

# System 80xA Engineering

## Application Change Management

System Version 5.1 Feature Pack

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# **System 800xA Engineering**

## **Application Change Management**

**System Version 5.1 Feature Pack**

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# About This User Manual

## General



Any security measures described in this User Manual, for example, for user access, password security, network security, firewalls, virus protection, etc., represent possible steps that a user of an 800xA System may want to consider based on a risk assessment for a particular application and installation. This risk assessment, as well as the proper implementation, configuration, installation, operation, administration, and maintenance of all relevant security related equipment, software, and procedures, are the responsibility of the user of the 800xA System.

## User Manual Conventions

Microsoft Windows conventions are normally used for the standard presentation of material when entering text, key sequences, prompts, messages, menu items, screen elements, etc.

## Feature Pack

The Feature Pack content (including text, tables, and figures) included in this User Manual is distinguished from the existing content using the following two separators:

Feature Pack Functionality \_\_\_\_\_

<Feature Pack Content>

---

Feature Pack functionality included in an existing table is indicated using a table footnote (\*):

\* [Feature Pack Functionality](#)

Feature Pack functionality in an existing figure is indicated using callouts.

Unless noted, all other information in this User Manual applies to 800xA Systems with or without a Feature Pack installed.

## Roll-ups

The Roll-up content (including text, tables, and figures) included in this User Manual is distinguished from the existing content using the following two separators:

[Application Change Management 5.1.4-1/1A Functionality](#)

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<5.1.4 RU1 Content>

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[Application Change Management 5.1.4-2 Functionality](#)

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<5.1.4 RU2 Content>

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## Warning, Caution, Information, and Tip Icons

This User Manual includes Warning, Caution, and Information where appropriate to point out safety related or other important information. It also includes Tip to point out useful hints to the reader. The corresponding symbols should be interpreted as follows:



Electrical warning icon indicates the presence of a hazard that could result in *electrical shock*.



Warning icon indicates the presence of a hazard that could result in *personal injury*.



Caution icon indicates important information or warning related to the concept discussed in the text. It might indicate the presence of a hazard that could result in *corruption of software or damage to equipment/property*.



Information icon alerts the reader to pertinent facts and conditions.



Tip icon indicates advice on, for example, how to design your project or how to use a certain function

Although Warning hazards are related to personal injury, and Caution hazards are associated with equipment or property damage, it should be understood that operation of damaged equipment could, under certain operational conditions, result in degraded process performance leading to personal injury or death. Therefore, fully comply with all Warning and Caution notices.

## Terminology

A complete and comprehensive list of terms is included in *System 800xA System Guide Functional Description (3BSE038018\*)*. The listing includes terms and definitions that apply to the 800xA System where the usage is different from commonly accepted industry standard definitions and definitions given in standard dictionaries such as Webster's Dictionary of Computer Terms.

## Released User Manuals and Release Notes

A complete list of all User Manuals and Release Notes applicable to System 800xA is provided in .

updated each time a document is updated or a new document is released. It is in pdf format and is provided in the following ways:

- Included on the documentation media provided with the system and published to ABB SolutionsBank when released as part of a major or minor release, Service Pack, Feature Pack, or System Revision.

- Published to ABB SolutionsBank when a User Manual or Release Note is updated in between any of the release cycles listed in the first bullet.



A product bulletin is published each time

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# Section 1 Introduction

## Application Change Management

Application Change Management (ACM) is a version control tool used for engineering solutions in 800xA System. It is a configuration management system designed to handle configuration records. It also has a capability to be used as configuration change reporting system.

ACM is a client-server based system with communication access to 800xA systems. ACM configuration database is placed on the ACM server and stores metadata and configuring records.

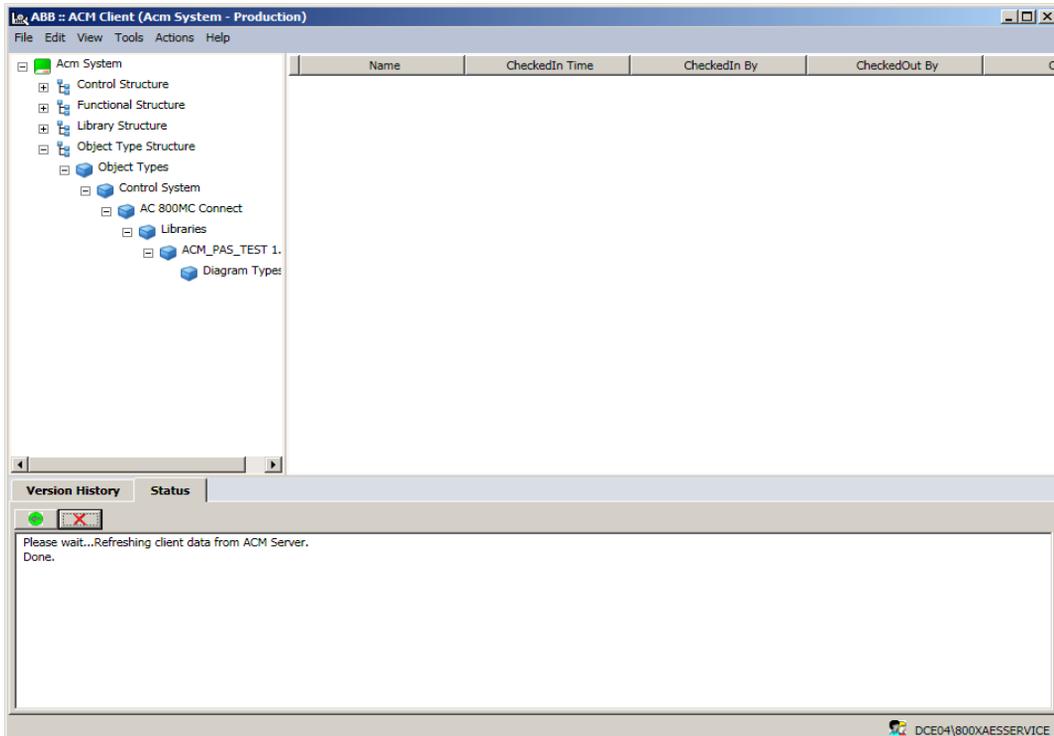


Figure 1. Sample ACM View

ACM is designed to track history and revisions of previously saved files. This helps users to revert to any version of a particular file, and identify the difference between any of the version of an entity with the entity in a 800xA system. Checkout of an object/entity ensures that no other user can submit changes to ACM system.

ACM supports System 800xA Entities and user-defined Custom Entities. Following are the System 800xA Entities types:

- Control Project
- Control Application
- Control Diagrams

- Controller
- HSE Subnet
- Library

The ACM client is used to configure the ACM server and perform operations such as **CheckIn to ACM Server**, **CheckOut from Server**, **Get Latest** and **show version history**. ACM provides configuration management capabilities for graphic displays, control libraries, control applications and controllers.

ACM is verified in context of:

- 800xA HMI Configuration
- AC800M Configuration
- Fieldbus Configuration

## Entity Type Hierarchy

The following entity type hierarchy of System 800xA are applicable for ACM work flows.

### Library



Figure 2. Library Entity

Library in System 800xA may consists of different Library Versions and Extension Libraries to hold different library components and aspects. For each major Library version, one .afw file will be created that will include both, different versions of the Library as well as the Extension Library/Libraries.

### Control Project

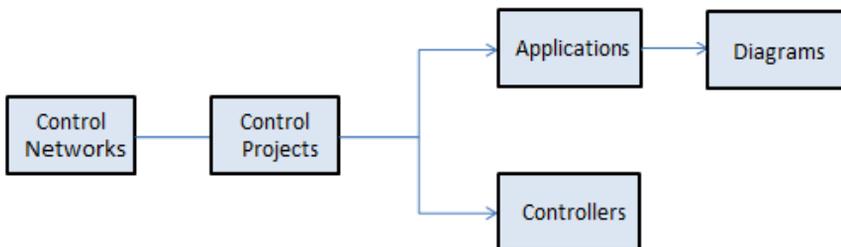


Figure 3. Control Project

Control Project in System 800xA consists of Applications and Controllers folders to hold different applications and controllers configured in the same project.

Each application consists of Application Types, Control Modules, Programs and Diagrams. An individual .afw file is created for each application that includes Application Types, Control Modules, and Programs. However, a separate .afw file is created for Diagrams as they are defined as separate entities.

Similarly all the controllers configured under the project are checked in as individual .afw files.

### HSE Subnet

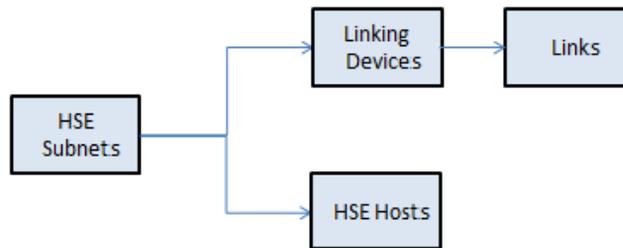


Figure 4. HSE Subnet

For HSE Subnet configurations, separate .afw files are created for individual Linking Devices, HSE Hosts and Links.

However, a single .afw file is created for HSE Subnet object configured in Control Structure.

## Custom Entity

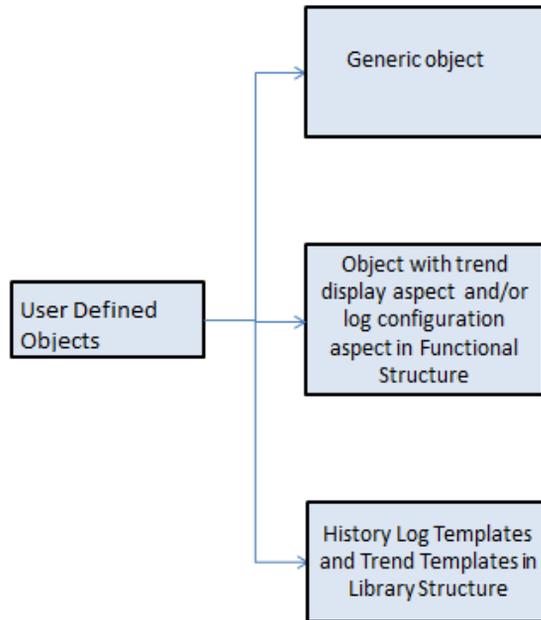


Figure 5. Example of Custom Entity

## Functions of ACM

- Check in, check out, get latest and compare on various levels of configuration records.
- Baseline for System 800xA configuration records and roll back to the required older baseline.
- Supports multiple versions of the objects.
- Supports Activity Log.
- Supports different access control privilege levels.
- Support for versioning at the object level.

- Locking of configuration records with check out and check in.
- Provides separate error logs for troubleshooting.
- Support for connecting more than one 800xA system.

## ACM System Configurations

Following are different possible configurations for ACM system:

### Single System with ACM Server

Users are connected to a single system with ACM server. Apart from version tool, it is used to Baseline changes in order to package all changes from certain milestones.

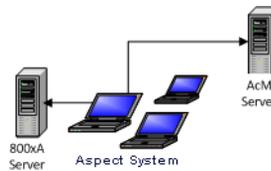


Figure 6. Single System with ACM Server

### Multiple System with Shared ACM Server

Users can connect to more than one 800xA system to the ACM server. It works as a common database which can be accessed by multiple system. Apart from version tool, it supports check out shared entities to dedicated systems in order to interlock check in from other systems.

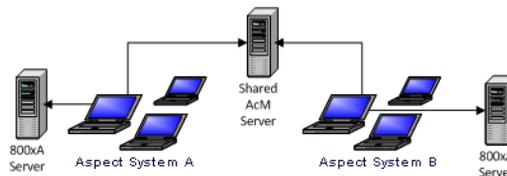


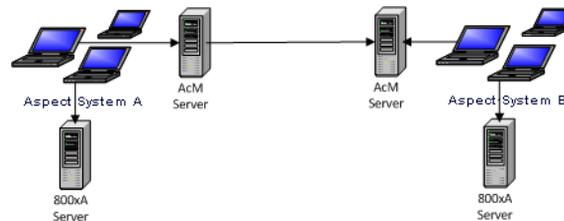
Figure 7. Multiple System – Shared ACM Server

**Example Workflow:**

In order to transfer checked in Entity or object of **Aspect System A** to **Aspect System B**, ACM client application of **Aspect System B** should be connected to **System A** using menu option **Select ACM server**.

**Multiple System to Dedicated ACM Servers**

Users can connect more than one engineering system to dedicated ACM servers. It is used in replication of ACM server content through dedicated server to server connection allowing highly secure setup. Apart from version tool, it is used to Baseline changes in order to package all changes from certain milestones.



*Figure 8. Multiple System – Dedicated ACM Server*

**Example Workflow:**

In order to transfer a checked in Entity or object of **Aspect System A** to **Aspect System B**, ACM client application of **Aspect System B** should be connected to ACM server of **Aspect System A** using server name and user credentials of **Aspect System A** in login window.



For the following types of ACM configurations:

- Single System with ACM Server.
- Multiple System with Shared ACM Server.
- Multiple System to Dedicated ACM Servers.

The 800xA systems and the ACM server requires secure communication if they are configured in different domain. Refer to [Appendix E, Configuration of ACM Service in Different Domain Controller](#) for more information.

## Prerequisites

### Installation Prerequisites for ACM Client

- Microsoft SharePoint Client object model redistributable.
- ABB 800xA Base 5.1.0 or later versions.



Add ACMClient.exe to the antivirus exception list on the intended 800xA node in order to proceed working with ACM.



Add the web browser to the antivirus exception list, and add the Microsoft SharePoint Foundation server weblink to the trusted sites of the web browser.

### ACM Server Configuration

- Microsoft SharePoint Foundation 2010 SP2 (Download Microsoft SharePoint Foundation 2010 SP2 from [www.microsoft.com](http://www.microsoft.com)). For more information, refer [Appendix C, Installation and Configuration of Microsoft SharePoint Foundation 2010 SP2](#).
- Aspect system should be connected to the ACM server to transfer the data to ACM server.

### Post Installation

Load the following system extension of ACM:

- ACM.
- ACM for Engineering Studio.

### Before Check In

1. In Address bar of web browser enter the URL of ACM server central administration site. Following **Application Management** web page is displayed.

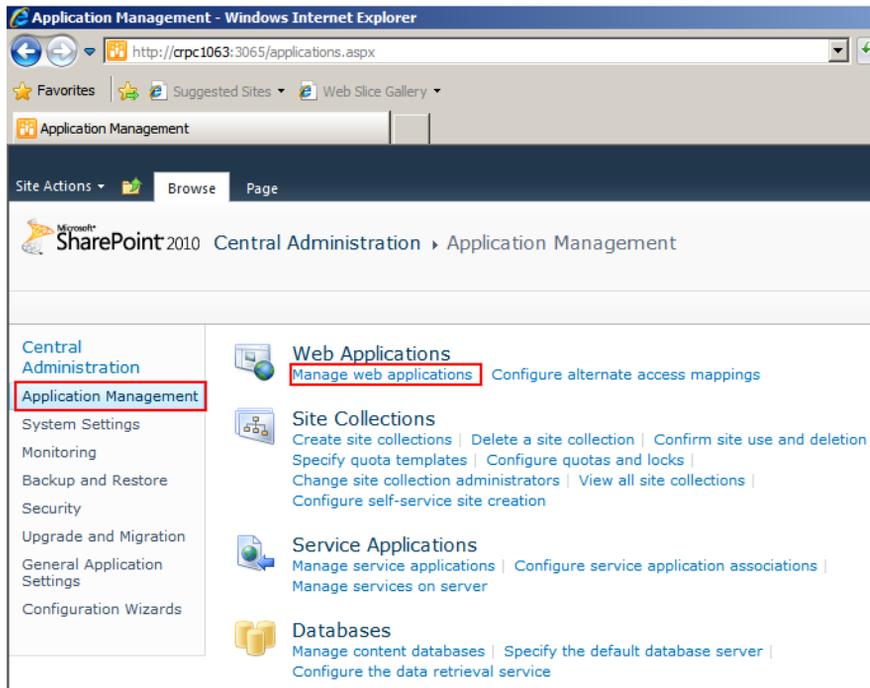


Figure 9. Application Management

2. In **Application Management** web page, click **Application Management** under Central Administration.

- Under Web Applications click **Manage web applications**. Following screen is displayed:

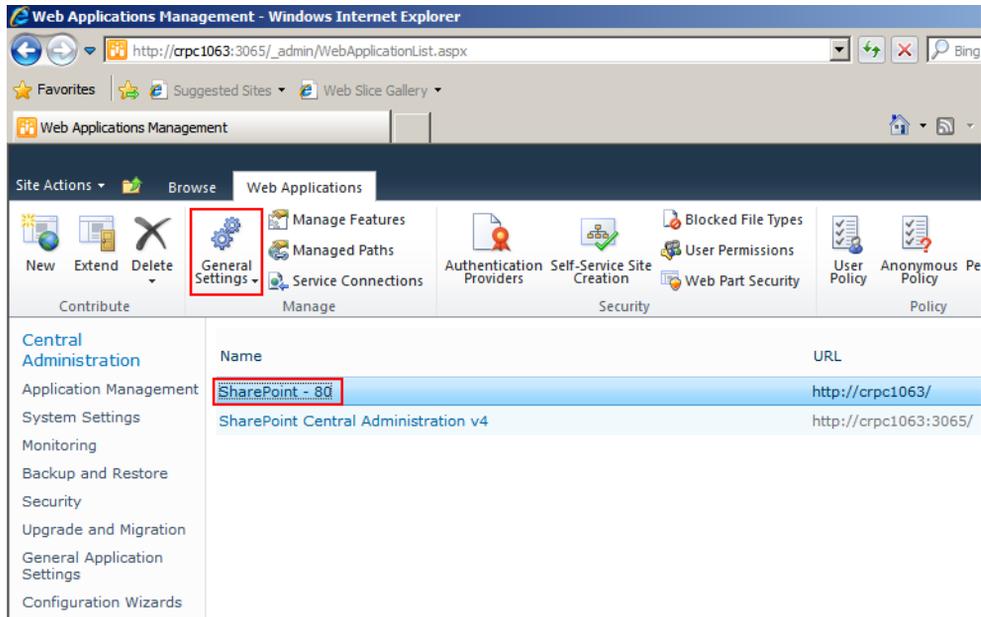
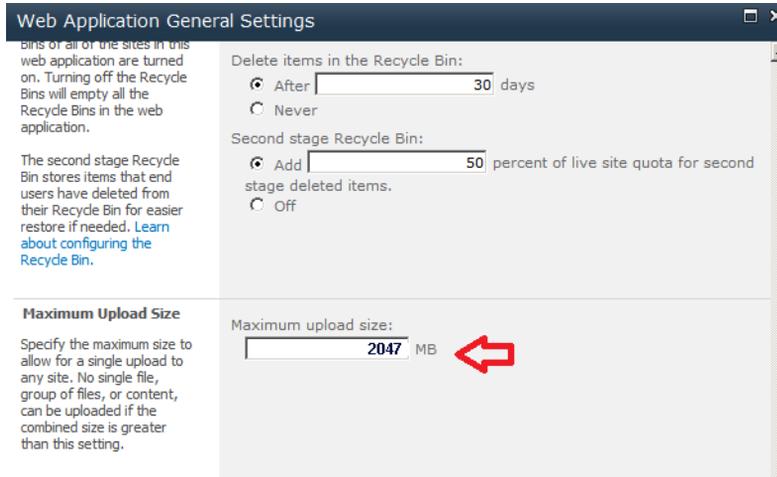


Figure 10. General Settings

4. Select Share point site which is used for ACM applications. For Example Share Point-80 and Click on **General Settings**. Following window is displayed:



*Figure 11. Web Application General Settings*

5. In **Maximum upload size** text box enter 2047.
6. Save and close the **Web Application General Settings** dialog box.

---

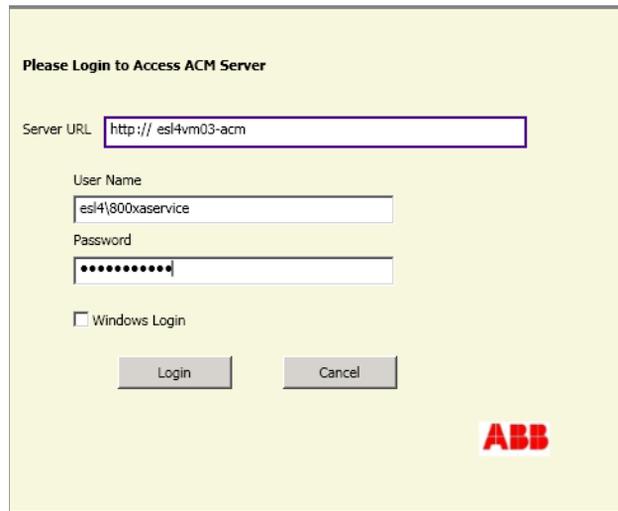
## Section 2 Basic Operation

### Starting ACM for the First Time

Double-click the ACM Client icon from the Desktop to open the ACM Client user interface. Or, launch the ACM Client from Plant Explorer workplace.

1. **Select Environment** window is displayed, select the environment and click **OK**.

Following login dialog box is displayed:



The image shows a login dialog box titled "Please Login to Access ACM Server". It contains the following fields and controls:

- Server URL:** A text box containing "http:// esl4vm03-acm".
- User Name:** A text box containing "esl4\800xaservice".
- Password:** A text box with masked characters (dots).
- Windows Login:** A checkbox that is currently unchecked.
- Buttons:** "Login" and "Cancel" buttons.
- Logo:** The ABB logo is located in the bottom right corner of the dialog box.

*Figure 12. Login to Access*

2. Enter the ACM Server URL in the **Server URL** field. For example, `http://esl4vm03-acm`

3. To login to the ACM Server, do one of the following steps:
  - a. Select the **Windows Login** check box if you are logging in with the Windows credentials.

**Or**

  - b. Clear the **Windows Login** check box, type the user name and password in the respective text boxes.



For cross domain communication, Windows login will not work. For more information, refer to [Appendix E, Configuration of ACM Service in Different Domain Controller](#)

4. Click **Login**.

The ACM client screen is displayed with a message stating “ACM Server is not found. Please create ACM Server”.
5. Click **OK**.
6. In ACM Client menu, select **Actions** and click **Create ACM System**.

ACM System creation is a one time activity, which is confirmed with a success dialog box.
7. Click **OK** to acknowledge the dialog box.
8. In the General Settings dialog, set the maximum number of versions and enable .xml compression and aspect support (if required).



If General Settings are not required, click **Close**. This ensures that there is no limit on the maximum number of versions. For more information, refer [General Settings](#) on page 75.



If the login is performed selecting Windows Login option, then ACM Login window is not displayed on subsequent launch of ACM Client.

### To Start the ACM Client from Workplace Application

Perform the following:

1. Open **Engineering Workplace/Plant Explorer Workplace**.
2. Select any entity from the structure browser preferably from **Functional Structure** or **Control Structure**.

3. Right-click on the entity and point to **ACM**, and then select any option.



ACM server can also be accessed from a web browser by giving the specific URL of the ACM server. In the web page navigate to **All Site Contents**, and then select the required ACM system.

# User Interface

User interface of ACM client displays the Structure levels as in the aspect system. It also display the status bar, active user, connected aspect system and environment for the current operation.

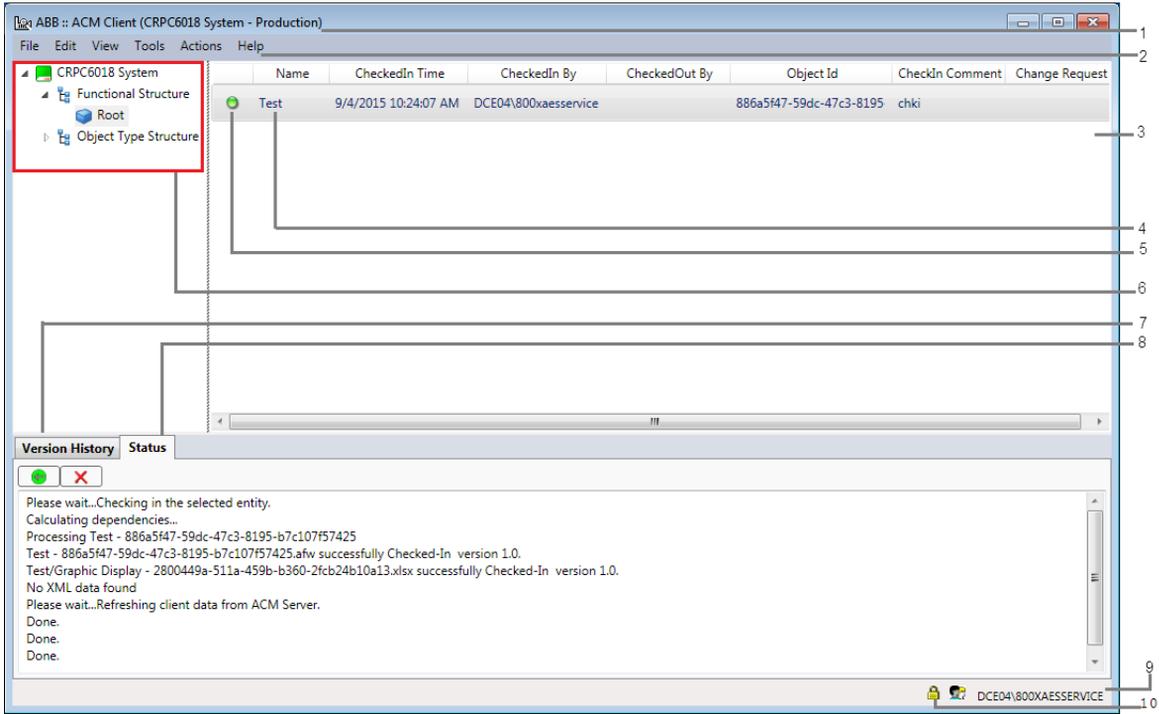


Figure 13. ACM Client User Interface

Table 1. User Interface of ACM Client

Number	Description
1	Connected aspect system and environment
2	Menu bar
3	Object View pane

Table 1. User Interface of ACM Client

Number	Description
4	Entity name
5	Indicator
6	System in ACM server and Object Structure View
7	Version History View pane
8	Status View pane
9	Active User
10	Indicates if the connection to ACMServer is encrypted or unencrypted



In some cases, logged in user in ACMClient is displayed as **SharePoint/System**. To correct this, do the following steps in ACM Server:

1. Open SharePoint Central Administration from **All Programs > Microsoft SharePoint 2013 Products**.
2. Select **Security > General Security > Configure Service Account**.
3. Select the SharePoint Site (for example, Web Application Pool - SharePoint-80) and then select **Network Service** from the **Select account for this component** drop-down list.
4. Click **OK**.

The ACM client has four views to view the contents of the ACM server. Different views of ACM client are:

- [Object Structure View](#)
- [Object View](#)
- [Version History View](#)
- [Status View](#)

### Object Structure View

The Object Structure view is used to view the object structure in ACM server. User can view the ACM server on an entity level.

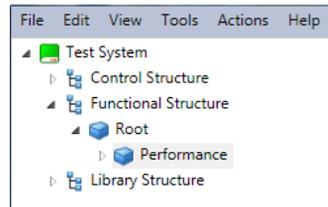


Figure 14. Object Structure

The entities are located in a tree structure on an entity level as displayed in ACM client.



If an object or entity is assigned with the system name, then the icon representation of that particular object in the structure browser is similar to the root system icon in the ACM client.



If a whole library is checked in either from Object type structure or Library structure, it will be represented under the library structure folder in ACM client. All the object types are visible when the file is opened in Export/Import tool.



It is advisable to refresh the ACM client browser before performing any operation.

### Object View

Object view is used to view and perform various operations like check in, check out, view version history, delete entities, and so on.

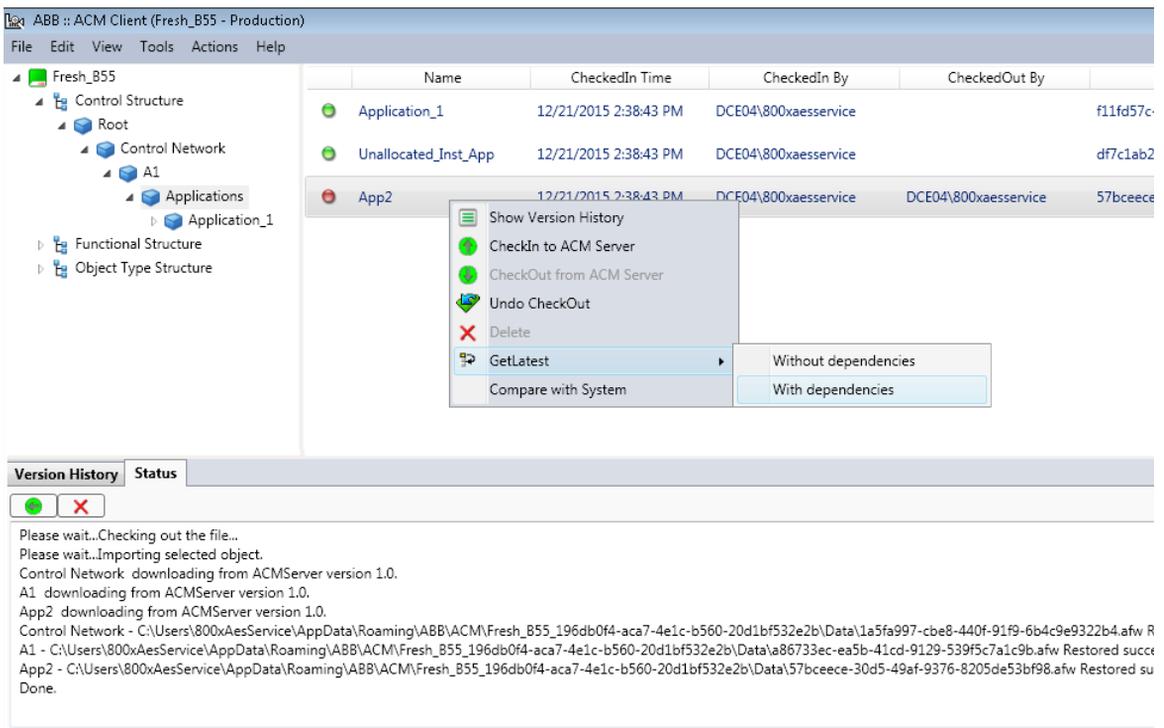


Figure 15. Object View

Indicators to display the status of the file:

-  – User has checked out (reserved) an object in ACM server and modifying the same object in Aspect system.
-  –File is checked in to the ACM server.

**Show Version History:** All versions of the selected entity is displayed in Version History View.

**CheckIn to ACM Server** - Check in saves a version of the selected entity from aspect system to the ACM server. For more information refer [Check In an Object](#) on page 49.

**CheckOut from ACM Server-** Check out reserves the selected entity in ACM server. This is done to restrict any further operation on the same object unless it is checked in or undo check out is done. This is needed for a user who wants to work on the same object in engineering workplace. For more information refer [Check Out and Edit Objects](#) on page 58.

**Undo Checkout:** Undo check out releases the entity for other users on ACM server.

**Delete:** Deletes the selected file or object from ACM server.



Deleting entities which are checked in as part of dependencies may result in failure of **Get Latest** with dependencies.

**Get Latest:** Get latest imports the selected file or object from ACM server to connected environment of 800xA System. For more information refer [GetLatest on page 63](#). Get latest includes:

- **With Dependencies:** Entities are imported to the 800xA system with dependencies such as applications, libraries, and so on. All the existing data in the aspect system is overwritten in this operation.
- **Without Dependencies:** Entities are imported without dependencies.



It is recommended to perform GetLatest without dependencies if user is unaware of all the dependencies or if some of the dependencies are already available in the target system.

**Compare with System:** To compare the object in Plant Explorer with respect to the selected version in the ACM server. For more information refer [Compare with System](#) on page 60.

Double-click on object name to open the file in Import/Export tool to compare with the system. For more information on Import/Export tool, refer to the *System 800xA, Maintenance (3BSE046784\*)*.



Deleting entities which are checked in as part of dependencies may result in failure of Get Latest with dependencies.

## Version History View

Version history view pane is used to view different versions created for a particular file. Version history view helps the user to view and revert to earlier versions of the file and view the user who has made the changes for each file. For more information on version history refer [Versions](#) on page 64.

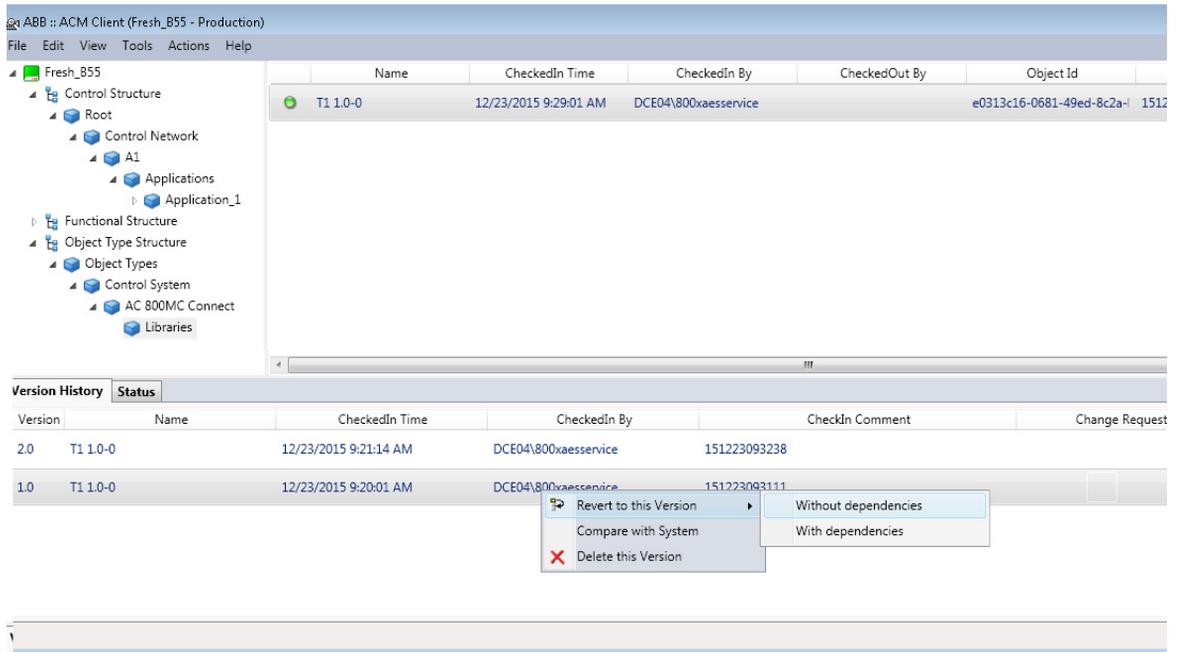


Figure 16. Version History View

### Status View

Status View pane is used to view the status of the current operation such as check in, check out and other related information. Status View helps a user to understand if the files are checked in or checked out and also displaying the version numbers of the files, see [Figure 17](#).

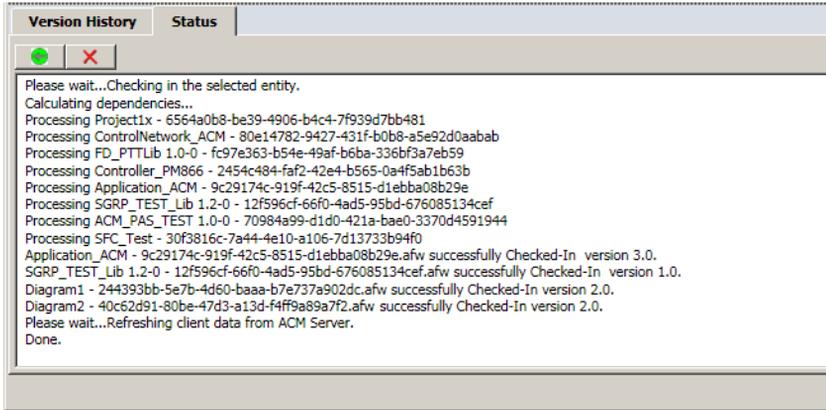


Figure 17. Status View

Refer [Table 2](#) for button description.

Table 2. Button Description

Button	Description
	Opens all old messages in a separate text file.
	Clears old status messages from the pane.



All the old messages get deleted on reopening the ACMClient.

## Menus

The menu bar of ACM client consists of:

- [File](#) on page 35
- [Edit](#) on page 35
- [View](#) on page 37
- [Tools](#) on page 44
- [Actions](#) on page 44
- [Help](#) on page 46

### File

The File menu consists of:

#### Refresh

To refresh the ACM client application.

#### Exit

Closes the ACM client application.

### Edit

The Edit menu consists the following:

- **General Settings**

Opens the general settings dialog box with following option:

  - Check in of objects along with .xml files.
  - Creation and checking in .xls files for PG2 graphic displays.
  - Set the maximum number of versions for objects/entity.

For more information [General Settings](#) on page 75.

- **Custom Entity**

Opens a submenu with following options:

- **Configure:** Opens the Custom Entity Configuration dialog. The dialog is used to define Custom Entities for the ACM server. Custom Entities can be defined and used in the ACM server. For more information refer [Custom Entities](#) on page 77.
- **Update Local Copy:** ACM client updates the user's local copy available in the local system. It updates the local custom entities file with information from the server.
- **Filter Settings**

Opens the filter dialog for Aspect Categories and Object Types. For more information refer [Filter Settings](#) on page 84.
- **Scheduler Settings**

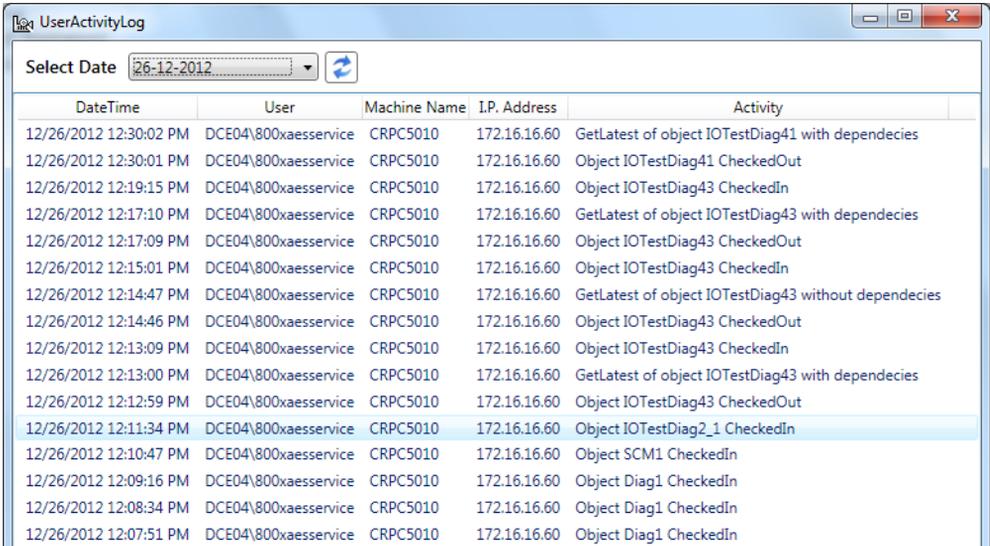
Opens the Scheduler Settings dialog for configuring Scheduler filters. For more information refer [Configuring ACMScheduler Settings](#) on page 90.

## View

The View menu consists of Activity Log.

### ACM Activity Log

Activity log is a separate view to display all the activities performed on respective ACM system, arranged in tabular form. Activities performed by different users are captured and displayed in ACM Activity Log.



The screenshot shows a window titled "UserActivityLog" with a "Select Date" dropdown set to "26-12-2012" and a refresh button. Below is a table with columns: DateTime, User, Machine Name, I.P. Address, and Activity.

DateTime	User	Machine Name	I.P. Address	Activity
12/26/2012 12:30:02 PM	DCE04\800xaesservice	CRPC5010	172.16.16.60	GetLatest of object IOTestDiag41 with dependencies
12/26/2012 12:30:01 PM	DCE04\800xaesservice	CRPC5010	172.16.16.60	Object IOTestDiag41 CheckedOut
12/26/2012 12:19:15 PM	DCE04\800xaesservice	CRPC5010	172.16.16.60	Object IOTestDiag43 CheckedIn
12/26/2012 12:17:10 PM	DCE04\800xaesservice	CRPC5010	172.16.16.60	GetLatest of object IOTestDiag43 with dependencies
12/26/2012 12:17:09 PM	DCE04\800xaesservice	CRPC5010	172.16.16.60	Object IOTestDiag43 CheckedOut
12/26/2012 12:15:01 PM	DCE04\800xaesservice	CRPC5010	172.16.16.60	Object IOTestDiag43 CheckedIn
12/26/2012 12:14:47 PM	DCE04\800xaesservice	CRPC5010	172.16.16.60	GetLatest of object IOTestDiag43 without dependencies
12/26/2012 12:14:46 PM	DCE04\800xaesservice	CRPC5010	172.16.16.60	Object IOTestDiag43 CheckedOut
12/26/2012 12:13:09 PM	DCE04\800xaesservice	CRPC5010	172.16.16.60	Object IOTestDiag43 CheckedIn
12/26/2012 12:13:00 PM	DCE04\800xaesservice	CRPC5010	172.16.16.60	GetLatest of object IOTestDiag43 with dependencies
12/26/2012 12:12:59 PM	DCE04\800xaesservice	CRPC5010	172.16.16.60	Object IOTestDiag43 CheckedOut
12/26/2012 12:11:34 PM	DCE04\800xaesservice	CRPC5010	172.16.16.60	Object IOTestDiag2_1 CheckedIn
12/26/2012 12:10:47 PM	DCE04\800xaesservice	CRPC5010	172.16.16.60	Object SCM1 CheckedIn
12/26/2012 12:09:16 PM	DCE04\800xaesservice	CRPC5010	172.16.16.60	Object Diag1 CheckedIn
12/26/2012 12:08:34 PM	DCE04\800xaesservice	CRPC5010	172.16.16.60	Object Diag1 CheckedIn
12/26/2012 12:07:51 PM	DCE04\800xaesservice	CRPC5010	172.16.16.60	Object Diag1 CheckedIn

Figure 18. User Activity Log



ACM Client will not respond for any of the ACM operations performed if the Activity Log window is kept open.



After creating a system baseline, the activity log is shown only for the date on which the baseline is created. All the previous logs are moved to the baseline.



## Exporting Activity Log to Excel Sheet

It is possible to export the activity log from ACMClient to excel spreadsheet.

To export the activity log to an excel spreadsheet, do the following steps:

1. Open the ACM Client.
2. From the **View** menu, click **ACM Activity Log**.
3. To export the activity log to .xlsx file, click the **Export All** button, see [Figure 19](#). The Save Activity Log dialog appears.

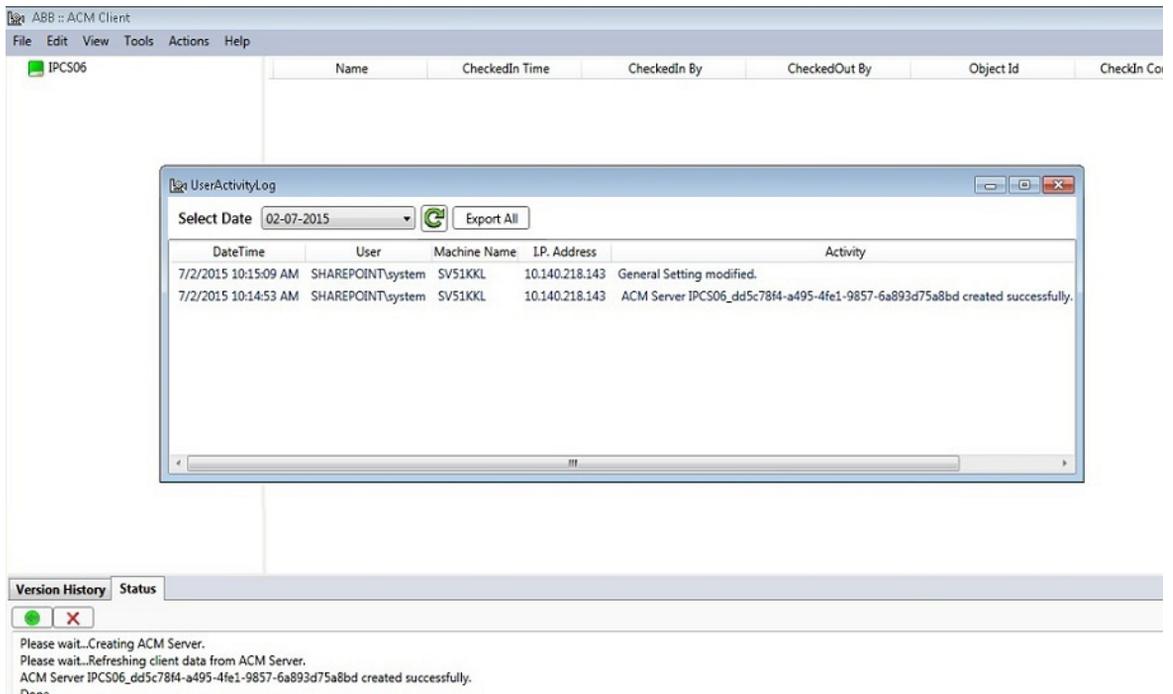


Figure 19. UserActivityLog Dialog

4. Select the *TestACM.xlsx* and click **Save** as shown in [Figure 20](#).

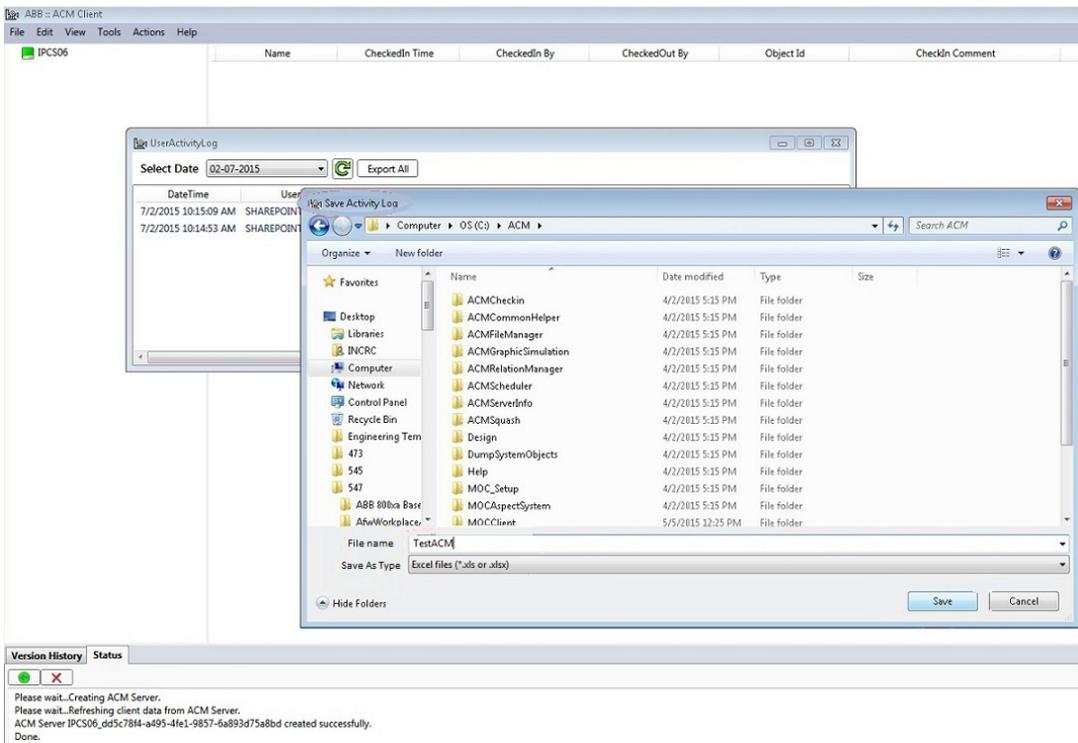


Figure 20. Save Activity Dialog

A message dialog appears on successful export, see [Figure 21](#).

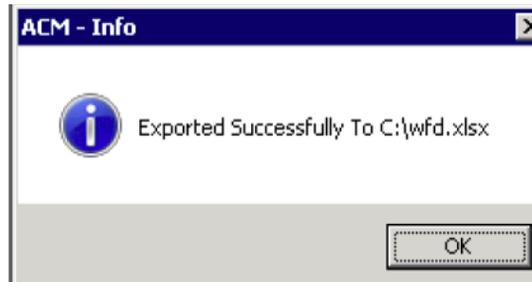


Figure 21. Message Dialog

5. Click **Ok**.

---

#### Application Change Management 5.1.4-2 Functionality

##### **ACM Server Info**

This displays the database size of the SharePoint Site on ACM Server. It also displays the number of *.afw* files checked in to ACM Server.

This enables the user to track database usage and take corrective actions.

To check the ACM Server database usage, do the following:

1. Launch ACMClient.

2. Click **View** and then select **ACM Server Info** as shown in [Figure 22](#).

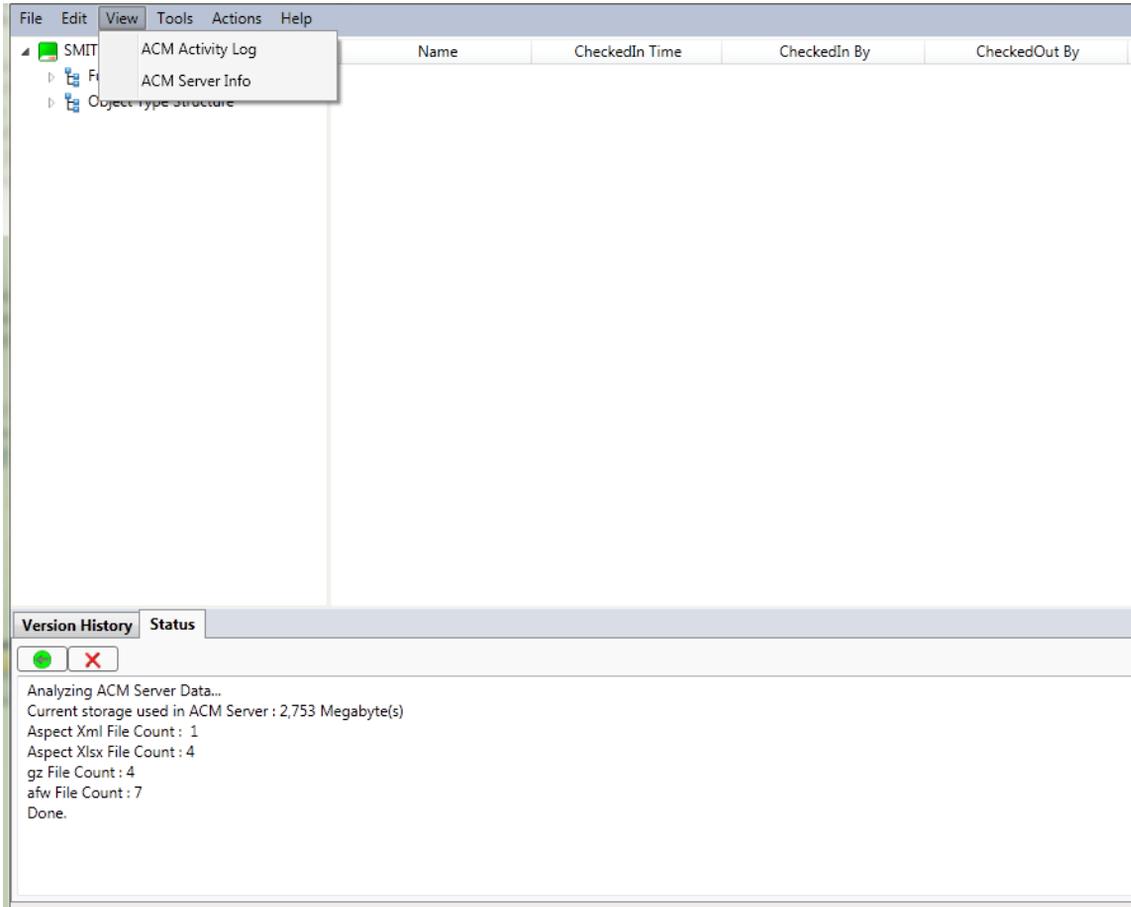


Figure 22. ACMClient

The data is displayed in status view as shown in [Figure 22](#).



*xml*, *xlsx* and *gz* file count is displayed only if XML/XLS support is enabled.



Current storage used in ACM Server requires ACM owner role.

To do this: Change the logged in user from **Action> Change ACM Server**

---

## Tools

Tools menu consists of:

- **Select Environment**

Selecting the environment of the system in ACM server, to select Engineering or Production Environment.

- **User Configuration**

Opens ACM Server User Configuration dialog. Users can be added as member/removed from the members, in the ACM server. Refer [To Give User Access](#) on page 99 for more information.

- **Select ACM System**

Selects the system available in the ACM server.

## Actions

The Actions menu consists of:

- **Create ACM System**

Creates a new ACM system for the 800xA system (aspect system).



Create ACM System is one time activity. one system (database) can be created for each aspect system in ACM server.

- **Baseline**

Opens a submenu with following options:

- **Create BaseLine:** Creating a baseline of the system in ACM server. It is used to Baseline changes in order to package all changes from certain milestone.
- **Load BaseLine:** Load baseline is used to load available baseline to the ACM client application.

For more information on baseline refer [Baseline](#) on page 67.

- **Change ACM Server**

- This can be used to switch the user within the same ACM Server based on the requirement.
- This can be used to switch to a different ACM Server by providing the name and credentials of the intended ACM server in the respective fields.



For connecting an ACM server which is configured in different domain controller, specified workflow has to be followed, refer [Appendix E, Configuration of ACM Service in Different Domain Controller](#).

**Help**

Help menu consists of:

- **Help topics**  
Opens a context sensitive help page for the current view.
- **About**  
Displays the latest version number of ACM.

**Plant Explorer Context Menu**

Using context menu in the Plant Explorer, users can perform check in, check out, get latest and compare operations. The ACM context menu entry appears when the selected object belongs to an Entity or a Custom Entity.

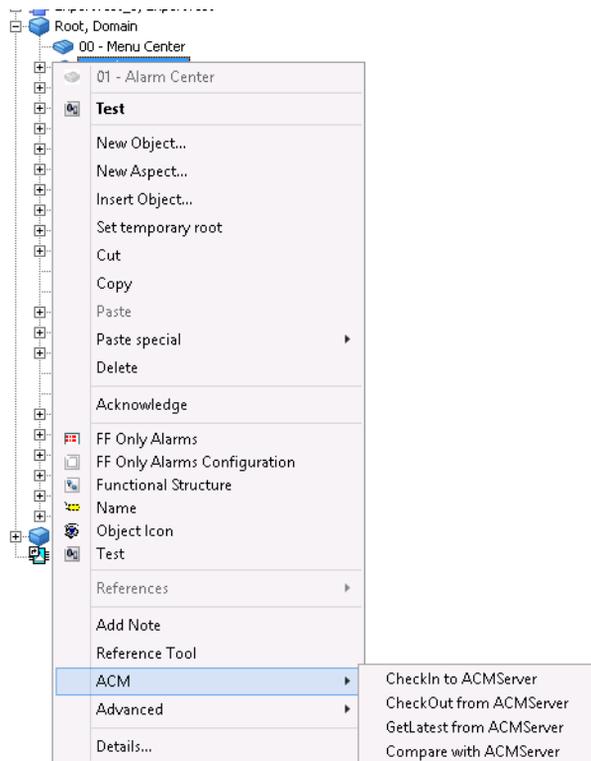


Figure 23. Context Menu in Plant Explorer

- **CheckIn to ACMServer** - Check in with dependencies from the 800xA system to the ACM server.
- **CheckOut from ACMServer**- Check out marks the selected entity as reserved in ACM server.
- **GetLatest from ACMServer**- Fetches the latest file version stored on the ACM server.
- **Compare with ACMServer**- Compare selected version from ACM server to the one in the system.



Version of an object/entity may not be created successfully in ACM server if check in operation is performed at the root level of Control Structure or Functional Structure. Therefore, user is advised to split such operations into multiple check in operations.



User with administrative privileges in ACM server can perform the following:

- Create ACM System operation.
- Create structures other than the default structures (control structure, functional structure, object type structure and library structure) in ACM Server.

---

## Section 3 Configuration

### Check In an Object

Check in is done to save the snapshots of the objects such as projects, application, controllers and libraries and custom entities to the ACM server. After check in, the objects are visible in object view of the ACM client.



First time check in is done only from Plant Explorer context menu.



Check in at aspect level is not supported, so it must be performed only at the object level.



It is advisable to check the memory availability of the ACM database before checking in large projects. Refer [To Check Database Size in ACM Server](#) for more information.

### To Check In an Object

1. Right-click on the required entity in object window pane of ACM client and click **CheckIn to ACMServer**.



If the Engineering solutions are transferred between two 800xA Systems, and if the target system does not contain same structure, then users have to take care of parent object (define parent object as [Custom Entities](#)).



If Function diagrams, created using customized function diagram types are transferred between two 800xA systems, these types should be transferred before the function diagrams.

2. Following confirmation message is displayed:

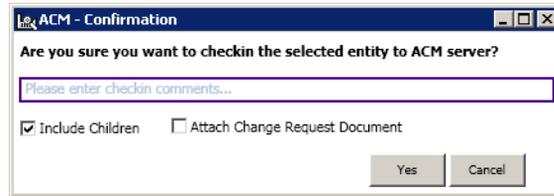


Figure 24. Check In Confirmation Message

3. Enter the check in comments (optional) in confirmation edit message box. If no comments are entered, ACM Client assigns a unique number based on the time stamp as comment. Select **Include Children** check box to include children.



For **Attach Change Request Document** option refer to [To Check In an Object](#) on page 51.

4. Click **Yes** to check in or, click **Cancel** to cancel the check in.
5. If check in is successful, a message Check-in done successfully is displayed in [Status View](#) pane.



Checked in application types will be displayed under the application folder of the control project.



Simultaneous check in operations are not recommended.



If the references of a control diagram are used in a graphic display, then check in of graphic display does not include the dependent diagrams. Check in the control diagram separately.



Perform the following to check in and GetLatest for the FF Libraries from the source system to target system:

1. Check in the FF Libraries from the source system.
2. Check in the HSE Subnet from source system.
3. Perform GetLatest for FF Libraries and run the FF upload.
4. Perform GetLatest of HSE Subnet.

For more information on FF Libraries refer *System 800xA Device Management, FOUNDATION Fieldbus Configuration (3BDD012902\*)*.

[Application Change Management 5.1.4-2 Functionality](#)

## Check In with Change Request Document

It is possible to check in an object/entity along with the Change Request or work order document. This can be used to track and link the configuration changes to the respective document that has introduced the particular changes.

1. Right-click the required entity in object window pane of ACM Client and click **CheckIn to ACMServer**.
2. The confirmation message window appears. Select **Attach Change Request Document** as shown in [Figure 25](#).

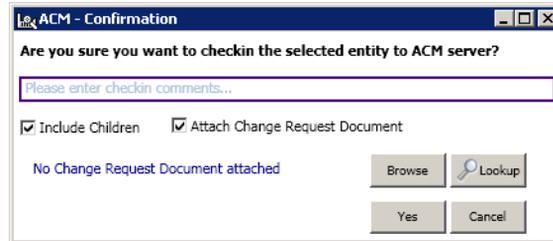


Figure 25. Check In Confirmation Message



The following options appear, [Figure 25](#):

**Browse:** To attach a new change request document.

**Lookup:** To link the object, which is being checked in to an existing change request document available in the ACM server.

3. Click **Lookup**. The **Lookup in ACM Server** dialog appears which displays all the documents available in ACM Server, [Figure 26](#).

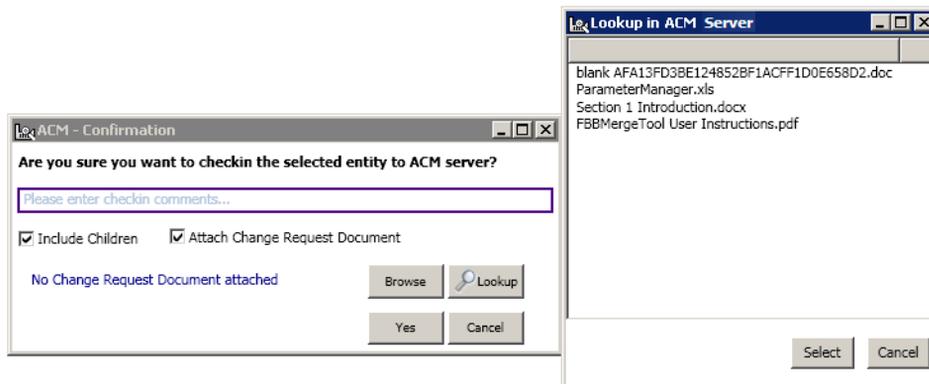


Figure 26. Lookup in Sharepoint

4. Select the required document from **Lookup in ACM Server** dialog and click **Yes** on the confirmation dialog to initiate the check in operation. The main

window is displayed and an icon under the **Change Request** column is updated against the checked in object as shown in [Figure 27](#).



Ensure that the change request document that is being checked in, is saved and closed before initiating the check in operation.

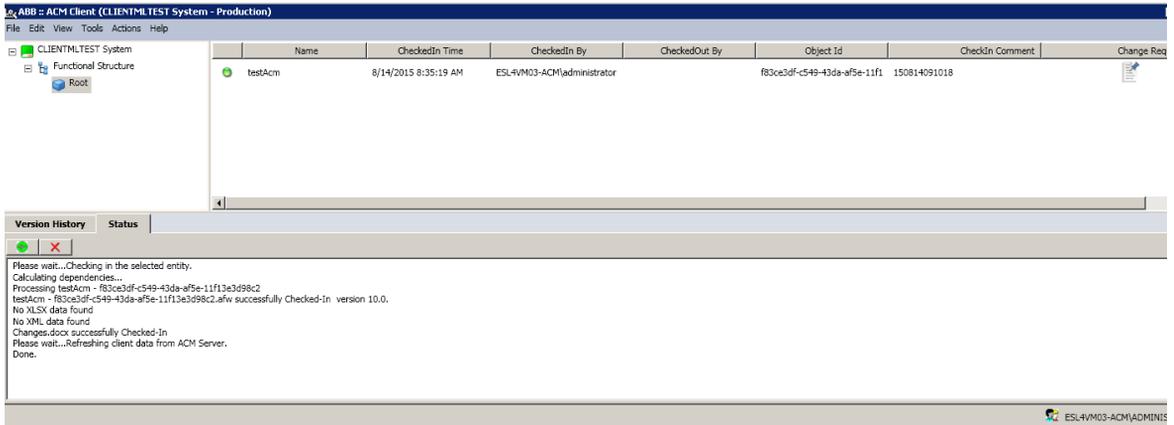


Figure 27. ACM Client Main Window

5. Double-click the icon to open the checked in change request document.,



To view the historical version, right-click the object and select **Show Version History**, [Figure 28](#).

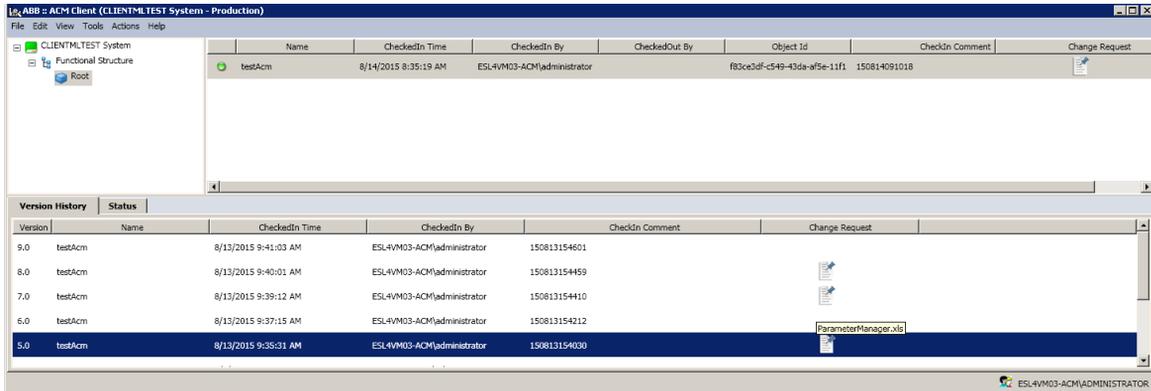


Figure 28. ACM Client Version History Window

Application Change Management 5.1.4-1/1A Functionality

## Difference Check In

When performing multiple check in operations on an object, newer version of that object is checked in only if there is difference with respect to the earlier created version in the ACM server. Difference check is performed before every check in.

### For example:

If first version of an object named **Obj1** is checked in to the ACM server and user tries to create a second version of **Obj1** directly without any modification, then check in does not create a new version as there is no difference with respect to the first version. The operation completes by displaying a message in the Status View stating “no afw data found”.

Similarly, When the **Obj1** is modified without any modifications in the dependent objects (**libraries/application types**), check in of **Obj1** does not create a new version of dependent objects but creates new version of **Obj1**.



Check in of an object with special characters in it's name may not work.

---

[Application Change Management 5.1.4-1/1A Functionality](#)

## Check In Support for Aspects Associated with an Object

Using [General Settings](#) on page 75 of the ACM client, xml is checked in.

ACM check in feature has been extended to check in of aspects in .xml and .xlsx format. For Graphic aspects, .xlsx files are generated and for aspects that support IAfwBulkdata, .xml data will be extracted.

For Graphic aspects, only .xlsx files are extracted and checked in to the server.

For the aspects categories listed below, .xml files are extracted and uploaded to the server:

- Trend Display
- Log Configuration
- FF Management aspect of Foundation Fieldbus
- Asset Optimization
- Control Connection aspects
- Trend Templates and Log Templates

The xml and xlsx data is stored in XMLData folder in the ACM server at the following location:

*http://<ACMServerURL>/<800xASystem name>/XMLData.*



In [General Settings](#) on page 75 if include .xml data is **No**, then only .afw file is checked in to the ACM server.



Opening a checked in file located in the ACM server is possible only after the file is saved in the local drive of the 800xA system.

### Check In of Asset Optimization (AO) Aspects

If check in is initiated for objects having AO aspects, all the aspects are subscribed with the live values, and then the object is checked in to ACM server along with the .xml file of the corresponding AO aspect. Every time check in is done for objects having AO aspect, two files .afw and .xml files are created. The .xml file lists the properties of aspects and .afw file lists the properties of objects. If an object has multiple AO aspects, separate .xml file is created for each aspect.



Before checking in the object, users have to define an object having AO aspects as custom entity if it is not a default entity. For more information, refer to [Custom Entities](#) on page 77.



A file/object that is checked in as a dependency to some other object in the ACM Server will not get deleted on performing delete action.

### Check In of Log Templates and Trend Templates

If check in is initiated for objects having History Log and Trend Templates aspect, then the objects are checked in to ACM server along with the .xml file for the corresponding template aspect. Every time, a check in is performed for such objects, two files that is .afw and .xml files are created. The .xml file lists the properties of aspects, and the .afw file lists the properties of objects. On performing a subsequent check in of these templates without any modification, no .xml or .afw files will get checked in, and Status View pane displays “No xml data found and/or No afw data found” etc. in status messages.



Before checking in the object, users have to define an object having Log Templates and Trend Templates aspects as custom entity if it is not a default entity. For more information, refer to [Custom Entities](#) on page 77.

### Check In of Foundation Fieldbus (FF) Management Aspects

FF Management aspects are associated with Foundation fieldbus configuration. All the objects underneath an HSE objects have FF management aspect to hold the configuration information. When an HSE object or any of its child is checked in to ACMServer, ACM extracts the FF Management aspect information in .xml format and checks in to ACM server.

### Check In of Log Configuration and Trend Display Aspects

If check in is done for an object having Log Configuration and Trend Display aspects, then the object is checked in to ACM server along with an .xml file. Every time a check in is done for Log Configuration and Trend Display aspect, two files .afw and .xml files are created. The .xml file list the properties of aspects, and .afw file lists the properties of objects.



Before checking in the object, users have to define an object having Log Configuration and Trend Display aspects as Custom Entity.

### Check In of PG2 Graphic Aspects

If checkin is performed on an object having PG2 Graphic Display aspect, then the object is checked in along with the properties of PG2 graphic display aspect as a separate .xlsx file. If the graphic display includes any graphic element, the same also

gets extracted as a separate .xlsx file. This includes creation of .xlsx file along with the live values of its properties/elements.

The xml and xlsx data is stored in XMLData folder in the ACM server at the following location:

*http://<ACMServerURL>\<800xA System name>\XMLData.*

Check in for *an xlsx* is done using [General Settings](#) on page 75 main menu.



When check in is done, a separate utility in the backend extracts the graphic data and checks it in to the ACM server.



If an object has multiple aspects of category PG2, separate files get created for each aspect.

---

Application Change Management 5.1.4-1/1A Functionality

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## Check In Support for OPC Control Connection

Control Connection aspects can also be checked in to the ACM server. When a Control connection aspect is checked in to the ACM server a .xml file gets created for the aspect and .afw file is created for the object.

If check in is initiated for objects having AO aspects, all the aspects are subscribed with the live values, and then the object is checked in to ACM server along with the .xml file of the corresponding AO aspect.

## Check Out and Edit Objects

To edit objects in 800xA system, user has to check them out. When user checks out an object, ACM marks that object as reserved in ACM server so that other users can be intimidated. Other users can only view the object, but they cannot create any new version of the object until it is checked in or an undo check out is performed. If the user checks out an object that is linked to multiple locations in the ACM Server, the object is reserved in all the locations.

### To Check Out an Object

1. Right-click on the required entity in object window pane of ACM client and click **CheckOut from ACM Server**. Following ACM CheckOut dialog is displayed:.

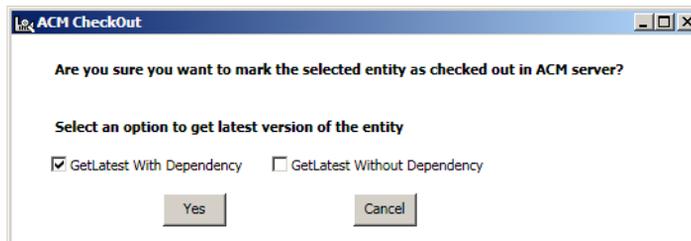


Figure 29. ACM CheckOut

2. Select an option to get latest version of the entity.
  - a. To perform get latest with dependency: Select the **GetLatest With Dependency** check box.
  - b. To perform get latest without dependency: Select the **GetLatest Without Dependency** check box

By default GetLatest With Dependency is selected.

3. Click **Yes** to acknowledge and proceed with check out. Or, click **Cancel** to close the dialog box without check out.

A Message Selected object restored successfully is displayed in the [Status View](#).



Get latest of checked out objects should be done from ACM Client application.

When check out is performed, the object is locked in the ACM Server and can be modified in Plant Explorer.



ACM Client may not function as expected if the database of Microsoft SharePoint Foundation 2010 SP2 reaches a maximum limit of 4GB.

### Undo Check Out of an Object

Undo check out unlock's the objects and discards the changes made to the object. The ACM server retains the last version of the object as the current version.

#### To Undo Check Out

1. Select the checked out object to which undo check out is to be done.
2. Right-click on the required entity in object pane and click **Undo CheckOut**.

A dialog Are you sure you want to Undo CheckOut the selected Entity? is displayed.

3. Click **OK** to undo the check out or, click **Cancel** to cancel undo check out.
- 

## Compare with System

Compare with system, compares different versions of an object present in ACM server to the one present in 800xA system. User can compare any of the older versions with the one present in aspect system. Comparing with the system is done from Engineering Workplace or from ACM Client.



Compare results may not be proper if the object is moved from its original location in 800xA system.

**To Compare with a System:**

1. Right-click on the required entity in an object window of ACM client and click **Compare with System**.
2. A **Import/ Export** window is displayed.

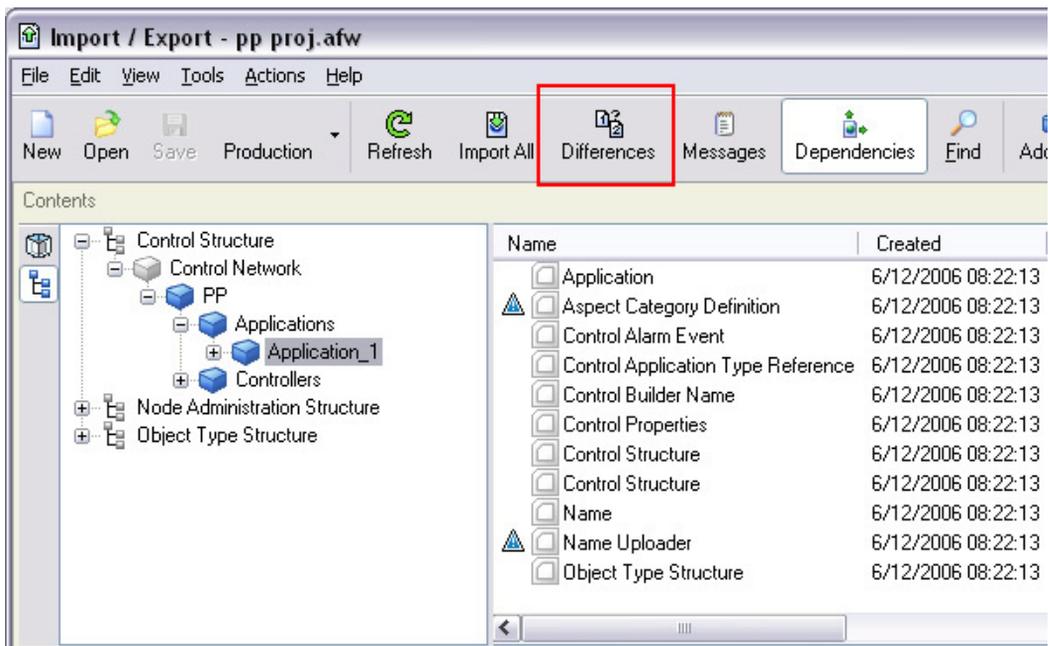


Figure 30. Import Export View

3. Launch **Difference** dialog box from the **View** Menu or the **Differences** button in the toolbar.
4. From **Show Differences** dialog, select **System and Environment** from drop-down list. Click **Finish**.

Following **Differences between** window is displayed:

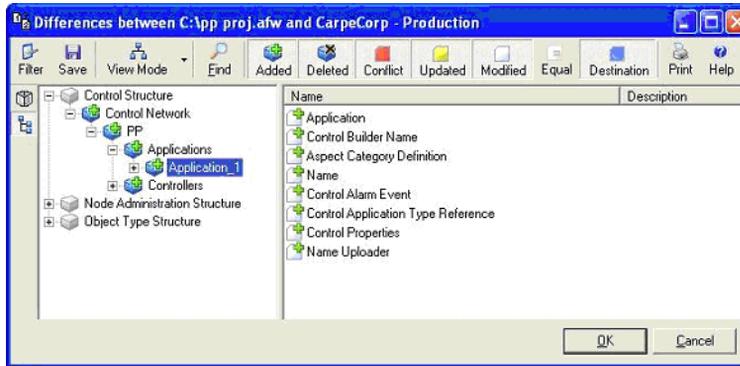


Figure 31. Difference Between

### Detailed Difference Report

Difference report provides the differences between object or entities in the 800xA system with a particular version of the file in the ACM server. If any difference exist then the difference report provides a report indicating the additions, deletions, or modifications. For more details, refer to the *System 800xA, Maintenance (3BSE046784\*)*.



Compare with System can also be performed from Version History pane.

## GetLatest

Get latest imports the selected file or object from ACM server to connected environment of System 800xA. It is used to import the latest version or a historical version of an afw file to System 800xA. The GetLatest can be performed either from ACM Client or Workplace application.

### To Perform GetLatest (from ACM Client):

1. Right-click on the required entity in object view pane of ACM client and select **GetLatest**.
2. Click on **Without dependencies** or **With dependencies**. Following warning message is displayed:

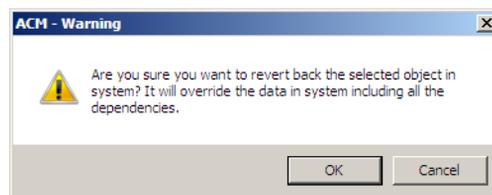


Figure 32. ACM Warning

-  GetLatest of an Application having Project Constants, should always performed with dependencies. This is to ensure that the Project Constants are imported to 800xA system.
- 3. Click OK to continue to perform GetLatest or Cancel to abort GetLatest.
  - If GetLatest is successful, a message is displayed in the [Status View](#).
-  If a Function Diagram is checked in with customized template, then GetLatest should be performed on customized template and then on other Function Diagrams.
-  GetLatest of a library must be performed only at the library level in Object Type Structure or Library Structure.
-  For GetLatest of a Custom Entity, it is advisable to open the object *.afw file* in Import/Export tool and compare it. Refer [Compare with System](#).

## Versions

A version is a snapshot of an object at a particular time the object was checked in to the ACM server. A new version is created each time the object is checked in. Versions allows the user to keep track of the changes to an object. New version gives the object a higher version number.

### To Display Versions of the Object:

1. Select any object in the Object View pane.
2. Right-click on the required entity and click **Show Version History**.

All the versions are listed in the **Version History** pane of the ACM Client. Double-clicking on any version opens the Import/Export tool to show the contents of the *.afw* file.

### To Revert to a Particular Version:

1. In the Version History pane of ACM Client select the version that need to be reverted.
2. Right-click on the version, select **Revert to this version** and do one of these:
  - To revert to the version without dependencies, select **Without dependencies**.
  - To revert to the version with dependencies, select **With dependencies**.



**Revert to this version** imports and modifies only those files which are included in a particular version.

## Delete a Version/s from ACM Server

It is possible to delete a particular version/all versions of an object/entity from ACM server.

The delete operation is allowed only to the member of Owner group in ACM Client. For more information on user configuration and permissions refer [Security in ACM Server](#) on page 97.

Perform the following to delete version/s of an object/entity:

1. Open **ACM Client**.
2. Select a object/entity from the Object View pane, right-click on it and select **Delete** (Figure 33).

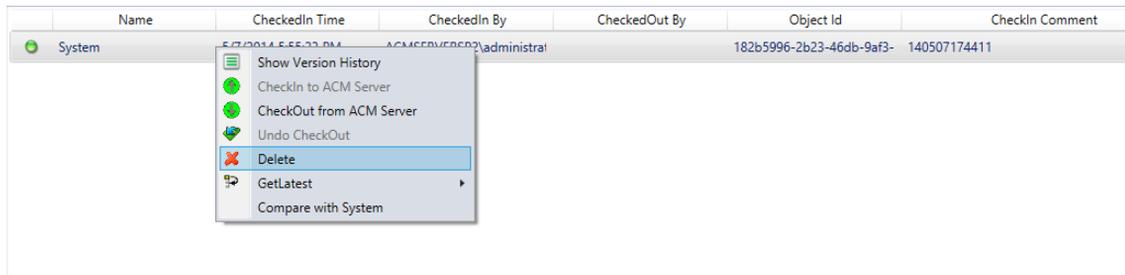


Figure 33. Version History of an Object/Entity

3. On the confirm delete message, click **Yes** to delete the object, or **No** to cancel the operation.

The delete operation deletes all the versions of the object/s from ACM server.

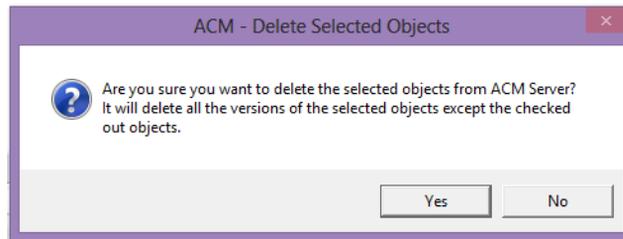


Figure 34. Deleting the Object

### Delete the Versions from Version History Pane

Perform the following to delete the versions from Version History pane:

1. Select the required version from the Version History pane.
2. Right-click on the version and select **Delete this Version**.

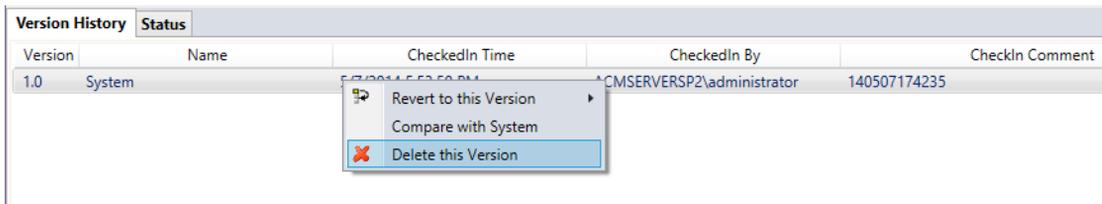


Figure 35. Deleting a Version



Multiple versions of an object/entity can be deleted at the same time.

3. On the confirm delete message, click **Yes** to delete the version/s or else **No**.

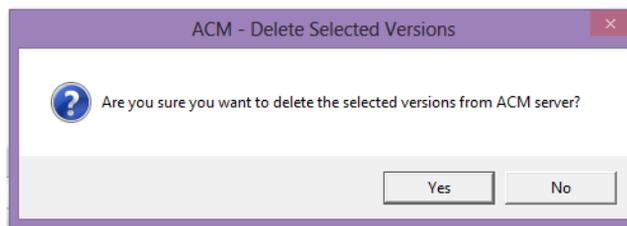


Figure 36. Confirm Delete

## Baseline

Baseline is the process of creating the snapshot of the complete system in the ACM server which cannot be modified in future. It is done to baseline the changes in order to package all changes from certain milestones. Once baseline is done, it can be used to revert back by loading the required baseline and performing GetLatest of the object/entity to the aspect system.



After baselining an ACM system, all the historical versions of an entity or a custom entity will be archived including the activity log, while retaining only the latest version in the system. This is applicable from 5.1.4-1 release onwards.



User **Activity Log** for a previous date is not available after creating a baseline.



Creating a baseline is allowed only to an Admin user. The Admin user has to ensure that no further modifications or ACM operations are performed during baseline creation. This is aligned with System 800xA behavior where it is assumed that configuration changes are not performed while taking the system backup.

### Create a Baseline:

To create a Baseline, do the following steps:

1. In ACM Client, select the system that needs to be baselined from the **Object View** pane.
2. Select **Actions> Baseline> Create BaseLine**.
3. A dialog It is advisable to check-in all the objects/entities before creating the baseline. Do you want to continue? is displayed, click **Yes** to continue with the baseline creation or, click **No** to cancel creation of baseline.
4. An ACM-Baseline dialog appears on click of **Yes** as shown in [Figure 37](#).

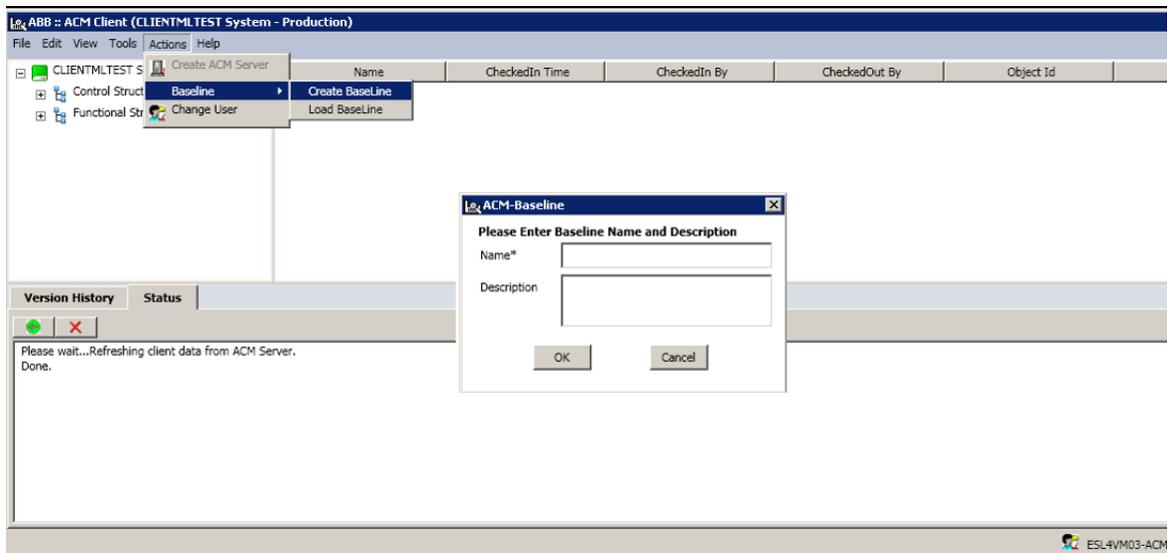


Figure 37. ACM Baseline Dialog

5. In the **Name** field, enter the user name.



Baseline name must not contain vertical bar characters. It is limited to 100 characters.

6. In the **Description** field, enter a brief description.



Baseline description is limited to 150 characters.

**Name** and **Description** fields are available from 5.1.4-2 release.

7. Click **OK**.

8. If Baseline creation is successful, a message `Baseline created successfully` is displayed, click **OK** to acknowledge this message.



**Step 4** to **Step 7** are applicable from 5.1.4-2 release onwards.

A baseline is created in ACM server with a name “Baseline\_SystemName”, where the SystemName refers to ACM system name and can be verified in ACM server using web browser. However, post 5.1.4-2 release, baseline will have a user given name and description along with “Baseline\_SystemName”.

### Load a Baseline

To load a Baseline, do the following steps:



Load baseline loads the selected baseline in **read only** mode.

1. From the **Actions** menu, click **Baseline**.
2. Click **Load Baseline**. A Select Baseline dialog appears as shown in [Figure 38](#). It lists all the available Baselines with the following details:
  - Name: user given name for baseline
  - Description: user given description for Baseline

- Baseline System Name: ACM generated name for Baseline.

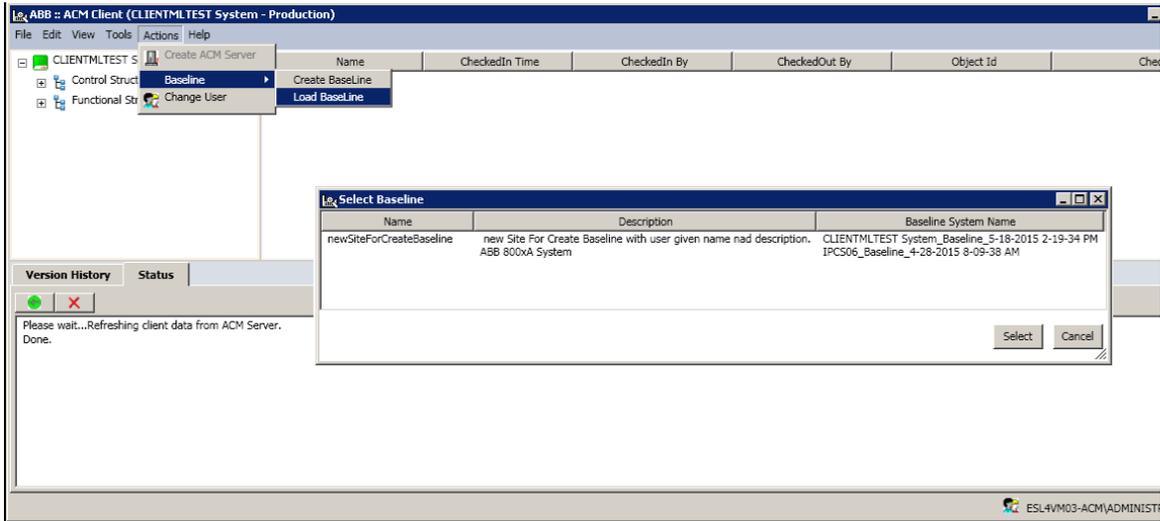


Figure 38. Select Baseline Dialog

### 3. Click **Select**.

The selected Baseline is loaded.



All the baselines created before updating to 5.1.4-2 will have the **Name** field empty whereas the **Description** field has *ABB 800xA System* by default.



During first launch of ACM client, Load baseline is not possible before creating or loading the ACM server.

All the baselines created before updating to 5.1.4-2 will have the **Name** field empty whereas the **Description** field has *ABB 800xA System* by default.

### Delete a Baseline

To delete a Baseline, do the following steps:

1. Log on to the ACM server on the web browser by entering a appropriate URL.  
For example, <http://esl4vm03>

2. Click **All Site Content**.

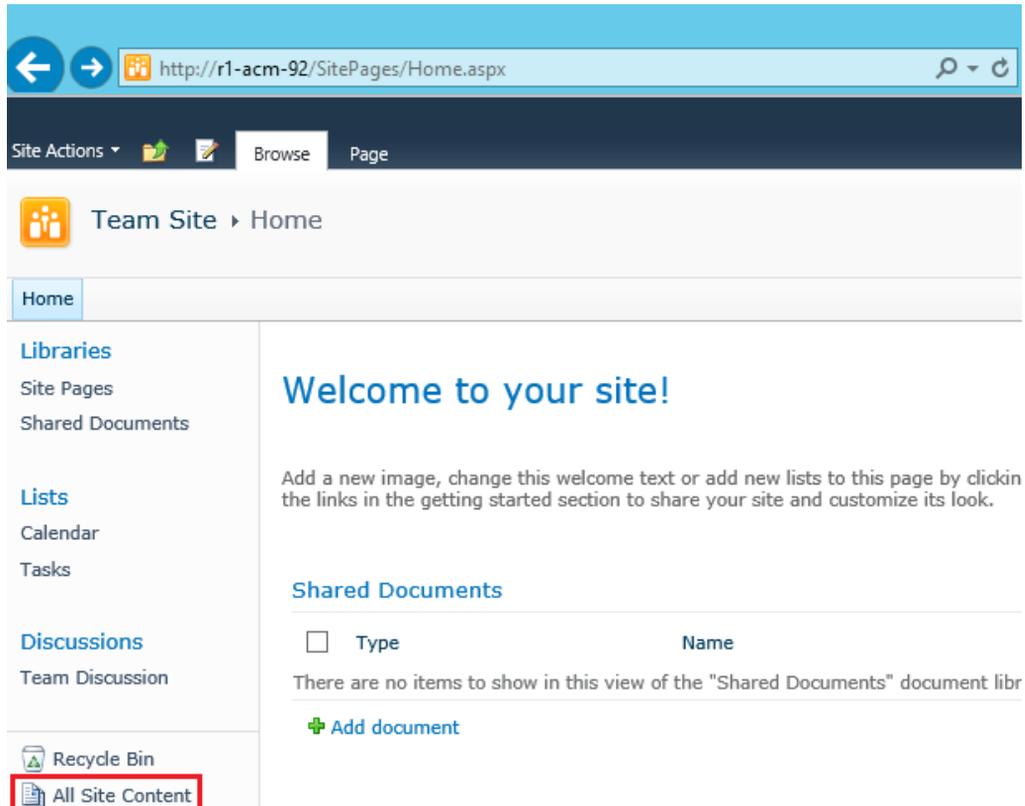


Figure 39. SharePoint Options

3. In **Sites and Workspaces**, click on the baseline that you want to delete.

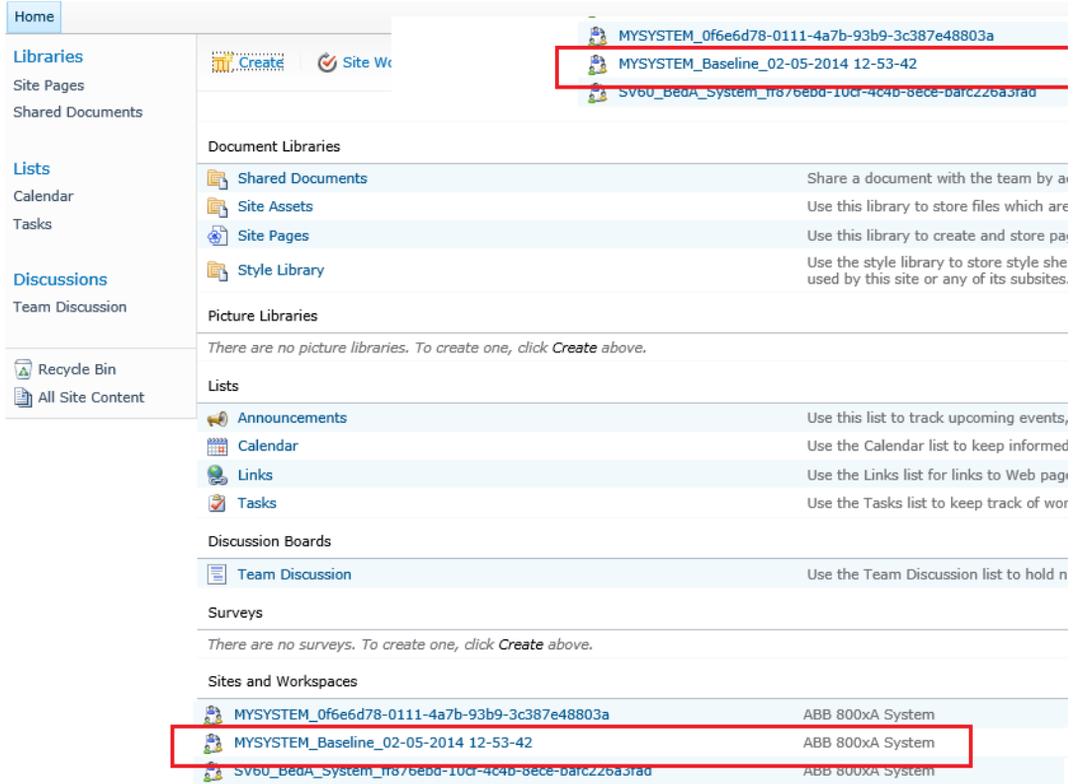


Figure 40. Selecting a Baseline

4. Click **Site Action** and select **Site Settings**.

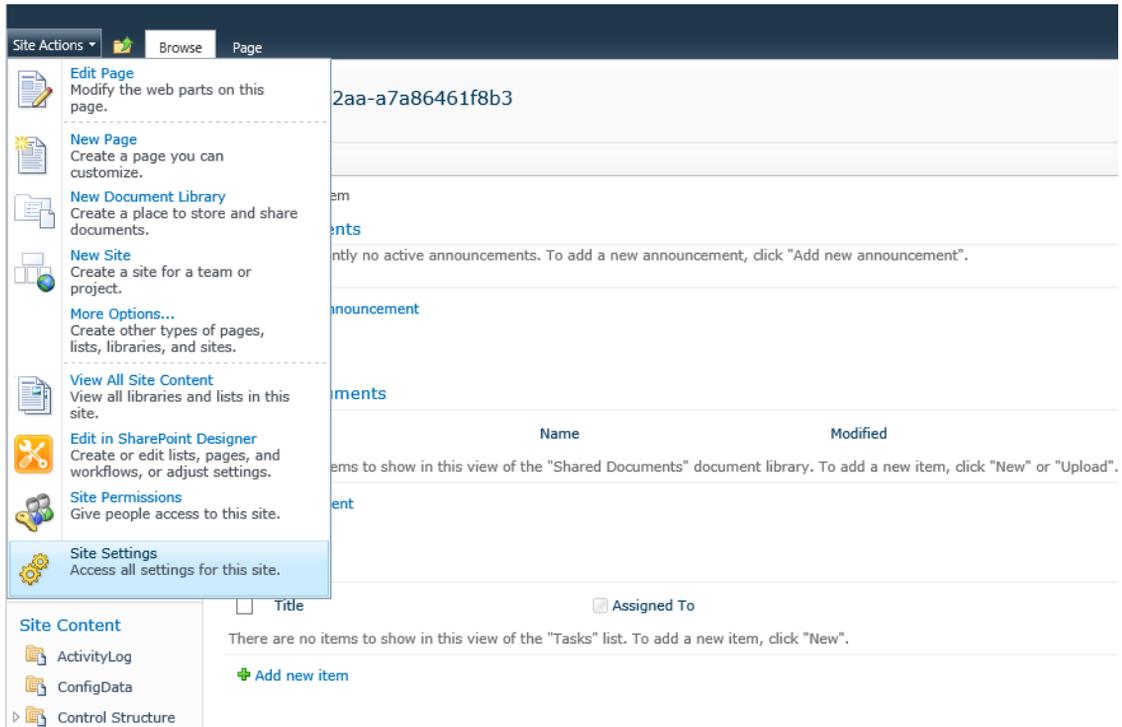


Figure 41. Site Settings Option

5. Under the **Site Actions**, click **Delete this site**.

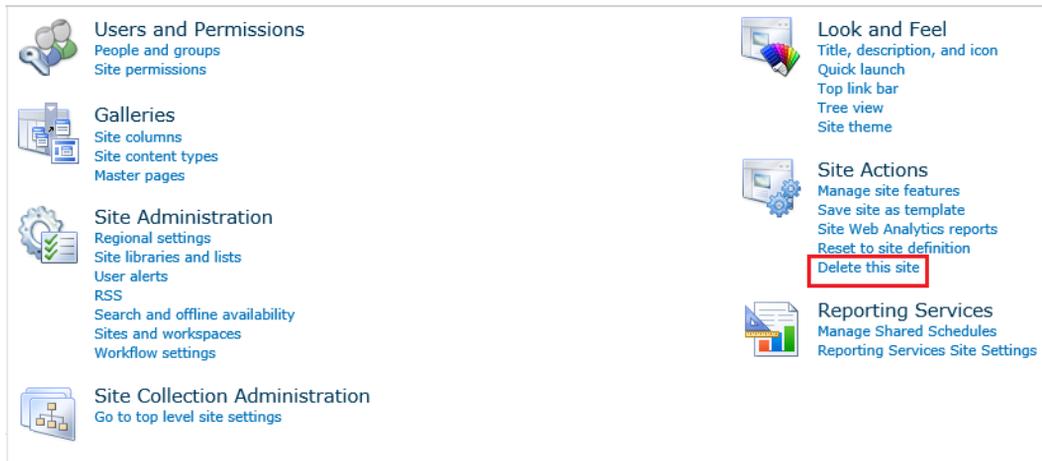


Figure 42. Option for Deleting the Site

6. Click **Delete** to delete the site, else click **Cancel** to end the operation.
7. Click **OK** on the confirmation message. The deletion of the baseline is complete and a confirmation message is displayed (Figure 44).

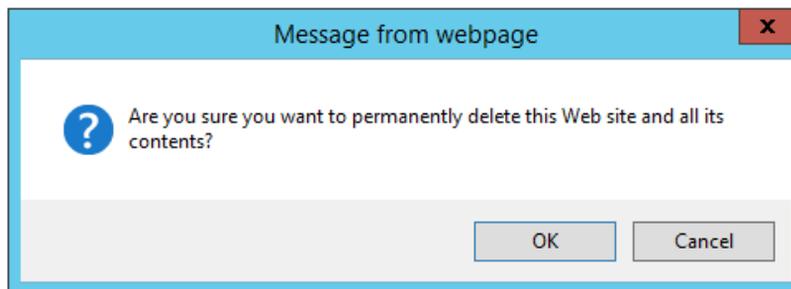


Figure 43. Confirming the Delete Action

8. Click Go back to site.

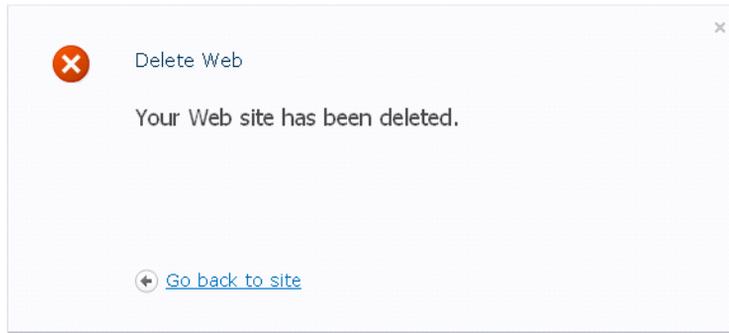


Figure 44. Go Back to Site Message

9. To delete more baselines repeat [Step 2](#) through [Step 8](#).

Application Change Management 5.1.4-1/1A Functionality

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## General Settings

General Settings are used to enable the check in support for aspects and .xml compression. Also it is used to configure maximum number of versions in ACM server.



If General Settings are not required, click **Close**. This ensures that there is no limit on the maximum number of versions. Also, check in of separate .xml and .xlsx files for supported aspects is disabled.

The General Settings dialog consists of the following options:

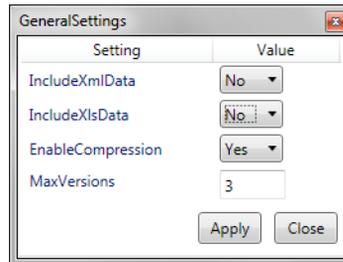


Figure 45. General Settings

- IncludeXmlData

If Yes, then check in includes aspect data in .xml format. For more information, refer to [Check In Support for Aspects Associated with an Object](#) on page 55

- IncludeXlsData

If Yes, then check in includes the aspect data .xls format. For more information, refer to [Check In of PG2 Graphic Aspects](#) on page 57

- EnableCompression

If Yes, xml data is compressed before saving it in to the ACM server.

- MaxVersion

It is the maximum number of versions for .afw, .xml and .xls files in ACM server.

### MaxVersions

MaxVersions is indicated by a numerical value and is set while creating ACM system in ACM Server. It is a one time setting and cannot be changed when working with ACM client.

Follow the procedure to set a value for MaxVersion command while setting up ACM system:

1. During ACM system (creation) setup, **General Settings** dialog box is displayed.

2. For the **MaxVersion** enter a value.
3. Click **OK**.

The number of file versions stored in the ACM server will be limited to the value set in MaxVersions. If many versions of the files are created in the ACM Server and the file version reaches the maximum versions set, then the oldest version of the file gets deleted automatically.



Setting MaxVersions to **0** removes the limitation on the number of file versions.

---

## Custom Entities

### Configure

Entities like projects, applications, controllers and libraries, and Control Networks can be exported to the ACM server without any special configuration. Checking in objects which are not part of an entity to the ACM server need to be defined in ACM as Custom Entities.

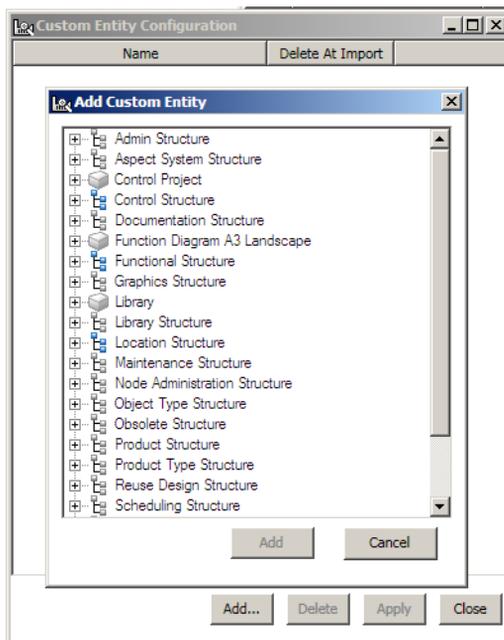


Figure 46. Custom Entity Configuration

For each object that is defined as a Custom Entity there are number of properties that can be defined.

- Include Children

All the objects located below the object describing the Custom Entity are included in the Custom Entity.

- Include Dependencies

All dependencies are included in the Custom Entity.

- Delete at import

It is not recommended to use this option.



Objects are defined as Custom Entities by adding them to a list from the ACM Client. This only has to be set up once and then the object is available for being exported to the ACM server. The order in the list defines the import order when imported to a system.



If an object is defined as a custom entity and is renamed later, the user must add the newly named object to the custom entity again.

Entities like projects, applications, controllers and libraries, and Control Networks can be exported to the ACM server without any special configuration.

The objects that are not entities can be defined as Custom Entities by adding them to a list from the ACM Client. This only has to be set up once and then the object is available for being exported to the ACM server. The order in the list defines the import order when imported to a system.

### To Add a Custom Entity

Perform the following to add a custom entity:

1. Navigate to **Edit > Custom Entity > Configure**.

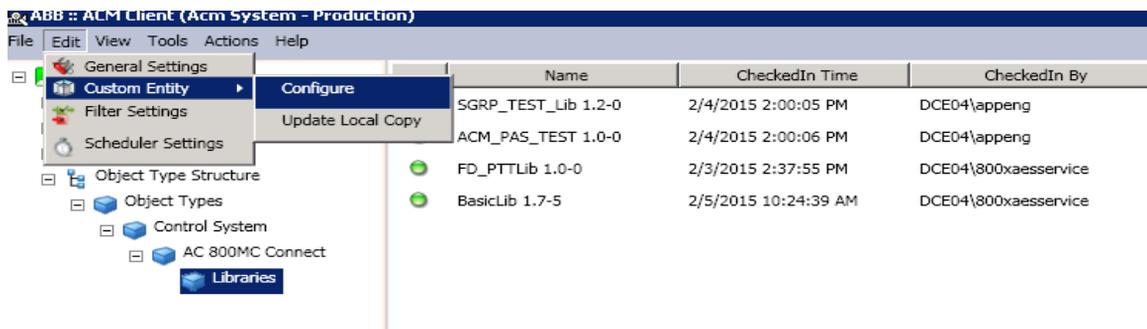
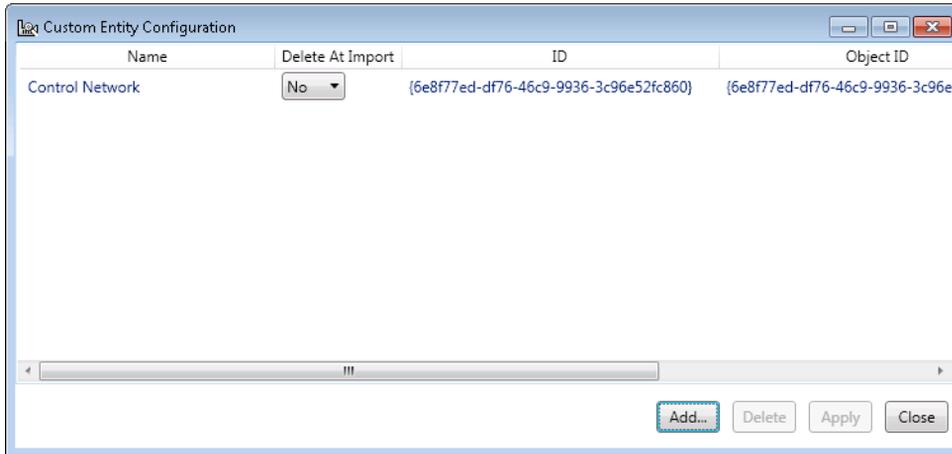


Figure 47. Custom Entity Configure Window

2. Click **Add** in the **Custom Entity Configuration** dialog box.



*Figure 48. Add Dialog Box*

3. Select the required object from **Add Custom Entity** dialog box. See [Figure 49](#).

4. Click **Add**.

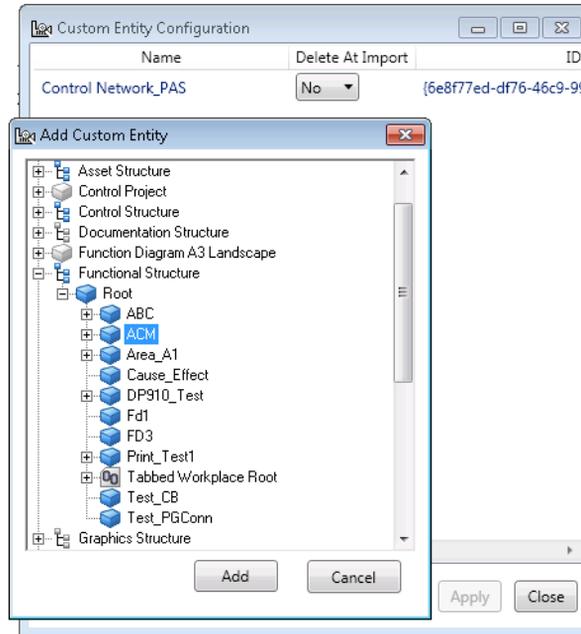


Figure 49. Adding Custom Entity

The object is added as a Custom Entity which is displayed in the **Custom Entity Configuration** dialog box.

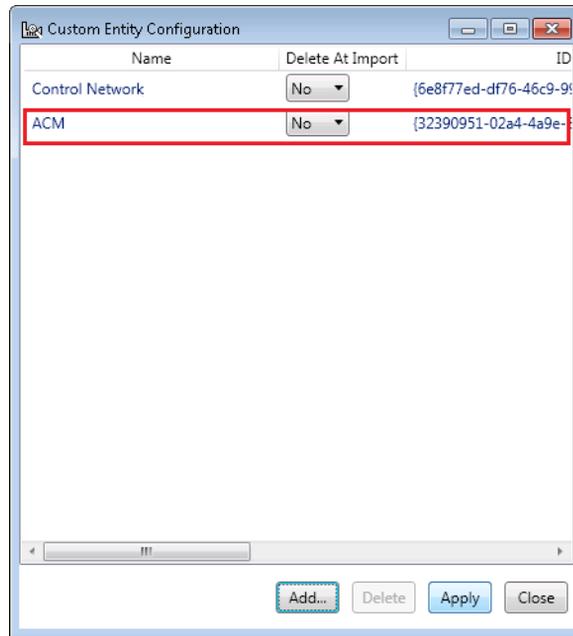
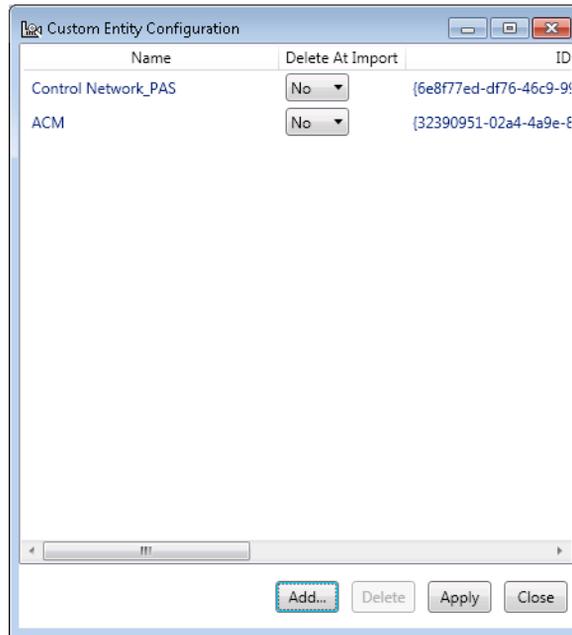


Figure 50. Custom Entity Added

5. Click **Apply** on **Custom Entity Configuration** dialog box.



*Figure 51. Applying the Custom Entity Settings*

The object is defined as a Custom Entity in ACM and will have ACM context menu to perform ACM operations.

For each object that is defined as a Custom Entity there is a property that can be defined.

- Delete at import

It is not recommended to set this option to **Yes**.

## Filter Settings

### Aspect Category Filter

If the user does not want to overwrite the specific Aspect Categories (e.g. Operator Note) from the ACM server to the Engineering System, it can be configured using the **Aspect Category Filter**.

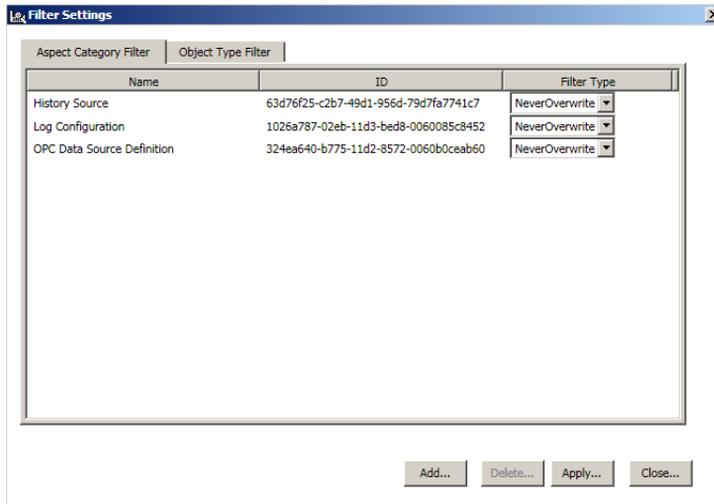


Figure 52. Aspect Category Filter

### To Set Aspect Category Filter:

1. From the ACM client menu select **Edit>Filter Settings**.
2. Click **Aspect Category Filter** tab
3. Add the required category to the filter and set one of the following properties:
  - AlwaysFilterOut.  
Do not import aspects of a specified category.
  - NeverOverwrite.  
Never overwrite aspects of a specific category.

- OverwriteOlderAspects.

Overwrite aspects of a specific category if current modification date is older than the date in the destination.

The filter applies to the whole ACM server so that all imports from the ACM server to the system are filtered.

### Objects Type Filter

If the user does not want to overwrite specific Object Types (e.g. HART Device objects) from the ACM to the Engineering System, that can be configured using **Object Type Filter**.

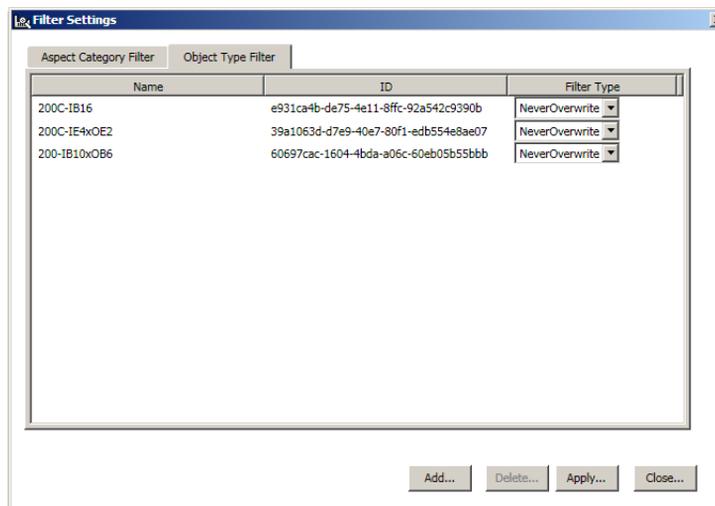


Figure 53. Object Type Filter

#### To Set Object Type Filter:

1. From the ACM client menu select **Edit>Filter Settings**.
2. Click **Object Type** tab.
3. Add the required types to the filter and set one of the following properties:

- Always Filter Out.  
Do not import objects of a specified type.
- Never Overwrite.  
Never overwrite aspects of a specific object. But creates aspects of the specific object if it is not exist in the destination system.
- Overwrite Older Aspects.  
Overwrite aspects of a specific object if current modification date of the aspect is older than the date in the destination.

The filter applies to the whole ACM server so that all imports from the ACM server to the system are filtered.

## Error Reporting

Errors during check in / check out is reported to the user and written to a logfile. The logfile is viewed from the following location:

*Local Disk (C:) >Users > user account > AppData > Roaming > ABB > ACM.*



Import of entities continue even if some entity fails. The information about the failed entities are logged in the [Status View](#) pane.



Error logs are created only when exceptions occurs while working through ACM client. Error logs are not created in failed cases of **GetLatest**.

[Application Change Management 5.1.4-1/1A Functionality](#)

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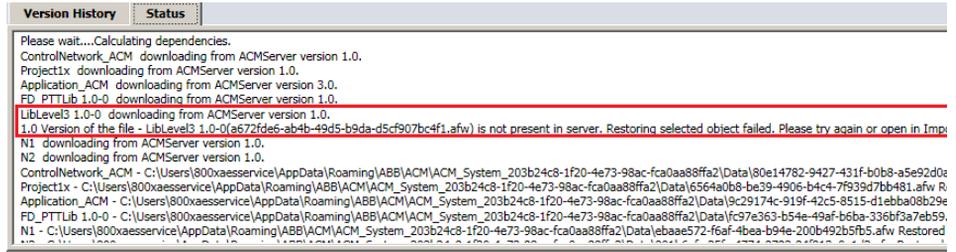
## Database Management

Every file checked in to ACM server is given a version number and this number is incremental. The number of versions that a particular file can store in the ACM server is set using MaxVersion option in the General Settings during the ACM system creation (setup). Files stored in the ACM server are limited by the value set using General Settings. If the number of checked in versions of a particular file

exceeds the value set, then the first version of the file will get deleted from ACM server. The files are deleted by the First-in First-out method.



On performing GetLatest (refer [To Check Out an Object](#) on page 59) of an object whose dependent file version is replaced by latest version (as known that the maximum versions of a file are set using General Settings at the time of ACM setup.), an error message appears as shown in the figure below.





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## Section 4 ACMScheduler

Application Change Management 5.1.4-1/1A Functionality

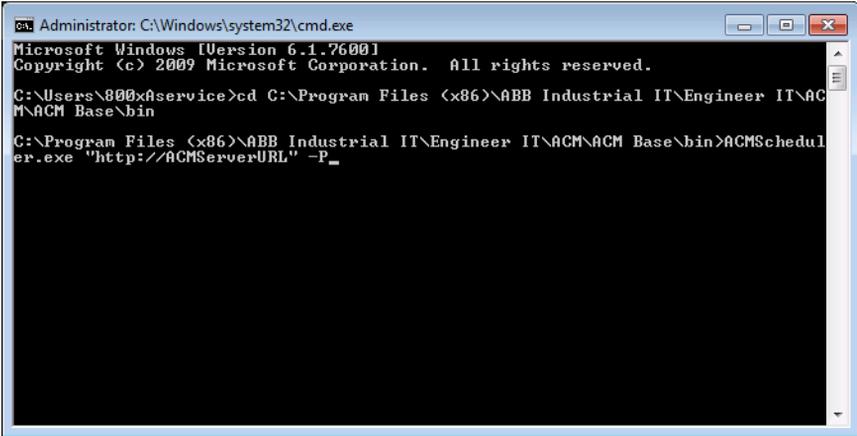
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### Introduction

ACMScheduler is used to synchronize the ACM system with corresponding aspect system. It identifies the differences between ACM server and aspect system and checks in the objects which are never checked in or has been modified after last check in.

Synchronization can be restricted to certain structure by proper configuration. However, Functional structure and Control structure are configured by default.

The ACMScheduler could be manually run through the command prompt as shown in [Figure 54](#) or could be configured in Windows Scheduler to run on a scheduled basis. Every subsequent scheduled operation will check in only the changed data or the differences from last check in.



```
ca. Administrator: C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\800x\Aservice>cd C:\Program Files (x86)\ABB Industrial IT\Engineer IT\ACM\ACM Base\bin
C:\Program Files (x86)\ABB Industrial IT\Engineer IT\ACM\ACM Base\bin>ACMScheduler.exe "http://ACMServerURL" -P_
```

Figure 54. Running the ACMScheduler

## Configuring ACMScheduler Settings

It is possible to either exclude or include the check in of any object or an entity during ACMScheduler operation. It is also possible to include an object or an entity that belongs to a structure other than the default or the configured structure for the scheduler operation.



These settings must be configured before running the ACMScheduler.

### Exclude Object Filter

There is an option provided in the ACMClient application to exclude check in of an object during ACMScheduler operation. For example, if system has user created libraries, then these are considered as custom libraries and as a result they get checked in to ACMServer during automatic check in. Such cases may be applicable for other objects as well. If user does not want to check in those objects, the same can be excluded by using exclude object filter.

To exclude an object during scheduler operation, do the following steps:

1. Launch ACM client.
2. Click **Edit** and then select **Scheduler Settings** as shown in [Figure 55](#).

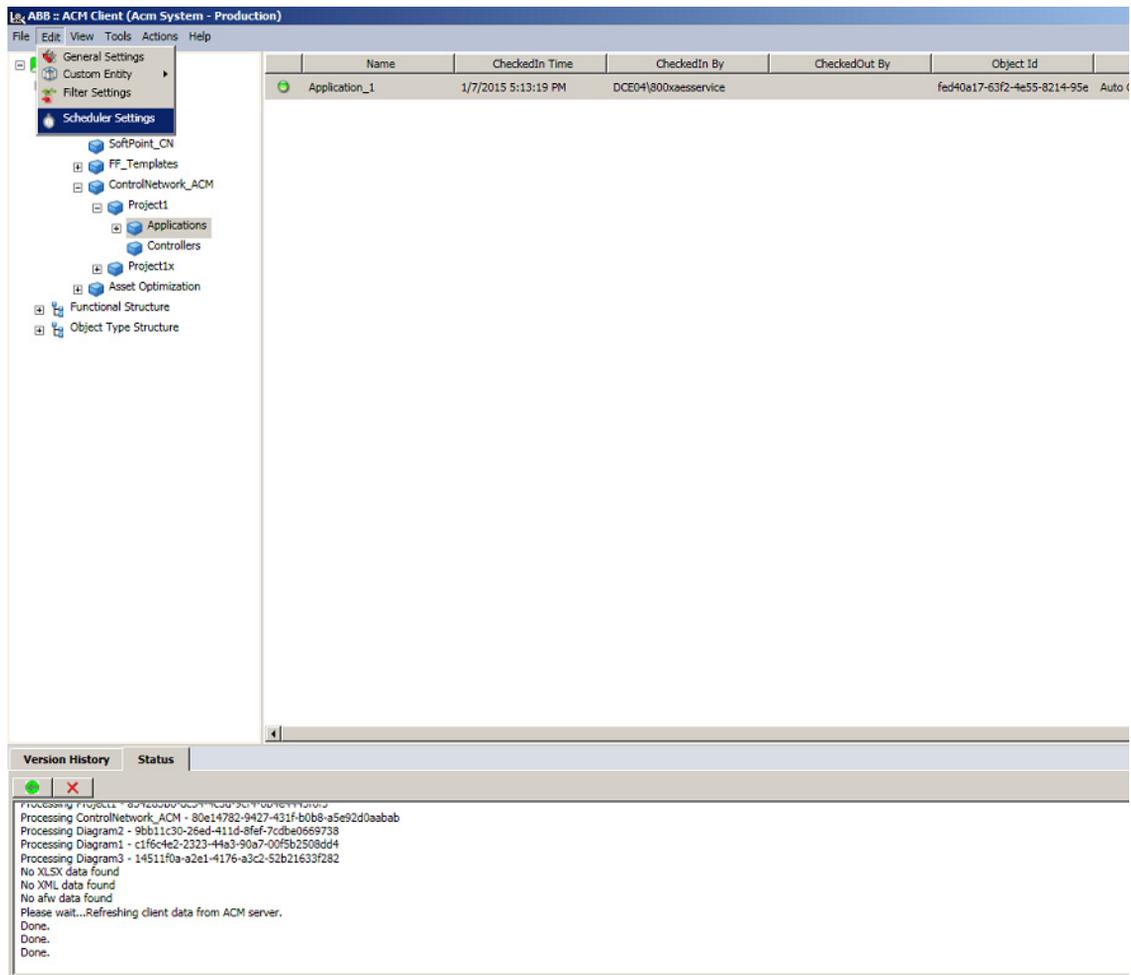


Figure 55. ACMClient

3. In the Scheduler Settings window, select the **Exclude Object Filter** tab.

4. Click **Add** and browse through the structures to select the objects to be excluded for check in and click **Apply**, [Figure 56](#).

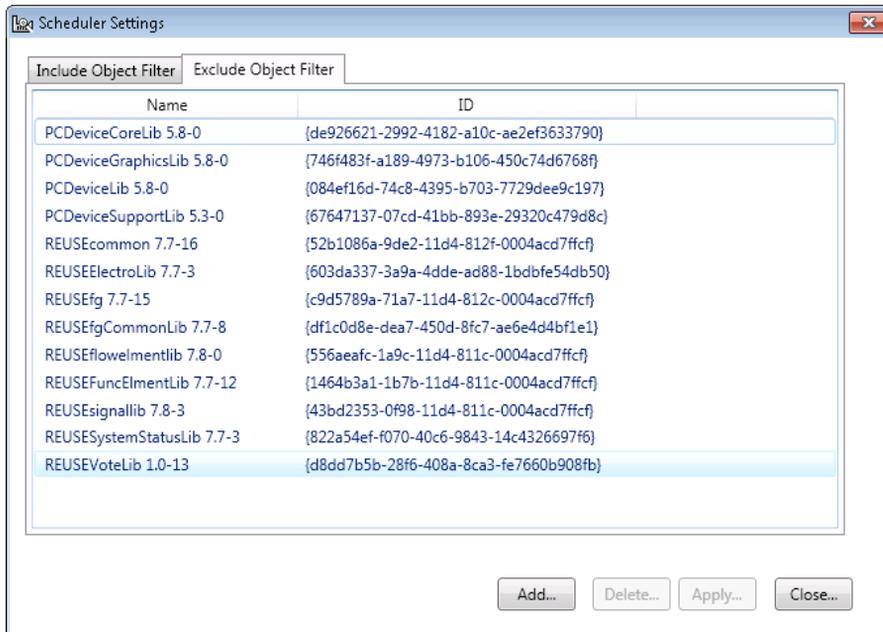


Figure 56. Exclude Object Filter Tab

### Include Object Filter

By default, ACM checks in the objects from the Control Structure and the Functional Structure and takes in the dependencies from the Object Type Structure. To include objects from outside these structures, user must configure the **Include Object Filter** in the Scheduler settings.

To include an object filter, do the following steps:

1. Launch ACM client.
2. Click **Edit** and then select **Scheduler Settings**, [Figure 55](#).

3. In the Scheduler Settings window, select the **Include Object Filter** tab, [Figure 57](#).

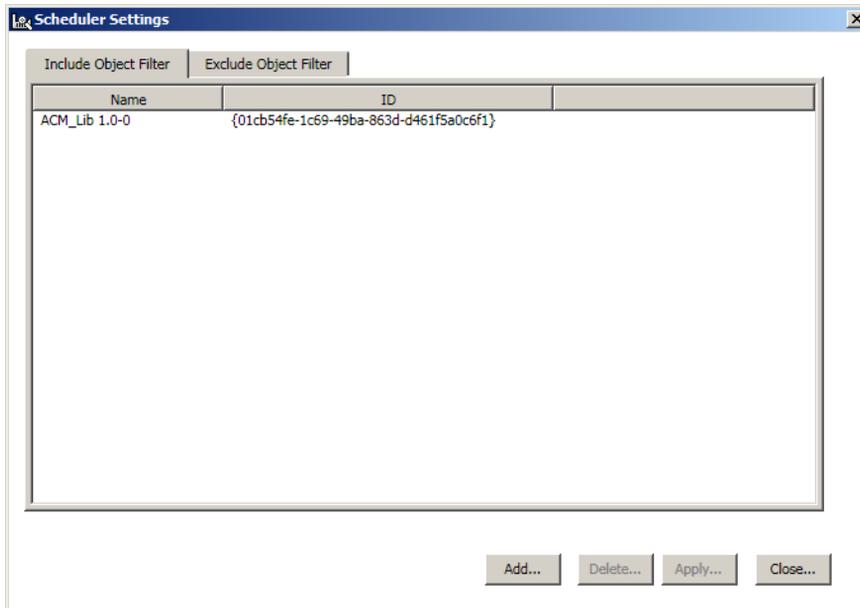


Figure 57. Include Object Filter Tab

4. Click **Add** and browse through the structures to select the objects to be included for check in and click **Apply**.

When the ACMScheduler starts, it creates the *Systemdata.xml* file that includes detailed information about the objects and entities of aspect system and saves it to the ACMServer. In order to indicate the user that ACMScheduler operation is going on, ACM changes the state of *SystemData.xml* file to Checked Out in ACMServer. The same is verified by an added arrow in the corresponding file as shown in

Figure 58.

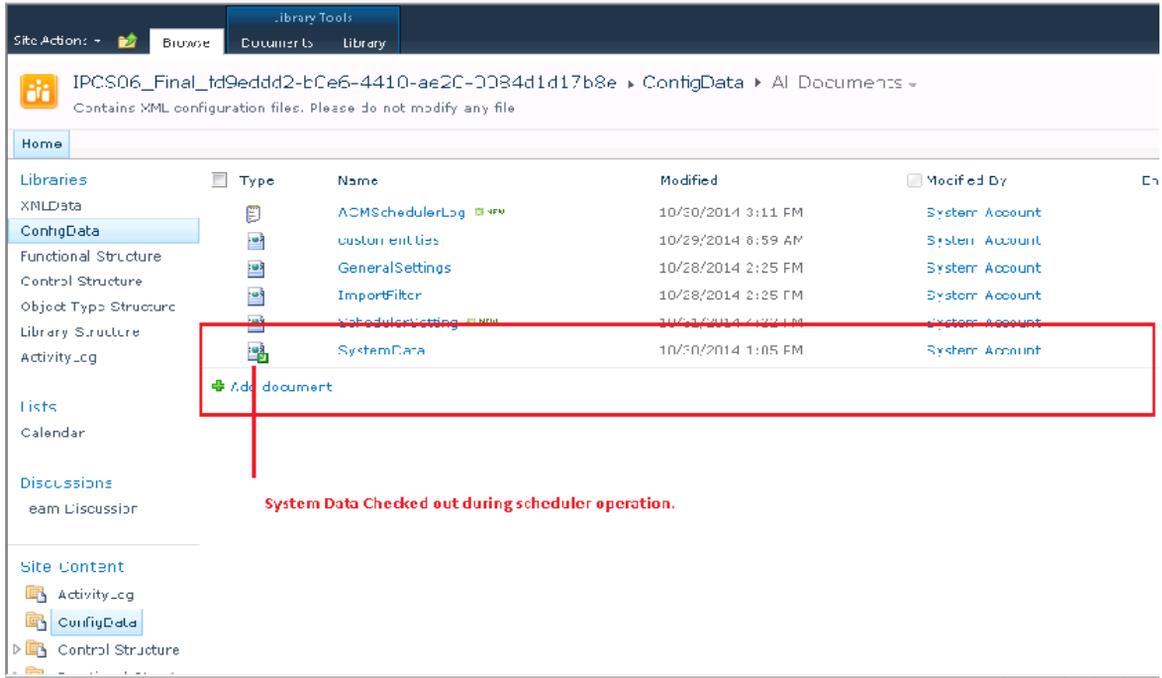


Figure 58. Arrow indication in the Systemdata.xml File

After the completion of the operation, ACM releases the checked out file to indicate the user that the Scheduler operation has been finished. As a result, the arrow

indication is no longer seen in the *SystemData.xml* file, refer [Figure 59](#).

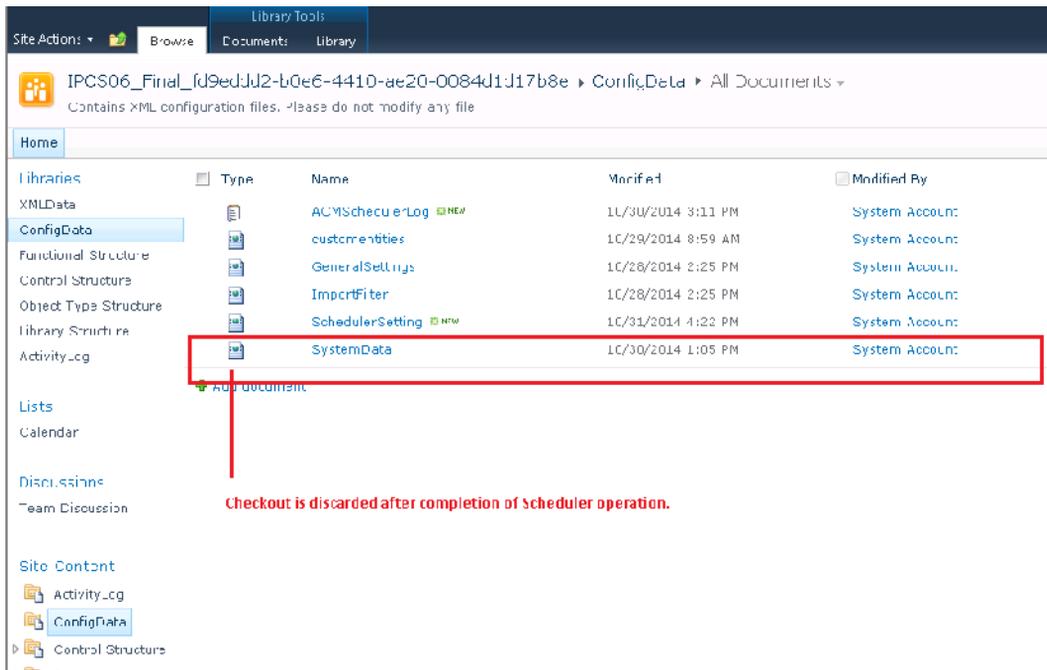


Figure 59. Systemdata.xml File



The windows automatic task scheduler can also be used to schedule automatic check in operations periodically. This can be done using the standard procedure to configure the Windows Scheduler. For more information, refer to the following website:

<http://windows.microsoft.com>



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## Section 5 User Access and Security Settings



Windows login user always have higher priority over ACM Server user or 800xA user.

### Security in ACM Server

To work with ACM, user should be a member of one of the following group. User access and security settings are similar to Plant Explorer to avoid user conflicts with ACM.



If the user is not listed in **ACM server User configuration**, user should be added from the ACM server.

#### To add users in ACM Server

1. Launch ACM server site.
2. Click **Site Actions > Site Permissions**.
3. Select particular ACM user group and add users as per the privileges to be given.

Following are the different types of user groups available in the ACM server:

- ACM Server Owner.
- ACM Server Member.
- ACM Server Visitor.

Table 3. Permissions to work with ACM

Permission	ACM Server Member	ACM Server Owner	ACM Server Visitor
Configure ACM	✗	✓	✗
Set Server	✓	✓	✗
Set System	✓	✓	✗
Update System	✓	✓	✗
Update ACM Server	✓	✓	✗
Create Custom Entity	✓	✓	✗
Check in to ACM	✓	✓	✗
Delete Entity	✗	✓	✗
Get latest from ACM	✓	✓	✗
Import to System	✓	✓	✗
Select Server	✓	✓	✓
Select Environment	✓	✓	✓



Users configured as ACM Server Members do not have permission to create the ACM System.



Group users (operator or system engineers) of Engineering Workplace, having privileges as ACM Server Members in ACM, are restricted in starting the ACM client.

### To Give User Access

1. In ACM client, select **Tools > User Configuration**.
2. **ACM Server User Configuration** dialog is displayed.

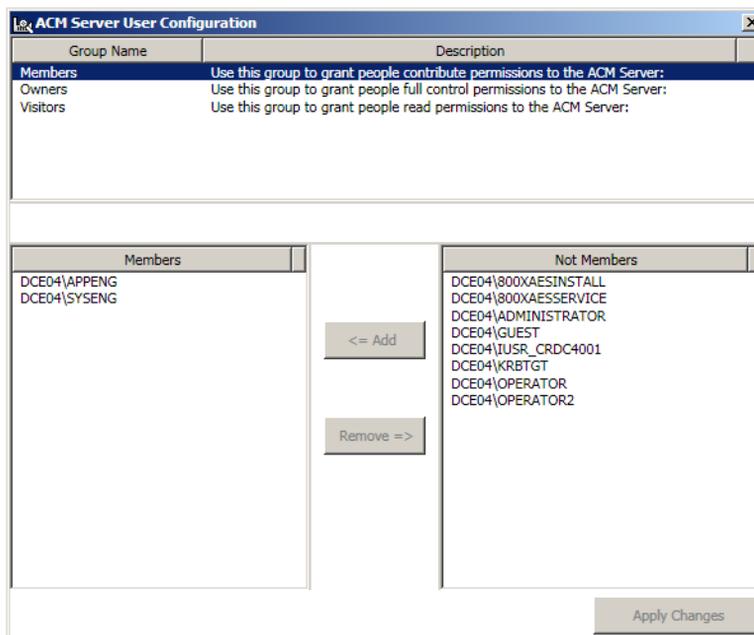


Figure 60. ACM Server User Configuration

3. Click on a **Group Name** to which the user has to be added.
4. To add users, select users from **Not Members** and click **Add** button. Users are added in Members pane.

5. To remove users, select users in **Members** pane and click **Remove** button. user are removed from the group and are displayed in **Not Members** pane.
6. Click **Apply Changes** to close the dialog.

Users can perform different operations based on the Group assigned.



It is advisable to refresh user configuration window before performing multiple operations (add or remove users).

## Security in 800xA System

The 800xA Security model is based on extensions to Windows security model. For more information on System 800xA functions to administrate and set up security for your system refer to the *System 800xA, Administration and Security (3BSE037410\*)*.

## Security using Internet Protocol Security

The Internet Protocol Security (IPsec) is a protocol suite for securing Internet Protocol (IP) communications by authenticating and encrypting each IP packet of a communication session. The purpose of IPsec Configuration Tool is not primarily to encrypt the communication, but to ensure through strong authentication, that only legitimate nodes connect to the 800xA System.

The IPsec Configuration Tool, allowing secure communication, can also exempt the nodes which are outside the 800xA System or the nodes that are not the Domain members. For more information refer *System 800xA, IPsec Configuration Tool (2PAA107224\*)*.

---

## Appendix A Changing Default Port

ACM server by default communicates through 80 port of Windows Internet Information Services (IIS). In some scenarios, when some other application is configured on the same port, it may result in conflict and restrict the ACM server operations. In such scenario's, it is possible to configure ACM server on a different IIS port. Perform the following steps to change the default port of the ACM server:

1. Open Sharepoint 2010 Central Administration from **Start** menu and go to **Application Management-> Manage Web Application**.
2. Select default web application Sharepoint-80.

3. Click Delete and select **Remove Sharepoint from IIS website**. Following dialog is displayed:

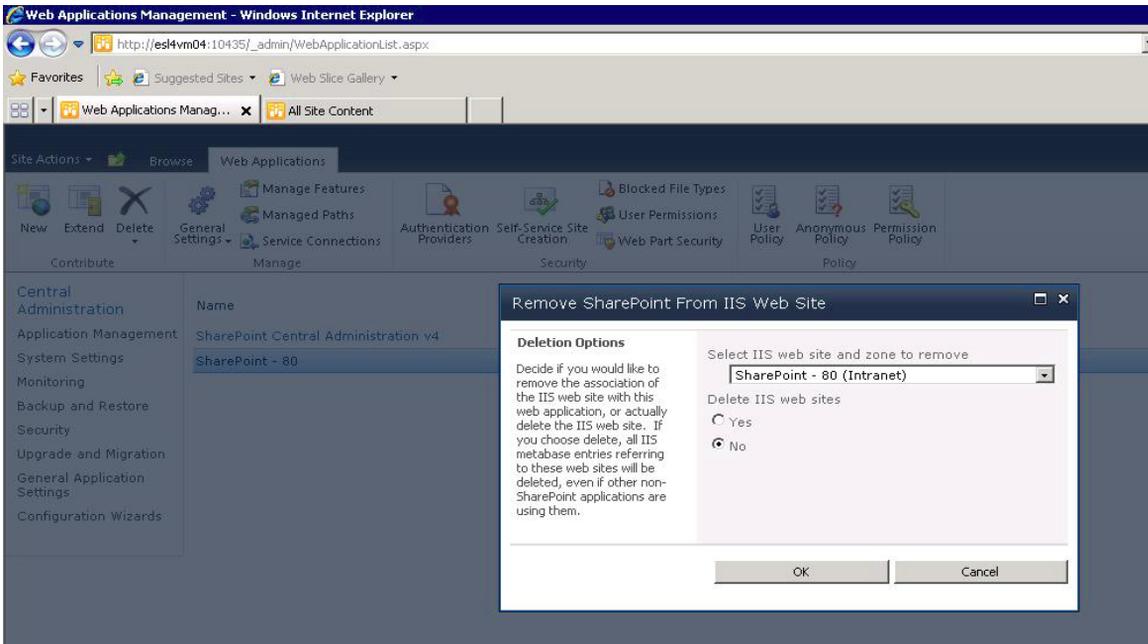


Figure 61. Remove Sharepoint From IIS Web Site

4. In Remove Sharepoint From IIS Web Site dialog, Select **Yes** to delete the IIS web site.

5. In Web Application tab click **Extend**, the following dialog is displayed:

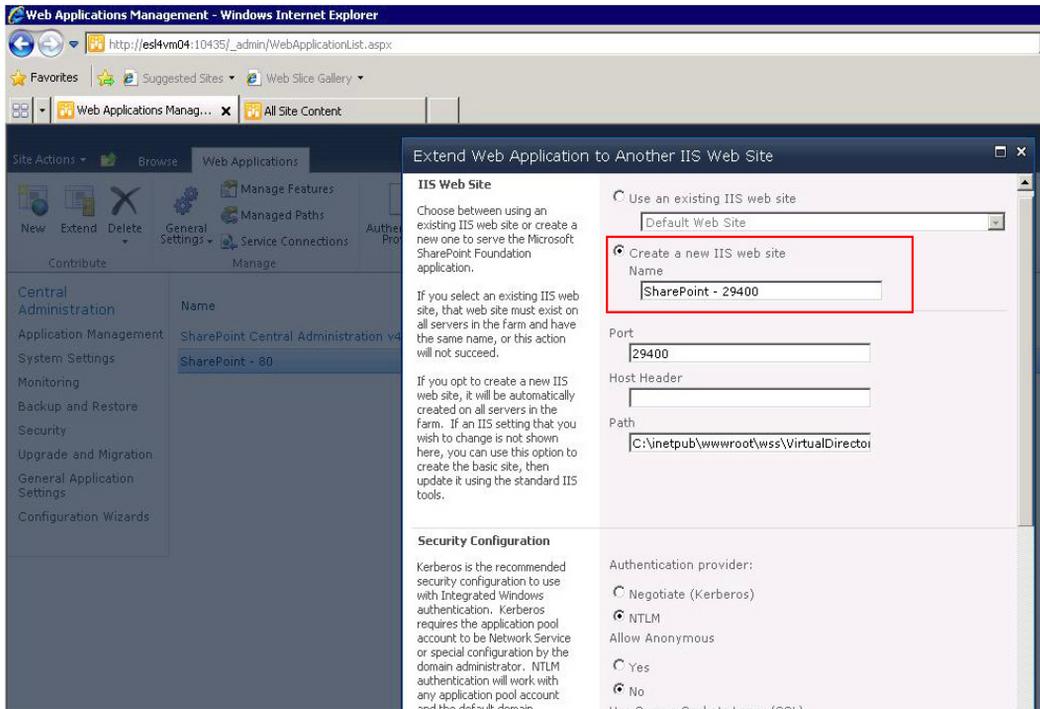


Figure 62. Extend Web Application to Another IIS Web Site

6. In Extend Web Application to Another IIS Web Site dialog select **Create a new IIS web site** and click **OK**.

7. Go to **Central Administration > Application Management > Configure Alternate access mapping** and verify that the Default zone is assigned to the web application.

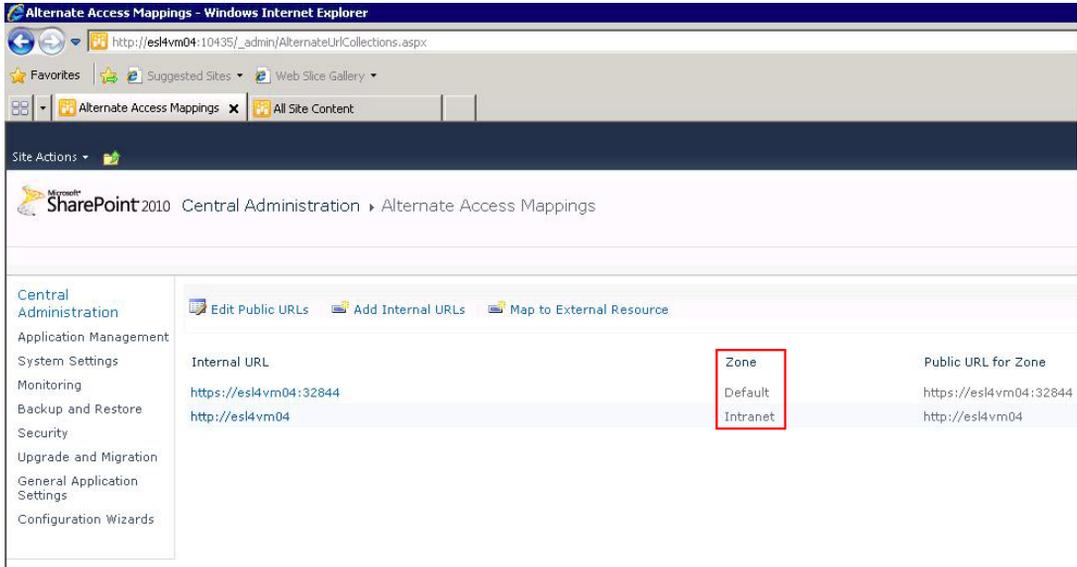


Figure 63. Default Zone

8. In case default zone is not assigned to the web application, select the internal URL and change the zone to default.

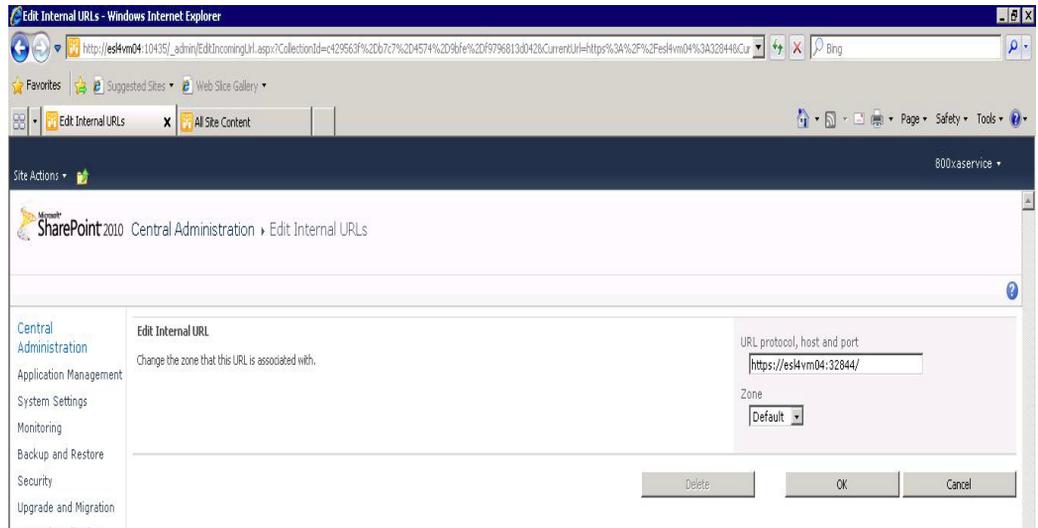


Figure 64. Change to Default Zone

## Post Default Port Settings

As a pre-condition user has to log on to the ACM Client using the port number.



After changing the default port, logging on to ACM Client using the Windows credentials might not work.

Perform the following procedure to change the port number for the ACM Client:

1. Close **ACM Client** application.
2. Go to **Roaming** folder.
3. Delete **OfflineAppData.xml** file from the following location:  
C:\Users\800xAservice\AppData\Roaming\ABB\ACM
4. Click on **ACMClient.exe**.

5. Enter URL in the following format:  
**ServerName:PortNumber**

---

## Appendix B Error Messages

ACM creates error logs for basic exceptions, but there is also a provision to create advanced error logs for diagnostic purpose. The advanced error logging is disabled by default, to enable it, perform the following:

1. Go to the following path:  
C:\<ProgramFiles(x86)>\ABB Industrial IT\Engineer IT\ACM\ACMBase\bin.
2. Open **ACMClient.exe.config**.
3. For the **ErrorLog** tag, set the **Value** to True.
4. Save and close the file.

Apart from these error logs following are the other possible errors that might occur while connecting to ACM server or working with ACM system:

*Table 4. Error Messages*

<b>Error type</b>	<b>Error Code</b>	<b>Details</b>
Conflict	409	<p>The error message may occur:</p> <ul style="list-style-type: none"><li>• when the user tries to update a non-existent file, or the file path requested might not be valid.</li><li>• due to communication failure during creation of ACM system.</li></ul> <p>To rectify this error, delete the ACM system from ACM server and create it again.</p>

Table 4. Error Messages (Continued)

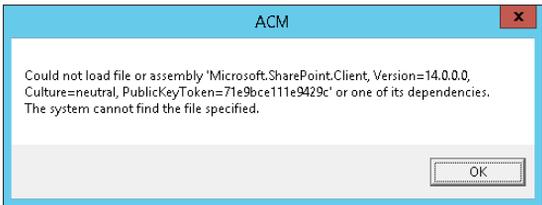
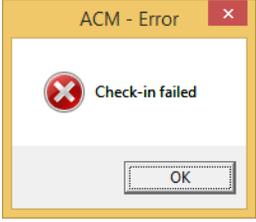
Bad request.	400	The error message may occur when the user requests with long URLs.
Internal server error.	500	The error message may occur when there is connectivity issues on server side.
Unauthorized access.	401	The error message may occur when the user tries to log in the ACM using wrong credentials.
Object check in failed.	-	This error message may occur if the object in 800xA system has inconsistencies.
Insufficient memory or Out of memory exception.	-	This error message may occur when there is not enough memory available to ACM client application to perform the operations.
Remote name could not be resolved.	-	This error message may occur when the connection to the server and the client is not configured, or when the client fails to recognise the server.
	-	This may happen if the SharePoint Client Object Model Re-distributable is not installed in ACM client node.

Table 4. Error Messages (Continued)

<p>The operation has timed out.</p>	<p>-</p>	<p>This error message may occur when there is issue getting a response from sharePoint server. This is rarely seen while performing check out or check in operations.</p>
	<p>-</p>	<p>This error message may occur when check in of object/entity fails. Try the check in of object/entity once again.</p>
<p>HRESULT: 0x80131904 or The remote server returned an error: (500) Internal Server Error.</p>	<p>-</p>	<p>This error message may occur when the SharePoint database is full.</p>



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# Appendix C Installation and Configuration of Microsoft SharePoint Foundation 2010 SP2



This appendix is applicable for standalone configuration with Database limitation of 10 GB.

For farm configuration ensure that SQL Server 2008 SP4 is installed, before installing Microsoft SharePoint Foundation 2010 SP2 and then, follow the procedure from [SharePoint Foundation 2010 SP2 Installation](#) on page 114.

## Installation of SQL Express 2008 R2

To install SQL Express 2008 R2, do the following steps:

1. Download and install SQL Express 2008 R2 in window's authentication mode.
2. Launch SQL Server Management Studio from Main menu.
3. Enter the Server type, Sever name and Authentication in Connect to Server dialog, and Click Connect.

Microsoft SQL Server Management Studio screen is displayed.

4. In Microsoft SQL Server Management Studio, go to Database>System Database>Master>Security>Schemas.
5. Right click **Schema** and select **New Schema**.

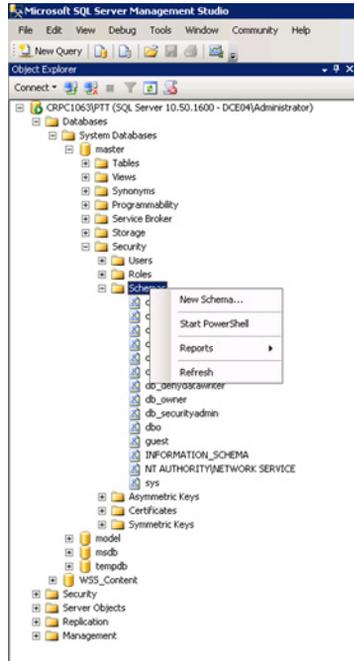


Figure 65. Select New Schema

6. Enter Schema name as NT AUTHORITY\NETWORK SERVICE.

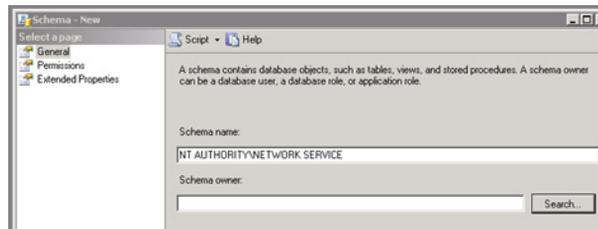


Figure 66. Schema Name

7. Select Schema owner through browse, new Browser for Object dialog is displayed

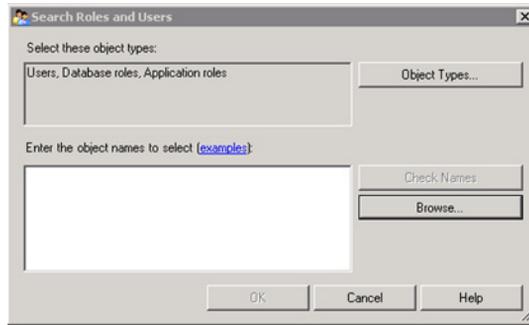


Figure 67. Search Roles and Users

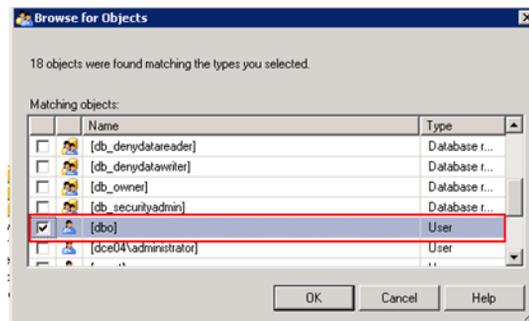


Figure 68. Browse for Objects

Select **[dbo]** and click OK

8. In **Microsoft SQL Server Management Studio** Go to Database>System Database>Master>Security>Users
9. Create New user by right-click on new user and enter the user name and details as shown in screen shot.

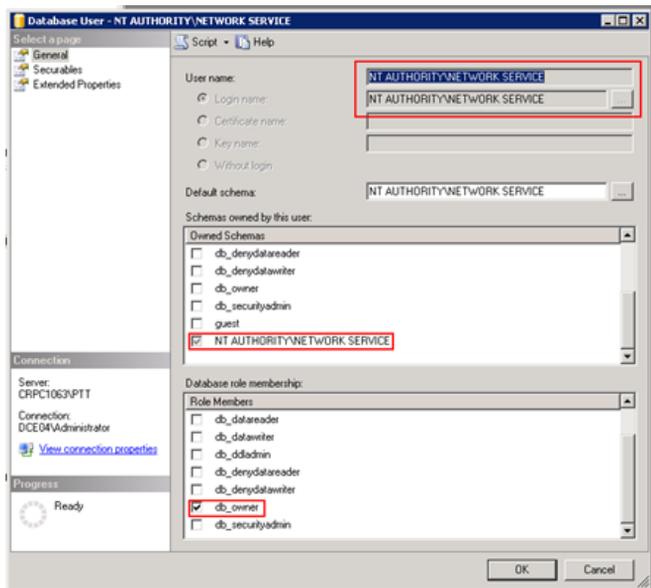


Figure 69. Database User

10. Confirm in created as above step and check for the Schema Owner, it should have been changed to **NT AUTHORITY\NETWORK SERVICE**

## SharePoint Foundation 2010 SP2 Installation

Before proceeding with the Microsoft SharePoint Foundation 2010 SP2 installation, refer the Microsoft website for information on the hardware and software requirements.

To install and configure Microsoft SharePoint Foundation 2010 SP2 on Windows Server 2008 R2 Operating System, perform the following:

1. Enable .NET 3.5 feature using Operating System media (DVD).
2. Double-click **Sharepoint.exe**.

3. In the Microsoft SharePoint Foundation 2010 SP2 setup, click **Install Software Prerequisites**. For offline installation the prerequisites needs to be downloaded and installed manually, refer [List of Prerequisites](#).
4. After the Prerequisites installation, click **Install SharePoint Foundation**. The wizard installs and configures the configuration database, the content database, and installs the SharePoint Central Administration website. This wizard also creates the SharePoint site collection.



During the Microsoft SharePoint Foundation 2010 SP2 installation, for the **Server Type** choose **Standalone** and ensure that **Run the SharePoint Products Configuration Wizard now** check box is selected.

5. In the SharePoint Central Administration website, to log on, enter the credentials of the administrator.
6. Provide the server URL (for example, [http://machine\\_name/](http://machine_name/)) in the web browser to access and configure users in the SharePoint site.



Add the web browser to the antivirus exception list, and add the Microsoft SharePoint Foundation server web link to the trusted sites of the web browser.



By default ACM Client establishes connection with ACM Server (SharePoint server) through 80 port. In case, ACM Server is configured on a different port (refer [Appendix A](#)), same port must be added in Windows firewall exceptions.

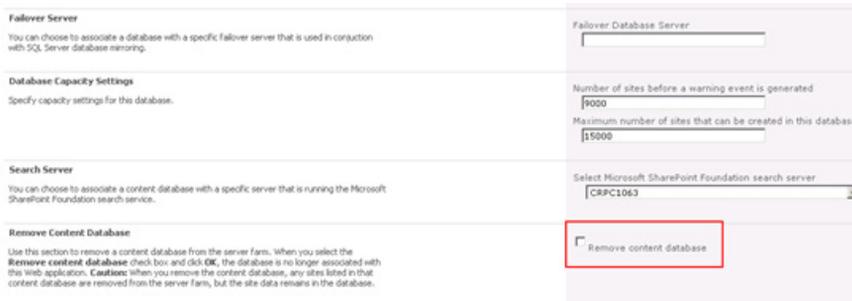
## List of Prerequisites

Download all the following prerequisites from the <http://www.microsoft.com> website and install them manually:

- Microsoft Chart Controls for Microsoft.NET Framework 2.5.
- Microsoft Filter Pack 2.0.
- Microsoft Server Speech Platform Runtime (x64).
- Microsoft Server Speech Recognition Language- TELE (en-US).
- Microsoft SQL Server 2008 Analysis Services ADOMD.NET.
- Microsoft SQL Server 2008 R2 Native Client.
- SQL 2008 R2 Reporting Services SharePoint 2010 Add-in.

## SharePoint Foundation 2010 SP2 Configuration

1. After installing SharePoint Foundation 2010 SP2, select **SharePoint 2010 Central Administration** from the **Start** menu.
2. Select Central administration, under Application Management click **Manage content data base**.
3. Click database name, and check **Remove Content** database and click OK



The screenshot displays the 'Remove Content Database' section of the SharePoint Foundation 2010 SP2 Central Administration console. The section is titled 'Remove Content Database' and contains the following text: 'Use this section to remove a content database from the server farm. When you select the **Remove content database** check box and click OK, the database is no longer associated with the web application. **Caution:** When you remove the content database, any sites listed in the content database are removed from the server farm, but the site data remains in the database.' Below this text is a checkbox labeled 'Remove content database', which is currently unchecked and highlighted with a red rectangular box. The rest of the console shows other configuration options like 'Failover Server', 'Database Capacity Settings', and 'Search Server'.

Figure 70. Remove Content Database

Content database gets deleted

4. Select Central administration, under Application Management click **Manage web applications**.
5. In Manage web applications , select **SharePoint-80** and delete that web application
6. Select Central administration, click Application Management.
7. Under Site Collections select **Specify quota templates**.

Following Quota template screen is displayed:

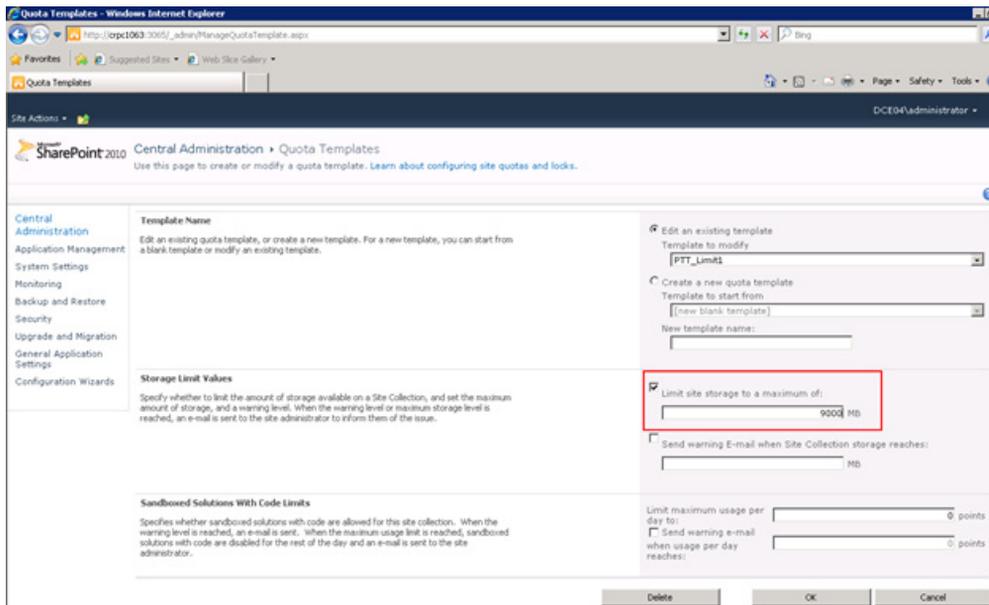


Figure 71. Quto Template

8. In new quota template, set the limit site storage to the maximum of <10GB, Click OK.
9. Select Central administration, click Application Management.
10. Under Databases, click **Specify the default database server**.

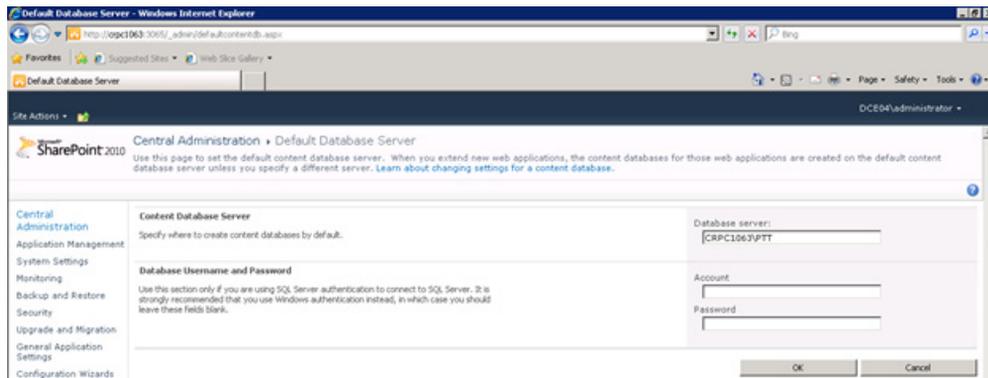


Figure 72. Default Database Sever

11. In the default database server page give the database servername as given in the SQL server instance name. Click **OK**
12. Under Web application, click **Manage Web applications**.
13. In web applications page create new web application; New web application creation page gets opened.

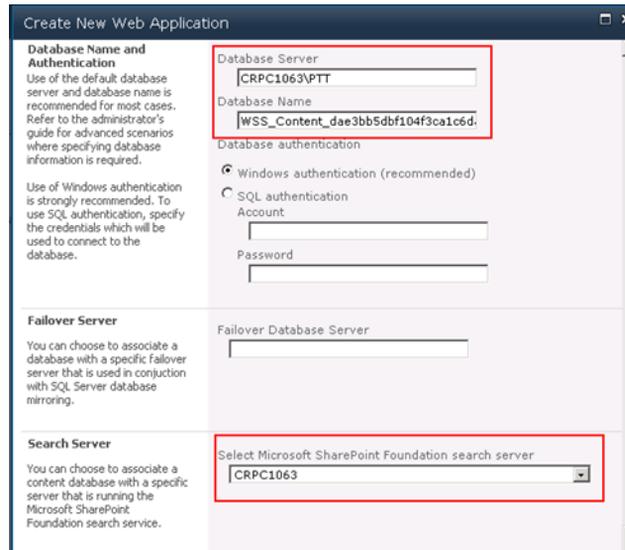


Figure 73. Create New Web Application

14. In Database Name and Authentication field, **Database server** name should be same as of the **SQL server Instance** name and database can be default.
15. In search server section, select the share point server name from drop down list and click **OK**.

Once the new web application is created, New Database is created under Database of SQL server Instance.

16. Open the **Microsoft SQL server Management studio** and select the newly created database and open properties.

17. Select the Files property and set the Database size to 10GB and select OK.

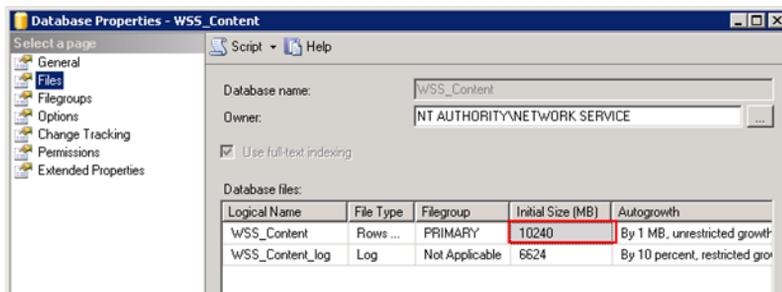


Figure 74. Database Properties

In SharePoint central administration, once the web application is created, create site collection for that particular web application and select the quota Template for that team site.

This Site can be used for ACM operations.

## To Check Database Size in ACM Server

Perform the following:

1. In the Start menu, click **SharePoint 2010 Central Administration**.
2. Click **Application Management**.

3. Under **Site collections** click **Configure quota and locks**. The size of the database is displayed as shown in [Figure 75](#).

Site Collection: **http://esl4vm03** ▾

Web site collection owner:  
ESL4VM03\800xaservice

Lock status for this site:

- Not locked
- Adding content prevented
- Read-only (blocks additions, updates, and deletions)
- No access

Current quota template

**ACM** ▾

Limit site storage to a maximum of:  MB

Send warning e-mail when site storage reaches:  MB

**Current storage used: 1489 MB**

*Figure 75. Size of Database*



## Appendix D Change Reporting Features

Application Change Management 5.1.4-1/1A Functionality

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The features in this appendix requires 800xA and ACM server to be in the same domain.

ACM also supports change reporting for System 800xA by enabling the support for check in of various system specific reports to the ACM Server. These reports can be generated on a scheduled basis and used to report system configuration states.

### Check In Support to ABB Diagnostic Collection Tool (DCT) Report

ACM supports checking in the contents of ABB Diagnostic Collection tool default folder (.cab files) to ACM server. When the tool is run on a 800xA node, it collects information of the installed products in the system and stores the same in .cab file format in a folder at a predefined location. It is possible to check in all the .cab files to ACM server at a pre-defined path as follows:

*http://<ACMServerURL>/<800xASystem name>/ConfigData.*

#### Pre-requisite

- Diagnostic collection tool must be installed on the 800xA node and tool report must be created.

For more information on Diagnostic Collection Tool, refer to *System 800xA Tools (2PAA101888\*)*.

#### Checking In .cab File to ACM Server

Follow the procedure to check in .cab file into ACM server:

1. Go to **Start > Run** and enter **cmd**, and click **OK**.

2. Select **ACMReportGen.exe** from **ACMBase/Bin** folder and move it into command prompt by a drag-and-drop action.
3. Type ***http://ACMServerURL -P -DC*** and press **Enter**.



System name can be considered from the following location:

C:\Users\\AppData\Roaming\ABB\ACM

Data Successfully Transferred message appears in the command prompt.

4. Start **Internet Explorer** and navigate to **configData** folder of corresponding ACMSystem in ACMServer.

A .cab file for DCT report gets checked in.



The windows automatic task scheduler can also be used to schedule automatic check in operations periodically. This can be done using the standard procedure to configure the Windows Scheduler. For more information, refer to the following website:

<http://windows.microsoft.com>



The subsequent check in of DCT Report overrides the previous version.

## Check In Support for System Report

Various reports generated in the 800xA node can be checked in to the ACM server. Follow the procedure to check in system report into ACM server:

1. Go to **Start > Run** and enter **cmd**, and click **OK**.
2. Drop **ACMReportGen.exe** from tools folder into command prompt.
3. Type ***http://ACMServerURL -P -SD*** and press **Enter**.



System name can be considered from the following location:

C:\Users\800xaservice\AppData\Roaming\ABB\ACM

Data Successfully Transferred message appears in the command prompt.

4. Start **Internet Explorer** and go to **ACM server**, SystemData.xml file is created under ConfigData section.



The subsequent check in of System Report overrides the previous version.

## Check in Support for Security Report Aspect

Blob data of security report aspect is extracted under system object in Admin structure and the data is copied in to a rich text file (.rtf) and the file is checked in to ACM server. Follow the procedure to check in system report into ACM server:

1. Go to **Start > Run** and enter **cmd**, and click **OK**.
2. Select **ACMReportGen.exe** from **ACMBase/Bin** folder and move it into command prompt by a drag-and-drop action.
3. Type **http://ACMServerURL -P -SR** and press **Enter**.



System name can be considered from the following location:  
C:\Users\800xaservice\AppData\Roaming\ABB\ACM

Data Successfully Transferred message appears in the command prompt.

Start **Internet Explorer** and go to **ACM server**, SecurityReport.rtf file is created under ConfigData section.



The subsequent check in of Security Report Aspect overrides the previous version.

## Check In of Hardware Inventory Report

It is possible to check in the Hardware Inventory Reports of all connected AC 800M controllers to the connected ACM Server. These reports are generated by 'AC800M Fingerprint' tool. The tool to collect the controller data and prepare the reports must be installed and run separately on any one of the connectivity servers or the client which has access to the connected controllers and has ACMClient installed.

Once the reports are created, ACM shall check in the same to ACM Server in compressed form. There must be only one version created for Hardware Inventory Reports. Therefore, the subsequent checkin will overwrite the previously checked in reports. Once the reports are created, same will be checked in to ACM Server.

Follow the procedure to check in Hardware Inventory Report into ACM server:

1. Go to **Start > Run** and enter **cmd**, and click **OK**.
2. Select **ACMReportGen.exe** from **ACMBase/Bin** folder and move it into command prompt by a drag-and-drop action.
3. Type **http://ACMServerURL -P -HWI** and press **Enter**.



System name can be considered from the following location:

C:\Users\800xaservice\AppData\Roaming\ABB\ACM

Data Successfully Transferred message appears in the command prompt.

Start **Internet Explorer** and go to **ACM server**, Hardware InventoryReport.txt file is created under ConfigData section.



The subsequent check in of Hardware Inventory Report Aspect overrides the previous version.



For more information on "AC 800M Fingerprint", contact ABB SupportLine.

## Check In Support for Miscellaneous Files

Various miscellaneous files such as .xlsx, .xml/.xml.gx, .afw etc. in the 800xA node can be checked in to the ACM server, follow the procedure to check in miscellaneous file into ACM server:

1. Select any miscellaneous file in the **System**.
2. Go to **Start > Run** and enter **cmd**, and click **OK**.
3. Drop **ACMReportGen.exe** from tools folder in to command prompt, and type **http://ACM server name -P <filepath>**
4. Type the location of the file in the command prompt, for example, C:\Sample1.doc and press **Enter**.



System name can be considered from the following location:

C:\Users\800xaservice\AppData\Roaming\ABB\ACM

Data Successfully Transferred message appears in the command prompt.

5. Start **Internet Explorer** and go to **ACM server**, a miscellaneous file is created under ConfigData section.



The windows automatic task scheduler can also be used to schedule automatic check in operations periodically. This can be done using the standard procedure to configure the Windows Scheduler. For more information, refer to the following website:

<http://windows.microsoft.com>



Only one version of Miscellaneous files could be checked in to the ACM Server.

---



# Appendix E Configuration of ACM Service in Different Domain Controller

[Application Change Management 5.1.4-2 Functionality](#)

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This appendix is applicable for secure configuration and communication of ACM services across different domain controllers.



ACMScheduler functionality is not supported across different domains.

ACM support has been extended to allow secure cross domain communication. This means that the ACMClient can be connected to an ACMServer which is configured in different domain controller.

For example:

Aspect System 1 and ACMServer1 are configured in domain controller DC01.

Aspect System 2 and ACMServer2 are configured in domain controller DC02.

In the above scenario, the ACMClient configured on Aspect System 1 can now be connected to ACMServer2.

To establish secure cross domain communication, certain configurations and settings are required on the ACMServer and the ACMClient nodes. These are one time settings and are explained in the following sections.

## ACMServer Node

### Configuring Certification Service

In order to establish secure connection of ACM across different domain controllers, Active directory Certificate services must be configured on the ACM Server node.

To configure Certification Service, do the following steps on ACM Server:

1. Open **Windows Add Roles** wizard. Select **Server Roles** select **Active Directory Certificate Services**.
2. Follow the instruction and click **Next**.
3. Select **Certification Authority** on the **Select Role Services** dialog or window.
4. Select **Setup Type** and then select **Enterprise**.
5. Click **Next**.
6. Select **Root CA** in the **Specify CA Type** window.
7. Click **Next**.
8. Select **Create a new Private key** and click **Next**.
9. Select **Cryptographic Service Provider (CSP)** from the drop-down list, **Figure 76**.

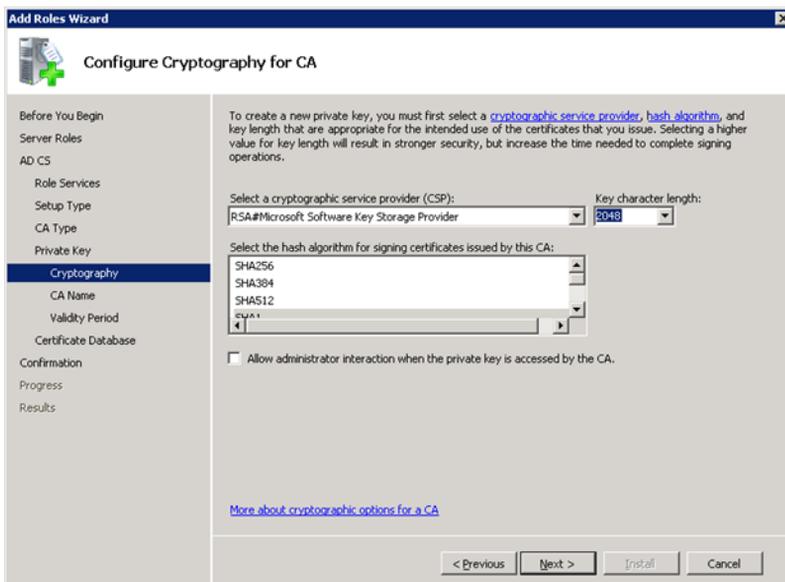


Figure 76. Add Roles Wizard

10. Click **Next**.

11. **Configure CA Name** window appears. Retain the default text in all the fields. Follow the instructions and click **Next**.
12. Select **Validity Period** and then select the period from the drop-down list.
13. Click **Next**.
14. Select **Confirmation**.
15. Click **Install** and wait for its completion.
16. Click **Close**.

### Creating a Secure Site in SharePoint Foundation 2013

To create a secure site in SharePoint Foundation 2013, do the following steps:

1. Open **SharePoint Central Administration** site from **Start> All Programs> SharePoint Foundation 2010**.
2. Go to **Application Management>Manage Web Application>New**.

3. Select **Yes** radio button in the **Use Secure Socket Layer** as shown in [Figure 77](#).

Create New Web Application

wish to change is not shown here, you can use this option to create the basic site, then update it using the standard IIS tools.

Security Configuration

If you choose to use Secure Sockets Layer (SSL), you must add the certificate on each server using the IIS administration tools. Until this is done, the web application will be inaccessible from this IIS web site.

Allow Anonymous

Yes  
 No

Use Secure Sockets Layer (SSL)

Yes  
 No

Claims Authentication Types

Choose the type of authentication you want to use for this zone.

Negotiate (Kerberos) is the recommended security configuration to use with Windows authentication. If this option is selected and Kerberos is not configured, NTLM will be used. For Kerberos, the application pool account needs to be Network Service or an account that has been configured by the domain

Enable Windows Authentication

Integrated Windows authentication  
NTLM

Basic authentication (credentials are sent in clear text)

Enable Forms Based Authentication (FBA)  
ASP.NET Membership provider name  
ASP.NET Role manager name

*Figure 77. Creating New Web Application*

4. Click **OK**.

## Creating Domain Certificate

To configure and create domain certificate, do the following steps on ACM Server:

1. Open **Internet Information Services** and select **Server Name**.
2. Double-click **Server Certificates**, [Figure 78](#).

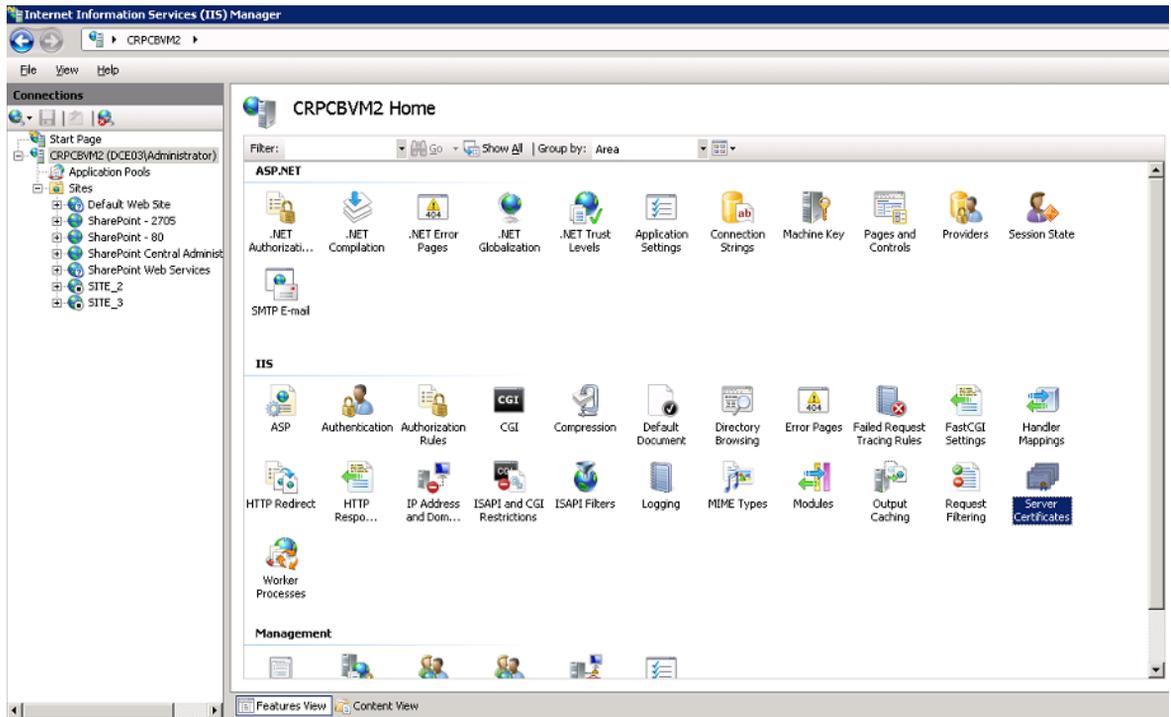


Figure 78. Select Server Certificates

A window appears as shown in [Figure 79](#).

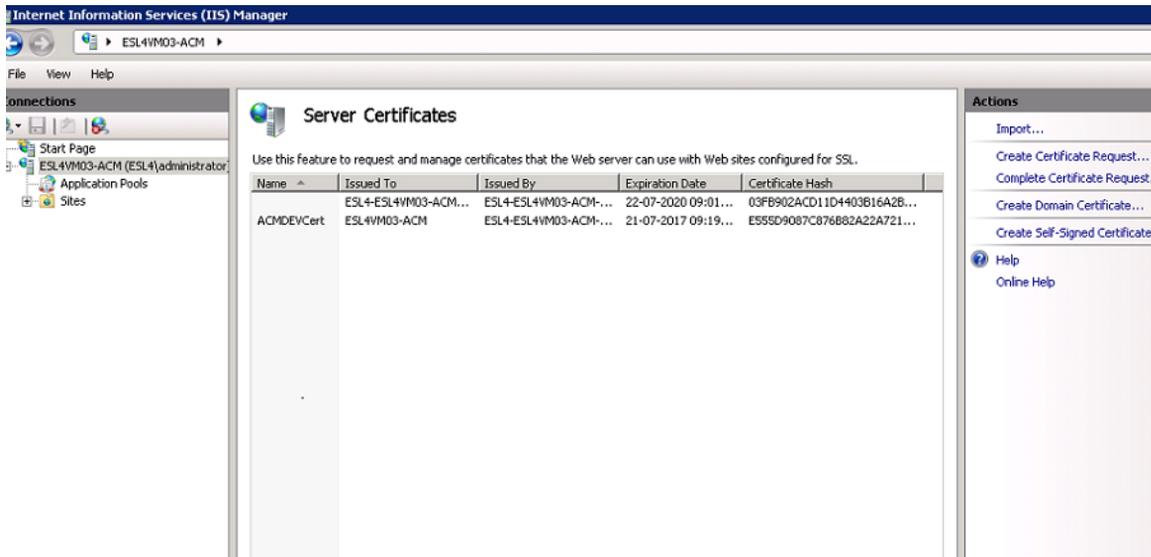


Figure 79. Internet Information Service Manager window

3. Click **Create Domain Certificate**.
4. In the **Distinguished Name Properties** window, enter the machine name in the **Common Name** field, for example: **CRPCBVM2** and fill the other details
5. Click **Next**.
6. In the **Specify Online Certification Authority** field, click **select** and choose the certification authority from the list.
7. In the **Friendly\_name** field, enter a unique name.

8. Click **Finish**. New certificate is updated in the server certificate list as shown in [Figure 80](#).

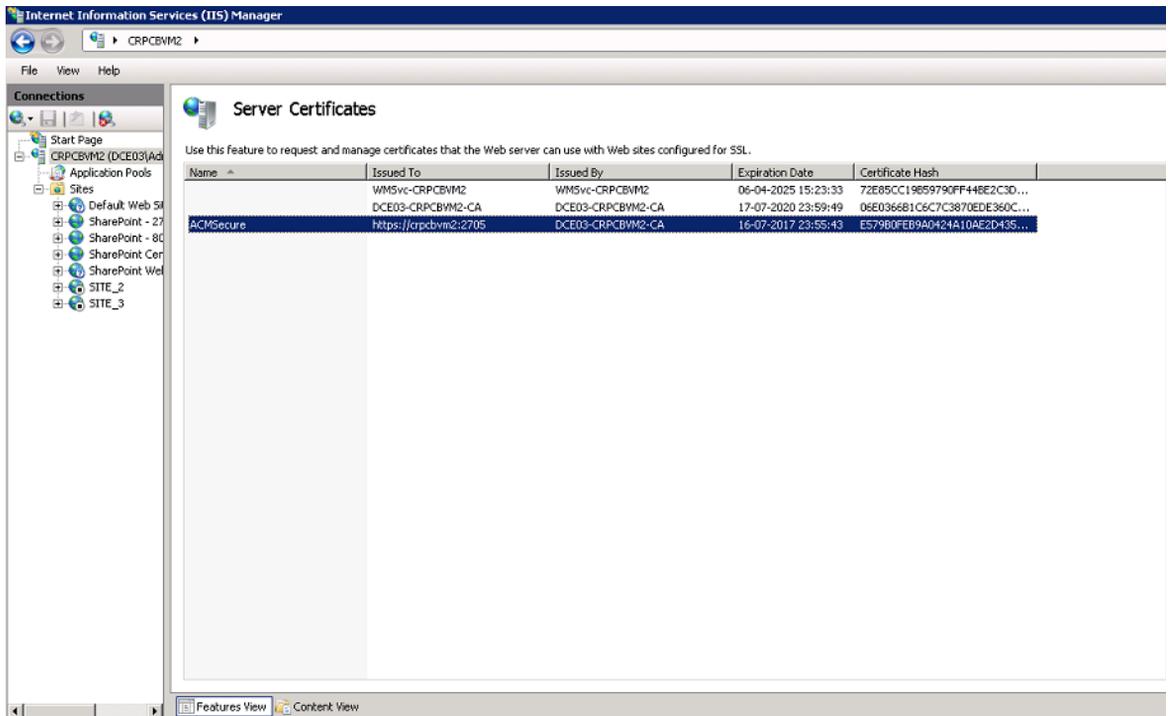


Figure 80. Server Certificates window

9. Select the SharePoint Secure site from the Sites folder of IIS and click **Bindings**. The Site Bindings window appears as shown in [Figure 81](#).

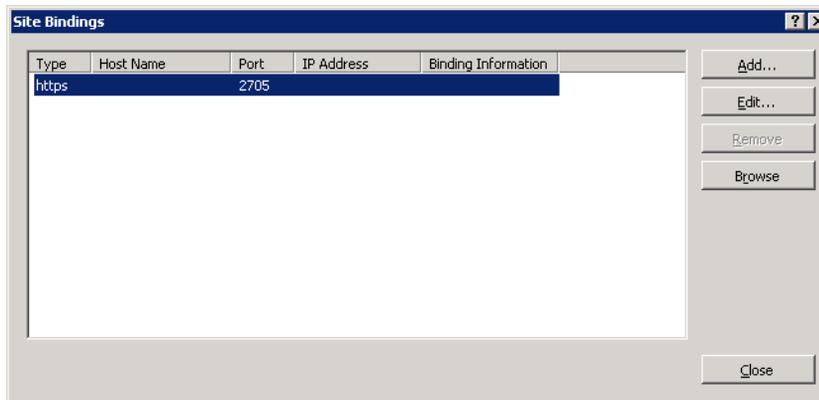


Figure 81. Certification Authority

10. Click **Edit**.The Edit Site Binding window appears.
11. Enter the Host name that is same as the common name given in certificate (for example, *crpcbvm2*).
12. From the **SSL Certificate** drop-down menu, select the certificate and click **OK**. The Site Bindings window appears as shown in [Figure 82](#).

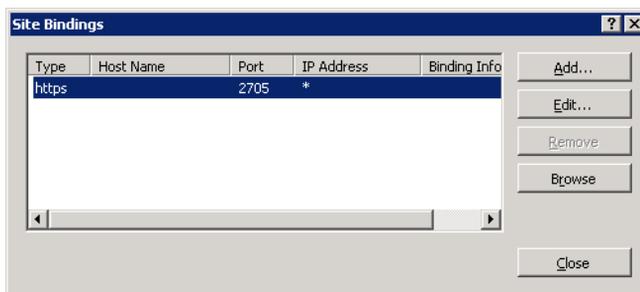


Figure 82. Site Bindings window

## ACMClient Nodes

### Installing Certificate on ACMClient Nodes

In order to connect ACMClient to the secure ACM Server across different domain, SSL certificate must be installed on the ACMClient node. Installing SSL certificate on the ACMClient node requires the certificate to be exported from the ACM Server.

Export Root certificate from ACM Server:

1. Enter **mmc** in Run command of the ACM Server to launch Microsoft Management console.
2. Go to **File** menu and select **Add/Remove snap-In**.
3. Add **Certificates** in the console root and expand the **Personal** folder.
4. Navigate to **Certificates> Personal>Certificates**, [Figure 83](#).

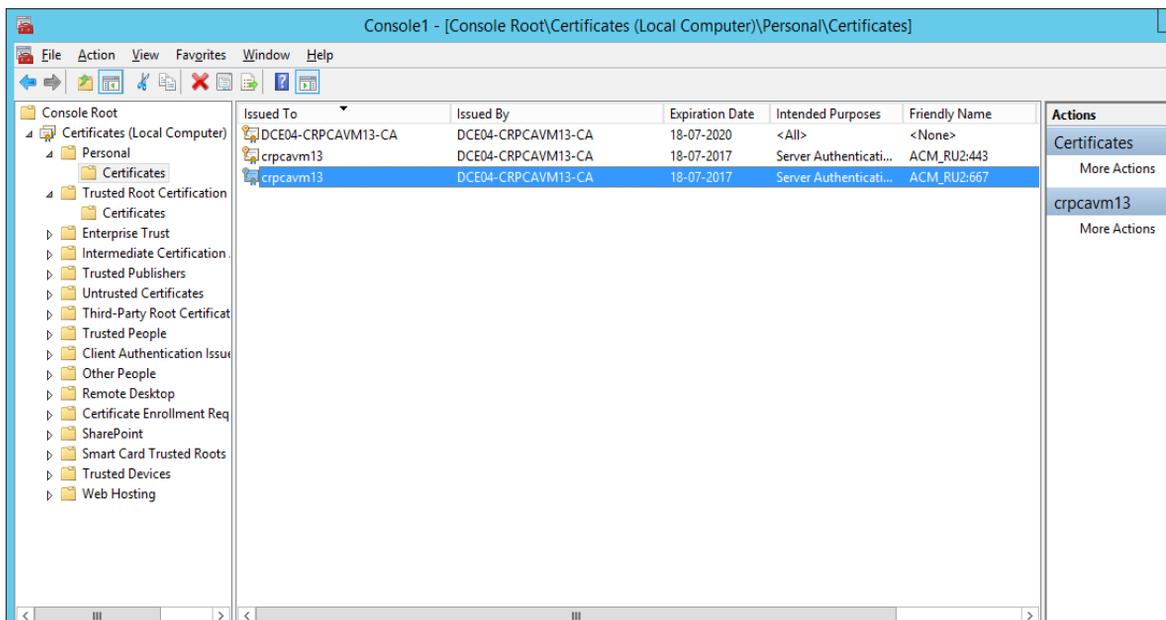
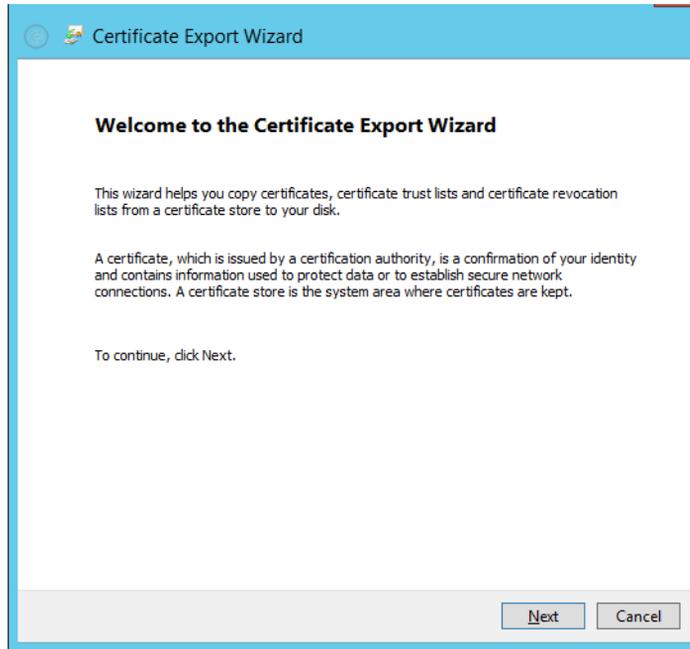


Figure 83. Microsoft Management console

5. Right-click the certificate to be exported and select **All Tasks> Export**. the Certificate Export Wizard window appears as shown in [Figure 84](#).



*Figure 84. Certificate Export Wizard window*

6. Click **Next**.

7. Select **No, do not export the private key** and click **Next** as shown in [Figure 85](#).

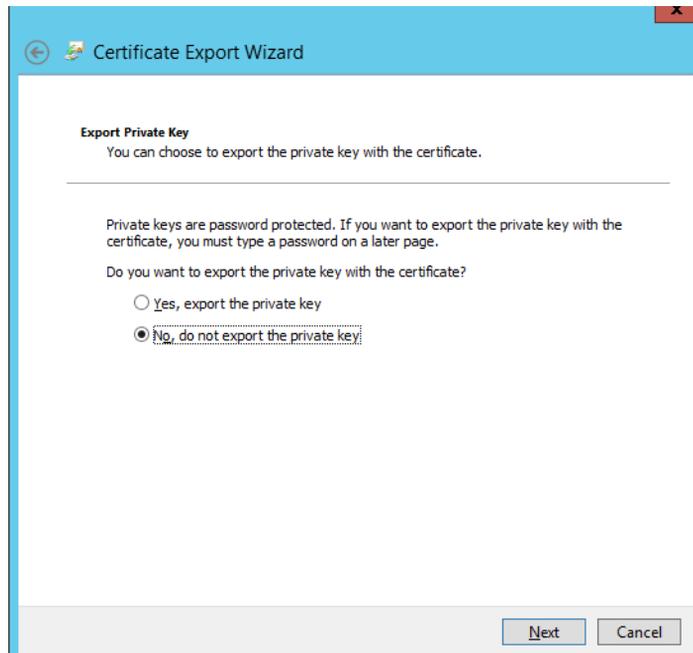


Figure 85. Certificate Export Wizard window

8. Select the format as **DER encoded binary X.509 (.CER)** as shown in [Figure 86](#).

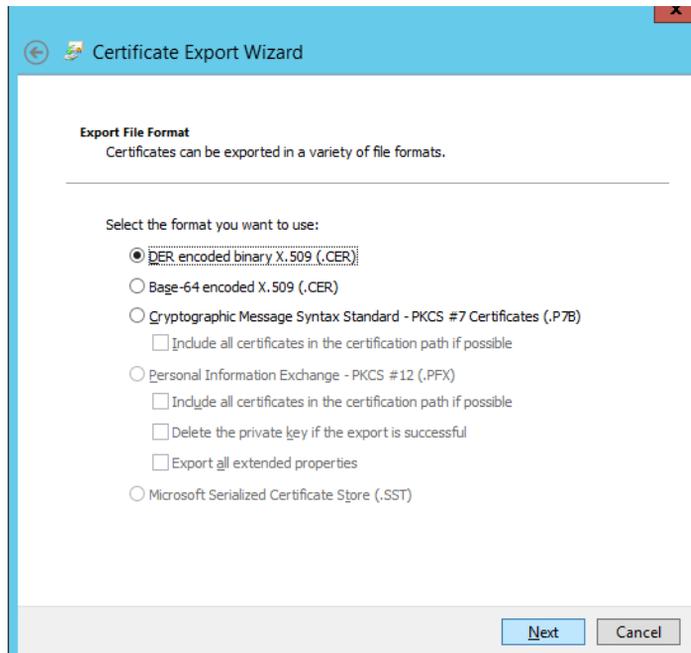


Figure 86. Certificate Export Wizard window

9. Click **Next**.
10. Click **Browse** and provide the appropriate name.
11. Click **Next**.
12. Click **Finish**. The *export is successful* message is displayed.
13. Install SSL certificate on ACMClient node.
14. Copy the exported certificate to **C:\Program Files (x86)\ABB Industrial IT\Engineer IT\ACM\ACM Base\bin**.
15. Open **ACMClient.exe.Config** file with Notepad from the above location.

16. Update the copied certificate name along with its location path in the 'Certificate' as follows:

`<add key="Certificate" value="C:\Program Files (x86)\ABB Industrial IT\Engineer IT\ACM\ACM Base\bin\ACM.cert"`

17. Open the Microsoft Management console (mmc) and follow [Step 1](#) to [Step 4](#).
18. Right-click the certificate folder and click **Import**.
19. Provide the certificate path mentioned in [Step 14](#) and follow the instructions.
20. Launch **ACMClient.exe** by double-clicking *ACMClient.exe*. ACM login window appears as shown in [Figure 87](#).

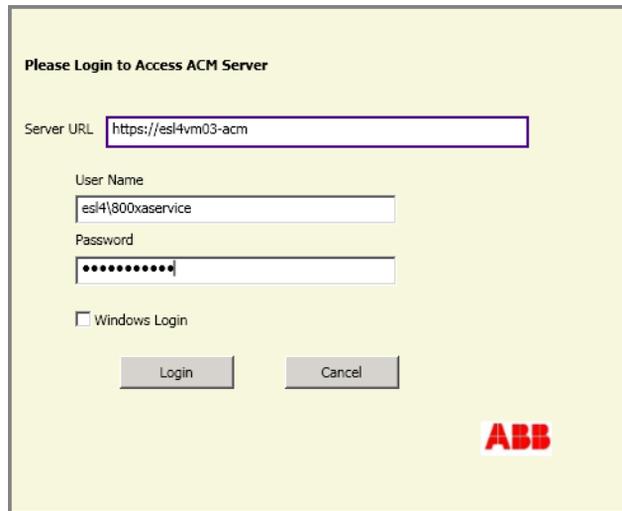


Figure 87. Login Window

21. Enter the ACM Server name in the **Server URL** field. For example, `https://esl4vm03-acm`.
22. Clear the **Windows Login** check box.
23. Enter the **User Name** in the format **Domain\user name** and **Password**.
24. Click **Login**.



ACM workflows remain same. Refer corresponding sections for more information.

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## Appendix F Adding ACM Service in a Running System 800xA

This appendix describes the procedure to configure and add Application Change Management (ACM) service into a running System 800xA 6.0 and later revisions. The proposed system configuration to add a dedicated ACM feature node, is prioritizing online integration of the features and optimizes the configuration in regard to integrity of the Application Change Management feature. Feature mixes on nodes are supported but may limit the option to add the feature while operating the plant.

To configure and add Application Change Management (ACM) service into a running System 800xA, do the following steps on the node that is selected to run the ACM Service:

1. Add a new node to the System 800xA network with Microsoft Windows Server 2008 R2 operating system.
2. Login to the node with user having administrator permissions, preferably an '800xA service' account.
3. Install SQL Server 2008 SP4 available in ABB System 800xA media.
4. Download and install the prerequisites of SharePoint Foundation 2010 SP2.
5. Download and install SharePoint Foundation 2010 SP2. Refer to [Appendix C, Installation and Configuration of Microsoft SharePoint Foundation 2010 SP2](#).
6. Configure security (network service account, System 800xA users).
7. Run Product Configuration Wizard of SharePoint Foundation (if not run as part of SharePoint Installation). Refer to [Appendix C, Installation and Configuration of Microsoft SharePoint Foundation 2010 SP2](#).
8. Open 'SharePoint 2010 Central Administration' from **All Programs > Microsoft SharePoint 2010 Products** and configure the System 800xA users.

Do the following steps with Service account user, on the nodes where ACMClient is intended:

1. Install Pre-requisite on Client nodes from the Application Change Management folder of System 800xA media.
2. Install Application Change Management (ACM) on Aspect Servers from above mentioned path.
3. Load System Extension named **ABB ACM**.
4. Load system extension **ABB ACM for Engineering Studio** (in case Engineering Studio extensions are loaded).
5. Install Application Change Management (ACM) on intended client nodes.
6. Launch ACM application by double-clicking the desktop icon named **ACMClient**.
7. Provide the ACM Server name and user credentials in the ACM login window.
8. Create ACM System by clicking **Actions> Create ACM Server**.
9. Do the user's configuration based on the intended roles.



For more information on ACM, refer to *System 800xA Application Change Management (2PAA108438\*)*.

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## Revision History



The revision index of this User Manual is not related to the 800xA 5.1 System Revision.

The following table lists the revision history of this User Manual.

<b>Revision Index</b>	<b>Description</b>	<b>Date</b>
A	Updated for 800xA Application Change Management 5.1.4-1 and 5.1 FP4 Rev E.	July 2015
B	Updated for 800xA Application Change Management 5.1.4-2	January 2016

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## Updates in Revision Index A

The following table shows the updates made in this User Manual for 5.1.4-1 and 5.1 FP4 Rev E.

Updated Section/Sub-section	Description of Update
Section 1, Application Change Management,	Replaced the image for Figure: Sample ACM View
Section 2, Starting ACM for the First Time,	Changed step 8 from: <i>In the MaxVersions dialog box, set the maximum number of versions of an object/entity.</i> To <i>In the General Settings dialog, set the maximum number of versions and enable .xml compression and aspect support (if required).</i> Added the following note: <i>If General Settings are not required, click <b>Close</b>. This ensures that there is no limit on the maximum number of versions. For more information, refer General settings.</i>
Section 2, User Interface	Added an entry in the table <i>User Interface of ACM Client</i> as follows: <i>10: Indicates if the connection to ACMServer is encrypted or unencrypted</i>
Section 2, User Interface	Added the following note: <i>Deleting entities which are checked in as part of dependencies may result in failure of Get Latest with dependencies.</i>

Updated Section/Sub-section	Description of Update
Section 2, User Interface	<p>Replaced the image for Figure: Status View            Added a new Table: <i>Button description</i>            Added the following information:  <i>All the old messages get deleted on reopening the ACMClient.</i></p>
Section 2, Menus	<p>Added bullet points under Edit:  <i>General Settings</i>  <i>Scheduler settings</i></p>
Section 2, Menus	<p>Added the following note:  <i>After creating a system baseline, the activity log is shown only for the date on which the baseline is created. All the previous logs are moved to the baseline.</i></p>
Section 3, Configuration	<p>Added the following Subsections:</p> <ul style="list-style-type: none"> <li>• Check In Support for Aspects Associated with an Object</li> <li>• Check In of Asset Optimization (AO) Aspects</li> <li>• Check In of Log Templates and Trend Templates</li> <li>• Check In of Foundation Fieldbus (FF) Management Aspects</li> <li>• Check In of Log Configuration and Trend Display Aspects</li> <li>• Check In of PG2 Graphic Aspects</li> <li>• Check In Support for OPC Control Connection</li> </ul>

Updated Section/Sub-section	Description of Update
Section 3, Baseline	Added the following note: <i>Creating a baseline is allowed only to an Admin user. The Admin user has to ensure that no further modifications or ACM operations are performed during baseline creation. This is aligned with System 800xA behavior where it is assumed that configuration changes are not performed while taking the system backup.</i>
Section 3, General Settings	Updated this section with new image: <i>General Settings</i> .
Section 3, Custom Entities	Updated the Configure section with new image: <i>Custom Entity Configuration</i> and the relevant section
Section 3, To add a Custom Entity	Replaced the image: <i>Custom Entity Configure Window</i>
Section 4, ACM Scheduler	This section is newly added.
Section 5, Security in ACM Server	Added a note: <i>If the user is not listed in ACM server User configuration, user should be added from the ACM server.</i> Added a topic: <i>To add users in ACM Server.</i>
Appendix A Changing Default Port	This section is newly added.
Appendix A Changing Default Port	Added a new Topic: <i>Post Default Port Settings</i> .
Appendix B Error Messages	This section is newly added.
Appendix C Microsoft SharePoint Foundation 2010 SP2	This appendix is newly added.
Appendix D Sharepoint Server Configuration	This appendix is newly added.
Appendix E Change Reporting Features Page	This appendix is newly added.

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## Updates in Revision Index B

The following table shows the updates made in this User Manual for 5.1.4-2.

Updated Section/Sub-section	Description of Update
Section 2, Basic Operation	Added the following new subsection: <ul style="list-style-type: none"><li>Exporting Activity Log to Excel Sheet</li></ul>
Section 3, Configuration	Modified the following subsections: <ul style="list-style-type: none"><li>Creating baseline</li><li>Loading a Baseline</li></ul>
Appendix E, Configuration of ACM Service in Different Domain Controller	This appendix is newly added.
Section 3, Configuration, To Check In an Object	Replaced the image for the following figure: <i>Check In Confirmation Message</i>
Section 2, Basic Operation, Menus, View	Added the following sub-section: ACM Server Info Changed the title from Activity Log to ACM Activity Log
Section 2, Basic Operation, Menus, View	Added the following information: <ul style="list-style-type: none"><li>xml, xlsx and gz file count is displayed only if XML/XLS support is enabled.</li><li>Current storage used in ACM Server requires ACM owner role. To do this: Change the logged in user from Action&gt; Change ACM Server</li></ul>
Section 2, Basic Operation, Starting ACM for the First Time	Replaced the image for the following figure: <i>Login to Access</i>

Updated Section/Sub-section	Description of Update
Appendix B, Error Messages	<p>Updated the following for error type <i>Conflict</i>. The error message may occur:</p> <ul style="list-style-type: none"> <li>• when the user tries to update a non-existent file, or the file path requested might not be valid.</li> <li>• due to communication failure during creation of ACM system.</li> </ul> <p>To rectify this error, delete the ACM system from ACM server and create it again.</p>
Section 3, Configuration	<p>Added the following sub-section: Check in with Change Request Document</p>
Section 2, Basic Operation, User Interface	<p>The following information is added: <i>In some cases, logged in user in ACMClient is displayed as SharePoint/System. To correct this, do the following steps in ACM Server:</i></p> <ol style="list-style-type: none"> <li>1. <i>Open SharePoint Central Administration from All Programs &gt; Microsoft SharePoint 2013 Products.</i></li> <li>2. <i>Select Security &gt; General Security &gt; Configure Service Account.</i></li> <li>3. <i>Select the SharePoint Site (for example, Web Application Pool - SharePoint-80) and then select Network Service from the Select account for this component drop-down list.</i></li> <li>4. <i>Click OK.</i></li> </ol>
Section 2, Basic Operation, Tools	<p><i>ACM Server</i> renamed to <i>ACM System</i></p>
Section 2, Basic Operation, Menus	<p><i>Change User</i> renamed to <i>Change ACM Server</i></p>

Updated Section/Sub-section	Description of Update
Section 2, Basic Operation, Actions, Change ACM Server	The following bullet points added: <ul style="list-style-type: none"> <li>• This can be used to switch the user within the same ACM Server based on the requirement.</li> <li>• This can be used to switch to a different ACM Server by providing the name and credentials of the intended ACM server in the respective fields.</li> </ul> Added the following information: For connecting an ACM server which is configured in different domain controller, specified workflow has to be followed, refer Appendix F, Configuration of ACM Service in Different Domain Controller.
Appendix C, Installation and Configuration of Microsoft SharePoint Foundation 2010 SP2	This appendix is newly added. This is a merged appendix.
Appendix E, Configuration of ACM Service in Different Domain Controller, Configuring Certification Service	Deleted the following information: <i>If Enterprise option is disabled, select Standalone.</i> Added the following information: <i>ACMScheduler functionality is not supported across different domains.</i>

Updated Section/Sub-section	Description of Update
Section 1, Introduction, Entities Hierarachy	<p>Replaced the following figure:  <i>Control Project</i></p> <p>Added the following information:  <i>Control Project in System 800xA consists of Applications and Controllers folders to hold different applications and controllers configured in the same project. Each application consists of Application Types, Control Modules, Programs and Diagrams. An individual .afw file is created for each application that includes Application Types, Control Modules, and Programs. However, a separate .afw file is created for Diagrams as they are defined as separate entities. Similarly all the controllers configured under the project are checked in as individual .afw files.</i></p>
Section 1, Introduction, Multiple System to Dedicated ACM Servers	<p>The following information has been added:  <i>The 800xA systems and the ACM server requires secure communication if they are configured in different domain. Refer to Appendix E, Configuration of ACM Service in Different Domain Controller for more information.</i></p>
Appendix D, Change Reporting Features	<p>The following information has been added:  <i>The features in this appendix requires 800xA and ACM server to be in the same domain.</i></p>
Section 2, Basic Operation	<p>Added the following subsection:  ACM Server Info</p>
Section 2, Introduction, Prerequisites	<p>Deleted the following information:  <i>The 800xA system and the ACM server must be configured in the same domain.</i></p>
Appendix F	<p>Added the following new appendix:  <i>Adding ACM Service in a Running System 800xA</i></p>

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<b>Updated Section/Sub-section</b>	<b>Description of Update</b>
Section 1, Entities Hierarchy	Added information on Library, HSE Subnet
Section 1, Introduction	General updates.
Section 2, Basic Operation	<i>Object View</i> and <i>Version History View</i> Images replaced.



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