MarkLogic Server

Connector for SharePoint®
Administrator's Guide

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1.0 Overview and Requirements

This chapter introduces the MarkLogic Connector for SharePoint® and lists the product requirements and supported platforms. It includes the following sections:

- Overview of the MarkLogic Connector for SharePoint
- System Requirements

1.1 Overview of the MarkLogic Connector for SharePoint

The MarkLogic Connector for SharePoint allows you to integrate Microsoft SharePoint with MarkLogic Server. You can use the MarkLogic Connector for SharePoint for the following:

- Library Mirroring
- Workflow Actions
- Create Applications Using the Content in MarkLogic Server
- Use SharePoint Library Services to Maintain MarkLogic Server Content

1.1.1 Library Mirroring

With library mirroring, you can transparently mirror content from SharePoint document libraries to a MarkLogic Server instance. The MarkLogic Connector for SharePoint listens for changes to major versions of documents and automatically propagates those changes to MarkLogic Server. With library mirroring, you can set it up initially and then, with no further intervention, your SharePoint library is mirrored to MarkLogic Server and any changes that occur in that library are automatically reflected in MarkLogic Server.

You can mirror an entire library or individual documents. If you mirror a library, all of the documents in the library, including all subdirectories and all documents in the subdirectories, are mirrored. If you mirror individual documents, then those documents are mirrored. Any SharePoint event that changes the document state or contents on a mirrored document will be forwarded to MarkLogic Server to determine if the document state or content should be updated in the MarkLogic Server database.

1.1.2 Workflow Actions

The MarkLogic Connector for SharePoint supports three workflow actions: copy, delete, and invoke. As part of a SharePoint workflow, you can copy a document to MarkLogic Server or delete a document from MarkLogic Server. For example, you can create a workflow with an approval process, and as a result of that approval process, the document can be uploaded to MarkLogic Server. The invoke action allows you to invoke an XQuery module on MarkLogic Server, allowing for completely custom behavior in your application.

1.1.3 Create Applications Using the Content in MarkLogic Server

Once the content is in MarkLogic Server, you can create applications that use the content using all of the powerful search and XQuery features of MarkLogic Server. Once the content is in MarkLogic Server, it is no different than any other content, so you can use it any way you choose.

1.1.4 Use SharePoint Library Services to Maintain MarkLogic Server Content

A common use of SharePoint and MarkLogic Server is to use the various SharePoint library services to manage content that ultimately is loaded into MarkLogic Server. The library services include check-in/check-out, versioning, and workflow.

1.2 System Requirements

The MarkLogic Connector for SharePoint has the following system requirements:

- For the MarkLogic Connector for SharePoint, Microsoft Windows SharePoint Services 2007 (version 3.0) or Windows SharePoint Foundation 2010, running under a Microsoft Windows platform supported by MarkLogic.
- For the instance of MarkLogic Server with which the MarkLogic Connector for SharePoint communicates, version 4.0-1 or later, on any supported platform, of MarkLogic Server. See the *Release Notes* and the *Installation Guide* in the MarkLogic Server documentation for details on the requirements for MarkLogic Server.

Additionally, administrative privileges for both SharePoint and MarkLogic Server are required.

2.0 Installing the MarkLogic Connector for SharePoint

This chapter describes how to install the MarkLogic Connector for SharePoint. The MarkLogic Connector for SharePoint installation procedure involves installing the connector in SharePoint and installing some XQuery modules in an instance of MarkLogic Server. The following sections are included:

- MarkLogic Connector for SharePoint Installation Package
- Installing the Connector in SharePoint
- Installing the mlcadm.exe Utility
- Installing and Configuring MarkLogic Server to Use the Connector
- Configuring the MarkLogic Connector for SharePoint
- Uninstalling the MarkLogic Connector for SharePoint from Microsoft SharePoint

2.1 MarkLogic Connector for SharePoint Installation Package

You can download the latest MarkLogic Connector for SharePoint installation package from developer.marklogic.com. The installation package is a zip file containing the following:

- XQuery files (in the `Modules` directory) to be installed on each instance of MarkLogic Server to which the MarkLogic Connector for SharePoint will communicate.
- MarkLogic Connector for SharePoint feature solution package (`.wsp` file in the `SharePoint` directory).
- SharePoint Developer's Kit assembly files (`.dll` files in the `SharePoint` directory).
- MarkLogic Connector for SharePoint command-line utility (`mlcadm.exe` file in the `SharePoint` directory).
- Sample SharePoint Workflows.

There are two main parts to the installation process: installing the MarkLogic Connector for SharePoint and copying the MarkLogic Server XQuery files to each instance of MarkLogic Server to which the connector will communicate. For information about system requirements, see "System Requirements" on page 6.

2.2 Installing the Connector in SharePoint

On the machine in which SharePoint is installed, perform the following steps. You need administrative privileges to SharePoint to perform these steps.

1. Unpack the `MarkLogicConnector.wsp` file from the `SharePoint` directory of MarkLogic Connector for SharePoint zip file and store it in a known disk location.

2. Verify you have SharePointSite Collection Administrator privilege. Without this you will not see the MarkLogic Connector menu when you are done. You can set the Site Collection Administrator in several places in SharePoint, including the following:

   - In the Central Administration tool > Application Management tab > Site Collection Administrators page.
   - In the top-level site in the Site Settings (Site Actions > Site Settings > Advanced permissions).

   For details, see your SharePoint documentation.

3. If a previous version of the MarkLogic Connector for SharePoint is installed in SharePoint, uninstall it as described in “Uninstalling the MarkLogic Connector for SharePoint from Microsoft SharePoint” on page 13.

4. Add the solution to SharePoint server. Open a command window as administrator (right click on Command Prompt and select Run as administrator). Assuming you have the SharePoint administration tool (`stsadm.exe`) on your search path, you can add the solution to SharePoint with the following command:

   ```
   C:\> stsadm -o addsolution -filename <path>\MarkLogicConnector.wsp
   ```

   where <*path*> is the path to the `MarkLogicConnector.wsp` file. The `stsadm` utility will respond with “operation completed successfully” after a successful installation.

2.3 Installing the mlcadm.exe Utility

The release includes a command-line MarkLogic Connector for SharePoint utility called `mlcadm.exe`, distributed in the `SharePoint` folder of the zip installation package. This utility is optional. If you plan on using it, copy the `mlcadm.exe` file to a directory on your search path. For details about using this utility, see “mlcadm Command Line Utility” on page 17.

2.4 Installing and Configuring MarkLogic Server to Use the Connector

Perform the following steps to install the XQuery files used by the MarkLogic Connector for SharePoint on MarkLogic Server. These steps should be repeated for each node in your MarkLogic Server cluster that communicates with the MarkLogic Connector for SharePoint. In order to install the XQuery modules on the machine in which MarkLogic Server is installed, you will need permissions to write to the directory in which MarkLogic Server is installed.

1. Make sure MarkLogic Server is installed. For details on installing MarkLogic Server, see the *Installation Guide* in the MarkLogic Server product documentation.

2. Install the MarkLogic Connector for SharePoint in your Microsoft SharePoint environment, as described in “Installing the Connector in SharePoint” on page 7.

3. Copy the SharePoint installation package to the machine(s) in which MarkLogic Server is installed and unzip it.

4. In your MarkLogic Server installation(s), create a directory named `SharePoint` under *`marklogic-dir`*`/Modules/MarkLogic`, where *marklogic-dir* is the directory in which MarkLogic Server is installed. For example, on Linux systems, enter commands similar to the following:

```
% cd /opt/MarkLogic/Modules/MarkLogic
% mkdir SharePoint
```

5. In your MarkLogic Server installation(s), copy the XQuery files from the MarkLogic Connector for SharePoint installation zip package into the `Modules/MarkLogic/SharePoint` directory in the MarkLogic Server installation directory. For example, on Linux systems, enter commands similar to the following (assuming the installation package is unzipped into the `/tmp` directory):

```
% cd /tmp/SharePointConnector-1.1-1/Modules
% cp *.xqy /opt/MarkLogic/Modules/MarkLogic/SharePoint
```

   The MarkLogic Connector for SharePoint XQuery modules should now be under the *`marklogic-dir`*`/Modules/MarkLogic/SharePoint` directory.

6. In the Admin Interface in your MarkLogic Server installation, create an XDBC Server. Requests from the MarkLogic Connector for SharePoint will use this XDBC Server, and will mirror SharePoint documents in the database specified in the XDBC Server configuration. The XDBC Server must have a root corresponding to the directory in which you copied the XQuery modules. If you copied them as described above, then the XDBC Server root must be `Modules/MarkLogic/SharePoint`. Set authentication to `basic`.
7. Note the hostname, port number for this XDBC Server, and the login credentials for MarkLogic Server, which you will need to access this XDBC Server from the MarkLogic Connector for SharePoint, as described in Configuring the MarkLogic Connector for SharePoint, Step 3.

   Note: If you have a cluster of several MarkLogic Server instances, you only need to create the XDBC Server in one of them (because it will be available to every node in the group in which it is created).

You can now connect to this XDBC Server from the MarkLogic Connector for SharePoint.

2.5 Configuring the MarkLogic Connector for SharePoint

Once you have installed the connector components in Microsoft SharePoint and in MarkLogic Server, you must configure the MarkLogic Connector for SharePoint to point to your MarkLogic Server XDBC Server.

MarkLogic Connector for SharePoint operates with Windows SharePoint Services 3.0 and SharePoint Foundation 2010. The configuration procedure is slightly different for each version. The following sections describe the configuration procedure for both versions of SharePoint:

- Configuring the MarkLogic Connector for Windows SharePoint Services 3.0
- Configuring the MarkLogic Connector for SharePoint Foundation 2010

2.5.1 Configuring the MarkLogic Connector for Windows SharePoint Services 3.0

To configure Windows SharePoint Services 3.0, perform the following steps.

1. Deploy the MarkLogic Connector for SharePoint solution from the SharePoint 3.0 Central Administration tool as follows:
    - Launch the SharePoint Central Administration tool (for example, Start Menu > All Programs > Administrative Tools > SharePoint 3.0 Central Administration).
    - Click the Operations tab.
    - Click Solution management in the Global Configuration section.
    - You should see `marklogicconnector.wsp` in the name column. Click this name.
    - On the Solution Properties page click Deploy Solution.
    - On the Deploy Solution page set Deploy When? to Now. Click OK to deploy the solution.

    The page should revert to the Solution Management page with the `marklogicconnector.wsp` Status set to Deployed.

2. Activate the feature as follows:
    - Log in to the SharePoint Team Site. Typically, this is running on port 80 of the machine in which SharePoint is running (for example, http://team-sp-machine:80/).
    - Click the Site Actions menu and select Site Settings.
    - On the Site Settings page, click Site features (under the Site Administration column).
    - On the Site Features page, click the Activate button for Mark Logic Connector.

    The status of the Mark Logic Connector will change to Active.

3. Configure the MarkLogic connection as follows:
    - In the SharePoint Team Site, click the Site Actions menu and select MarkLogic Connector Settings. [2010: MarkLogic Server Settings]
    - Enter the hostname and port number of the MarkLogic Server XDBC App Server you created in “Installing and Configuring MarkLogic Server to Use the Connector” on page 8, as well as the username and password credentials for MarkLogic Server. The database field is optional.
    - Click the Configure button. You will see a message similar to the following when the configuration is correct:

```
Status: Server xcc://user:pass@host:123/sharepoint has been configured.
Version: 1.1-1
```

4. Test the connection information by clicking the Test Connection button. If the test succeeds then the MarkLogic Connector for SharePoint is communicating successfully with MarkLogic Server. If it fails, go back and repeat the previous steps.
5. Configure document mirroring as follows:
    - The document libraries in your site will be shown as a tree view with checkboxes. Check the libraries which should be mirrored to MarkLogic server. All documents and folders in the library will be mirrored.
    - Click the Push to Server button.
    - Use the Refresh button to refresh the display.
    - If you want to remove the mirrored documents, use the Reset Server button to remove all mirrored documents from this SharePoint site.

The MarkLogic Connector for SharePoint is now ready, and any SharePoint documents or document libraries that you have set up for mirroring are automatically mirrored in MarkLogic Server.

Note: If you mirror a directory containing many documents, enable document mirroring for your document library after saving your docs to the document library to SharePoint. This is to improve the performance of load times. If you attempt to save a large number of docs to a document library with mirroring already enabled, the load will be slow.

2.5.2 Configuring the MarkLogic Connector for SharePoint Foundation 2010

To configure SharePoint Foundation 2010, perform the following steps.

1. Deploy the MarkLogic Connector for SharePoint solution from the SharePoint 2010 Central Administration tool as follows:
   - Launch the SharePoint Central Administration tool (for example, Start Menu > All Programs > Microsoft Sharepoint 2010 Products > SharePoint 2010 Central Administration).
   - Click System Settings in the left-hand menu.
   - In the Farm Management section, click Manage farm solutions.
   - You should see `marklogicconnector.wsp` in the name column. Click this name.
   - On the Solution Properties page click Deploy Solution.
   - On the Deploy Solution page set Deploy When? to Now. Click OK to deploy the solution.

   The page should revert to the Solution Management page with the `marklogicconnector.wsp` Status set to Deployed.

2. Activate the feature as follows:
   - Log in to the SharePoint Team Site. Typically, this is running on port 80 of the machine in which SharePoint is running (for example, http://team-sp-machine:80/).
   - Click the Site Actions menu in the upper left of the page and select Site Settings.
   - On the Site Settings page, under Site Actions, click Manage site features.
   - On the Site Features page, click the Activate button for Mark Logic Connector.

   The status of the Mark Logic Connector will change to Active.

3. Configure the MarkLogic connection as follows:
   - In the SharePoint Team Site, click the Site Actions menu and select MarkLogic Server Settings.
   - Enter the hostname and port number of the MarkLogic Server XDBC App Server you created in “Installing and Configuring MarkLogic Server to Use the Connector” on page 8, as well as the username and password credentials for MarkLogic Server. The database field is optional.
   - Click the Configure button. You will see a message similar to the following when the configuration is correct:

```
Status: Server xcc://user:pass@host:123/sharepoint has been configured.
Version: 1.1-1
```

4. Test the connection information by clicking the Test Connection button. If the test succeeds then the MarkLogic Connector for SharePoint is communicating successfully with MarkLogic Server. If it fails, go back and repeat the previous steps.

5. Configure document mirroring as follows:

    - The document libraries in your site will be shown as a tree view with checkboxes. Check the libraries which should be mirrored to MarkLogic server. All documents and folders in the library will be mirrored.
    - Click the Push to Server button.
    - Use the Refresh button to refresh the display.
    - If you want to remove the mirrored documents, use the Reset Server button to remove all mirrored documents from this SharePoint site.

The MarkLogic Connector for SharePoint is now ready, and any SharePoint documents or document libraries that you have set up for mirroring are automatically mirrored in MarkLogic Server.

Note: If you mirror a directory containing many documents, enable document mirroring for your document library after saving your docs to the document library to SharePoint. This is to improve the performance of load times. If you attempt to save a large number of docs to a document library with mirroring already enabled, the load will be slow.

2.6 Uninstalling the MarkLogic Connector for SharePoint from Microsoft SharePoint

MarkLogic Connector for SharePoint operates with Windows SharePoint Services 3.0 and SharePoint Foundation 2010. The uninstall procedure is slightly different for each version. The following sections describe the uninstall procedure for both versions of SharePoint:

- Uninstalling the MarkLogic Connector for Windows SharePoint Services 3.0
- Uninstalling the MarkLogic Connector for SharePoint Foundation 2010

2.6.1 Uninstalling the MarkLogic Connector for Windows SharePoint Services 3.0

Perform the following steps to uninstall the MarkLogic Connector for SharePoint from your Microsoft SharePoint Services 3.0 installation. You need administrative privileges to SharePoint to perform these steps.

1. Deactivate the feature as follows:
   - Log in to the SharePoint Team Site. Typically, this is running on port 80 of the machine in which SharePoint is running (for example, http://team-sp-machine:80/).
   - Click the Site Actions menu and select Site Settings.
   - On the Site Settings page, click Site features (under the Site Administration column).
   - On the Site Features page, click the Deactivate button for Mark Logic Connector.

   The Active status box next to Mark Logic Connector will disappear.
2. Launch the SharePoint 3.0 Central Administration tool. Typically, you can do this from the Start Menu > All Programs > Administrative Tools > SharePoint 3.0 Central Administration. If you know the machine name and port number, you can also access the Central Administration panel from any browser that has access to your network.
3. Click the Operations tab.
4. Click on Solution Management in the Global Configuration section.
5. Retract and remove the `MarkLogicConnector` solution by clicking the `marklogicconnector.wsp` link.
6. On the Solutions Properties page, click Retract Solution.
7. On the Retract Solution Page, click OK. The page will return to the Solution Management page.
8. Refresh the Solution Management page until `marklogicconnector.wsp` shows a status of Not Deployed.
9. Click the link again and click Remove Solution.

The solution is now uninstalled from SharePoint.

2.6.2 Uninstalling the MarkLogic Connector for SharePoint Foundation 2010

Perform the following steps to uninstall the MarkLogic Connector for SharePoint from your SharePoint Foundation 2010 installation. You need administrative privileges to SharePoint to perform these steps.

1. Deactivate the feature as follows:
   - Log in to the SharePoint Team Site. Typically, this is running on port 80 of the machine in which SharePoint is running (for example, http://team-sp-machine:80/).
   - Click the Site Actions menu in the upper left of the page and select Site Settings.
   - On the Site Settings page, under Site Actions, click Manage site features.
   - On the Site Features page, click the Deactivate button for Mark Logic Connector.

   The Active status box next to Mark Logic Connector will disappear.
2. Launch the SharePoint Central Administration tool (for example, Start Menu > All Programs > Microsoft Sharepoint 2010 Products > SharePoint 2010 Central Administration).
3. Click System Settings in the left-hand menu.
4. In the Farm Management section, click Manage farm solutions.
5. You should see `marklogicconnector.wsp` in the name column. Click this name.
6. On the Solutions Properties page, click Retract Solution.
7. On the Retract Solution Page, click OK. The page will return to the Solution Management page.
8. Refresh the Solution Management page until `marklogicconnector.wsp` shows a status of Not Deployed.
9. Click the link again and click Remove Solution.

The solution is now uninstalled from SharePoint.

3.0 mlcadm Command Line Utility

This chapter describes the commands you can use in the `mlcadm` utility. The following sections are included:

- About the mlcadm Utility
- mlcadm Command Line Usage
- Sample mlcadm Commands

3.1 About the mlcadm Utility

The `mlcadmin` utility is a command-line program that can perform most of the functions of the connector running in SharePoint. The tool requires that the user have SharePoint administrative privileges.

3.2 mlcadm Command Line Usage

When the command references the log, it is referring the `MLConnector.log` file which will be written in the directory in which the command was run.

The `mlcadm.exe` file must be in the search path for the current user. The following is the usage of `mlcadm`, which you can also get by running the command with no arguments or by running `mlcadm usage`:

```
C:\SharePointConnector> mlcadm
Copyright (c) 2009 Mark Logic Corporation. All rights reserved.
Usage: mlcadm command connectString [ siteURL [ docURL [ mlURI ] ] ]

Connect string is of the form: xcc://user:password@host:port[/database]
mode is optional and takes the values: 'mirror', 'copy', and 'dont-copy'

MarkLogic server status commands:
test            Test the connection
status          Send STATUS request to server
getsites        Get web sites
getlists        Get site lists; requires siteURL
getfolders      Get folders under prefix; requires siteURL prefix
getdocs         Get documents under prefix; requires siteURL prefix
getdocprops     Get document properties; requires siteURL and docURL
geturis         Get URI list; requires siteURL and optional docURL

MarkLogic server document commands:
copyfolder      Mirror all documents contained in folder;
                requires siteURL and docUrl
getmetadata     Get metadata; requires siteURL and docURL
putmetadata     Put metadata; requires siteURL and docURL
upload          Upload a document;
                requires siteURL and docURL and optional mode
delete          Delete a document; requires siteURL and docURL
reset           Delete all files and folders on MarkLogic
```

3.3 Sample mlcadm Commands

The section shows some sample `mlcadm` commands, and includes the following samples:

- Test the Connection
- Check the Status of the Connection
- Upload a Document From SharePoint to MarkLogic Server

3.3.1 Test the Connection

The following command tests the connection between the MarkLogic Connector for SharePoint and MarkLogic Server:

```
C:\> mlcadm test xcc://sharepoint-user:password@my-host:1234
Copyright (c) 2008 Mark Logic Corporation. All rights reserved.
SUCCESS: ML-Version-Edition-Platform: 4.0-2-Enterprise-winnt Server:
         sharepoint
Time: 2008-11-07-08:00 13:55:14-08:00
```

3.3.2 Check the Status of the Connection

The following command checks the status of the connection between the MarkLogic Connector for SharePoint and MarkLogic Server, and returns information about the version of the MarkLogic Connector for SharePoint, the version of MarkLogic Server, and other information:

```
C:\> mlcadm status xcc://sharepoint-user:password@my-host:1234
Copyright (c) 2008 Mark Logic Corporation. All rights reserved.
SUCCESS: OK: nvp
SPC-version=1.1-1
ML-version=4.0-2
ML-edition=Enterprise
ML-platform=winnt
ML-server=sharepoint
ML-time=2008-11-07-08:00/13:52:21-08:00
sites=0
```

3.3.3 Upload a Document From SharePoint to MarkLogic Server

The following command uploads a document from SharePoint to MarkLogic Server:

```
c:\>upload xcc://sharepoint-user:password@my-host:1234 \
http://sharepoint-host:19459 \
"Version Test/my Document.docx" \
mirror
SUCCESS: GET_METADATA SEND_CONTENT: Document not found; send content
SUCCESS: UPLOAD 224441 bytes in 0.4218642
SUCCESS: PUT_METADATA OK: Metadata added to document
```

4.0 Workflows and SharePoint

This chapter describes some of the things you can do with workflows, and includes the following section:

- SharePoint Workflow Developer's Kit
- Using Activities With Microsoft Visual Studio
- Running SharePoint Workflows Without Installing the Connector

4.1 SharePoint Workflow Developer's Kit

The SharePoint Workflow Developer's Kit provides connector functionality in a workflow activity library. This allows you to develop workflows in Microsoft Visual Studio. The developer's kit consists of the following assemblies:

- `MarkLogicActivityLibrary.dll` - This file contains activities that can be embedded into workflows
- `MarkLogicConnector.dll` - This file contains the Mark Logic Connector API used by the activities

These files are distributed in the MarkLogic Connector for SharePoint zip file in the `SharePoint` directory.

The following activities are included in the activity library:

- `MarkLogicCopy` — This activity copies a document from SharePoint to MarkLogic Server.
- `MarkLogicDelete` — This activity deletes a SharePoint document from MarkLogic Server.
- `MarkLogicInvoke` — This activity invokes an XQuery module on MarkLogic Server.

4.2 Using Activities With Microsoft Visual Studio

To use the Mark Logic activities in workflow development, you must first load them into the Toolbox in Microsoft Visual Studio. You can drag them onto the design surface and connect their properties into the workflow.

To load Mark Logic activities into the Toolbox, perform the following steps in Microsoft Visual Studio:

1. Start in the context of a workflow project, then select the design view of the workflow to activate the toolbox.
2. In the Toolbox panel, right click and select the Choose Items menu.
3. In the Choose Toolbox Items dialog, select the Activities tab.

4. Click the Browse button, and in the Open dialog box navigate to the directory containing the `MarkLogicActivityLibrary.dll` file. Select this file, and click OK for the Choose Toolbox Items dialog.

The activities `MarkLogicCopy`, `MarkLogicDelete`, and `MarkLogicInvoke` appear in the Toolbox panel. You can drag them onto the workflow design surface. After you drag an activity onto the design surface, it must be connected into the workflow via its properties. There are several categories of properties in the activities. Depending on the activity function, consider the following:

- SharePoint Document Information — The Mark Logic activities are designed to be used in the context of a SharePoint workflow. The `copy` and `delete` activities require the `WebUrl` and `ItemUrl` of the document to be manipulated. These values are available via using the `SPWorkflowActivationProperties` variable.
- Connector Data — All activities optionally allow the workflow author to specify Mark Logic server connection information. If this information is omitted it is assumed to come from the configuration of an installed Mark Logic Connector feature. Note that this allows a workflow to be constructed without the Connector feature installed.
- MarkLogic Invoke — The invoke activity requires the `ModuleName` of the module name of the module to be invoked. The module variable bindings are provided in the `VariableBindings` variable which contains a URL query-string specifying name and string value bindings. (A helper function is provided to convert a C# `Dictionary<string, string>` variable into a URL query string.) The response from the module is passed into the `ModuleResponse` variable.
- Diagnostics — All activities optionally allow the workflow author to specify a log directory. In the case that the Mark Logic Connector feature is installed, the log directory variable is ignored, and the log directory specified in the Connector configuration is used.

4.3 Running SharePoint Workflows Without Installing the Connector

When you run workflow using the Mark Logic activities on a SharePoint site that does not have the Mark Logic Connector installed, you must manually add the connector and activity assemblies to the GAC. You can do this with the following `gacutil` command as follows:

```
C:\> cd <installation directory>\SharePoint
C:\> gacutil -if MarkLogicActivityLibrary.dll
C:\> gacutil -if MarkLogicConnector.dll
C:\> gacutil -if MarklogicXcc.dll
C:\> gacutil -if xcccore.dll
C:\> gacutil -if IKVM.GNU.Classpath.dll
C:\> gacutil -if IKVM.Runtime.dll
C:\> IISRESET
```

Note that retracting the connector feature will remove these assemblies from the GAC.

5.0 Troubleshooting the MarkLogic Connector for SharePoint

This chapter describes the log files and trace event you can use to troubleshoot the MarkLogic Connector for SharePoint. The following sections are included:

- Error Log for the MarkLogic Connector for SharePoint
- Logging Activity on the SharePoint Server
- MarkLogic Server Trace Events for the MarkLogic Connector for SharePoint
- Increasing the Execution Timeout of an ASP.NET Request
- Folders Restored from Recycle Bin

5.1 Error Log for the MarkLogic Connector for SharePoint

There is an error log for the MarkLogic Connector for SharePoint that logs errors in the connector at various levels. The name of the file is `MLConnector.log`, and it is located in the directory where the MarkLogic Connector for SharePoint feature is installed, which is typically the following directory:

```
c:\Program Files\Common Files\Microsoft Shared\web server extension\
        12\TEMPLATE\FEATURE\MarkLogicConnector
```

5.2 Logging Activity on the SharePoint Server

To log activity at the SharePoint server, log into SharePoint as an administrator and click Site Actions -> Mark Logic Server Settings menu. Configure logging by setting the log directory and the log priority threshold.

The default priority threshold is Notice. To see debugging information, set the threshold to Debug. To change the log configuration, make changes to the log directory or priority threshold and then click Configure.

5.3 MarkLogic Server Trace Events for the MarkLogic Connector for SharePoint

The following MarkLogic Server trace event allows you to log SharePoint-related activity on MarkLogic Server:

```
SPC requests
```

To enable this trace event in MarkLogic Server, use the MarkLogic Server Admin Interface Diagnostics page (Group > *group-name* > Diagnostics). On the Diagnostics page in the Admin Interface, enter the `SPC requests` event and enable trace events, then click OK.

When the trace event is activated, various messages will be logged to the MarkLogic Server `ErrorLog.txt` file. For more details about the MarkLogic Server log file, see the *Administrator's Guide*.

5.4 Increasing the Execution Timeout of an ASP.NET Request

If mirroring documents (for example, when you click on "Push To Server" button) times out, you might see the following error in the MarkLogic Connector for SharePoint error log:

```
MLConnector:DocUpload: Thread was being aborted
```

To avoid this error, you can increase execution timeout of MarkLogic connector ASP.NET execution request. To increase the timeout, change the `httpRunTime executionTimeout` setting in the `web.config` file. The timeout is specified in millseconds and defaults to 24 hours (86400000 milliseconds). The file is located in the directory where the MarkLogic Connector for SharePoint feature is installed, which is typically the following directory:

```
c:\Program Files\Common Files\Microsoft Shared\web server extension\
        12\TEMPLATE\LAYOUTS\MarkLogicConnector
```

5.5 Folders Restored from Recycle Bin

There is a bug in SharePoint such that when a folder is restored from the Recycle Bin, no SharePoint event is generated. This causes documents and folders in the restored folder to not be mirrored to Mark Logic server.

To workaround this issue, when a mirrored folder is restored from the Recycle Bin, the administrator must manually push the containing document library to Mark Logic server.

6.0 Technical Support

MarkLogic provides technical support according to the terms detailed in your Software License Agreement or End User License Agreement.

We invite you to visit our support website at http://help.marklogic.com to access information on known and fixed issues, knowledge base articles, and more. For licensed customers with an active maintenance contract, see the Support Handbook for instructions on registering support contacts and on working with the MarkLogic Technical Support team.

Complete product documentation, the latest product release downloads, and other useful information is available for all developers at http://developer.marklogic.com. For technical questions, we encourage you to ask your question on Stack Overflow.

7.0 Copyright

MarkLogic Server 9.0 and supporting products.
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