



Stepwise Enterprise  
Storage System  
v2.6  
Management Console  
User Manual

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## Table of Contents

Overview .....	5
Glossary.....	6
Document Version Changes.....	7
Version 2.6, October 2011 .....	7
Version 2.5, June 2011.....	7
Version 2.4, May 2011 .....	7
Version 2.3, April 2011.....	7
Version 2.2, February 2011.....	7
Version 2.1, December 2010.....	7
Version 2.0, October 2010 .....	7
Stepwise Overview for Administrators .....	8
ILM Policy Example Using Stepwise .....	8
Introduction to the Stepwise Management Console.....	9
Installing the Stepwise Management Console Snap-In .....	10
Manually Configuring the Database Connection for the Stepwise Management Console .....	11
Adding the Stepwise Management Console Snap-In to the Microsoft Management Console .....	12
Storage Devices.....	13
Adding a Storage Device .....	13
Editing a Storage Device .....	14
Deleting a Storage Device .....	14
AdHoc Moves.....	15
Creating an AdHoc Move .....	15
Creating an AdHoc Move Condition.....	15
Resubmitting an AdHoc Move .....	15
Reports.....	16
Document List .....	17
Document List Filters .....	17
Document Properties.....	17
Event Log.....	18
Stepwise Events .....	19
Harvesting .....	20
SharePoint 2007.....	20

Farms.....	20
SharePoint 2010.....	20
Farms.....	20
Content Databases.....	21
SQL Server Instances.....	22
Management.....	23
Read Lock.....	23
Moves in Progress.....	23
Garbage Bin.....	23
Encryption.....	23
Compression.....	23
Plugin Libraries.....	24
Device Drivers.....	24
Services.....	24
System Settings.....	24

## Overview

This user manual provides Administrators with a reference to the Stepwise Enterprise Storage System Management Console interface. The Stepwise Management Console is a snap-in for the Microsoft Management Console (MMC) application. Administrators can use the Management Console to administer a Stepwise deployment.

It is assumed that Administrators of the Stepwise system are familiar with the Microsoft Management Console interface.

## Glossary

The following terms are used within this manual.

<b>Term</b>	<b>Definition</b>
Stepwise	Enterprise management storage solution
BLOB	<b>B</b> inary <b>L</b> arge <b>O</b> bject
RBS	Remote Blob Store
MMC	Microsoft Management Console
XAM	eXtensible Access Method (XAM)
ATMOS	EMC Cloud Storage technology

## **Document Version Changes**

### **Version 2.6, October 2011**

- Added RBS and Stepwise provider installation instructions

### **Version 2.5, June 2011**

- Added SharePoint 2010 Farm, Content Database and SQL Server Instance information

### **Version 2.4, May 2011**

- Added information on content devices
- Added references for XAM and ATMOS device drivers

### **Version 2.3, April 2011**

- Added document reports available within the console
- Updated installation information
- Update instructions on deleting a Content Source

### **Version 2.2, February 2011**

- Updated information on adhoc moves
- Added direct link to Stepwise event log

### **Version 2.1, December 2010**

- Updated instructions for Storage Devices
- Updated information on Document Moves

### **Version 2.0, October 2010**

- \*New release\*

## Stepwise Overview for Administrators

The Stepwise Enterprise Management System (Stepwise) provides Administrators with a system to manage documents across multiple storage systems, such as locally-attached storage, network storage devices, and cloud storage.

Stepwise provides the following major features:

- Reduces the size of SQL Server databases by moving documents to alternate file storage
- Uses Information Lifecycle Management (ILM) policies to manage BLOBs as the age and/or become less useful to an organisation
- Utilise low-cost storage solutions to store documents
- Monitor document usage so high-use documents utilise high-performing data storage
- Provide advanced redundancy options and enhance disaster recovery scenarios
- Improve performance of systems that utilise Stepwise

Stepwise uses the Microsoft SQL Server Remote Blob Store (RBS) API to store Binary Large Objects (BLOBs) in an alternate file store. Administrators use Stepwise to create Information Lifecycle Management (ILM) policies to manage BLOBs as they age and/or become less useful to an organisation, with the primary purpose being to use low-cost storage for documents and save money for an organisation.

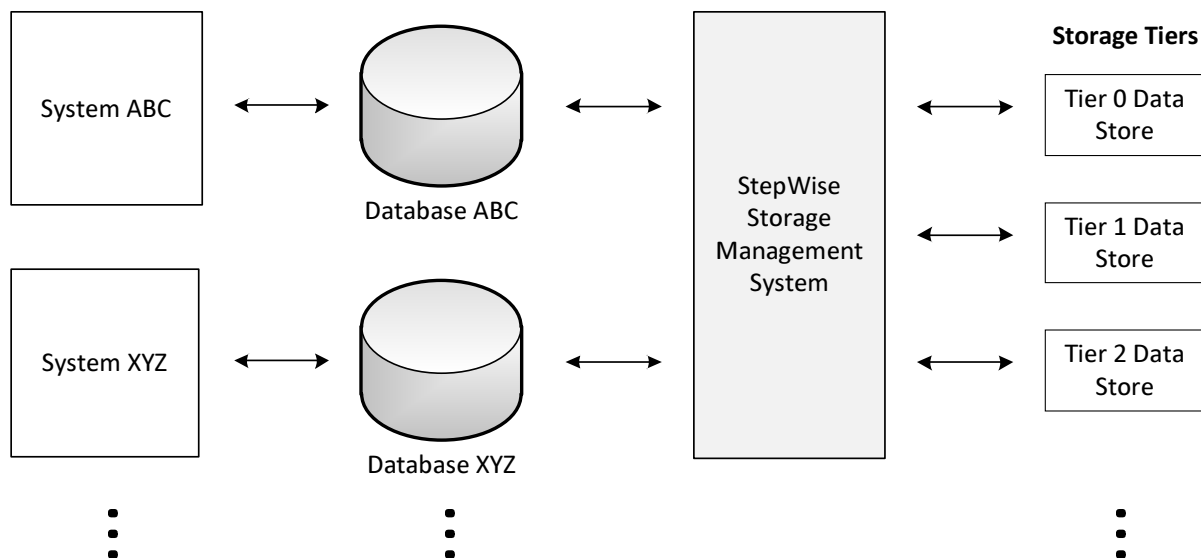


Figure 1 - Stepwise Storage Management System Overview

## ILM Policy Example Using Stepwise

An example of an ILM Policy for SharePoint 2010 integration with Stepwise would be to move all versions of all documents that are not the latest version to the Tier 1 data store, while the latest version of all documents is retained on the Tier 0 data store. For SharePoint 2010 installations that use Version Control, this drastically reduces the data requirements on the Tier 0 data store and makes use of the cheaper Tier 1 data store for versioned documents. This is seamless to the end-user and they can still access previous versions of their documents.



## Introduction to the Stepwise Management Console

The Stepwise management console uses the Microsoft Management Console (MMC). MMC is an application that has been installed by default in Microsoft Windows versions since Microsoft Windows 2000. It provides System Administrators and advanced users with access to a variety of configuration and information about the Windows installation, and systems that are installed on the platform.

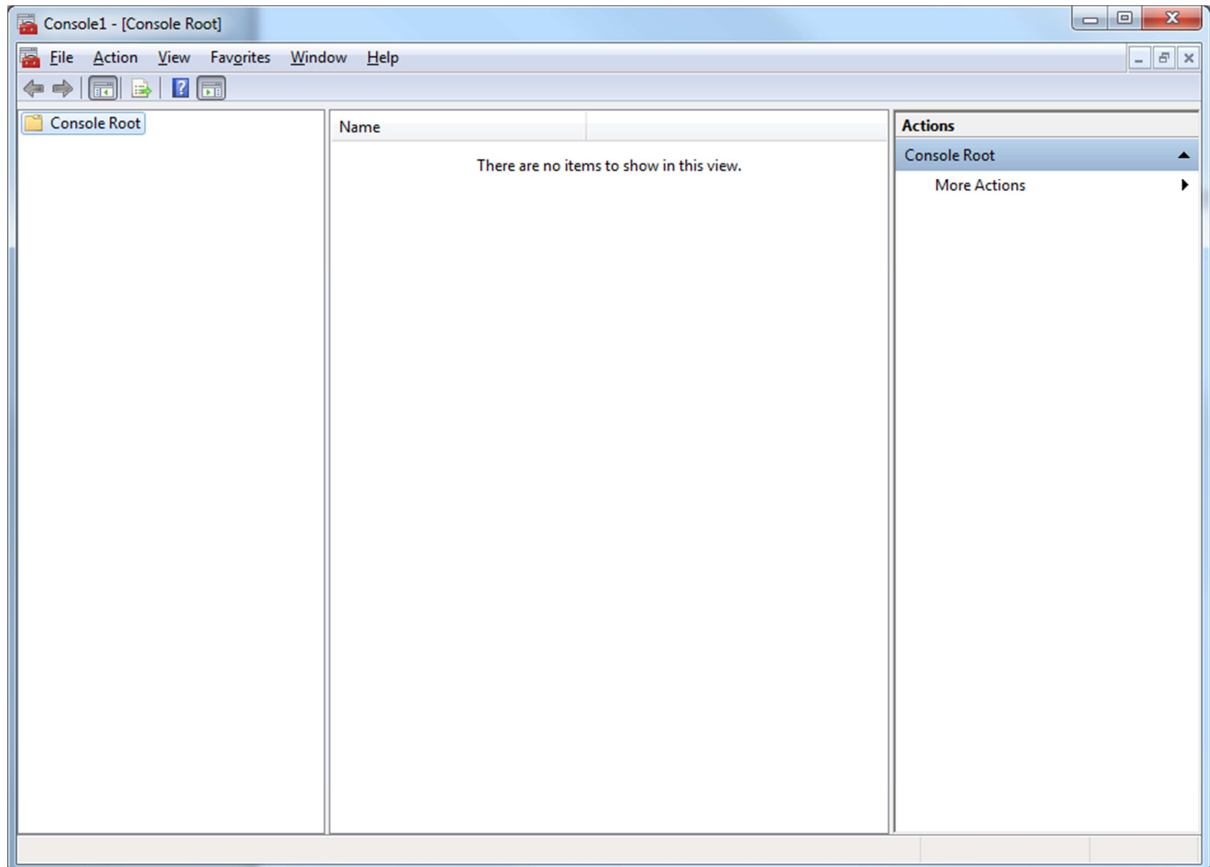


Figure 2 - Microsoft Management Console

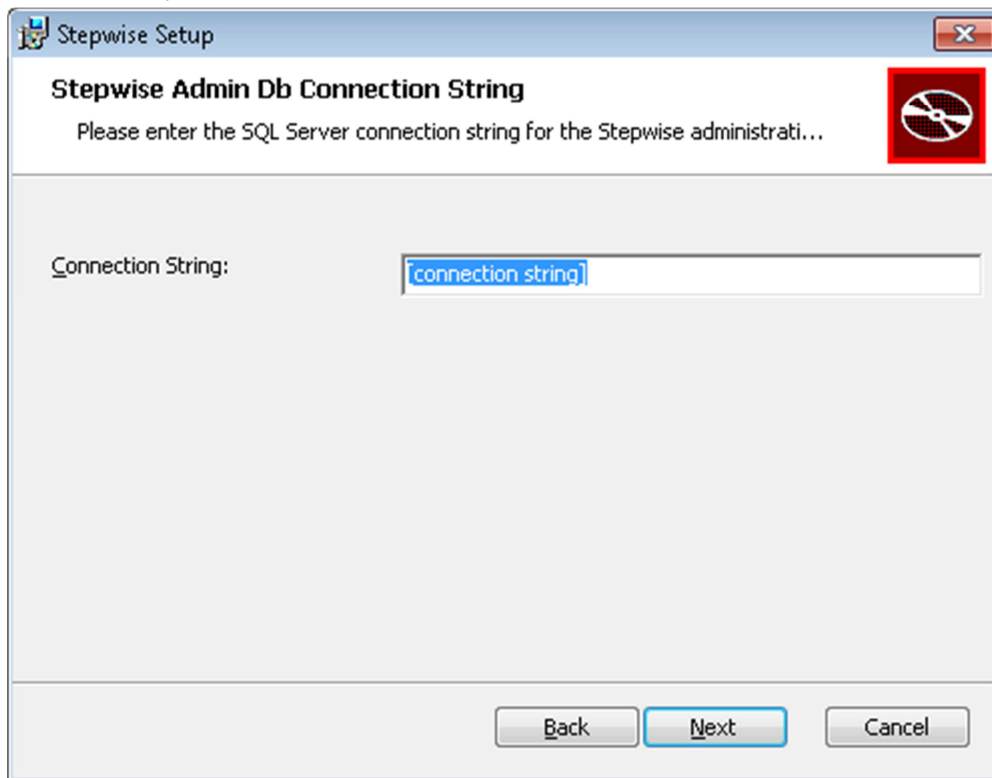
Administrators that are familiar with the Microsoft Management Console will be familiar with the general look-and-feel of the Stepwise Administrator MMC snap-in.

## Installing the Stepwise Management Console Snap-In

The Stepwise Management Console snap-in is available after installing the Stepwise components.

### To install the Stepwise MMC snap-in:

1. Run the installation “Stepwise.msi”
2. Select the MMC Snap-in component from the installation screen
3. Enter the Stepwise administration database (this can be set later – see below)



4. Follow the instructions to complete the MMC snap-in installation

This will install the MMC snap-in on the current machine. To install the snap-in on other machines, follow the above procedure for each additional machine.

## Manually Configuring the Database Connection for the Stepwise Management Console

By default, the Stepwise configuration files are installed to the folder:

C:\Program Files\Invizion\Stepwise\Config

To manually set the database connection string for Stepwise:

1. Edit the file `DataAgent.config`
2. Locate the connection string:

```
<param name="connectionstring" parameterType="System.String">  
    <value value="Data Source=DBSERVERNAME;Initial  
Catalog=DATABASENAME;Trusted_Connection=true;" />  
</param>
```
3. Replace the `DBSERVERNAME` and `DATABASENAME` values with the Stepwise administration database information
4. Save and close the file

This will set the database information for the Stepwise MMC snap-in.

## Adding the Stepwise Management Console Snap-In to the Microsoft Management Console

Administrators use the Microsoft Management Console to manage the Stepwise deployment.

### To add the snap-in to MMC:

1. From the start menu, run, type “mmc.exe” and press enter
2. In the Management Console, in the File menu, select “Add/remove snap-in...”
3. In the “Available snap-ins” section, select “Stepwise” and click the “Add >” button
4. Click the “OK” button.

This will add the Stepwise Administrators snap-in within the Microsoft Management Console.

## Storage Devices

Storage devices allow Administrators to define and manage storage for the Stepwise Enterprise Management system. Each storage device is associated with a physical device and/or location to store documents. The storage devices page displays a list of current storage devices, their status, and information about the current usage. Some storage devices (such as XAM-compatible and ATMOS-compatible devices) require additional configuration information that is specific to the device – see *Appendix 1 – Storage Device Configuration* for more information)

The Storage Device summary list displays the following columns:

Column	Description
Id	Unique identifier for the storage device. This field is read-only.
Name	Name of the device
Type	Device type, such as File System, XAM-compatible, ATMOS-compatible, etc
Default	The default storage device is the Tier 0 storage and is the first location documents are stored in prior to ILM Policy being applied. Invizion recommends that this device be a high-performance storage device.
Active Doc Count	Current count of active documents. An “Active” document is a document that is recognised by Stepwise as belonging to a consumer application.
Active Doc Size	Storage size of active documents (when uncompressed)
Active Doc Stored Size	Storage size of active documents (when compressed)
Garbage Doc Count	Current count of documents that require garbage collection. Garbage collection occurs when the consuming system no longer requires the document to be stored (such as when a document is permanently deleted).
Garbage Doc Size	Total storage size of documents requiring garbage collection
Allocated Size	Total allocated size of the storage device
Free Space	Available storage size
% Free Space	Available storage size as a percentage

When a storage device is highlighted additional information is available:

Item	Description
Description	Plain text description of the storage device
Driver	Information about the device driver used by Stepwise to integrate with the storage device
Storage Cost	Calculated cost per MB per month
Encryption	Type of encryption used when documents are added to the device. Encrypting documents on a device is optional.
Compression	Type of compression used when documents are added to the device. Compressing documents on a device is optional.
Max Document Size	

Use the “Document Count” and “Space Used” tabs to show a graph of the storage device data usage.

## Adding a Storage Device

**To add a new storage device:**

1. In the “Actions” pane, select “New...” and select the type of storage device you want to add
2. Enter a Name for the storage device
3. (Optional) Enter a Description for the storage device
4. (Optional) Select the type of encryption you want to use on the storage device
5. (Optional) Select the type of compression you want to use on the storage device
6. (Optional) Select the maximum document size you wish to store on the storage device
7. (Optional) Select the storage costs for the storage device
8. (Optional) Select the data transfer units and transfer costs for the storage device
9. Enter configuration information for the storage device (See Appendix 1 for storage device configuration information)
10. Click the “Test” button to verify settings for the storage device
11. Click OK

## Editing a Storage Device

### To edit a storage device:

1. Highlight the storage device
2. In the “Actions” pane, click the “Edit...” link
3. Update the storage device information and click “OK”

## Deleting a Storage Device

Deleting a storage device removes the device from the Stepwise system. It does not perform physical deletion of the storage device, nor will it delete any other content that is located on the storage device.

A storage device can only be deleted when there are no active documents storage on the device.

### To delete a storage device:

1. Highlight the storage device
2. In the “Actions” pane, click the “Delete” link
3. Click “Yes” to delete the storage device

## AdHoc Moves

AdHoc Moves allow Stepwise administrators to relocate documents on one storage device to another storage device, without impacting the Stepwise clients. The AdHoc Move pages displays previous AdHoc Moves that have been performed and allows you to view the current status of AdHoc Moves, or create new AdHoc Moves.

AdHoc Moves are typically used for storage device maintenance purposes, such as when a storage device will be taken offline while maintenance is being performed on the device, or when additional tiers of storage have been added and the Administrator wishes to split content between the storage devices.

### Creating an AdHoc Move

1. In the Actions pane, click “New...”
2. Select a Source Device
3. Select a Target Device
4. Set the scheduled date/time for the move to start
5. Tick “Repackage Documents” to use the encryption/compression of the target device. If this box is not ticked, the documents will retain their current encryption/compression settings (if any)
6. Tick “Include New Documents”...
7. If required, add one or more conditions to restrict the documents that will be moved (see below)
8. Click the “Simulate” button to test the move outcome. If entered on the storage device, the simulate action will display the estimated cost of the move (such as \$/GB transferred)
9. Click the “OK” button to schedule the adhoc move

### Creating an AdHoc Move Condition

AdHoc move conditions are a set of filters that will restrict what documents are moved to the target device.

Condition Field	Description
Document Size	Move files based on the (uncompressed) size of the document
Times Viewed	Move files based on the number of times a document has been viewed over a nominated time period. Use this condition when you want to move more/less active documents to a better performing/cheaper tier.
Document Type	Move files based on their type (such as zip, bmp, png, etc)
Source Id	The farm source id

### Resubmitting an AdHoc Move

Resubmitting a move copies the properties of the selected move and allows you to create a new AdHoc Move based on the original.

#### To Resubmit an AdHoc Move:

1. Highlight the AdHoc Move in the move list
2. In the Actions pane, click the “Resubmit...” action
3. Review/change the AdHoc Move properties and click the OK button to submit the move

## Reports

Stepwise provides several reports that can be used by Administrators to monitor and manage their environment. The following reports are available in the Stepwise MMC snap-in:

Report	Description
Document Size Distribution	Displays size distribution of documents
Document Type Distribution	Displays type distribution of documents
Average Document Size	Displays the average uncompressed and compressed storage size of documents
Storage Device Usage	Displays physical storage device usage



## Document List

The Document List window allows Administrators to list documents that are managed by the Stepwise storage system. Administrators can enter different filters to restrict the documents they wish to view. Additional options are available on the documents once they have been listed.

### Document List Filters

The following properties can be used to filter the Document List results.

Filter	Description
Document ID	Stepwise unique document id
Storage Device	Storage device the document is stored on. Select (All) to show documents across all storage devices.
Storage Device Document ID	Storage device unique document id
Source Document ID	Document ID from the source system. This field is populated during data harvesting of the source system.
FileName	File name of the document
Display Rows	Number of rows to display
Ophaned Status	Orphaned status. A document is considered “orphaned” if the source system is no longer referencing it.
Business Rules Status	Business rules status. Displays whether a document has been processed by business rules, or is in the queue to be processed by business rules
Metadata Collection Status	Metadata collection status. Displays whether the source system has been harvested for document metadata for a particular document
Storage Condition	Displays the storage condition of a document. Documents are moved to different storage devices based on a number of conditions, and these can be used as filters in the Document List. Administrators can storage that occurred due to: <ul style="list-style-type: none"><li>- Ad-hoc moves</li><li>- Business policy</li><li>- ILM Policy</li><li>- Initial (when the document is first saved to Stepwise)</li><li>- All</li></ul>
Binary Type	Filters the list to documents of a certain type. Stepwise natively recognises a number of different binary types, and these types can be used to filter the document list.
Source	Source refers to the client system that is using Stepwise.
Deleted Status	Deleted status refers to whether the client system has requested to delete the document.

### Document Properties

The Document Properties page is used to display the full list of properties in relation to the document’s storage in Stepwise. Once the document list has been populated, Administrators highlight a document in the list and click the “Properties” action in the Actions pane.

The Document Properties screen allows Administrators to retrieve the document directly from Stepwise by clicking the “Extract...” button and saving the file.

## Event Log

The Event Log allows the Administrator to access the Stepwise Event Log of the machine they are using. The Stepwise event log is a custom log area that contains any events registered by the Stepwise system.

## Stepwise Events

The Stepwise Events screen provides a complete list of all events that have occurred within the Stepwise system. Administrators use the Filter properties to restrict the amount of information returned.

Filter	Description
Event Type	Event type is the type of event that has been logged. <ul style="list-style-type: none"><li>- Compress</li><li>- Decompress</li><li>- Decrypt</li><li>- Encrypt</li><li>- Harvest Audit Data</li><li>- Harvest Metadata</li><li>- Process Orphans</li><li>- Read</li><li>- Write</li></ul>
Object Id	The internal Id of the document
Date (Range)	Shows events before, between, or after the entered dates
Display Rows	Restricts the number of rows returned by the filter

## Harvesting

The Stepwise Enterprise Storage System uses a process called Harvesting to retrieve data from the source system. The harvested properties could be general information (such as last access date, read-only, etc) or specific information to the client source system (security classification, geographic location, etc). This information is stored by Stepwise and can be used as part of ILM Policy to move documents between storage tiers.

Stepwise supports two different harvesters, one for Microsoft Office SharePoint Server 2007 (SharePoint 2007) and one for SharePoint 2010.

### SharePoint 2007

The SharePoint 2007 harvester connects directly to SQL Server content databases in order to retrieve the information it needs.

#### Farms

SharePoint 2007 farms are controlled by a single SQL Server configuration database. Stepwise uses the configuration database to interrogate the SharePoint Farm and locate content databases that can be used by the Harvester to extract information.

Field	Description
Name	Farm name
Description	Description of the farm
Connection String	SQL Server connection string for the farm
Content DB Alias Prefix	Internal use only
Audit Data Excluded Logins	Number of logins excluded from the audit process
Audit Data Retention	Length of time (in days) to retain audit data
Content DB Event Retention	Length of time (in days) to retain content database events
Harvesting Active	Enables/disables harvesting on this farm

#### To add a new Farm:

1. In the "Farms" node, on the "Actions" pane, click "New..."
2. Enter the information for the Farm configuration database
3. Click the "Test" button to validate the connection
4. Click "OK" to save the SharePoint farm information

### SharePoint 2010

The SharePoint 2010 harvester connects directly to SQL Server content databases in order to retrieve the information it needs.

#### Farms

SharePoint 2010 farms are controlled by a single SQL Server SharePoint configuration database. By default this database is called SharePoint\_Config. Stepwise uses the configuration database to

interrogate the SharePoint Farm and locate content databases that can be used by the Harvester to extract information.

Field	Description
Name	Name of the farm
ID	Farm ID
Description	Description of the farm
Harvesting Active	True/False – indicates if harvesting is current active on the farm
Last Harvested	Date the farm was last harvested
Last Modified	Date the farm entry was last modified
Last Modified By	User id of the farm entry modifier
Created	Date the farm entry was created
Created By	User id of the farm entry creator

**To add a new SharePoint farm for management by Stepwise:**

1. In the SharePoint 2010 node, select Farms
2. In the Actions pane, click New
3. Enter the Name, Description and Connection string for the farm
4. Click Test to validate the connection
5. Click OK to add the farm

**To identify the content databases within the SharePoint farm:**

1. In the SharePoint 2010 node, select Farms
2. Right-click the Farm you wish to identify the content databases for
3. Select “Discover”

This will populate the content databases node with all content databases located within the SharePoint farm.

**NOTE:** This process can be repeated if additional content databases are added to the farm.

**Content Databases**

Content databases store the metadata and documents for the SharePoint farm.

Field	Description
ID	Farm ID
Farm	Farm name
Server	SQL Server instance name, or the SQL Server alias name
Database Name	SQL Server database name
Audit Data Last Processed	Date audit data was last processed
Audit Data Error Count	Number of audit errors from the last audit
Audit Data Error Message	Last error message from the audit process
Metadata Last Processed	Date metadata was last processed

Orphans Last Processed	Date orphaned documents were last processed
Last Modified	Date the content database entry was last modified
Created	Date the content database entry was created

**To Enable Stepwise on a Content Database:**

1. In the SharePoint 2010 node, select Content Databases
2. Right-click on a content database and select “Install RBS Schema”.
3. Click OK
4. Right-click on a content database and select “Register Stepwise Blobstore”
5. Click OK
6. Right-click on a content database and select “Set Stepwise as default Blobstore”
7. Click OK

**SQL Server Instances**

Stepwise supports alternate connection information for each SQL Server instance and/or SQL Server alias. This provides flexibility for the Stepwise Administrator so that Stepwise can connect to the content databases using alternate credentials.

Field	Description
Name	Name of the instance/alias entry
Id	Id of the instance/alias entry
SP 2010 Farm	Name of the SharePoint 2010 Farm
Use Farm Connection String	True/False – Use the default farm sql server connection string
Custom Farm Connection String	Custom connection string, will be used in place of the default connection string if “Use Farm Connection String” is True
Last Modified	Date the farm entry was last modified
Last Modified By	User id of the farm entry modifier
Created	Date the farm entry was created
Created By	User id of the farm entry creator

## Management

The Management area provides Administrators with a number of different functions and utilities for configuration of Stepwise.

### Read Lock

Displays information on documents currently under a read-lock by Stepwise.

### Moves in Progress

Displays information on the current document moves occurring between storage devices.

### Garbage Bin

Displays information on documents that are currently marked for garbage collection.

## Encryption

This page allows administrators to create configure different encryption plug-ins so they are available to storage devices when encrypting and decrypting documents.

### To add an Encryption plugin:

1. On the Encryption page, in the Actions pane, click “New”
2. Select the type of encryption to use (i.e. AES Encryption)
3. On the “Add Plugin” dialog, enter a name and description for the compression
4. Enter additional configuration information as per the plugin (such as the Block Size and Key Size)
5. Click the “Test” button to test the configuration
6. Click the “OK” button to save the encryption plugin

### To delete an Encryption plugin:

1. On the Encryption page, highlight the encryption plug-in you want to delete
2. On the Action pane, click the “Delete” button
3. Click “OK” to delete the plugin

### To update an Encryption plugin:

1. On the Encryption page, highlight the encryption plug-in you want to delete
2. On the Action pane, click the “Edit” button
3. Change the configuration of the plugin as required
4. Click “OK” to update the plugin

## Compression

This page allows administrators to create configure different compression plug-ins so they are available to storage devices when compressing and uncompressing documents.

### To add a Compression plugin:

1. On the Compression page, in the Actions pane, click “New”
2. Select the type of compression to use (i.e. GZIP Compression)

3. On the “Add Plugin” dialog, enter a name and description for the compression
4. Enter additional configuration information as per the plugin (such as the Compression Level for GZIP compression)
5. Click the “Test” button to test the configuration
6. Click the “OK” button to save the compression plugin

## Plugin Libraries

List the libraries that can be installed in Stepwise to provide additional functionality.

## Device Drivers

This page lists the device drivers that allow Stepwise to connect to different types of storage devices. The following device drivers are provided by default.

- File System (NTFS, Local-Attached, Network-Attached, etc)
- XAM-compatible devices
- ATMOS-compatible devices

## Services

This screen shows the status of Stepwise-specific services. Each service can be started, stopped, paused, and restarted, as per a standard Windows service. The services and their purposes are listed below.

Service	Description
Stepwise Bulk Move	Bulk move document processor, manages all movement of documents between storage devices
Stepwise Garbage Collector	Performs garbage collection on the Stepwise repositories
Stepwise Core Services	Core document and information services required by Stepwise
Stepwise Move Cleanup	Performs cleanup of documents and data on the storage devices

## System Settings

This screen provides Administrators with configuration settings for Stepwise.

Field	Description
Orphan Retention	Duration to retain orphaned documents before they are deleted
Read Lock Retention	Duration to retain read locks before they are discarded by cleanup process
Garbage Retention	Duration to retain emptied garbage records before they are deleted
Business Policy Queue Retention	Time to keep unprocessed records in the Business Process Policy Queue before releasing them for processing by Information Lifecycle management (ILM) policies
EBS Event Retention	Time to keep EBS Event entries
SP 2007 Audit Data Retention	Time to keep SP2007 Audit Data entries