



IBM Software Systems Integration

With IBM MQ Series for JMS, IBM FileNet
Case Manager, and IBM Business
Automation Workflow

Alan S. Bluck

Apress®

IBM Software Systems Integration

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FileNet Case Manager, and IBM
Business Automation Workflow**

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IBM Software Systems Integration: With IBM MQ Series for JMS, IBM FileNet Case Manager, and IBM Business Automation Workflow

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*Dedicated to
my beloved wife, Jennifer,
and
my children, Julie and Rosalie,
and
their families*

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Introduction

This book describes the design and build of an Audit Master System for ISO9000/BS5750 internal quality system audits, implemented using the IBM Case Manager Builder web application.

This system is then extended from the initial working IBM Case Manager solution to demonstrate a number of Java-based integrations to show the possibilities of integration with other systems, using the IBM FileNet Content Manager API, IBM MQ Series, JMS Java API calls, and the IBM Process Designer Workflow application.

The fully working integrations are described step by step, including

- The replication and synchronization of documents and the Case Manager folder system to another Object Store.
- The transfer of the Case metadata to an IBM MQ Series queue using JMS Java calls. This is demonstrated with the use of an IBM Process Designer Workflow, Java library Operations Step method to call the JMS (Java Messaging Service) with the Case data.
- The creation and deployment of a Custom Java EventHandler Code Module to automatically link the separate Case Audit Report documents to a central folder.
- The implementation of a workflow step to call a database Stored Procedure to store the Case Audit metadata to a separate database system.
- The creation of graphical analytical summary data using the IBM Cognos Analytics system and the extension of the IBM Case Analyzer OLAP Event table database to use custom Views for date range and multilevel Time Dimensions using the Cognos links to a Microsoft SQL Server Analysis Manager system.
- The use of Java iText library methods to generate pdf Audit Report questions from the Case Management data, which are then stored against a Department Case Document folder.

INTRODUCTION

This book is designed for use by IT consultants, Systems and Solution Architects with basic general IT knowledge to provide working templates for the development of solutions using IBM software products to integrate diverse corporate systems, and for developers of document management, workflow, and case management solutions for implementation in manufacturing organizations, banks, and insurance companies.

CHAPTER 1

IBM FileNet Case Manager 5.3.3 Case Builder Solution Development Steps for the Audit System

This chapter covers the step-by-step procedure to use the IBM FileNet Case Manager 5.3.3 Case Builder Solution Development steps and the similar IBM system, IBM Business Automation Workflow, to create an Audit system.

See:

www.ibm.com/docs/en/case-manager/5.3.3?topic=overview-whats-new-in-case-manager-v533

An overview of the IBM Case Manager system can be found in the following link:

www.ibm.com/docs/en/case-manager/5.3.3?topic=documentation-case-management-overview

Chapter Organization

Note that most chapters in this book are divided into Parts featuring the core topics being covered, further organized by sections within.

CHAPTER 1 IBM FILENET CASE MANAGER 5.3.3 CASE BUILDER SOLUTION DEVELOPMENT STEPS FOR THE AUDIT SYSTEM

This chapter contains the following four Parts:

Part 1 – Bill of Materials. This Part lists the prerequisite system and IBM Software components required to develop the IBM Case Builder solution used in this book as a base for the system integrations which are described in later chapters.

Part 2 – IBM Case Manager Solution Metadata. This Part covers the definition of the global elements of a Solution, Properties, Security Roles, Document Classes, and Business Objects.

Part 3 – Adding IBM Case Manager Case Types. In this Part, the Audit Master Solution Case Type creation procedure is described. Case types are used to specify the Case Solution tasks. This specification includes the required document classes attached to the task workflow, the task workflow steps, and the In-baskets and roles that are used for each of the Workflow steps.

Part 4 – Testing and Administration of the Audit Solution. This Part describes the development and administration of the Audit Solution after the initial deployment. This includes the deployment to a production system from a development environment.

Introduction

IBM Case Manager is now available as part of IBM Business Automation Workflow as described in the following.

Note IBM Case Manager is still available as a standalone IBM FileNet product for upgrades.

For viewing an IBM Business Process Manager (BPM) process from Case Manager Builder after creating a case task based on an existing workflow process, the process is visible in IBM Process Designer. After you create a task from an existing process, you can click the Open Web Process Designer icon to edit the process in Process Designer.

To change an existing process or add a new process, you must open the process from the IBM Process Center, update or create the process, create a snapshot, and then make that snapshot the default. To view any new processes in the Add Task dialog box, click **Refresh** on the **Select Process** page.

The following video tutorial shows an example of this procedure:

www.youtube.com/watch?v=VtobZqwBh9g

(IBM BPM BAW – Moving to Web based Process Designer from Desktop Process Designer)

Access to the IBM Business Process Manager Work Dashboard is also available from the Case Manager Client.

The IBM Process Portal Work Dashboard is accessed from the Case Manager Client by adding the IBM Business Automation Workflow plugin to the IBM Content Navigator desktop.

The Work Dashboard tasks can then be viewed in a Content Navigator desktop which has the same functionality as the Business Process Management Process Portal.

When the IBM Business Automation Workflow plugin and IBM BPM V8.6.0 CF2018.03 are installed, the Workflow ► Launch Process action is added to the Action menu and the pop-up menu in the Browse view (configurable in the IBM Case Manager desktop).

This action can be used to launch an IBM BPM process from a document.

The Launch Process action can also be added to the menu in the Documents view for the IBM Case Manager Information widget.

The values for a property that is defined as type Business Object are now listed in the IBM case package solution PDF file along with the other case properties.

The Audit system is based on an article in the journal, Quality Forum, Volume 19 No. 3, September 1993. *The Journal of the Institute of Quality Assurance*. Pages 116–126. The Quality Audit Process, by Alan S. Bluck.

This article covers the department audits based on the ISO9000/BS5750 Quality Standard. Downloadable from

www.researchgate.net/publication/334094923_Case_Manager_Installation_04-05-2019

Part 1 – Bill of Materials

The installation steps required for IBM Case Manager 5.3.3 are covered step by step in the following free ResearchGate documents, downloaded using the DOI URL as follows:

<https://doi.org/10.13140/RG.2.2.21708.16001>

entitled “Case Manager 5.3.3 Installation on RHEL 8.0 with Content Navigator 3.0.6”

Click the **Download file PDF** command button in Figure 1-1.

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[Preprint](#) [PDF Available](#)

Case Manager 5.3.3 Installation on RHEL 8.0 with Content Navigator 3.0.6 IF003

July 2019

DOI: [10.13140/RG.2.2.21708.16001](https://doi.org/10.13140/RG.2.2.21708.16001)

Project: [IBM's FileNet P8 Installation on Redhat Linux](#)

Authors:



Alan Bluck

ASB Software Development Limited

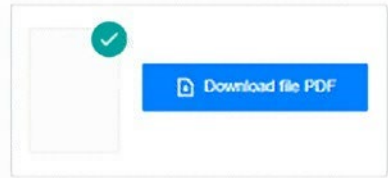


Figure 1-1. Download the IBM Case Manager Installation document

This gives the downloaded document, entitled *CaseManagerInstallationonRHEL8.0_V3.docx*.

Note As part of this installation, the requirement for the prerequisite IBM FileNet Content Engine Object Store **Workplace Base Extensions** for use with the IBM Case Manager installation is covered.

The step-by-step procedure for the installation of IBM Business Automation Workflow is available as a free download from the ResearchGate website, downloaded using the DOI URL as follows:

<https://doi.org/10.13140/RG.2.2.27345.89440>

entitled “*IBM BAW 18.0 Installation phase1 preprint with install of IBM Workflow Center 8.6.1.19002*”

Click the **Download file PDF** command button in Figure 1-2.

CHAPTER 1 IBM FILENET CASE MANAGER 5.3.3 CASE BUILDER SOLUTION DEVELOPMENT STEPS FOR THE AUDIT SYSTEM

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August 2019

DOI: [10.13140/RG.2.2.27345.89440](https://doi.org/10.13140/RG.2.2.27345.89440)

Project: [IBM's FileNet P8 Installation on Redhat Linux](#)

Authors:



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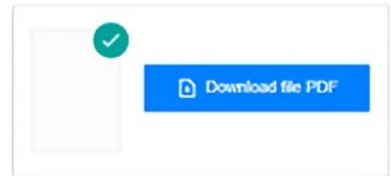


Figure 1-2. Download the IBM Business Automation Workflow Installation document

This gives the downloaded document, entitled

IBMBAW18.0Installation_phase1_preprint (1).docx

The IBM Case Manager Audit system components used are listed as follows with the IBM part numbers shown in brackets. These part numbers can then be searched and downloaded from IBM's Software Access Catalog.

IBM Case Foundation V5.3.0 Linux Multilingual (CNP8ML)

IBM Case Foundation V5.3.0 Windows Multilingual (CNP80ML)

IBM FileNet Content Manager V5.5.0 for IBM Case Foundation V5.3.0 Multiplatform Multilingual eAssembly (CJ2VNML)

FileNet Content Manager V5.5.0 Quick Start Guide Multiplatform Multilingual (CNP8XML)

IBM FileNet Content Platform Engine V5.5.0 Linux Multilingual (CNP8ZML)

IBM FileNet Content Platform Engine V5.5.0 Windows Multilingual (CNP90ML)

IBM FileNet Content Platform Engine Client V5.5.0 Linux English (CNP93EN)

IBM FileNet Content Platform Engine Client V5.5.0 Windows English (CNP94EN)

IBM FileNet Content Search Services V5.5.0 Windows Multilingual (CNP9BML)

IBM FileNet Content Search Services V5.5.0 Linux64 Multilingual (CNP9CML)

IBM DB2 Enterprise Server Edition Restricted Use Quick Start and Activation V11.1 for Linux, UNIX and Windows Multilingual (CNB25ML)

Quick Start Guide for IBM WebSphere Application Server V9.0 (CNA8LML)

IBM WebSphere Application Server V9.0 (CND1AML)

IBM WebSphere Application Server V9.0 Supplements – Application Client (CND1CML)

CHAPTER 1 IBM FILENET CASE MANAGER 5.3.3 CASE BUILDER SOLUTION DEVELOPMENT STEPS FOR THE AUDIT SYSTEM

IBM WebSphere Application Server V9.0 Supplements – IBM HTTP Server (CND1DML)

IBM WebSphere Application Server V9.0 Supplements – Web Server Plugins (CND1EML)

IBM WebSphere Application Server V9.0 Supplements – WebSphere Customization Toolkit (CND1FML)

IBM WebSphere Application Server Liberty (IBM Installation Manager install) (CND1GML)

IBM Installation Manager V1.8.5 for Linux x86_64 (CND0ZML)

IBM SDK, Java (TM) Technology Edition, Version 8 for Windows (CND15ML)

IBM SDK, Java (TM) Technology Edition, Version 8 for Linux (CND18ML)

Note WebSphere 8.5.5 Fix pack 15 automatically installs and defaults the JDK to 1.8.

Starting the IBM Case Manager System

The ecmukdemo6 VMware system described in the IBM Case Manager installation earlier can be started after booting as follows, logging in as the root user.

Start the LDAP Servers

Find the desktop icon for the Instance Administration tool.

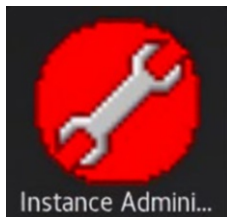


Figure 1-3. Click the Linux desktop Instance Administration tool for LDAP

Click to open the LDAP, IBM Security Directory Server Instance Administration Tool:

CHAPTER 1 IBM FILENET CASE MANAGER 5.3.3 CASE BUILDER SOLUTION DEVELOPMENT STEPS FOR THE AUDIT SYSTEM



Figure 1-4. Select the **Start/Stop** command to start the LDAP servers

Click the **Start/Stop** command.

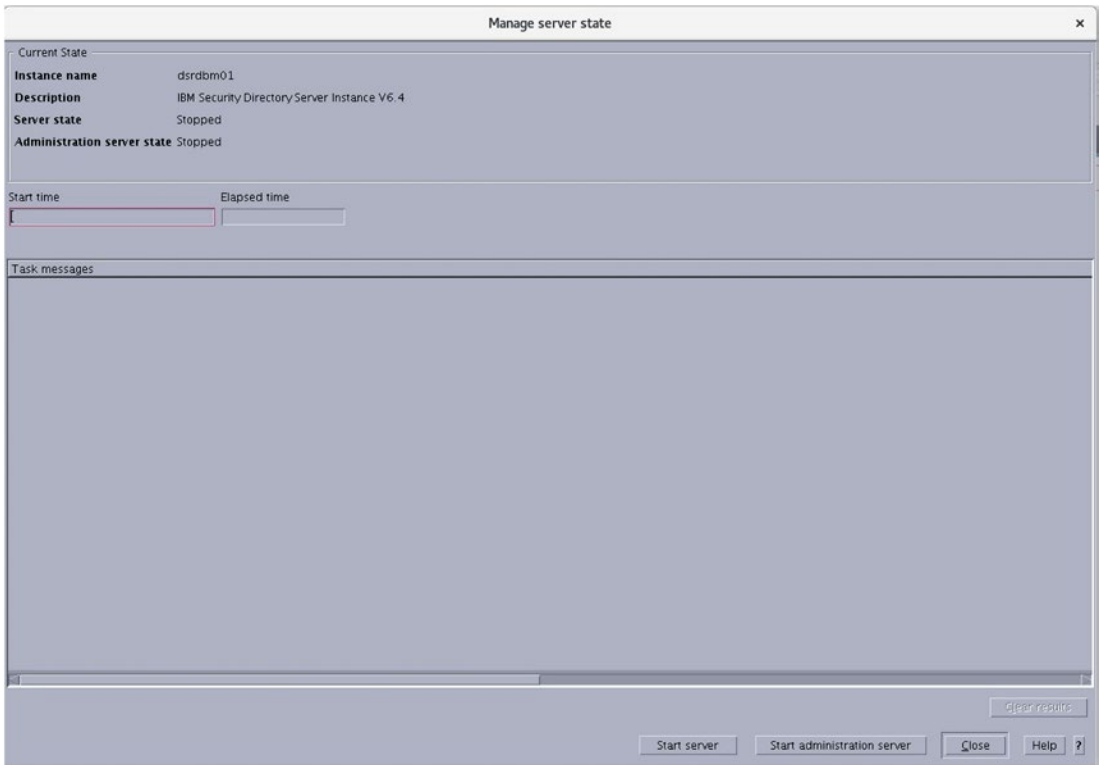


Figure 1-5. The **Start server** command is clicked to start the LDAP server

CHAPTER 1 IBM FILENET CASE MANAGER 5.3.3 CASE BUILDER SOLUTION DEVELOPMENT STEPS FOR THE AUDIT SYSTEM

Click the **Start server** command button.

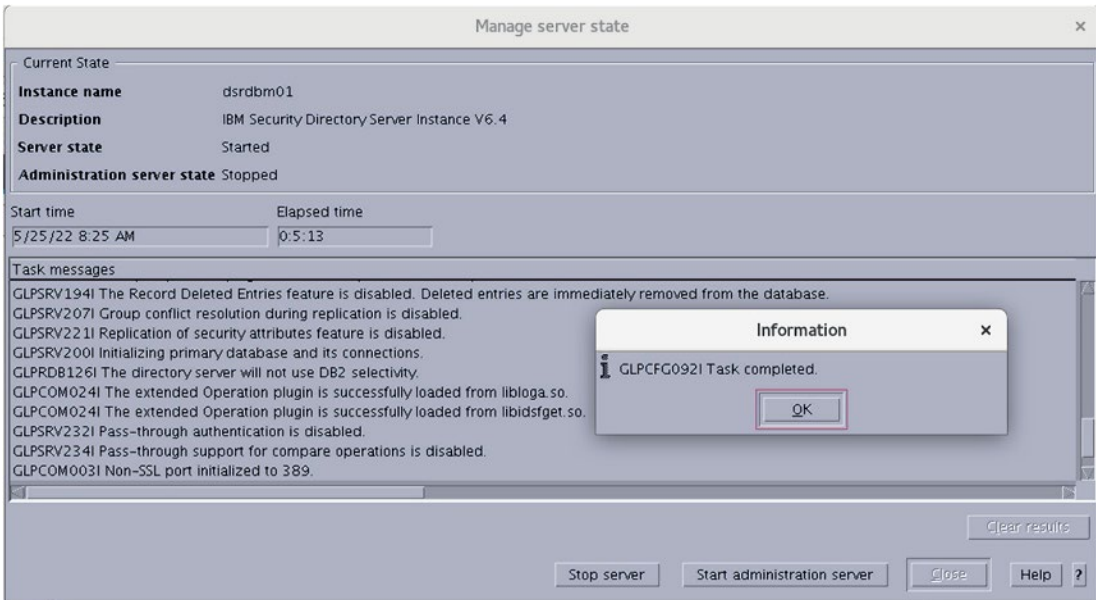


Figure 1-6. The **Start administration server** command is clicked

Click the Start administration server command button.

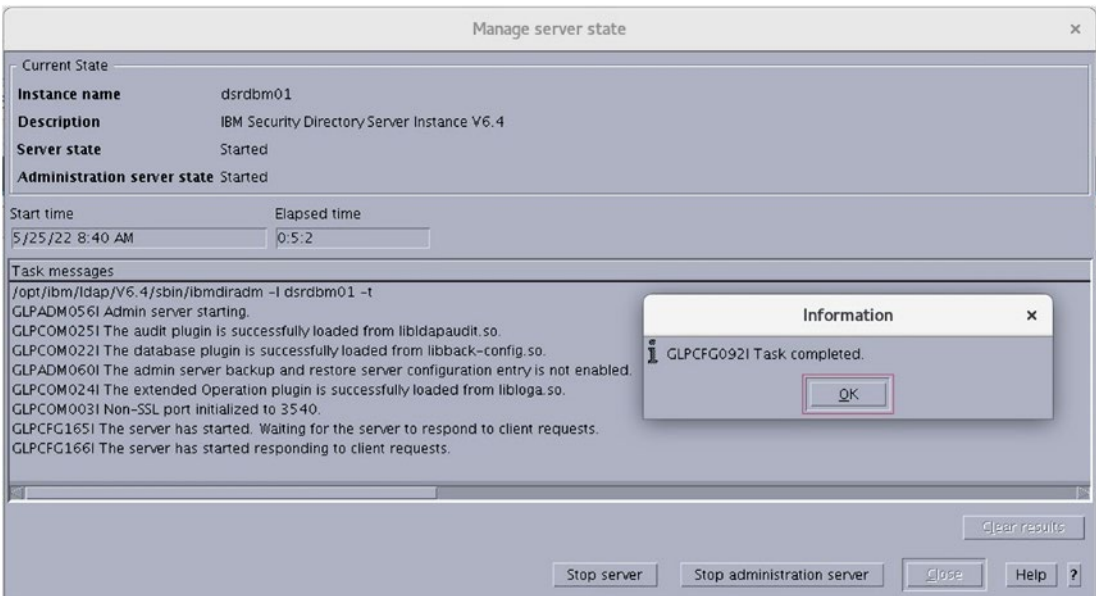


Figure 1-7. The **Close** command is disabled until the servers have started

After around six minutes, the **Start complete** pop-up window is displayed, then you can click the **Close** command button.

Start the IBM FileNet Case Manager Database

Type the commands as follows:

```
su - db2inst1  
db2start  
exit
```

From the command window in Linux:

```
[root@ECMUKDEM06 IBM]# pwd  
/opt/IBM  
[root@ECMUKDEM06 IBM]# su - db2inst1  
Last login: Mon Mar 14 04:56:45 PDT 2022 on pts/0  
[db2inst1@ECMUKDEM06 ~]$ db2start  
05/10/2022 08:47:16      0  0  SQL1063N  DB2START processing was successful.  
SQL1063N  DB2START processing was successful.  
[db2inst1@ECMUKDEM06 ~]$ exit  
logout  
[root@ECMUKDEM06 IBM]#
```

Figure 1-8. The IBM FileNet and IBM Case Manager databases are started

Start the IBM FileNet Content Engine Web Service

From the command window in Linux, type the commands as follows:

```
cd /opt/IBM/WebSphere/AppServer/profiles/AppSrv01/bin  
./startServer.sh server1
```

```
[root@ECMUKDEM06 IBM]# cd /opt/IBM/WebSphere/AppServer/profiles/AppSrv01/bin  
[root@ECMUKDEM06 bin]# ./startServer.sh server1  
ADMU0116I: Tool information is being logged in file  
          /opt/IBM/WebSphere/AppServer/profiles/AppSrv01/logs/server1/startServer.log  
ADMU0128I: Starting tool with the AppSrv01 profile  
ADMU3100I: Reading configuration for server: server1  
ADMU3200I: Server launched. Waiting for initialization status.  
ADMU3000I: Server server1 open for e-business; process id is 9468  
[root@ECMUKDEM06 bin]# █
```

Figure 1-9. The IBM FileNet Content Engine web application is started

Start the IBM Case Manager Web Application

From the command window in Linux, type the commands as follows:

```
cd /opt/IBM/WebSphere/AppServer/profiles/AppSrv02/bin
./startServer.sh server1
```

```
[root@ECMUKDEM06 bin]# cd /opt/IBM/WebSphere/AppServer/profiles/AppSrv02/bin
[root@ECMUKDEM06 bin]# ./startServer.sh server1
ADMU0116I: Tool information is being logged in file
/opt/IBM/WebSphere/AppServer/profiles/AppSrv02/logs/server1/startServer.log
ADMU0128I: Starting tool with the AppSrv02 profile
ADMU3100I: Reading configuration for server: server1
ADMU3200I: Server launched. Waiting for initialization status.
ADMU3000I: Server server1 open for e-business; process id is 10151
[root@ECMUKDEM06 bin]# █
```

Figure 1-10. The IBM Case Manager web application server is started

Load the IBM Case Manager Builder Web Application

Using the URL as follows, we can launch the installed IBM Case Builder development tool:

```
http://ecmukdemo6:9081/CaseBuilder/designer/DesignerHome.jsp
```

The version of the IBM Case Manager and the available development IBM FileNet Object stores can be viewed using the **About** menu option in the IBM Case Builder web application as shown in Figure 1-11.

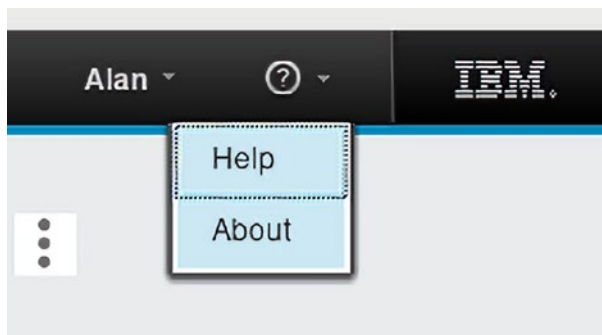


Figure 1-11. The ? ► About menu is selected to display the version details

CHAPTER 1 IBM FILENET CASE MANAGER 5.3.3 CASE BUILDER SOLUTION DEVELOPMENT STEPS FOR THE AUDIT SYSTEM

The referenced IBM version is displayed in the About pop-up window as shown Figure 1-12.

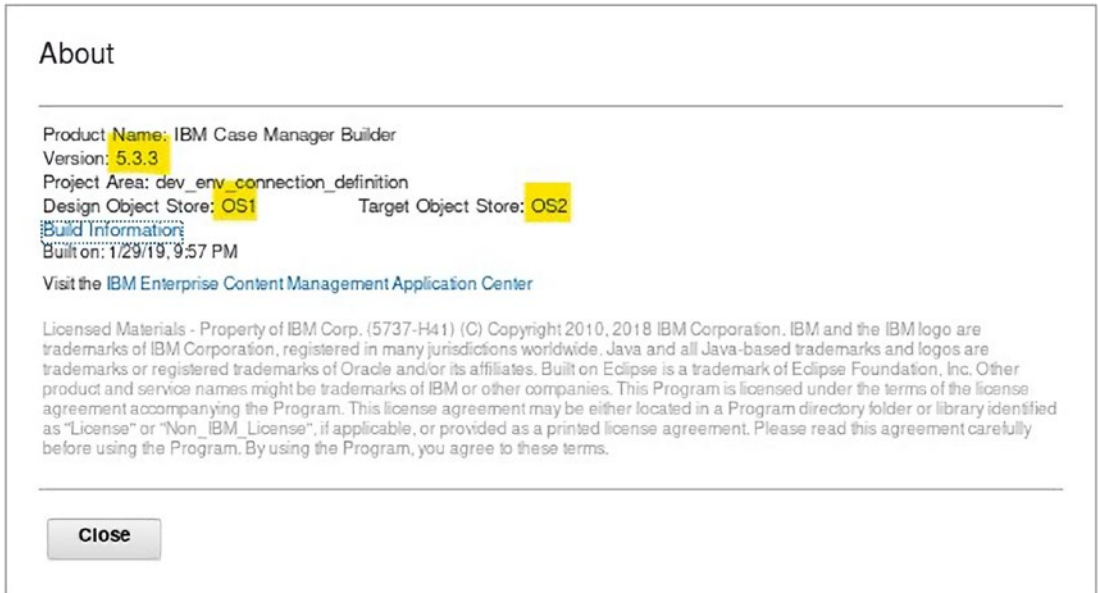


Figure 1-12. The highlighted details show the Version and Object Store names

Part 2 – IBM Case Manager Solution Metadata

Adding a New Solution

A new solution for IBM Case Manager is created using the + icon on the top right of the logged in Case Builder screen.

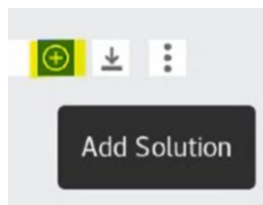


Figure 1-13. The Add solution (+) icon is selected to create a new Case Solution

We will call this new solution ***Audit Master***.

This is based on the article “The Quality Audit Process,” Quality Forum, *The Journal of the Institute of Quality Assurance*, Volume 19, Number 3, dated September 1993.

See Appendix A ©1992, Alan S. Bluck (https://www.researchgate.net/publication/334095565_Case_Manager_Solution_Development).

Add a solution

* Solution template: **No template**

Use the wizard to define the solution

* Name:
Audit Master

* Solution prefix:
AUD

Description:
Based on the article "The quality audit process", Quality Forum journal of the Institute of Quality Assurance, Volume 19 Number 3 dated September 1993

OK **Cancel**

Figure 1-14. The Solution Name is entered and OK is clicked

The Solution can be based on a similar **Solution template** in the drop-down shown earlier. (Any deployed IBM Case Manager Solution can be saved as a template so that different Solution versions can be built and modified as required).

See www.ibm.com/docs/no/case-manager/5.3.3?topic=application-creating-distributing-case-manager-solution-templates.

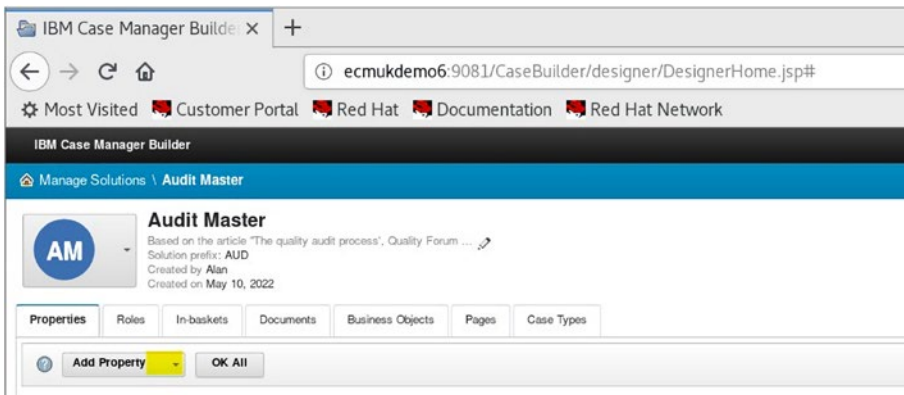


Figure 1-15. The Add Property command is selected to add Global Solution properties

The solution is created by entering the required solution criteria using the tabs as shown earlier, working from left to right.

The first tab adds the globally referenced solution properties, which are used to create the required IBM FileNet Content Manager custom object attributes, which are generated from the Solution Template structure for each case created.

Adding Properties and Business Objects

Properties can be added or reused. In this solution, the **New** option is selected as shown in Figure 1-16.



Figure 1-16. The New menu item is selected to create a new Case Solution property

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The Audit Case properties are added to form a list.

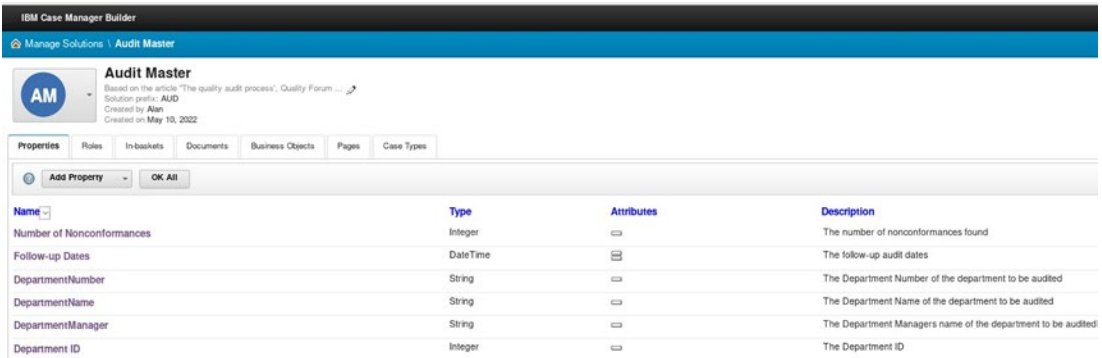


Figure 1-17. The list of Audit global properties

The Add Property command button is clicked to add the Audit system department properties for the ISO9000/BS5750 auditing of an organization’s department.



Figure 1-18. The property type is selected from a drop-down list

For each property added, as shown earlier for the **DepartmentManager** property, the type of the property can be selected from the usual IBM FileNet Content Manager property types, including the new **Business Object** property type.

A choice list of drop-down options can also be selected by first creating them, using the **Manage Choice Lists** command.

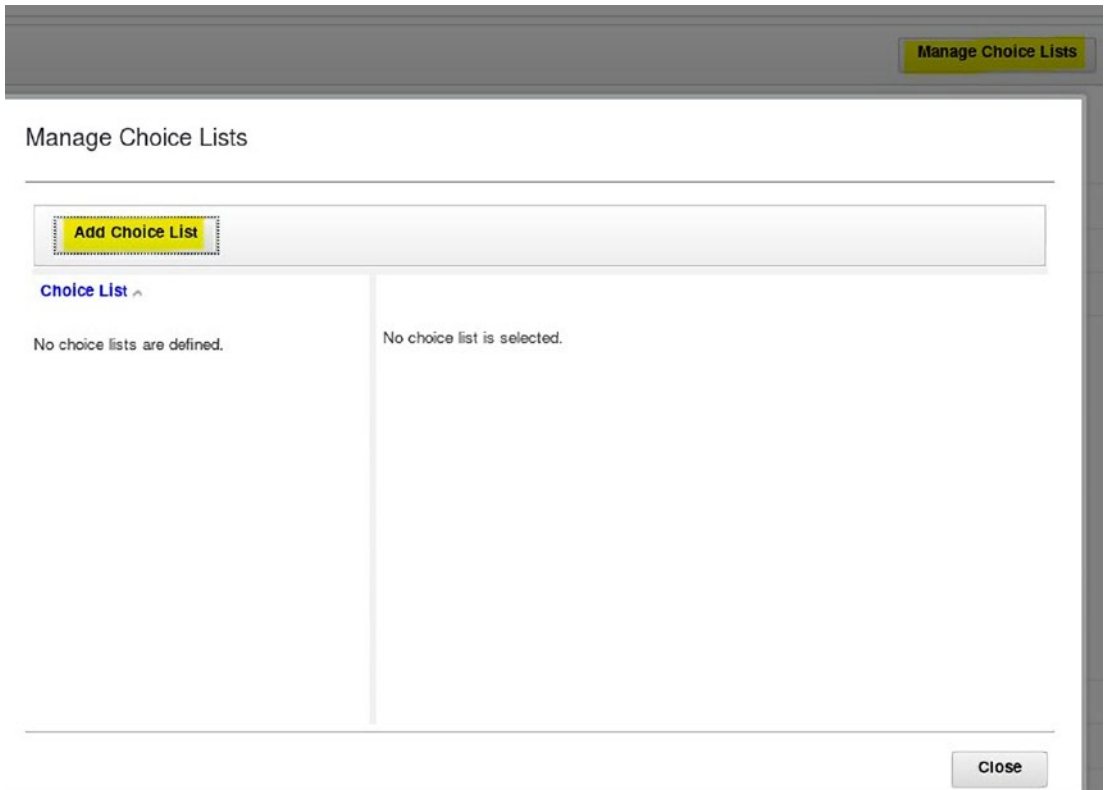


Figure 1-19. *The Manage Choice Lists command*

A Choice List consists of a displayed name and a separately held internal value. This allows a visible name, for example, **New York**, to be displayed, but the state code of **NY** can be stored.

The allowed length and, for numbers, valid range can also be entered for the property here. Also, a default value can be entered to facilitate the ease of entry.

The property can be selected to be a single value, or it can be defined to allow multiple values to be entered.

Adding Roles

The second tab allows the Solution Roles to be added. The security system uses the concept of a Role to define a group of users with the same access level to the Case Manager project. These roles are attached to the Case In-baskets used and also define functions available to a user with a specific Role. (A user can be allocated more than one Role, which extends and enhances the possible security matrix which can be defined.)

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The Audit system **Auditor** Role is added with the option **Personal** selected.

The options to move work into the user’s Personal In-basket and the ability to reassign work to other users are selected using the tick boxes against each option.

Click the **Roles** tab.

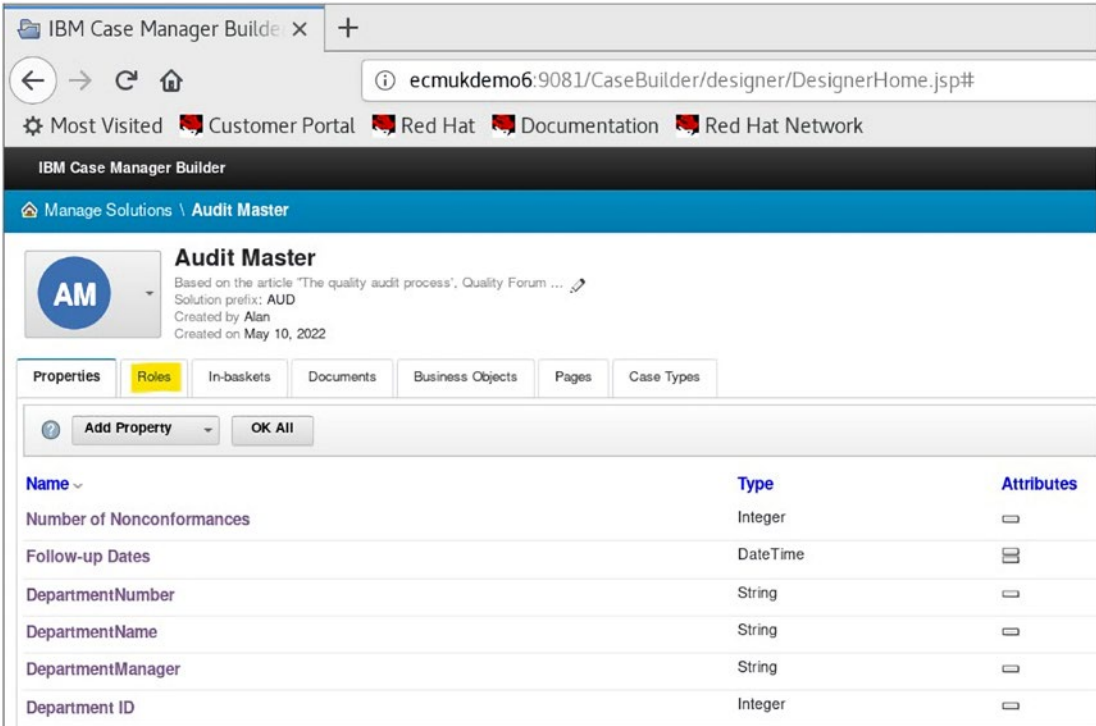


Figure 1-20. The **Roles** tab is selected next to create the Case Security

The **Auditor** role is added with the access options shown in Figure 1-21.

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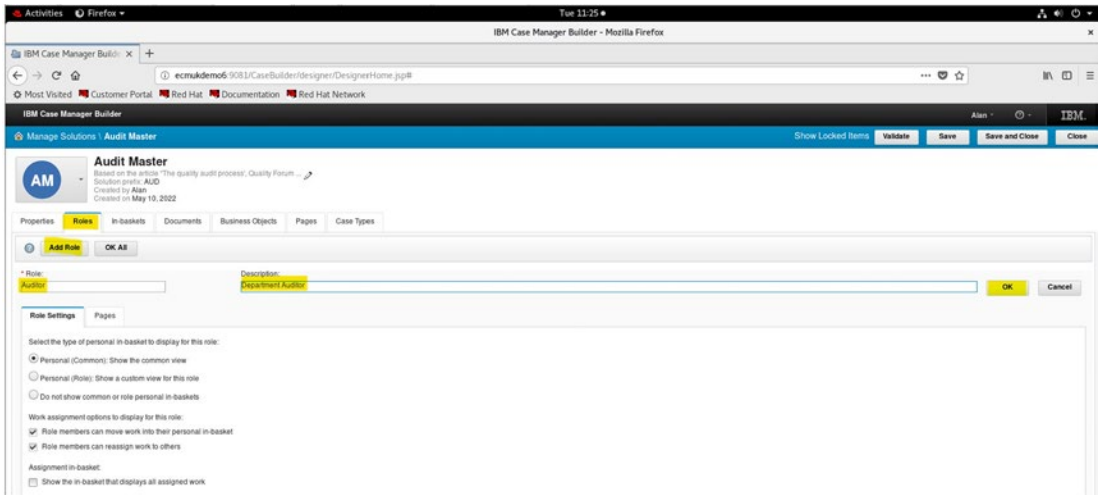


Figure 1-21. The Auditor role is added with the options selected as shown

Note It is good practice to click the Save command button at regular intervals to ensure you do not lose any edits during the Case Solution build.

The **Pages** tab is then selected to show the Assigned pages for the Role.

At this point, custom pages could be added (see later in this chapter for the details of the entry for the **Pages** tab).

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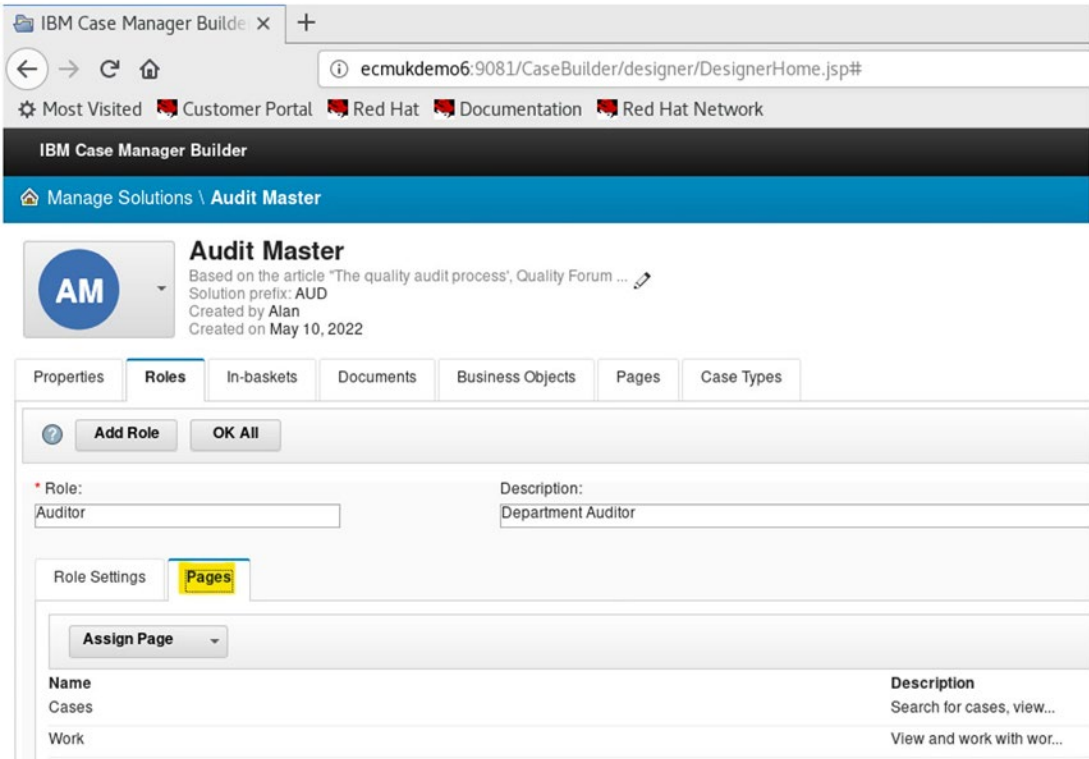


Figure 1-22. The Pages tab is left with the displayed defaults

The **Pages** tab is next selected as shown in Figure 1-22.

This tab allows the Role to be linked with standard and custom created web widget pages.

(The prebuilt **Work** and **Cases** pages are shown.)

The **Auditor's Manager** Role is added next to define a supervisor role for the **Auditor** Role users.

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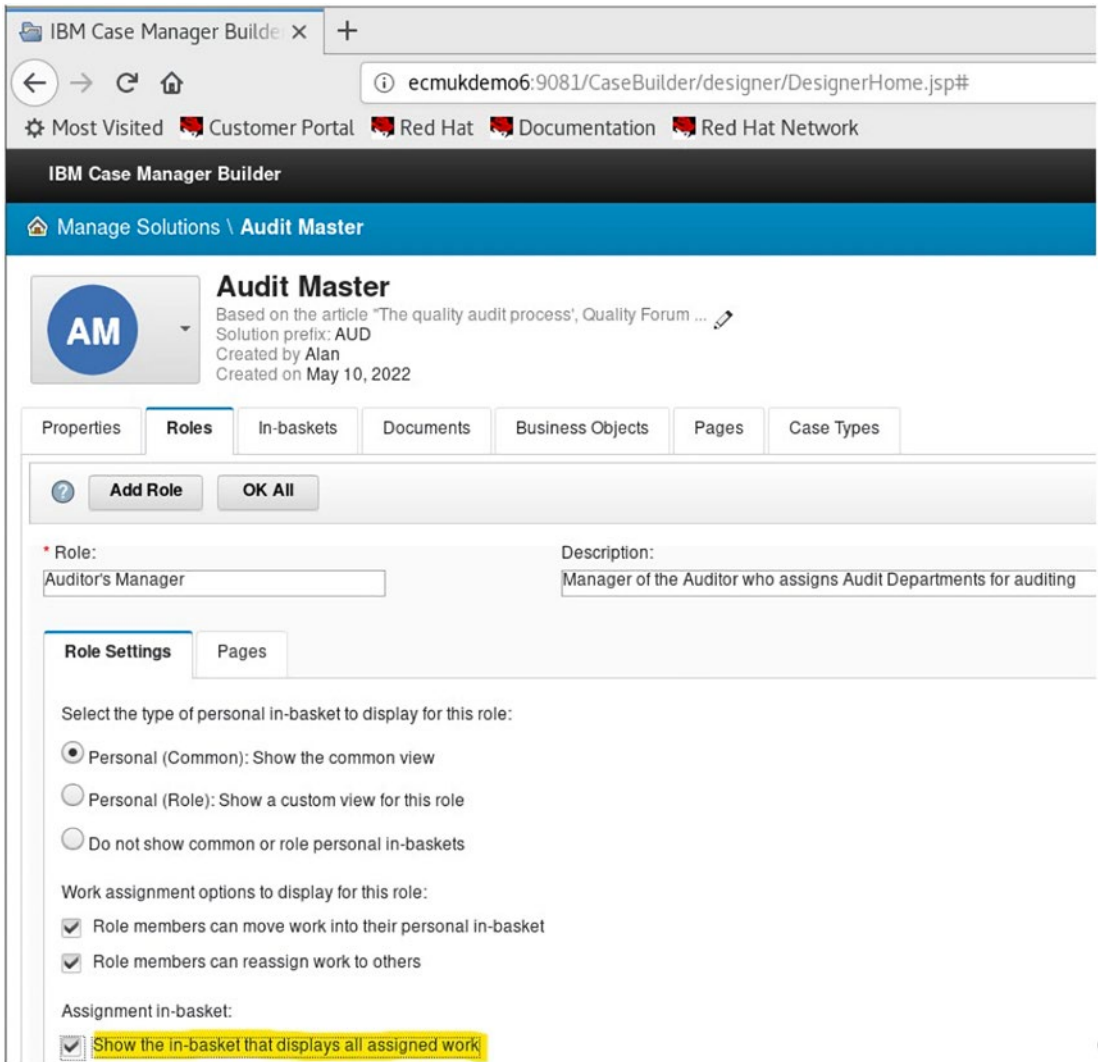


Figure 1-23. The Auditor's Manager role is added with the assigned work in-basket