Search can be distributed across multiple nodes, called clustering. Multiple nodes biggest benefit is having high availability. By having leader and slaves, the system can intelligently handle issues with nodes in the cluster by changing roles. With its scalable architecture, the cluster can be expanded at any time. As usage of the system and data set increases, more nodes can be added to maintain expected performance. R3Search can grow organically as needs grow, ensuring a consistent and responsive user experience across your enterprise.

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### 4.3. When is Clustering Appropriate?

There is no defined line as to when clustering should take place. A general rule is: if a slow down during queries becomes noticeable, it may be time to consider clustering. This would normally happen on a system with millions of assets. By clustering, the index becomes distributed across multiple shards and decreases its size.

### 4.4. R3Search Cluster Components

A R3Search cluster contains three primary components: core MediaBeacon, shards, and Zookeepers.

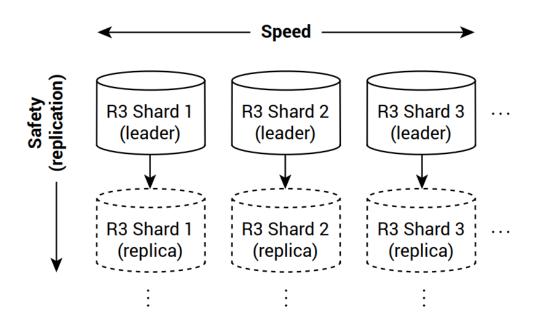
#### 1. Core MediaBeacon

Runs the user interface and serves as the central hub for all R3Search nodes and Zookeepers.

#### 2. Shards

Each shard is hosted on its own separate R3Search node, forming the cluster. There are two types of shards, leaders and slaves. Information is split across all the leaders and the Zookeepers track which leader has what info. Slaves under each leader are an exact copy of the data contained within its leader. (Multiple shards are not necessary for R3Search clustering.)

Each leader that exists increases R3Search's ability to handle a large user load while additional slaves increase replication. See the diagram below for an example. Your setup can contain more or less leaders and slaves than what is depicted.



#### 3. Zookeepers

Zookeepers help track which leader shard has which data. It's important that if multiple Zookeepers exist, they are in an odd quantity. See the Redundancy in a Cluster section for more info.



### 4.5. Shard Configuration and Performance

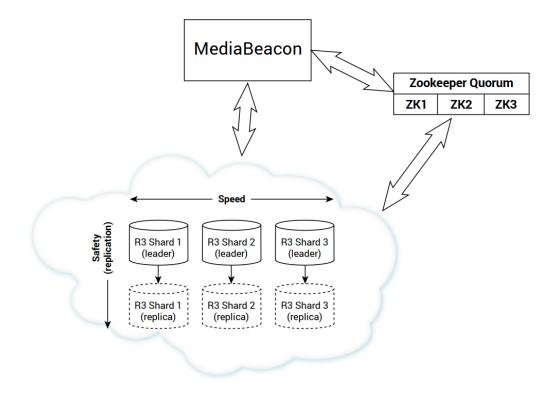
As a R3Search document index grows, so does the time spent responding to queries. One solution to this problem is to divide the index into smaller shards and host each of these on a separate R3Search node, forming a cluster. With a smaller index, response performance improves during queries. Adding documents to the collection is slightly slower because the cluster must first determine which shard stores the new document.

Another way to improve performance and availability is through replication, or mirroring of a node. If a cluster is configured with more nodes than shards, each shard will elect a leader to handle making copies of the index to each replica. Incoming queries are load balanced between the leader and all replicas, allowing yet another increase in speed.

Each node in the cluster must be configured with the same number of shards or the cluster will never reach a ready state.

To manage states during hardware failures and downtime, each cluster requires at least one Zookeeper to organize a cluster.

#### **R3Search Cluster Configuration**



In this example, the index is split between three shards. If any replica node fails the shard remains intact. If a leader fails, the replica becomes the leader and the shard remains intact. In both cases the shard becomes vulnerable because it is no longer replicated.

#### **Redundancy in a Cluster**



Fault tolerance can be achieved by adding additional Zookeepers, which work in a load balanced configuration where more than half of the Zookeepers must remain active after a fault. This makes having an odd number of Zookeepers the ideal configuration as even numbers do not add additional fault tolerance.

For example: With three Zookeepers you can lose one and maintain operation as you have more than half remaining; however, with four Zookeepers you can still only lose one and maintain a majority to have more than half operational. If the tolerance required is one server failure, four Zookeepers is no more tolerant than three. If two server failure tolerance is required, five Zookeepers is ideal and sixth adds no benefit.

Redundant R3Search shards create fault tolerance: In a redundant shard configuration, where data is duplicated across shards, all but one shard in a leader/replica relationship could fail and the indexes would still be available.

### 4.6. R3Search Clustering in Practice

#### 4.6.1. Installation

In this example, we will configure a sample system with a core MediaBeacon server, 3 Zookeepers (which also run R3Search), and 3 R3Search servers. These steps can be adjusted to suit various system configurations, but the basic progression is the same:

- 1. Configure core MediaBeacon server.
- **2.** Configure Zookeepers.
- **3.** Configure standalone R3Search servers.
- 4. Launch core MediaBeacon server.
- **5.** Launch Zookeepers.
- 6. Launch standalone R3Search servers.

Prior to installation, download the correct R3Search components to each server in the cluster.

#### Notes:

Zookeepers must run on port 31000.

R3Searches must run on port 30000.

Zookeepers need to be able to communicate with each other and all R3Searches.

R3Searches need SQL access.

#### Core MediaBeacon Server

 For the R3Search cluster to function, the IP addresses of all servers in the cluster must be white listed on the core MediaBeacon server. On the Enterprise tab, click **Applications** and click **Add**. Enter the IP addresses of all servers in the cluster, including the address of the core MediaBeacon server.

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Disable internal Preview Sys Change Remote Password Database type Host Database IP A 10.6	Authorized Extern	Applications	Idresses	14444		>
Host m Database st ID.6	Address					>
Database St 10.6		Service				
10.6		Jei vice	Last Connection Time			
User St 10.6	.0.71				Remove	
10.0	.0.75				Remove	
Advanced JDBC: j 10.6	.0.74				Remove	
10.6	.0.73				Remove	
Authentication: Standar 10.6	.0.72				Remove	
10.6	.0.76				Remove	
Links						

**2.** From the R3Search tab, set the following options:



	on°	R3Sea	- rch		×
Sharing         Admin         XMP         Enterprise         R3Sear           Local R3Search Server	Refresh				
R3Search Only v	Zookeeper Hosts	]	Apply		
Unknown status Memory: ?? of ??					
Disconnec	ted: Unable to retrieve lit	st of instances			
				Refre	sh
Automatically start local R3Search			Start	View Logs.	

- **a.** Local R3Search server
- **b.** R3Search Only
- **c.** Number of shards: 3
- **d.** Zookeeper Hosts: List the IP addresses of all Zookeepers for your system. Note: This is different than the white list from Step 1—only list the Zookeeper servers. All Zookeepers run on port 31000.

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IP Address	Service	Last Connection Time	
10.6.0.72:31000			Remove
10.6.0.77:31000			Remove
10.6.0.76:31000			Remove

- e. Disable Automatically start local R3Search.
- f. Click Apply.
- **g.** Make sure R3Search isn't running.
- **3.** Navigate to the Enterprise tab. If you haven't done so, set a remote password by clicking **Change Remote Password**.
- 4. Stop the core MediaBeacon server and shut down the application.
- 5. Delete the contents of the following folder (if it exists), which contains the R3Search cache

C:\Users\Administrator\AppData\Local\Solr

6. Do not restart the core MediaBeacon server until all R3Search servers have been configured.

#### **Zookeeper Server**

1. On the Zookeeper servers, set the following options:



MediaBeacon R3Search Server			_		×
MediaBea	icon°	<b>R3Search</b>	Att	tach Serve	)÷
Server is not running					
Memory: ?? of ??					
Memory, Profile					
Settings					
HTTP Port Number	30000				
Memory Limit (MB)	512				
Start MediaBeacon Manually 🗸		Number of shards		3	
R3Search + Zookeeper 🗸	Zookeeper Hosts	Save Reve	rt		
Di	sconnected: Unable to retriev	e list of instances		Refr	esh
				Kefr	esn
	Start View Log	About			

- a. HTTP port: 30000 (default)
- b. Memory limit: appropriate value for your system
- c. Number of shards: 3
- d. R3Search + Zookeeper
- **e.** Zookeeper Hosts: List the IP addresses of all Zookeepers for your system. Note: This is different than the white list on the core MediaBeacon server. Only list the Zookeeper servers.
- 2. Click Save
- **3.** Stop R3Search (if running) and quit the application.
- **4.** Delete the contents of the following folder (if it exists), which contains the R3Search cache:

C:\Users\Administrator\AppData\Local\Solr

**5.** Do not restart the core MediaBeacon server until all R3Search servers have been configured.

#### **R3Search Server**

**1.** On the R3Search servers, set the following options:



😽 MediaBeacon R3Search Server			-		×
MediaBea	con°	<b>R3Search</b>	(	÷¢	È
Server is not running Memory: ?? of ??			Att	ach Server	r
Settings HTTP Port Number Memory Limit (MB)	30000 512				
Start MediaBeacon Manually ~ R3Search Only ~	Zookeeper Hosts	Number of shards Save Reve	rt	3	
Dise	connected: Unable to retrieve	e list of instances		Refr	esh
[	Start View Log	About			

- a. HTTP port: 30000 (default)
- **b.** HTTP port: 30000 (default)
- c. Number of shards: 3
- d. R3Search Only
- e. Zookeeper Hosts: List the IP addresses of all Zookeepers for your system. Don't forget to include the port number. Note: This is different than the white list on the core MediaBeacon server. Only list the Zookeeper servers.
- 2. Click Save
- **3.** Stop R3Search (if running) and quit the application.
- 4. Delete the contents of the following folder (if it exists), which contains the R3Search cache:

C:\Users\Administrator\AppData\Local\Solr

**5.** Do not restart the core MediaBeacon server until all R3Search servers have been configured.



#### Starting up the Cluster

Once the configuration above is in place, start up the cluster by launching the following components in order:

- **1.** Start the core MediaBeacon server.
- **2.** On each Zookeeper server:
  - a. Click "Attach" and select the core MediaBeacon server
  - **b.** Enter the remote password.
  - c. Click Start

MediaBeacon R3Search Server				- <u></u>	-	×
	acon°		R3	Search		÷
Attached MediaBeacon at 192.168.19	92.154				Detach S	erver
Jetty is running on port 4,444. Contro Memory: 98.91 MB of 455.50 MB	oller is running.					
Settings						
HTTP Port Number Memory Limit (MB)	30000 512					
Start MediaBeacon Manually 🗸			Numbe	r of shards	3	
R3Search + Zookeeper 🗸	Zookeeper	Hosts	Si	Revert		
Index: Sleeping		Stop	Rebuild	Rebuild Metrics	Cons	ole
7					Ref	fresh
	Stop	View Log	About			

- **3.** On each R3Search server:
  - **a.** Click **Attach** and select the core MediaBeacon server.
  - **b.** Enter the remote password.
  - c. Click Start.
- **4.** The R3Search cluster is now running. To see the status of the system, go to the MediaBeacon web interface and click **Admin > R3Search Administration**.



	peter.pearson@ A
	☆ 💩 🔝
○ shard1	• 10.6.0.72 O 10.6.0.73
Index Shard2	● 10.6.0.76 ○ 10.6.0.74
shard3	● 10.6.0.77 ○ 10.6.0.75
o shard1	• 10.6.0.72 O 10.6.0.73
Metrics shard2	• 10.6.0.76 O 10.6.0.74
shard3	• 10.6.0.77 O 10.6.0.75
	Leader     O Active
	O Recovering O Down
	O Recovery Failed
	index shard2 shard3 shard1 Metrics shard2

### 4.6.2. R3Search Administration: Troubleshooting

There are a few notable places in the Admin area that are especially useful to troubleshooting that we recommend investigating should any issues arise.

#### Logging

R3	JUL (org.slf4j.impl.JDK14LoggerFactory)			
	Time (Local)	Level	Logger	Message
Dashboard	8/11/2015, 10:14:04 AM	WARNING	ZkController	Timed out waiting to see all nodes published as DOWN in our cluster state.
Logging				ciusiel state.
🚱 Level	🎇 Last Check: 8/11/2015, 1	10:26:29 AM		🔲 Show dates in UT
<sub></sub> Cloud				
Core Admin				
周 Java Properties				
Thread Dump				

The Logging section is useful to see any warnings or issues that are detected.



#### Cloud>Graph

This section of the Dashboard shows how the servers are structured and the status of each. The status is indicated by a circle icon to the left of each component.

• Leader: Filled in green circle

Things are running fine and all is well with the leader.

Active: Empty green circle

Indicates a slave. It's running just fine, and replicating the data its leader has.

• Recovering: Empty yellow circle

The shard went down or had an issue and is now working to be functional again.

• Down: Empty orange circle

The shard is not functional.

• Recovery Failed: Empty red circle

The shard attempted to recover from an issue and failed. Human interjection is probably required to correct the issue.

• Gone: Empty gray circle

The shard is not communicating with the cluster at all. The system does not know the shard's status.

When a system encounters an outage, the status of the affected components is updated in the dashboard. Take a look at the following example to see what happens when we lose a shard leader, which is then restarted.

All shards were running and operating normally. Then, we suddenly lose one of the leader shards (10.6.0.77).

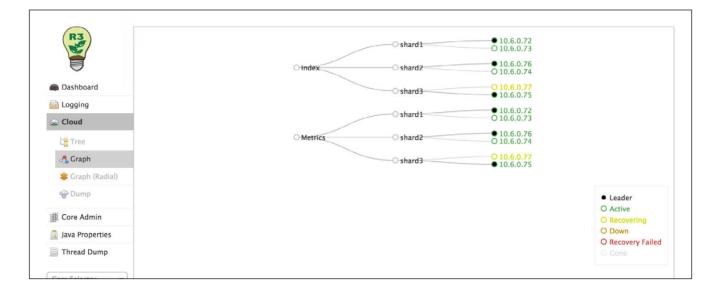
		⊂ shard1	• 10.6.0.72 O 10.6.0.73
Ţ	Index	$\bigcirc$ shard2	• 10.6.0.76 O 10.6.0.74
Dashboard		- shard3	• 10.6.0.75
See Logging		O shard1	• 10.6.0.72 O 10.6.0.73
	Metrics	⊖ shard2	• 10.6.0.76 O 10.6.0.74
🖧 Graph		shard3	• 10.6.0.75
🌲 Graph (Radial)			
€ Dump			• Leader
E Core Admin			O Active
Java Properties			O Recovering O Down
Thread Dump			O Recovery Failed

Notice the lost shards is indicated by an empty gray circle next to the IP of the server. The system intelligently responds to this loss by converting the slave shard of the leader into a leader. It's important to resolve the issue shortly because if the new leader were to encounter an issue, search functionality could potentially begin encountering issues.

We correct the issue and begin bringing the lost shard back up.

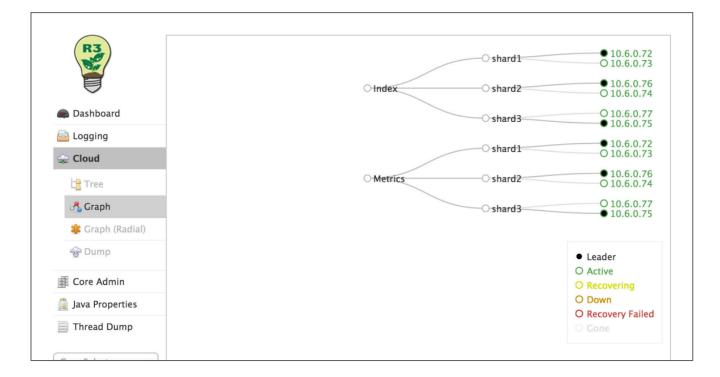
# ESK0 🕄

#### MediaBeacon



Notice the shard indicates it is recovering, indicated by the empty yellow circle next to it.

Once it is up, the shard that failed, which was once a leader, is now a slave of the new leader.



#### Cloud > Dump

On rare occasions, the MediaBeacon team may request this data be provided if they are troubleshooting a reported issue.

#### Core Admin > Index Core

This section is useful to see the number of documents in a shard's R3Search index.



#### Core Admin > Index Core > Documents

In the t on the bottom left, select Index. Next, select Documents. Sometimes when troubleshooting, the MediaBeacon team will instruct you to use this area for manually issuing Solr updates.

R3	Request-Handler (qt) /update Document Type
Dashboard	JSON
ڬ Logging	Document(s)
🛖 Cloud	{"id":"change.me","title":"change.me"}
E Core Admin	
[ Java Properties	
Thread Dump	
1 Overview	
T Analysis	Commit Within 1000
Dataimport	
Documents	Overwrite
	true
Ping	Boost 1.0
ᡖ Plugins / Stats	Submit Document
Query	

#### Core Admin > Index Core > Query

This section is useful for issuing queries to the Solr index. The MediaBeacon team may instruct you to use this area when troubleshooting. An example query we can run here: id:29113.

# ESK0 🕄

R3	Request-Handler (qt) /select common
Dashboard	q
Logging	***
🝚 Cloud	1
I Core Admin	fq
Java Properties	
Thread Dump	sort
E Inread Dump	
Index 👻	o 10
	fl
1 Overview	
T Analysis	df
Dataimport	
🖪 Documents	Raw Query Parameters
Files	key1=val1&key2=val2
Ping	wt
ᡖ Plugins / Stats	json 💠
<i>₽</i> Query	🗹 indent
°t <sup>o</sup> Replication	debugQuery
E Schema Browser	<ul> <li>dismax</li> <li>edismax</li> <li>hl</li> <li>facet</li> <li>spatial</li> <li>spellcheck</li> </ul> Execute Query

### 4.7. Port Information

Below are the default ports used to connect.

R3Search

- Connects to MediaBeacon R3volution core: 44444, 44445, and 44446.
- Connects to R3Search node(s): 30000.



- Connects to Zookeeper(s): 31000.
- Connects to the database.

#### Zookeeper

- Connects to MediaBeacon R3volution core: 44444, 44445, and 44446.
- Connects to R3Search node(s): 30000.
- Connects to Zookeeper(s): 31000.
- Connects to the database.

### 4.8. Appendix

### 4.9. Running Standalone R3Search as a Service

MediaBeacon R3Search 7.0+ can be run as a service. The following are intended to intended to be basic setup instructions. Double-check each step to ensure its appropriateness for your particular configuration.

#### **Windows Service Installation**

- **1.** Ensure MediaBeacon and R3Search are configured and running properly before proceeding with service installation steps.
- 2. Stop R3Search and exit the server application.
- **3.** Open a command prompt and cd to the R3Search installation, which is typically C:\ **Program Files** \MediaBeacon\MediaBeacon R3Search.
- Run the command `sc query R3Search` to determine if additional MediaBeacon services are installed on the system. If so, run the command `bin\prunsrv.exe // DS//R3Search` to uninstall them.
- 5. Edit etc\r3search\_inst.bat to add the user that the service should run as.
  - a. Modify the PR\_SERVICEUSER and PR\_SERVICEPASSWORD lines. The username should be prefixed with the domain and should match the user account name that R3Search was initially installed under. For the built-in domain, use `.\ username`. For additional information, see: https://commons.apache.org/proper/commons-daemon/procrun.html.
  - **b.** Confirm that the line starting with `SET PR\_JVM=` points to the correct jvm. dll on the system. The location of this file may change depending on the installed Java version and whether it's the JDK or JRE.
  - c. Confirm that the various references to the R3Search binaries are accurate. The 'C:\Program Files\MediaBeacon\MediaBeacon R3Search' strings should be replaced with the actual install location if R3Search is installed to a non-default location.
  - **d.** Update the PR\_JVMMX variable to match the 'Memory Limit (MB)' set on the server side standalone R3Search application interface (which, in turn, should be set to a value appropriate to the server's use and resources). If you're unsure of a proper value for your environment, please contact MediaBeacon Support.
  - e. Update the REM JVM configuration section and add the following two entries.

**REM Local IP Address** 

-Dhost=10.22.116.210

**REM Zookeeper Host IP Address** 



-DzkHost=10.22.116.215:31000

6. In the terminal, run `etc\r3search\_inst.bat` to install the service.

• R3Search can now be started and stopped via the server GUI or the Windows Services GUI.