

# ThorApp's

No nonsense tools, apps and add-ons for  
SharePoint



## Reflex Reporting 2013 Configuration Guide

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## Overview

This document describes the steps to configure Reflex Reporting for SharePoint 2013. After reading this guide, you should know how to perform the following:

- Initial database setup
- Configure a list for reporting
- Enable reporting for a list type across a site collection

## Prerequisites

To follow this guide, you will need the have the following:

- A computer with internet access
- Remote console access to the server hosting SharePoint Central Administration (directly or via remote desktop)
- SharePoint farm administrator rights.
- Read and followed the Installation Guide (located in the product download package)

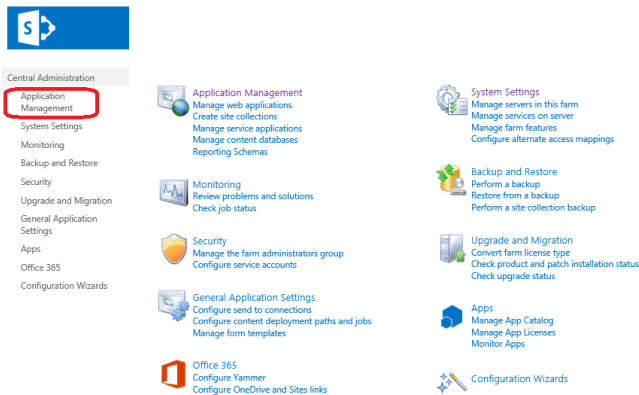


# Database Setup

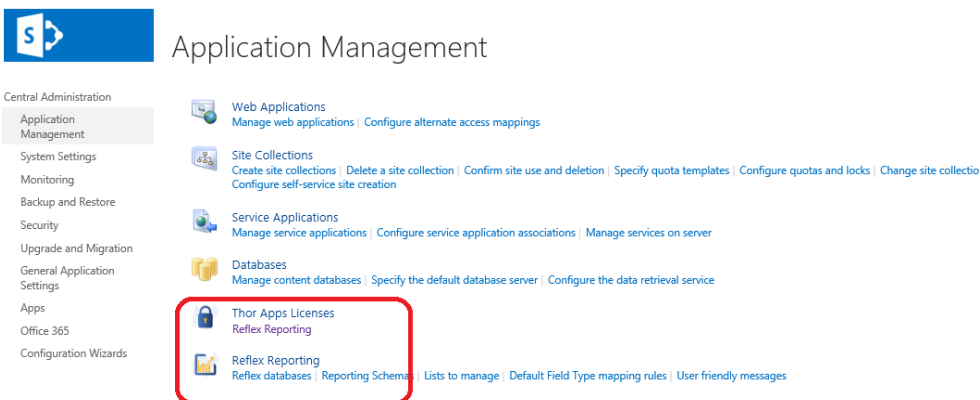
The following steps will guide you through configuring two databases for Reflex Reporting. The first database is used by Reflex Reporting only to store configuration information (Reporting Schemas), and the second database will be used to store the list reporting content.

## Step 1

On the server hosting SharePoint Central Administration, open the Central Admin app in as an Administrator. To ensure it is opened as an Administrator, open it by clicking the Start menu, and typing "Central Admin", then selecting "SharePoint Central Admin". Click on "Application Management" in the Quick Launch menu.



You should see two additional menu groups – "ThorApps Licenses" and "Reflex Reporting"



Click "Reflex databases" under the Reflex Reporting menu group.

If this is the first time you have run this configuration and you have not yet setup a database (or the database is missing) you will be presented with the new Reflex Schema database page.



## Reflex Reporting

Use this page to configure the Reflex Schema and Reporting databases

Central Administration  
Application Management  
System Settings  
Monitoring  
Backup and Restore  
Security  
Upgrade and Migration  
General Application Settings  
Apps  
Office 365  
Configuration Wizards  
Site Contents

### Reflex Schema Database

Use of the default database server and database name is recommended for most cases. Refer to the administrator's guide for advanced scenarios where specifying database information is required.

Use of Windows authentication is strongly recommended. To use SQL authentication, specify the credentials which will be used to connect to the database.

### Failover Server

You can choose to associate a database with a specific failover server that is used in conjunction with SQL Server database mirroring.

Database Server

DEV003

Database Name

Reflex\_Schemas

Database authentication

☒ Windows authentication (recommended)

☐ SQL authentication

Account

Password

Failover Database Server

OK

Cancel

The page will set default values for the Database Server and Database Name. You can change these values or simply go with the defaults.

Click "OK".

This will create a new database with the name you specified on the SQL Server you specified and present you with a page ready to create and add a new Reporting database.

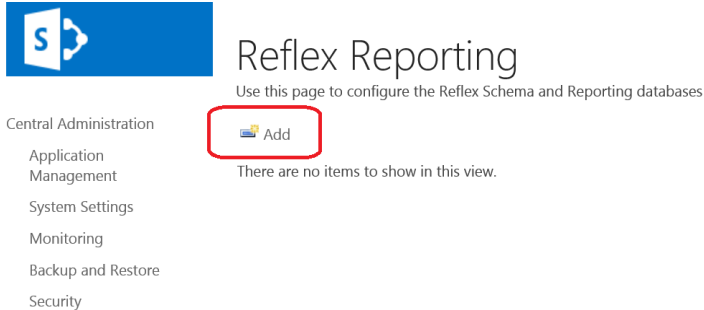
**\*\* Note \*\***

If you are migrating between large environments, you can manually restore a Reflex Schemas database into SQL Server and use this page to simply attach to it. Just remember to also attach the Reporting databases.



## Step 2

You will be directed to the Reflex Reporting database page.  
Click "Add".



You will be presented with the new Reflex Reporting database page.

Enter a Display Name (we recommend using the name "Default"), a Database Name (we recommend using the name "Reflex\_Reporting").

Reflex Reporting

Use this page to define a Data database for Reflex Reporting. You will be able to use store List Data Tables in this database.

Central Administration

- Application Management
- System Settings
- Monitoring
- Backup and Restore
- Security

Reflex Reporting Database

Stores the Data extracted from SharePoint lists.

Reflex Reporting Database

Use of the default database server and database name is recommended for most cases. Refer to the administrator's guide for advanced scenarios where specifying database information is required.

Use of Windows authentication is strongly recommended. To use SQL authentication, specify the credentials which will be used to connect to the database.

Display Name

Default

Database Server

DEV003

Database Name

Reflex\_Reporting

Database authentication

☒ Windows authentication (recommended)

☐ SQL authentication

Account

Password

Failover Database Server

Failover Server

You can choose to associate a database with a specific failover server that is used in conjunction with SQL Server database mirroring.

OK Cancel


Click "OK".

\*\* Note \*\*

You can define a different Database Server name if you wish to store these databases on a different server, along with a custom SQL authentication and Failover Database Server. You can also simply connect to an existing database you have previously restored into the SQL Server.





After clicking "OK" you will be presented with the list of Reflex Reporting databases.



## Reflex Reporting

Use this page to configure the Reflex Schema and Reporting databases

 Add

Delete	Display Name	Server Name	Database Name
	Default	DEV003	Reflex_Reporting

Central Administration

- Application Management
- System Settings
- Monitoring
- Backup and Restore
- Security
- Upgrade and Migration

From here, you can create multiple Reporting databases if you need to spread server load, or simply to break up the reporting tables in some logical manner (i.e. different Reporting databases for different applications), as well as delete Reporting databases.



# Reporting Schemas

## Some Background Knowledge

'Reporting Schema' is the term used to define the structure (i.e. field name and types) of a list or the portion of a list that is reported against. Reflex Reporting uses an existing list instance, to allow you to define the Reporting Schema. Enabling the Reporting Schema then creates a table in a Reflex Reporting database so that items from the list (or multiple instances of the list) can be processed. List items are processed either through the Reflex Reporting event receivers (in real-time) or manually via the Managed List pages (more detail later in this document).

### **\*\*IMPORTANT\*\***

To process a list, 3 elements must be created and enabled:

- 1) A Reporting Schema (with the same fields as the list, or a subset of them)
- 2) An entry in the Lists to Manage page that defines the site collection, list name and maps them to a Reporting Schema
- 3) The Reflex Reporting event receivers attached to the list

When creating a Reporting Schema from an existing list, elements 2 and 3 are automatically configured for that list instance. However, if you have a site collection with many webs containing the same list type (and name) you want to process, you will need to use the Lists to Manage page to add the Reflex event receivers. This task is described later in this document.



## Create a new Reporting Schema

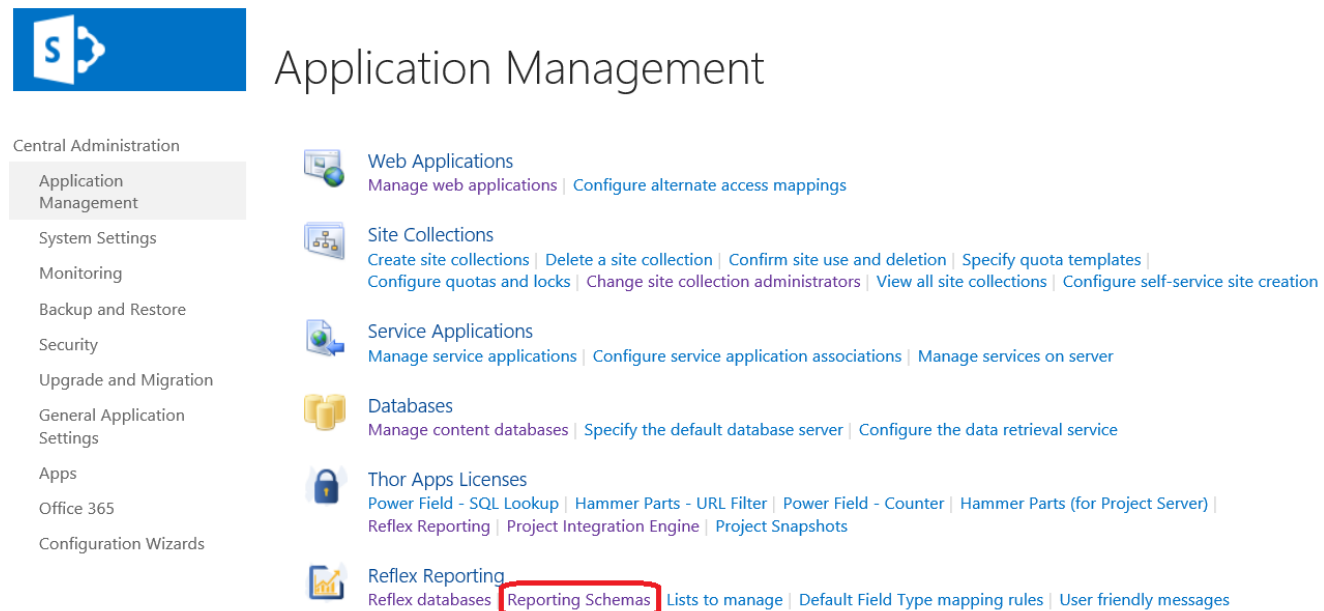
To create a Reporting Schema, you must have already created an instance of the list you want to process.

### Step 1

Open SharePoint Central Admin as an administrator as described in step 1 of Database Setup.

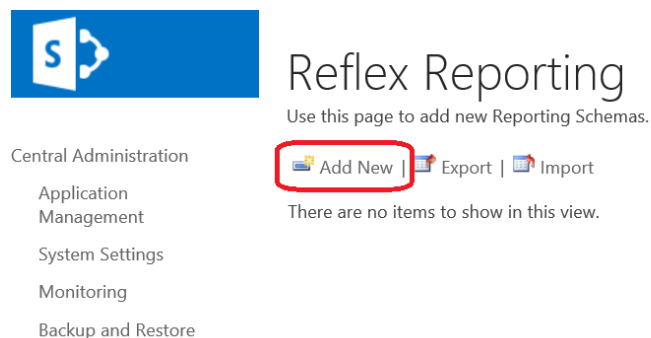
Click "Application Management".

Click "Reporting Schemas" under the Reflex Reporting menu group.



The screenshot shows the 'Application Management' page in SharePoint Central Administration. On the left is a navigation pane with links: Central Administration, Application Management (selected), System Settings, Monitoring, Backup and Restore, Security, Upgrade and Migration, General Application Settings, Apps, Office 365, and Configuration Wizards. The main content area is titled 'Application Management' and lists several categories: Web Applications, Site Collections, Service Applications, Databases, Thor Apps Licenses, and Reflex Reporting. The 'Reflex Reporting' category is expanded, showing 'Reflex databases' and 'Reporting Schemas' (highlighted with a red box), along with links for 'Lists to manage', 'Default Field Type mapping rules', and 'User friendly messages'.

Click "Add New".



The screenshot shows the 'Reflex Reporting' page in SharePoint Central Administration. The page title is 'Reflex Reporting' with the subtitle 'Use this page to add new Reporting Schemas.' Below the title is a navigation bar with 'Add New' (highlighted with a red box), 'Export', and 'Import' links. Below the navigation bar, it states 'There are no items to show in this view.' On the left is a navigation pane with links: Central Administration, Application Management (selected), System Settings, Monitoring, and Backup and Restore.





## Reflex Reporting

Use this page to define a Reporting Schema and the Field Mapping.

### Central Administration

- Application Management
- System Settings
- Monitoring
- Backup and Restore
- Security
- Upgrade and Migration
- General Application Settings
- Apps
- Office 365
- Configuration Wizards

### Site Contents

#### Reporting Schema Details

Defines a Reporting Schema. Reporting Schema's are enabled to create List Data Tables.

Save Add Fields Delete Cancel

Name  
Issues

Database  
Default

List Data Table Name  
Issues

☐ Enable

#### Reporting Schema Field Mapping

Defines the set of Reporting Schema Fields and their mapping to SharePoint list fields.

There are no items to show in this view.

Save Add Fields Delete Cancel

Enter a Name for the Schema, and a "List Data Table Name". The "Name" identifies the schema, while the "List Data Table Name" is used to name the SQL table when it is created in the Reporting database.

Do not click "Save" yet.

## Step 2

Click "Add Fields".



## Reflex Reporting

Use this page to define a Reporting Schema and the Field Mapping.

### Central Administration

- Application Management
- System Settings
- Monitoring
- Backup and Restore
- Security
- Upgrade and Migration
- General Application Settings
- Apps
- Office 365
- Configuration Wizards

### Site Contents

#### Reporting Schema Details

Defines a Reporting Schema. Reporting Schema's are enabled to create List Data Tables.

Save Add Fields Delete Cancel

Name  
Issues

Database  
Default

List Data Table Name  
Issues

☐ Enable

#### Reporting Schema Field Mapping


Defines the set of Reporting Schema Fields and their mapping to SharePoint list fields.

There are no items to show in this view.

Save Add Fields Delete Cancel



Select the site collection and list instance you want to use to create the Reporting Schema.



## Reflex Reporting

Use this page to select SharePoint Fields for a Reporting Schema

Central Administration

- Application Management
- System Settings
- Monitoring
- Backup and Restore
- Security
- Upgrade and Migration
- General Application Settings
- Apps
- Office 365
- Configuration Wizards
- Site Contents

**Web Application and List Selection**

Select the Site Collection that contains a list you wish to select. Once selected the available lists will be displayed.

Add this list to Managed lists

Add this list to the collection of lists to manage

**SharePoint list fields**

Allows the selection of fields from a SharePoint List to be added to a Reporting Schema

Site Collection: <http://dss.dev3.local>

Please select a list

Manage this list

Show Hidden Fields

Select All

Fields

Save Cancel

Save Cancel

Leave the “Manage this list” check box checked, as this will register the list name and site collection defined here in “Lists to Manage” as mentioned previously.

After selecting the site collection and list, the page will update and display the fields from the list, already selected to be included in the Reporting Schema. It is a good idea at this point to un-select any field that is not needed for reporting (i.e. usually the audit fields). You can also check the “Show Hidden Fields” if you have hidden fields that you want to include in the Reporting Schema.

Once you are happy with the fields you have selected, click “Save”.

Fields

- ☒ Comments [V3Comments]
- ☒ Due Date [DueDate]
- ☒ Issue Status [Status]
- ☒ Title [Title]
- ☒ Description [Comment]
- ☒ Category [Category]
- ☒ Priority [Priority]
- ☐ Created By [Author]
- ☒ Related Issues [RelatedIssues]
- ☒ Issue ID [IssueID]
- ☒ Current [IsCurrent]
- ☐ App Modified By [AppEditor]
- ☒ Issue ID [LinkIssueIDNoMenu]
- ☒ Assigned To [AssignedTo]
- ☐ Modified By [Editor]
- ☐ App Created By [AppAuthor]
- ☒ Title [LinkTitleVersionNoMenu]
- ☐ Created [Created]
- ☐ Modified [Modified]

Save

Cancel



### Step 3

You will now be presented with the Reporting Schema fields and can see what SQL field types they have been mapped to.



## Reflex Reporting

Use this page to define a Reporting Schema and the Field Mapping.

#### Central Administration

- Application Management
- System Settings
- Monitoring
- Backup and Restore
- Security
- Upgrade and Migration
- General Application Settings
- Apps
- Office 365
- Configuration Wizards

#### Site Contents

#### Reporting Schema Details

Defines a Reporting Schema. Reporting Schema's are enabled to create List Data Tables.

Save Add Field Delete Cancel

Name

Issues

Database

Default

List Data Table Name

Issues

☐ Enable

#### Reporting Schema Field Mapping

Defines the set of Reporting Schema Fields and their mapping to SharePoint list fields.

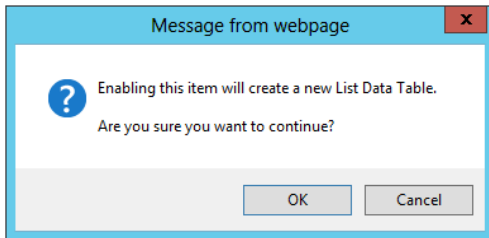
Delete	Field Name	Field Type	SharePoint Field Name	SharePoint Field Type
X	Comments	ntext	V3Comments	Multiple lines of text
X	Due Date	datetime	DueDate	Date and Time
X	Issue Status	varchar (255)	Status	Choice
X	Title	varchar (255)	Title	Single line of text
X	Description	ntext	Comment	Multiple lines of text
X	Category	varchar (255)	Category	Choice
X	Priority	varchar (255)	Priority	Choice
X	Related Issues	varchar (255)	RelatedIssues	Lookup
X	Issue ID	varchar (255)	IssueID	Computed
X	Current	bit	IsCurrent	Yes/No
X	Issue ID_1	varchar (255)	LinkIssueIDNoMenu	Computed
X	Assigned To	varchar (255)	AssignedTo	Person or Group
X	Title_1	varchar (255)	LinkTitleVersionNoMenu	Computed

On this page, you can:

- Delete fields by clicking the "x" next to a field
- Edit the SQL field type a field is mapped to by clicking the field name
- Add additional fields by clicking "Add Field"



Once you're happy with the Reporting Schema, check the "Enabled" box. A dialogue window will ask you to confirm, as this action will then create a table in the Reporting database.



Click "OK".

You have now created a Reporting Schema and the list instance you used to create it has been fully configured to process item changes (i.e. additions, updates and deletes).

**\*\* IMPORTANT \*\***

This has not however, gone and processed this list.

The SQL table will currently be empty. This is by design as the list may have a lot of records and may require a long time to process. To process this list, you can either wait for the overnight update job, or you can invoke it immediately if you know the job won't take long via the "Lists to Manage" page. The steps are described in the section "Processing lists". If this the first site in what is to be a site collection of similar sites (i.e. Project Sites), you should take a template of this site and use it to create subsequent sites. By doing so the template will contain the list event receiver's and new sites provisioned from the template will automatically be processed.

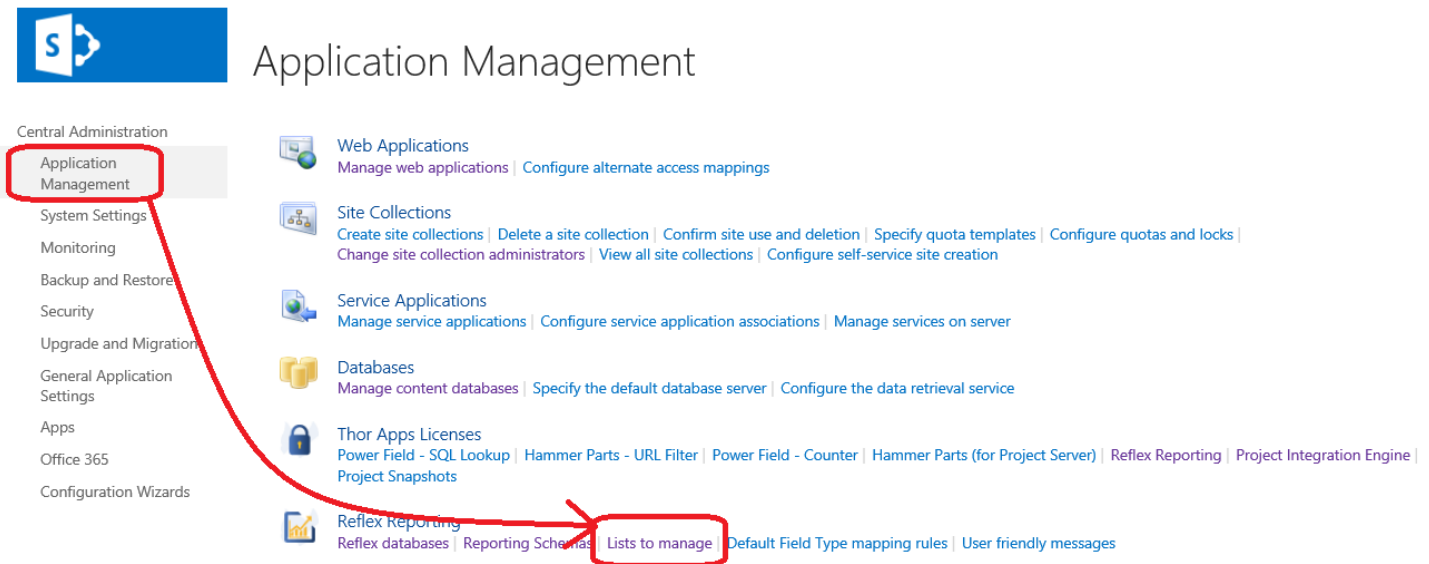


## Adding Event Receivers

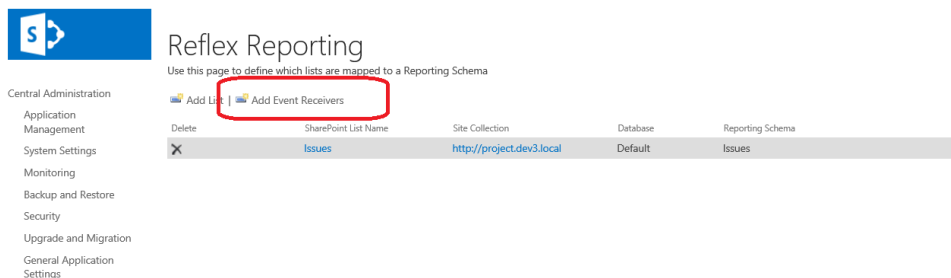
If you are setting up a new Reporting Schema that needs to include lists from across multiple sites within a site collection, you will need to add event receivers.

### Step 1

Open SharePoint Central Admin as an administrator as described in step 1 of Database Setup. Click "Application Management".



Click "Lists to manage" under the Reflex Reporting menu group.



Click "Add Event Receivers".



Select a site collection, and the sites within it you want to include.



## Reflex Reporting

Use this page to Add the Reflex Event Receivers to SharePoint Lists.

### Central Administration

Application  
Management

System Settings

Monitoring

Backup and Restore

Security

Upgrade and Migration

General Application  
Settings

Apps

Office 365

Configuration Wizards

Site Contents

#### Site Collection

Select a Site Collection

Site Collection: <http://project.dev3.local> ▾

#### Sites to Manage with Reflex Reporting

Select the sites that contain lists you would like to manage with Reflex Reporting.  
The Lists with a Title matching the Titles in 'Lists to Manage' will have the Reflex Event Receivers added.

Select All

☐

#### Web Sites

☐ Root

☒ Test Project 1

☒ Test Project 2

☒ Test Project 3

Add

Cancel

Click "Add".

This will iterate through all selected sites within the site collection, look for lists with a name that matches in "Lists to manage", and add the required event receivers to those lists.



## Processing Lists

If you don't want to wait for the overnight update job to process your lists, you can manually trigger the process.

### Step 1

Open SharePoint Central Admin as an administrator as described in step 1 of Database Setup.

Click "Application Management".

Click "Lists to manage" under the Reflex Reporting menu group.

**Reflex Reporting**  
Use this page to define which lists are mapped to a Reporting Schema

Central Administration  
Application Management  
System Settings  
Monitoring  
Backup and Restore  
Security

Add List | Add Event Receivers

Delete	SharePoint List Name	Site Collection	Database	Reporting Schema
X	Issues	http://project.dev3.local	Default	Issues

Click on the "SharePoint List Name" of the list you want to process.

Click "Process Now".

**Reflex Reporting**  
Use this page to define which SharePoint Lists should be managed with Reflex Reporting.

Central Administration  
Application Management  
System Settings  
Monitoring  
Backup and Restore  
Security  
Upgrade and Migration  
General Application Settings  
Apps  
Office 365  
Configuration Wizards  
Site Contents

Site Collection and List Selection  
Select the Site Collection that contains a list you wish to manage.

Site Collection: http://project.dev3.local

SharePoint Lists to Manage  
Define the Title of SharePoint Lists to Manage.

SharePoint List Title: Issues

Database: Default

Reporting Schema: Issues

Save Process Now Cancel

This process may take a while if there is a lot of content, or many instances of this list across the site collection.



## Importing and Exporting Reporting Schemas

If you have multiple SharePoint farms and would like to migrate Reporting Schemas between them (i.e. from DEV to TEST or Production), you can export and import your Reporting Schemas.

When a Reporting Schema is imported for the first time, you will need to use the "Add List" and "Add Event Receivers" options to manually configure the mappings between Reporting Schemas and the list instances.

### Exporting

#### Step 1

Open SharePoint Central Admin as an administrator as described in step 1 of Database Setup.

Click "Application Management".

Click "Reporting Schemas" under the Reflex Reporting menu group.

Central Administration

Application Management

System Settings

Monitoring

### Reflex Reporting

Use this page to add new Reporting Schemas.

[Add New](#) | [Export](#) | [Import](#)

Name	Database	List Data Table	Enabled
Issues	Default	Issues	Yes

#### Step 2

Click "Export".

Do you want to open or save **ReportingSchemas.xml** (19.2 KB) from **dev002**?

Open Save Save as Save and open

Click "Save as" and save the file to a convenient location.

Copy the file to a location accessible from your target SharePoint Server.





## Importing

### Step 1

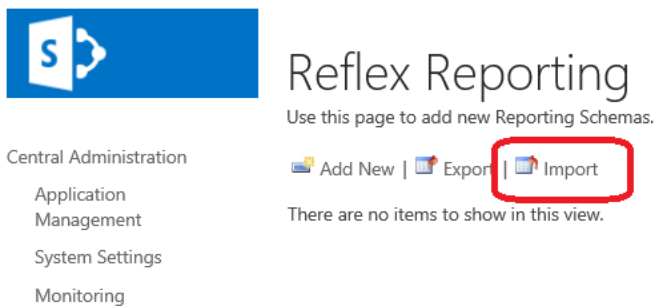
On the target SharePoint Farm environment, open SharePoint Central Admin as an administrator as described in step 1 of Database Setup.

Click "Application Management".

Click "Reporting Schemas" under the Reflex Reporting menu group.

### Step 2

Click "Import".



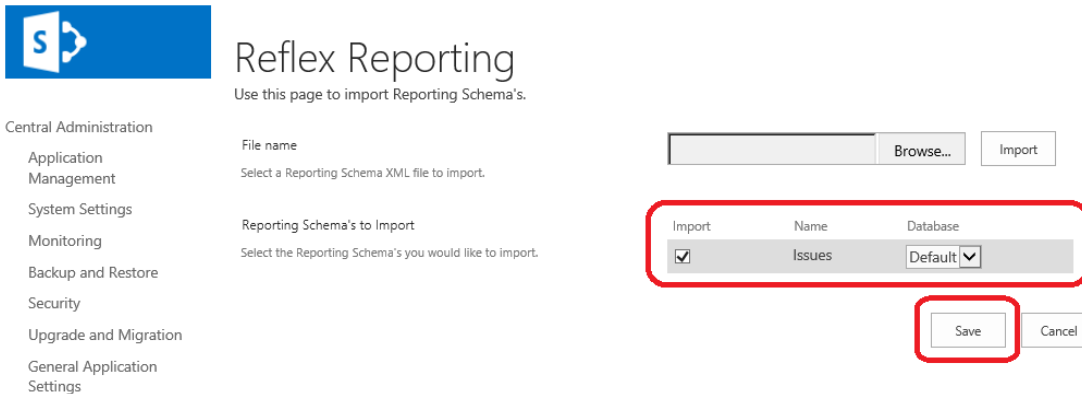
Click "Browse...", locate and open the ReportingSchema.xml file.



Click "Import".



The page will refresh and display a list of the Reporting Schemas from the file.



**Reflex Reporting**  
Use this page to import Reporting Schema's.

Central Administration  
Application Management  
System Settings  
Monitoring  
Backup and Restore  
Security  
Upgrade and Migration  
General Application Settings

File name  
Select a Reporting Schema XML file to import.

Reporting Schema's to Import  
Select the Reporting Schema's you would like to import.

Import	Name	Database
<input checked="" type="checkbox"/>	Issues	Default

Save Cancel

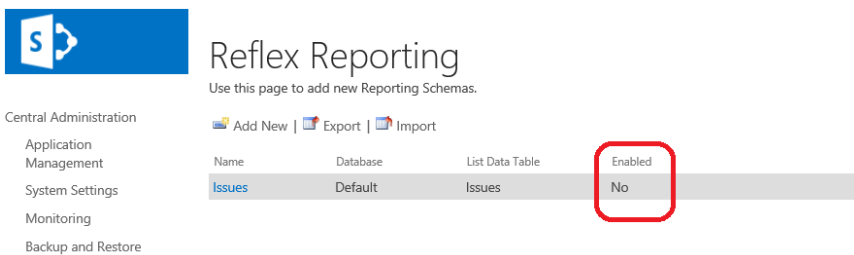
Unselect any Reporting Schema you're not interested in.  
Select the Reporting Database you want the Reporting Schema stored in.  
Click "Save".

**\*\* IMPORTANT \*\***

You cannot import a Reporting Schema over the top of an existing Reporting Schema. It will simply be ignored.

### Step 3

Imported Reporting Schemas will be created in a disabled state.



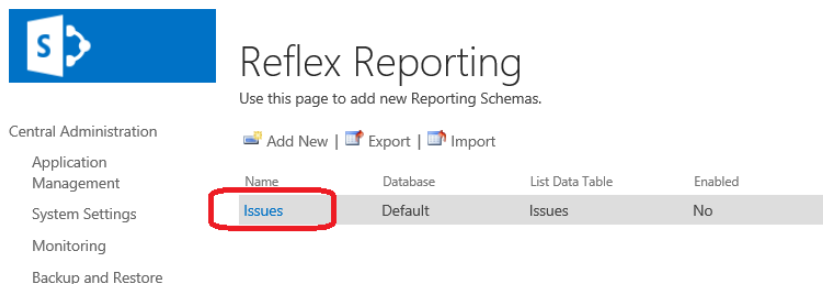
**Reflex Reporting**  
Use this page to add new Reporting Schemas.

Central Administration  
Application Management  
System Settings  
Monitoring  
Backup and Restore

Add New | Export | Import

Name	Database	List Data Table	Enabled
Issues	Default	Issues	No

To enable a Reporting Schema, click its Name.



**Reflex Reporting**  
Use this page to add new Reporting Schemas.

Central Administration  
Application Management  
System Settings  
Monitoring  
Backup and Restore

Add New | Export | Import

Name	Database	List Data Table	Enabled
Issues	Default	Issues	No

Check the "Enable" checkbox.



## Reflex Reporting

Use this page to define a Reporting Schema and the Field Mapping.

Central Administration

Application  
Management

System Settings

Monitoring

Backup and Restore

Security

Upgrade and Migration

General Application  
Settings

Apps

Office 365

Configuration Wizards

Site Contents

### Reporting Schema Details

Defines a Reporting Schema. Reporting Schema's are enabled to create List Data Tables.

Save Add Field Delete Cancel

Name

Issues

Database

Default

List Data Table Name

Issues

☐ Enable

### Reporting Schema Field Mapping

Defines the set of Reporting Schema Fields and their mapping to SharePoint list fields.

Delete	Field Name	Field Type	SharePoint Field Name	SharePoint Field Type
X	Comments	ntext	V3Comments	Multiple lines of text
X	Due Date	datetime	DueDate	Date and Time
X	Issue Status	varchar (255)	Status	Choice
X	Title	varchar (255)	Title	Single line of text

Click "OK" in the confirmation dialogue box.

## Step 4

The next step is to create the Site collection and list name mapping for the Reporting Schema and add event receivers.

The steps for adding the site collection and list name mapping are described below in "Adding a List to manage".

The steps for adding the event receivers are described above in "Adding Event Receivers".

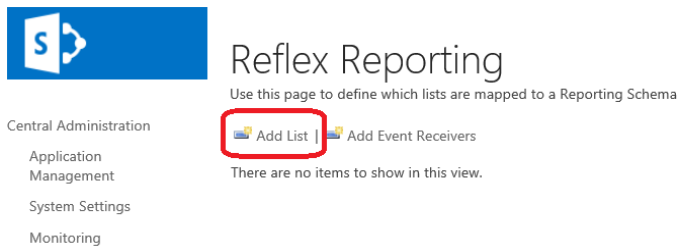


## Adding a List to Manage

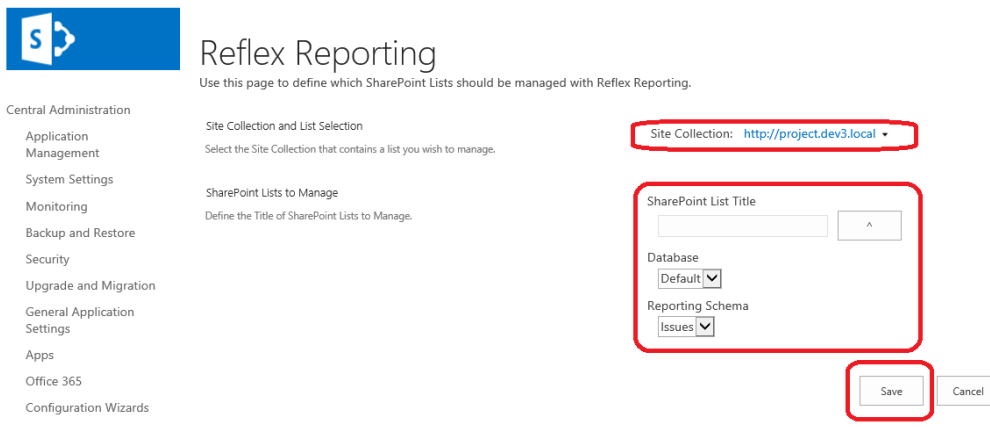
If you have imported a Reporting Schema, you will need to manually add the List to manage.

### Step 1

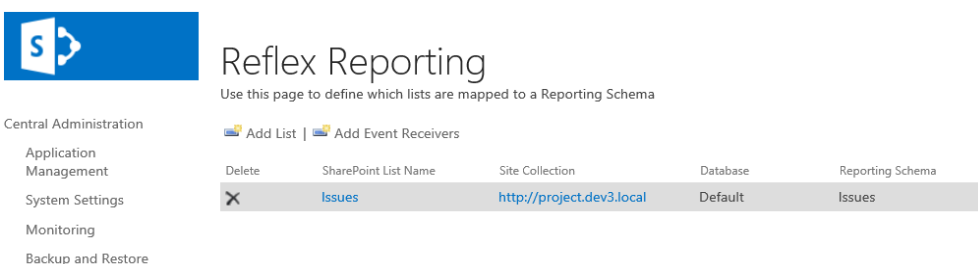
Open SharePoint Central Admin as an administrator as described in step 1 of Database Setup.  
Click "Application Management".  
Click "Lists to manage" under the Reflex Reporting menu group.



Click "Add List".



Select the "Site Collection" that contains the list instances you want to process and the "SharePoint List Title" from any one of the sites within the site collection.  
Select the "Reporting Schema" the list should be mapped to.  
Click "Save".



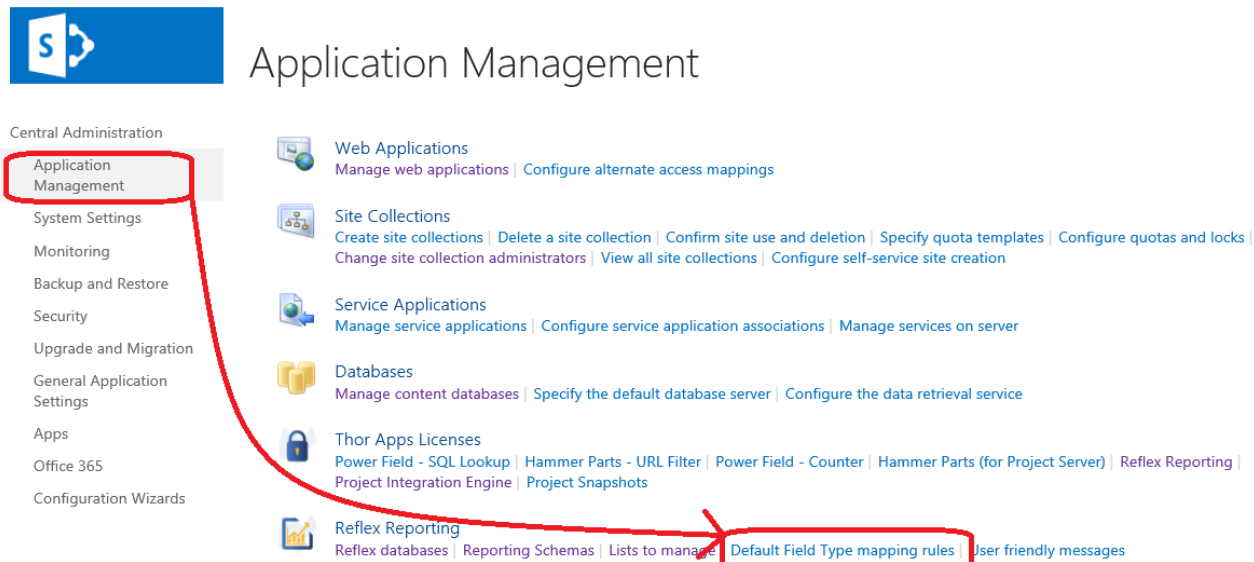


## Field Mappings

When you create a Reporting Schema the fields (or columns) from a list are mapped to SQL table column types. The default set of field type mappings can be changed to allow for new and custom field types in SharePoint.

To edit the default mappings, open SharePoint Central Admin as an administrator as described in step 1 of Database Setup.

Click "Application Management".



Click "Default Field Type mapping rules" under the Reflex Reporting menu group.



## Reflex Reporting

Use this page to define how fields are mapped by default

Central Administration	Delete	SharePoint Field Type	Reporting Schema Field Type	Multi-Column	Column Mapped	Remove Rich Text Markup
Application Management	X	Single line of text	varchar(255)	False	0	False
System Settings	X	Choice	varchar(255)	False	0	False
Monitoring	X	Multiple lines of text	ntext	False	0	False
Backup and Restore	X	Computed	varchar(255)	False	0	False
Security	X	Person or Group	varchar(255)	True	1	False
Upgrade and Migration	X	Attachments	bit	False	0	False
General Application Settings	X	Counter	varchar(255)	False	0	False
Apps	X	Date and Time	datetime	False	0	False
Office 365	X	Yes/No	bit	False	0	False
Configuration Wizards	X	Lookup	varchar(255)	False	0	False
Site Contents	X	Number	decimal(25,6)	False	0	False
	X	Currency	money	False	0	False
	X	Hyperlink or Picture	varchar(255)	False	0	False
	X	Calculated	varchar(255)	False	0	False

New SharePoint field types will be automatically added to this list with a default mapping to "ntext". Changing these rules will affect how new Reporting Schema's are created but will not change existing Reporting Schemas.

To edit the field mapping for an existing Reporting Schema, open SharePoint Central Admin as an administrator as described in step 1 of Database Setup.

Click "Application Management".

Click "Reporting Schemas" under the Reflex Reporting menu group.

Click the Name of the Reporting Schema you want to edit.



## Reflex Reporting

Use this page to define a Reporting Schema and the Field Mapping.

Central Administration
Application Management
System Settings
Monitoring
Backup and Restore
Security
Upgrade and Migration
General Application Settings
Apps
Office 365
Configuration Wizards
Site Contents

Reporting Schema Details

Defines a Reporting Schema. Reporting Schema's are enabled to create List Data Tables.

Name

ISSUES

Database

Default

List Data Table Name

ISSUES

☒ Enable

Cancel

Reporting Schema Field Mapping

Defines the set of Reporting Schema Fields and their mapping to SharePoint list fields.

Delete	Field Name	Field Type	SharePoint Field Name	SharePoint Field Type
	Comments	ntext	V3Comments	Multiple lines of text
	Due Date	datetime	DueDate	Date and Time
	Issue Status	varchar (255)	Status	Choice

Uncheck the "Enable" checkbox.

Click "OK" when prompted to confirm disabling the Reporting Schema.

Disabling a Reporting Schema will delete the Reporting table from SQL and all reporting data contained within it (it's ok, you can process it again later).



A Reporting Schema can only be edited when it is disabled because changing it affects the design of the Reporting table that is created in the SQL Database.

Click the field name you want to change a mapping for.

**Reflex Reporting**  
Use this page to define the data extraction rule for the field selected.

**Central Administration**  
Application Management  
System Settings  
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**Reporting Schema Field Mapping**  
Defines the mapping between a SharePoint List field and the Reporting Schema field.

**Reporting Schema Name**  
Issues

**Reporting Schema Field Name**  
Priority

**Reporting Schema Field Type**  
int

**SharePoint Field Name**  
Priority

**SharePoint Field Type**  
Choice

**SharePoint Field is a Multi-Column field**  
☐

**SharePoint Field column to map**  
0

**Remove HTML and Rich Text Markup Tag's**  
☐

**SharePoint Field Must Exist**  
☒

Save Cancel

Once you are happy with the field mapping settings, click "Save".

**Central Administration** » Reflex Reporting  
Use this page to define a Reporting Schema and the Field Mapping.

**Reporting Schema Details**  
Defines a Reporting Schema. Reporting Schema's are enabled to create List Data Tables.

**Name**  
Issues

**Database**  
Default

**List Data Table Name**  
Issues

**Enable**  
☒

**Reporting Schema Field Mapping**  
Defines the set of Reporting Schema Fields and their mapping to SharePoint list fields.

Delete	Field Name	Field Type	SharePoint Field Name	SharePoint Field Type
	Resolution	varchar (255)	Resolution	Multiple lines of text
	Discussion	ntext	Discussion	Multiple lines of text
	Assigned	varchar	AssignedTo	Person or Group

Check the "Enable" checkbox.

Click "OK" in the confirmation dialogue box.

Below is a description of each of the mapping properties that can be changed.



Property Name	Description and use
Reporting Schema Field Name	This is the name of the field as it is created in SQL. SQL field naming rules apply here.
Reporting Schema Field Type	The SQL type used for the field created in SQL. The list of types displayed here are simply the most common and likely types used. You can add new types (as long as they are valid SQL types) by adding rows in the Reflex Schemas database to the SqlFieldType table.
SharePoint Field is a Multi-Column Field	Some SharePoint fields store multiple pieces of information. These fields all derive from the SharePoint Multi-Column field type and store their information in a semi colon and hash delimited format (i.e. "22;#Ted's Office"). You can either extract the entire string into your reporting table or a single element from the string. Checking this field enables the next field to extract a single element from the string.
SharePoint Field Column to map	In the event that this SharePoint field type is a Multi-Column based field type (e.g. Lookups, Calculated Columns etc.), this field determines which element from the multi-column value string to extract. It is based on a zero base array index. So a value of 0 will return the first element and a value of 1 will return the second element.
Remove HTML and Rich Text Markup Tag's	If the SharePoint field is a text field that includes HTML or rich text markup, you can check this to strip the markup tags. This is helpful if you are using a reporting tool that does not support HTML or rich text.
SharePoint Field Must Exist	By default Reflex Reporting expects all list instances to have the exact SharePoint fields and types that are defined in the Reporting Schema. If this field is checked (which it is by default) and the field does not exist or is of the wrong type or name, Reflex Reporting will throw an error to the user trying to add or update the item. This is by design! The intention is to ensure all data that is extracted is accurate and complete, as you are creating this Reporting Schema in order to produce a report on the data. If you know for a fact that the lists across a site collection mapped to the Reporting Schema are missing this SharePoint field or the field type is different, you can uncheck this box. If the field cannot be processed by Reflex Reporting it will simply put a NULL into the field in the reporting table and not throw an error to the user. This is NOT recommended, but is sometimes essential. The better approach is to fix all instances of the list to comply with the Reporting Schema.





## User Input Validation

Reflex Reporting allows SharePoint list designers to provide vastly more powerful input validation than can be configured in Native SharePoint. This is managed through the power of SQL Server. When you create and enable a Reporting Schema, this in turn creates a table in the Reporting database. You can create your own constraints on the data entered into the SQL table which will be thrown back to the user as an error. This prevents users from entering invalid content. This could be through any form of SQL constraint whether it be a simple unique index on a field or set of fields or some custom SQL trigger code that validates field content against another remote system. The example screen shot below is creating a unique constraint against the Title of a list (across the entire Site collection).

The screenshot shows the Microsoft SQL Server Management Studio interface. The Object Explorer on the left displays the database structure for 'DEV003 (SQL Server 11.0.3128 - DEV3\ABear)'. The central pane shows the 'dbo.Issues' table with columns: ListUID, ListItemId, SiteUrl, ListTitle, Status, Category, and [Assigned To]. The 'ListTitle' column is selected. An 'Indexes/Keys' dialog box is open, showing the 'Selected Primary/Unique Key or Index' list with 'IX\_Issues\*' and 'PK\_Issues'. The 'General' tab is active, showing the 'Columns' as 'ListTitle (ASC)', 'Is Unique' as 'Yes', and 'Type' as 'Unique Key'. The 'Identity' tab shows the 'Name' as 'IX\_Issues' and 'Description' as ' '. The 'Table Designer' tab shows 'Create As Clustered' as 'No', 'Data Space Specification' as 'PRIMARY', and 'Fill Specification' as ' '. The 'Add' and 'Delete' buttons are visible at the bottom of the dialog.



## User Friendly Error Messages

Given that Reflex Reporting allows SharePoint input validation through SQL constraints (see above) and some of the messages that can be thrown from SQL are less than user friendly, Reflex Reporting provides a User Friendly Error message mapping feature.

This feature allows implementers to map an error message from SQL into a friendly error message that means something to the user.

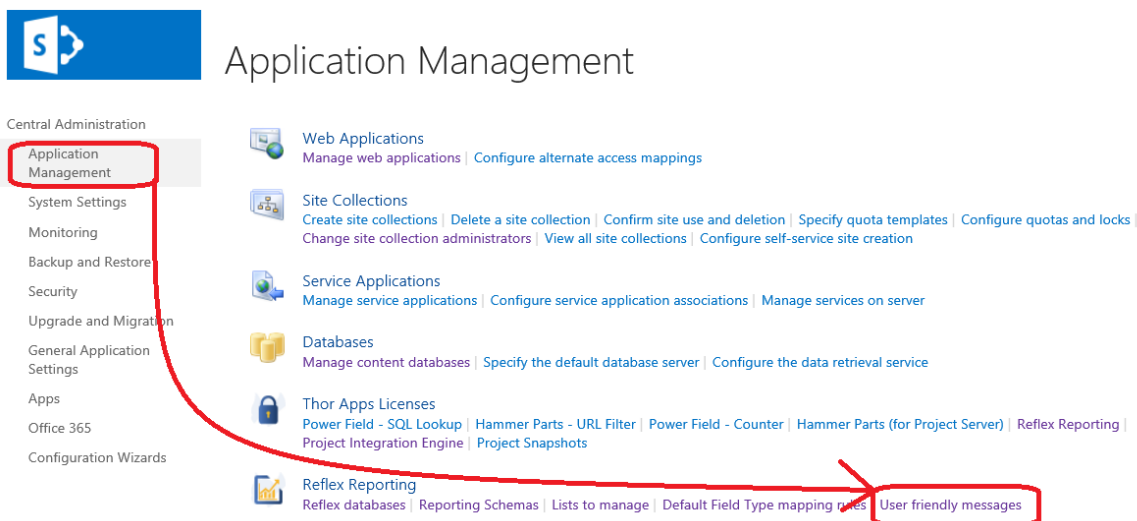
Using the example defined in "User Input Validation", by default the user would see the following error message:

**"Violation of UNIQUE KEY constraint 'IX\_Issues'. Cannot insert duplicate key in object 'dbo.Issues'. The duplicate key value is (Issues). The statement has been terminated."**

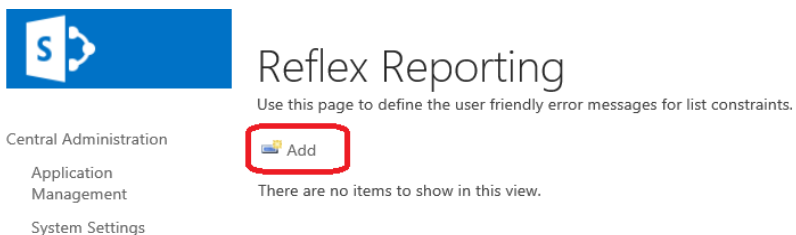
... which is not very useful to the user.

To add a user-friendly error message, open SharePoint Central Admin as an administrator as described in step 1 of Database Setup.

Click "Application Management".



Click "User friendly messages" under the Reflex Reporting menu group.



Click "Add".



## Reflex Reporting

Use this page to define a user friendly error message for a list constraint violation.

### Central Administration

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### SharePoint List Constraint Error Message

Define a user friendly error message for a list constraint violation.

### Order Number

### Constraint Name

### Friendly error message

**\*\* You cannot use the value provided for  
Title as it has been used elsewhere.**

Enter the name of the constraint (or any part of the SQL error message that uniquely identifies it) and a meaningful message for the user.

The "Order Number" allows you to set a priority value if you have multiple Constraint Names that could match a given constraint.

For instance, assume you created 2 user-friendly error messages, a generic one for catching any duplicate values with a Constraint Name of "**Violation of UNIQUE KEY**", and a second one to catch only duplicate "Title" values, with a Constraint Name of "**IX\_Issues**".

Both would catch any duplicate Title values. By giving the more specific Constraint Name "**IX\_Issues**" a higher priority, (i.e. a lower "Order Number"), it will be used in place of any lower priority Constraint Names that may also match.

Click "Save".

Now, when the user tries to create an item with a duplicate Title they will receive the error shown below:

**\*\*\* You cannot use the value provided for Title as it has already been used elsewhere."**

...which is much more user friendly.

## Security

Reflex Reporting uses the current web application's application pool identity to process list content when the user adds, updates or deletes an item. Therefore, this identity must have read and write permissions to both the Reflex Reporting and Reflex Schemas databases. This is automatically configured when an entry is created in the Lists to manage page, or when first creating a Reporting Schema.

Reflex Reporting also has a background SharePoint Timer job that runs once a day and cycles through all managed site collections and updates the Reporting database content (if it needs changing). This function



runs under the context of the Timer service identity which is also automatically configured when the databases are first created.

When processing a list manually via Central Administration, the lists are processed via the application pool identity used by SharePoint Central Administration. This is usually the same account used for the Timer service and is automatically configured for you.

Reflex Reporting processes all content from a list and provides it a SQL table for reporting purposes. It therefore does not provide SharePoint security trimming on item content displayed via reports. It is recommended that reports implement their own security to prevent users from accessing confidential information.

## Diagnostics

Should you have issues with Reflex Reporting, all errors are logged into the standard SharePoint ULS log on the server in which the event took place.

If you need to determine if the event receivers are attached to a list (because Reflex Reporting provides no visible evidence) we recommend using the "Event Handler Manager" tool from codeplex to list the event receivers on a list.



## So what's next?

### Purchasing

If you have completed installation and configuration and have decided to purchase a license, follow the Purchasing Guide included in your download package.

### License Activation

If you already have a license for Reflex Reporting 2013 and wish to activate it, follow the License Activation Guide included in your download package.