Note
Before using this information and the product it supports, read the information in "Notices" on page 135.

This edition applies to Version 5 Release 3 of IBM Content Manager for iSeries (product number 5722-VI1) and to all subsequent releases and modifications until otherwise indicated in new editions. This edition replaces SC27-1136-00.

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About This Book

In this book you will learn how to set up, use, and maintain the IBM Content Manager for iSeries (Content Manager for iSeries) product. You will also learn about the Content Manager for iSeries menus and panels that you will use when working with this product, as well as the tasks you must perform to help users process their work.

Who Should Use This Book

Use this book if you are a system administrator who is responsible for planning, configuring, defining, managing, and maintaining Content Manager for iSeries for your enterprise. Before using this document, you should read the IBM Content Manager for iSeries: Planning and Installing.

You should have a working knowledge of the Application System/400® (AS/400) and have a complete set of iSeries documentation.

How This Book Is Organized

To understand the functions that Content Manager for iSeries provides, you should read this guide in the order presented. This guide contains the following chapters.

• Chapter 1, “Introducing Content Manager for iSeries,” on page 1 gives an overview of Content Manager for iSeries, explains how you can use the product, and helps you get started using it.

• Chapter 2, “Library Services,” on page 5 provides some basic concepts and terminology, gives an example for using Content Manager for iSeries, explains a few key concepts in more detail, and shows you how to use Content Manager for iSeries menus and panels to apply what you have learned.

• Chapter 3, “Workflow Processing,” on page 27 summarizes the concepts, terminology, and components of work management, explains how and why you would want to use work management, and shows you how to get started with work management by using the related Content Manager for iSeries menus and panels.

• Chapter 4, “User Access and Security,” on page 35 explains the concepts and types of security checking, as well as shows you how to define and work with privilege sets and user profiles.

• Chapter 5, “Storage Management,” on page 67 provides basic storage management terminology. It explains how store documents to DASD, define and work with optical systems and servers, work with object directories, and define storage classes by using the related Content Manager for iSeries menus and panels.

• Chapter 6, “Database Utilities,” on page 123 shows you how to use menus and panels to release locks on items, work packages, and work management profiles, and move a platter from one optical system to another.
What’s New in Version 5.3

This edition of IBM® Content Manager OnDemand for iSeries™: Application Programming Guide and Reference contains new technical information. There may be some instances where changes were made, but change bars are missing. Significant changes to note are:

Expanded the capability to store ten-character userids. In previous releases, only the first eight characters of the userid were used. Important: Many files have been modified to support ten-character userids. If you support external references and read or write to the EKD0314 file, it might be necessary to recompile your custom programs to support the expansion of the userid field in the file format.

How to Use This Book

This book explains how to perform system administration tasks such as defining application and system profiles, enabling security checking, and administering storage management. You should plan to read the entire book. In particular, before you create Content Manager for iSeries profiles, you will need to review and be familiar with the planning information in Chapter 3, “Workflow Processing,” on page 27, Chapter 4, “User Access and Security,” on page 35, and Chapter 5, “Storage Management,” on page 67.

New or revised information in this book is denoted with a vertical bar (|).

Prerequisite and related information

Use the iSeries Information Center as your starting point for looking up iSeries technical information. You can access the Information Center in one of two ways:

- From the following Web site: http://www.ibm.com/eserver/iseries/infocenter
- From CD-ROMs that ship with your Content Manager for iSeries order:

  iSeries Information Center, SK3T-4091-04. This package also includes the PDF versions of the Content Manager for iSeries publications in iSeries Information Center: Supplemental Manuals, SK3T-4092-01, which replaces the Softcopy Library CD-ROM.

The IBM iSeries Information Center contains advisors and important topics such as CL commands, system application programming interfaces (APIs), logical partitions, clustering, Java™, TCP/IP, Web serving, and secured networks. It also includes links to related IBM Redbooks™ and Internet links to other IBM Web sites such as the Technical Studio and the IBM home page.

Go to http://www-3.ibm.com/software/data/cm/cmgr/400/library.html to access the Content Manager for iSeries publications from the product Web site. The publications are listed in Table 1.

Table 1. IBM Content Manager for iSeries 5.3 publications

<table>
<thead>
<tr>
<th>Title</th>
<th>Publication number</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBM Content Manager for iSeries: Planning and Installing</td>
<td>SC27-1133</td>
</tr>
<tr>
<td>IBM Content Manager for iSeries: Getting Started with Client for Windows</td>
<td>GC27-1135</td>
</tr>
<tr>
<td>IBM Content Manager for iSeries: System Administration Guide</td>
<td>SC27-1136</td>
</tr>
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Table 1. IBM Content Manager for iSeries 5.3 publications (continued)

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</tr>
</thead>
<tbody>
<tr>
<td>IBM Content Manager for iSeries: Messages and Code</td>
<td>SC27-1137</td>
</tr>
<tr>
<td>IBM Content Manager for iSeries: Understanding Advanced Workflow</td>
<td>SC27-1138</td>
</tr>
<tr>
<td>IBM Content Manager for iSeries: Application Programming Guide and Reference</td>
<td>SC27-1139</td>
</tr>
</tbody>
</table>

Support available on the Web

Product support is available from IBM support at http://www-3.ibm.com/software/data/cm/cmgr/400/support.html.

iSeries Navigator

IBM iSeries Navigator is a powerful graphical interface for managing your iSeries servers. iSeries Navigator functionality includes system navigation, configuration, planning capabilities and online help to guide you through your tasks. iSeries Navigator operation and administration of the server easier and more productive and is the only user interface to the new advanced features of the OS/400® operating system. It also includes Management Central for managing multiple servers from a central server.

For more information about iSeries Navigator, see the Information Center.

How to send your comments

Your feedback helps IBM to provide quality information. Please send any comments that you have about this publication or other IBM Content Manager for iSeries documentation. You can use either of the following methods to provide comments:

- Send your comments from the Web. Visit the IBM Data Management Online Reader’s Comment Form (RCF) page at:
  http://www.ibm.com/software/data/rcf
  You can use the page to enter and send comments.

- Send your comments by e-mail to comments@vnet.ibm.com. Be sure to include the name of the product, the version number of the product, and the name and part number of the book (if applicable). If you are commenting on specific text, please include the location of the text (for example, a chapter and section title, a table number, a page number, or a help topic title).
Chapter 1. Introducing Content Manager for iSeries

IBM Content Manager for iSeries is a complete solution for managing multimedia objects. It includes both library- and information-processing capabilities. Using it you can store and process audio, video, text, and image objects. You can automate and gain control of the information your enterprise processes each day to increase productivity and security, lower storage costs, and improve customer service. Content Manager for iSeries lets users capture, store, and retrieve multimedia objects on-line and provides object, folder, and routing capabilities.

A Content Manager for iSeries system consists of Microsoft® Windows® clients connected to an iSeries server, where objects are stored and indexed. With Content Manager for iSeries, users across the enterprise have access to object processing and library management for their own and enterprise objects. The solution is scalable from a single-user system to multiple departments of an enterprise, from one location to several. You can centralize library information on a single iSeries server while centralizing or distributing objects within your enterprise on multiple iSeries servers.

Content Manager for iSeries offers a complete object management system through its client-server architecture. The IBM Content Manager for iSeries Client for Windows provides an interface that lets you bring documents into the system, view and work with them, store and retrieve them.

With the Windows client, the basic flow of documents and information is fairly simple. To store a document in the system, you can import it from a directory or capture it by scanning its pages. You can then index the document with information that will later help you identify and retrieve it. From that point, you can electronically route it to other users, who can do the following:
• Organize documents into electronic folders
• Retrieve groups of related documents and folders
• Route a document to other users for additional processing
• Add notes to a document
• Print a document

The Content Manager for iSeries server component provides a repository for library information and objects. It also provides system administration functions for defining, configuring and managing your Content Manager for iSeries system, as described in this book.

Using Content Manager for iSeries

To use Content Manager for iSeries, enter GO CM from any iSeries command line. The Content Manager for iSeries main menu appears. The options in the main menu let you perform all functions required to administer Content Manager for iSeries.
PANEL DEFINITIONS

Profile maintenance
Displays the Profile Maintenance menu shown in Figure 2 on page 3, which lets you work with various Content Manager for iSeries profiles.

Work with storage management jobs
Displays the Work with Storage Management Jobs menu shown in Figure 108 on page 112, which lets you work with storage management jobs.

Database utilities
Displays the Database Utilities menu shown in Figure 3 on page 4. This option lets you release locks on items, work packages, and work management profiles, as well as move a platter from one optical system to another.

Sign off
Exits Content Manager for iSeries and signs off the iSeries server.

FUNCTION KEY DEFINITIONS

Enter Processes your selection.

Profile Maintenance
To open the Profile Maintenance menu, select 1 from the Content Manager for iSeries main menu.
VIPRF

Profile Maintenance

Select one of the following:

1. Work with privilege sets
2. Work with user profiles
3. Work with groups
4. Work with access lists
5. Work with key fields
6. Work with index classes
7. Work with workbaskets
8. Work with collections
9. Work with servers
10. Work with object directories
11. Work with storage classes
12. Work with optical systems
13. Delete work management profiles

Selection or command

F3=Exit  F4=Prompt  F9=Retrieve  F12=Cancel  F13=User support
F16=Set initial menu

Figure 2. Profile Maintenance menu

Table 2 explains where you can learn more about the tasks associated with this menu.

Table 2. Topics Related to Profile Maintenance

<table>
<thead>
<tr>
<th>Topic</th>
<th>Chapter</th>
</tr>
</thead>
<tbody>
<tr>
<td>• User profiles</td>
<td>Chapter 4, “User Access and Security,” on page 35</td>
</tr>
<tr>
<td>• Privilege sets</td>
<td></td>
</tr>
<tr>
<td>• Groups</td>
<td></td>
</tr>
<tr>
<td>• Access lists</td>
<td></td>
</tr>
<tr>
<td>• Key fields</td>
<td>Chapter 2, “Library Services,” on page 5</td>
</tr>
<tr>
<td>• Index classes</td>
<td></td>
</tr>
<tr>
<td>• Workbaskets</td>
<td>Chapter 3, “Workflow Processing,” on page 27</td>
</tr>
<tr>
<td>• Collections</td>
<td>Chapter 5, “Storage Management,” on page 67</td>
</tr>
<tr>
<td>• Servers</td>
<td></td>
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<tr>
<td>• Object directories</td>
<td></td>
</tr>
<tr>
<td>• Storage classes</td>
<td></td>
</tr>
<tr>
<td>• Optical systems</td>
<td></td>
</tr>
</tbody>
</table>

Database Utilities

To open the Database Utilities menu, select 3 from the Content Manager for iSeries main menu. See Chapter 6, “Database Utilities,” on page 123 for additional information.
Select one of the following:

1. Release item locks
2. Release work package locks
3. Release work management profile locks
4. Release pended items
4. Platter move

Selection or command

F3=Exit  F4=Prompt  F9=Retrieve  F12=Cancel  F13=User support  F16=Set initial menu

Figure 3. Database Utilities menu
Chapter 2. Library Services

Library services cover the indexing and subsequent retrieval of documents. Documents can be stand-alone or organized into folders. The library is the collection of documents and folders and their attributes.

Concepts

Library services in Content Manager for iSeries consist of the following:
- Items
- Key fields
- Index classes

Items

An item is a document or a folder. Associated with each item are system- and user-defined attributes. System-defined attributes are stored once for each item. Examples of system attributes would be item creation date/time and item description. User-defined attribute values (key fields) are stored once for each instance of an item in an index class. End users create items.

Documents

Documents are items that can be stored, retrieved, and exchanged as a single unit among systems and users. A document is any object entered into Content Manager for iSeries through scan or import.

Folders

Folders are items that provide a way to group related documents and other folders together. Grouping items in folders makes them easier to retrieve. A folder can contain zero to many items, but cannot contain itself as a subfolder. End users create folders. A folder can be placed in an index class and/or placed in another folder.

Relationships

Items can have the following relationships:
- When using the Content Manager for iSeries client, each item is associated with one and only one index class.
- Each item can be located in zero to many folders. However, an item cannot be located in the same folder twice.

Key fields

A key field is a label for standard information that you can use to index, identify, and retrieve items in index classes and folders. Users can assign values to key fields for each item in an index class.

As system administrator, you can do the following:
- Define key fields
- Give each key field a name and description
- Specify the type of data to be stored (character or numeric) and the maximum length of the key field value
Relationships
Each key field can be associated with zero to many index classes.

Index Classes
An index class is a way to group items, documents and folders with similar attributes for the purpose of storage and retrieval. An index class also gives you a way to group items for security reasons. Each item in an index class can have different key field values.

As system administrator, you can do the following:
• Define an index class to be a group of 1 to 8 key fields.
• Give each index class a name and description
• Associate a key field to an index class, specifying that the key field is either required or optional information for that index class. Whenever users add an item to an index class, they must specify a value for the item in any required index class key fields.

Relationships
Each index class can be a group of 1 to 8 key fields.

Planning for Index Classes
Index classes provide document storage and retrieval capabilities that let you easily manage documents and folders in Content Manager for iSeries.

After documents and folders have been indexed and stored in an index class, users can retrieve a single document or group of documents–or one or more folders to work on. Users specify criteria and search the index class to identify which items to work with. Search criteria are values for the key fields defined for the index class. When users perform a search, all items with key field values that match those specified as the search criteria are displayed in a list.

Performance Considerations Associated to Index Classes
Because users must search to retrieve index class items for processing, for performance reasons you should consider the following factors when defining and using index classes:
• Number of items to be placed in an index class
• Use of wildcards as search criteria
• Searching across multiple index classes

Basic Versus Advanced Searching
Although advanced searching gives you more flexibility for most queries, using it to retrieve index class items can slow performance. Use advanced searching when you need more flexibility when searching index classes. However, basic searching generally retrieves items faster than advanced searching, so you might want to use basic searching most of the time. To optimize search performance even when using only basic searching, consider also the other factors in this section.

Number of Items in an Index Class
A search that results in fewer items is generally faster. One way you can limit the number of items is to store them across multiple index classes. For example, suppose you must store documents associated with all employees of a particular state. You could define an index class called Maryland with key fields of Last Name, First Name, Social Security Number, and County. However, if the employee’s county is always known before a search is performed, you could define
an index class for each of the state’s counties. Therefore, searching through the
county index class would be more efficient than searching through an index class
for the entire state.

**Key Field Order**

When you perform a basic search, the first key field value the user specifies in the
search criteria can have a significant effect on search performance. The range of
documents to be searched is limited to those that satisfy the first key field value
the user specifies. If many documents with key field values match the first
specified value, it might take longer to search for and retrieve documents. So, if
you needed to maintain documents for state employees, you could define a
Maryland index class with the following key field definitions:

```
Key 1 : COUNTY
Key 2 : LAST NAME
Key 3 : FIRST NAME
Key 4 : SS #
```

A user might then search the index class and specify the following criteria:

```
Key 1 : MONTGOMERY
Key 2 : DOE
Key 3 :
Key 4 :
```

In this example, to obtain the list, Content Manager for iSeries searches all
employee records within Montgomery County, returning only those containing a
last name of Doe. Because there are more employees in a given county than people
in the state with the same last name, this is not the most efficient way to define the
index class key fields. Therefore, the following definition can improve search
performance:

```
Key 1 : LAST NAME
Key 2 : FIRST NAME
Key 3 : SS #
Key 4 : COUNTY
```

As another example, when the social security number is known and is always
specified as search criteria, you can further restrict the number of items searched
using the following key field definitions. In this case, you significantly improve
search time because social security numbers are unique.

```
Key 1 : SS #
Key 2 : LAST NAME
Key 3 : FIRST NAME
Key 4 : COUNTY
```

**Wildcard Search Criteria**

If you use a wildcard within the key field value or as a value itself, the response
time of the search increases. Wildcards expand your search by offering more
possibility for matches, therefore more items must be searched. Basic searching
allows only the asterisk as a wildcard character, while advanced searching
provides additional wildcard capabilities.

**Searching Across Multiple Index Classes**

You can search for items across multiple index classes. Be aware, however, that this
kind of search can impact performance.
Defining Key Fields and Index Classes

Key fields and index classes are the primary constructs in determining how objects are indexed and subsequently retrieved through searches. When you index documents and folders, you assign them values that define where and how the items are stored and processed. To index an item, you select an index class and then type in appropriate key field values for it.

An index class is a category used to identify a group of documents and folders. Index classes are created according to how documents and folders are stored, retrieved, presented for display, and processed. Every index class includes a defined set of key fields, which are categories of information that help uniquely identify an item.

The indexing information you assign to a document or folder is very important. It influences how the item is stored, retrieved, presented for display, and processed.

To define key fields and index classes, use 5 and 6 from the Profile Maintenance menu shown in Figure 4.

<table>
<thead>
<tr>
<th>VIPRF</th>
<th>Profile Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select one of the following:</td>
<td></td>
</tr>
<tr>
<td>1. Work with privilege sets</td>
<td></td>
</tr>
<tr>
<td>2. Work with user profiles</td>
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<tr>
<td>3. Work with groups</td>
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<td>11. Work with storage classes</td>
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<td></td>
</tr>
<tr>
<td>13. Delete work management profiles</td>
<td></td>
</tr>
</tbody>
</table>

Selection or command

---

F3=Exit  F4=Prompt  F9=Retrieve  F12=Cancel  F13=User support  F16=Set initial menu

Figure 4. Profile Maintenance menu

Working with Key Fields

Key fields are all the attributes you define to represent each object. They represent the different information that you associate with an object. For example, a job application can contain key fields—such as Social Security number, last name, and first name.

You see the panel shown in Figure 5 on page 9 when you select 5 from the Profile Maintenance menu.
Position to . . . Key field

Type choices, press Enter
1=Create  2=Change  3=Copy  4=Delete  5=Display

Key

Option  Field  Text

1. xxxxxxx  xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
display the key field definition and description. It displays the panel shown in Figure 10 on page 13.

**Key field**
Lists the names of the key fields.

**Text**
Lists the description for each key field.

You can select any combination or number of valid options. The options you select are processed in the order listed on the panel. If an error occurs for one of the options, the Work with Key Fields panel is displayed again with the option in error highlighted. Any other options remaining to be processed are also displayed on the panel. When you correct the error, all options selected are processed.

**FUNCTION KEY DEFINITIONS**

**Enter**  Processes your selections.

**Creating Key Fields**
The panel shown in Figure 6 is displayed when you select 1 from the Work with Key Fields panel. This panel lets you create new key fields. It is important to remember that the name and length of the key field will determine how output fields appear when users work with items in index classes that use this key field. Therefore, you should consider the appearance and the meaningfulness of the key fields that are created.

**Create Key Field**

Type choices, press Enter

<table>
<thead>
<tr>
<th>Key field</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>1=Character</th>
<th>2=Numeric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>1-40</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 6. Create Key Field profile panel**

**PANEL DEFINITIONS**

**Key field**  The name of the key field you want to create.

**Text**  The description of the key field. This is the key field text that will be displayed to the user while indexing and searching for items within an index class.

**Type**  The type of the key field, such as numeric or character. After you define the type of a key field, you can change it if an index class does not reference it. Type one of the following choices:

- **1=Character**
  Indicates that the key field is character
2=Numeric
  Indicates that the key field is numeric

Length  The maximum number of characters that the value in the field can consist of. The maximum characters allowed is 40. After you define the length of a key field, although you can increase it, you can only decrease it if an index class does not reference it.

**FUNCTION KEY DEFINITIONS**

Enter  Saves the key field definition.

**Changing Key Fields**

The panel shown in Figure 7 is displayed by selecting 2 from the Work with Key Fields panel. This panel lets you modify an existing key field definition. Keep the following in mind when modifying a key field:

- You cannot modify the key field name itself.
- You can change the key field type if an index class does not reference it.
- You can increase the key field length, but you can only decrease it if an index class does not reference it.

For a description of the fields on this display, see “Creating Key Fields” on page 10.

For a description of the fields on this display, see “Creating Key Fields” on page 10.

**Copying Key Fields**

The panel shown in Figure 8 on page 12 is displayed by selecting 3 from the Work with Key Fields panel. This panel lets you copy an existing key field to create a new key field.

For a description of the fields on this display, see “Creating Key Fields” on page 10.
Deleting Key Fields

The panel shown in Figure 9 is displayed by selecting 4 from the Work with Key Fields panel. To confirm the deletion of key fields, press the Enter key or cancel your request by pressing F12 (Cancel).

Displaying Key Fields

The panel shown in Figure 10 on page 13 is displayed by selecting 5 from the Work with Key Fields panel. This panel displays the current profile information for the requested key field.

For a description of the fields on this display, see “Creating Key Fields” on page 10.
Working with Index Classes

An index class is a category used to identify a group of documents and folders. Index classes are like file cabinets. You can use them as you would real file cabinets in an office or library. You can store items in as many index classes as you need, organized according to your business or your business processes. For example, an insurance company system might contain a CLAIMS index class.

Each index class includes a set of key fields. When you index a document, you enter information for the document into these key fields. The CLAIMS index class might include key fields labeled Last Name, Claim Number, and Appraisal Amount.

You use index classes and key fields as a basis for the search and retrieval of items in Content Manager for iSeries.

System-Defined Index Classes

Content Manager for iSeries provides predefined index classes: NOINDEX, DOCCLASS, and FLRCLASS.

The NOINDEX index class is used when new items such as documents and folders are introduced into the system and there is no index information available. The NOINDEX class associates the following information with a new item:

- Its source, such as Import or Scan
- The user ID of the operator who entered it
- A time stamp indicating the time the item was introduced

DOCCLASS and FLRCLASS allow you to access data that was created using the IBM ImagePlus Workfolder Application Facility for AS/400 feature. Workfolder Application Facility is a predecessor of Content Manager for iSeries, and has a slightly different data model and method for indexing. Folders (cases) created in Workfolder Application Facility are implicitly assigned to the FLRCLASS index class. You can perform searches using FLRCLASS to retrieve and work with folders indexed in Workfolder Application Facility using a single case identifier. Similarly, documents within a case are implicitly assigned to the DOCCLASS index class, although the DOCCLASS index class cannot be searched.
The panel shown in Figure 11 is displayed when you select 6 from the Profile Maintenance menu.

<table>
<thead>
<tr>
<th>Option</th>
<th>Index Class</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>1=Create</td>
<td>xxxxxxxx</td>
<td>xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</td>
</tr>
<tr>
<td>2=Change</td>
<td>xxxxxxxx</td>
<td>xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</td>
</tr>
<tr>
<td>3=Copy</td>
<td>xxxxxxxx</td>
<td>xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</td>
</tr>
<tr>
<td>4=Delete</td>
<td>xxxxxxxx</td>
<td>xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</td>
</tr>
<tr>
<td>5=Display</td>
<td>xxxxxxxx</td>
<td>xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</td>
</tr>
</tbody>
</table>

**Figure 11. Work with Index Classes panel**

**PANEL DEFINITIONS**

**Position to**

Enter the name of the index class you want to scroll to and press Enter. The panel is displayed again with the index class you typed appearing on the panel. If you type a letter, a string of letters, or an index class that does not exist, the index class most closely matching what you typed is displayed on the panel.

**1=Create**

Select this option to create a new index class. It displays the panel shown in Figure 12 on page 15.

**2=Change**

Enter 2 next to the index class you want to change. It displays the panel shown in Figure 18 on page 23, where you can change an index class description and definition. When you change an index class definition, although you can add key fields, you can only remove them if no items are associated with the index class.

**3=Copy**

Enter 3 next to the index class you want to copy. This lets you copy an existing index class definition into a new index class definition. It displays the panel shown in Figure 19 on page 24, where you can change the existing index class definition to create the new index class.

**4=Delete**

Enter 4 next to the index class you want to delete. It displays the panel shown in Figure 20 on page 24, which lets you confirm or cancel the request. If the index class contains items or another index class references it, it cannot be deleted. If you select 4 next to more than one item, the delete requests are grouped and processed together.
5=Display  Enter 5 next to the index class for which you want
to display the index class definition. It displays the
panel shown in Figure 21 on page 25.

Index class  Lists the names of the index classes.

Text  Lists the description for each index class.

You can select any combination or number of valid options. The options you select
are processed in the order listed on the panel. If an error occurs for one of the
options, the Work with Index Classes panel is displayed again with the option in
error highlighted. Any other options remaining to be processed are also displayed
on the panel. When you correct the error, all options selected are processed.

FUNCTION KEY DEFINITIONS

Enter  Processes your selections.

Creating Index Classes

The panel shown in Figure 12 is displayed by selecting 1 from the Work with Index
Classes panel. The Create Index Class panels lets you create new index classes.

Create Index Class

<table>
<thead>
<tr>
<th>Type choices, press Enter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index class . . . . . . . .</td>
</tr>
<tr>
<td>Text . . . . . . . . . . . . .</td>
</tr>
<tr>
<td>Access list . . . . . . . .</td>
</tr>
<tr>
<td>Key field 1 . . . . . . . .</td>
</tr>
<tr>
<td>Required . . . . . . . . .</td>
</tr>
<tr>
<td>Key field 2 . . . . . . . .</td>
</tr>
<tr>
<td>Required . . . . . . . . .</td>
</tr>
<tr>
<td>Key field 3 . . . . . . . .</td>
</tr>
<tr>
<td>Required . . . . . . . . .</td>
</tr>
<tr>
<td>Key field 4 . . . . . . . .</td>
</tr>
<tr>
<td>Required . . . . . . . . .</td>
</tr>
</tbody>
</table>

Figure 12. Create Index Class panel

PANEL DEFINITIONS

Index class  Type a unique 1- to 8-character abbreviated name
for the index class.

Text  Type the description of the index class. This field is
informational and describes the contents of the
index class. Use names that are easy to remember
and that reflect the folders and documents that are
included in the index class.

Access list  Type the name of the access list to be associated
with this index class. The access list controls who
can access the index class.
**Key field**
Type which key fields you want to assign to the index class. The key fields are the attributes that describe the items associated with this index class. You can either type the name of a known key field or press F4 and select from a list of existing key fields. The key field order can affect index class searches. (See “Planning for Index Classes” on page 6 for considerations associated to defining an index class.) If you press F6, the panel shown in Figure 5 on page 9 is displayed, where you can create a new key field.

**Required**
Type Y to indicate the key field is required for this index class. If the key field is required, users must specify a value for the key field when they index items into an index class. Type N to make a value for this key field optional.

**FUNCTION KEY DEFINITIONS**

**F6**
The Work with Key Fields panel (Figure 5 on page 3) is displayed where you can create a new key field.

**Enter**
Saves the index class definition.

---

Create Index Class
Type choices, press Enter

<table>
<thead>
<tr>
<th>Key field 5 . . . . . . . . . . . . . . . . .</th>
<th>Name, F4 for list</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required . . . . . . . . . . . . . . . . .</td>
<td>Y=Yes, N=No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key field 6 . . . . . . . . . . . . . . . . .</th>
<th>Name, F4 for list</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required . . . . . . . . . . . . . . . . .</td>
<td>Y=Yes, N=No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key field 7 . . . . . . . . . . . . . . . . .</th>
<th>Name, F4 for list</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required . . . . . . . . . . . . . . . . .</td>
<td>Y=Yes, N=No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key field 8 . . . . . . . . . . . . . . . . .</th>
<th>Name, F4 for list</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required . . . . . . . . . . . . . . . . .</td>
<td>Y=Yes, N=No</td>
</tr>
</tbody>
</table>

| Key field to represent object . . . . . . . | ______ |

More...

3=Exit  F4=Prompt  F6=Create key field  F12=Cancel

---

**Figure 13. Create Index Class panel**

**PANEL DEFINITIONS**

**Key field**
Specify which key fields you want to assign to the index class. The key fields are the attributes that describe the items associated with this index class. You can either type the name of a known key field or press F4 and select from a list of existing key fields. The key field order can affect index class searches. (See “Planning for Index Classes” on page 6 for considerations associated to defining an index class.)
If you press F6, the panel shown in Figure 5 on page 9 is displayed, where you can create a new key field.

**Required**

Type Y to indicate the key field is required for this index class. If the key field is required, users must specify a value for the key field when they index items into an index class.

Type N to make a value for this key field optional.

**Key field to represent object**

Type the key field that should be used as a title when displaying each object that users retrieve using this index class.

**FUNCTION KEY DEFINITIONS**

**F6**

The Work with Key Fields panel (Figure 5 on page 9) is displayed, where you can create a new key field.

**Enter**

Saves the index class definition.

```
Create Index Class

Type choices, press Enter

Default collection ............. *DFT Name, F4 for list
Alternate storage:
  Document collection ............. Name, F4 for list
  Note collection ................. Name, F4 for list
  History collection ............. Name, F4 for list
Automatic foldering ............. N Y=Yes, N=No
Key field ................. Name, F4 for list
Index class ....................... Name, F4 for list
Workflow processing ............. 1 1=Manual
                                   2=Automatic
Default process ....................... Name, F4 for list

More...

F3=Exit  F4=Prompt  F6=Create key field  F12=Cancel
```

*Figure 14. Create Index Class panel*

**PANEL DEFINITIONS**

**Default collection**

Type the default collection to be used for determining the storage requirements of objects associated to this index class. You can either type the name of a known collection or press F4 to select from a list of existing collections.

**Alternate storage**

Determines where documents, notes, and history logs are stored:

**Document collection**

Type the name of the collection to be used for determining the storage requirements for note objects associated with this index class. You can either type the name of a
known collection or press F4 to select from a list of existing collections.

**Note collection**
Type the collection to be used for determining the storage requirements for note objects associated with this index class. You can either type the name of a known collection or press F4 to select from a list of existing collections.

**History Collection**
Type the collection that is to be used for determining the storage requirements for history objects associated with this index class. You can either type the name of a known collection or press F4 to select from a list of existing collections.

**Automatic foldering**
Type Y if you want the application to automatically add an object to a folder of the index class you select.

When a user saves an object, Content Manager for iSeries searches for an existing folder that contains the key field for the object and the value in the key field.

If Content Manager for iSeries finds a folder that matches both the key field and the value in the key field, Content Manager for iSeries saves the values from the object key fields in the folder key fields. Only those values from the object key fields that do not currently exist in the folder key fields are saved.

If Content Manager for iSeries does not find a folder that matches the key field and the value in the key field, Content Manager for iSeries:
- Creates a folder using the index class type you specify
- Places the values of the object key fields in the folder key fields

**Key field**
Specify the key field that the application uses to index the object and automatically add the object to a folder. This field is required if Y was specified for automatic foldering. You can either type the name of a known key field or press F4 to select from a list of existing key fields.

**Note:** Automatic foldering will end if the chosen key field is an "optional" key field AND the indexing user does not enter information for that "optional" key field.
For example, if there were four index classes (with their associated key fields) as follows:
INDEXclassA
  NAMEKEY (required)
  ADDRESS (optional)
  SSN
  Autofolder=Y
  INDEXCLASS=INDEXclassB
  KEYFIELD=NAMEKEY

INDEXclassB
  NAMEKEY (required)
  SSN
  DOCDESC
  Autofolder=Y
  INDEXCLASS=INDEXclassC
  KEYFIELD=DOCDESC

INDEXclassC
  NAMEKEY
  DOCDESC
  CREATEDATE
  INDEXCLASS=INDEXclassD
  KEYFIELD=NAMEKEY

INDEXclassD
  NAMEKEY
  CREATEDATE

And, in this example,
1. You index into INDEXclassA.
2. INDEXclassA autofolders into INDEXclassB.
3. INDEXclassB attempts to autofolder into INDEXclassC, but the process stops because INDEXclassA does not have data for DOCDESC (because it is not a part of its index class key fields).

Also, using the same INDEXclass examples above, if the indexer does not enter information for the optional ADDRESS key field for INDEXclassA, the process stops and does not autofolder into INDEXclassB.

Index class
Specify the index class to associate the object to when an object is automatically added to a folder. This field is required if Y was specified for automatic foldering. You can either type the name of a known index class or press F4 to select from a list of existing index classes.

Workflow processing
This field is used to specify whether objects of this index class are sent to a workflow process automatically or manually. Type one of the following choices:
1=Manual
The application selects the process, but the application users add the items that they save, under this index class, to the process.

2=Automatic
When application users save items under this index class, the application adds the items to the process.

Default process
Specify the name of the default process to which objects of this index class are to be sent. You can either type the name of a known process or press F4 to select from a list of existing processes.

FUNCTION KEY DEFINITIONS

F6  The Work with Key Fields panel (Figure 5 on page 20) is displayed, where you can create a new key field.

Enter  Saves the index class definition.

<table>
<thead>
<tr>
<th>Create Index Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type choices, press Enter</td>
</tr>
<tr>
<td>Default priority ............ 00001 1-31999</td>
</tr>
<tr>
<td>Activate collection point ................ N Y=Yes, N=No</td>
</tr>
<tr>
<td>Process ................ Name, F4 for list</td>
</tr>
<tr>
<td>Collection point ............... Name, F4 for list</td>
</tr>
<tr>
<td>Save user exit function ...............</td>
</tr>
<tr>
<td>Dynamic link library ...............</td>
</tr>
<tr>
<td>Search user exit function ...............</td>
</tr>
<tr>
<td>Dynamic link library ...............</td>
</tr>
</tbody>
</table>

F3=Exit  F4=Prompt  F6=Create key field  F12=Cancel

More...

Figure 15. Create Index Class panel

PANEL DEFINITIONS

Default priority  Type the order that you want the application to process an object of this index class within a workbasket. You can specify a priority from 1 to 31999, where 1 is the lowest priority.

Activate collection point  Type Y if you want indexed items of this type to activate the collection point you specify in this profile, before the item arrives at the collection point. Otherwise, type N.

When this field is Y, and an indexed item of this type does not match an event at the collection...
point, the system creates the events at the collection point for the item and matches the item to the appropriate event.

**Process**
Type the name of the process you want the system to examine when matching an indexed item with collection point events.

**Collection point**
Type the name of the collection point you want the system to examine when matching an indexed item with collection point events.

**Save user exit function**
Type the name of the function that you want to run at the user exit for saving an object. This user exit determines the processing, such as data verification, that the client performs before it saves an object.

**Search user exit function**
Type the name of the function that you want to run at the user exit for performing an alternate search function. This user exit determines the processing that the client performs when users begin a search.

**Dynamic link library**
Type the dynamic link library for each user exit entered.

**FUNCTION KEY DEFINITIONS**

**F6**
The Work with Key Fields panel (Figure 5 on page 21) displays, where you can create a new key field.

**Enter**
Saves the index class definition.

<table>
<thead>
<tr>
<th>Create Index Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type choices, press Enter</td>
</tr>
<tr>
<td>Sort user exit function . . . . . . . . . . .</td>
</tr>
<tr>
<td>Dynamic link library . . . . . . . . . . .</td>
</tr>
<tr>
<td>Next workbasket user exit function . . . . . .</td>
</tr>
<tr>
<td>Dynamic link library . . . . . . . . . . .</td>
</tr>
<tr>
<td>Automatic workflow user exit function . . . . . .</td>
</tr>
<tr>
<td>Dynamic link library . . . . . . . . . . .</td>
</tr>
<tr>
<td>Storage management user exit function . . . . . .</td>
</tr>
<tr>
<td>Dynamic link library . . . . . . . . . . .</td>
</tr>
</tbody>
</table>

F3=Exit  F6=Create key field  F12=Cancel

*Figure 16. Create Index Class panel*
**PANEL DEFINITIONS**

**Sort user exit function**
Type the name of the function that you want to run at the user exit for performing an alternate sort function.

**Next workbasket user exit function**
Type the name of the function that you want to run when the client or user routes a folder or document of this index class to a workbasket.

**Automatic workflow user exit function**
Type the name of the function that you want to run at the automatic workflow user exit. The function will be used when a user saves an item with an index class that is defined to automatically start items in a workflow when they are saved.

**Storage management user exit function**
Type the name of the function that you want to run at the storage management user exit. This exit is run when users index an item of this index class.

**Dynamic link library**
Type the dynamic link library for the user exit entered.

**FUNCTION KEY DEFINITIONS**

**F6**
The Work with Key Fields panel \[Figure 5 on page 6\] displays, where you can create a new key field.

**Enter**
Saves the index class definition.

---

**Create Index Class**

Type choices, press Enter

User option user exit function

Dynamic link library

F3=Exit  F6=Create key field  F12=Cancel

**Figure 17. Create Index Class panel**

**PANEL DEFINITIONS**

**User option user exit function**
Type the name of the function that you want to run at the user option user exit.

**User option user exit dynamic link library**
Type the dynamic link library for the user exit entered.

**FUNCTION KEY DEFINITIONS**

**F6**
The Work with Key Fields panel \[Figure 5 on page 6\] displays, where you can create a new key field.

**Enter**
Saves the index class definition.
Changing Index Classes

Select 2 from the Work with Index Classes panel to display the panel shown in Figure 18. Use this panel to modify an existing index class definition, keeping the following in mind when items are associated with the index class:

- You can add but not delete key fields.
- You cannot change the order of key fields.

“Creating Index Classes” on page 15 explains the fields in this panel in more detail.

![Change Index Class panel](image)

Figure 18. Change Index Class panel

Copying Index Classes

Select 3 from the Work with Index Classes panel to display the panel shown in Figure 19 on page 24. Use this panel to copy an existing index class to create a new index class.

“Creating Index Classes” on page 15 explains the fields in this panel in more detail.
Deleting Index Classes

Select 4 from the Work with Index Classes panel to display the panel shown in Figure 20. Press Enter to confirm that you want to delete index classes, or Press F12 to cancel.

```
Copy Index Class
Copy from index class ............: xxxxxxxx
Type choices, press Enter

Index class ................. Name
Text ........................ xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
Access list........ Name, F4 for list

Key field 1 ................ xx Name, F4 for list
Required ............ x Y=Yes, N=No

Key field 2 ................ xx Name, F4 for list
Required ............ x Y=Yes, N=No

Key field 3 ................ xx Name, F4 for list
Required ............ x Y=Yes, N=No

Key field 4 ................ xx Name, F4 for list
Required ............ x Y=Yes, N=No

F3=Exit  F4=Prompt  F6=Create key field  F12=Cancel
```

Figure 19. Copy Index Class panel

Displaying Index Classes

Select 5 from the Work with Index Classes panel to display the panel shown in Figure 21 on page 25. Use this panel to display the current profile information for the index class you requested.

```
Confirm Delete of Index Class
Press Enter to confirm your choice for 4=Delete.
Press F12 to return and not delete the index class.

<table>
<thead>
<tr>
<th>Option</th>
<th>Index Class</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>xxxxxxxx</td>
<td>xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</td>
</tr>
<tr>
<td>4</td>
<td>xxxxxxxx</td>
<td>xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</td>
</tr>
<tr>
<td>4</td>
<td>xxxxxxxx</td>
<td>xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</td>
</tr>
<tr>
<td>4</td>
<td>xxxxxxxx</td>
<td>xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</td>
</tr>
<tr>
<td>4</td>
<td>xxxxxxxx</td>
<td>xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</td>
</tr>
</tbody>
</table>

F12=Cancel
```

Figure 20. Confirm Delete of Index Classes panel

“Creating Index Classes” on page 15 explains the fields in this panel in more detail.
Display Index Class

Index class . . . . . . . . . . : xxxxxxxx
Text . . . . . . . . . . . . . . . : xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
Access list . . . . . . . . . . : xxxxxxxx

Key field 1 . . . . . . . . . . : xxxxxxxx
   Required . . . . . . . . . : x

Key field 2 . . . . . . . . . . : xxxxxxxx
   Required . . . . . . . . . : x

Key field 3 . . . . . . . . . . : xxxxxxxx
   Required . . . . . . . . . : x

Key field 4 . . . . . . . . . . : xxxxxxxx
   Required . . . . . . . . . : x

Press Enter to continue.                                               More...
F3=Exit   F12=Cancel

Figure 21. Display Index Class panel
Chapter 3. Workflow Processing

Content Manager for iSeries provides a workflow system that lets you automate and control the flow and performance of work in your environment. When users work on items, they must make decisions on what actions to perform on an item. Advanced workflow automates this process by letting you, as the system administrator, determine how you want the work to be performed. You do this by setting up profiles and rules that control the way workflow components work together. The major workflow components are workbaskets, action lists, and processes.

- A workbasket is a logical grouping of available work and the rules associated with performing the work. A workbasket is similar to an in-basket; it contains items to be worked on by users.
- An action list is a set of actions that you want to allow a user to perform at a given workbasket. The action list is a subset of workbasket functions, such as continue or suspend.
- A process is the series of steps, events, and rules through which the work flows. A process can be a simple sequential process that links workbaskets, or a complex process with parallel routes. In addition to workbaskets, a process can contain collection points where work waits for an event to occur before it is routed to the next step, decision points where the route taken depends on which of the alternatives you defined is satisfied first, and user exits where you can perform custom processing.

In addition to the advanced workflow provided by process definitions, Content Manager for iSeries also lets you route work outside a process by providing an ad hoc routing capability. This capability lets a user place an item directly into a workbasket without using a predefined process. The ad hoc routing function uses the workbasket and action list components that the workflow system provides.

Before you define the workflow components that are required to process work in your organization, you should analyze the flow of work in your organization. Consider the actions users perform on documents and determine the most efficient way to set up your system to manage the flow of work. Some user tasks can be automated through workflow, while others may be completed more quickly if performed manually by users. In addition, you might find that some combination of automated workflow and ad hoc routing best meet your business needs.

Maintaining Profile Definitions

Action lists and processes are created and maintained using a graphics-based editor named Work Management Builder. The Work Management Builder is a separate feature of Content Manager for iSeries. Without Work Management Builder you cannot define automated workflow. Refer to the IBM Content Manager for iSeries: Understanding Advanced Workflow for information on defining these workflow components.

Workbaskets are created and maintained using Content Manager for iSeries system administration panels on the server.
Working with Workbaskets

The panel shown in Figure 22 displays when you select 7 from the Profile Maintenance menu, which lets you create, display, change, copy, and delete workbaskets.

The panels you use to work with workbasket profiles are described in the following section.

<table>
<thead>
<tr>
<th>Option</th>
<th>Workbasket</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>1=Create</td>
<td>xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</td>
<td></td>
</tr>
<tr>
<td>2=Change</td>
<td>xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</td>
<td></td>
</tr>
<tr>
<td>3=Copy</td>
<td>xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</td>
<td></td>
</tr>
<tr>
<td>4=Delete</td>
<td>xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</td>
<td></td>
</tr>
<tr>
<td>5=Display</td>
<td>xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</td>
<td></td>
</tr>
</tbody>
</table>

Figure 22. Work with Workbaskets panel

**PANEL DEFINITIONS**

**Position to**

Specify the name of the workbasket you want to scroll to and press Enter. The panel is displayed again with the workbasket you typed appearing on the panel. If you type a letter, a string of letters, or a workbasket that does not exist, the workbasket most closely matching what you typed is displayed on the panel.

1=Create

Displays the panel shown in Figure 23 on page 29.

2=Change

Specify 2 next to the workbasket you want to change. Displays the panel shown in Figure 25 on page 32, where you can change a workbasket definition.

3=Copy

Specify 3 next to the workbasket you want to copy. This displays the panel shown in Figure 26 on page 33.

4=Delete

Specify 4 next to the workbasket you want to delete. This displays the panel shown in Figure 27 on page 33. If you select 4 next to more than one item, the delete requests are grouped and processed together.

5=Display

Specify 5 next to the workbasket for which you want to display the full definition. Displays the
panel shown in Figure 28 on page 34. You can view the information displayed, but you may not type information on the panel.

**Option**
Type an option number next to the item you want to work with.

**Workbasket**
Lists the names of workbaskets that are not marked for deletion.

**Text**
Description of the workbasket, giving the purpose of the workbasket.

**FUNCTION KEY DEFINITIONS**

**Enter** Processes your selection.

The workbasket profile panels let you create, change, or display details for workbaskets. You can also copy or delete workbaskets.

**Creating Workbaskets**
The panel shown in Figure 23 is displayed if you selected 1 from the Work with Workbaskets panel shown in Figure 22 on page 28.

![Create Workbasket panel](image)

**Figure 23. Create Workbasket panel**

**PANEL DEFINITIONS**

**Workbasket**
Specify the 1- to 10-character alphanumeric name of the workbasket to be created. Note that you cannot specify a workbasket name of *NEXT because it is reserved for use by the Content Manager for iSeries ad-hoc routing function. This field is required.

**Text**
Description of the workbasket, giving the purpose of the workbasket.

**Access list**
Type the name of the access list to be associated
with this workbasket. The access list controls who can access the workbasket.

**Action list**

Type the name of the action list to be associated with this workbasket. The action list specifies which options are available to a user at the workbasket.

**Allow reassign to**

Type Y to allow a user to reassign work to this workbasket.

Type N to not allow a user to reassign work to this workbasket.

**List work**

Type Y to present all items at this workbasket so users can select an item to work with. Users can select these items in random order. Type N if you do not want to list all items at this workbasket, which automatically presents items to the user based on the value of the **Work order** field.

**Work order**

Type 1 to arrange for items in this workbasket to be displayed to users in first-in first-out order.

Type 2 to arrange for items in this workbasket to be displayed to users in last-in first-out order.

Type 3 to arrange for items in this workbasket to be displayed to users in priority order. Priority is determined by the number assigned.

**Remove after indexing**

Type Y if you want the system to automatically remove items from the workbasket immediately after a user finishes indexing them.

Type N if you do not want the system to automatically remove items from the workbasket immediately after a user finishes indexing them.

**Set overload**

Type Y if you want the system to perform overload processing when the number of items in the workbasket reaches the number you specify in the **Limit** field. When an overload occurs, the user will be notified, and optionally, the overload user exit will be invoked.

Type N if you do not want the system to perform overload processing.

**Limit**

Specify the maximum number of items that you want the workbasket to contain before the system performs overload processing. Type a number from 0 to 9999.

**Function**

Type the name of the function you want to run when the number of items in the workbasket reaches the overload limit.

**Dynamic link library**

Type the name of the dynamic link library for the overload function.
FUNCTION KEY DEFINITIONS

Enter  Saves the workbasket definition.

Create Workbasket

Type choices, press Enter

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>User workbasket</td>
<td>Y=Yes, N=No</td>
</tr>
<tr>
<td>User defined</td>
<td>Y=Yes, N=No</td>
</tr>
<tr>
<td>Type</td>
<td>50-99</td>
</tr>
<tr>
<td>Function</td>
<td></td>
</tr>
<tr>
<td>Dynamic link library</td>
<td></td>
</tr>
<tr>
<td>Item selected user exit</td>
<td></td>
</tr>
<tr>
<td>Item completed user exit</td>
<td></td>
</tr>
</tbody>
</table>

Figure 24. Create Workbasket panel

PANEL DEFINITIONS

User workbasket

This field indicates whether this workbasket is defined to be a user workbasket. If a workbasket is defined to be a user workbasket, only work that is owned by the user or work that is unassigned is presented.

If a user has system administrator privilege for workbaskets, all work is presented, regardless of ownership.

Type Y to specify that this is a user workbasket.

Type N to specify that this is not a user workbasket. This is the default value.

User defined

This field indicates whether this is a user defined workbasket. If a workbasket is user defined, the client will call a user exit when the workbasket is selected to be opened. Processing of the work in this workbasket is supported through custom code in the user exit.

Type Y to specify that this is a user-defined workbasket. If this field is Y, a value must be specified in the associated Type, Function, and Dynamic link library fields.

Type N to specify that this is not a user-defined workbasket.

Type  Type a number between 50 and 99 for the
workbasket type. This value will be input into the user defined workbasket user exit.

**User defined workbasket user exit function**
Type the name of the function you want run for this user defined workbasket.

**Item selected user exit function**
Type the name of the function that you want to run at the workbasket item selected user exit. This user exit is called by the client when an item is selected and opened at a workbasket.

**Item completed user exit function**
Type the name of the function that you want to run at the workbasket item completed user exit. This user exit is called by the client when a user has completed working an item at a workbasket.

**Dynamic link library**
Type the name of the dynamic link library for each user exit function entered.

**FUNCTION KEY DEFINITIONS**

**Enter**
Saves the workbasket definition.

**Changing Workbaskets**

When you select 2 on the Work with Workbaskets panel, the panel shown in [Figure 25](#) is displayed. This panel lets you change an existing workbasket definition.

For a description of the fields on this display, see “Creating Workbaskets” on page 29.

---

**Change Workbasket**

Workbasket . . . . . . . . . . : xxxxxxxxx

Type choices, press Enter

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text</td>
<td>xxxxxxxxx</td>
</tr>
<tr>
<td>Access list</td>
<td>xxxxxxxxx</td>
</tr>
<tr>
<td>Action list</td>
<td>xxxxxxxxx</td>
</tr>
<tr>
<td>Allow reassign to</td>
<td>x</td>
</tr>
<tr>
<td>List work</td>
<td>x</td>
</tr>
<tr>
<td>Work order</td>
<td>x</td>
</tr>
<tr>
<td>Remove after</td>
<td>x</td>
</tr>
<tr>
<td>Indexing</td>
<td>x</td>
</tr>
<tr>
<td>Set overload</td>
<td>x</td>
</tr>
<tr>
<td>Limit</td>
<td>xxx</td>
</tr>
<tr>
<td>Function</td>
<td>xxxxxxxxx</td>
</tr>
<tr>
<td>Dynamic link library</td>
<td>xxxxxxxxx</td>
</tr>
</tbody>
</table>

**F3=Exit  F4=Prompt  F12=Cancel**

---

*Figure 25. Change Workbasket panel*
Copy Workbaskets

When you select 3 on the Work with Workbaskets panel, the panel shown in Figure 26 displays, which lets you copy an existing workbasket to create a new workbasket.

For a description of the fields on this display, see “Creating Workbaskets” on page 29.

Deleting Workbaskets

When you select 4 on the Work with Workbaskets panel, the panel shown in Figure 27 displays with the workbaskets you want to delete. You can confirm the deletion of workbaskets by pressing the Enter key or cancel your request by pressing F12 (Cancel).
Displaying Workbaskets

When you select 5 on the Work with Workbaskets panel, the panel shown in Figure 28 displays, which displays the current profile information for the requested workbasket.

For a description of the fields on this display, see “Creating Workbaskets” on page 29.

```
Display Workbasket

Workbasket : xxxxxxxxxx
Text : xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
Access list : xxxxxxxxxx
Action list : xxxxxxxxxx
Allow reassign to : x
List work : x
Work order : x
Remove after indexing : x
Set overload : x
Limit : xxx
Function : xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
Dynamic link library : xxxxxxxxxx
```

Press Enter to continue. More...

F3=Exit  F12=Cancel

Figure 28. Display Workbasket panel
Chapter 4. User Access and Security

As system administrator, you are responsible for controlling user access and authority associated with Content Manager for iSeries. You can choose how restrictive to make your system.

Security for Content Manager for iSeries is very similar to the security for the OS/400 operating system. In general:

- A user is assigned a set of general privileges.
- Security validation takes place at the Server level (not on the workstation).

When the user attempts to access a function:

1. The user’s general privilege set is checked first.
2. If the security bit (for the requested function) is enabled, the access is allowed and no further checking is performed.
3. If the security bit is not enabled, then the server must check the object (indexclass, workbasket, or process) that the user is attempting to access. The Server "evaluates" the object’s privilege set against the user’s privilege set to determine whether to allow the user to gain access. This is an additive process in that: Once a user gains access, it cannot be lost; if a user obtained access previously, access is granted from that time on.

**Important.** You should weigh the benefits for implementing general privilege access against the evaluation method:

- Granting user access by the general privilege method is the most efficient, but it is less restrictive, and therefore less secure.
- If security is most important, it is better to restrict access at the user’s general privilege level and allow the server to grant access to the user "as needed".

Content Manager for iSeries provides the following components for controlling user access:

- A group is a set of users that share similar authority specifications, much like authorization lists in OS/400:
  - Users may be associated to one or more groups.
  - An Access Control List (ACL) may contain one or more groups.

The security process searches for the user through the groups (one at a time). When it finds the first occurrence of the user that it is searching for, it uses the privilege set associated with that user to produce an evaluated privilege set. (No further checking is performed in the remaining group(s) after the user is located.)

- **Privilege sets** specify functions that a user or group can perform. For example, you can use privilege sets to control whether users can do the following:
  - Create or delete documents and folders
  - Read, add or update notes
  - Add or remove items to or from folders
  - Add or remove items to or from workbaskets

- Each Content Manager for iSeries user ID profile is assigned a privilege set. This is known as the user’s general privilege set.

- An **access list** is a method to bring users and groups together with privilege sets for controlling access to workbaskets, index classes, and processes. The privilege
set used in an access list may grant a user different privileges than what they have in their general privilege set. Access lists add authority to general privileges; they do not remove authority.

In the simplest example of authority control, all users have access to all items in the library. To implement this type of authority control, give all users maximum privileges. Since access lists add authority, it is not necessary in this example to implement any access lists for your workbaskets, index classes or processes.

There are however, many available levels of restricted access. One type of restriction is to allow only a subset of users to have access to specific folders and documents. To do this, you would first define general privileges for all users specifying minimum access to the index class for the items. You would then define an access list consisting of those users and groups that are allowed to work with the index class. Each entry in the access list is associated with a privilege set which allows index class functions. This access list is then used for the index class. In this way, users that are not part of the access list are denied use of the index class and users that are part of the access list are allowed to perform those functions specified in the privilege set.

Here is an example. Two privilege sets are defined. The first is a general privilege set defined for user John Doe. The second privilege set is associated with user John Doe in the access list defined for the “Claims” index class.

<table>
<thead>
<tr>
<th></th>
<th>Scan</th>
<th>Search</th>
<th>Print</th>
<th>Fax</th>
<th>Create</th>
<th>Delete</th>
<th>Import</th>
<th>Export</th>
<th>etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Privileges</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>for John Doe</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>John Doe’s</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Privilege</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Claims Index</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class ACL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Evaluated      | Y    | Y      | N     | Y   | Y      | Y      | N      | N      |     |
| Privilege Set  |      |        |       |     |        |        |        |        |     |

1. If John Doe attempted to scan, Content Manager for iSeries would examine his general privilege set and determine that he had authority to scan. No further evaluation would occur.

2. If John Doe attempted to fax an item from the Claims index class, Content Manager for iSeries would examine his general privilege set and determine that he did not have authority to fax. The access list associated with Claims would then be interrogated to determine if John Doe is a member of that access list, either individually or as part of a group. Since he is, the privilege set assigned to him in the access list would be examined, and it would be determined that he had authority to fax items in the Claims index class.

3. If John Doe attempted to print an item from the Claims index class, Content Manager for iSeries would examine his general privilege set and determine that he did not have authority to print. The access list associated with Claims would then be interrogated to determine if John Doe is a member of that access list. Since he is, the privilege set assigned to him in the access list would be examined, and it would be determined that he did not have authority to print items in the Claims index class.
Working with Privilege Sets

A privilege is authorization given to a user to access an object or perform certain tasks in the system. A privilege set is a collection of privileges assigned to user IDs for working with system components and functions.

The panel shown in Figure 29 is displayed when you select 2 from the Profile Maintenance menu.

Figure 29. Work with Privilege Sets panel

PANEL DEFINITIONS

Position to ______ Privilege set

Type choices, press Enter
1=Create  2=Change  3=Copy  4=Delete  5=Display

Option Set Text

- xxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
- xxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
- xxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
- xxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
- xxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
- xxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
- xxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

F3=Exit  F5=Refresh  F12=Cancel

Figure 29. Work with Privilege Sets panel

PANEL DEFINITIONS

Position to _______ Privilege set

Type the name of the privilege set you want to scroll to and press Enter. The panel is displayed again with the privilege set you typed appearing on the panel. If you type a letter, a string of letters, or a privilege set that does not exist, the privilege set most closely matching what you typed is displayed on the panel.

1=Create  
Select this option to create a new privilege set. Displays the panel shown in Figure 30 on page 38.

2=Change  
Type 2 next to the privilege set you want to change. Displays the panel shown in Figure 34 on page 44, where you can change a privilege set definition.

3=Copy  
Type 3 next to the privilege set you want to copy. This lets you copy an existing privilege set definition into a new privilege set definition. Displays the panel shown in Figure 35 on page 44, where you can change the existing privilege set definition to create the new privilege set. If the privilege set is referenced by a user profile, it cannot be deleted.

4=Delete  
Type 4 next to the privilege set you want to delete. The Figure 36 on page 45 panel is displayed to let
you confirm or cancel the request. If you select **4** next to more than one item, the delete requests are grouped and processed together.

**5=Display** Type **5** next to the privilege set for which you want to display the privilege set definition. Displays the panel shown in Figure 37 on page 45.

**Privilege set** Lists the privilege set.

**Text** The 1- to 32-character alphanumeric description associated with the privilege set.

You can select any combination or number of valid options. The options you select are processed in the order listed on the panel. If an error occurs for one of the options, the Work with Privilege Sets panel is displayed again with the option in error highlighted. Any other options remaining to be processed are also displayed on the panel. When you correct the error, all options selected are processed.

**FUNCTION KEY DEFINITIONS**

**Enter** Processes your selections.

**Creating Privilege Sets**

The panel shown in Figure 30 is displayed if you selected **1** from the Work with Privilege Sets panel.

![Create Privilege Set Panel](image)

**Figure 30. Create Privilege Set panel**

**PANEL DEFINITIONS**

**Privilege set** Type the 1- to 10-character alphanumeric name of the privilege set to be created. Note that privilege set names cannot begin with the asterisk (*) reserved character.

**Text** Type the description of the privilege set.

**Super access** If **Super access** is specified, the Content Manager
for iSeries system bypasses any access control you assign to index classes, workbaskets, or processes. Y gives super access for this privilege set, and N does not allow super access for this privilege set.

**Common folder and document privileges**

Assign privileges to create, delete, access, suspend or activate, and check in or out folders and objects.

**Create** Type Y to allow the user to create folders and documents. Type N to block this privilege.

**Delete** Type Y to allow the user to delete folders and documents. Type N to block this privilege.

**Suspend or activate**

This field is used to assign privileges to suspend or activate folders and documents. Y gives privileges for this function; N does not allow privileges for this function.

**Check in or out**

Reserved for future use.

**Index**

Type one of the following access levels to be assigned for folders and objects:

0=None Prevents users from viewing the index class and key fields in the client.

1=Search Lets users search for folders and objects by selecting an index class and specifying search criteria in the key fields.

2=Update Key Fields Lets users update the key field and index class information for folders and objects, in addition to searching for folders and objects.

3=Change Lets users change the name of the index class, in addition to updating key fields and searching for folders and objects.

**Note log**

Type one of the following access levels to be assigned for note logs for folders and objects:

0=None Prevents users from viewing the note log in the client.
1=Read

Lets users read the note log.

2=Add note

Lets users add notes to the note log in addition to reading the log.

3=Update note

Lets users update notes in the note log for folders and objects, in addition to adding notes to the note log and reading the note log.

History

Reserved for future use.

FUNCTION KEY DEFINITIONS

Enter

Creates the privilege set.

Create Privilege Set

Type choices, press Enter

Folder table of contents privileges... 2

0=None, 1=Read, 2=Add item, 3=Remove item

Document table of contents privileges... 2

0=None, 1=Read, 2=Update, 3=Add 4=Delete

Workbasket privileges:

Read... Y

Y=Yes, N=No

Add... Y

Y=Yes, N=No

Remove... N

Y=Yes, N=No

Change priority... N

Y=Yes, N=No

F3=Exit  F12=Cancel

Figure 31. Create Privilege Set panel

PANEL DEFINITIONS

Folder table of contents privileges

Type one of the following privileges to be assigned for the table of contents for folders.

0=None

Prevents users from viewing the table of contents for folders.

1=Read

Lets users read the table of contents only for folders.

2=Details

Lets users view details about items within folders, in addition to reading the table of contents.
3=Add items
Let users add folders and objects to other folders, in addition to reading the table of contents and viewing details.

4=Remove items
Let users remove folders and objects from other folders, and add items to folders. Users can also read the table of contents and view details.

Document table of contents privileges
Type one of the following privileges to be assigned for the table of contents for documents:

0=None
Prevents users from viewing objects.

1=Read
Let users read objects.

2=Update
Let users update and read objects but not add pages to or delete object parts.

3=Add
Let users add pages to or mark up objects, in addition to updating and reading objects.

4=Delete
Let users delete pages or markups from objects, in addition to adding, updating, and reading objects.

Workbasket privileges
You can assign one or more of the following privileges for workbaskets. Y grants privileges and N blocks privileges for these functions.

Read
Let users view any workbasket.

Add
Let users add folders and documents to workbaskets.

Remove
Let users remove items from workbaskets.

Change priority
Let users change the priority in which they process the folders and documents in workbaskets.

FUNCTION KEY DEFINITIONS

Enter
Creates the privilege set.
### PANEL DEFINITIONS

#### Workflow privileges

One or more of the following privileges can be assigned for processes:

- **Add**
  
  Lets users add folders and documents to processes.

- **Remove**
  
  Lets users remove folders and documents from processes.

- **Move**
  
  Lets users change which process folders and documents follow.

- **Continue**
  
  Lets users continue an item to the next step of a process.

- **Force continue**
  
  Lets users force an item, with outstanding events pending, to the next step of a process.

- **Search**
  
  Lets users search a process for items.

#### User functions

You can allow one or more of the following privileges for users. Y grants privileges for these functions, and N blocks privileges for these functions.

- **Scan**
  
  Specifies whether users can scan objects into the system.

- **Print**
  
  Specifies whether users can print objects.

- **Receive fax**
  
  Specifies whether users can receive faxes.
Send fax
Specifies whether users can send faxes.

Import
Specifies whether users can import objects into the system.

Export
Specifies whether users can export objects out of the system.

FUNCTION KEY DEFINITIONS

Enter
Creates the privilege set.

<table>
<thead>
<tr>
<th>Administrative privileges:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>User IDs and groups</td>
<td>N</td>
<td>Y=Yes, N=No</td>
</tr>
<tr>
<td>Privileges</td>
<td>N</td>
<td>Y=Yes, N=No</td>
</tr>
<tr>
<td>Access lists</td>
<td>N</td>
<td>Y=Yes, N=No</td>
</tr>
<tr>
<td>Key fields</td>
<td>N</td>
<td>Y=Yes, N=No</td>
</tr>
<tr>
<td>Index classes</td>
<td>N</td>
<td>Y=Yes, N=No</td>
</tr>
<tr>
<td>Data formats</td>
<td>N</td>
<td>Y=Yes, N=No</td>
</tr>
<tr>
<td>Workbaskets</td>
<td>N</td>
<td>Y=Yes, N=No</td>
</tr>
<tr>
<td>Workflows</td>
<td>N</td>
<td>Y=Yes, N=No</td>
</tr>
<tr>
<td>System-managed storage</td>
<td>N</td>
<td>Y=Yes, N=No</td>
</tr>
<tr>
<td>Servers</td>
<td>N</td>
<td>Y=Yes, N=No</td>
</tr>
<tr>
<td>Database utilities</td>
<td>N</td>
<td>Y=Yes, N=No</td>
</tr>
</tbody>
</table>

F3=Exit  F12=Cancel

Figure 33. Create Privilege Set panel

PANEL DEFINITIONS

Administrative privileges
When you assign this privilege set to a user, Y in these fields allows privileges to add, change, and delete any of the Content Manager for iSeries profiles and features listed on the panel.

Changing Privilege Sets
The panel shown in Figure 34 is displayed if you selected 2 from the Work with Privilege Sets panel.
Copy Privilege Sets

The panel shown in Figure 35 is displayed if you selected 3 from the Work with Privilege Sets panel.

Deleting Privilege Sets

The panel shown in Figure 36 is displayed if you selected 4 from the Work with Privilege Sets panel.
Displaying Privilege Sets

The panel shown in Figure 37 is displayed if you selected 5 from the Work with Privilege Sets panel.

Working with Groups

User groups simplify access control by grouping several user IDs under a single name and using this group name in an access list.

The panel shown in Figure 38 on page 46 is displayed when you select 3 from the Profile Maintenance menu.
### PANEL DEFINITIONS

**Position to**

Enter the name of the group you want to scroll to and press Enter. The panel is displayed again with the group you typed appearing on the panel. If you type a letter, a string of letters, or a group that does not exist, the group most closely matching what you typed is displayed on the panel.

1=Create

Select this option to create a new group. This displays the Create Group panel, shown in [Figure 39 on page 47](#).

2=Change

Type 2 next to the group that you want to change. This displays the Change Group panel shown in [Figure 40 on page 48](#), where you can change the text description associated with a group.

3=Copy

Type 3 next to the group that you want to copy. This displays the Copy Group panel, shown in [Figure 41 on page 49](#), where you can copy an existing group definition into a new group definition.

4=Delete

Type 4 next to the group that you want to delete. The panel shown in [Figure 42 on page 49](#) is displayed to let you confirm the deletion or cancel the request. If you select 4 next to more than one item, the delete requests are grouped and processed together.

5=Display

Type 5 next to the group for which you want to display the group definition. This displays the Display Group profile panel shown in [Figure 43 on page 50](#).

8=Work with group entries

Enter 8 next to the group for which you want to work with entries. This displays the panel shown in [Figure 44 on page 50](#), where you can add entries to or remove entries from this group.

---

<table>
<thead>
<tr>
<th>Option</th>
<th>Group</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>1=Create</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2=Change</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3=Copy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4=Delete</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5=Display</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8=Work with group entries</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

Figure 38. Work with Groups panel
Group
Lists the names of the groups.

Text
Lists the description of each group.

You can select any combination or number of valid options. The options you select are processed in the order listed on the panel. If an error occurs for one of the options, the Work with Groups panel is displayed again with the option in error highlighted. Any other options remaining to be processed are also displayed on the panel. When you correct the error, all options selected are processed.

FUNCTION KEY DEFINITIONS

Enter     Processes your selections.

Creating Groups
User groups simplify access control by grouping several user IDs under a single name and using this group name in an access list.

The panel shown in Figure 39 is displayed when you select 1 from the Work with Groups panel.

Create Group
Type choices, press Enter

<table>
<thead>
<tr>
<th>Group</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text</td>
<td></td>
</tr>
</tbody>
</table>

F3=Exit    F12=Cancel

Figure 39. Create Group panel

PANEL DEFINITIONS

Group
Type a unique 1- to 10- character name for the group.

Text
Type the description of the group. This field is informational and describes the contents of the group.

FUNCTION KEY DEFINITIONS

Enter     Saves the group definition.
Changing Groups

When you select 2 on the Work with Groups panel, the panel shown in Figure 40 displays and lets you change the text description of an existing group.

For a description of the fields on this display, see “Creating Groups” on page 47.

```
Change Group
Group ................................ : xxxxxxxxxxx
Type choices, press Enter
   Text ............................ xxxxxxxxxxxxxxxxxxxxxxxxxxxx

F3=Exit  F12=Cancel
```

Figure 40. Change Group panel

Copying Groups

When you select 3 on the Work with Groups panel, the panel shown in Figure 41 on page 49 displays and lets you copy the text description of an existing group in order to create a new group.

For a description of the fields on this display, see “Creating Groups” on page 47.

```
```
Deleting Groups

When you select 4 on the Work with Groups panel, the panel shown in Figure 42 displays with the groups that you want to delete. You can confirm the deletion of the groups by pressing the Enter key or cancel your request by pressing F12 (Cancel). When a group is deleted, all access list entries specifying this group are removed from the access list.

Displaying Groups

When you select 5 from the Work with Groups panel, the panel shown in Figure 43 on page 50 displays the current group definition. For a description of the fields shown on this display, see “Creating Groups” on page 47.
Working with Group Entries

When you select 8 on the Work with Groups panel, the panel shown in Figure 44 displays. This panel lets you add users to, or remove users from, a group.

PANEL DEFINITIONS

| Group          | Lists the name of the group. |
| Position to    | Enter the name of the user that you want to scroll to and press Enter. The panel is displayed again with the user that you typed appearing on the panel. If you type a letter, a string of letters, or a |
user that does not exist, the user that most closely matches what you typed is displayed on the panel.

1=Add
Select this option to add a user to a group. It displays the panel shown in Figure 45.

4=Remove
Enter 4 next to the user you want to remove from the group. This displays the panel shown in Figure 46 on page 52 which lets you confirm or cancel the request. If you select 4 next to more than one item, the removed requests are grouped and processed together.

User ID
Lists the identifier of each user in the group.

User description
Lists the description of each user in the group.

You can select any combination or number of valid options. The options you select are processed in the order listed on the panel. If an error occurs for one of the options, the Work with Group Entries panel is displayed again with the option in error highlighted. Any other options remaining to be processed are also displayed on the panel. When you correct the error, all options selected are processed.

FUNCTION KEY DEFINITIONS

Enter
Processes your selections.

Adding Group Entries
The panel shown in Figure 45 is displayed by selecting 1 from the Work with Group Entries panel. The Add Group Entry panel lets you add a user to a group.

Add Group Entry

Group:   xxxxxxxxxxx
Type choices, press Enter

User ID   . . . . . . . . .  ______ Name, F4 for list

F3=Exit   F4=Prompt   F12=Cancel

Figure 45. Add Group Entries panel

PANEL DEFINITIONS

Group
Lists the name of the group to which the user is to be added.
**User ID**
Type the name of the user to be added to the group.

**FUNCTION KEY DEFINITIONS**

**Enter**  Add the user to the group.

**Removing Group Entries**

When you select 4 on the Work with Group Entries panel, the panel shown in [Figure 46](#) is displayed with the users you want to remove from the group. You can confirm the removal of these group entries by pressing the Enter key or cancel your request by pressing F12.

![Confirm Remove of Group Entries panel](#)

**Working with Access Lists**

With access lists, you can control the actions a user or user group can perform with:

- Index classes
- Workbaskets
- Processes

An access list consists of user IDs or user groups and the privilege sets you associate with the user IDs or groups.

When you select 4 from the Profile Maintenance menu, the panel shown in [Figure 47](#) displays.
**PANEL DEFINITIONS**

**Position to**
Type the name of the access list that you want to scroll to and press Enter. The panel is displayed again with the access list you typed appearing on the panel. If you type a letter, a string of letters, or an access list that does not exist, the access list that most closely matches what you typed is displayed on the panel.

1=Create
Select this option to create a new access list. This displays the panel shown in Figure 48 on page 54.

2=Change
Enter 2 next to the access list that you want to change. This displays the panel shown in Figure 49 on page 55, where you can change the text description associated with an access list.

3=Copy
Enter 3 next to the access list that you want to copy. This lets you copy an existing access list definition into a new access list definition. It displays the panel shown in Figure 50 on page 55.

4=Delete
Enter 4 next to the access list that you want to delete. This displays the panel shown in Figure 51 on page 56, which lets you confirm or cancel the request. If you select 4 next to more than one item, the delete requests are grouped and processed together.

5=Display
Enter 5 next to the access list that you want to display. This displays the panel shown in Figure 52 on page 57.

8=Work with access list entries
Enter 8 next to the access list on which you want to work with entries. This displays the panel shown in Figure 53 on page 57 where you can add entries to or remove entries from the access list.
Access list

Lists the names of the access list.

Text

The description of the access list.

You can select any combination or number of valid options. The options you select are processed in the order listed on the panel. If an error occurs for one of the options, the Work with Access Lists panel is displayed again with the option in error highlighted. Any other options remaining to be processed are also displayed on the panel. When you correct the error, all options selected are processed.

FUNCTION KEY DEFINITIONS

Enter

Processes your selections.

Creating Access Lists

The panel shown in Figure 48 is displayed when you select 1 from the Work with Access Lists panel. The Create Access List panel lets you create new access lists.

![Create Access List panel](image)

**Figure 48. Create Access List panel**

PANEL DEFINITIONS

Group

Type a unique 1- to 10-character name for the access list.

Text

Type the description of the access list. This field is informational and describes the access list.

FUNCTION KEY DEFINITIONS

Enter

Saves the access list definition.

Changing Access Lists

When you select 2 on the Work with Access Lists panel, the panel shown in Figure 49 on page 55 displays and lets you change the text description of an existing access list.
For a description of the fields on this display, see “Creating Access Lists” on page 54.

<table>
<thead>
<tr>
<th>Change Access List</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access list ........: xxxxxxxxxxx</td>
</tr>
<tr>
<td>Type choices, press Enter</td>
</tr>
<tr>
<td>Text ...............: xxxxxxxxxxxxxxxxxxxxxxxxxxxx</td>
</tr>
</tbody>
</table>

F3=Exit  F12=Cancel

Figure 49. Change Access List panel

**Copying Access Lists**

When you select 3 on the Work with Access Lists panel, the panel shown in Figure 50 displays and lets you copy an existing access list.

For a description of the fields on this display, see “Creating Access Lists” on page 54.

<table>
<thead>
<tr>
<th>Copy Access List</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copy from access list .......: xxxxxxxxxxx</td>
</tr>
<tr>
<td>Type choices, press Enter</td>
</tr>
<tr>
<td>Access list ............: ______ Name</td>
</tr>
<tr>
<td>Text .................: xxxxxxxxxxxxxxxxxxxxxxxxxxxx</td>
</tr>
</tbody>
</table>

F3=Exit  F12=Cancel

Figure 50. Copy Access List panel
Deleting Access Lists

When you select 4 on the Work with Access Lists panel, the panel shown in Figure 51 displays with the access list that you want to delete. You can confirm the deletion of access lists by pressing the Enter key or cancel your request by pressing F12 (Cancel).

```
<table>
<thead>
<tr>
<th>Option</th>
<th>List</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>xxxxxxxxxx</td>
<td>xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</td>
</tr>
<tr>
<td>4</td>
<td>xxxxxxxxxx</td>
<td>xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</td>
</tr>
<tr>
<td>4</td>
<td>xxxxxxxxxx</td>
<td>xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</td>
</tr>
<tr>
<td>4</td>
<td>xxxxxxxxxx</td>
<td>xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</td>
</tr>
</tbody>
</table>
```

Figure 51. Confirm Delete of Access Lists panel

Displaying Access Lists

When you select 5 on the Work with Access List panel, the panel shown in Figure 52 on page 57 displays the current access list definition.

For a description of the fields on this display, see “Creating Access Lists” on page 54.
Working with Access List Entries

When you select 8 on the Work with Access List panel, the panel shown in Figure 53 displays and lets you add, change, copy, remove, and display access list entries.

PANEL DEFINITIONS

Access list
Shows the name of the access list to which the entries belong.

Position to
Type the name of the access list entry you want to
scroll to and press Enter. The panel is displayed again with the access list entry you typed appearing on the panel. If you type a letter, a string of letters, or a access list entry that does not exist, the access list entry most closely matching what you typed is displayed on the panel.

1=Add
Select this option to add a user or group and associated privilege set to the access list. This displays the panel shown in Figure 54 on page 59.

2=Change
Type 2 next to the access list entry you want to change. This displays the panel shown in Figure 55 on page 60, where you can change the privilege set associated to the user or group.

3=Copy
Type 3 next to the access list entry you want to copy. This displays the panel shown in Figure 56 on page 60, where you can copy the existing access list entry definition into a new access list entry.

4=Remove
Type 4 next to the access list entry you want to delete. The panel in Figure 57 on page 61 is displayed to let you confirm or cancel the request. If you select 4 next to more than one item, the delete requests are grouped and processed together.

5=Display
Type 5 next to the access list entry for which you want to display the access list entry definition. This displays the panel shown in Figure 58 on page 61

User ID/Group
Lists the users and groups that the access list contains.

Text
Lists the description of each user and group.

You can select any combination or number of valid options. The options you select are processed in the order listed on the panel. If an error occurs for one of the options, the Work with Access Lists Entries panel is displayed again with the option in error highlighted. Any other options remaining to be processed are also displayed on the panel. When you correct the error, all options selected are processed.

FUNCTION KEY DEFINITIONS

Enter
Processes your selections.

Adding Access List Entries
The panel shown in Figure 54 on page 59 is displayed by selecting 1 from the Work with Access List Entries panel. The Add Access List Entry panel lets you add a user or group and associated privilege set to an access list.
PANEL DEFINITIONS

Access list  Lists the name of the access list to which the entry is to be added.

User ID  Type the name of the user ID to be added to the access list.

Group  Type the name of the group to be added to the access list.

Privilege set  Type the name of the privilege set to be associated to the user ID or group. This privilege set may be used to grant users additional privileges, for index classes, workbaskets, or processes that are not provided by their general privileges.

FUNCTION KEY DEFINITIONS

Enter  Adds the access list entry.

Changing Access List Entries

When you select 2 on the Work with Access List Entries panel, the panel shown in Figure 55 on page 60 is displayed. This panel lets you change the privilege set associated with a user or group within the access list.

For a description of the fields on this display, see "Adding Access List Entries" on page 58.
Copying Access List Entries

When you select 3 on the Work with Access List Entries panel, the panel shown in Figure 56 is displayed. This panel lets you copy an existing access list entry to create a new access list entry.

For a description of the fields on this display, see "Adding Access List Entries" on page 58.

Removing Access ListEntries

When you select 4 on the Work with Access List Entries panel, the panel shown in Figure 57 on page 61 is displayed with the entries that you want to remove from
the access list. You can confirm the removal of these access list entries by pressing
the Enter key or cancel your request by pressing F12 (cancel).

```
Confirm Remove of Access List Entries
Access list: xxxxxxxxxxx
Press Enter to confirm your choice for 4=Remove.
Press F12 to return and not remove the access list entries.

User ID/Option Group Privilege Set
4 xxxxxxxxxxx xxxxxxxxxxx
4 xxxxxxxxxxx xxxxxxxxxxx
4 xxxxxxxxxxx xxxxxxxxxxx
4 xxxxxxxxxxx xxxxxxxxxxx
```

Figure 57. Removing Group Entries panel

**Displaying Access List Entries**

When you select 5 on the Work with Access List Entries panel, the panel shown in
Figure 58 is displayed.

For a description of the fields on this display, see “Adding Access List Entries” on
page 58.

```
Display Access List Entry
Access list: xxxxxxxxxxx

User ID/group . . . . . . . . : xxxxxxxxxxx
Privilege set . . . . . . . . : xxxxxxxxxxx

Press Enter to continue.
F3=Exit F12=Cancel
```

Figure 58. Display Access List Entry panel
Working with User Profiles

The panel shown in Figure 59 is displayed when you select 2 from the Profile Maintenance menu.

---

**PANEL DEFINITIONS**

**Position to**
Type the name of the user ID you want to scroll to and press Enter. The panel is displayed again with the user ID you typed appearing on the panel. If you type a letter, a string of letters, or a user ID that does not exist, the user ID most closely matching what you typed is displayed on the panel.

**1=Create**
Select this option to create a new user ID. Displays the Create User Profile panel, shown in Figure 60 on page 63.

**2=Change**
Type 2 next to the user ID you want to change. Displays the Change User Profile panel shown in Figure 61 on page 65 where you can change a user profile definition.

**3=Copy**
Type 3 next to the user ID you want to copy. This lets you copy an existing user profile definition into a new user profile definition. Displays the Copy User Profile panel, shown in Figure 62 on page 65 where you can change the existing user profile definition to create the new user profile.

**4=Delete**
Type 4 next to the user ID profile you want to delete. The panel shown in Figure 63 on page 66 is displayed to let you confirm the deletion or cancel the request. If you select 4 next to more than one item, the delete requests are grouped and processed together.
5=Display

Type 5 next to the user ID for which you want to display the user profile definition. Displays the Display User profile panel shown in Figure 64 on page 66.

User ID

Lists the user IDs

Name

The 1- to 32-character alphanumeric name associated to the user ID.

You can select any combination or number of valid options. The options you select are processed in the order listed on the panel. If an error occurs for one of the options, the Work with User Profiles panel is displayed again with the option in error highlighted. Any other options remaining to be processed are also displayed on the panel. When you correct the error, all options selected are processed.

FUNCTION KEY DEFINITIONS

Enter

Processes your selections.

Creating User Profiles

The panel shown in Figure 60 is displayed if you selected 1 from the Work with User Profiles panel.

![Create User Profile panel]

Figure 60. Create User Profile panel

PANEL DEFINITIONS

User ID

Specify a unique user ID, up to 10 characters in length.

User description

Type the 1- to 30-character name of the user. You can use upper- or lowercase. This field is optional.

Privilege set

Type the 1- to 10-character name of the privilege set. This field is required. Press F4 to select from a list of existing privilege sets.

Storage options

Retrieval method from optical

Specify the value that represents the method to be used to display or print on a workstation documents that are stored on optical. You can use:
1=Retrieval to DASD
To copy the document to DASD and display or print the document from DASD. The document remains on DASD for one day.

2=Process from optical
To display or print the document directly from optical without storing it to DASD.

3=Determine by collection
To use the retrieval method specified in the collection.

See “Retrieving Documents from Optical” on page 72 for the advantages and disadvantages of each method. This section also explains the requirements for retrieving documents directly from optical.

Initial server ID
Specify the 1-character alphabetic identifier of the server to which documents entered into the system by this user are to be stored. You can specify *ANY to store the documents to any available system ID. Press F4 to display and select from a list of server IDs.

FUNCTION KEY DEFINITIONS

Enter
Creates the user profile.

Changing User Profiles
The panel shown in Figure 61 is displayed if you selected 2 from the Work with User Profiles panel.
Copying User IDs

The panel shown in Figure 62 is displayed if you selected 3 from the Work with User Profiles panel.

Deleting User Profiles

The panel shown in Figure 63 on page 66 is displayed by selecting 4 from the Work with User Profiles panel. You can confirm the deletion of user profiles by pressing the Enter key or cancel your request by pressing F12 (Cancel).
Confirm Delete of User Profiles

Press Enter to confirm your choice for 4=Delete.
Press F12 to return and not delete the user profiles.

<table>
<thead>
<tr>
<th>Option</th>
<th>User ID</th>
<th>User description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>xxxxxxxx</td>
<td>xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</td>
</tr>
<tr>
<td>4</td>
<td>xxxxxxxx</td>
<td>xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</td>
</tr>
<tr>
<td>4</td>
<td>xxxxxxxx</td>
<td>xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</td>
</tr>
<tr>
<td>4</td>
<td>xxxxxxxx</td>
<td>xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</td>
</tr>
</tbody>
</table>

Bottom

F12=Cancel

Figure 63. Confirm Delete of User Profiles panel

Displaying User Profile

The panel shown in Figure 64 is displayed if you selected 5 from the Work with User Profiles panel.

Display User Profile

User ID ...............: xxxxxxxx
User description .......: xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
Privilege set ............: xxxxxxxx
Storage options:
  Retrieval method
    from optical ........: x
  Initial server ID ......: xxxx

Press Enter to continue.
F3=Exit F12=Cancel

Figure 64. Display User Profile panel
Chapter 5. Storage Management

Managing DASD

Content Manager for iSeries provides distributed storage capabilities using iSeries object servers, to help you manage your DASD storage space. Using Content Manager for iSeries profiles, you can specify the object server on which a document is to be stored when it is entered into the system.

The following terms are used in this chapter:

**Primary or local server**
The server which contains the Content Manager for iSeries library, provides server support for the client application, and provides for object storage—also known as a library server.

**Secondary or remote server**
A server other than the local server, which is used strictly for object storage. This is a remote server that does not contain any Content Manager for iSeries library information—also known as an object server.

**Undistributed store request**
An undistributed store request is an optical store request that is not processed because the document to be stored is not associated with a storage class and optical system ID. See "Managing Optical" on page 69 for more information on undistributed store requests.

**Round-robin**
How documents are distributed to DASD for storage. Documents are distributed, one by one, to each of the object directories you defined for a server.

The following sections describe the various ways you can use the Content Manager for iSeries distributed storage capabilities to manage your DASD.

**Storing Documents to DASD**

When users enter documents into Content Manager for iSeries, the documents are stored on iSeries DASD. Documents that are input into the system can be stored on the object server specified in the user profile of the user performing the scanning or importing.

If the user profile is used to store documents to DASD, the value in the **Initial server ID** field determines the object server to use. You can specify the name of an object server, or *ANY to indicate that the documents can be stored on any available object server.

The ability to specify the object server to be used when a user enters a document into the system provides additional flexibility when storing documents to DASD. For example, assume user A works at the headquarters office in New York where the primary server is installed. User B works at a branch office in San Francisco where a secondary server is installed. You can set up the user profiles to specify that:

* User A scans documents and stores them on the primary server in New York.
User B logs on to the primary system to scan documents, but stores the documents on the remote DASD in San Francisco. By storing the documents on the local server, user B would be able to access the documents more quickly and for less cost than if the documents were stored on the primary system.

The ability to distribute documents to specific servers at the time of scanning also allows you to balance the number of documents stored in the iSeries directories you defined for your environment. For example, suppose you defined servers F, G, and H and created the following directories for these processors:

<table>
<thead>
<tr>
<th>SERVER ID</th>
<th>DIRECTORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>FOLDER01/SUBDIREC.001</td>
</tr>
<tr>
<td>F</td>
<td>FOLDER02/SUBDIREC.002</td>
</tr>
<tr>
<td>F</td>
<td>FOLDER03/SUBDIREC.003</td>
</tr>
<tr>
<td>G</td>
<td>FOLDER01/SUBDIREC.001</td>
</tr>
<tr>
<td>G</td>
<td>FOLDER02/SUBDIREC.002</td>
</tr>
<tr>
<td>H</td>
<td>FOLDER01/SUBDIREC.001</td>
</tr>
</tbody>
</table>

Assume you set up the user profiles as follows:

- If you specify that F is the initial server ID for user A, documents scanned into the system by user A would be stored in a round-robin fashion to the three directories you defined for that processor.
- If you specify that G is the initial server ID for user B, documents scanned into the system by user B would be stored in a round-robin fashion to the two directories you defined for that processor.
- If you specify *ALL as the initial server ID for user C, documents scanned into the system by user C would be stored in a round-robin fashion to all six of the iSeries directories defined for object servers F, G, and H.

## Retrieving Documents from Optical in Batch

You can specify that documents retrieved in batch from an optical system are stored on a specific object server. (The exception is direct-attached 3995 optical: Documents are always retrieved to the iSeries to which the 3995 is attached.) To retrieve documents to a specific iSeries object server, specify one of the following in the optical system ID profile:

- The name of a specific server
- *ANY, to indicate that the documents can be stored on any available server
- *USER, to indicate that the value specified in the user profile is to be used

For example, assume user A at the New York location stores a document on LAN-attached optical system ID X, which is located in New York. You can let user A retrieve the document to server ID F in New York and user B to retrieve the document to server ID G in San Francisco by doing the following:

1. Specify *USER in the Server ID field in the optical system ID profile for optical system X.
2. Specify F in the Initial server ID field in the user profile for user A.
3. Specify G in the Initial server ID field in the user profile for user B.

See “Defining Optical Systems” on page 85 for procedures on defining an optical system ID profile.
Managing Optical

Optical storage lets you store large amounts of information in less space. It is intended to replace other types of storage media and provide a less costly way to archive documents. Documents that are not currently needed for processing can be moved from DASD storage to optical storage. When they are needed again, they can be moved from optical storage to DASD.

Content Manager for iSeries supports a wide range of optical storage systems that can help you manage the documents you store in Content Manager for iSeries. The following section provides an overview of the types of optical systems that are supported.

Optical Storage Systems

You can attach an optical system or library to the iSeries in one of the following ways:

**Direct-attached optical system or library**

The optical system or library is attached directly to an iSeries processor.

**LAN-attached optical system or library**

The optical system or library, along with its associated optical controller, is attached to the iSeries system using an IBM Token-Ring Network or other supported communications network.

Content Manager for iSeries supports optical devices that offer erasable and write-once, read-many (WORM) optical technology, as well as multifunction optical devices. Multifunction devices support both WORM and erasable disks in the same library. Content Manager for iSeries supports erasable volumes as WORM.

Designing an Optical Storage Strategy

Before you implement an optical storage solution, you should consider not only the various types of optical systems available, but also the storage and retrieval needs of your business. For example, do users work with the entire contents of index classes on a daily basis? Is your organization required to retain different types of documents for different periods of time? An analysis of how your organization works with documents and an understanding of the optical storage options Content Manager for iSeries provides will help you select the strategy that best meets your needs.

Content Manager for iSeries provides several methods of storing documents to optical. These methods let you group documents together logically so you can better manage optical storage. You can choose from the following:

**Collection**

Documents are stored to optical based on collection. The index class profile provides for the definition of a default collection and alternate collections for document and note objects. When an object is assigned to an index class the collection defined for the index class is used to determine the storage location for the object. Collections define the storage characteristics for objects.

**System-assigned**

No storage class and optical system ID are assigned to the documents. You must start the optical distribution process to assign a storage class and optical system ID to the documents so they can be stored on optical.
The following sections discuss the circumstances under which you might use each of the storage methods.

### Storing Documents by Collection

If your organization is required to retain different types of documents for different periods of time, you probably want to consider storing documents to optical based on collection. When a user enters a document into Content Manager for iSeries, the system stores it to optical based on the storage class and optical system ID associated with the collection. All documents with the same collection are stored on one optical platter. Thus, you could store all traffic violations that have a retention period of three years on one optical platter, and all felony violations that have a longer retention period on a different optical platter. This logical grouping of documents helps you manage optical platters. Depending on the number of collections you have defined for your organization, you might want to group several related collections together on a platter, rather than storing only one collection per platter.

### System-Assigned Storage

If you prefer to rotate the distribution of documents to all available optical platters, you should choose the system-assigned method of storage. You designate which optical platters can receive optical distribution requests, and the number of documents that can be distributed to each platter at one time. When the user enters a document into Content Manager for iSeries, the system generates an optical store request. The request is an undistributed store request because it cannot be distributed to optical until it is associated with a storage class and optical system ID. You must start the optical distribution process to distribute the store request to the next available storage class and optical system ID. The optical distribution process uses the information you specify in the storage class profile to determine which platters are available and how many documents can be distributed to each.

### Special Considerations for NOINDEX Index Class

Content Manager for iSeries initially places all documents in the NOINDEX index class. Like all other index classes, NOINDEX has a collection associated with it. You should review this collection definition to determine if it fits into your storage strategy.

The collection defined in the NOINDEX index class is used to determine DASD and optical storage characteristics of the document. When an item is reindexed, the collection of the new index class is used to determine storage characteristics. Given this, define a low number of days on DASD for the NOINDEX collection, and ensure the document objects are not stored to optical until they are reindexed. This can be accomplished by having the NOINDEX collection defined to generate undistributed store requests, or to generate a store request with a storage class that has Activate for optical store set to N.

### Implementing an Optical Storage Strategy

Content Manager for iSeries stores documents to optical using the information you specify in several Content Manager for iSeries profiles. The key profiles are the storage class profile and the optical system profile. These profiles associate a unique storage class and optical system ID combination with an index class or collection. All documents associated with this storage class and optical system ID are stored to the same optical volume when they are entered into the system.
After you determine how you want to store documents to optical, read the section that describes how to implement the storage method you have selected. Each section provides an overview of the profiles you must create or update, as well as the specific settings you must choose in each profile.

**Storing by Collection**

To store documents to optical based on collection, perform the following steps:

1. In the optical system profile, do the following:
   a. Type the name of the optical system on which documents of this collection are to be stored in the **Optical system ID** field.
   b. Specify **N** in the **Activate for optical store** field.

2. In the storage class profile, do the following:
   a. Type the name of the storage class you want to associate with the collection in the **Storage class** field.
   b. Type the name of the optical system ID you specified in step 1a in the **Optical system ID** field.
   c. Specify **N** in the **Activate for optical store** field.
   d. Specify **N** in the **Activate for distribution** field.

3. In the collection profile, do the following:
   a. Specify **Y** in the **Store on optical** field.
   b. Specify **1** in the **Optical storage method** field.
   c. Type the name of the storage class you specified in step 2a in the **Storage class** field.
   d. Type the name of the optical system ID you specified in step 1a in the **Optical system ID** field.

4. In the index class profile, do the following:
   a. Specify the collection name in the **Default collection** field.
   b. You can also specify alternate storage locations for document, note, and history objects by entering the **Document collection**, **Note collection** and **History collection**.

5. When you are ready to store the documents to optical, do the following:
   a. Change the **Activate for optical store** field to **Y** in the optical system ID and storage class profiles associated with the optical platter to which you want to store documents.
   b. Start the Optical store process.

**System-Assigned Storage**

The system stores documents to all available optical systems in the quantities you specified for each optical system.

To store documents to optical using this method, perform the following steps:

1. In the optical system profile, do the following:
   a. Type the name of the optical system to which documents can be stored in the **Optical system ID** field.
   b. Specify **Y** in the **Activate for optical store** field.

2. In the storage class profile, do the following:
   a. Type the name of the storage class you want to create in the **Storage class** field.
b. Type the name of the optical system ID you specified in step [1a on page 7] in the Optical system ID field.

c. Specify Y in the Activate for optical store field.

d. Specify Y in the Activate for distribution field.

e. Enter a number from 1 to 999 to indicate how many documents can be distributed to this storage class at one time.

3. In the collection profile, do the following:

a. Specify Y in the Store on optical field.

b. Specify 2 in the Optical storage method field.

c. Leave the Storage class and Optical system ID fields blank.

4. Start the Optical distribution process. The optical distribution process distributes documents that are not associated with a storage class and optical system ID to each storage class and optical system ID you created using these steps. The optical distribution process uses the number of documents you specified in step [2e] when distributing documents to each processor.

5. Start the Optical store process.

---

Retrieving Documents from Optical

When a user requests to display a document that is stored on a direct-attached 3995 optical system, or print the document on a workstation printer, the document is always copied to and displayed from DASD. However, when a user requests to display or print a document that is stored on LAN-attached optical, you can choose to copy the document to DASD and display or print it from DASD, or process the document directly from the optical device. You can set up the system so a user can display and print all documents directly from optical, or display and print only specific types of documents directly from optical.

Before you decide how you want to process documents that are stored on LAN-attached optical, consider the advantages and disadvantages of each method.

Batch Retrieval of Documents on Multiple Optical Drives

Retrieving documents in batch from multiple optical drives is similar to storing documents to multiple optical drives. The primary difference is that optical batch retrieve requests are processed based on the 3-character prefix of the volume ID.

The value you specify in the Number of retrieve requesters field when you start the optical batch retrieve process indicates the number of optical batch retrieve programs that can process batch retrieve requests for a given volume prefix. A batch retrieve request is processed only if the 3-character prefix of the volume ID is unique. For example, suppose batch retrieve requests are outstanding for volumes HA0001, HA0002, and HXX099. If you specify 3 for Number of drives–batch retrieve and specify 1 for Number of retrieve requesters when you start the optical batch retrieve process, the first two programs will process batch retrieve requests for volumes HA0001 and HXX099, and the third program will enter a wait status. Batch retrieve requests for volume HA0002 are not processed because the prefix is identical to that of volume HA0001. Requests for HA0002 will be processed by the first program after it processes all the requests for volume HA0001.

To retrieve documents in batch from multiple optical drives, perform the following steps:

1. Specify a number greater than 1 in the Number of drives – batch retrieve field in the optical system profile.
2. Start the optical batch retrieve process.
3. Specify the number of batch programs to start in the Number of retrieve requesters field on the Start Optical Retrieve panel shown in Figure 115 on page 121.

For more information on batch retrieval from optical, see “Defining Optical Systems” on page 85.

Displaying Documents Directly from LAN-Attached Optical

The primary advantage of processing requests directly from the LAN-attached optical device is that DASD space is not used because the document is not copied to DASD. If you are concerned about the amount of DASD space you have, you might want to display documents directly from optical. In addition, the document might be displayed to the user more quickly than if it was copied to DASD, then displayed.

The following are additional considerations related to displaying documents directly from optical:

- If the user wants to display or print the document more than once, the document must be retrieved from optical again. If the document had been copied to DASD, it would have remained on DASD for one day. Thus, subsequent requests to work with the document might have been faster because they would have been processed from DASD.
- For LAN-attached 3995 or 3431 optical, you must install the LAN server on the workstation controller, and LAN requestor on the workstation from which the requests to display and print documents will be issued.
- Content Manager for iSeries issues a platter mount message if the requested document is stored on LAN-attached 3995 or 3431 optical and the optical platter is not mounted in the optical library. The platter mount message is helpful because it specifies the optical volume ID to enter into the library.

Preparing to Display Documents Directly from Optical

You must perform a number of tasks to allow users to display documents directly from LAN-attached optical.

LAN-attached 3995 or 3431:

1. Install the LAN server on the workstation controller for the LAN-attached 3995 or 3431. For information on installing this software, refer to the IBM Content Manager for iSeries: Planning and Installing.
2. Install the LAN requestor on the workstation from which the requests to display and print documents will be issued. Note that the LAN requestor must also be started in order for users to display or print documents directly from LAN-attached optical. For information on installing this software, refer to the IBM Content Manager for iSeries: Planning and Installing.
3. Type 2 in the Retrieval method from optical field in the user profile to specify that the user can display or print documents stored on LAN-attached 3995 or 3431 directly from optical. Or type 3 to use the retrieval method specified in the collection profile for the document being retrieved.
4. Type 2 in the Retrieval method from optical field in the collection profile to specify that documents of this collection that are stored on LAN-attached 3995 or 3431 can be displayed or printed directly from optical.
Copying Documents to DASD for Display

There are several advantages to copying a document to DASD before displaying it to the user:

• Subsequent requests to display or print the document within the same day are faster because the document is still on DASD.
• You can specify that Content Manager for iSeries create a batch retrieve request for any interactive retrieve request that could not be processed.
• Content Manager for iSeries issues a platter mount message if the requested document is stored on LAN-attached 3995 or 3431 optical but the optical platter containing the document is not mounted in the optical library. The message specifies the optical volume ID to enter into the library.

The primary disadvantage of copying documents to DASD before displaying or printing them from the workstation is that the documents take up DASD space. The documents remain on DASD for one day. Note that you must start the Delete process to remove the documents from DASD.

To copy documents stored on LAN-attached 3995 or 3431 to DASD for display or workstation print, do one of the following:

• Type 1 in the Retrieval method from optical field in the user profile.
• Type 3 in the Retrieval method from optical field in the user profile, and type 1 in the Retrieval method from optical field in the collection profile.

Defining Servers

The server profile defines the iSeries processing systems that are available to Content Manager for iSeries. You must create a record for the primary processor and for each secondary iSeries system in your configuration.

Content Manager for iSeries uses the information you specify in this profile to retrieve documents that are stored on secondary object servers. When a user performs an action that generates an interactive retrieve request, such as displaying or printing a document that is stored on a secondary object server, the system attempts to retrieve the document immediately. If the interactive retrieve request requires that a batch job be started to process it, the request is processed immediately if an interactive retrieve job is running. If an interactive retrieve job is not running, the system determines whether to start one. First it attempts to find an optical system profile with the same identifier as the secondary object server on which the document resides. If a match is found, Content Manager for iSeries processes the interactive retrieve request according to the information you specified in the Activate for interactive retrieve, Number of jobs, and Wait time fields in the optical system profile. (See "Creating Optical Systems" on page 87 for more information on these fields.) If no optical system ID has the same identifier as the secondary object server, Content Manager for iSeries starts one interactive retrieve job and defaults to a wait time of 120 seconds.

Working with Servers

To work with servers, select 9 on the Profile Maintenance menu. This displays the panel shown in Figure 65 on page 75. The panel displays, in alphabetical order, a list of server descriptions that were previously defined to Content Manager for iSeries. You can create, copy, delete, change, and display server entries.
PANEL DEFINITIONS

Position to
Type the name of the server ID you want to scroll to and press Enter. The panel is displayed again with the server ID you typed appearing on the panel. If you type a letter that does not exist, the server ID most closely matching what you typed is displayed on the panel.

1=Create
Displays the panel shown in Figure 66 on page 76. This lets you create a new server entry.

2=Change
Specify 2 next to the server entry you want to change. This displays the panel shown in Figure 68 on page 77.

3=Copy
Specify 3 next to the server entry you want to copy. This displays the panel shown in Figure 70 on page 78.

4=Delete
Specify 4 next to the server entry you want to delete. This displays the panel shown in Figure 71 on page 79. If you select 4 next to more than one item, the delete requests are grouped and processed together.

5=Display
Type 5 next to the server entry for which you want to display the full definition. This displays the panel shown in Figure 72 on page 79. You can view the information displayed, but you cannot type information on the panel.

Option
Type an option number next to the item you want to work with.

Server ID
Lists, in alphabetical order, the names of server IDs that were previously defined to Content Manager for iSeries.

System
Name of the iSeries associated with the server ID.
Library Server
Specifies whether the server is the library (primary) server.

FUNCTION KEY DEFINITIONS

Enter Processes your selection.

Creating Server Entries

Figure 66 shows the initial panel you use to create a server entry.

To create a new server entry, specify 1 on the Work with Servers panel shown in Figure 65 on page 75. Note that you must create a server entry for the primary processor before you can create a server entry for a secondary processor.

```
Create Server Entry
Type choices, press Enter

Library server ID
System name xxxxxxx

F3=Exit  F12=Cancel
```

Figure 66. Create Server Entry panel for Primary Processor

PANEL DEFINITIONS

Library server ID
Type the 1 character identifier for the iSeries that will be the library server for Content Manager for iSeries. The library server contains index information for the objects stored on one or more object servers. You can have only one library server per system. The library server can also be an object server. Because this identifier will correspond to a network drive on the workstation, do not specify a value that will conflict with drives already defined on the workstation.

System name
Contains the name of the server associated with the iSeries system.

FUNCTION KEY DEFINITIONS

Enter Creates the server entry.
PANEL DEFINITIONS

Object server ID
Type the 1 character identifier for the iSeries that will be an object server for Content Manager for iSeries. An object server is used to store objects in Content Manager for iSeries. Because this identifier will correspond to a network drive on the workstation, do not specify a value that will conflict with drives already defined on the workstation.

Remote system name
Contains the name of the iSeries associated with the remote object server. This name is the same as the local control point name from the remote iSeries network attributes.

Changing a Server Entry
The panel shown in Figure 68 is displayed when you select 2 next to an existing server on the Work with Servers panel. For a description of the fields on this display, see "Creating Server Entries" on page 76.

Create Server Entry

<table>
<thead>
<tr>
<th>Type choices, press Enter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Object server ID</td>
</tr>
<tr>
<td>Remote system name</td>
</tr>
</tbody>
</table>

F3=Exit  F12=Cancel

Change Server Entry

<table>
<thead>
<tr>
<th>Server ID</th>
<th>x</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type choices, press Enter</td>
<td></td>
</tr>
<tr>
<td>System name</td>
<td>xxxxxxx</td>
</tr>
</tbody>
</table>

F3=Exit  F12=Cancel

Figure 67. Create Server Entry panel for Secondary Processor

Figure 68. Change Server Entry panel for Primary Processor
Copying a Server Entry

The panel shown in Figure 70 is displayed when you select 3 next to an existing server on the Work with Servers panel. For a description of the fields on this display, see “Creating Server Entries” on page 76.

Deleting a Server Entry

The panel shown in Figure 71 on page 79 is displayed when you select 4 next to an existing server entry on the Work with Servers panel. Note that you cannot delete a server entry if any of the following conditions exist:

- The server ID is referenced in an iSeries object directory profile. You must first delete the iSeries object directory, then delete the server entry.
- A direct-attached optical device is defined for this server in the optical system profile. You must first delete the optical system profile, then delete the server entry.
- The server entry is for the primary processor and you have defined a secondary processor. You must first delete the server entry for the secondary processor and then delete the server entry for the primary processor.
- The server profile is being used by another user. You must try the operation again later.
Confirm Delete of Servers

Press Enter to confirm your choice for 4=Delete.
Press F12 to return and not delete the server entries.

<table>
<thead>
<tr>
<th>Option</th>
<th>Server ID</th>
<th>System</th>
<th>Server</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>x</td>
<td>xxxxxxxx</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>x</td>
<td>xxxxxxxx</td>
<td></td>
</tr>
</tbody>
</table>

F12=Cancel

Figure 71. Confirm Delete of Server Entries panel

Displaying a Server Entry

The panel shown in Figure 72 is displayed when you select 5 next to an existing server on the Work with Servers panel. For a description of the fields on this display, see "Creating Server Entries" on page 76.

Display Server Entry

Server ID .................: x
System name ...............: xxxxxxxx

Press Enter to continue.
F3=Exit  F12=Cancel

Figure 72. Display Server Entry panel for Primary Processor

Display Server Entry

Server ID .................: x
Remote system name ........: xxxxxxxx

Press Enter to continue.
F3=Exit  F12=Cancel

Figure 73. Display Server Entry panel for Secondary Processor
Defining Object Directories

The full path name of the object directory consists of the server ID, file system, directory, and subdirectory. The file system component of the directory path is important because each file system has a set of logical structures and rules for interacting with information in storage. These structures and rules might vary from one file system to another. File systems that Content Manager for iSeries supports are root, QOpenSys, QDLS, and QLANsrv. Refer to the OS/400 Integrated File System Introduction for more information about the characteristics and considerations associated with each file system.

Object directories are where you store documents on the iSeries. Content Manager for iSeries accesses documents stored in subdirectories of iSeries folders. Before Content Manager for iSeries can access an iSeries directory, you must first define the directory using the object directory profile function. The object directory profile function lets you create, copy, delete, display details, or change an object directory.

The directory and subdirectory elements of the path must be 8 and 12 characters in length, respectively. The specific file system defines all other naming conventions for the directory and subdirectory.

You can use multiple file systems. However, a network drive on the workstation is assigned to a single server and file system. The Content Manager for iSeries system administrator is responsible for establishing symbolic links within one file system to the directories in another file system and so should take link limitations associated to certain file systems into consideration. For example, symbolic links cannot be created or stored in the QDLS file system.

Working with Object Directories

To work with object directories, select 10 on the Profile Maintenance menu. You see the panel shown in Figure 74, which displays an alphabetical list of directories that were previously defined to Content Manager for iSeries. You can create, copy, delete, change, and display details for object directories.

![Figure 74. Work with Object Directories panel](image-url)
PANEL DEFINITIONS

1=Create
Type 1 next to the object directory profile you want to create. This displays the panel shown in Figure 75 on page 82 which lets you create a new object directory.

2=Change
Type 2 next to the object directory you want to change. This displays the panel shown in Figure 76 on page 83.

3=Copy
Type 3 next to the iSeries object directory you want to copy. This displays the panel shown in Figure 77 on page 84.

4=Delete
Type 4 next to the object directory you want to delete. This displays the panel shown in Figure 78 on page 85. The iSeries directory is not deleted when the Content Manager for iSeries profile is deleted. If you select 4 next to more than one item, the delete requests are grouped and processed together.

5=Display
Type 5 next to the object directory for which you want to display the full definition. This displays the panel shown in Figure 79 on page 85. You can view the information displayed, but you cannot type information on the panel.

Option
Type an option number next to the item you want to work with.

Server ID
Contains the identifier of the server. The server is a component of the object directory.

File system
Contains the name of the file system used to store objects. The file system provides support that lets users’ applications access specific segments of storage that are organized as logical units. Each file system has a set of logical structures and rules for interacting with information in storage. These structures and rules can vary from one file system to another. The file systems that Content Manager for iSeries supports are root, QOpenSys, QDLS, and QLANsrv. The file system is a component of the full path of the location of objects.

Directory
Contains the name of the directory used to store objects. The directory is a component of the full path to the location of objects.

Subdirectory name
Contains the name of the subdirectory used to store objects. The subdirectory is a component of the full path to the location of objects.

Status
Contains the status of the object directory, which can be in one of the following states:

OPENED
The object directory is eligible to have objects stored in it.

CLOSED
The object directory is not eligible to have objects stored in it.
FUNCTION KEY DEFINITIONS

Enter    Processes your selection.

Creating Object Directories

Figure 75 shows the panel you use to create an object directory. This panel lets you type information for a new object directory and define the iSeries processing system on which the directory resides. The panel also lets you define the maximum number of documents that can be stored in the subdirectory. Limiting the number of documents stored in a subdirectory improves the time it takes to store or retrieve documents from the directory that contains the subdirectory.

To create a new object directory, select 1 on the panel shown in Figure 74 on page 80. Complete the profile panel shown in Figure 75 and press Enter to create the profile.

Create Object Directory

Type choices, press Enter

<table>
<thead>
<tr>
<th>Server ID</th>
<th>F4 for list</th>
</tr>
</thead>
<tbody>
<tr>
<td>File system</td>
<td>F4 for list</td>
</tr>
<tr>
<td>Directory</td>
<td>Name</td>
</tr>
<tr>
<td>Subdirectory</td>
<td>Name</td>
</tr>
<tr>
<td>Maximum objects</td>
<td></td>
</tr>
<tr>
<td>in subdirectory</td>
<td>01500</td>
</tr>
<tr>
<td>AS/400 group profile</td>
<td>xxxxxxxxx</td>
</tr>
<tr>
<td>Auxiliary storage pool ID</td>
<td>01</td>
</tr>
</tbody>
</table>

F3=Exit  F4=Prompt  F12=Cancel

Figure 75. Create Object Directory panel

PANEL DEFINITIONS

Server ID

Type the 1-character identifier of the server where the object directory resides. The server is a component of the object directory. If you specify a server ID other than the library server ID, Content Manager for iSeries attempts to create the directory on the remote object server. If Content Manager for iSeries cannot connect to the remote system, the entry is still added to the Content Manager for iSeries object directory profile. However, you will need to create the directory on the remote system and grant the appropriate authorities. Press F4 to select from a list of existing servers.

File system

Type the name of the file system used to store objects. The file system provides support that lets users’ applications access specific segments of storage that are organized as logical units. Each file system has a set of logical structures and rules for interacting with information in storage. These structures and rules can vary from one file system to another. The file systems that Content Manager for iSeries supports are root, QOpenSys, QDLS, and QLANSrV. The file system is a component of the full path of the location of objects. Refer to the OS/400 Integrated File System Introduction.
for more information about the characteristics and considerations associated with each file system. Press F4 to select from a list of existing file systems.

**Directory**
Type the name of the directory used to store objects. The directory is a component of the full path to the location of objects. The directory must be 8 characters in length. All other path name conventions are defined by the specific file system.

**Subdirectory name**
Type the name of the subdirectory used to store objects. The subdirectory is a component of the full path to the location of objects. The subdirectory must be 12 characters in length. The specific file system defines all other path name conventions. For example, if the QDLS file system was specified, the format of the subdirectory must be 8 characters, followed by a decimal point, followed by 3 numbers.

**Maximum documents in subdirectory**
Type the maximum number of documents that can be stored in the subdirectory. This value must be an integer between 0 and 60000, inclusive. It is recommended that you enter no more than 1500 to 2500 in this field if you are using the QDLS file system. For other file systems, refer to the *OS/400 Integrated File System Introduction* for more information.

**AS/400 group profile**
Type the 1- to 10-character alphanumeric name of the AS/400 group profile to which authority is to be granted to the directory and subdirectory. If your application uses multiple group profiles for accessing folders, be sure to grant authority to all other groups.

**Auxiliary storage pool**
Contains the number of the ASP in which to place this object directory. This field only applies when using the QDLS file system.

**FUNCTION KEY DEFINITIONS**

Enter  Creates the object directory.

**Changing Object Directories**
The panel shown in [Figure 76 on page 84](#) is displayed when you select 2 next to an existing directory on the Work with Object Directories panel.
Copying Object Directories

The panel shown in Figure 77 is displayed when you select 3 next to an existing directory on the Work with Object Directories panel.

Deleting Object Directories

The panel shown in Figure 76 is displayed when you select 4 next to an existing directory on the Work with Object Directories panel.
Displaying Object Directories

The panel shown in Figure 79 is displayed when you select 5 next to an existing directory on the Work with Object Directories panel.

Defining Optical Systems

The optical system profile defines the optical systems Content Manager for iSeries can use. An optical system is identified by the system ID of its controller. You must create a unique record for each optical system in your configuration. The following Content Manager for iSeries functions use the optical system records.

Storage class profile
When you define a storage class profile, you must specify a valid optical system ID to associate with the storage class you are creating. The storage class and optical system ID combination you create can be used to group documents and store them on the same optical platter.

Interactive retrieve processor
This processor checks to see if the Activate for interactive retrieve field is set to Y in the optical system profile. If so, the interactive retrieve processor processes interactive retrieve requests for this optical system.
Optical batch retrieve processor
This processor checks to see if the Activate for batch retrieve field is set to Y in the optical system ID profile. If so, the batch retrieve processor processes batch retrieve requests for this optical system.

Optical distribution processor
The optical distribution processor uses the storage class and optical system ID profiles to distribute the workload among optical libraries. The processor distributes only those documents that are not associated with any storage class and optical system ID.

Optical store processor
The optical store processor checks to see if the Activate for optical store field is set to Y in the optical system ID profile. If so, the optical store processor processes optical store requests for this optical system. It processes store requests for all storage classes associated with this optical system for which the Activate for optical store field is set to Y.

You must initialize, or format, an optical volume before you can use it. When you initialize a volume, a new volume label that contains the volume name is written on the volume. Note that Content Manager for iSeries requires that both volume IDs on a platter be from the same storage class. (For procedures on initializing optical volumes, see the documentation that supports the optical device you are using.) When the first document is stored to the optical volume, Content Manager for iSeries creates the folder and subdirectory for you, if it does not already exist. The system also creates subsequent folders and subdirectories as necessary, using the storage scheme you define with the storage class profile. See “Defining Storage Classes” on page 97 for more information on this topic.

Working with Optical Systems
To work with optical systems, select 12 on the Profile Maintenance menu. This displays the panel shown in Figure 80. The panel displays a list of optical systems that were previously defined to Content Manager for iSeries. You can create, copy, delete, change, and display details for optical system profiles.

![Figure 80. Work with Optical Systems panel](image-url)
PANEL DEFINITIONS

Position to
Enter the name of the optical system ID you want to find. The optical system ID you entered appears on the panel. If you enter an optical system ID that does not exist, the ID most closely matching what you entered appears.

1=Create
Displays the panel shown in Figure 81 on page 88 which lets you create a new optical system entry.

2=Change
Enter 2 beside the optical system ID you want to change. The panel shown in Figure 84 on page 94 appears.

3=Copy
Enter 3 beside the optical system entry you want to copy. The panel shown in Figure 87 on page 95 appears.

4=Delete
Enter 4 beside the optical system entry you want to delete. The panel shown in Figure 88 on page 96 appears. If you select 4 next to more than one item, the delete requests are grouped and processed together.

5=Display
Enter 5 beside the optical system entry for which you want to display the full definition. The panel shown in Figure 89 on page 96 appears. You can view the information, but you cannot enter information in the panel.

Option
Enter an option number next to the item you want to work with.

Optical System ID
Contains the 1-character identifier for each optical system attached to Content Manager for iSeries.

System Name
Lists the names of optical systems that were previously defined to Content Manager for iSeries.

System Configuration
Type of optical device associated with the optical system ID.

FUNCTION KEY DEFINITIONS

Enter Processes your selection.

Creating Optical Systems
Before you create an optical system entry, see “Managing Optical” on page 69 to review the profile settings you should choose for the optical storage method you want.

Before you create an optical system entry for a direct-attached 3995, you must create a server entry for the iSeries to which the 3995 is attached. See “Defining Servers” on page 74 for more information.

Figure 81 on page 88 shows the initial panel you use to create or change an optical system entry.
To create a new optical system entry, select 1 on the Work with Optical Systems panel shown in Figure 80 on page 86. Complete the initial profile panel shown in Figure 81 and press the PgDn key to view additional fields.

---

**PANEL DEFINITIONS**

**Optical system ID**
Type the 1-character alphabetic name of the optical system ID. This field is required if you are creating an optical system. For direct-attached 3995, this name is the same as the server ID of the iSeries to which the optical library is attached.

**System configuration**
Type the 2-character numeric value that represents the type of optical device associated with the optical system ID. You can specify one of the following:

- **01** Direct-attached 3995 optical device
- **02** LAN-attached 9402/5363 optical device
- **03** LAN-attached 3995 or 3431 optical device
- **50-99** User-defined optical device

The initial value is **01**. This field is required if you are creating an optical system.

**FUNCTION KEY DEFINITIONS**

**PgDn** Displays a panel similar to Figure 82 on page 89 with additional fields. The actual fields vary depending on the type of system configuration you specified on the initial panel.
Create Optical System

Type choices, press Enter.

Optical system ID .....................: x
System configuration ...............: x
System name ............................: xxxxxxxx
Activate for optical store ........: Y Y=Yes, N=No
Respond to platter mount ..........: Y Y=Yes, N=No
Number of drives ................. 01 1-99
Activate for batch retrieve .......: Y Y=Yes, N=No
Respond to platter mount ..........: Y Y=Yes, N=No
Server ID .............................: x
Number of drives ................. 01 1-99

F3=Exit  F5=Refresh  F12=Cancel

More...

Figure 82. Create Optical System panel

PANEL DEFINITIONS

Optical system ID
Displays the optical system ID you entered.

System configuration
Displays the number you entered for the system configuration, as well as a description of the configuration.

Activate for optical store
Enter Y to allow documents to be stored to this optical system. Note that the Activate for optical store field in the storage class profile must also be set to Y in order for documents to be stored to this optical system. Type N to specify that documents cannot be stored to this optical system ID. You might want to specify N if, for example, the optical device is not functioning and you want to avoid receiving error messages every time Content Manager for iSeries attempts to store a document to this optical system ID. When you specify N in this field, Content Manager for iSeries continues generating optical storage requests for this optical system ID but does not process these until you change this field to Y and start the optical store processor again.

Respond to platter mount - optical store
Enter Y to specify that you want to respond to platter mount messages issued when the required optical volume is not in the library. Enter N to specify that you want to ignore the platter mount message and continue processing the next request. This field is not displayed if you are defining a LAN-attached 9402/5363 optical system because platter mount messages are issued on the 9402/5363 console, not on the iSeries. See "Responding to Platter Mount Messages" on page 93 for additional information on this field.

Number of drives
Enter a number from 1 to 99 to specify the number of different storage classes that the optical store process can store documents to at a time. Documents are stored to the current volume ID specified in each storage class profile.
Activate for batch retrieve

Type Y to allow documents to be retrieved in batch from this optical system. Type N to specify that documents cannot be retrieved in batch from this optical system. You might want to specify N if, for example, the optical device is not functioning and you want to avoid receiving error messages every time Content Manager for iSeries attempts to retrieve a document in batch from this optical system ID. When you specify N in this field, Content Manager for iSeries continues to generate batch retrieve requests for this optical system, but does not process the requests until you change this field to Y and restart the optical batch retrieve processor.

Respond to platter mount - batch retrieve

Type Y to specify that you want to respond to platter mount messages issued when the required optical volume is not in the library. Type N to specify that you want to ignore the platter mount message and continue processing the next request. This field is not displayed if you are defining a LAN-attached 9402/5363 optical system because the 9402/5363 console, not on the iSeries, issues platter-mount messages. See "Responding to Platter Mount Messages" on page 93 for additional information on this field.

Server ID

Type the ID of the server on which documents are to be stored after they are retrieved from this optical system by the batch processor. You can specify the following:

*ANY Documents retrieved from the optical system in batch are stored in any of the iSeries directories defined to Content Manager for iSeries.

*USER Documents retrieved from the optical system in batch are stored in directories on the server specified in the user’s user profile.

An existing server ID

Documents retrieved from the optical system in batch are stored in directories on the server specified in this field.

If you are defining a direct-attached 3995, this field displays the ID of the iSeries system to which the optical library is attached.

Number of drives - batch retrieve

Type a number from 1 to 99 to specify the number of different optical volumes from which the optical batch retrieve program can retrieve documents at a time. Documents are retrieved only from volumes that have a unique 3-character prefix.

See "Batch Retrieval of Documents on Multiple Optical Drives" on page 72 for additional information on this field.

FUNCTION KEY DEFINITIONS

PgDn Displays the panel shown in Figure 83 on page 91 with additional fields.
Create Optical System

Type choices, press Enter.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optical system ID</td>
<td>x</td>
</tr>
<tr>
<td>System configuration</td>
<td>x</td>
</tr>
<tr>
<td>Activate for interactive retrieve</td>
<td>Y, Y=Yes, N=No</td>
</tr>
<tr>
<td>Create batch retrieve</td>
<td>Y, Y=Yes, N=No</td>
</tr>
<tr>
<td>Respond to platter mount</td>
<td>Y, Y=Yes, N=No</td>
</tr>
<tr>
<td>Number of jobs</td>
<td>01 1-99</td>
</tr>
<tr>
<td>Wait time in seconds</td>
<td>00120 1-99999</td>
</tr>
</tbody>
</table>

F3=Exit  F5=Refresh  F12=Cancel

**Figure 83. Create Optical System panel**

**PANEL DEFINITIONS**

**Optical system ID**

Displays the optical system ID you entered.

**System configuration**

Displays the number you typed for the system configuration, as well as a description of the configuration.

**Activate for interactive retrieve**

Type **Y** to allow documents to be retrieved interactively from this optical system. In some cases, a batch job is started to process the interactive retrieve request. See ["Interactive Retrieve Processing" on page 117](#) for more information. Type **N** to specify that documents cannot be retrieved interactively from this optical system. You might want to specify **N** if, for example, the optical device is not functioning and you want to avoid receiving error messages every time Content Manager for iSeries attempts to retrieve a document from this optical system ID. If you specify **N** in this field, users are unable to display or print documents that are stored on this optical system and no longer reside on DASD. However, you can specify that batch retrieve requests be created for each interactive retrieve request that could not be processed. See the **Create batch retrieve request** field.

**Create batch retrieve request**

Type **Y** to specify that Content Manager for iSeries is to create a batch retrieve request in the following circumstances:

- If the optical volume is not in the optical library when an interactive retrieve request is generated
- If an error occurs during interactive retrieve and Content Manager for iSeries is unable to process the interactive retrieve request
- If you specified **N** in the **Activate for interactive retrieve** field

Type **N** to specify that Content Manager for iSeries should not generate batch retrieve requests for interactive retrieve requests that could not be processed.

**Respond to platter mount - interactive retrieve**

Type **Y** to specify that you want to respond to platter mount messages
issued when the required optical volume is not in the library. Type N to specify that you want to ignore the platter mount message and continue processing the next request. This field is not displayed if you are defining a LAN-attached 9402/5363 optical system. Platter mount messages are issued on the 9402/5363 console, not on the iSeries. This field is not used if documents are displayed or printed directly from LAN-attached 3995 or 3431 optical rather than being copied to DASD for display. See “Responding to Platter Mount Messages” on page 93 for additional information on this field.

**Number of jobs**

If you specified a system configuration of 1 (direct-attached 3995), this field is displayed only if you defined a secondary DASD system. This field is used only if the interactive retrieve request requires that a batch job be started to process it.

Type a number from 1 to 99 to specify the number of interactive retrieve jobs that should be started to process interactive retrieve requests for this optical system. The number of batch programs you specify is based on the number of simultaneous interactive retrieve requests you expect users to submit for this optical system, as well as the size of the documents to be retrieved.

All interactive retrieve requests that require batch jobs are queued on the iSeries and are processed as interactive retrieve jobs become available. If you have a large number of simultaneous interactive retrieve requests, type a number larger than 1 in this field. The default is 1.

Make sure that the maximum number of jobs in your batch subsystem is greater than the sum of the number of interactive retrieve jobs started and the number of secondary Content Manager for iSeries processors. For example, you have:

- An optical system with 2 interactive retrieve jobs
- An optical system with 3 interactive retrieve jobs
- An optical system with 2 interactive retrieve jobs
- A secondary Content Manager for iSeries processor

For this example, your batch subsystem should allow for more than eight (2 + 3 + 2 + 1 = 8) concurrent batch jobs. If you plan to run interactive retrieve while running another background process, allow for additional batch jobs in the batch subsystem.

**Wait time in seconds**

If you specified a system configuration of 1 (direct-attached 3995), this field is displayed only if you defined a secondary server. This field is used only if the interactive retrieve request requires that a batch job be started to process it. Type the number of seconds you want an interactive retrieve to wait for a document on optical only or on remote DASD to be processed. If the time limit you specify expires during an interactive retrieve, the system displays an error message to the user indicating that the document cannot be retrieved. The default is 00120 seconds (two minutes).

**FUNCTION KEY DEFINITIONS**

**Enter** Creates the optical system entry.
Responding to Platter Mount Messages

If a requested document is stored on an optical platter that is not mounted in the LAN-attached 3995 or 3431 optical, or the direct-attached 3995 optical, Content Manager for iSeries displays a message requesting that you mount the platter.

The Respond to platter mount field does not control the display of platter mount messages on LAN-attached 9402/5363 optical. The 9402/5363 issues its own messages on the optical controller’s console. Refer to the manuals that accompanied your equipment for information on using the autoreponse function to automatically cancel all document store or retrieve requests for the 9402/5363 optical system.

For all other optical systems, Content Manager for iSeries issues a platter mount message when the following types of requests are generated, if the requested document is stored on a platter that is not mounted in the optical system:

- Interactive retrieve request, when a user requests to display or print a document that is stored on optical
- Optical store request, when you start the optical store processor
- Optical batch retrieve request, when you start the optical batch retrieve processor

You can choose to respond to each platter mount message if you want.

If you specify Y in the Respond to platter mount field for a function in the above list, the system sends an inquiry message to the QSYSOPR’s iSeries message queue. You must respond to this message. Do the following:

1. Enter DSPMSG QSYSOPR at an iSeries command line to display the platter-mount message.
2. If you do not want to mount the platter, enter C to cancel the request. If you want to process the requests, enter the volume in the optical library and type R to specify that the system try the request again.

After you respond to the message (either C or R), the optical store processor and the batch retrieve processor process the next store or batch retrieve request. For interactive retrieve requests, you must respond to the message within the time specified in the Wait time in seconds field in the optical system ID profile for this optical system. Otherwise, the following occurs:

- The interactive retrieve processor issues an error message to the user.
- A batch retrieve request is generated for the document if you specified Y in the Create batch retrieve request field for this optical system ID.

If you specify N in the Respond to platter mount field for a function in the above list, the system sends an informational message to the QSYSOPR’s iSeries message queue whenever a request for the function is received. You can use the DSPMSG QSYSOPR command to display the message, but you cannot respond to the message. After the error is logged, the optical store processor and the batch retrieve processor process the next store or batch retrieve request. If an interactive retrieve request is received, the system issues an error message to the user, and generates a batch retrieve request for the document if you specified Y in the Create batch retrieve request field for this optical system ID.
Changing Optical Systems

The panel shown in Figure 84 is displayed when you select 2 next to an existing optical system ID on the Work with Optical Systems panel. This panel lets you change an existing optical system description.

Figure 84. Change Optical System panel

Figure 85. Change Optical System panel
Copy Optical Systems

The panel shown in Figure 86 is displayed when you select 3 next to an existing optical system ID on the Work with Optical Systems panel. This panel lets you create a new optical system entry by copying an existing one. Note that the new optical system ID is the same system configuration as the ID you copied. For example, if you copy an optical system ID profile of type 1=Direct-attach, the new ID is also a direct-attached. Use the CREATE function to create an optical system entry with a different system configuration.

Deleting Optical Systems

The panel shown in Figure 87 is displayed when you select 4 next to an existing optical system ID on the Work with Optical Systems panel. You cannot delete an optical system ID profile if any of the following conditions exist:

- The optical system ID is referenced in a storage class profile. You must first delete the storage class profile, then delete the optical system ID profile.
- The profile is being used by another user. You must try the operation again later.
Displaying Optical Systems

The panel shown in Figure 89 is displayed when you select 5 next to an existing optical system ID on the Work with Optical Systems panel.

**Figure 88. Confirm Delete of Optical System panel**

**Figure 89. Display Optical System panel**
Display Optical System

Type choices, press Enter.

Optical system ID: x
System configuration: x
System name: 
Activate for optical store: x
Respond to platter mount: x
Number of drives: xx
Activate for batch retrieve: x
Respond to platter mount: x
Server ID: x
Number of drives: xx

Press Enter to continue.

F3=Exit  F12=Cancel

Figure 90. Display Optical System panel

Display Optical System

Type choices, press Enter.

Optical system ID: x
System configuration: x
System name: 
Activate for interactive retrieve: x
Create batch retrieve request: x
Respond to platter mount: x
Number of jobs: xx
Wait time in seconds: x

Press Enter to continue.

F3=Exit  F12=Cancel

Figure 91. Display Optical System panel

Defining Storage Classes

A storage class is a name that you assign to a particular group of objects in Content Manager for iSeries. Storage classes determine how objects are stored to optical devices. Each storage class is associated with an optical system and a unique set of optical volume IDs. Objects with the same storage class and optical system ID are stored on the same optical volume. So a storage class lets you group similar documents on the same optical volume. For example, you can define a storage class of CLAIMS0001 on optical system ID G with a current volume ID of AAA001. Objects associated with the storage class of CLAIMS0001 are stored to volume AAA001. When this volume becomes full, documents are stored to volume AAA002 and so on.

You can associate the same storage class with multiple optical system IDs if you want to store related documents on different optical systems. For example, you can define a storage class of CLAIMS0001 on optical system ID G and on optical
system ID H. If you set up your system this way, make sure the optical paths (optical volume name, current directory, and current subdirectory) are unique.

An object must be associated with a storage class to be stored to optical. When an object is entered into Content Manager for iSeries, Content Manager for iSeries associates the document with a storage class based on the options you specify in Content Manager for iSeries profiles. Content Manager for iSeries first checks the collection profile to determine the storage method you want to use when storing objects of this type to optical. You can choose from the following storage methods:

**Collection**

This storage method specifies that documents are to be logically grouped and stored to optical based on the collection.

**Store using optical distribution process**

This storage method specifies that you want the system to distribute documents to any available storage classes. Because the documents are not yet associated with a storage class, the system generates undistributed optical store requests for the documents. You must start the optical distribution process to associate each document with a storage class. The system then distributes the documents to all storage classes for which the **Activate for distribution** field is set to Y in the storage class profile. The optical distribution process associates storage classes with documents that have outstanding optical store requests but are not associated with a storage class.

After the optical distribution process associates the documents with the appropriate storage classes, you can start the optical store process to store the documents to optical.

If you specify that documents are to be stored to optical based on index class or collection, the system distributes documents automatically to the appropriate storage class and optical system ID. You do not have to start the optical distribution process to distribute the optical store requests to the processors. You need only start the optical store process to store the documents to optical. See “[Designing an Optical Storage Strategy](#)” on page 69 for more information on designing an optical storage strategy.

It is recommended that all optical platters for a given storage class be of the same type, that is, all erasable or all write-once, read-many (WORM).

You define the storage classes of Content Manager for iSeries using the storage class profile function. The storage class profile function allows you to create, copy, delete, display details, or change a storage class profile.

**Working with Storage Class Profiles**

To work with storage classes, **select 11** on the Profile Maintenance menu. This displays the panel shown in **Figure 92 on page 99** which displays a list of storage class profiles that were previously defined on the system. You can create, copy, delete, change, and display details for storage class profiles.
PANEL DEFINITIONS

Position to
Enter the name of the storage class you want to find. The storage class you entered appears on the panel. If you enter a letter, a string of letters, or a storage class that does not exist, the storage class that most closely matches what you entered is displayed.

1=Create
This displays the panel shown in Figure 93 on page 100 which lets you create a new storage class profile.

2=Change
Type 2 next to the storage class you want to change. This displays the panel shown in Figure 95 on page 103.

3=Copy
Type 3 next to the storage class profile you want to copy. This displays the panel shown in Figure 97 on page 104.

4=Delete
Type 4 next to the storage class you want to delete. This displays the panel shown in Figure 98 on page 105. If you select 4 next to more than one item, the delete requests are grouped and processed together.

5=Display
Type 5 next to the storage class for which you want to display the full definition. This displays the panel shown in Figure 99 on page 105. You can view the information displayed, but you cannot type information on the panel.

8=Display volumes used
Type 8 next to a storage class to display a list of the full optical volumes that are associated with the storage class. This displays the panel shown in Figure 101 on page 106.

Option
Type an option number next to the item you want to work with.
Storage Class
Lists the names of storage classes that were previously defined to Content Manager for iSeries.

Optical System ID
Name of the optical system ID associated with the storage class.

Text Description of the storage class.

FUNCTION KEY DEFINITIONS

Enter Processes your selection.

Creating Storage Classes
Before creating a storage class profile, see “Managing Optical” on page 69 to review the profile settings to choose for the optical storage method you want.

Before changing an existing storage class profile, you must stop the optical store process, if it is running.

To create a new storage class profile, select 1 on the Work with Storage Classes panel shown in Figure 92 on page 99. You see the panel shown in Figure 93.

The optical path you define in this profile and on Content Manager for iSeries optical systems must be unique. If you are using multiple Content Manager for iSeries systems, each system must have a unique naming convention for its optical media paths.

![Create Storage Class panel](image)

**Figure 93. Create Storage Class panel**

**PANEL DEFINITIONS**

**Storage class**
Type the 1- to 10-character alphanumeric name of the storage class you want to create.

**Optical system ID**
Type the 1-character alphabetic identifier of the optical system associated with this storage class. Press F4 to select from a list of existing servers.

Text Description of the storage class.
Activate for optical store

Type Y to specify that the optical store processor can store documents on volumes associated with this storage class. You must set the Activate for optical store field in the optical system ID profile to Y for documents to be stored to this storage class. Type N to specify that documents cannot be stored on volumes associated with this storage class. You might want to specify N if, for example, the optical device is not functioning and you want to avoid receiving error messages every time Content Manager for iSeries attempts to store a document to this optical system ID. When you specify N in this field, Content Manager for iSeries continues to generate optical store requests for this optical system ID but does not process the requests until you change this field to Y and start the optical store processor again.

Erasable volume

Type Y to indicate that this storage class uses erasable optical volumes. If you specify Y, all volumes used by this storage class must be erasable. Type N to specify that this storage class uses write-once, read-many (WORM) optical volumes.

FUNCTION KEY DEFINITIONS

Enter  Creates the storage class profile.

---

Create Storage Class

Type choices, press Enter.

Storage class ...............: x
Optical system ID ............: x
                           x
                           x
Text ........................: x
Activate for distribution    x
Number of documents ..........: x
                           Y=Yes, N=N
Current volume ...............: x
Current folder ...............: x
Current subdirectory ........: x
Documents per subdirectory  : x
Subdirectories per folder ...: x
                           1-60000
                           1-999

Bottom

F3=Exit  F5=Refresh  F12=Cancel

Figure 94. Create Storage Class panel

PANEL DEFINITIONS

Storage class

Displays the 1- to 10-character alphanumeric name of the storage class you want to create.

Optical system ID

Displays the 1-character alphabetic identifier of the optical system associated with this storage class.

Text

Description of the storage class.
Activate for distribution
This field determines whether the optical distribution processor can assign this storage class and optical system ID to documents that are not associated with any other storage class and optical system ID. Type Y to allow documents to be distributed to this storage class and optical system ID. Type N if you do not want the optical distribution processor to distribute documents to this storage class and optical system ID. You might specify N, for example, if you are storing documents on optical volumes by collection and want to prevent other collections from being stored on this volume.

Number of documents
If you specified that documents can be distributed to this storage class and optical system ID, type a number from 1 to 999 to indicate how many documents can be distributed to this storage class at one time.

Current volume
Type the six-character alphanumeric name of the optical volume where the next document is to be stored. The format for the name is cxxxnnn where:
- c Alphabetic
- x Alphanumeric
- n Numeric

If you are creating a storage class, the default value in this field contains a unique 3-character prefix followed by 001. The first character of the prefix is the optical system ID. If you specify a volume name other than the default, make sure the first 3 characters are unique.

Whether you specify a volume name or use the default, you must initialize the volume ID and mount the platter on your optical system. When you initialize an optical platter, make sure that both volume IDs are from the same storage class.

After the volume you specify becomes full, Content Manager for iSeries automatically stores documents on the next volume and updates the Current volume field with the name of the new volume. For example, if the current volume ID is AAA001, Content Manager for iSeries stores documents on AAA002 when AAA001 is full.

Current folder
Type the eight-character alphanumeric name of the folder on the optical volume where the next document is to be stored. The format for the name is cxxnnnnn where:
- c Alphabetic
- x Alphanumeric
- n Numeric

If you are creating a storage class, the default value in this field contains a unique 4-character prefix followed by 0001. The first 3 characters of the prefix are the same as the 3-character prefix of the current volume ID. Note that every folder you define for the 9402/5363 optical must have a unique 4-character prefix.

Current subdirectory
Type the 12-character alphanumeric name of the optical subdirectory where the next document is to be stored. The format for the name is cxxxxxxx.nnn where:
- c Alphabetic
If you are creating a storage class, the default value in this field is SUBDIREC.001.

**Documents per subdirectory**
Type a number between 1 and 60000 to specify the maximum number of documents to be stored in the optical subdirectory before it is considered full. When the subdirectory contains this number of documents, the system creates a new subdirectory and updates the Current subdirectory field with the name of the new subdirectory. The default is 900 documents.

**Subdirectories per folder**
Type a number between 1 and 999 to specify the maximum number of subdirectories to be created in an optical folder before it is considered full. When the folder contains this number of subdirectories, the system creates a new folder and updates the Current folder field with the name of the new folder. The default is 20 subdirectories.

### Changing Storage Classes
The panel shown in Figure 95 is displayed when you type 2 next to an existing storage class on the Work with Storage Classes panel. This panel lets you change an existing storage class definition.

```
+x Alphanumeric
+n Numeric

Change Storage Class
Type choices, press Enter.
Storage class . . . . . . . . . . . . . : xxxxxxxx
Optical system ID . . . . . . . . . . : x
                                  xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
Text . . . . . . . . . . . . . . . . . . . . xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
Activate for optical store . . . . . . . x  Y=Yes, N=No
Erasable volume . . . . . . . . . . . . . x  Y=Yes, N=No

More...
```

*Figure 95. Change Storage Class panel*
Copying a Storage Class Profile

The panel shown in Figure 96 is displayed when you type 3 next to an existing storage class on the Work with Storage Classes panel. This panel lets you create a new storage class by copying an existing one.

Deleting Storage Classes

The panel shown in Figure 97 on page 105 is displayed when you type 4 next to an existing storage class on the Work with Storage Classes panel. Note that you cannot delete a storage class profile if any of the following conditions exist:

- The storage class and associated optical system ID are referenced in a collection profile. You must either blank out the values in the storage class and optical system ID fields in the collection profile that references them, or delete the profile that references them. Then delete the storage class profile.
• The profile is being used by another user. You must try the operation again later.
• The optical store process is running.

Confirm Delete of Storage Classes
Press Enter to confirm your choices for 4=Delete.
Press F12 to return and not delete the storage class profiles.

<table>
<thead>
<tr>
<th>Option</th>
<th>Storage Class</th>
<th>Optical System ID</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>xxxxxxxxxxxx</td>
<td>x</td>
<td>x xxxxxxxxxxxxxxxxx</td>
</tr>
<tr>
<td>4</td>
<td>xxxxxxxxxxxx</td>
<td>x</td>
<td>x xxxxxxxxxxxxxxxxx</td>
</tr>
<tr>
<td>4</td>
<td>xxxxxxxxxxxx</td>
<td>x</td>
<td>x xxxxxxxxxxxxxxxxx</td>
</tr>
<tr>
<td>4</td>
<td>xxxxxxxxxxxx</td>
<td>x</td>
<td>x xxxxxxxxxxxxxxxxx</td>
</tr>
<tr>
<td>4</td>
<td>xxxxxxxxxxxx</td>
<td>x</td>
<td>x xxxxxxxxxxxxxxxxx</td>
</tr>
<tr>
<td>4</td>
<td>xxxxxxxxxxxx</td>
<td>x</td>
<td>x xxxxxxxxxxxxxxxxx</td>
</tr>
<tr>
<td>4</td>
<td>xxxxxxxxxxxx</td>
<td>x</td>
<td>x xxxxxxxxxxxxxxxxx</td>
</tr>
<tr>
<td>4</td>
<td>xxxxxxxxxxxx</td>
<td>x</td>
<td>x xxxxxxxxxxxxxxxxx</td>
</tr>
<tr>
<td>4</td>
<td>xxxxxxxxxxxx</td>
<td>x</td>
<td>x xxxxxxxxxxxxxxxxx</td>
</tr>
</tbody>
</table>

More...

F12=Cancel

Figure 98. Confirm Delete of Storage Classes panel

Displaying Storage Classes
The panel shown in Figure 99 is displayed when you type 5 next to an existing storage class on the Work with Storage Classes panel.

Display Storage Class

Storage class . . . . . . . . . . . . . : xxxxxxxxxxx
Optical system ID . . . . . . . . . . . : x
Text . . . . . . . . . . . . . . . . . . . . : x xxxxxxxxxxxxxxxxx
Activate for optical store . . . . . . : x
Erasable volume . . . . . . . . . . . : x

Press Enter to continue.

F3=Exit  F12=Cancel

Figure 99. Display Storage Class panel
Displaying Used Volumes

The panel shown in Figure 101 is displayed when you type 8 next to an existing storage class on the Work with Storage Classes panel.

Defining Collections

A collection is used to define the storage management controls associated to a group of objects that typically have similar performance, availability, backup, and retention characteristics.

Working with Collections

The panel shown in Figure 102 on page 107 is displayed when you select 8 from the Profile Maintenance menu.
PANEL DEFINITIONS

Position
Type the name of the collection you want to scroll to and press Enter. The panel is displayed again with the collection you typed appearing on the panel. If you type a letter, a string of letters, or a collection that does not exist, the collection most closely matching what you typed is displayed on the panel.

1=Create
Select this option to create a new collection. Displays the panel shown in Figure 103 on page 108.

2=Change
Type 2 next to the collection you want to change. Displays the panel shown in Figure 104 on page 110, where you can change a collection definition.

3=Copy
Type 3 next to the collection you want to copy. This lets you copy an existing collection definition into a new collection definition. Displays the panel shown in Figure 105 on page 110, where you can change the existing collection definition to create the new collection.

4=Delete
Type 4 next to the collection you want to delete. The panel shown in Figure 106 on page 111 is displayed to let you confirm the deletion or cancel the request. If you select 4 next to more than one item, the delete requests are grouped and processed together.

5=Display
Type 5 next to the collection for which you want to display the collection definition. Displays the panel shown in Figure 107 on page 111.

Collection
Lists the collection names defined to the system.

Text
The 1- to 30-character alphanumeric description associated to the collection.
You can select any combination or number of valid options. The options you select are processed in the order listed on the panel. If an error occurs for one of the options, the Work with Collections panel is displayed again with the option in error highlighted. Any other options remaining to be processed are also displayed on the panel. When you correct the error, all options selected are processed.

FUNCTION KEY DEFINITIONS

Enter Processes your selections.

Creating Collections

The panel shown in Figure 103 is displayed when you type 1 as an option on the Work with Collections panel. This panel lets you create a new collection.

<table>
<thead>
<tr>
<th>Create Collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collection ........ Name</td>
</tr>
<tr>
<td>Text ...............</td>
</tr>
<tr>
<td>Store on optical ... Y  Y=Yes, N=No</td>
</tr>
<tr>
<td>Days stored on DASD ... 030 0-999</td>
</tr>
<tr>
<td>Optical storage method ... 2 1=Collection 2=System assigned</td>
</tr>
<tr>
<td>Storage class ........ Name, F4 for list</td>
</tr>
<tr>
<td>Optical system ID .......</td>
</tr>
<tr>
<td>Retrieval method from optical ... 1 1=Retrieve to DASD 2=Process from optical</td>
</tr>
</tbody>
</table>

Figure 103. Create Collection panel

PANEL DEFINITIONS

Collection
Type the 1- to 8-character name of the collection you want to create.

Text
Type the 1- to 30-character expanded description of the collection. This field is optional.

Store on optical
Type Y to store the document image on optical and DASD.

When documents of this type are input, Content Manager for iSeries builds a request to store the document on optical storage. Then, the next time you run the store process the object is stored.

Type N if the document is not to be stored on secondary storage. However, if the document is not stored on secondary storage or backed up on a storage media, it is lost if deleted from DASD. This field is required.

Days stored on DASD
Type a number from 0 through 999 to specify the maximum number of days a document is to be stored on DASD. For example, if you set this field to 7, the document is stored on DASD for seven days. The default is
30. This field is required. If the Store on optical field is set to N, you cannot recover documents of this type after they are deleted from DASD.

**Optical storage method**

Type the number that represents the method of optical storage to be used when documents of this type are input into the system. You can use the following:

1=Collection

Documents are stored to optical based on collection. If you specify 1, you must specify a storage class and optical system ID in this profile.

2=System assigned

No storage class and optical system ID are assigned to the documents. You must start the optical distribution process to assign a storage class and optical system ID to the documents so they can be stored on optical.

**Storage class**

Type the 1- to 10-character alphanumeric name of the storage class to which documents of this type belong. Fill in this field based on the following rules:

- If you specified a storage method of 1, this field is required. You must also specify the optical system ID associated with this storage class in the Optical system ID field.
- If you specified a storage method of 2, you must leave the Storage class and Optical system ID fields blank in this profile.

Press F4 to select from a list of existing storage classes and optical systems.

**Optical system ID**

Type the 1-character alphabetic identifier of the optical system associated with the storage class. Fill in this field based on the following rules:

- If you specified a storage method of 1, this field is required. The storage class field must also contain a value.
- If you specified a storage method of 2, you must leave the Optical system ID and Storage class fields blank in this profile.

**Retrieval method from optical**

Type 1 to specify that documents stored on optical are copied to DASD and displayed or printed from DASD. Type 2 to specify that documents are displayed or printed directly from optical. See "Retrieving Documents from Optical" on page 72 for the advantages and disadvantages of each method.

**FUNCTION KEY DEFINITIONS**

Enter  Creates the collection.

**Changing Collections**

The panel shown in Figure 104 on page 110 is displayed when you type 2 next to an existing storage class on the Work with Collections panel. This panel lets you change an existing collection definition.
Copying Collections

The panel shown in [Figure 105] is displayed when you type 3 next to an existing collection on the Work with Collections panel. This panel lets you create a new collection by copying an existing one.

Deleting Collections

The panel shown in [Figure 106 on page 111] is displayed when you select 4 next to an existing collection on the Work with Collections panel. You can confirm the deletion of collections by pressing the Enter key or cancel your request by pressing F12 (Cancel).
Displaying Collections

The panel shown in [Figure 107] is displayed when you select 5 next to an existing collection on the Work with Collections panel.

Work with Storage Management Jobs

Content Manager for iSeries storage management utilities provide the capabilities related to the management of objects on iSeries DASD and optical storage. Operating in the background, storage management jobs perform the following tasks:

- Optical distribution
- Optical store
- Optical retrieve
- Object deletion
- Interactive retrieve from optical
- Import

As an alternative to starting and ending the various storage management jobs from the Work with Storage Management Jobs panel, Content Manager for iSeries also
provides command interfaces for working with these background jobs. The following commands are available:

### Table 3. Available Storage Management Command Interfaces

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>STROBJDLT</td>
<td>Start Object Deletion</td>
</tr>
<tr>
<td>STRINTRTV</td>
<td>Start Interactive Retrieve</td>
</tr>
<tr>
<td>STROPTDST</td>
<td>Start Optical Distribution</td>
</tr>
<tr>
<td>STROPTRTV</td>
<td>Start Optical Retrieve</td>
</tr>
<tr>
<td>STROPTST</td>
<td>Start Optical Store</td>
</tr>
<tr>
<td>STROBJIMP</td>
<td>Start Object Import</td>
</tr>
<tr>
<td>ENDOBJDLT</td>
<td>End Object Deletion</td>
</tr>
<tr>
<td>ENDINTRTV</td>
<td>End Interactive Retrieve</td>
</tr>
<tr>
<td>ENDOPTDST</td>
<td>End Optical Distribution</td>
</tr>
<tr>
<td>ENDOPTRTV</td>
<td>End Optical Retrieve</td>
</tr>
<tr>
<td>ENDOPTST</td>
<td>End Optical Store</td>
</tr>
<tr>
<td>ENDOBJIMP</td>
<td>End Object Import</td>
</tr>
</tbody>
</table>

Some storage management jobs produce reports that use language-specific preferences. For information on changing the default language preferences, see Appendix A, “Changing Language-Specific Default Values,” on page 129.

The Work with Storage Management Jobs panel, shown in Figure 108, is displayed by selecting 2 from the Content Manager for iSeries main menu. This panel displays a list of Content Manager for iSeries storage management jobs. The user can start and stop jobs or determine if a process is running from this panel.

![Figure 108. Work with Storage Management Jobs menu](image)

**PANEL DEFINITIONS**

1=Start

Start the system service.
2=Stop
Use this option to stop a job. A message stating that the stop request was sent is displayed.

Storage management job
This is the name of the job, which can be one of the following:
- Object deletion
- Interactive retrieve
- Optical distribution
- Optical retrieve
- Optical store
- Import

Status
The status of the job. Valid values follow:

Pending
The job is not running, but should be. The program can be waiting in the batch job queue, or it might have ended abnormally.

Active
The job is running.

Not active
The job is not running.

Stop pending
The job is running, and will stop when processing of the current object is complete or the processor awakes.

Start pending
The job is not running, but a user is on the start screen.

FUNCTION KEY DEFINITIONS

F5
Refreshes the panel to show the updated status for the storage management jobs.

Enter
The options to start or stop jobs are processed.

Object Deletion Processing
This function deletes images from iSeries DASD that are eligible for removal. As shown in Figure 109 on page 114, the delete processor runs at the selected interval until you select the Stop delete processes option.

If a store request was not generated for a document by setting the collection field Store on optical to Y, the document is permanently deleted from DASD with no ability to retrieve it later.
PANEL DEFINITIONS

Interval
Type a number from 1 through 99. If you want to change the time, you must stop the delete process if it has been started.

FUNCTION KEY DEFINITIONS

Enter      Starts the delete processor.

Import Processing
This function imports and indexes an object into Content Manager for iSeries. As shown in Figure 110, the import processor runs at the selected interval until you select the Stop import processes option.

PANEL DEFINITIONS

Interval
Enter a number from 1 through 99. If you want to change the time, you must stop the import process if it has been started.

This is a required parameter.

The import batch job begins and processes all documents defined. After the job has completed all processing, the job will go to a delay state.
parameter defines the amount of minutes this job will stay in a delay state before checking to see if there are more objects to import.

**Number of requestors**

This is a required parameter. Specifies the number of import requestors to begin for each of the import directories defined.

**Important:** If the File part of the Import information (OBJINF) parameter is set to \*NONE, only one import requestor will be started for each directory, regardless of the number that you specify for the Number of requestors field. A number greater than 1 in the Number of requestors field has meaning only if you specify an import job definition file name in the File part of the Import information (OBJINF) field.

The possible value for this parameter is a number from 1 to 99. **Note:** The number of background import jobs started is a factor of the number of requestors and directories specified. For example, if you specify three requestors and define two directories to perform the import against, six background import jobs will be started (three jobs for the first directory, and three jobs for the second directory). IBM recommends that one requestor be started per Import information (OBJINF) entry below. More than one may cause contention problems.

**Import information (OBJINF)**

This is a required parameter. This parameter is a group of parameters that make up one import job. The following list makes up an import job definition. The user can enter up to 10 import job definitions.

Specifies the qualified name of the file that contains the indexing information and the directory name where the objects to be imported reside.

**File**  The possible file values are:

**Name**  The name of the file. See [Appendix C, “Format of the Import File (EKD0990),” on page 133](#) for a full definition of the fields in the EKD0990 file.

\*NONE  Specifies that a file for indexing is not available. All objects in the directory will be imported into the IBM Content Manager for iSeries environment and indexed into the NOINDEX index class.

**Library**

Library-name. Specify the library where the file for indexing is located. Only the library named is searched. The user must have READ and CHANGE authority for the specified library. The file format must be the same as the file format for EKD0990 in library QVI. **Warning:** The value of the library field is not validated by the command. If the library does not exist, an error will be written to the error log and the import job will go to delay wait. The import job must be ended and restarted with the correct library name.

\*LIBL: The library list will be searched for the database file.

\*CURLIB: The current library will be searched for the database file.
Directory

Specify up to 256 characters of text to define the full directory path where the import objects reside.

Delete object

Specify if the file should be deleted from the current directory once the import has completed:

*YES The file will be deleted from the directory once the file is imported to IBM Content Manager for iSeries directory.

*NO The file will remain in the current directory once the file is imported to IBM Content Manager for iSeries directory.

**Note:** When *NO is specified and *NONE is specified for the OBJINF-File parameter, objects that are successfully processed are moved to a new sub-directory in the OBJINF - Directory called CMIMPSAV. Objects that fail to import are left in the original directory and will try to be imported again on the next import cycle.

See Table 4 for authorities required.

**Authority Requirements**

Table 4 lists the authority requirements for the OBJINF parameters.

**Table 4. Authority Requirements for the OBJINF Parameters**

<table>
<thead>
<tr>
<th>File</th>
<th>Delete Object</th>
<th>Directory Authority</th>
<th>File Authority</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>*NONE</td>
<td>*YES</td>
<td>Object Existence</td>
<td>*R</td>
<td>Need to be able to delete the objects in the directory after they are processed.</td>
</tr>
<tr>
<td>*NONE</td>
<td>*NO</td>
<td>Object Existence</td>
<td>*RWX</td>
<td>Need to be able to add the CMIMPSAV sub-directory and to delete the objects in the directory after they are copied to the CMIMPSAV sub-directory.</td>
</tr>
<tr>
<td>Specified</td>
<td>*YES</td>
<td>Object Existence</td>
<td>*R *READ *UPDATE *DELETE</td>
<td>Need to be able to read and delete the objects in the directory and to read, update and delete the record in the db file.</td>
</tr>
<tr>
<td>File</td>
<td>Delete Object</td>
<td>Directory Authority</td>
<td>File Authority</td>
<td>Comments</td>
</tr>
<tr>
<td>------</td>
<td>---------------</td>
<td>---------------------</td>
<td>----------------</td>
<td>----------</td>
</tr>
</tbody>
</table>
| Specified | *NO | *R | *READ  
*UPDATE  
*DELETE | Need to be able to read the objects in the directory and to read, update and delete the record in the db file. |

**Correcting Errors Resulting from Object Import Processing**

If the import processor receives an error while attempting to import an object, a record will be written to the IBM Content Manager for iSeries error log (EKD0080). The record will remain in the Import file and the object will remain in its object directory. Once the error has been corrected and the import processor begins processing, the object will be imported.

**Interactive Retrieve Processing**

This function is only run if you have a secondary iSeries system or if you have documents stored on LAN-attached optical.

The interactive retrieve process lets users request to immediately retrieve and process documents stored on a secondary iSeries system, a LAN-attached optical system, or a direct-attached 3995 optical system that is attached to a secondary iSeries. The interactive retrieve process starts a batch job when users perform certain functions on documents that are stored on these systems.

**Ending Interactive Retrieve**

The panel shown in Figure 111 is displayed.

Specify one of the following values in the **How to end** field:

- **Type** *CNTRLD* to end the interactive retrieve process in a controlled manner.
  
  Specify this value if you want to process all existing interactive retrieve requests before the background jobs associated with interactive retrieve are stopped.

- **Type** *IMMED* to end the interactive retrieve process immediately.
  
  Specify this value if a problem occurs during interactive retrieve. A problem could occur, for example, if a user causes an abnormal end to interactive retrieve jobs in the batch subsystem (for example, by typing 4=End in front of interactive retrieve jobs on the iSeries Work with active jobs panel). Another problem might involve damage to interactive retrieve data queues.
When you specify this value, all existing interactive retrieve requests are deleted and all subsequent interactive retrieve requests are processed normally.

When you press Enter, the interactive retrieve process is stopped.

If users perform any of the functions that cause interactive retrieve batch jobs to be started, you must stop the interactive retrieve process again. If you want to prevent users from submitting new interactive retrieve requests, change the Activate for interactive retrieve field to N in the Optical system profile. See "Defining Optical Systems" on page 85 for more information.

Correcting Errors Resulting from Interactive Retrieve Processing
If a user gets an error while trying to display, or print a document, you can check the Content Manager for iSeries error log (EKD0080). If an error is logged for the document, positions 48-51 in the EKD0080 contain the low-level error code. See your iSeries documentation or the iSeries information center at http://publib.boulder.ibm.com/pubs/html/as400/infocenter.html for assistance.

Distributing Optical Store Requests
If the documents you want to store to optical are not associated with a storage class and optical system ID, you must run this function before you start the optical store process. The optical distribution processor distributes optical store requests that are not associated with a storage class and optical system ID to each available storage class. You designate which storage classes are available for distribution using the storage class profile. You also specify the number of documents that can be distributed to each available storage class.

For example, suppose you define optical system IDs G, H, J, and K, and set up your storage class profiles as follows:

<table>
<thead>
<tr>
<th>STORAGE CLASS</th>
<th>OPTICAL SYSTEM ID</th>
<th>ACTIVATE FOR DISTRIBUTION</th>
<th>NUMBER OF DOCUMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLAIMS001</td>
<td>G</td>
<td>Y</td>
<td>3</td>
</tr>
<tr>
<td>CLAIMS002</td>
<td>H</td>
<td>N</td>
<td>3</td>
</tr>
<tr>
<td>CLAIMS003</td>
<td>J</td>
<td>Y</td>
<td>0</td>
</tr>
<tr>
<td>CLAIMS004</td>
<td>K</td>
<td>Y</td>
<td>2</td>
</tr>
</tbody>
</table>

If there were 6 undistributed store requests, they would be distributed as follows when you started the optical distribution process:

<table>
<thead>
<tr>
<th>STORAGE CLASS</th>
<th>OPTICAL SYSTEM ID</th>
<th>NUMBER OF DOCUMENTS RECEIVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLAIMS001</td>
<td>G</td>
<td>4</td>
</tr>
<tr>
<td>CLAIMS002</td>
<td>H</td>
<td>0</td>
</tr>
<tr>
<td>CLAIMS003</td>
<td>J</td>
<td>0</td>
</tr>
<tr>
<td>CLAIMS004</td>
<td>K</td>
<td>2</td>
</tr>
</tbody>
</table>

If you associate documents with a storage class and optical system ID using the procedures discussed in "Managing Optical" on page 69, the documents are distributed automatically to the appropriate storage class, and you do not need to run this function.

The panel shown in Figure 112 on page 119 lets you define the time interval between distribution processes. This process runs at the selected interval until you select to stop optical distribution. The optical distribution process runs only when explicitly started.
**PANEL DEFINITIONS**

**Time between each optical distribution**
Type a number from 1 through 99. If you want to change the time, you must stop the optical distribution process if it has been started.

**FUNCTION KEY DEFINITIONS**

**Enter** Starts the distribution process.

**Correcting Errors Resulting from Optical Distribution Processing**
When you select the Start optical distribution option, Content Manager for iSeries logs errors that result in a document not being distributed successfully. These errors are written to the Content Manager for iSeries error log (EKD0080). Review this log to determine the cause of the errors. After you resolve the errors, start the optical distribution process again.

**Optical Retrieve Processing**
This function retrieves from one or more optical drives documents that have been deleted from DASD. As shown in Figure 113, you can start multiple copies of this process at one time, as well as specifying the time interval between processing runs. The optical batch retrieve process runs at the selected interval until you select the Stop optical batch retrieve option.
Interval
  Type a number from 1 through 99. If you want to change the time, you must stop the optical batch retrieve process if it has been started.

Number of requestors
  Type the number of optical batch retrieve requestors desired.

FUNCTION KEY DEFINITIONS

Enter  Starts the optical batch retrieve process.

Correcting Errors Resulting from Optical Batch Retrieve Processing
When you select the Start optical batch retrieve option, the Content Manager for iSeries logs errors that result in a document not being retrieved successfully.

These errors are written to EKD0080, the error log file.

When you select the Stop optical batch retrieve option, the Optical Retrieve Error Report is generated. You can print this report using the Work with iSeries spooled files after the optical batch retrieve process has been stopped. The format of this report is shown in Figure 114.

After you resolve the errors, start the optical batch retrieve process again.

FIELD DEFINITIONS

System ID
  ID of the iSeries system on which the document is stored.

Document ID
  ID assigned to the document when input by Content Manager for iSeries.

Folder  iSeries directory or optical folder in which the document is stored. The error code indicates which folder the document is stored in.

Subdirectory  iSeries or optical subdirectory (path) in which the document is stored. The error code indicates which subdirectory the document is stored in.

Date  Date on which the error occurred.

Time  Time at which the error occurred.
Error Code

Indicates the Content Manager for iSeries return code and the document interface or communication error return code. See your iSeries documentation or the iSeries information center at http://publib.boulder.ibm.com/pubs/html/as400/infocenter.html for assistance.

Optical Store Processing

Optical store processing writes documents to one or more optical systems.

You must start the optical store process from the DASD system on which the document resides. When you start the optical store process, the optical storage requests are processed, provided the Activate for optical store field is set to Y in both the storage class and optical system ID profiles for the optical system to which the storage requests are assigned. See Chapter 5, “Storage Management,” on page 67 for more information on these profiles.

As shown in Figure 115, you can start multiple copies of this process at one time, as well as specify the time interval between processing runs. Optical store processing runs at the selected interval until you select the Stop optical store option. The storage to optical process runs only when explicitly started.

---

**Figure 115. Start Optical Store panel**

**PANEL DEFINITIONS**

**Interval**

Type a number between 1 and 99. If you want to change the time, you must stop the optical store process if it has been started.

**Number of requestors**

Type the number of store requestors desired.

**FUNCTION KEY DEFINITIONS**

**Enter** Starts the store process.

**Correcting Errors Resulting from Optical Store Processing**

When you select to start optical store, Content Manager for iSeries logs errors that result in a document not being stored successfully.

When you select to stop optical store, the Optical Store Error Report is generated. You can view or print this report by working with iSeries spooled files after the
The optical store process has been stopped. The format of this report is shown in Figure 116.

**FIELD DEFINITIONS**

**System ID**
ID of the iSeries system on which the document is stored.

**Document ID**
ID assigned to the document when input into Content Manager for iSeries.

**Folder**
iSeries directory or optical folder in which the document is stored. The error code indicates which folder the document is stored in.

**Subdirectory**
iSeries or optical subdirectory (path) in which the document is stored. The error code indicates which subdirectory the document is stored in.

**Date**
Date on which the error occurred.

**Time**
Time at which the error occurred.

**Error Code**
Indicates the Content Manager for iSeries return code and the document interface or communication error return code. See your iSeries documentation or the iSeries information center at http://publib.boulder.ibm.com/pubs/html/as400/infocenter.html for assistance.
Chapter 6. Database Utilities

Select 3 to display the Database Utilities menu shown in Figure 117 from the Content Manager for iSeries main menu. This option lets you release pended work packages and locks on documents, work packages, and work management profiles, as well as move a platter from one optical system to another.

You can perform release processing only on the primary processor.

<table>
<thead>
<tr>
<th>VIDBU</th>
<th>Database Utilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select one of the following:</td>
<td></td>
</tr>
<tr>
<td>1. Release item locks</td>
<td></td>
</tr>
<tr>
<td>2. Release work package locks</td>
<td></td>
</tr>
<tr>
<td>3. Release work management profile locks</td>
<td></td>
</tr>
<tr>
<td>4. Release pended items</td>
<td></td>
</tr>
<tr>
<td>5. Platter move</td>
<td></td>
</tr>
</tbody>
</table>

| Selection or command | F3=Exit  F4=Prompt  F9=Retrieve  F12=Cancel  F13=User support  F16=Set initial menu |

Figure 117. Database Utilities menu

Releasing Item Locks

Select 1 to release item locks that were not cleared when the iSeries system or an individual workstation failed with item locked at the time of the failure. The purpose of item locks is to prevent two users from updating the same item at the same time. The user sees a message indicating that another user is using that item. Locked items are not available for editing until you run the Release item locks function.

When you select this option, you see the panel in Figure 118 on page 124. If you want to release item locks for all users, be sure there are no users on the system.
Release Item Locks (RLSITMLCK)

Type choices, press Enter.

User ID .............................. Name, *ALL

F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys

Figure 118. Release Item Locks panel

PANEL DEFINITIONS

User ID

Specify a 1- to 10-character alphanumeric User ID to release all items locked by that user. Specify *ALL to release all items locked by the system.

FUNCTION KEY DEFINITIONS

Enter Processes your requests.

You see a message when this function completes.

Releasing Work Package Locks

Select 2 to recover work packages that were being worked on during a system failure or an individual workstation failure. These work packages are considered to be interrupted and are not available until you run this option.

Do not run this option unless the specified users are logged off the system. If you use the default value of *ALL for the User ID parameter, then all users should be logged off the system. If you run this option while a user is working with a work package, the user cannot return the work package to the workbasket from which it was retrieved. Although the user can use the reassign or continue actions to exit from the work package, it is strongly recommended that you make sure the users specified on the User ID parameter are logged off when you run this option.

No panel is displayed when you select this option.

Releasing Work Management Profile Locks

Select 3 to release locks on all workbasket profiles that were not cleared when the iSeries system or an individual workstation failed with profiles locked at the time of the failure. Profile locks prevent two users from updating the same profile at the same time.

No panel is displayed when you select this option.
Releasing Pended Items

Select 4 to start a process that releases all items for which time suspension criteria is satisfied. This function releases work packages from a process collection point if the number of maximum wait days specified in the collection point definition has expired. The work packages are sent to the exception route specified in the collection point definition.

This option also satisfies all expired date pend conditions for work packages pended using the suspend function.

You should run this process on a regular basis.

No panel is displayed when you select this option.

Moving an Optical Platter

Content Manager for iSeries lets you move a platter from one optical system to another. To do this, select 5 on the Database Utilities menu. You see the panel shown in Figure 119 on page 126.

If you want to move a platter from a stand-alone drive, you must run the platter move function twice, once for each side. After you run this function for the first volume, eject the platter, turn it over, reinsert it into the drive, and then run this function again.

You cannot move a platter from an erasable optical system to a write once, read many (WORM) optical system or vice versa.

You can move a volume ID initialized as either ASCII or EBCDIC from a LAN-attached 3995 to a direct-attached 3995 and vice versa.

On the 3995 optical, you can initialize volume IDs as ASCII or EBCDIC. You must format rewritable platters as WORM on LAN-attached 3995 for use with a direct-attached 3995.

If you rename a platter in the direct-attached 3995 optical library and then move the platter to the LAN-attached 3995 optical library, the LAN-attached library uses the original name for the platter. If you rename a platter in the LAN-attached 3995 optical library and then move the platter to the direct-attached 3995 optical library, the direct-attached library uses the new name you assigned to the platter before you moved it.

You do not need this function if you want to move an optical platter from a direct-attached optical library to another direct-attached optical library on the same iSeries system. To do this, use the optical software to eject the platter from one library and add it to the other library.

Before you run this function, do the following:
• Be sure that the platter is online.
• Verify that the storage class profile associated with the value in the To optical system ID field has been defined on the system.

Do not move a platter if it is referenced as the current volume in a storage class profile. After the platter is full, you can move it.
To move a platter from one optical system to another, complete the initial panel shown in Figure 119 and press Enter to view additional fields.

![EKO31201 Specify Platter for Move](image)

**Figure 119. Moving an Optical Platter**

**PANEL DEFINITIONS**

**From optical system ID**
Type the 1-character optical system ID on which the platter to be moved currently resides, or press F4 to display and select from a list of optical system IDs.

**To optical system ID**
Type the 1-character optical system ID to which the platter is to be moved, or press F4 to display and select from a list of optical system IDs.

**Volume ID**
Type the 6-character volume ID on the platter to be moved.

**Opposite side volume ID**
Type the 6-character volume ID on the opposite side of the volume just specified. If the volume is in an optical library, the system will fill in this field for you after you press Enter. If the volume is in a stand-alone drive, leave this field blank.

**Delete logical file when complete**
A logical file is created when you move a platter from one optical system to another. This file is only needed during the platter move operation.

Type Y to delete the logical file when the platter move function has ended successfully. If you delete the logical file, it is re-created each time you run the platter move function. Type N to save the logical file. If you use the platter move function often, specify N so you do not have to wait for the system to re-create the logical file each time you use the function. The default value is N.

**9402/5363 password**
Type your 4-character alphanumeric password only if you are moving a platter from a LAN-attached 9402/5363 optical system that has security. Otherwise, leave this field blank.

**FUNCTION KEY DEFINITIONS**

Enter Displays the panel shown in Figure 120 on page 127 with additional fields.
**PANEL DEFINITIONS**

**From storage class**
- The storage class associated with the volume ID you typed on the initial panel.

**From optical system ID**
- Is the value you typed in the **From optical system ID** field on the initial panel.

**To storage class**
- Type the 10-character alphanumeric name of the storage class you want to associate with the platter you are moving, or press F4 to display and select from a list of storage classes that were previously defined for the system in the **To optical system ID** field. You can type *NONE in this field only if the value in the **From storage class** field is *NONE.

**To optical system ID**
- Is the value you typed in the **To optical system ID** field on the initial panel.

**FUNCTION KEY DEFINITIONS**

**Enter**  Displays the Confirm Move of Platter panel shown in [Figure 121](#).

---

**Figure 120. Moving an Optical Platter - More Fields (EKD31203)**

**Figure 121. Confirming the Move of an Optical Platter (EKD31202)**
From optical system ID
Displays the From optical system ID you typed on the initial panel.

To optical system ID
Displays the To optical system ID you typed on the initial panel.

Volume ID
Displays the Volume ID you typed on the initial panel.

Opposite side volume ID
Displays the Opposite side volume ID you typed on the initial panel.

Delete logical file when complete
Displays the value you typed on the initial panel.

FUNCTION KEY DEFINITIONS

Enter   Processes your move request and displays the Specify Platter for Move panel with a message indicating that the move was successful.

After you complete the platter move function, eject the platter from the current optical system and insert it in the target optical system so that users can retrieve documents stored on that platter.
Appendix A. Changing Language-Specific Default Values

Installed in your Content Manager for iSeries database, EKDNLSPRF contains language-specific preferences such as date format and data separator for use with product functions that run on the iSeries system. During installation, the file is assigned default values based on the territory code for your iSeries system.

A few language preference fields are used for Content Manager for iSeries system administration tasks. For example, the data format and separator are used for the optical store reports.

If you need to change the defaults in EKDNLSPRF, use the iSeries Data File Utility (DFU) to update the record for the Content Manager for iSeries system administrator, as outlined in Table 5.

Table 5. Language Preference Fields

<table>
<thead>
<tr>
<th>Field</th>
<th>Valid Values or Examples</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date format</td>
<td>1 = day</td>
<td>Order for displaying the day, month, and year to appear (321, for example)</td>
</tr>
<tr>
<td></td>
<td>2 = month</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 = year</td>
<td></td>
</tr>
<tr>
<td>Year digit</td>
<td>2 = last two digits only</td>
<td>Number of positions for the year</td>
</tr>
<tr>
<td></td>
<td>4 = all four digits</td>
<td></td>
</tr>
<tr>
<td>Date separator</td>
<td>/</td>
<td>Character to use as a date separator</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>.</td>
<td></td>
</tr>
<tr>
<td>Time format</td>
<td>0 = 12-hour clock</td>
<td>12-hour or 24-hour clock display</td>
</tr>
<tr>
<td></td>
<td>1 = 24-hour clock</td>
<td></td>
</tr>
<tr>
<td>Time separator</td>
<td>:</td>
<td>Character to use as a time separator</td>
</tr>
<tr>
<td></td>
<td>.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>,</td>
<td></td>
</tr>
<tr>
<td>Number thousands</td>
<td>(space)</td>
<td>Character to use to separate digits into thousands</td>
</tr>
<tr>
<td>separator</td>
<td>,</td>
<td></td>
</tr>
</tbody>
</table>
Appendix B. Setting up Content Manager for iSeries library for a primary and/or secondary language environment

Details for setting up a primary language environment or a secondary language environment are shown below. A summary of the recommended steps are as follows:

1. Create the index class, key field attributes, and action list profiles from the primary language (no secondary language libraries in library list).
2. Create user language library (QUSRVI29xx).
3. Add QSYS29xx to the library list.
4. Create duplicate object files from Table 7 on page 132 in QSYS29xx to the user language library (QUSRVI29xx).
5. Copy using the *ADD function all new records from the primary user library to the user language library (QUSRVI29xx).
6. Rename EKD0xxx files listed in Table 6 on page 132 and Table 7 on page 132 in QSYS29xx to MRI0xxx in QSYS29xx. **Note:** There are also Content Manager for iSeries display files in QSYS29xx. Do not rename the display files. You just want to rename all physical files and their associated logical files.
7. During maintenance, each time keyfield attributes, action lists, or index classes are created or modified, the changes must be made to the records in the user language library (QUSRVI29xx).
8. Create a job description (QVIJOB29xx) for the secondary language users to reference, setting the library list as follows:
   - QSYS29xx
   - QUSRVI29xx
   - QUSRVI
   - QVI
9. Create a user ID to own the listener job QVITCP29xx, using the job description created above.
10. Start the listener job using the secondary language user ID (QVITCP29xx).

Primary language environment

The Content Manager for iSeries library structure consists of two primary libraries:
- QUSRVI (or whatever name you choose for your working data library)
- QVI

The order that the libraries appear in your library list is very important (QUSRVI must appear first). The order is important to ensure that the data files being updated are the files in your working data library (QUSRVI). Files in QVI should never be updated with product data because these files are replaced during each upgrade of the system. They are also used to create multiple environments whenever you want several individual environments. (For example, you may want to have a test system separate from a production system.)
Secondary language environment

If you choose to install a secondary language environment, another library must be added to your library list. This library is QSYS29xx (where xx is your language feature code). The QSYS29xx library has a subset of Content Manager for iSeries files that are considered language specific to the product. Most of these files are used during Administrative processing of profiles and the translatable data is never viewed by the end user.

The files are shown in Table 6 and Table 7. All of these files should be renamed before you perform any Content Manager for iSeries processing with QSYS29xx in the user’s library list. IBM recommends that all administrative functions be handled within the primary language.

**Table 6. List of files that have translatable data seen only by the Administrator**

<table>
<thead>
<tr>
<th>FILES</th>
<th>FILE DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>EKDNLS</td>
<td>Not Used by Content Manager for iSeries</td>
</tr>
<tr>
<td>EKDNLSLNG</td>
<td>Not Used by Content Manager for iSeries</td>
</tr>
<tr>
<td>EKD0122</td>
<td>List of file System</td>
</tr>
<tr>
<td>EKD0745</td>
<td>List of Action Lists</td>
</tr>
<tr>
<td>EKD0860</td>
<td>List of Privilege Sets</td>
</tr>
<tr>
<td>EKD0861</td>
<td>Privilege Set details</td>
</tr>
</tbody>
</table>

**Table 7. List of files that have viewable data seen by the end user.**

<table>
<thead>
<tr>
<th>FILES</th>
<th>FILE DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>EKD0321</td>
<td>List of Keyfield Attributes and their description</td>
</tr>
<tr>
<td>EKD0322</td>
<td>List of Index Classes and their description</td>
</tr>
<tr>
<td>EKD0325</td>
<td>List of operators for advanced search</td>
</tr>
<tr>
<td>EKD0746</td>
<td>Action List and descriptions</td>
</tr>
</tbody>
</table>

IBM recommends that keyfield attributes, index classes, and action lists be created and modified from the primary language (no QSYS29xx libraries in library list). After the profiles or attributes have been defined, a language library can be created, for each secondary language. (For example, QUSRVI2924 can be created as a secondary language library for feature code 2924.)

The files listed in Table 7 should be copied to the QUSRVI29xx library from your data file library (QUSRVI1). These files should be translated by the administrator using the DFU function to modify each record. The administrator is responsible for keeping the secondary language files coordinated with the primary language (including: remembering when a field is modified in the primary language, that it must also be modified in each secondary language). IBM suggests for the initial setup, that the administrator copy the default action list, the index classes, and the attributes from the file in QSYS29xx to minimize the translation effort.

When you add QSYS29xx to your library list, you should also add QUSRVI29xx to your library list. Now, when data is viewed by the end user, information will be displayed in the proper language.
Appendix C. Format of the Import File (EKD0990)

The import file (EKD0990) can have any name. However the member must be named EKD0990 and the fields must map exactly. To create a new file use Create Duplicate Object Command (CRTDUPOBJ) and copy from the shipped EKD0990 to any name you choose or you can use the existing EKD0990 file in you database library. Do not work with the file in QVI.

You can start multiple import jobs by creating several EKD0990 files (with unique names) and then use the OBJINF field to define each file in the STROBJIMP command. One directory can be shared by multiple files, but be sure you do not define the same object in 2 files or there can be contention between the import processors.

Fields used in Object Information Database File

<table>
<thead>
<tr>
<th>Field</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOCNAME</td>
<td>Y</td>
<td>Object (file) name. This specifies the name of the file in the directory for which the information in this record should be used. A maximum of 20 characters can be specified including the file extension.</td>
</tr>
<tr>
<td>CONCLASS</td>
<td>Y</td>
<td>Content class for the object. This field must match a value defined in field CCVAL in EKD0318.</td>
</tr>
<tr>
<td>INXNAME</td>
<td>Y</td>
<td>Index Class Name. Must be specified in upper case.</td>
</tr>
<tr>
<td>INXKEY1</td>
<td>N</td>
<td>The value that should be assigned to key 1 in the specified index class.</td>
</tr>
<tr>
<td>INXKEY2</td>
<td>N</td>
<td>The value that should be assigned to key 2 in the specified index class.</td>
</tr>
<tr>
<td>INXKEY3</td>
<td>N</td>
<td>The value that should be assigned to key 3 in the specified index class.</td>
</tr>
<tr>
<td>INXKEY4</td>
<td>N</td>
<td>The value that should be assigned to key 4 in the specified index class.</td>
</tr>
<tr>
<td>INXKEY5</td>
<td>N</td>
<td>The value that should be assigned to key 5 in the specified index class.</td>
</tr>
<tr>
<td>INXKEY6</td>
<td>N</td>
<td>The value that should be assigned to key 6 in the specified index class.</td>
</tr>
<tr>
<td>INXKEY7</td>
<td>N</td>
<td>The value that should be assigned to key 7 in the specified index class.</td>
</tr>
<tr>
<td>INXKEY8</td>
<td>N</td>
<td>The value that should be assigned to key 8 in the specified index class.</td>
</tr>
</tbody>
</table>
Table 8. Fields used in Object Information Database File (continued)

<table>
<thead>
<tr>
<th>Field</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROCNAME</td>
<td>N</td>
<td>Process name (The name is case sensitive and must exactly match the name as defined in the EKD0700 file). Specifies the process name that this item should be assigned to. *ADHOC can be specified as a process name. If it is not specified, the item is not placed in a process.</td>
</tr>
<tr>
<td>WBNAME</td>
<td>N</td>
<td>Workbasket name in upper case. Specifies the workbasket name that this item should be placed in. When you specify a workbasket name you must also specify a process name in the PROCNAME field. If a workbasket name and process name are not specified, the item is not placed in a workbasket.</td>
</tr>
<tr>
<td>SETUPTIME</td>
<td>N</td>
<td>Create Date/Time. Specifies the date and time in <strong>YYYYMMDDhhmmss</strong> format to be used for the creation date and time and the last update date and time for the item. <strong>YYYY</strong> the 4 digit year <strong>MM</strong> the 2 digit month <strong>DD</strong> the 2 digit day of the month <strong>hh</strong> the 2 digit hour in 24 hour format <strong>mm</strong> the 2 digit minute <strong>ss</strong> the 2 digit second If not specified or if it contains any nonnumeric characters, the current date/time when the item is imported is used.</td>
</tr>
<tr>
<td>CRTUSERID</td>
<td>N</td>
<td>Created by User ID. Specifies the User ID that should be credited with creating the object. If not specified, it uses the User ID that the import batch job is using (the user that started the batch import job). The value in this field is not validated.</td>
</tr>
</tbody>
</table>

The batch import jobs runs under the user profile that starts the batch import job (either through the CM menu or the STROBJIMP command). The user profile should have the group profile for the environment (for the default environment QUSRVI, this is QVIGROUP) as its group profile and have OWNER set to *GRPPRF so that objects that are imported can be processed by other users in the environment.
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</tr>
</thead>
<tbody>
<tr>
<td>APPN</td>
<td>Operating System/400</td>
</tr>
<tr>
<td>Advanced Peer-to-Peer Networking</td>
<td>OS/2</td>
</tr>
<tr>
<td>Application System/400</td>
<td>OS/400</td>
</tr>
<tr>
<td>AS/400</td>
<td>Redbooks</td>
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Glossary

This glossary defines terms and abbreviations used in this book and the product document library. Refer to the IBM Dictionary of Computing, ZC20-1699-09, for terms or abbreviations that do not appear here.

The following cross-references are used in this glossary:

- **Contrast with.** This refers to a term that has an opposed or substantively different meaning.
- **See.** This refers the reader to multiple-word terms in which this term appears.
- **See also.** This refers the reader to terms that have a related, but not synonymous, meaning.
- **Synonym for.** This indicates that the term has the same meaning as a preferred term, which is defined in the glossary.

### A

**access list.** A list consisting of one or more individual user IDs or user groups and the privilege set associated with each user ID or user group. You use access lists to control user access to items in Content Manager for iSeries. The items that can be associated with access lists are index classes, workbaskets, and processes.

**action list.** An approved list of the actions, defined by a supervisor, that a user can perform while working with items in a workbasket.

**ad hoc route.** A route that is not part of a defined process. An ad hoc route is started when a user assigns an item directly to a workbasket. The user manually routes the item from one workbasket to another by reassigning it.

**administrator.** The person responsible for system management, controls, and security, as well as case statistics. Synonymous with system administrator.

**advanced peer-to-peer networking (APPN).** Data communications support that routes data in a network between two or more APPC systems that are not directly attached.

**advanced program-to-program communications (APPC).** Data communications support that allows programs on an iSeries server to communicate with programs on other systems having compatible communications support. This communications support is the iSeries method of using the SNA LU session type 6.2 protocol.

**annotation.** An added descriptive comment or explanatory note.

**APAR.** Authorized Program Analysis Report.

**API.** Application programming interface.

**application programmer.** A programmer who designs programming systems and other applications for a user’s system.

**application program interface (API).** The formally-defined programming language interface which is between an IBM system control program or a licensed program and the user of the program.

**APPC.** Advanced program-to-program communications.

**APPN®.** Advanced Peer-to-Peer Networking®.

**archiving.** The storage of backup files and any associated journals, usually for a given period of time.

**AS/400®.** Application System/400.

**attribute.** Used in Content Manager for iSeries APIs, a single value associated with an item (document or folder). Each index class can have up to eight attributes.

### B

**binary large object (BLOB).** A large stream of binary data treated as a single object.

### C

**cartridge.** (1) A storage device that consists of magnetic tape, on supply and takeup reels, in a protective housing. (2) For optical storage, a plastic case that contains and protects optical disks, permitting insertion into an optical drive. See also optical disk and cartridge storage slots.

**cartridge storage slots.** An area in an optical library where cartridges are stored.

**collection.** The definition of storage management controls associated with a group of objects that typically have similar performance, availability, backup, and retention characteristics.

**collection point.** (1) The point where work packages wait for specific events to either occur or become synchronized before processing can continue. (2) A collection point is part of a work process. For example,
a collection point is where work packages that are part of the “open a new account” work process must wait until credit information is verified. See also decision point.

current document. A document that is being processed.

customization. The process of designing a data processing installation or network to meet the requirements of particular users.

document content architecture (DCA). An architecture that guarantees information integrity for a document being interchanged in an office system network. DCA provides the rule for specifying form and meaning of a document. It defines revisable form text (changeable) and final form text (unchangeable).

double-byte character set (DBCS). A set of characters in which each character occupies two bytes. Languages, such as Japanese, Chinese, and Korean, that contain more symbols than can be represented by 256 code points, require double-byte character sets. Entering, displaying, and printing DBCS characters requires special hardware and software support.

direct access storage device (DASD). A device in which access time is effectively independent of the location of the data.

distributed data management (DDM). A feature of the System Support Program that lets an application program work on files that reside in a remote system.

display workstation. An image processing workstation used primarily for displaying documents that have been previously scanned or imported into the iSeries server.

document. (1) An item containing one or more base parts. (2) A named, structural unit of text that can be stored, retrieved, and exchanged among systems and users as a separate unit. Also referred to as an object. A single document can contain many different types of base parts, including text, images, and objects such as spreadsheet files.
picture. An image can also be generated directly by software without reference to an existing picture. See also page image.

**image data.** Rectangular arrays of raster information that define an image. Image data is often created originally by a scanning process.

**image host.** The system where scanned and imported documents are permanently stored. See also optical library subsystem.

**Image Object Content Architecture (IOCA).** A structured collection of constructs used to interchange and present images.

**image workstation.** A programmable workstation that can perform image functions.

**importing.** A process by which documents are input into iSeries using files rather than the scanning process. Imported documents can be stored in Content Manager for iSeries on DASD and optical, and displayed and printed, in the same manner as scanned documents.

**inbound.** Pertaining to communication flowing in a direction towards the application program from external sources, such as a transmission from a terminal to the application program. Contrast with outbound.

**index.** To associate a document or folder with an index class and provide the key field values required by that class.

**index class.** A category for storing and retrieving objects, consisting of a named set of attributes known as key fields. When you create an item in Content Manager for iSeries, your application must assign an index class and supply the key field values required by that class. An index class identifies the automatic processing requirements and storage requirements for an object.

**instance.** An occurrence of a work package within a process. If the process consists of parallel routes, multiple instances of a work package exist.

**iSeries object directory profile.** A control file used in Content Manager for iSeries to identify iSeries object directories used for image document storage.

**item.** (1) Set of attributes and objects—one or more files containing image data, annotations, notes, or other content—that together represent a physical document, such as an insurance claim or a folder.

See also document. (2) The smallest unit of information that the library server administers. An item can be a folder, document, workbasket, or process. Referred to as an object outside of library server functions.

**K**

**key field.** An attribute of an item that represents a type of information about that item. For example, a customer data item might have key fields for the customer’s name and social security number.

**keyword.** A name or symbol that identifies a parameter.

**L**

**LAN.** Local area network.

**language profile.** A control file used in Content Manager for iSeries to define parameters that are specific to a territory, such as time and date formats.

**last in, first out (LIFO).** A queueing technique in which the next item to be retrieved is the item most recently placed in the queue.

**library server.** The component of Content Manager for iSeries that contains index information for the items stored on one or more object servers.

**LIFO (last in, first out).** A queueing technique in which the next item to be retrieved is the item most recently placed in the queue.

**local area network (LAN).** A computer network located on a user’s premises within a limited geographical area.

**LU 6.2.** In Systems Network Architecture (SNA), a type of session between two application programs in a distributed processing environment, using the SNA character string or a structured-field data stream; for example, an application program using CICS® communication with an iSeries application.

**M**

**Machine-Generated Data Structure (MGDS).** Data extracted from an image and put into generalized data stream (GDS) format.

**magnetic storage.** A storage device that uses the magnetic properties of certain materials.

**magnetic tape.** A tape with a magnetizable layer on which data can be stored.

**magnetic tape device.** A device for reading or writing data from or to magnetic tape.

**MGDS.** Machine-Generated Data Structure.
Mixed Object: Document Content Architecture (MO:DCA). An IBM architecture developed to allow the interchange of object data among applications within the interchange environment and among environments.

Mixed Object: Document Content Architecture-Presentation (MO:DCA-P). A subset architecture of MO:DCA that is used as an envelope to contain documents that are sent to the Content Manager for iSeries workstation for displaying or printing.


MRI. Machine-readable information.

N

national language support (NLS). The modification or conversion of a United States English product to conform to the requirements of another language or territory. This can include enabling or retrofitting of a product and the translation of nomenclature, MRI, or product documents.

network. An arrangement of programs and devices connected for sending and receiving information.

network table file. A text file created during installation that contains the system-specific configuration information for each node for each Content Manager for iSeries server. Each server must have a network table file that identifies it. The name of the network table is always FRNOLNT.TBL.

NLS. National language support.

O

object. (1) An item upon which actions are performed. A collection of data referred to by a single name. The smallest unit within the system. For Content Manager for iSeries systems, this is typically a single-image document. (2) Any binary data entity stored on an object server. In the Content Manager for iSeries data model, object specifically refers to a document’s contents or parts.

object authority. The right to use or control an object.

object directory. A control file used in Content Manager for iSeries to identify iSeries object directories used for image document storage.

object server. The component of IBM Content Manager for iSeries that physically stores the objects or information that client applications store and access.

operator. The person who handles daily system administrative tasks.

optical. Pertaining to optical storage.

optical cartridge. A storage device that consists of an optical disk in a protective housing. See also cartridge.

optical disk. A disk that contains digital data readable by optical techniques. Synonymous with digital optical disk.

optical drive. The mechanism used to seek, read, or write data on an optical disk. An optical drive may reside in an optical library or as a stand-alone unit.

optical libraries. Software used to store image data on optical platters. Only direct-attached optical systems contain optical libraries.

optical library subsystem. The hardware and software that provides the long-term storage of the image data. See also image host.

Optical Storage Support. Software that supports communication between stand-alone optical disk drives, the optical library, and Content Manager for iSeries. The software runs on the System/36™ 5363 unit serving as the optical controller.

optical system profile. A file used to define the optical controller used for the optical storage of documents.

optical systems. Hardware used to store image data on optical platters. Only direct-attach optical systems contain optical libraries.

optical volume. One side of a double-sided optical disk containing optically stored data.

OS/2®. Operating System/2®.

OS/400. Operating System/400®.

outbound. Pertaining to a transmission from the application program to a device. Contrast with inbound.

override. A parameter or value that replaces a previous parameter or value.

P

page. A single physical medium; for example, an 8.5-inch by 11-inch piece of paper.

page image. The electronic representation of a single physical page. The bounds of a page image are determined by the electromechanical characteristics of
the scanning equipment, along with the image capture application specifications in the receiving data processing system.

**page scan.** The electromechanical process of scanning a physical page (paper) to create a bit image of the page.

**pan.** Progressively translating an entire display image to give the visual impression of lateral movement of the image.

**PDF.** Portable document format.

**platter.** See optical disk.

**Presentation Text Object Content Architecture (PTOCA).** An architecture developed to allow the interchange of presentation text data.

**primary processor.** In a group of processing units, the main processing unit and its internal storage through which all other units communicate.

**printer workstation.** A display workstation equipped with a printer.

**priority.** (1) A rank assigned to a task that determines its precedence in receiving system resources. (2) In Content Manager for iSeries workflow, the priority of the work to be performed. The priority affects the work sequencing of the work package. A larger number is a higher priority.

**privilege.** An authorization for a user to either access or perform certain tasks on objects stored in Content Manager for iSeries. The system administrator assigns privileges.

**privilege set.** In Content Manager for iSeries, collection of privileges for working with system components and functions. The system administrator assigns privilege sets to users (user IDs) and user groups.

**process.** The series of steps, events, and rules through which a work package flows. A process is a combination of the route, collection point, and decision point through which a predefined type or work package must progress.

For example, a process called "open new account" would describe the following:
- The steps that work packages related to opening a new account must follow
- The events (such as verifying credit information) that must occur before work packages for new accounts can be routed to another point in the system
- The decisions that determine whether to open a new account based on the information for that particular account (for example, a good credit rating versus a poor one).

**process item.** Item used as a building block in a work process.

**profile.** A file that governs the categories of work performed and the types of users recognized by the system.

**program temporary fix (PTF).** A temporary solution or bypass of a problem diagnosed by IBM as resulting from a defect in a current unaltered release of the program.

**PTF.** Program temporary fix.

**PTOCA.** Presentation Text Object Content Architecture.

**R**

**release.** To remove suspend criteria from a work package so that it is available to be worked. A suspended work package is released when the criteria have been met, or when a user with proper authority overrides the criteria and manually releases pending requests.

**render.** To take data that is not typically image-oriented and depict or display it as an image. In Content Manager for iSeries, you can render word-processing documents as images for display purposes.

**resolution.** In computer graphics, a measure of the sharpness of the image, expressed as the number of lines and columns on the display screen or the number of pels per unit of area.

**rotate.** A function of the document display window and the scan document display window. The orientation depends on the option selected.

**route.** A set of steps that move work between workbaskets, collection points, and decision points.

**S**

**SBCS.** Single-byte character set.

**scanner.** A device that examines a spatial pattern one part after another and generates analog or digital signals corresponding to the pattern.

**scanner workstation.** A display workstation equipped with a scanner.

**scanning.** A physical process that enters documents into an Content Manager for iSeries workstation. After a document has been scanned, it can be stored permanently.
search criteria. In Content Manager for iSeries, the
text string used to represent the logical search to be
performed on the library server.

secondary processor. In a group of processing units,
any processing unit other than the primary unit.

server. On a local area network, a data station that
provides facilities to other data stations; for example, a
file server, a print server, a mail server.

side by side. A function on the document display
window that displays two pages of a multipage
document next to each other.

single-byte character set (SBCS). A set of characters
in which each character occupies one byte.

slot. (1) A position in a device used for removable
storage media. (2) A space in an optical library where
an optical cartridge is stored. See optical cartridge.

SMS. System-managed storage.

tpool file. A file that holds output data waiting to be
printed or input data waiting to be processed by a
program.

staging. The process of moving a stored object from
an off-line or low-priority device back to an on-line or
higher priority device, usually on demand of the
system or on request of a user. When a user requests an
object stored in permanent storage, a working copy is
written to the staging area.

stand-alone. Pertaining to an operation that is
independent of any other device, program, or system.

storage. The action of placing data into a storage
device.

storage class. A storage class, in combination with an
optical system identifier, defines the set of optical
volumes upon which documents can be stored.
Documents with the same storage class and optical
system ID are stored on the same optical volume.

storage method. A means of grouping documents
together for storage to an optical disk.

storage system. A generic term for storage in Content
Manager for iSeries.

subsystem. A secondary or subordinate system, or the
programming support part of a system that is usually
capable of operating independently of or
asynchronously with a controlling system.

suspend. To hold a work package at a workbasket
until stated criteria have been satisfied. Work packages
can be suspended for multiple criteria, therefore
multiple suspend requests can exist for a work
package. A document work package can be suspended
for a specific date. A folder work package can be
suspended for a specific date or index class.

system administrator. The person who manages the
Optical Library Subsystem and the departmental
processor. The system administrator helps with
problem determination and resolution. Synonymous
with administrator.

system-managed storage (SMS). The Content
Manager for iSeries approach to storage management.
The system determines object placement, and
automatically manages object backup, movement,
space, and security.

System Support Program (SSP). A group of
IBM-licensed programs that manage the running of
other programs and the operation of associated devices,
such as the display station and printer. The SSP also
contains utility programs that perform common tasks,
such as copying information from diskette to disk.

T

tape. See magnetic tape.

tape cartridge. See cartridge.

U

user. Anyone requiring the services of Content
Manager for iSeries. This term generally refers to users
of client applications rather than the developers of
applications, who use the Content Manager for iSeries
APIs.

user exit. (1) A point in an IBM-supplied program at
which a user exit routine may be given control. (2) A
programming service provided by an IBM software
product that may be requested during the processing of
an application program for the service of transferring
control back to the application program upon the later
occurrence of a user-specified event.

user exit routine. A routine written by a user to take
control at a user exit of a program supplied by IBM.

user ID profile. A file that contains one entry for each
user. The entries contain information such as processing
eligibility.

V

volume. A certain portion of data, together with its
data carrier, that can be handled conveniently as a unit.

W

workbasket. A container that holds work packages.
Workbaskets can be used as parts of process definitions
or ad-hoc routes. In Content Manager for iSeries, a logical location within the Content Manager for iSeries system to which work packages can be assigned to wait for further processing.

A workbasket definition includes the rules that govern the presentation, status, and security of its contents.

**workflow.** A system that lets an enterprise define a work process and environment to automate workflow and control business processes.

**work order.** The sequence of work packages in a workbasket.

**work package.** The work that is routed from one location to another. Users access and work with work packages through workbaskets.

**work process.** In work management, the series of steps, events, and rules through which a work package flows. A work process is a combination of the route, collection point, and decision point through which a work package must progress.

**workstation.** A computer processor unit, image display unit, scanners, and printers with which the user performs input, indexing, and printing.
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