IBM Content Manager for iSeries

Application Programming Guide and Reference

Version 5 Release 3
IBM Content Manager for iSeries

Application Programming Guide and Reference

Version 5 Release 3
Note
Before using this information and the product it supports, read the information in “Notices” on page 303.

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 SC27-1139-00

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About This Book

This book describes how to create or integrate image, workflow, or other applications into a Content Manager for iSeries system. These application programming interfaces (APIs) support client application development for Content Manager for iSeries. The information in this book applies to application development in a 32-bit Windows® programming environment.

This book explains the following:
• How to use the various components of Content Manager for iSeries.
• Tips for identifying application requirements as you create a Content Manager for iSeries application.
• Ways to use the APIs to write image, workflow, or other applications that use Content Manager for iSeries APIs.
• The terminology used with Content Manager for iSeries.

Who Should Use This Book

If you are an application programmer responsible for developing image, workflow, or other applications, this book provides detailed information about each function available to you through the APIs.

If you are a systems designer or integrator who is designing a Content Manager for iSeries system or application, you need to understand how Content Manager for iSeries works and how to create new applications for, or integrate existing applications with, Content Manager for iSeries. This book describes how each component and its corresponding functions can meet your technical, design, and business requirements for imaging, workflow, or other applications.

If you are a system administrator responsible for administering and supporting Content Manager for iSeries implementations, you can use this book as a reference.

To successfully program with Content Manager for iSeries, you need experience developing applications in C, COBOL, or RPG and the OS/400® environment for server-side programming. For client-side programming, you need experience with OLE, VisualBasic, C++ and/or C, as well as experience with the Windows environment.

How This Book Is Organized

This book contains the following information.
• Chapter 1, “Introducing Content Manager for iSeries,” on page 1 introduces the software and hardware components of Content Manager for iSeries and the APIs available with Content Manager for iSeries.
• Chapter 2, “Content Manager for iSeries Concepts,” on page 5 introduces you to Content Manager for iSeries concepts and capabilities.
• Chapter 5, “Using the OLE Automation Interface,” on page 173 shows you how to enable another Windows-based application to log on to Content Manager for iSeries and perform various tasks within the Client for Windows using APIs that are based on OLE 2.0 Automation.
• “Sample High-Level Programming Interface for Visual Basic” on page 203 shows you how to enable another Windows-based application to log on to Content Manager for iSeries and perform various tasks within the Client for Windows using APIs that are based on OLE 2.0 Automation.

• Chapter 3, “Application Programming Interfaces,” on page 11 describes the Content Manager for iSeries common application programming interfaces.

• Chapter 4, “Common Data Structures,” on page 133 describes the common data structures and database tables you can use to manipulate and manage objects and classes of objects.

• “Properties and Methods of OLE Objects for Windows” on page 177 describes the properties and methods associated with all client application objects.

• Chapter 6, “Sample High-Level Programming Interface,” on page 203 provides samples of high level application programming interfaces for windows.

• Chapter 7, “Content Manager for iSeries Programming Interface APIs on the Server,” on page 245 provides information about the Content Manager for iSeries server versions of APIs.

• Chapter 8, “Content Manager for iSeries User Exits,” on page 249 gives you the Content Manager for iSeries user exits.

• Appendix A, “Guidelines for Search Expressions,” on page 291 gives you some guidelines to follow when you are searching the Client for Windows.

• Appendix B, “Predefined Content Classes,” on page 295 lists the predefined content classes for Content Manager for iSeries.

• Appendix C, “External References,” on page 299 describes how to access data in other repositories by using the Content Manager for iSeries Windows client and programming interfaces.

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

Use Chapter 1, “Introducing Content Manager for iSeries,” on page 1 to familiarize yourself with Content Manager for iSeries. Refer to Chapter 2, “Content Manager for iSeries Concepts,” on page 5 for conceptual information about how to use the Content Manager for iSeries components.
Style Conventions

To help you understand the text, this book uses the following conventions:

<table>
<thead>
<tr>
<th>Convention</th>
<th>Stands for</th>
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<tbody>
<tr>
<td>Upper and lowercase</td>
<td>Column names in library server database Tables (example: Owner UserID)</td>
</tr>
<tr>
<td>UPPERCASE</td>
<td>Column names in object server database tables</td>
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<tr>
<td></td>
<td>Constants</td>
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<tr>
<td></td>
<td>Data structure names</td>
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<td>Data types</td>
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<td>Database table names</td>
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<td></td>
<td>Return codes from function calls</td>
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<tr>
<td><strong>Bold Mixed Case</strong></td>
<td>API function names (example: SimLibLogon)</td>
</tr>
<tr>
<td><strong>BOLD UPPERCASE</strong></td>
<td>Field values to specify</td>
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<tr>
<td></td>
<td>Parameter values to specify</td>
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<tr>
<td><strong>ITALIC UPPERCASE</strong></td>
<td>The maximum length of a field</td>
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<tr>
<td><strong>Italic</strong></td>
<td>Field names in data structures</td>
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<td>Names of books as references</td>
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<td>Parameter names in API functions</td>
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<tr>
<td></td>
<td>Terms defined for the first time in the book</td>
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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>
<thead>
<tr>
<th>Table 1. IBM Content Manager for iSeries 5.3 publications</th>
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<tr>
<td><strong>Title</strong></td>
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<tr>
<td>IBM Content Manager for iSeries: Planning and Installing</td>
</tr>
<tr>
<td>IBM Content Manager for iSeries: Getting Started with Client for Windows</td>
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Table 1. IBM Content Manager for iSeries 5.3 publications (continued)

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<tr>
<th>Title</th>
<th>Publication number</th>
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<tr>
<td>IBM Content Manager for iSeries: System Administration Guide</td>
<td>SC27-1136</td>
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<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/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

This overview explains the ways to implement Content Manager for iSeries components. This information is a framework for you to use to determine how to make the most of the Content Manager for iSeries APIs as you create your applications. It includes an overview of the following Content Manager for iSeries components:

Client Application Program
The client application you use can be the client application program delivered with Content Manager for iSeries or an application that you develop.

Content Manager for iSeries APIs
Content Manager for iSeries APIs are high-level programming interfaces that let you access and manipulate data stored on a host server.

Client Interfaces for Windows
The client APIs for Windows provide a programming interface you can use to develop your own Windows-based client applications for Content Manager for iSeries.

With Content Manager for iSeries, you can develop a customized document management solution that includes a host server and information-processing capabilities for multiple media types. Using Content Manager for iSeries, you can create image and other applications to automate and gain control of the information your enterprise processes each day. You can increase productivity and security, lower storage costs, and improve customer service.

Content Manager for iSeries offers tailorable document processing for both large and small organizations. Content Manager for iSeries lets users capture, store, and retrieve documents on-line and provides document, folder, and work management capabilities. Content Manager for iSeries also provides extensive data integrity and security.

Content Manager for iSeries consists of Windows clients connected to an iSeries server. It provides enterprise-wide access to document processing, storage, and management. That way, Content Manager for iSeries lets multiple departments of an enterprise, located in one or several locations, access their own documents as well as enterprise documents.

A Closer Look at Content Manager for iSeries

Content Manager for iSeries offers a complete document management system through its client/server architecture. Once you understand the client/server concept, you can then take a closer look at all the key components that make up Content Manager for iSeries.

Client/Server Relationship
Content Manager for iSeries consists of a client connected to one or more host servers. The host server maintains document and folder index information, document and folder relationships, work-in-process information, and interacts with the client.
Content Manager for iSeries Components

Content Manager for iSeries consists of a client, the client application program, a host server, and Content Manager for iSeries APIs. You can use Content Manager for iSeries to develop additional clients.

The following figure shows the major components of Content Manager for iSeries.

**Figure 1. The Main Components of Content Manager for iSeries**

**Client Application**

The Content Manager for iSeries client application provides document and folder management, scanning support, import and export, work management, and search capabilities built on the Content Manager for iSeries APIs.

The client application program provides a complete end-user interface for Content Manager for iSeries. You can configure the client application program to meet the
specific needs of your enterprise. User exits provide points where you can provide application-specific processing routines to customize the client application program.

The client application program provides APIs to let you integrate folder management, work management, and document management with your existing information systems. You can easily integrate your custom software and other applications with the client application program.

You can use the client application program that comes with Content Manager for iSeries, write your own application, or use an application available from IBM Services or Business Partners.

**Content Manager for iSeries APIs**

If you choose to write your own application, you can use the Content Manager for iSeries APIs as the primary interface between the Content Manager for iSeries host server and your application.

In the Content Manager for iSeries data model, the most basic components are documents, folders, workbaskets, and work packages. Documents are similar to paper documents. Folders are similar to folders in a paper filing system and can contain other folders or documents. A workbasket is a queue of work for one or more employees to use. It is similar to an in-basket from which to take work. A work package is an entry in a workbasket for use in work management and contains a document or folder.

Depending on the level of access to documents, you can perform the following operations using these APIs:

- Store a document
- Index a document or folder
- Retrieve a document or folder

The APIs support a wide range of the functions available in Content Manager for iSeries. You can use these APIs to create Windows or OS/400 applications.

**Content Manager for iSeries Server**

The Content Manager for iSeries server uses IBM’s relational database technology to maintain document contents and provides data integrity by performing the following functions:

- Manage data
- Maintain index information
- Control access to documents stored in object servers

You can develop applications to reference multiple Content Manager for iSeries servers.
Chapter 2. Content Manager for iSeries Concepts

This section provides an overview of the Content Manager for iSeries concepts, including the logical data model. In other products of the IBM Content Manager for iSeries family, the term “folder manager data model” identifies a subset of application programming interfaces (APIs) and “common application programming interface” (CAPI) identifies a subset of SimLib interfaces. In Content Manager for iSeries, all available programming interfaces are known as Content Manager for iSeries APIs.

Understanding the Logical Data Model

Content Manager for iSeries implements the folder manager data model, which includes concepts such as items, objects, folders, index classes, and attributes. This model provides your application with many capabilities for managing business objects. Documents in Content Manager for iSeries are similar to paper documents. A document consists of a set of closely related objects, such as pages in a letter or report. Documents can contain one or more parts. These parts, known as base parts, can be pages or illustrations in a letter, report, or other documents. Other parts associated with documents are annotations and notes.

An annotation part associated with a document can highlight sections of a document. A note part associated with a document is textual information that you attach to the document to give additional information to other users. For example, you might attach a note to draw the reader’s attention to part of the document. An event part associated with a document provides a historical trail of the processing you perform on the document.

Folders in Content Manager for iSeries are similar to folders in a paper filing system. Each folder can contain one or more documents or other folders. Each folder has a table of contents that lists all the documents and folders it contains. You can associate note parts with a folder.

Understanding Workflow

Workflow describes the movement and processing of work. The terms workflow and work management are used interchangeably. Workflow is the definitions and rules that govern how work is performed.

The following terms are commonly used in descriptions of workflow:

**Action list**  
An approved list of the actions, defined by a supervisor, that a user can perform on work packages.

**Ad hoc process**  
A process that is not a defined workflow process. An ad hoc process is started when a user creates a work package and assigns it directly to a workbasket. The user manually routes the work package from one workbasket to another by reassigning it. Within workflow processing, the value *ADHOC is used in place of process names to indicate that the work package is being routed in an ad hoc manner.
Collection point
The point where work packages wait for specific events to either occur or become synchronized before processing can continue.

A collection point is part of a process. For example, a collection point is where work packages that are part of the process "open a new account" must wait until credit information is verified.

Decision point
The point where work packages continue on their current route or switch to an alternate route, depending on the specific information in each work package. Decision points are tables consisting of variable names, values, and routes.

A decision point is part of a process. For example, a decision point is where work packages that are part of the process "open a new account" receive approval or not based on credit information.

Instance
An occurrence of a work package within a process. If the process consists of parallel routes, multiple instances of a work package exist.

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).

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.

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 pend requests.

Work package
The work that is routed from one location to another. A work package can consist of a document, a folder, or a customer-defined collection of objects. Work packages can be routed automatically by defined processes, or users can manually route work packages in an ad hoc manner to workbaskets they specify. Users access and work with work packages through workbaskets.

Workbasket
A container that holds work packages. Workbaskets can be used as parts of process definitions and ad hoc routes. A workbasket definition includes the rules that govern the presentation, status, and security of its work packages.
Getting Information about Documents and Folders

To read the attributes of a document or folder, an application can open the item (SimLibOpenItemAttr), read one attribute at a time (SimLibReadAttr), and close the item (SimLibCloseAttr). You can also use SimLibGetItemSnapshot to retrieve all the attributes and optional information. This function retrieves the system attributes, user-defined attributes, workflow information, checkout holder, and other data about the folder or document. Use this function if you want all of this information and do not need to open the item for subsequent activities.

SimLibSearch can be used to retrieve user-defined attributes for items matching a predefined search criteria.

If the snapshot option flag includes system attributes (SIM_SYSTEM_ATTR), SimLibGetItemSnapshot returns four attributes in the ATTRLISTSTRUCT array for the current view in addition to user-defined attributes:

- OIM_ID_ITEM_NAME
- OIM_ID_CREATE_TIMESTAMP
- OIM_ID_MODSYS_TIMESTAMP
- OIM_ID_UID

Your application must not depend on the order of appearance of the attributes or on whether user-defined or system attributes come first.

Instead of SimLibGetItemSnapshot, use SimLibGetTOCData to return a snapshot for an entire list of items. The TOCENTRYSTRUCT array returned by SimLibGetTOC can be passed directly to SimLibGetTOCData for processing as a group, if its number of entries does not exceed SIM_TOC_MAX_ENTRY_COUNT. If the count exceeds the maximum, pass the entries, up to the maximum, one at a time. Then, advance to the next batch in the TOCENTRYSTRUCT array. The list pointer to SimLibGetTOCData can reference an entry in the array, and the function begins processing at this entry.

For example, your application can have basic logic similar to the following:

```c
ulRC = SimLibGetTOC(hSession,...);
if (ulRC != SIM_RC_OK) {
    // process errors
} else {
    ulCount = count returned by SimLibGetTOC
    pTOC = TOCENTRYSTRUCT array pointer returned by SimLibGetTOC
    while (ulCount > 0) {
        i = minimum of ulCount and SIM_MAX_TOC_ENTRY_COUNT
        ulRC = SimLibGetTOCData(hSession,pTOC,i,NULL,pRC);
        if (ulRC != SIM_RC_OK) {
            // process errors, possibly exit the loop
        } else {
            // process results
            call SimLibFree to release data returned
        }
        ulCount -= i; // decrement number left to do
        pTOC += i; // advance to next set, if any
    }
    close the TOC from SimLibGetTOC
}
```

When you are logged on, you must have sufficient privileges to get the attributes for each item, or the SimLibGetTOC function returns an error.
You still might want to take advantage of the efficiency of SimLibGetTOCData, without processing the entire set of items from SimLibGetTOC. SimLibGetTOCData skips an item ID in the TOCENTRYSTRUCT that is a NULL string. Because an application might not modify the TOCENTRYSTRUCT array returned by the SimLibGetTOC function, copy the TOCENTRYSTRUCT array to another buffer, and then set the item ID to NULL. You can also filter the unnecessary entries by copying the desired data to a temporary TOCENTRYSTRUCT array and passing that to SimLibGetTOCData. If the item ID is NULL, SimLibGetTOCData still returns an empty SNAPSHOTSTRUCT for the item.

You can use the same approach for processing a block of items even when they are not returned by SimLibGetTOC. Your application can generate its own list in the same format and pass that list into SimLibGetTOCData. As an example, you can take the results of a search (SimLibSearch) and build the TOCENTRYSTRUCT array from the item ID list. SimLibGetTOCData requires the index class of each item in advance. SimLibSearch does not return the index class, but if you restrict the search to a single index class, your application already knows the index class of each item returned by the search.

You can also use SimLibSearch directly to retrieve user-defined or both user-defined and system-defined attributes by using the SIM_SEARCH_USER_ATTR or the SIM_SEARCH_USER_SYSTEM_ATTR option. This is more efficient than calling SimLibSearch to get the item IDs, and then calling other APIs, such as SimLibGetTOCData, to retrieve attribute information.

Even though you make a TOCENTRYSTRUCT array that might look like the array from SimLibGetTOC, you cannot use a table of contents function such as Ip2TOCUpdates on a simulated TOC. Table of contents functions require a handle returned by SimLibGetTOC.

---

**Supporting Case-Sensitivity**

Content Manager for iSeries stores character-string attributes exactly as presented by the application. Content Manager for iSeries always converts user IDs to uppercase.

---

**Naming Folders**

The folder data model for Content Manager for iSeries does not include a folder name. A folder name such as a customer name, customer number, case name, or other recognizable text is an index class attribute for a class that uses a folder name. To search for a folder by name, therefore, your application must know the relevant index classes with folder names and construct the appropriate search.

---

**Changing an Item’s Index Class**

When you create an item, it is associated with an index class. When your application changes the index class of the item, this entry is updated to reflect the change. This entry always contains the current index class to which the item belongs. A number of Content Manager for iSeries APIs, including SimLibGetItemInfo and SimLibGetItemSnapshot return this information to your application. You should use this index class within your application.
Restricting Access to Items

There are two layers for access control: the privileges that are defined for a user and access lists. The user privileges are often referred to as general privileges. Access lists are used to establish access to index classes, workbaskets and processes. An access list is a combination of a list of users and a set of privileges. 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 index classes, workbaskets or processes. There are, however, many available levels of restricted access.

One type of restriction is to allow 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 a list consisting of those users and groups that are allowed to work with the index class. That list of users is then associated with privilege sets that allow index class functions.

The list of users combined with the special privilege settings produces an access list that 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.

SimLibLogon returns general privileges. Ip2QueryClassPriv returns privileges for index classes. Similarly, SimWmGetWorkBasketInfo and SimWmGetProcessInfo return privileges for the workbasket or process. Your application can use these privilege strings to establish in advance whether to offer specific functional options to users. For example, your application can let a user view an item for which the user does not have delete authority without offering the delete option.

Migrating Objects

The Content Manager for iSeries storage management function allows objects to be moved from one medium to another—from magnetic disk to optical storage, for example—based on controls that the administrator establishes. A collection name is assigned to each object created in the system. A collection defines the storage management controls associated to a group of objects that typically have similar performance, availability, backup, and retention characteristics. An application can assign an object to a different collection using the SimLibChangeObjectSMS API.
Chapter 3. Application Programming Interfaces

This section describes the formats and parameters of the Content Manager for iSeries application programming interfaces (APIs). You can recognize these APIs by their SimLib, SimWm, Sim400, and Ip2 prefixes.

For more information about the data structures for these APIs, see Chapter 4, “Common Data Structures,” on page 133.

Compiling and Linking Content Manager for iSeries Applications

Content Manager for iSeries can be accessed through the Content Manager for iSeries APIs. You need the following files to build and run applications to access Content Manager for iSeries:

EKDVIAPI.H The structures, macros, and function prototypes for the Content Manager for iSeries APIs. EKDVIAPI.H includes the following header files:

- EKDVIERR.H Error numbers and descriptive names. The name is logged in Content Manager for iSeries for any error detected.
- EKDVILIB.H Library API definitions.
- EKDVITYP.H Constants and common type definitions.
- EKDVIIWM.H Workflow API prototypes.

EKDWS.LIB LIB file required to link with EKDWS.DLL.

EKDWS.DLL All API functions.

EKDWS35I.DLL IBM VisualAge runtime DLL.

These files are installed when you install the IBM Content Manager for iSeries Windows Client Toolkit.

Applications must access headers as follows:

#include "EKDVIAPI.H"

If you are not using VisualAge, the LIB file must be regenerated using ILIB or an equivalent command.

The Content Manager for iSeries APIs use code page conversion tables from VisualAge. Your installation program should install the required files for the code pages that are to be used for any given installation. The code page conversion files are located in the FRNROOT\ICONV and FRNROOT\UCONVTAB directories.

You must set the LOCPATH environment variable to the directory above (FRNROOT). You can do this in AUTOEXEC.BAT or the Registry, or your application can do it before the call to SimLibLogon. Doing this ensures that the variable is always set, which prevents conflicts with other products.

Client tracing and logging can be enabled to aid in problem determination. The environment variables below can be set to any value to control tracing. Results are
logged to VI400.LOG in the working directory or path specified in the VI400_LOG_PATH environment variable. The file is overwritten when the first call is made (such as to SimLibLogon).

**VI400_LOG_PATH**
Path for VI400.LOG

**VI400_LOG_TRACE**
Function entry and exit

**VI400_LOG_PERFORMANCE**
Trace and data transmission time

**VI400_LOG_DATA**
Data sent to and received from the iSeries system

**VI400_LOG_STORAGE**
Content Manager for iSeries object storage allocation and de-allocation

**VI400_LOG_LOCKS**
Log lock and unlock operations for each API

**VI400_LOG_ALL**
All trace levels

The FRNOLINT.TBL file is used to contain entries that define Content Manager for iSeries servers. It must be located in the path from which the program was started or the path contained in the VI400_CONFIG_PATH environment variable. The following is an APPC and a TCP/IP example:

**SERVER:** MYVI400
REMOTE
**APPC**
LU_NAME = USIBMNR.AS400DS1
TP = EKDCS01P.EKDCS01P.QVI
MODE = QPCSUPP
SERVER_TYPE = FRNLS400

**SERVER:** MYVI400
REMOTE
**TCP/IP**
HOSTNAME = AS400DS1
PORT = 31098
SERVER_TYPE = FRNLS400

In this example, if the database name passed to SimLibLogon is MYVI400, the above entry would be used to connect to the iSeries system. Since the path in the VI400_CONFIG_PATH environment variable accesses FRNOLINT.TBL, it can be placed on a network drive or in a directory on an iSeries that is accessed through Client Access or an equivalent product. If the environment variable is not set, the file is accessed in the current directory – namely, the Start in directory specified in the Shortcut page of the Properties for the icon.

EKDVIERR.H should be in the path defined in VI400_CONFIG_PATH. This file is used to log the descriptive name of each Content Manager for iSeries return code.

---

**Application Programming Interfaces**

**SimLibAddFolderItem (Add an Item to a Folder)**

**Format**

SimLibAddFolderItem( hSession, pszFolderID, pszItemID, pAsyncCtl, pRC )
SimLibAddFolderItem

**Purpose**
Use the `SimLibAddFolderItem` function to add a document or a folder item to an existing folder.

**Parameters**

<table>
<thead>
<tr>
<th>hSession</th>
<th>HSESSION — input</th>
</tr>
</thead>
<tbody>
<tr>
<td>The handle to the Content Manager for iSeries session information. The <code>SimLibLogon</code> function creates the session information.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>pszFolderID</th>
<th>PITEMID — input</th>
</tr>
</thead>
<tbody>
<tr>
<td>The identifier of the folder. Use the item ID of an existing folder to which you want to add a document or a folder item. This folder does not need to be open.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>pszItemID</th>
<th>PITEMID — input</th>
</tr>
</thead>
<tbody>
<tr>
<td>The identifier of an item. Use the item ID of the document or the folder item that you are adding to the folder. The item cannot already exist in the folder. Do not use the identifier of the same folder that you specified in the <code>pszFolderID</code> parameter. You cannot add a folder to itself.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>pAsyncCtl</th>
<th>PASYNCCCTLSTRUCT — input</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not supported.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>pRC</th>
<th>PRCSTRUCT — input/output</th>
</tr>
</thead>
<tbody>
<tr>
<td>The pointer to the return data structure. For more information on the <code>RCSTRUCT</code> structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.</td>
<td></td>
</tr>
</tbody>
</table>

**Return Values**
On successful completion, this function returns values to the following fields in the `RCSTRUCT` data structure:

<table>
<thead>
<tr>
<th>usParam</th>
<th>The function does not use this field</th>
</tr>
</thead>
<tbody>
<tr>
<td>ulParam1</td>
<td>The function does not use this field</td>
</tr>
<tr>
<td>ulParam2</td>
<td>The function does not use this field</td>
</tr>
<tr>
<td>ulRC</td>
<td>Contains one of the following return codes:</td>
</tr>
<tr>
<td></td>
<td>• SIM_RC_OK</td>
</tr>
<tr>
<td></td>
<td>• SIM_RC_COMMUNICATIONS_ERROR</td>
</tr>
<tr>
<td></td>
<td>• SIM_RC_COMPLETION_ERROR</td>
</tr>
<tr>
<td></td>
<td>• SIM_RC_INVALID_HSESSION</td>
</tr>
<tr>
<td></td>
<td>• SIM_RC_INVALID_ITEM_OR_FOLDER_VALUE</td>
</tr>
<tr>
<td></td>
<td>• SIM_RC_INVALID_ITEM_OR_FOLDER</td>
</tr>
<tr>
<td></td>
<td>• SIM_RC_INVALID_PITEMIDFOLDER_PTR</td>
</tr>
<tr>
<td></td>
<td>• SIM_RC_INVALID_PITEMIDFOLDER_VALUE</td>
</tr>
<tr>
<td></td>
<td>• SIM_RC_INVALID_PITEMIDITEM_PTR</td>
</tr>
<tr>
<td></td>
<td>• SIM_RC_INVALID_PITEMIDITEM_VALUE</td>
</tr>
<tr>
<td></td>
<td>• SIM_RC_INVALID_POINTER</td>
</tr>
<tr>
<td></td>
<td>• SIM_RC_INVALID_PRC</td>
</tr>
<tr>
<td></td>
<td>• SIM_RC_OUT_OF_MEMORY</td>
</tr>
<tr>
<td></td>
<td>• SIM_RC_PITEMIDFOLDER_NOT_A_FOLDER</td>
</tr>
<tr>
<td></td>
<td>• SIM_RC_PITEM_NOT_FOLDER_OR_DOCUMENT</td>
</tr>
<tr>
<td></td>
<td>• SIM_RC_PRIVILEGE_ERROR</td>
</tr>
</tbody>
</table>
SimLibAddFolderItem

Guidelines for Use

Preparation:
- To create a folder, use the SimLibCreateItem function.
- A document or folder can be in multiple folders at the same time.
- A folder and the items it contains can all have different index classes.

Restrictions:
- You cannot add a folder to itself.
- This function does not automatically update the temporary copy of the folder table of contents. You must use the Ip2GetTOCUpdates or Ip2GetTOC function to update your temporary copy of the folder table of contents.

Example

```c
#include <windows.h> /* Main Windows header files */
#include <sys\types.h>
#include <stdio.h> /* Standard I/O header files */
#include <stdlib.h> /* Standard library header files */
#include <stdarg.h>
#include <stddef.h>
#include "ekdviapi.h" /* Content Manager for iSeries */

main () {
    HSESSION  hSession; /* Product session handle */
    PITEMID   pszFolderID; /* ID of the folder */
    PITEMID   pszItemID; /* ID of the item to be added */
    RCSTRUCT  RCStruct; /* RC data structure */
    USHORT    sResult; /* return codes */

    /*****************************************************************/
    /*Initialize folderID and itemID*/
    /*****************************************************************/
    memset (pszFolderID, '\0', DOC_ID_SIZE); /* set to null */
    strcpy ((CHAR *)pszFolderID, (CHAR *) "F000000001");
    memset (pszItemID, '\0', DOC_ID_SIZE); /* set to null */
    strcpy ((CHAR *)pszItemID, (CHAR *) "DA97220AA.AAB");

    /*****************************************************************/
    /* Call SimLibAddFolderItem to place a new document in a folder */
    /*****************************************************************/
    sResult = SimLibAddFolderItem(
        hSession, /* ses'n handle from SimLibLogon */
        pszFolderID, /* add item to this folder */
        pszItemID, /* add this item to above folder */
        (PASYNCCTLSTRUCT) NULL, /* Request SYNCHRONOUS processing*/
        (PRCSTRUCT) &RCStruct /* Pointer to RC data structure */
    );

    if (sResult != SIM_RC_OK) {
        printf("Add folder item failed \n");
    }
}
```

Related Functions
- SimLibGetTOCData
- Ip2GetTOCUpdates
- Ip2TOCCount
- SimLibGetTOC
SimLibCatalogObject (Catalog an Object)

**Format**

```c
SimLibCatalogObject( hSession, hObj, ulConCls, pSMS, pszFullFileName, ulPriority, fCreateControl, ulVersion, lSeqAfterPart, ulAffiliatedType, pAffiliatedData, pAsyncCtl, pRC )
```

**Purpose**

Use the `SimLibCatalogObject` function to create a new object from the file that you specify. Use this function when your data is already in a file rather than in memory.

Your application can substitute this function for the following sequence of Content Manager for iSeries functions:

- `SimLibCreateObject`
- `SimLibOpenObject`
- `SimLibWriteObject`
- `SimLibCloseObject`

**Parameters**

- `hSession` (HSESSION — input)
  
  The handle to the Content Manager for iSeries session information. The `SimLibLogon` function creates the session information.

- `hObj` (HOBJ — input)
  
  The pointer to an object handle block in the HOBJ data structure. For more information on the HOBJ data structure, see "HOBJ (Handle to Query Stored Object)” on page 143. "Guidelines for Use" describes the effects of your input to this data structure.

- `ulConCls` (ULONG — input)
  
  The content class identifier for the object (see Appendix B, "Predefined Content Classes," on page 295). The value of this parameter tells what kind of data is in the object that you are cataloging.

  To indicate an undefined content class, specify the value `SIM_CC_UNKNOWN` for this parameter. However, if you do not use a defined content class, other applications cannot use Content Manager for iSeries content class services to determine how to manipulate the contents of objects that you store.

- `pSMS` (PSMS — input)
  
  Pointer to a system-managed storage (SMS) structure for an object. This structure uses only `szCollectionName`.

- `pszFullFileName` (PSZ — input)
  
  The pointer to a fully qualified directory path and file name

- `ulPriority` (USHORT — input)
  
  Not supported.
**fCreateControl**  
BITS — input  
Control option bits for the cataloging operation. The valid values are:

**SIM_CLOSE**  
Closes the object on completion of the request.

**SIM_OPEN**  
Leaves the object open in update mode.

**ulVersion**  
ULONG — input  
Not supported.

**lSeqAfterPart**  
LONG — input  
Not supported.

**ulAffiliatedType**  
LONG — input  
The type of affiliated object. The defined values are:

**SIM_ANNOTATION**  
Indicates that the object is an annotation associated with a folder or a document.

**SIM_BASE**  
Indicates that the object is a base object such as a Mixed Object Document Content Architecture (MO:DCA) or Tag Image File Format (TIFF) file.

**SIM_EVENT**  
Indicates that the object is an event associated with a folder or a document.

**SIM_MGDS**  
Indicates that the object is an MGDS (machine-generated data stream) associated with a folder or a document.

**SIM_NOTE**  
Indicates that the object is a note associated with a folder or a document.

**pAffiliatedData**  
PVOID — input  
The pointer to a data structure of the type ANNOTATIONSTRUCT. If the **ulAffiliatedType** parameter contains the value **SIM_ANNOTATION**, **pAffiliatedData** points to this structure, which contains additional data affiliated with the object. Otherwise, the Content Manager for iSeries system ignores this parameter. For more information on the ANNOTATIONSTRUCT structure, see "**ANNOTATIONSTRUCT (Annotation Information Structure)**" on page 134.

**pAsyncCtl**  
PASYNCCTLSTRUCT — input  
Not supported.

**pRC**  
PRCSTRUCT — input /output  
The pointer to the return data structure. For more information on the RCRESTRUCT structure, see "**RCSTRUCT (Return Code Information Structure)**" on page 151.
Return Values
On successful completion, this function returns values to the following fields in an
RCSTRUCT data structure:

- **usParam**: Contains the value 0.
- **ulParam1**: Contains `hObj`, an HOBJ pointer to an object handle block.
- **ulParam2**: If you specified SIM_OPEN as a flag in the `fCreateControl` parameter and the field is not NULL, it contains the object access handle. This handle has the data type HOBJACC. The value in this field identifies the current instance of the accessed object.
- **ulRC**: Contains one of the following return codes:
  - SIM_RC_OK
  - SIM_RC_COMMUNICATIONS_ERROR
  - SIM_RC_INVALID_FOPTIONS
  - SIM_RC_INVALID_HSESSION
  - SIM_RC_INVALID_LOCAL_STORAGE_MODE
  - SIM_RC_INVALID_OBJECT_HANDLE
  - SIM_RC_INVALID_POINTER
  - SIM_RC_INVALID_PRC
  - SIM_RC_INVALID_SMS_PTR
  - SIM_RC_NOT_SUPPORTED
  - SIM_RC_OBJECT_ALREADY_EXISTS
  - SIM_RC_OPEN_FAILED
  - SIM_RC_OUT_OF_MEMORY
  - SIM_RC_PRIVILEGE_ERROR

Guidelines for Use

Preparation:
- The object that you catalog must exist as a file.
- To get the defined values for the `ulConCls` parameter, use the `Ip2ListContentClasses` function.

Effects:
- This function creates an object and writes to that object the contents of the file that you specify.
- On successful completion, this function returns an object handle that you can use to access the object.

Your input values in the HOBJ data structure affect the results of this function. Input values for the `szItemID`, `ulPart`, and `chRepType` fields in that structure are optional.

If 0 is specified for the part number, the next sequential part number is created. If part number is nonzero, that part number is used if it does not already exist. If it does exist, the first available number is returned. Part number 1 is typically a base part. This API lets you create part number 2 – for example, a note – before creating part number 1.

- If you do not specify the SIM_OPEN flag for the `fCreateControl` parameter, the object is closed, but you can open it using the `SimLibOpenObject` function. Then you can access the object by using the object access handle that the function returns. You must use the object handle when referencing this object.
- Although your application can store its own affiliated types, other applications may not be able to process those objects.
Exceptions: The content class parameter is not validated as a defined, known content class.

Follow-Up Tasks:
- If you specify SIM_OPEN, close the object when you finish with it, using the SimLibCloseObject function.
- After you finish using the pointer to the object handle block, free its space by using the SimLibFree function.

Example

```c
#include <stdio.h>    /* Standard I/O header files */
#include <string.h>    /* Standard string header file */
#include "ekdviapi.h"  /* Content Manager for iSeries */

main ()
{
    HSESSION hSession;        // from logon
    HOBJ hObj;
    HOBJ hObj2;                //get pointer from catalog
    ULONG ulConCls = SIM_CC_MODCA_IS2;  // mod:ca object
    SMS sms;
    CHAR pszFullFileName[45];  // not supported
    UCHAR ulPriority = 0;      //leave open-get hobjacc
    BITS fCreateControl = SIM_OPEN;
    ULONG ulVersion = 0;      // not supported
    LONG lSeqAfterPart = 0;   // take default
    ULONG ulAffiliatedType = SIM_BASE;  // base part
    PVOID pAffiliatedData = NULL; // no affil data for base part
    RCSTRUCT RC;
    PRCSTRUCT pRC = &RC;
    POBJ pObj;
    HOBJACC hObjAcc;         // object access handle
    USHORT sResult;          // return codes

    // create hobj
    if(0==(( pObj=malloc(sizeof(OBJ))))) {
        return(1);
    }
    ( pObj)->ulStruct = sizeof(OBJ);
    strcpy(( pObj)->szItemID,"" );
    strcpy(( pObj)->chRepType,"" );
    ( pObj)->ulPart = 0;
    hObj = pObj;
    strcpy(pszFullFileName, "d:\spid\modca.mda");
    memset(SMS,0,sizeof(sms));                // null out struct to get defaults
    strcpy(SMS.szCollectionName, "*DFT");

    sResult = SimLibCatalogObject(
        hSession,        //SimLibCatalogObject
        hObj,          //the object handle
        ulConCls,      //content class
        SMS,         //SimLibCatalogObject
        pszFullFileName,
        ulPriority,
        fCreateControl,
        ulVersion,          //SimLibCatalogObject
        lSeqAfterPart,
        ulAffiliatedType,
        pAffiliatedData,
        0,
        pRC);
    if (pRC->ulRC == SUCCESS) {
        // When only HOBJ is returned, it is in ulParam1
        hObj2 = (HOBJ) pRC->ulParam1;
    }
}
```
SimLibCatalogObject

// Free memory allocated for HOBJ
SimLibFree(hSession, (PVOID)(hObj2), pRC);
// Mem containing the HOBJACC struct is freed by SimLibCloseObject.
  hObjAcc = pRC->ulParam2; // object access handle
}

Related Functions
- Ip2ListContentClasses
- SimLibCloseObject
- SimLibCreateItem
- SimLibCreateObject
- SimLibFree
- SimLibOpenObject
- SimLibWriteObject

SimLibChangeIndexClass (Change the Index Class for an Item)

**Format**

```c
SimLibChangeIndexClass( hSession, hItem, usClassId, pAsyncCtl, pRC )
```

**Purpose**

Use the SimLibChangeIndexClass function to change the index class of an item to the index class that you specify.

**Parameters**

- **hSession**: HSESSION — input
  The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

- **hItem**: HITEM — input
  The handle to a virtual item. The SimLibOpenItemAttr function returns this handle.

- **usClassId**: USHORT — input
  The identifier of the index class to change to.

- **pAsyncCtl**: PASYNCCCTLSTRUC — input
  Not supported.

- **pRC**: PRCSTRUCT — input/output
  The pointer to the return data structure. For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

**Return Values**

On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

- **usParam**: The function does not use this field.
- **ulParam1**: The function does not use this field.
- **ulParam2**: The function does not use this field.
SimLibChangeIndexClass

Contains one of the following return codes:
- SIM_RC_OK
- SIM_RC_COMPLETION_ERROR
- SIM_RC_INVALID_HITEM_VALUE
- SIM_RC_INVALID_HSESSION
- SIM_RC_INVALID_PASSED_ATTRIBUTE_DATA
- SIM_RC_INVALID_PATTRIBUTE_PTR
- SIM_RC_INVALID_POINTER
- SIM_RC_INVALID_PRC
- SIM_RC_INVALID_USATTRIBUTEID_VALUE
- SIM_RC_INVALID_USCLASSID_VALUE
- SIM_RC_NO_WRITE_ACCESS
- SIM_RC_OUT_OF_MEMORY
- SIM_RC_PRIVILEGE_ERROR

Guidelines for Use

Preparation: Before you can use this function, you must use SimLibOpenItemAttr to open the item for write access.

Effects:
- By changing the index class of an item, this function associates a different user-defined attribute set with that item.
- If the item is not open for write access, the function returns error SIM_RC_NO_WRITE_ACCESS.
- If the function fails, the Content Manager for iSeries system maintains the current attribute set for this item.
- If any index class attributes are common to both the original index class and the new one you specify for the item, the function copies those attributes to the new index class. Your application can then use the SimLibWriteAttr function to set the new index class attributes to the values you want. After you specify all the required attribute values for the new index class, you can make these values permanent by saving changes to the item using SimLibSaveAttr or SimLibCloseAttr.
- Use SimLibGetClassInfo to determine the attributes associated with an index class and SimLibGetAttrInfo to get details about an attribute.
- SimLibOpenItemAttr does not validate if the user has SIM_ACCESS_READ_WRITE authority. This authority is validated when SimLibCloseAttr is called with the SIM_OPT_SAVE parameter.

Related Functions
- SimLibCloseAttr
- SimLibGetAttrInfo
- SimLibGetClassInfo
- SimLibOpenItemAttr
- SimLibSaveAttr
- SimLibWriteAttr
SimLibChangeObjectSMS (Change the SMS Criteria for an Object)

Format

```
SimLibChangeObjectSMS( hSession, hObj, pSMS, fChangeControl, pAsyncCtl, pRC )
```

Purpose
Use the SimLibChangeObjectSMS function to modify the system-managed storage (SMS) criteria for an object.

Parameters

- **hSession** HSESSION — input
  The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

- **hObj** HOBJ — input
  The pointer to an object handle block in the HOBJ data structure. For more information on the HOBJ structure, see “HOBJ (Handle to Query Stored Object)” on page 143.

- **pSMS** PSMS — input
  Pointer to a system-managed storage (SMS) structure for an object. This structure uses only szCollectionName.

- **fChangeControl** BITS — input
  Not supported.

- **pAsyncCtl** PASYNCCTLSTRUCT — input
  Not supported.

- **pRC** PRCSTRUCT — input/output
  The pointer to the return data structure. For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

Return Values
On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

- **usParam** The function does not use this field.
- **ulParam1** The function does not use this field.
- **ulParam2** The function does not use this field.
- **ulRC** Contains one of the following return codes:
  - SIM_RC_OK
  - SIM_RC_COMPLETION_ERROR
  - SIM_RC_INVALID_FOPTIONS
  - SIM_RC_INVALID_HSESSION
  - SIM_RC_INVALID_ITEM_OR_FOLDER_VALUE
  - SIM_RC_INVALID_ITEMID
  - SIM_RC_INVALID_POINTER
  - SIM_RC_INVALID_PRC
SimLibCloseAttr (Close an Attribute Set)

**Format**

```c
SimLibCloseAttr( hSession, hItem, ulDisposition, pAsyncCtl, pRC )
```

**Purpose**

Use the `SimLibCloseAttr` function to release the access rights that your application has to the folder or document you specify. You can use this function to replace the permanent attributes of the item in the database with modifications that have been made to the virtual item. Alternatively, you can use this function to discard modifications to the virtual item without updating the permanent attributes.

**Parameters**

- **hSession**
  HSESSION — input
  The handle to the Content Manager for iSeries session information. The `SimLibLogon` function creates the session information.

- **hItem**
  HITEM — input
  The handle to a virtual item. The `SimLibOpenItemAttr` function returns this handle.

- **ulDisposition**
  ULONG — input
  The action to take regarding modifications to the item. The value of this parameter determines whether the Content Manager for iSeries system saves or discards modifications to the attributes of the virtual item. If the item is accessed for reading only or if none of its attributes are changed, the Content Manager for iSeries system ignores this parameter. The valid values are:

  **SIM_OPT_SAVE**
  Updates the permanent attributes of the item in the database by using the current attribute settings of the virtual item. All required attributes of the index class must be written before closing, or the function returns the error `SIM_RC_REQUIRED_ATTRIBUTE_MISSING`. This value is valid only if the item is open for update.

  **SIM_OPT_DISCARD**
  Discards modifications to the attribute settings of the virtual item without updating the permanent attributes of the item in the database.

- **pAsyncCtl**
  PASYNCCTLSTRUCT — input

**Related Functions**
- `SimLibCreateObject`
- `SimLibQueryObject`
SimLibCloseAttr

Not supported.

\[ pRC \]

PRCSTRUCT — input/output

The pointer to the return data structure. For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

Return Values
On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

usParam The function does not use this field.

ulParam1 The function does not use this field.

ulParam2 The function does not use this field.

ulRC Contains one of the following return codes:
- SIM_RC_OK
- SIM_RC_COMMUNICATIONS_ERROR
- SIM_RC_COMPLETION_ERROR
- SIM_RC_INVALID_FOPTIONS
- SIM_RC_INVALID_HITEM_VALUE
- SIM_RC_INVALID_HSESSION
- SIM_RC_INVALID_POINTER
- SIM_RC_INVALID_PRC
- SIM_RC_INVALID_USACCESSLEVEL_VALUE
- SIM_RC_INVALID_USCLASSID_VALUE
- SIM_RC_INVALID_USDISPOSITION_VALUE
- SIM_RC_OUT_OF_MEMORY
- SIM_RC_PRIVILEGE_ERROR
- SIM_RC_REQUIRED_ATTRIBUTE_MISSING

Guidelines for Use

Effects: The function closes the virtual attribute set and you can no longer use the access handle. The function also frees the space used by the access handle.

Related Functions
- SimLibChangeIndexClass
- SimLibOpenItemAttr
- SimLibSaveAttr
- SimLibWriteAttr

SimLibCloseObject (Close an Object)

Format

SimLibCloseObject( hSession, hObjAcc, fCommit, pAsyncCtl, pRC )

Purpose
Use the SimLibCloseObject function to close an open object and end access to that object.

You must use this function to close objects that you opened using any of the following functions:
- SimLibCatalogObject
SimLibCloseObject

- SimLibCreateObject
- SimLibOpenObject

Parameters

\( hSession \)  
HSESSION — input

The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

\( hObjAcc \)  
HOBJACC — input

The object access handle. The value of this parameter identifies the current instance of the accessed object.

\( fCommit \)  
BOOL — input

Not supported.

\( pAsyncCtl \)  
PASYNCCTLSTRUCT — input

Not supported.

\( pRC \)  
PRCSTRUCT — input/output

The pointer to the return data structure. For more information on the RCSTRUCT structure, see [“RCSTRUCT (Return Code Information Structure)” on page 151](#).

Return Values

On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

\( usParam \)  
The function does not use this field.

\( ulParam1 \)  
The function does not use this field.

\( ulParam2 \)  
The function does not use this field.

\( ulRC \)  
Contains one of the following return codes:

- SIM_RC_OK
- SIM_RC_COMMUNICATIONS_ERROR
- SIM_RC_COMPLETION_ERROR
- SIM_RC_INVALID_FOPTIONS
- SIM_RC_INVALID_HSESSION
- SIM_RC_INVALID_OBJECT_ACCESS_HANDLE
- SIM_RC_INVALID_OBJECT_HANDLE
- SIM_RC_INVALID_POINTER
- SIM_RC_INVALID_PRC
- SIM_RC_OUT_OF_MEMORY
- SIM_RC_PRIVILEGE_ERROR

Guidelines for Use

Effects: After successful completion of the function, you can no longer use the access handle. The function also frees the space used by the access handle, so SimLibFree should not be called.

If SIM_RC_PRIVILEGE_ERROR is returned, you must call SimLibCloseAttr using SIM_OPT_DISCARD to guarantee that the item lock has been released.
Example

```c
#include <stdio.h> /* Standard I/O header files */
#include "ekdvilapi.h" /* Content Manager for iSeries */

main ()
{
    HSESSION hSession; // get from logon
    HOBJACC hObjAcc; // get from catalog, open, or create
    BOOL fCommit = TRUE; // keep the changes
    RCSTRUCT RC;
    PRCSTRUCT pRC = &RC;
    USHORT sResult; // return codes

    /*Call the function */

    sResult = SimLibCloseObject(
        hSession,
        hObjAcc,
        fCommit,
        0,
        pRC);
}

Related Functions
- SimLibCatalogObject
- SimLibCreateObject
- SimLibOpenObject

SimLibCopyObject (Copy an Object)

Format

SimLibCopyObject( hSession, hDestObj, hSrcObj, pSMS, ulPriority, fDelete,
        pAsyncCtl, pRC )

Purpose
Use the SimLibCopyObject function to copy an entire object from a source object location to a target object location, replacing an existing target object. Neither the source object nor the target object can currently be open.

Parameters

- **hSession** (HSESSION — input)
  The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

- **hDestObj** (HOBJ — input)
  The destination object handle. The value of this parameter identifies the target object.

- **hSrcObj** (HOBJ — input)
  The source object handle. The value of this parameter identifies the source object that the function copies.

- **pSMS** (PSMS — input)
  Not supported.

- **ulPriority** (ULONG — input)
SimLibCopyObject

Not supported.

fDelete

BOOL— input

Not supported.

pAsyncCtl

PASYNCCTLSTRUCT— input

Not supported.

pRC

PRCSTRUCT — input/output

The pointer to the return data structure. For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

Return Values

On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

usParam

Contains the value 0. If the return code is SIM_RC_ITEM_CHECKEDOUT, this field contains the value 1 to indicate that ulParam1 contains a pointer. If the Content Manager for iSeries system returns any other error, this field contains the value NULL.

ulParam1

Contains the value NULL if the return code is SIM_RC_ITEM_CHECKEDOUT.

ulParam2

The function does not use this field.

ulRC

Contains one of the following return codes:

• SIM_RC_OK
• SIM_RC_COMMUNICATIONS_ERROR
• SIM_RC_COMPLETION_ERROR
• SIM_RC_INUSE
• SIM_RC_INVALID_FOPTIONS
• SIM_RC_INVALID_HSESSION
• SIM_RC_NOT_SUPPORTED_
• SIM_RC_OUT_OF_MEMORY
• SIM_RC_PRIVILEGE_ERROR

Related Functions

• SimLibLogon

SimLibCreateItem (Create an Item)

Format

SimLibCreateItem( hSession, usItemType, usIndexClass, usNumOfAttrs, pAttributeList, ulAccessControl, pAsyncCtl, pRC )

Purpose

Use the SimLibCreateItem function to create a new document or a new folder in the index class that you specify. You must specify any required attributes for that index class. You can also specify optional attributes for the item.

Parameters

hSession

HSESSION — input
SimLibCreateItem

The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

usItemType  USHORT — input
The type of item you want to create. The valid values are:

SIM_DOCUMENT
Indicates that the item is a document.

SIM_FOLDER
Indicates that the item is a folder.

usIndexClass  USHORT — input
An index class identifier for the set of user-defined attributes to associate with this item. This index class must exist at the time you log on.

If you do not require any user-defined attributes, use SIM_INDEX_NOINDEX, which is a special index class created during installation and preset with user-defined attributes, to indicate that the item has not yet been indexed. “Guidelines for Use” explains why it is important to use a predefined index class.

usNumOfAttrs  USHORT — input
The number of data structures in the pAttributeList parameter array.

pAttributeList  PATTRLISTSTRUCT — input
The pointer to an array of PATTRLISTSTRUCT data structures that contain the attributes to associate with this document or this folder. Each data structure in the array specifies one attribute. If you set this parameter to NULL, no attributes are associated with the item. For more information on the PATTRLISTSTRUCT data structure, see "ATTRLISTSTRUCT (Attribute List Data Structure)" on page 137.

To add attributes to the item later, your application must first open the item and then use separate functions to write the attributes to it.

ulAccessControl  ULONG — input
Not supported.

pAsyncCtl  PASYNCCTLSTRUCT — input
Not supported.

pRC  PRCSTRUCT — input/output
The pointer to the return data structure. For more information on the RCSTRUCT structure, see "RCSTRUCT (Return Code Information Structure)" on page 151.

Return Values
On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

usParam  Contains the value 1, to indicate that ulParam1 contains a pointer. If an error occurs, this field contains the value 0.

ulParam1  Contains a PITEMID pointer to a buffer with the item identifier (pszItemID) for the new item.

ulParam2  The function does not use this field.
SimLibCreateItem

ulRC Contains one of the following return codes:
- SIM_RC_OK
- SIM_RC_ATTR_NOT_FOUND
- SIM_RC_ATTRIBUTE_READ_ONLY
- SIM_RC_COMMUNICATIONS_ERROR
- SIM_RC_COMPLETION_ERROR
- SIM_RC_INVALID_HSESSION
- SIM_RC_INVALID_INDEX_CLASS
- SIM_RC_INVALID_MSGID
- SIM_RC_INVALID_PASSED_ATTRIBUTE_DATA
- SIM_RC_INVALID_PATTRIBUTELIST_PTR
- SIM_RC_INVALID_PATTRIBUTELIST_VALUE
- SIM_RC_INVALID_PRC
- SIM_RC_INVALID_USATTRIBUTEID_VALUE
- SIM_RC_INVALID_USITEMTYPE_VALUE
- SIM_RC_OUT_OF_MEMORY
- SIM_RC_PRIVILEGE_ERROR

Guidelines for Use

Preparation:
- Use of a predefined index class is important so that you can use the SimLibSearch function to locate items.
- To add an item to a newly created index class, log off and then log on again before using this function, so that the index class is in existence at logon time.
- You can also create items automatically by using the SimLibCatalogObject or SimLibCreateObject. Use SimLibCreateItem when you have an index class with attribute values. Then use SimLibCatalogObject, SimLibCreateObject, or SimLibStoreNewObject to put objects into the new item.

Follow-Up Tasks: After the function gets the item identifier, use the SimLibFree( hSession, (PVOID)ulParam1, pRC ) function to free the buffer.

Example

```c
#include <windows.h>   /* Main Windows header files */
#include <sys\types.h>
#include <stdio.h>      /* Standard I/O header files */
#include <stdlib.h>     /* Standard library header files*/
#include <stdarg.h>
#include <stddef.h>
#include <io.h>
#include "ekdviapi.h"  /* Content Manager for iSeries */

main ()
{

    HSESSION  hSession;   /* Product session handle */
    ITEMID    FolderItemID;   /* ItemID of new folder */
    USHORT    usFoldAttrs;   /* Number of ATTRLISTSTRUCTs */
    ATTRLISTSTRUCT Folder [ 1 ] = {
        sizeof(Folder),   /* structure size */
        "SourceName",   /* attribute value */
        SIM_ATTR_READWRITE,   /* attribute flags */
        140,   /* attribute ID */
        SIM_ATTR_FSTRING  /* attribute type */
    };

    USHORT    usIndexClass;   /* Index class for folder */
    RCSTRUCT  RStruct;        /* RC data structure */
```
USHORT sResult; /* return codes */

/***********************************************************/
*/ Initialize SimLibCreateItem Parameters. */
/***********************************************************/

/* We will create an item in the SIM_INDEX_NOINDEX Index Class. */
/* This index has three optional attributes. We will provide a */
/* value for only one of these attributes. This is done by */
/* initializing the attribute array "Folder" above. */

usIndexClass = SIM_INDEX_NOINDEX; /* Index Class of the folder */
usFoldAttrs = 1; /* # of attrs for the folder */

/***********************************************************/
*/ Call SimLibCreateItem to create a new folder */
/***********************************************************/

sResult = SimLibCreateItem(
    hSession, /* session handle from SimLibLogon*/
    SIM_FOLDER, /* Create a folder */
    usIndexClass, /* Index class of folder */
    usFoldAttrs, /* Number of attribute lists */
    &Folder, /* Pointer to attribute list */
    NULL, /* Reserved for future use */
    NULL, /* Request SYNCHRONOUS processing*/
    &RCStruct /* Pointer to RC data structure*/
);

/***********************************************************/
*/ If successful, copy the itemID */
/***********************************************************/

if (sResult == SIM_RC_OK) {
    strncpy(FolderItemID, (char*)RCStruct.ulParam1;
    printf("New Folder ItemID = %s\n", FolderItemID);
} else {
    /* ...... exception processing ..... */
}

Related Functions
- SimLibChangeIndexClass
- SimLibFree
- SimLibGetAttrInfo
- SimLibGetClassInfo
- SimLibSearch

SimLibCreateObject (Create an Object)

Format

SimLibCreateObject( hSession, hObj, ulConCls, pSMS, ulPriority, fCreateControl,
    ulVersion, lSeqAfterPart, ulAffiliatedType, pAffiliatedData, pAsyncCtl, pRC )

Purpose
Use the SimLibCreateObject function to create a new empty object, such as when your data is in memory rather than in a file.
SimLibCreateObject

You can also create an object using the SimLibCatalogObject function, which is equivalent to using the SimLibCreateObject, SimLibWriteObject, and SimLibCloseObject functions. You can also create an object using the SimLibStoreNewObject function, which is simpler than using the combination of functions.

Parameters

hSession

HSESSION — input

The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

hObj

HOBJ — input

The pointer to an object handle block in the HOBJ data structure. For more information on the HOBJ data structure, see "[HOBJ (Handle to Query Stored Object)]" on page 143. "Guidelines for Use" describes the effects of your input to this data structure.

ulConCls

ULONG — input

The content class identifier for the object. The value of this parameter tells what kind of data is in the object that you are creating (see Appendix B, “Predefined Content Classes,” on page 295). To indicate an undefined content class, specify the value SIM_CC_UNKNOWN for this parameter. However, if you do not use a defined content class, other applications cannot use Content Manager for iSeries content class services to determine how to manipulate the contents of the objects that you store.

pSMS

PSMS — input

Pointer to a system-managed storage (SMS) structure for an object. This structure uses only szCollectionName.

ulPriority

ULONG — input

Not supported.

fCreateControl

BITS — input

Control option bit strings for the creation operation. The valid values are:

SIM_CLOSE

Closes the object on completion of the request. This is the default.

SIM_OPEN

Leaves the object open in update mode.

If you do not specify this flag, the created object is closed.

ulVersion

ULONG — input

Not supported.

lSeqAfterPart

LONG — input

Not supported.

ulAffiliatedType

ULONG — input

The type of affiliated object. The defined values are:
SIM_ANNOTATION
Indicates that the object is an annotation associated with a folder or a document.

SIM_BASE
Indicates that the object is a base object such as a MO:DCA or TIFF file, and is not an annotation, note, or event associated with a folder or document.

SIM_EVENT
Indicates that the object is an event associated with a folder or a document.

SIM_MGDS
Indicates that the object is an MGDS (machine-generated data stream) associated with a folder or a document.

SIM_NOTE
Indicates that the object is a note associated with a folder or a document.

pAffiliatedData  PVOID — input
The pointer to a data structure of the type ANNOTATIONSTRUCT. If the ulAffiliatedType parameter contains the value SIM_ANNOTATION, pAffiliatedData points to this structure, which contains additional data affiliated with the object. Otherwise, the Content Manager for iSeries system ignores this parameter. For more information on the ANNOTATIONSTRUCT structure, see “ANNOTATIONSTRUCT (Annotation Information Structure)” on page 134.

pAsyncCtl  PASYNCCTLSTRUCT — input
Not supported.

pRC  PRCSTRUCT — input/output
The pointer to the return data structure. For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

Return Values
On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

usParam  Contains the value 0.

ulParam1  Contains hObj, an HOBJ pointer to an object handle block.

ulParam2  If the fCreateControl parameter flag was set to SIM_OPEN and this field is not null, it contains hobjacc, the object access handle. This handle has the data type HOBJACC. The value in this field identifies the current instance of the accessed object.

ulRC  Contains one of the following return codes:
• SIM_RC_OK
• SIM_RC_COMMUNICATIONS_ERROR
• SIM_RC_COMPLETION_ERROR
• SIM_RC_INVALID_HSESSION
• SIM_RC_INVALID_ITEM_OR_FOLDER_VALUE
• SIM_RC_INVALID_OBJECT_HANDLE
• SIM_RC_INVALID_POINTER
SimLibCreateObject

- SIM_RC_INVALID_PRC
- SIM_RC_INVALID_SMS_PTR
- SIM_RC_OPEN_FAILED
- SIM_RC_OUT_OF_MEMORY
- SIM_RC_PRIVILEGE_ERROR
- SIM_RC_INVALID_USCLASSID_VALUE

Guidelines for Use

Preparation: To get the supported values for the ulConCls parameter, use the Ip2ListContentClasses function.

Effects:
- This function creates an empty object that you can write to using SimLibWriteObject.
- On successful completion, this function returns an object handle that you can use to access the object.
- You can create a new object within a specified item or create both the item and an object within it. If you create the item, you cannot specify any attributes. The item is placed in the SIM_INDEX_NOINDEX index class. You must do that later using the SimLibOpenItemAttr, SimLibWriteAttr, and SimLibCloseAttr functions.
- Although your application can store its own affiliated types, other applications may not be able to process those objects.
- Your input values in the HOBJ data structure affect the results of this function. Input values for the szItemID, ulPart, and chRepType fields in this structure are optional.
  - If 0 is specified for the part number, the next sequential part number is created.
  - If part number is nonzero, that part number is used if it does not already exist.
  - If it does exist, the first available number is returned. Part number 1 is typically a base part. This API lets you create part number 2 – for example, a note – before creating part number 1.
- If the function closed the object, you can open it using the SimLibOpenObject function.
- If the function returns the object access handle, this handle identifies the current instance of access to the open object. This handle is different from the handle normally used to reference the stored object. Use the object access handle (hObjAcc), not the object handle (hObj), with the following functions:
  - SimLibCloseObject
  - SimLibReadObject
  - SimLibResizeObject
  - SimLibSeekObject
  - SimLibWriteObject

Exceptions:
- The content class parameter is not validated as a defined, known content class.

Follow-Up Tasks:
- After your application finishes with hObj, the object handle, free the space by using the SimLibFree function.
- Your application should not free the space used by hObjAcc, the object access handle, because the later call to SimLibCloseObject frees the space.
Example

```c
#include <stdio.h> /* Standard I/O header files */
#include <string.h> /* Standard string header file */
#include "ekdviapi.h" /* Content Manager for iSeries */

main()
{
    HSESSION hSession; // get from logon
    HOBJ hObj, hObj2;
    ULONG ulConCls = SIM_CC_MODCA_IS2; // mod:ca object
    SMS sms;
    ULONG ulPriority = 0; // not supported
    BITS fCreateControl = SIM_OPEN; // leave open-get hobjacc
    ULONG ulVersion = 0; // not supported
    LONG lSeqAfterPart = 0; // not supported
    ULONG ulAffiliatedType = SIM_BASE; // no affiliated data
    RCSTRUCT RC;
    PRCSTRUCT pRC = &RC;
    POBJ pObj;
    UCHAR sResult;
    HOBJACC hObjAcc; // object access handle

    if (0==((pObj=(POBJ)malloc(sizeof(OBJ))))) {
        return(1);
    }
    pObj->ulStruct = sizeof(OBJ);
    strcpy((pObj)->szItemID,"");
    strcpy((pObj)->chRepType,"");
    pObj->ulPart = 0;
    hObj = pObj;

    memset(SMS,0,sizeof(sms)); // null out struct to get defaults
    strcpy(SMS.szCollectionName, "*DFT");

    /*Call the function*/
    sResult = SimLibCreateObject(
        hSession,
        hObj,
        ulConCls,
        sms,
        ulPriority,
        fCreateControl,
        ulVersion,
        lSeqAfterPart,
        ulAffiliatedType,
        pAffiliatedData,
        0,
        pRC);
    if (pRC->ulRC == SUCCESS) {
        // When only HOBJ is returned, it is in ulParam1
        hObj2 = (HOBJ)pRC->ulParam1;
        // Free memory allocated for HOBJ
        SimLibFree(hSession, (PVOID)(hObj2), pRC);
        // Mem containing the HOBJACC struct is freed by SimLibCloseObject.
        hObjAcc = pRC->ulParam2; // object access handle
    }
}
```

Related Functions
- Ip2ListContentClasses
- SimLibCatalogObject
SimLibDeleteItem (Delete an Item)

Format

```
SimLibDeleteItem( hSession, pszItemID, pAsyncCtl, pRC )
```

Purpose

Use the SimLibDeleteItem function to delete a folder or a document from the system.

Parameters

- **hSession**: HSESSION — input
  
  The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

- **pszItemID**: PITEMID — input
  
  The identifier of an item you want to delete. This identifier is the item ID.

- **pAsyncCtl**: PASYNCCCTLSTRUCT — input
  
  Not supported.

- **pRC**: PRCSTRUCT — input/output
  
  The pointer to the return data structure. For more information on the RCSTRUCT structure, see "RCSTRUCT (Return Code Information Structure)" on page 151.

Return Values

On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

- **usParam**: Contains the value 0. If the item is locked on the server, this field contains the value 1, to indicate that ulParam1 contains a pointer.

- **ulParam1**: If usParam is 1, this field contains a pointer to a buffer with a USERACCESSSTRUCT data structure. This data structure contains a user ID that indicates who has locked the item. If any other error is returned, this field contains the value NULL.

- **ulParam2**: The function does not use this field.

- **ulRC**: Contains one of the following return codes:
  
  - SIM_RC_OK
  - SIM_RC_COMMUNICATIONS_ERROR
  - SIM_RC_COMPLETION_ERROR
  - SIM_RC_INUSE
  - SIM_RC_INVALID_HSESSION
Guidelines for Use

Effects:
- This function removes the specified document or folder from the database. After completion of the function, the item ID (pszItemID) associated with the item is no longer valid.
- The function automatically removes any references to the deleted item in the table of contents of folders or workbaskets that list it.
- For either a folder or a document, the Content Manager for iSeries system deletes all objects associated with the item.
- If a folder is deleted, documents or folders in the folder are not deleted.

Exceptions:
- This function cannot delete an item if the item, or a folder containing the item, is currently locked by a user ID other than the one you specified on the pszUserID parameter when you used SimLibLogon to begin this Content Manager for iSeries session.
  A folder can have more than one parent folder. If a parent folder is locked and SimLibDeleteItem returns SIM_RC_PARENT_CHECKEDOUT, the function does not identify the folder that is locked.

Follow-Up Tasks: After your application no longer needs the user access information, use the SimLibFree( hSession, (PVOID)ulParam1, pRC ) function to free the buffer containing the USERACCESSSTRUCT data structure.

Example
#include <windows.h> /* Main Windows header files */
#include <sys\types.h>
#include <stdio.h> /* Standard I/O header files */
#include <stdlib.h> /* Standard library header files*/
#include <stdarg.h>
#include <stddef.h>
#include <io.h>
#include "ekdviapi.h" /* Content Manager for iSeries */

main ()
{

HSESSION hSession; /* Product session handle */
PITEMID pszItemID; /* Pointer to an item ID. */
RCSTRUCT RCStruct; /* RC data structure */
USHORT sResult; /* return codes */

/*Initialize the itemID to prepare for a call to SimLibDeleteItem*/
_memset (pszItemID, '\0', DOC_ID_SIZE); /* set to null */
strcpy ((CHAR *)pszItemID, (CHAR *)"DA97220AA.AAB");

/* repeat */
}
/* Call SimLibDeleteItem to delete a document from the system */

sResult = SimLibDeleteItem(
    hSession,  /* session handle from SimLibLogon */
    pszItemID, /* itemID to be deleted */
    (PASYNCCTLSTRUCT) NULL, /* Request SYNCHRONOUS processing*/
    (PRCSTRUCT) &RCStruct /* Pointer to RC data structure */
);

if (sResult != SIM_RC_OK) {
    printf("Item %s cannot be deleted", pszItemID);
}

Related Functions
- SimLibAddFolderItem
- SimLibCloseAttr
- SimLibCreateItem
- SimLibFree
- SimLibGetItem
- SimLibOpenItemAttr

SimLibDeleteObject (Delete an Object)

Format
SimLibDeleteObject( hSession, hObj, ulDeleteOption, pAsyncCtl, pRC )

Purpose
Use the SimLibDeleteObject function to delete the object that you specify.

Parameters
hSession  HSESSION — input
The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

hObj  HOBJ — input
The pointer to an object handle block in the HOBJ data structure. For more information on the HOBJ structure, see "HOBJ (Handle to Query Stored Object)” on page 143.

ulDeleteOption  ULONG — input
Not supported.

pAsyncCtl  PASYNCCTLSTRUCT — input
Not supported.

pRC  PRCSTRUCT — input/output
The pointer to the return data structure. For more information on the RCSTRUCT structure, see "RCSTRUCT (Return Code Information Structure)” on page 151.

Return Values
On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:
SimLibDeleteObject

usParam Contains the value 0. If the return code is SIM_RC_ITEM_CHECKEDOUT, this field contains the value 1, to indicate that ulParam1 contains a pointer. If the Content Manager for iSeries system returns any other error, this field contains the value NULL.

ulParam1 If usParam is 1, this field contains a pointer to a USERACCESSSTRUCT data structure. The data structure contains the user ID of the user who has locked the item.

ulParam2 The function does not use this field.

ulRC Contains one of the following return codes:
- SIM_RC_OK
- SIM_RC_COMMUNICATIONS_ERROR
- SIM_RC_COMPLETION_ERROR
- SIM_RC_INVALID_HSESSION
- SIM_RC_INVALID_ITEM_OR_FOLDER_VALUE
- SIM_RC_INVALID_OBJECT_HANDLE
- SIM_RC_INVALID_POINTER
- SIM_RC_INVALID_PRC
- SIM_RC_ITEM_CHECKEDOUT
- SIM_RC_ITEM_NOT_FOUND
- SIM_RC_OUT_OF_MEMORY
- SIM_RC_PART_NOT_FOUND
- SIM_RC_PRIVILEGE_ERROR

Guidelines for Use

Effects: When the last object in an item is deleted, the item is also deleted. To delete all the objects in one operation, use SimLibDeleteItem, which deletes the item and all the objects within it.

Exceptions:
- You cannot delete an object if the item that contains the object is locked by someone else.
- If the item contains only the object, the item is also deleted.

SimLibFree (Free Memory)

Format

| SimLibFree( hSession, pBuffer, pRC ) |

Purpose

Use the SimLibFree function to free all memory allocated and returned by the Content Manager for iSeries system. Do not call this function if your application allocated the memory. Use it only as directed.

Parameters

- **hSession**
  - HSESSION — input
  - The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

- **pBuffer**
  - PVOID — input
  - A pointer to a data structure of indeterminate type.
SimLibFree

\( pRC \)  
PRCSTRUCT — input/output

The pointer to the return data structure. For more information on 
the RCSTRUCT structure, see "RCSTRUCT (Return Code 
Information Structure)" on page 151.

Return Values
On successful completion, this function returns values to the following fields in the 
RCSTRUCT data structure:

- \( usParam \)  
The function does not use this field.

- \( ulParam1 \)  
The function does not use this field.

- \( ulParam2 \)  
The function does not use this field.

- \( ulRC \)  
Contains one of the following return codes:
  - SIM_RC_OK
  - SIM_RC_COMPLETION_ERROR
  - SIM_RC_INVALID_HSESSION
  - SIM_RC_INVALID_POINTER
  - SIM_RC_INVALID_PRC

Example

```
ULONG ulRC;
HSESSION hsession;
RCSTRUCT RC;

ulRC = SimLibListClasses(hSession, 0, NULL, &RC);
if (ulRC == SIM_RC_OK) {
  // process list of classes
  SimLibFree(hSession, (PVOID)RC.ulParam1, &RC);
}
```

Related Functions
- SimLibLogon

SimLibGetAttrInfo (Get Attribute Information)

```
SimLibGetAttrInfo( hSession, usAttributeId, pAsyncCtl, pRC )
```

Purpose
Use the SimLibGetAttrInfo function to return detailed information for a specific 
attribute in the system. This function can return information for both the 
system-defined attributes and the user-defined index attributes.

Parameters

- \( hSession \)  
HSESSION — input

  The handle to the Content Manager for iSeries session information. 
The SimLibLogon function creates the session information.

- \( usAttributeId \)  
USHORT — input

  The unique identifier assigned to an attribute. You can pass the ID 
of an index class or one of the following Content Manager for 
iSeries system-defined attributes:
OIM_ID_ITEM_CREATE_TIMESTAMP
Indicates the creation time of the item.

OIM_ID_ITEM_NAME
Indicates the name of the item. This attribute is optional.

OIM_ID_SYS_MOD_TIMESTAMP
Indicates the last time the item was changed.

OIM_ID_UID
Indicates the item ID.

$pAsyncCtl$ - PASYNCCTLSTRUCT — input
Not supported.

$pRC$ - PRCSTRUCT — input/output
The pointer to the return data structure. For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

Return Values
On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

usParam
Contains the value 1, to indicate that $ulParam1$ contains a pointer. If completion is not successful, this field contains the value 0.

ulParam1
Contains a pointer to a buffer where an ATTRINFOSTRUCT data structure provides information about the specified attribute. For more information on the ATTRINFOSTRUCT data structure, see “ATTRINFOSTRUCT (Attribute Information Structure)” on page 135.

ulParam2
The function does not use this field.

ulRC
Contains one of the following return codes:
- SIM_RC_OK
- SIM_RC_COMMUNICATIONS_ERROR
- SIM_RC_COMPLETION_ERROR
- SIM_RC_INVALID_HSESSION
- SIM_RC_INVALID_POINTER
- SIM_RC_INVALID_PRC
- SIM_RC_INVALID_USATTRIBUTEID_VALUE
- SIM_RC_OUT_OF_MEMORY
- SIM_RC_PRIVILEGE_ERROR

Guidelines for Use

Follow-Up Tasks: When your application no longer needs the ATTRINFOSTRUCT data, use the SimLibFree( $hSession$, (PVOID)$ulParam1$, $pRC$ ) function to free the buffer containing the structure.

Related Functions
- Ip2ListAttrs
- SimLibFree
- SimLibGetClassInfo
SimLibGetClassInfo

SimLibGetClassInfo (Get Index Class Information)

Format
SimLibGetClassInfo( hSession, usClassType, usID, pAsyncCtl, pRC )

Purpose
Use the SimLibGetClassInfo function to return detailed information for a specific index class defined in the system.

Parameters

- **hSession**
  - HSESSION — input
  - The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

- **usClassType**
  - USHORT — input
  - The type of information that the usID parameter contains. The valid values are:
    - **SIM_INDEXCLASSID**
      - Indicates that the usID parameter contains an index class ID.

- **usID**
  - USHORT — input
  - The ID of an index class.

- **pAsyncCtl**
  - PASYNCCTLSTRUCT — input
  - Not supported.

- **pRC**
  - PRCSTRUCT — input/output
  - The pointer to the return data structure. For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

Return Values
On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

- **usParam**
  - Contains the value 1, to indicate that ulParam1 contains a pointer to the data area.

- **ulParam1**
  - Contains a pointer to a buffer with a CLASSINFOSTRUCT data structure.

- **ulParam2**
  - The function does not use this field.

- **ulRC**
  - Contains one of the following return codes:
    - SIM_RC_OK
    - SIM_RC_COMMUNICATIONS_ERROR
    - SIM_RC_COMPLETION_ERROR
    - SIM_RC_INVALID_CLASS_TYPE
    - SIM_RC_INVALID_FOPTIONS
    - SIM_RC_INVALID_HSESSION
    - SIM_RC_INVALID_ITEM_OR_FOLDER_VALUE
    - SIM_RC_INVALID_POINTER
    - SIM_RC_INVALID_PRC
    - SIM_RC_INVALID_USCLASSID_VALUE
SimLibGetClassInfo

- SIM_RC_OUT_OF_MEMORY
- SIM_RC_PRIVILEGE_ERROR

Guidelines for Use

Exceptions: The information that this function returns is subject to access control restrictions. If you do not have access to the index class, the function fails and SIM_RC_INVALID_USCLASSID_VALUE is returned.

Follow-Up Tasks: When your application no longer needs the CLASSINFOSTRUCT data, use the SimLibFree(hSession, (PVOID)ulParam1, pRC) function to free the buffer.

SimLibGetItemAffiliatedTOC (Get a Table of Contents for Item Affiliates)

Format

\[
\text{SimLibGetItemAffiliatedTOC}(\text{hSession, pszItemID, usAffiliatedType, pAsyncCtl, pRC})
\]

Purpose

Use the SimLibGetItemAffiliatedTOC function to get a table of contents that lists the affiliated objects for an item.

Parameters

- **hSession**: HSESSION — input
  - The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.
- **pszItemID**: PITEMID — input
  - The identifier of an item for which you want a table of contents listing affiliated objects. This identifier is the item ID.
- **usAffiliatedType**: USHORT — input
  - The type of affiliated object to list in the table of contents. The valid values are:
    - **SIM_ANNOTATION**: Lists annotations associated with the folder or document.
    - **SIM_BASE**: Lists base objects, such as MO:DCA or TIFF files, that are not annotations, notes, or events associated with the folder or document.
    - **SIM_EVENT**: Lists events associated with the folder or document.
    - **SIM_MGDS**: Lists MGDS (machine-generated data streams) associated with the folder or document.
    - **SIM_NOTE**: Lists notes associated with the folder or document.
SIM_ALL
Lists all types of objects associated with the folder or
document.

If you specify that you want to return objects other than base
objects, they must have a nonzero length. Base objects are always
included regardless of their length.

pAsyncCt1
PASYNCTLSTRUCT — input
Not supported.

pRC
PRCSTRUCT — input/output
The pointer to the return data structure. For more information on
the RCSTRUCT structure, see “RCSTRUCT (Return Code
Information Structure)” on page 151.

Return Values
On successful completion, this function returns values to the following fields in an
RCSTRUCT data structure:

usParam Contains the value 1, to indicate that ulParam1 contains a pointer.
Otherwise, this field contains the value 0.

ulParam1 Contains a pointer to a buffer with an array of
AFFTOCENTRYSTRUCT data structures. If no affiliated objects
satisfy the usAffiliatedType filter, this field contains the value NULL.
For more information on the AFFTOCENTRYSTRUCT data
structure, see “AFFTOCENTRYSTRUCT (Affiliated Table of
Contents Entry Structure)” on page 133.

ulParam2 Contains the number of entries in the AFFTOCENTRYSTRUCT
array referenced by ulParam1. If no affiliated objects satisfy the
usAffiliatedType filter, this field contains the value NULL.

ulRC Contains one of the following return codes:
• SIM_RC_OK
• SIM_RC_COMMUNICATIONS_ERROR
• SIM_RC_COMPLETION_ERROR
• SIM_RC_COMPLETION_MSG_NOT_POSTED
• SIM_RC_COMPLETION_SEM_ALREADY_POSTED
• SIM_RC_COMPLETION_SEM_TOO_MANY_POSTS
• SIM_RC_DOCSS_ERROR
• SIM_RC_ERROR_RELEASING_SEMAPHORE
• SIM_RC_ERROR_REQUESTING_SEMAPHORE
• SIM_RC_FUNC_NOT_IN_TRANS
• SIM_RC_GETRESPONSE_TIMEOUT
• SIM_RC_INVALID_AFFILIATEDTYPE_VALUE
• SIM_RC_INVALID_PITEMIDITEM_PTR
• SIM_RC_INVALID_PITEMIDITEM_VALUE
• SIM_RC_INVALID_PLATSESSION_TYPE
• SIM_RC_INVALID_PRC
• SIM_RC_ITEM_NOT_FOUND
• SIM_RC_NOT_SUPPORTED
• SIM_RC_OUT_OF_MEMORY
• SIM_RC_PRIVILEGE_ERROR
Guidelines for Use

Follow-Up Tasks: After you get the TOC information, use the 
SimLibFree( hSession, (PVOID)ulParam1, pRC ) function to clear the buffer 
containing the AFFTOCENTRYSTRUCT data structures.

Related Functions
• SimLibFree
• SimLibLogon

SimLibGetItemInfo (Get Item Information)

Format

SimLibGetItemInfo( hSession, pszItemID, usClassId, pAsyncCtl, pRC )

Purpose
Use the SimLibGetItemInfo function to return the following information about a 
document or a folder to your application:
• Item type
• Item name
• Index class of the item
• Workflow information
• User ID of anyone who has locked the item

Parameters

hSession HSESSION — input
The handle to the Content Manager for iSeries session information. 
The SimLibLogon function creates the session information.

pszItemID PITEMID — input
The identifier of an item for which you want information. This 
identifier is the item ID.

usClassId USHORT — input
The identifier of an index class.

pAsyncCtl PASYNCCTLSTRUCT — input
Not supported.

pRC PRCSTRUCT — input/output
The pointer to the return data structure. For more information on 
the RCSTRUCT structure, see “RCSTRUCT (Return Code 
Information Structure)” on page 151.

Return Values
On successful completion, this function returns values to the following fields in an 
RCSTRUCT data structure:

usParam Contains the value 1, to indicate that ulParam1 contains a pointer 
to a data area.

ulParam1 Contains a pointer to an ITEMINFOSTRUCT data structure that 
provides the item information. For more information on this data 
structure, see “ITEMINFOSTRUCT (Item Information Structure)” 
on page 144.
SimLibGetItemInfo

ulParam2 Contains the value 1, indicating that the buffer referenced by ulParam1 contains 1 entry.

ulRC Contains one of the following return codes:
- SIM_RC_OK
- SIM_RC_COMMUNICATIONS_ERROR
- SIM_RC_COMPLETION_ERROR
- SIM_RC_INVALID_HSESSION
- SIM_RC_INVALID_ITEM_ID
- SIM_RC_INVALID_ITEM_OR_FOLDER_VALUE
- SIM_RC_INVALID_ITEM_TYPE
- SIM_RC_INVALID_PITEMIDITEM_PTR
- SIM_RC_INVALID_PITEMIDITEM_VALUE
- SIM_RC_INVALID_POINTER
- SIM_RC_INVALID_PRC
- SIM_RC_OUT_OF_MEMORY
- SIM_RC_PRIVILEGE_ERROR

Guidelines for Use

Exceptions: Do not use this function to return information about a workbasket. To return workbasket information, use SimWmGetWorkBasketInfo.

Follow-Up Tasks: When your application no longer needs the item information, use the SimLibFree hSession, (PVOID)ulParam1, pRC function to free the buffer.

Related Functions
- SimWmGetWorkBasketInfo
- SimLibListClasses

SimLibGetItemSnapshot (Get a Snapshot of Item Attributes)

Format

SimLibGetItemSnapshot( hSession, pszItemID, fReadAttrInd, pAsyncCtl, pRC )

Purpose
Use the SimLibGetItemSnapshot function to return a copy of the attributes associated with a document or a folder. Your application can substitute this function for the following sequence of Content Manager for iSeries functions:
- SimLibGetItemType
- SimLibOpenItemAttr
- SimLibReadAttr
- SimLibCloseAttr

Parameters

hSession HSESSION — input
The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

pszItemID PITEMID — input
The identifier of an item. This identifier is the item ID.

fReadAttrInd BITS — input
The type of attribute values to return. Here are the valid values.
You can use a bitwise inclusive OR operator (|) to combine them.

**SIM_SYSTEM_ATTR**
Returns the system-defined attribute values for the
document or the folder.

**SIM_USER_ATTR**
Returns the user-defined attribute values for the document
or the folder.

**SIM_WORK_ATTR**
Returns the work management information for the
document or the folder.

The function returns attribute values for the current view. The
Content Manager for iSeries system gets system-defined and
user-defined attribute values from the SNAPSHOTSTRUCT data
structure and returns them in the pAttr field of the
ICVIEWSTRUCT data structure. It returns priority attributes and
work management information in the pWinSnapshot field of the
SNAPSHOTSTRUCT data structure. “Guidelines for Use” contains
more detail. For more information on the ICVIEWSTRUCT and
SNAPSHOTSTRUCT data structures, see "ICVIEWSTRUCT (Index
Class View Information Structure)" on page 143 and
"SNAPSHOTSSTRUCT (Snapshot Information Structure)" on page
155.

**pAsyncCtl**
PASYNCCTLSTRUCT — input
Not supported.

**pRC**
PRCSTRUCT — input/output
The pointer to the return data structure. For more information on
the RCSTRUCT structure, see "RCSTRUCT (Return Code
Information Structure)" on page 151.

**Return Values**
On successful completion, this function returns values to the following fields in an
RCSTRUCT data structure:

**usParam**
Contains the value 1, to indicate that ulParam1 contains a pointer
to a data area.

**ulParam1**
Contains a pointer to a SNAPSHOTSTRUCT data structure that
provides the returned attribute values.

**ulParam2**
The function does not use this field.

**ulRC**
Contains one of the following return codes:
- SIM_RC_OK
- SIM_RC_COMMUNICATIONS_ERROR
- SIM_RC_COMPLETION_ERROR
- SIM_RC_INVALID_HSESSION
- SIM_RC_INVALID_ITEM_ID
- SIM_RC_INVALID_ITEM_OR_FOLDER_VALUE
- SIM_RC_INVALID_ITEM_TYPE
- SIM_RC_INVALID_PITEMIDITEM_PTR
- SIM_RC_INVALID_PITEMIDITEM_VALUE
- SIM_RC_INVALID_POINTER
- SIM_RC_INVALID_PRC
SimLibGetAttrSnapshot

- SIM_RC_INVALID_READATTRIND
- SIM_RC_OUT_OF_MEMORY
- SIM_RC_PRIVILEGE_ERROR
- SIM_RC_SESSION_DB_VIEW_MISMATCH

Guidelines for Use

Exceptions: Your application might need to use a conversion routine such as an ASCII-to-integer routine to change the character representation of an attribute value into the correct form for the application.

Follow-Up Tasks: After your application has processed the information that the Content Manager for iSeries system returns to the SNAPSHOTSTRUCT data structure, use the SimLibFree (hSession, (VOID)uParam1, pRC ) function to free the pointer to the SNAPSHOTSTRUCT data structure.

Related Functions
- SimLibCloseAttr
- SimLibFree
- SimLibGetItemType
- SimLibGetTOCData
- SimLibOpenItemAttr
- SimLibReadAttr

SimLibGetItemType (Get the Type of an Item)

| Format | SimLibGetItemType( hSession, pszItemID, pAsyncCtl, pRC ) |

Purpose
Use the SimLibGetItemType function to return the type of an item associated with the item identifier you specify.

Parameters

hSession
HSESSION — input
The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

pszItemID
PITEMID — input
The identifier of an item for which you want to return the type. This identifier is the item ID.

pAsyncCtl
PASYNCCTLSTRUCT — input
Not supported.

pRC
PRCSTRUCT — input/output
The pointer to the return data structure. For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

Return Values
On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

usParam
Contains the value 0.
**SimLibGetItemType**

- **ulParam1**  
  Contains one of the following values indicating the type of item:
  
  - **SIM_DOCUMENT**  
    Indicates that the item is a document.
  
  - **SIM_FOLDER**  
    Indicates that the item is a folder.
  
  - **SIM_WORKBASKET**  
    Indicates that the item is a workbasket.
  
  - **SIM_WORKFLOW**  
    Indicates that the item is a workflow.

- **ulParam2**  
  The function does not use this field.

- **ulRC**  
  Contains one of the following return codes:
  
  - **SIM_RC_OK**
  - **SIM_RC_COMMUNICATIONS_ERROR**
  - **SIM_RC_COMPLETION_ERROR**
  - **SIM_RC_INVALID_HSESSION**
  - **SIM_RC_INVALID_ITEM_ID**
  - **SIM_RC_INVALID_PITEMIDITEM_PTR**
  - **SIM_RC_INVALID_PITEMIDITEM_VALUE**
  - **SIM_RC_INVALID_POINTER**
  - **SIM_RC_INVALID_PRC**
  - **SIM_RC_OUT_OF_MEMORY**

**Guidelines for Use**

**Effects:** After successful completion of this function, you can use other Content Manager for iSeries functions to get additional detailed information about the item. To return additional information, use one of the following functions:

- **SimLibGetItemInfo**  
  To return information about a folder or a document.

- **SimWmGetWorkBasketInfo**  
  To return information about a workbasket.

**Related Functions**

- **SimWmGetWorkBasketInfo**
- **SimLibGetItemInfo**

**SimLibGetItemXREF** (Get a Cross-Reference for an Item)

**Format**

```
SimLibGetItemXREF(hSession, pszItemID, ulFilter, pAsyncCtl, pRC)
```

**Purpose**

Use the **SimLibGetItemXREF** function to list the folders that contain the item you specify and match the other criteria you specify.

**Parameters**

- **hSession**  
  HSESSION — input
  The handle to the Content Manager for iSeries session information. The **SimLibLogon** function creates the session information.
pszItemID: PITEMID — input
The identifier of an item for which you want a cross reference. This identifier is the item ID.

ulFilter: ULONG — input
The criteria to match for cross-referencing. Here are the valid values:

- **SIM_XREF_FOLDERS_ONLY_FILTER**: Returns only folders that contain the specified item.

pAsyncCtl: PASYNCCTLSTRUCT — input
Not supported.

pRC: PRCSTRUCT — input/output
The pointer to the return data structure. For more information on the **RCSTRUCT** structure, see "[RCSTRUCT (Return Code Information Structure)](#)" on page 151.

Return Values
On successful completion, this function returns values to the following fields in an **RCSTRUCT** data structure:

- **usParam**: Contains the value 1, to indicate that **ulParam1** contains a pointer. If no items match the criteria you specify, this field contains the value NULL.

- **ulParam1**: Contains a pointer to a buffer with an array of ITEMID strings. Each string provides the item ID of a folder that contains the specified item. If no items match the criteria you specify, this field contains the value NULL.

- **ulParam2**: Contains the number of entries pointed to by **ulParam1**.

- **ulRC**: Contains one of the following return codes:
  - SIM_RC_OK
  - SIM_RC_COMMUNICATIONS_ERROR
  - SIM_RC_COMPLETION_ERROR
  - SIM_RC_INVALID_HSESSION
  - SIM_RC_INVALID_ITEM_ID
  - SIM_RC_INVALID_ITEM_OR_FOLDER_VALUE
  - SIM_RC_INVALID_ITEM_TYPE
  - SIM_RC_INVALID_PITEMIDITEM_PTR
  - SIM_RC_INVALID_PITEMIDITEM_VALUE
  - SIM_RC_INVALID_POINTER
  - SIM_RC_INVALID_PRC
  - SIM_RC_INVALID USFILTER_VALUE
  - SIM_RC_OUT_OF_MEMORY
  - SIM_RC_PRIVILEGE_ERROR

Guidelines for Use

**Follow-Up Tasks**: After you get the item ID information, use the **SimLibFree** function to free the buffer containing the cross-reference information.
SimLibGetSessionType (Get the Session Type)

<table>
<thead>
<tr>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>SimLibGetSessionType( hSession, pAsyncCtl, pRC )</td>
</tr>
</tbody>
</table>

**Purpose**
Use the `SimLibGetSessionType` function to return information regarding the platform type of the current session.

**Parameters**
- **hSession** HSESSION — input
  The handle to the Content Manager for iSeries session information. The `SimLibLogon` function creates the session information.
- **pAsyncCtl** PASYNCCTLSTRUCT — input
  Not supported.
- **pRC** PRCSTRUCT — input/output
  The pointer to the return data structure. For more information on the RCSTRUCT structure, see "RCSTRUCT (Return Code Information Structure)" on page 151.

**Return Values**
On successful completion, this function returns values to the following fields in the RCSTRUCT data structure:
- **usParam** Contains the value 1, to indicate that ulParam1 contains a pointer.
- **ulParam1** Contains a PSZ to the current session type. If you have a LAN-based library session, the session type is Ip2. Other values are platform dependent.
- **ulParam2** The function does not use this field.
- **ulRC** Contains one of the following return codes:
  - SIM_RC_OK
  - SIM_RC_INVALID_HSESSION
  - SIM_RC_OUT_OF_MEMORY

**Guidelines for Use**

**Follow-Up Tasks:** When your application no longer needs the session type information, use the `SimLibFree( hSession, (PVOID)ulParam1, pRC )` function to free the buffer.

**Related Functions**
- `SimLibLogon`

SimLibGetTOC (Get a Table of Contents)

<table>
<thead>
<tr>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>SimLibGetTOC( hSession, pszItemID, usItemType, usWipFilter, usSuspendFilter, usNbrOfClassList, pusClassIdList, pLinkCriteria, pAsyncCtl, pRC )</td>
</tr>
</tbody>
</table>
SimLibGetTOC

Purpose
Use the SimLibGetTOC function to return either a partial or a complete table of contents for the workbasket or folder you specify. The table of contents contains a list of the documents and folders in that workbasket or folder. You can specify a variety of values for the parameters of this function to determine the entries in the table of contents.

Parameters

\( hSession \)  
HSESSION — input
The handle to the Content Manager for iSeries session information. The \texttt{SimLibLogon} function creates the session information.

\( pszItemID \)  
PITEMID — input
The identifier of workbasket or folder for which you want a table of contents. This identifier is the item ID.

\( usItemType \)  
USHORT — input
The type of item to return in the table of contents. The valid values are:

- \texttt{SIM_DOCUMENT}  
  Returns documents.
- \texttt{SIM_FOLDER}  
  Returns folders.
- \texttt{SIM_ALL}  
  Returns both documents and folders.

\( usWipFilter \)  
USHORT — input
Not supported.

\( usSuspendFilter \)  
USHORT — input
Not supported.

\( usNbrOfClasses \)  
USHORT — input
The number of index class identifiers in the list you specify as the value of the \( \texttt{pusClassIdList} \) parameter. Specify the value 0 for the \( \texttt{usNbrOfClasses} \) parameter to indicate that class is not a criterion for selecting items.

\( pusClassIdList \)  
PUSHORT — input
The pointer to a list of index class identifiers that indicate the items to select for the table of contents. You can specify the value NULL for the \( \texttt{pusClassIdList} \) parameter only if you specify the value 0 for the \( \texttt{usNbrOfClasses} \) parameter.

\( pLinkCriteria \)  
PVOID — input
Not supported.

\( pAsyncCtl \)  
PASYNCCTLSTRUCT — input
Not supported.

\( pRC \)  
PRCSTRUCT — input/output
The pointer to the return data structure. For more information on the RCSTRUCT structure, see \texttt{RCSTRUCT (Return Code Information Structure)} on page 151.
Return Values
On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>usParam</td>
<td>Contains the number of items in the table of contents. If no items satisfy</td>
</tr>
<tr>
<td></td>
<td>the filter, the field contains the value NULL.</td>
</tr>
<tr>
<td>ulParam1</td>
<td>Contains a pointer to a buffer with an array of TOCENTRYSTRUCT data</td>
</tr>
<tr>
<td></td>
<td>structures. If no items satisfy the filter, the field contains the value</td>
</tr>
<tr>
<td></td>
<td>NULL. For more information on this data structure, see &quot;TOCENTRYSTRUCT</td>
</tr>
<tr>
<td></td>
<td>(Table of Contents Entry Data Structure)&quot; on page 157.</td>
</tr>
<tr>
<td>ulParam2</td>
<td>Contains the table of contents handle (hTOC). If no items satisfy the</td>
</tr>
<tr>
<td></td>
<td>filter, the field contains the value NULL.</td>
</tr>
<tr>
<td>ulRC</td>
<td>Contains one of the following return codes:</td>
</tr>
<tr>
<td></td>
<td>• SIM_RC_OK</td>
</tr>
<tr>
<td></td>
<td>• SIM_RC_COMMUNICATIONS_ERROR</td>
</tr>
<tr>
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<td>• SIM_RC_COMPLETION_ERROR</td>
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<td>• SIM_RC_INVALID_HSESSION</td>
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<td></td>
<td>• SIM_RC_INVALID_ITEM_ID</td>
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<td>• SIM_RC_INVALID_ITEM_OR_FOLDER_VALUE</td>
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<td>• SIM_RC_INVALID_ITEM_TYPE</td>
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<td>• SIM_RC_INVALID_PITEMIDITEM_PTR</td>
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<td>• SIM_RC_INVALID_PITEMIDITEM_VALUE</td>
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<td>• SIM_RC_INVALID_POINTER</td>
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<td>• SIM_RC_INVALID_PUSCLASSIDLIST_PTR</td>
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<td>• SIM_RC_INVALID_USITEMTYPE_VALUE</td>
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<td>• SIM_RC_INVALID_PUSCLASSIDLIST_PTR</td>
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<td>• SIM_RC_INVALID_USITEMTYPE_VALUE</td>
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<tr>
<td></td>
<td>• SIM_RC_OUT_OF_MEMORY</td>
</tr>
<tr>
<td></td>
<td>• SIM_RC_PRIVILEGE_ERROR</td>
</tr>
</tbody>
</table>

Guidelines for Use

Effects: Each time you use this function, you create a new table of contents handle. You can use this handle later with the SimLibGetTOCData and Ip2GetTOCUpdates functions, to specify which table of contents to process.

Exceptions: The SimLibGetTOC function creates a table of contents that shows the current contents of the workbasket or folder. However, the contents of the workbasket or folder might change after you use this function. Use the Ip2GetTOCUpdates function to return a list of the changes. Update the TOCENTRYSTRUCT, which includes usItemStatus, to indicate changed entries.

Follow-Up Tasks: When you no longer need a table of contents handle, free it by using the Ip2CloseTOC function. That function frees both the table of contents handle (hTOC) and the data pointed to by the PTOCENTRYSTRUCT pointer.

Example
```c
#include "ekdviapi.h" // Content Manager for iSeries
HSESSION hSession; // Session handle
PITEMID pszItemID; // Pointer to an item ID
USHORT usItemType; // The item type
USHORT usWipFilter; // WIP status of search items
```
USHORT usSuspendFilter; // Suspend status of search items
USHORT usNbrOfClasses; // # of index class identifiers in
    // pusClassIdList
PUSHORT pusClassIdList; // Pointer to list of index class IDs
    // that indicates TOC items.
PVOID pLinkCriteria; // Not used
PASYNCTLSTRUCT pAsyncCtl; // Pointer to asynchronous control block.
RSTRUCT RC; // Pointer to return data structure.
USHORT usNbrOfClasses; // # of index class identifiers in
    // pusClassIdList
USHORT usClassIdList[0]; // Pointer to list of index class IDs
    // that indicates TOC items.
USHORT usItemType = SIM_ALL; // Set up item type filter.
USHORT usWipFilter = OIM_ALL; // Set up Work-In-Process status filter.
USHORT usSuspendFilter = OIM_ALL; // Set up suspend status of search items.
USHORT usNbrOfClasses = 1; // Set up index class filter
USHORT usClassIdList[0] = NO_INDEX;

ulRC = SimLibGetTOC(
    hSession, // Handle to a Content Manager for iSeries.
    pfoldid, // Pointer to folder or Workbasket ID.
    SIM_ALL, // The item type filter.
    NULL, // WIP status of search items.
    NULL, // Suspend status of search items.
    usNbrOfClasses, // # of index class IDs in pusClassIdList.
    usClassIdList, // Pointer to index class identifiers list.
    NULL, // Not used; link criteria
    NULL, // asynch not supported
    &RC // pointer to return struct
);  
if (ulRC == SIM_RC_OK) {
    hTOC = (HTOC)RC.ulParam2; // TOC handle
    usNumRows = RC.usParam; // # of returned toc entries
    pTocEntry = RC.ulParam1; // pointer to TOC entries.
}

/**********************************************************/
/* ... Call other Content Manager for iSeries by using the ... */
/* ... session handle obtained by calling SimLibLogon ... */
/**********************************************************/

ulRC = Ip2CloseTOC(
    hSession, // Handle to a Content Manager for iSeries
    hTOC, // TOC Handle from SimLibGetTOC
    NULL, // by NULL, asynchronous call made
    &RC // pointer to return struct
);
if (ulRC == SIM_RC_OK) {
    /* Ip2CloseTOC released all resource associated with hTOC */
}

Related Functions
• Ip2CloseTOC
• Ip2GetTOCUpdates
• Ip2TOCCount
• Ip2TOCStatus
• SimLibGetTOCData
SimLibGetTOCData (Get a Snapshot of Attributes for a Group of Items)

Format

```
SimLibGetTOCData( hSession, pTOCEntries, ulEntryCount, fDataOptions, pAsyncCtl, pRC )
```

Purpose

Use the `SimLibGetTOCData` function to return a copy of the attributes associated with a group of documents or folders.

Your application can substitute this function for a series of calls to the `SimLibGetItemSnapshot` function.

Parameters

- **hSession**
  HSESSION — input
  The handle to the Content Manager for iSeries session information. The `SimLibLogon` function creates the session information.

- **pTOCEntries**
  PTOCENTRYSTRUCT — input
  The pointer to an array of TOCENTRYSTRUCT data structures that identify the items for which you want a copy of the attributes. For more information on this data structure, see "TOCENTRYSTRUCT (Table of Contents Entry Data Structure)" on page 157.

- **ulEntryCount**
  ULONG — input
  The number of entries in the TOCENTRYSTRUCT array. Because each entry can result in a large amount of data, you should limit the number of entries.

- **fDataOptions**
  BITS — input
  The type of data to return for each item. You must specify at least one value for this parameter. The following are valid values. You can use a bit-wise inclusive OR operator (|) to combine them.

  - **SIM_TOC_SNAPSHOT_SYSTEM_ATTR**
    Returns the system-defined attribute values for the documents or folders.

  - **SIM_TOC_SNAPSHOT_USER_ATTR**
    Returns the user-defined attribute values for the documents or folders.

  - **SIM_TOC_SNAPSHOT_WORK_ATTR**
    Returns the work management information for the documents or folders.

  - **SIM_TOC_SNAPSHOT_ALL**
    Returns the information specified in all the other values.

- **pAsyncCtl**
  PASYNCCTLSTRUCT — input
  Not supported.

- **pRC**
  PRCSTRUCT — input/output
SimLibGetTOCData

The pointer to the return data structure. For more information on
the RCSTRUCT structure, see “RCSTRUCT (Return Code
Information Structure)” on page 151.

Return Values
On successful completion, this function returns values to the following fields in an
RCSTRUCT data structure:

- **usParam**: Contains the value 1, to indicate that ulParam1 contains a pointer
to a data area. If an error occurs, usParam contains the value 0.

- **ulParam1**: Contains a pointer to an array of SNAPSHOTSTRUCT data
structures that provide the returned information.

  If usParam contains the value 0, ulParam1 contains the array index
  of the TOCENTRYSTRUCT element that was in error. For some
  error conditions, the function can identify the item that failed. If
  not, this field contains SIM_TOC_MAX_ENTRY_COUNT.

- **ulParam2**: Contains a count of the items in the returned array. This count
  matches the value in the ulEntryCount parameter.

- **ulRC**: Contains one of the following return codes:
  - SIM_RC_OK
  - SIM_RC_BUFFER_NULL
  - SIM_RC_COMMUNICATIONS_ERROR
  - SIM_RC_COMPLETION_ERROR
  - SIM_RC_INVALID_HSESSION
  - SIM_RC_INVALID_INDEX_CLASS
  - SIM_RC_INVALID_ITEM_ID
  - SIM_RC_INVALID_ITEM_TYPE
  - SIM_RC_INVALID_POINTER
  - SIM_RC_INVALID_PRC
  - SIM_RC_INVALID_READATTRIND
  - SIM_RC_OUT_OF_MEMORY
  - SIM_RC_PRIVILEGE_ERROR

Guidelines for Use

Effects:

- This function retrieves data for any group of folders or documents that you
  identify properly. It retrieves information for the items returned by the
  SimLibGetTOC function, processing an entire list with one function call.
  Retrieving work management information takes significantly more time than
  retrieving attributes.

- Effects vary with the bit values you specify in the fDataOptions parameter:
  - If you specify SIM_TOC_SNAPSHOT_SYSTEM_ATTR to return
    system-defined attributes, you always get data if the item is a valid document
    or folder.
  - If you specify SIM_TOC_SNAPSHOT_WORK_ATTR but the item is not in a
    workbasket, you get a successful return code but the
    WMSNAPSHOTSTRUCT data structure is null.
  - If you specify 0 or an invalid combination of bit values, the function returns
    SIM_RC_INVALID_DATA_OPTIONS.

- All the returned data is in a single memory block. The SNAPSHOTSTRUCT
  structures appear as an array in the same order as the TOCENTRYSTRUCT
  structures. The remaining information follows in the same block, referenced by
  pointers originated in the individual SNAPSHOTSTRUCT structures.
Exceptions:
- The function ignores most of the fields in TOCENTRYSTRUCT. It always uses the item ID field, and it uses the index class when you request user-defined attributes. Therefore, you can use the function to retrieve the item types for a list of folders and documents by preparing a TOCENTRYSTRUCT structure and using only the SIM_TOC_SNAPSHOT_SYSTEM_ATTR value on the fDataOptions parameter. The function returns the correct item types in the SNAPSHOTSSTRUCT structure.
- Your application might need to use a conversion routine such as an ASCII-to-integer routine to change the character representation of an attribute value into the correct form for the application.

Follow-Up Tasks: After your application has processed the information that the Content Manager for iSeries system returns to the SNAPSHOTSSTRUCT data structure, use the SimLibFree( hSession, (VOID)ulParam1, pRC ) function to free the pointer to the SNAPSHOTSSTRUCT data structure array.

Related Functions
- SimLibCloseAttr
- SimLibFree
- SimLibGetItemSnapshot
- SimLibGetItemType
- SimLibGetTOC
- SimLibOpenItemAttr
- SimLibReadAttr

SimLibListClasses (List Index Classes)

Format

SimLibListClasses( hSession, fClassOptions, pAsyncCtl, pRC )

Purpose
Use the SimLibListClasses function to list all existing index classes in the Content Manager for iSeries database. It lists only the classes for which this user has access and which contain attributes.

Parameters
- hSession: HSESSION — input
  The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.
- fClassOptions: BITS — input
  Not supported.
- pAsyncCtl: PASYNCCTLSTRUCT — input
  Not supported.
- pRC: PRCSTRUCT — input/output
  The pointer to the return data structure. For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.
SimLibListClasses

Return Values
On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

- **usParam**: Contains the value 1, to indicate that *ulParam1* contains a pointer. Otherwise, this field contains the value 0.
- **ulParam1**: If *ulParam2* contains a value greater than 0, this field contains a pointer to a buffer. In the buffer, a NAMESTRUCT array provides the index class identifiers and the associated names. For more information on this data structure, see the NAMESTRUCT Data Structure on page 149.
- **ulParam2**: Contains the number of fields in the array pointed to by *ulParam1*.
- **ulRC**: Contains one of the following return codes:
  - SIM_RC_OK
  - SIM_RC_COMMUNICATIONS_ERROR
  - SIM_RC_COMPLETION_ERROR
  - SIM_RC_INVALID_HSESSION
  - SIM_RC_INVALID_POINTER
  - SIM_RC_INVALID_PRC
  - SIM_RC_OUT_OF_MEMORY
  - SIM_RC_PRIVILEGE_ERROR

Guidelines for Use

Effects: The name information that this function returns reflects the language defined for the current Content Manager for iSeries session.

Exceptions: This function provides only the identifiers of the index classes in the system that the current user has permission to access. Use the SimLibGetClassInfo function to determine the index attributes in an index class.

Follow-Up Tasks: When your application no longer needs the index class identifier list, use the SimLibFree(*hSession*, (PVOID)*ulParam1*, *pRC*) function to free the buffer.

SimLibLogoff (Log Off)

**Format**

| SimLibLogoff( hSession, pAsyncCtl, pRC ) |

**Purpose**

Use the SimLibLogoff function to end access to the Content Manager for iSeries operations for a current application.

**Parameters**

- **hSession**: HSESSION — input
  The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

- **pAsyncCtl**: PASYNCCCTLSTRUCT — input
  Not supported.

- **pRC**: PRCSTRUCT — input/output
The pointer to the return data structure. For more information on the RCSTRUCT structure, see "RCSTRUCT (Return Code Information Structure)" on page 151.

Return Values
On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

- **usParam**: The function does not use this field.
- **ulParam1**: The function does not use this field.
- **ulParam2**: The function does not use this field.
- **ulRC**: Contains one of the following return codes:
  - SIM_RC_OK
  - SIM_RC_COMMUNICATIONS_ERROR
  - SIM_RC_COMPLETION_ERROR
  - SIM_RC_INVALID_HSESSION
  - SIM_RC_INVALID_POINTER
  - SIM_RC_INVALID_PRC

Guidelines for Use

Effects:
- After your application uses this function, any additional Content Manager for iSeries functions fail if they use the same session handle.
- All structures that a Content Manager for iSeries API allocates that are not released using SimLibFree are released during logoff.

Example

```c
#include <stdio.h> /* Standard I/O header files */
#include "ekdviapi.h" /* Content Manager for iSeries */

int main (void) {
    ULONG ulRC; /* Return code */
    HSESSION hSession; /* Session handle */
    PUSERLOGONINFOSTRUCT pUserLogonInfo; /* User logon info struct */
    PSZ pszDBName="VI400LIB"; /* Pointer to Database name */
    PSZ pszUserId="QVIADMIN"; /* Pointer to User Id (Name) */
    PSZ pszPassword="PASSWORD"; /* Pointer to User's Password */
    BITS fSessionType=1; /* Product Session Type */
    RCSTRUCT RC; /* RC data structure */

    /*********************************************************************************
    /* Logon to system, and establish a normal session */
    /*********************************************************************************/
    fSessionType = SIM_SS_NORMAL;
    ulRC = SimLibLogon(
        pszDBName, // library database
        NULL, // not used; library tableset
        pszUserId, // user ID
        pszPassword, // user ID password
        NULL, // if any, new password
        NULL, // not used; proxy ID
        NULL, // not used; proxy scope
        fSessionType, // session access
        NULL, // NULL = synchronous call
        &RC // pointer to return data struct
    );

    if (ulRC == SIM_RC_OK
        // hSession session handle and user logon info structure
        // returned through RC structure.
```
SimLibLogoff

```c
hSession = (HSESSION)RC.ulParam1;
pUserLogonInfo = (PUSERLOGONINFOSTRUCT)RC.ulParam2;
} else {
    printf("error -SimLibLogon failed with %ld\n",ulRC);
    exit(1);
}

/************************************************************/
/* Call other Content Manager for iSeries APIs by using the */
/* session handle obtained by calling SimLibLogon          */
/************************************************************/  

/**********************/
/* Logoff success */
/**********************/
ulRC = SimLibLogoff(                     // Session handle
    hSession,                // not supported
    NULL,                    // not supported
    &RC                      // pointer to return data struct
);
if (ulRC == SIM_RC_OK) {
    /* Logoff success */
} else {
    printf("error - SimLibLogoff failed with %ld\n",ulRC);
    exit(1);
}
return (0);
```

**Related Functions**
- SimLibLogon

**SimLibLogon (Log On)**

**Format**

```
SimLibLogon( pszDBName, pszApplicationName, pszUserID, pszPassword, 
            pszNewPassword, pszProxyID, pszProxyScope, fSession, pAsyncCtl, pRC )
```

**Purpose**

Use the SimLibLogon function to enable your application to access Content Manager for iSeries operations. Your application must use this function before it can use any other Content Manager for iSeries functions, and it must use the SimLibLogoff function when it has finished using Content Manager for iSeries operations.

**Parameters**

- **pszDBName**
  - PSZ — input
  - The system name contained in FRNOLINT.TBL.

- **pszApplicationName**
  - PSZ — input
  - Not supported.

- **pszUserID**
  - PSZ — input
  - The NULL-terminated character string that specifies the user ID of the user to log on. Not case sensitive.
pszPassword PSZ — input

The NULL-terminated character string that specifies the password for the user ID. Case sensitivity is based on the iSeries operating system definition in system value QPWDLVL.

pszNewPassword PSZ — input

The NULL-terminated character string that specifies a valid new password for the user ID. Case sensitivity is based on the iSeries operating system definition in system value QPWDLVL. Null to keep existing password.

pszProxyID PSZ — input

Not supported.

pszProxyScope PSZ — input

Not supported.

fSession BITS — input

SIM_SS_NORMAL
As part of the logon process, index class and attribute information is retrieved. This improves the performance of subsequent calls.

SIM_SS_CONFIG
Only the USERLOGONINFOSTRUCT is returned from the server. See "USERLOGONINFOSTRUCT (User Logon Information Structure)" on page 159 for more information on this data structure.

pAsyncCtl PASYNCCTLSTRUCT — input

Not supported.

pRC PRCSTRUCT — input/output

The pointer to the return data structure. For more information on the RSTRUCT structure, see "RCSTRUCT (Return Code Information Structure)" on page 151.

Return Values
On successful completion, this function returns values to the following fields in an RSTRUCT data structure:

usParam Contains the value 0, to indicate that ulParam1 contains a session handle and ulParam2 contains a pointer to a buffer.

ulParam1 Contains an hSession parameter or NULL.

ulParam2 Contains a pointer to a USERLOGONINFOSTRUCT data structure. See "USERLOGONINFOSTRUCT (User Logon Information Structure)" on page 159 for more information on this data structure.

ulRC Contains one of the following return codes. “Guidelines for Use” contains more detail.
- SIM_RC_OK
- SIM_RC_COMMUNICATIONS_ERROR
- SIM_RC_GRACE_PERIOD_ENDED
- SIM_RC_GRACE_PERIOD_OVER_LIMIT
SimLibLogon

- SIM_RC_INVALID_PASSWORD
- SIM_RC_INVALID_POINTER
- SIM_RC_INVALID_PRC
- SIM_RC_INVALID_USERID
- SIM_RC_USERID_UNKNOWN

When the function completes successfully, it returns a value of zero (SIM_RC_OK).

Guidelines for Use

Follow-Up Tasks: After your application gets the information from the USERLOGONINFOSTRUCT data structure, use the **SimLibFree( hSession, (PVOID)ulParam2, pRC )** function to free the memory.

Example

```c
#include <stdio.h>    /* Standard I/O header files */
#include "ekdviapi.h" /* Content Manager for iSeries */

int main (void) {
  ULONG ulRC; /* Return code */
  HSESSION hSession; /* Session handle */
  PUSERLOGONINFOSTRUCT pUserLogonInfo; /* User logon info struct*/
  PSZ pszDBName="VI400LIB"; /* Pointer to Database name */
  PSZ pszUserId="QVIADMIN"; /* Pointer to User Id (Name) */
  PSZ pszPassword="PASSWORD"; /* Pointer to User's Password */
  BITS fSessionType=1; /* Product Session Type */
  RCSTRCT RC; /* RC's data structure */

  /*******************************************************************************/
  /* Logon to system, and establish a normal session */
  /*******************************************************************************/
  fSessionType = SIM_SS_NORMAL;
  ulRC = SimLibLogon(
    pszDBName, // library database
    NULL, // not used; library tableset
    pszUserId, // user ID
    pszPassword, // user ID password
    NULL, // if any, new password
    NULL, // not used; proxy ID
    NULL, // not used; proxy scope
    fSessionType, // session access
    NULL, // not supported
    &RC // pointer to return data struct
  );

  if (ulRC == SIM_RC_OK ||

    // hSession session handle and user logon info structure
    // returned through RC structure.
    hSession = (HSESSION)RC.ulParam1;
    pUserLogonInfo = (PUSERLOGONINFOSTRUCT)RC.ulParam2;
  } else {
    printf("error -SimLibLogon failed with %ld,\n",ulRC);
    exit(1);
  }

  /*******************************************************************************/
  /* Call other Content Manager for iSeries APIs by using the */
  /*******************************************************************************/

  /*******************************************************************************/
  /* Logoff from system, and end a normal session */
  /*******************************************************************************/
```

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SimLibLogon

ulRC = SimLibLogoff(
    hSession,        // Session handle
    NULL,           // NULL indicates synchronous call
    &RC              // pointer to return data struct
);
if (ulRC == SIM_RC_OK) {
    /******************/
    /* Logoff success */
    /******************/
} else {
    printf("error - SimLibLogoff failed with %ld\n.",ulRC);
    exit(1);
} return (0);

Related Functions
• SimLibFree
• SimLibLogoff

SimLibOpenItemAttr (Open Item Attributes)

Format

SimLibOpenItemAttr( hSession, pszItemID, usClassId, ulAccessLevel, pAsyncCtl, pRC )

Purpose
Use the SimLibOpenItemAttr function to provide access to the attributes of a
document or folder that you specify. This function opens the item for either read or
write access by creating a virtual copy of the attributes associated with that item.

Parameters

hSession HSESSION — input

The handle to the Content Manager for iSeries session information.
The SimLibLogon function creates the session information.

pszItemID PITEMID — input

The identifier of an item that you want to open to access the
attributes. This identifier is the item ID.

usClassId USHORT — input

The identifier of an index class.

ulAccessLevel ULONG — input

The item access mode. The value of this parameter indicates the
access mode for locking the item. The valid values are:

SIM_ACCESS_READ_WRITE

Locks the item. Use of this value causes the function to fail
if another process has the item locked.

SIM_ACCESS_SHARED_READ

Opens the item for read access only. Use of this value
opens the item whether or not others have locked it.

pAsyncCtl PASYNCCCTLSTRUCT — input

Not supported.
SimLibOpenItemAttr

pRC

PRCSTRUCT — input/output

The pointer to the return data structure. For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

Return Values

On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

usParam

Contains the value 0. If the return code is SIM_RC_ITEM_CHECKEDOUT, this field contains the value 1, to indicate that ulParam1 contains a pointer. If the Content Manager for iSeries system returns any other error, this field contains the value NULL.

ulParam1

Contains an item handle with the data type HITEM, for an open item. If the return code is SIM_RC_ITEM_CHECKEDOUT, this field contains a pointer to a USERACCESSSTRUCT data structure. The data structure contains the user ID of the user who has locked the item.

ulParam2

Returns the index class of the item.

ulRC

Contains one of the following return codes:

- SIM_RC_OK
- SIM_RC_ASYNC_STARTED
- SIM_RC_COMMUNICATIONS_ERROR
- SIM_RC_COMPLETION_ERROR
- SIM_RC_INUSE
- SIM_RC_INVALID_HSESSION
- SIM_RC_INVALID_INDEX_CLASS
- SIM_RC_INVALID_ITEM_OR_FOLDER_VALUE
- SIM_RC_INVALID_PITEMIDITEM_PTR
- SIM_RC_INVALID_PITEMIDITEM_VALUE
- SIM_RC_INVALID_POINTER
- SIM_RC_INVALID_PRC
- SIM_RC_INVALID_USACCESSLEVEL_VALUE
- SIM_RC_INVALID_USATTRIBUTEID_VALUE
- SIM_RC_INVALID_USCLASSID_VALUE
- SIM_RC_ITEM_CHECKEDOUT
- SIM_RC_ITEM_NOT_FOUND
- SIM_RC_OUT_OF_MEMORY
- SIM_RC_PITEM_NOT_FOLDER_OR_DOCUMENT
- SIM_RC_PRIVILEGE_ERROR

Guidelines for Use

Effects:

- If your application uses this function with read access, the Content Manager for iSeries system makes a copy of the current attribute values in the database. Concurrent or subsequent access by another user might change those values.
- If your application opens an item for read access while it is open for write access by another application, the values of the item attributes are the same as those currently in the database.
- If you already have the item open for write access, the function returns SIM_RC_INUSE.
• This function returns a handle to the virtual item. This handle, hItem, is valid only within the current session. It cannot be transferred to another session. To manipulate the attributes of the item, use the item handle with the SimLibReadAttr and SimLibWriteAttr functions. To copy the new values permanently, use SimLibSaveAttr or SimLibCloseAttr.

• SimLibOpenItemAttr does not validate if you have SIM_ACCESS_READ_WRITE authority. SimLibCloseAttr validates authority when called with SIM_OPT_SAVE.

Exceptions:
• If an item is locked, only the user with the locked item can work with the item. Other users can gain read access only.
• If an item is not locked, all users can gain read access, and the first user with proper authority to request write access gets exclusive update access.
• If another user modifies the attribute values of the item without saving them by using the SimLibSaveAttr function, the attribute values you see can be different from the attribute values that the other user sees.

Follow-Up Tasks:
• If you receive the SIM_RC_ITEM_CHECKEDOUT return code and your application no longer needs the user access information, use the SimLibFree( hSession, (PVOID)ulParam1, pRC ) function to free the buffer.
• If you receive the SIM_RC_OK return code, use SimLibCloseAttr to close the item and release the storage for the item handle. Do not use both the SimLibFree and the SimLibCloseAttr.

Related Functions
• SimLibCloseAttr
• SimLibReadAttr
• SimLibSaveAttr
• SimLibWriteAttr

SimLibOpenObject (Open an Object)

Format

SimLibOpenObject( hSession, hObj, ulAccessLevel, ulPriority, fConflict, fOpenControl, pAsyncCtl, pRC )

Purpose
Use the SimLibOpenObject function to prepare an existing object for access by your application. On successful completion, the function returns an object access handle that you can use to access the object.

Parameters

hSession HSESSION — input

The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

hObj HOBJ — input

The pointer to an object handle block in the HOBJ data structure. For more information on the HOBJ structure, see “HOBJ (Handle to Query Stored Object)” on page 143.
SimLibOpenObject

ulAccessLevel ULONG — input
The object access mode. The value of this parameter indicates the access mode for opening the object.
The Content Manager for iSeries system uses this access state to accept or reject concurrent requests to access an open object. The valid values are:
- **SIM_ACCESS_READ_WRITE**: Opens the object for read access and write access, at the first byte of the object.
- **SIM_ACCESS_SHARED_READ**: Opens the object for read access only, at the first byte of the object.

ulPriority ULONG — input
Not supported.

fConflict BOOL — input
Not supported.

fOpenControl BITS — input
Not supported.

pAsyncCtl PASYNCCTLSTRUCT — input
Not supported.

pRC PRCSTRUCT — input/output
The pointer to the return data structure. For more information on the RCSTRUCT structure, see "RCSTRUCT (Return Code Information Structure)" on page 151.

Return Values
On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

usParam Contains the value 0.

ulParam1 Contains hObjAcc, an HOBJACC object access handle. The value in this field identifies the current instance of the accessed object.

ulParam2 The function does not use this field.

ulRC Contains one of the following return codes:
- **SIM_RC_OK**
- **SIM_RC_COMMUNICATIONS_ERROR**
- **SIM_RC_COMPLETION_ERROR**
- **SIM_RC_INUSE**
- **SIM_RC_INVALID_ACCESS_CODE**
- **SIM_RC_INVALID_HSESSION**
- **SIM_RC_INVALID_OBJECT_HANDLE**
- **SIM_RC_INVALID_POINTER**
- **SIM_RC_INVALID_PRC**
- **SIM_RC_OBJECT_CHECKEDOUT**
- **SIM_RC_OPEN_FAILED**
- **SIM_RC_OUT_OF_MEMORY**
- **SIM_RC_PRIVILEGE_ERROR**
- **SIM_RC_OBJECT_BEINGPROMOTED**
Guidelines for Use

Effects:
- If the function returns the object access handle, this handle identifies the current instance of access to the open object. This handle is different from the handle normally used to reference the stored object. Use the object access handle (hObjAcc), not the object handle (hObj), with the following functions:
  - SimLibCloseObject
  - SimLibReadObject
  - SimLibResizeObject
  - SimLibSeekObject
  - SimLibWriteObject
- If you try to open an object for write access and another user has the item locked, the function returns SIM_RC_OBJECT_CHECKEDOUT but does not return the ID of the user who locked the item. You can use the SimLibGetItemInfo function to get the user ID.

Example

SimLibLogon...

```c
#include <stdio.h> /* Standard I/O header files */
#include <string.h> /* Standard string header file */
#include "ekdviapi.h" /* Content Manager for iSeries */

main()
{
    HSESSION hSession ;   // from logon
    HOBJ hObj;
    UCHAR ulAccessLevel = SIM_ACCESS_SHARED_READ;
    UCHAR ulPriority = 0;  // not supported
    BOOL fConflict = 0;    // not supported
    BOOL fOpenControl = 0; // Not supported
    RCSTRUCT RC;
    PRCSTRUCT pRC = &RC;
    OBJ pObj;             // Created object handle
    USHORT sResult;       // get rc back
    HOBJACC hObjAcc;      // object access handle

    // create hobj
    if(0==( pObj=(OBJ) malloc(sizeof(OBJ)))) {
        return(1);
    }
    pObj->ulStruct = sizeof(OBJ);
    strcpy(( pObj)->szItemID,"DA97220AA.AAA");
    strcpy(( pObj)->chRepType,"");  // take default
    pObj->ulPart = 1;
    hObj = pObj;
    //Call the function*

    sResult = SimLibOpenObject(
        hSession, hObj, ulAccessLevel, ulPriority, fConflict,
        fOpenControl, 0, // synch
        pRC);

    if (pRC->ulRC == SUCCESS) {
        // ulParam1 is HOBACC when call is successful.
```
SimLibOpenObject

hObjAcc = pRC->ulParam1;
// Mem containing the HOBJACC struct is freed by SimLibCloseObject.
}
}

Related Functions
• SimLibCloseObject
• SimLibReadObject
• SimLibResizeObject
• SimLibSeekObject
• SimLibWriteObject

SimLibOpenObjectByUniqueName (Open an Object By its Unique Name)

Format
SimLibOpenObjectByUniqueName( hSession, pszUniqueName, ulAccessLevel, ulPriority, fConflict, fOpenControl, pAsyncCtl, pRC )

Purpose
Use the SimLibOpenObjectByUniqueName function to display a form overlay that was created using IBM ImagePlus Workfolder Application Facility for AS/400.

Parameters

hSession  HSESSION — input
The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

pszUniqueName  PSZ — input
The unique name of the item containing the object that you want to access.

ulAccessLevel  ULONG — input
The object access mode. The value of this parameter indicates the access mode for opening the object.

The Content Manager for iSeries system uses this access state to accept or reject concurrent requests to access an open object. The valid values are:

SIM_ACCESS_READ_WRITE
Opens the object for read access and write access, at the first byte of the object.

SIM_ACCESS_SHARED_READ
Opens the object for read access only, at the first byte of the object.

ulPriority  ULONG — input
Not supported.

fConflict  BOOL — input
Not supported.

fOpenControl  BITS — input
Not supported.

\( pAsyncCtl \)  
PASYNCCTLSTRUCT — input
Not supported.

\( pRC \)  
PRCSTRUCT — input/output
The pointer to the return data structure. For more information on the RSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

**Return Values**
On successful completion, this function returns values to the following fields in an RSTRUCT data structure:

- **\( usParam \)**: Contains the value 0.
- **\( ulParam1 \)**: Contains \( hObjAcc \), an HOBJACC object access handle. The value in this field identifies the current instance of the accessed object.
- **\( ulParam2 \)**: The function does not use this field.
- **\( ulRC \)**: Contains one of the following return codes:
  - SIM\_RC\_OK
  - SIM\_RC\_COMMUNICATIONS\_ERROR
  - SIM\_RC\_COMPLETION\_ERROR
  - SIM\_RC\_INUSE
  - SIM\_RC\_INVALID\_ACCESS\_CODE
  - SIM\_RC\_INVALID\_HSESSION
  - SIM\_RC\_INVALID\_OBJECT\_HANDLE
  - SIM\_RC\_INVALID\_POINTER
  - SIM\_RC\_INVALID\_PRC
  - SIM\_RC\_OBJECT\_CHECKEDOUT
  - SIM\_RC\_OPEN\_FAILED
  - SIM\_RC\_OUT\_OF\_MEMORY
  - SIM\_RC\_PRIVILEGE\_ERROR

**Guidelines for Use**

**Effects:**
- If the function returns the object access handle, this handle identifies the current instance of access to the open object. This handle is different from the handle normally used to reference the stored object. Use the object access handle (\( hObjAcc \)), with the following functions:
  - SimLibCloseObject
  - SimLibReadObject
  - SimLibResizeObject
  - SimLibSeekObject
  - SimLibWriteObject
- If you try to open an object for write access and another user has the item locked, the function returns SIM\_RC\_OBJECT\_CHECKEDOUT but does not return the ID of the user who locked the item. You can use the SimLibGetItemInfo function to get the user ID.

**Related Functions**
- SimLibCloseObject
- SimLibReadObject
- SimLibResizeObject
- SimLibSeekObject
SimLibQueryObject (Query an Object)

Format

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SimLibQueryObject</td>
<td>Get information associated with the object you specify, such as its size and its content class and collection name.</td>
</tr>
</tbody>
</table>

Purpose

Use the `SimLibQueryObject` function to get the information associated with the object that you specify, such as its size and its content class and collection name. This function allocates a buffer for an object information structure and then fills this structure with all the information associated with the object. You do not need to open the object to query it.

Parameters

- **hSession**
  - **Type**: HSESSION — input
  - The handle to the Content Manager for iSeries session information. The `SimLibLogon` function creates the session information.

- **hObj**
  - **Type**: HOBJ — input
  - The pointer to an object handle block in the HOBJ data structure. This handle specifies the object that you want to query. For more information on the HOBJ structure, see "HOBJ (Handle to Query Stored Object)” on page 143.

- **pAsyncCtl**
  - **Type**: PASYNCCTLSTRUCT — input
  - Not supported.

- **pRC**
  - **Type**: PRCSTRUCT — input/output
  - The pointer to the return data structure. For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

Return Values

On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

- **usParam**
  - Contains the value 1, to indicate that ulParam1 contains a pointer.

- **ulParam1**
  - Contains a pointer to a buffer where an OBJINFOSTRUCT data structure contains all the information associated with the object. For more information on this data structure, see “OBJINFOSTRUCT (Object Information Structure)” on page 149.

- **ulParam2**
  - The function does not use this field.

- **ulRC**
  - Contains one of the following return codes:
    - SIM_RC_OK
    - SIM_RC_ASYNC_STARTED
    - SIM_RC_COMMUNICATIONS_ERROR
    - SIM_RC_COMPLETION_ERROR
    - SIM_RC_INVALID_HSESSION
    - SIM_RC_INVALID_ITEM_OR_FOLDER_VALUE
    - SIM_RC_INVALID_OBJECT_HANDLE
    - SIM_RC_INVALID_POINTER
SimLibQueryObject

- SIM_RC_INVALID_PRC
- SIM_RC_OUT_OF_MEMORY
- SIM_RC_PART_NOT_FOUND
- SIM_RC_PRIVILEGE_ERROR

**Guidelines for Use**

**Effects:** This function returns the data in the OBJINFOSTRUCT.

**Follow-Up Tasks:** After the function gets the object information, use the SimLibFree( hSession, (PVOID)ulParam1, pRC ) function to free the buffer.

**SimLibReadAttr (Read an Attribute)**

**Format**

<table>
<thead>
<tr>
<th>SimLibReadAttr( hSession, hItem, usAttributeId, pAsyncCtl, pRC )</th>
</tr>
</thead>
</table>

**Purpose**

Use the SimLibReadAttr function to return the value of a specific attribute of the open folder or document you specify.

**Parameters**

- **hSession**
  - HSESSION — input
  - The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

- **hItem**
  - HITEM — input
  - The handle to a virtual item, the open folder or document for which you want to read an attribute. The SimLibOpenItemAttr function returns this handle. This item can currently be open in either read or write access mode.

- **usAttributeId**
  - USHORT — input
  - The unique identifier assigned to an attribute.

- **pAsyncCtl**
  - PASYNCTLSTRUCT — input
  - Not supported.

- **pRC**
  - PRCSTRUCT — input/output
  - The pointer to the return data structure. For more information on the RCSTRUCT structure, see "RCSTRUCT (Return Code Information Structure)" on page 151.

**Return Values**

On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

- **usParam**
  - Contains the value 1, to indicate that ulParam1 contains a pointer. If an error occurs, this field contains the value 0.

- **ulParam1**
  - Contains a pointer to a buffer in which a null-terminated string is a character representation of the attribute value. If the attribute value is undefined, the value is NULL.

- **ulParam2**
  - The function does not use this field.
SimLibReadAttr

\( ulRC \) Contains one of the following return codes:
- SIM_RC_OK
- SIM_RC_COMPLETION_ERROR
- SIM_RC_INVALID_HITEM_VALUE
- SIM_RC_INVALID_HSESSION
- SIM_RC_INVALID_POINTER
- SIM_RC_INVALID_PRC
- SIM_RC_INVALID_USATTRIBUTEID_VALUE
- SIM_RC_OUT_OF_MEMORY

Guidelines for Use

Exceptions:
- Attributes are always returned as a NULL-terminated string.
- Your application might need to use a conversion routine such as an ASCII-to-integer routine to change the character representation of the value into the correct form for the application.
- Use the SimLibGetAttrInfo function to get the data types and lengths of attributes. Use the SimLibGetItemInfo function and the SimLibGetClassInfo function to get the class attributes.

Follow-Up Tasks: When you no longer need the attribute string, use the SimLibFree( hSession, (PVOID)ulParam1, pRC ) function to free the buffer.

Related Functions
- SimLibGetClassInfo
- SimLibGetAttrInfo
- SimLibGetItemInfo
- SimLibOpenItemAttr

SimLibReadObject (Read an Object)

| Format | SimLibReadObject( hSession, hObjAcc, pBuffer, ulBytesToRead, pAsyncCtl, pRC ) |

Purpose
Use the SimLibReadObject function to transfer the number of bytes you specify from an object into the data buffer of your application. This function lets you manipulate an object as a file. The function begins reading the object at the byte that the object pointer is currently referencing.

Parameters
- \( hSession \) HSESSION — input
  - The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.
- \( hObjAcc \) HOBJACC — input
  - The object access handle to the open object that you want to read into the data buffer of your application. The value of this parameter identifies the current instance of the accessed object.
- \( pBuffer \) PHBUF — input
The data buffer pointer. The value of this parameter represents a pointer to the first byte of the buffer returning the read object data.

**ulBytesToRead**  ULONG — input

The number of bytes to read. The value of this parameter specifies the maximum number of bytes to read from the object during the transfer operation.

**pAsyncCtl**  PASYNCTLSTRUCT — input

Not supported.

**pRC**  PRCSTRUCT — input/output

The pointer to the return data structure. For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

**Return Values**

On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

**usParam**  Contains the value 1, to indicate that ulParam1 contains a pointer.

**ulParam1**  Contains a pointer to the byte immediately after the last byte written to the buffer. Normally, this is the address of the buffer plus the number of bytes read.

**ulParam2**  Contains the actual number of bytes read.

**ulRC**  Contains one of the following return codes:

- SIM_RC_OK
- SIM_RC_COMPLETION_ERROR
- SIM_RC_INVALID_BUFFER_PTR
- SIM_RC_INVALID_HSESSION
- SIM_RC_INVALID_OBJECT_ACCESS_HANDLE
- SIM_RC_INVALID_POINTER
- SIM_RC_INVALID_PRC
- SIM_RC_OUT_OF_MEMORY
- SIM_RC_READ_PAST_EOF

**Guidelines for Use**

**Preparation:** Before you can read the object, you must open it and obtain an object access handle.

**Effects:** After successful completion of the function, the object pointer references the byte immediately following the data that was read.

**Exceptions:** If the number of bytes that you specify to be read is more than the number of bytes in the object, the function transfers fewer bytes than you specify.

**Related Functions**

- SimLibCloseObject
- SimLibOpenObject
- SimLibSeekObject
SimLibRemoveFolderItem (Remove an Item from a Folder)

Format

\[
\text{SimLibRemoveFolderItem}( \text{hSession}, \text{pszFolderID}, \text{pszItemID}, \text{pAsyncCtl}, \text{pRC} )
\]

Purpose

Use the SimLibRemoveFolderItem function to remove a document or a folder item from a folder. This function removes the reference to the item from the table of contents of the specified folder. You need not open the folder to use the function, but the folder must not be locked by another user.

Parameters

\[
\begin{align*}
\text{hSession} & \quad \text{HSESSION} — \text{input} \\
& \quad \text{The handle to the Content Manager for iSeries session information.} \\
& \quad \text{The SimLibLogon function creates the session information.} \\
\text{pszFolderID} & \quad \text{PITEMID} — \text{input} \\
& \quad \text{The identifier of a folder from which you want to remove an item.} \\
& \quad \text{This identifier is the item ID of the folder.} \\
\text{pszItemID} & \quad \text{PITEMID} — \text{input} \\
& \quad \text{The identifier of an item to remove from the folder.} \\
& \quad \text{This identifier is the item ID of a document or a folder item.} \\
\text{pAsyncCtl} & \quad \text{PASYNCCTLSTRUCT} — \text{input} \\
& \quad \text{Not supported.} \\
\text{pRC} & \quad \text{PRCSTRUCT} — \text{input/output} \\
& \quad \text{The pointer to the return data structure.} \\
& \quad \text{For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.}
\end{align*}
\]

Return Values

On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

\[
\begin{align*}
\text{usParam} & \quad \text{If the return code is SIM_RC_PARENT_CHECKEDOUT, this field} \\
& \quad \text{contains the value 1 to indicate that ulParam1 contains a pointer.} \\
\text{ulParam1} & \quad \text{Contains the value NULL.} \\
& \quad \text{If the return code is} \\
& \quad \text{SIM_RC_PARENT_CHECKEDOUT, this field contains a pointer to} \\
& \quad \text{a USERACCESSSTRUCT data structure.} \\
& \quad \text{The structure contains the user ID of the user who has locked the folder.} \\
\text{ulParam2} & \quad \text{The function does not use this field.} \\
\text{ulRC} & \quad \text{Contains one of the following return codes:} \\
& \quad \text{• SIM_RC_OK} \\
& \quad \text{• SIM_RC_COMMUNICATIONS_ERROR} \\
& \quad \text{• SIM_RC_COMPLETION_ERROR} \\
& \quad \text{• SIM_RC_INVALID_HSESSION} \\
& \quad \text{• SIM_RC_INVALID_ITEM_OR_FOLDER_VALUE} \\
& \quad \text{• SIM_RC_INVALID_PITEMIDFOLDER_PTR} \\
& \quad \text{• SIM_RC_INVALID_PITEMIDFOLDER_VALUE} \\
& \quad \text{• SIM_RC_INVALID_PITEMIDITEM_PTR}
\end{align*}
\]
SimLibRemoveFolderItem

- SIM_RC_INVALID_PITEMIDITEM_VALUE
- SIM_RC_INVALID_POINTER
- SIM_RC_INVALID_PRC
- SIM_RC_OUT_OF_MEMORY
- SIM_RC_PARENT_CHECKEDOUT
- SIM_RC_PRIVILEGE_ERROR

Guidelines for Use

Effects:
- If the folder is locked by another user, you cannot remove an item from it. Instead, the function returns the user ID of the user who has locked the folder.
- If you have locked the folder, you can remove items from it.

Exceptions:
- This function does not automatically update a temporary copy of the table of contents for a folder. Your application must use either the Ip2GetTOCUpdates function or the SimLibGetTOC function to update the table of contents of this folder.
- You can remove an item that you or someone else has locked. Only the status of the parent folder is examined.

Follow-Up Tasks: After your application no longer needs the user access information, use the SimLibFree( hSession, (VOID)ulParam1, pRC ) function to free the buffer containing the USERACCESSSTRUCT data structure.

Related Functions
- Ip2GetTOCUpdates
- SimLibAddFolderItem
- SimLibDeleteItem
- SimLibFree
- SimLibGetTOC

SimLibResizeObject (Resize an Object)

<table>
<thead>
<tr>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>SimLibResizeObject( hSession, hObjAcc, ulSize, pAsyncCtl, pRC )</td>
</tr>
</tbody>
</table>

Purpose
Use the SimLibResizeObject function to change the size, in bytes, of an object to a new size that you specify.

Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>hSession</td>
<td>HSESSION — input</td>
</tr>
<tr>
<td></td>
<td>The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.</td>
</tr>
<tr>
<td>hObjAcc</td>
<td>HOBJACC — input</td>
</tr>
<tr>
<td></td>
<td>The object access handle to the object that you want to resize. The value of this parameter identifies the current instance of the accessed object.</td>
</tr>
<tr>
<td>ulSize</td>
<td>ULONG — input</td>
</tr>
</tbody>
</table>
SimLibResizeObject

The new object size. To truncate the object file beginning at the current position of the object pointer, and including that byte, specify the value 0. To truncate the file to a specific byte size, specify that byte size.

`pAsyncCtl` PASYNCCTLSTRUCT — input
Not supported.

`pRC` PRCSTRUCT — input/output
The pointer to the return data structure. For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

Return Values
On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

- `usParam`: The function does not use this field.
- `ulParam1`: The function does not use this field.
- `ulParam2`: The function does not use this field.
- `ulRC`: Contains one of the following return codes:
  - SIM_RC_OK
  - SIM_RC_COMPLETION_ERROR
  - SIM_RC_INVALID_HSESSION
  - SIM_RC_INVALID_OBJECT_ACCESS_HANDLE
  - SIM_RC_INVALID_POINTER
  - SIM_RC_INVALID_PRC
  - SIM_RC_NO_WRITE_ACCESS
  - SIM_RC_OUT_OF_MEMORY
  - SIM_RC_RESIZE_FAILED
  - SIM_RCSEEK_ERROR

Guidelines for Use

Preparation: Before you use this function to resize an object, the object must be open for SIM_ACCESS_READ_WRITE access.

Effects:
- The object file pointer is set to the end of the object at the completion of this function.
- Use this function when you want to replace an object with one that is smaller than the original. Use `SimLibWriteObject` and then `SimLibResizeObject` to truncate at the end of the new data.

Exceptions: To increase the size of an object, you should use the `SimLibWriteObject` function to append data to the object and increase its size at the same time.

Related Functions
- `SimLibWriteObject`
SimLibSaveAttr (Save an Attribute)

Format

\[
\text{SimLibSaveAttr}( \ hSession, \ hItem, \ pAsyncCtl, \ pRC )
\]

Purpose

Use the SimLibSaveAttr function to save the attributes of a virtual item permanently. This function saves work that is in process on a virtual item without closing the item or releasing access rights.

Parameters

- **hSession**: HSESSION — input
  
  The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

- **hItem**: HITEM — input
  
  The handle to a virtual item. The SimLibOpenItemAttr function returns this handle.

- **pAsyncCtl**: PASYNCCCTLSTRUCT — input
  
  Not supported.

- **pRC**: PRCSTRUCT — input/output
  
  The pointer to the return data structure. For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

Return Values

On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

- **usParam**: The function does not use this field.

- **ulParam1**: The function does not use this field.

- **ulParam2**: The function does not use this field.

- **ulRC**: Contains one of the following return codes:
  
  - SIM_RC_OK
  - SIM_RC_ATTRIBUTES_NOT_MODIFIED
  - SIM_RC_COMMUNICATIONS_ERROR
  - SIM_RC_COMPLETION_ERROR
  - SIM_RC_INVALID_HITEM_VALUE
  - SIM_RC_INVALID_HSESSION
  - SIM_RC_INVALID_ITEM_OR_FOLDER_VALUE
  - SIM_RC_INVALID_PASSED_ATTR_DATA
  - SIM_RC_INVALID_POINTER
  - SIM_RC_INVALID_PRC
  - SIM_RC_INVALID_USCLASSID_VALUE
  - SIM_RC_NO_WRITE_ACCESS
  - SIM_RC_OUT_OF_MEMORY
  - SIM_RC_PRIVILEGE_ERROR
  - SIM_RC_REQUIRED_ATTRIBUTE_MISSING
Guidelines for Use

Effects:
- If a virtual item is open for write access and modified, this function copies the attributes of the virtual item over the attributes in the database.
- If the index class is changed, this function saves a new set of user-defined attributes in the new index class and deletes the old attributes.

Related Functions
- SimLibOpenItemAttr

SimLibSearch (Search)

Format

```
SimLibSearch( hSession, pszItemFilter, pLinkCriteria, usStatDyn, usTypeFilter,
              fWipFilter, usSuspendFilter, usIndexClass, usNumCriteria, pCriteria,
              ulMemListRequest, pAsyncCtl, pRC )
```

Purpose
Use the SimLibSearch function to locate items in the database that match the user-defined attribute values you specify.

This function returns items that match the search criteria to the user. If you specify an index class, you can search on values of user-defined attributes within the index class. If you do not specify an index class, this function searches only index classes that contain all specified user-defined attributes. For example, in a request to search all index classes for “account number” equal to 12345, the search is limited to those index classes that include “account number” as a user-defined attribute. You can specify multiple combinations of index classes and attributes.

Parameters

- **hSession**  
  HSESSION — input
  The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

- **pszItemFilter**  
  PITEMID — input
  Not supported.

- **pLinkCriteria**  
  PVOID — input
  Not supported.

- **usStatDyn**  
  USHORT — input
  Not supported.

- **usTypeFilter**  
  USHORT — input
  The type of items to search for. The valid values are:

  **SIM_DOCUMENT**
  Searches for documents.

  **SIM_FOLDER**
  Searches for folders.

  **SIM_FOLDER_DOC**
  Searches for both folders and documents.
**fWipFilter**  
BITS — input  
Not supported.

**usSuspendFilter**  
USHORT — input  
Not supported.

**usIndexClass**  
USHORT — input  
Not supported.

**usNumCriteria**  
USHORT — input  
The number of fields in the pCriteria array.

**pCriteria**  
PLIBSEARCHCRITERIASTRUCT — input  
The pointer to an array specifying the search criteria for each view you want to search. pCriteria must point to an array of at least one field. For more information on the LIBSEARCHCRITERIASTRUCT structure, see “LIBSEARCHCRITERIASTRUCT (Search Criteria Information Structure)” on page 147.

**ulMemListRequest**  
BOOL — input  
This parameter controls how the search results are returned or which attribute values are returned. The valid values are:

**SIM_SEARCH_MEMLIST**  
Returns the search results in a memory buffer.

**SIM_SEARCH_MEMLIST_ONE**  
Not supported.

**SIM_SEARCH_USER_ATTR**  
Returns the item IDs and user attributes for the item in a memory buffer.

**SIM_SEARCH_USER_SYSTEM_ATTR**  
Returns the item IDs, user attributes, and system attributes in a memory buffer.

**pAsyncCtl**  
PASYNCCTLSTRUCT — input  
Not supported.

**pRC**  
PRCSTRUCT — input/output  
The pointer to the return data structure. For more information on the RSTRUCT data structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

**Return Values**

On successful completion, this function returns values to the following fields in an RSTRUCT data structure:

**usParam**  
Contains the value 1, to indicate that ulParam1 contains a pointer to a buffer. If nothing matches the input search criteria, this field contains the value 0.

**ulParam1**  
If you set the ulMemListRequest parameter to

---

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SIM SEARCH_MEMLIST, this field contains a PITEMID pointer to a buffer. In the buffer, an array provides document and folder item IDs that match the search criteria.

If you set the ulMemListRequest parameter to SIM_SEARCH_USER_ATTR or SIM_SEARCH_USER_SYSTEM_ATTR, this field contains a pointer to an array of SNAPSHOTSTRUCTs containing the attribute data for items that meet the search criteria.

ulParam2
Contains the number of items that match the criteria (the number of fields in the array referenced by ulParam1. The values in the ulReturnLimit field of the LIBSEARCHCRITERIASTRUCT structures limit this number.

If nothing matches the search criteria, this field contains the value 0.

ulRC
Contains one of the following return codes:

- SIM_RC_OK
- SIM_RC_ATTR_NOT_IN_VIEW
- SIM_RC_COMMUNICATIONS_ERROR
- SIM_RC_COMPLETION_ERROR
- SIM_RC_INVALID_FSEARCH
- SIM_RC_INVALID_HSESSION
- SIM_RC_INVALID_INDEX_CLASS
- SIM_RC_INVALID_ITEM_OR_FOLDER_VALUE
- SIM_RC_INVALID_PATTRIBUTELIST_VALUE
- SIM_RC_INVALID_PITEMIDFOLDER_VALUE
- SIM_RC_INVALID_POINTER
- SIM_RC_INVALID_PRC
- SIM_RC_INVALID_SEARCH_STRING
- SIM_RC_INVALID_USATTRIBUTEID_VALUE
- SIM_RC_INVALID_USITEMTYPE_VALUE
- SIM_RC_INVALID_VIEWID
- SIM_RC_NO_SEARCH_CRITERIA
- SIM_RC_NO_SEARCH_VIEWS
- SIM_RC_OUT_OF_MEMORY
- SIM_RC_PRIVILEGE_ERROR

**Guidelines for Use**

**Effects:**

- If nothing matches the input search criteria, the function returns a successful return code and the usParam, ulParam1, and ulParam2 fields all contain the value NULL.
- Specifying very explicit search criteria can narrow the number of items returned by the search. Alternatively, specifying very general search criteria might degrade the performance of the search.
- If you specify an all index class search, the function automatically searches only index classes that contain those attributes specified in the expression.

**Follow-Up Tasks:** If you set the ulMemListRequest parameter to SIM_SEARCH_MEMLIST, after the function gets the search results information, use SimLibFree( hSession, (PVOID)ulParam1, pRC ) to free the buffer.
SimLibSeekObject (Seek an Object)

Format

\begin{verbatim}
SimLibSeekObject( hSession, hObjAcc, ulOrigin, lOffset, pAsyncCtl, pRC )
\end{verbatim}

Purpose
Use the `SimLibSeekObject` function to adjust the object pointer to reference a new position that you define. The next data transfer operation for the object begins at this new position. Use this function to position the pointer before you change an object. This function lets you manipulate an object as a file.

Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>hSession</code></td>
<td>HSESSION — input</td>
</tr>
<tr>
<td></td>
<td>The handle to the Content Manager for iSeries session information. The <code>SimLibLogon</code> function creates the session information.</td>
</tr>
<tr>
<td><code>hObjAcc</code></td>
<td>HOBJACC — input</td>
</tr>
<tr>
<td></td>
<td>The object access handle to the object in which you want to adjust the object pointer. The value of this parameter identifies the current instance of the accessed object. The <code>SimLibOpenObject</code> function returns this handle.</td>
</tr>
<tr>
<td><code>ulOrigin</code></td>
<td>ULONG — input</td>
</tr>
<tr>
<td></td>
<td>The pointer origin index. The value of this parameter indicates the initial position of the object pointer. The valid values are:</td>
</tr>
<tr>
<td></td>
<td><code>SIM_POS_BEGIN</code> Indicates the beginning of the object.</td>
</tr>
<tr>
<td></td>
<td><code>SIM_POS_CURRENT</code> Indicates the current pointer position.</td>
</tr>
<tr>
<td></td>
<td><code>SIM_POS_END</code> Indicates the byte following the end of the object.</td>
</tr>
<tr>
<td><code>lOffset</code></td>
<td>LONG — input</td>
</tr>
<tr>
<td></td>
<td>The byte offset from the origin. The value of this parameter specifies the position in the object for the adjusted object pointer to reference. Specify the value in relation to the position you specify as the value of the <code>ulOrigin</code> parameter. This value can be either a negative or a positive byte count.</td>
</tr>
<tr>
<td><code>pAsyncCtl</code></td>
<td>PASYNCCTLSTRUCT — input</td>
</tr>
<tr>
<td></td>
<td>Not supported.</td>
</tr>
<tr>
<td><code>pRC</code></td>
<td>PRCSTRUCT — input/output</td>
</tr>
<tr>
<td></td>
<td>The pointer to the return data structure. For more information on the <code>RCSTRUCT</code> structure, see &quot;RCSTRUCT (Return Code Information Structure)&quot; on page 151.</td>
</tr>
</tbody>
</table>

Return Values
On successful completion, this function returns values to the following fields in an `RCSTRUCT` data structure:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>usParam</code></td>
<td>Contains the value 0.</td>
</tr>
</tbody>
</table>
SimLibSeekObject

ulParam1  Contains ulOffset, the current offset, which has the data type ULONG. This value indicates the offset, in bytes, from the beginning of the object. If the current position is at the beginning of the object, this value is 0.

ulParam2  The function does not use this field.

ulRC  Contains one of the following return codes:
   • SIM_RC_OK
   • SIM_RC_COMPLETION_ERROR
   • SIM_RC_INVALID_HSESSION
   • SIM_RC_INVALID_OBJECT_ACCESS_HANDLE
   • SIM_RC_INVALID_POINTER
   • SIM_RC_INVALID_PRC
   • SIM_RC_INVALID_SEEK_OFFSET
   • SIM_RC_INVALID_SEEK_ORIGIN
   • SIM_RC_OUT_OF_MEMORY
   • SIM_RC_RESIZE_FAILED
   • SIM_RC_SEEK_ERROR

Guidelines for Use

Preparation:  You must have opened the object and obtained an hObjAcc by calling SimLibOpenObject before you can call the SimLibSeekObject function.

Effects:  You can adjust the object pointer to reference a position beyond the end of the object. However, any attempt to reference a position before the beginning of the object returns error code SIM_RC_INVALID_SEEK_OFFSET.

Related Functions
   • SimLibOpenObject

SimLibStageObject (Stage an Object)

Format
SimLibStageObject( hSession, hObj, ulPriority, fStageControl, pAsyncCtl, pRC )

Purpose
Use the SimLibStageObject function to retrieve an object from secondary storage to iSeries DASD.

Parameters

hSession  HSESSION — input
   The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

hObj  HOBJ — input
   The pointer to an object handle block in the HOBJ data structure. For more information on the HOBJ structure, see “HOBJ (Handle to Query Stored Object)” on page 143.

ulPriority  ULONG — input
   The priority value, which specifies the servicing priority for the object. The valid values are:
SIM_PRI_IMMEDIATE
   Attempt to interactively retrieve the object.

SIM_PRI_BACKGROUND
   Generate a retrieve request for the object.

$fStageContro$ BITS — input
   Control option bits for staging the object. The valid value is:
   SIM_PREFETCH
   To prefetch to object server.

$pAsyncCtl$ PASYNCCTLSTRUCT — input
   Not supported.

$pRC$ PRCSTRUCT — input/output
   The pointer to the return data structure. For more information on
   the PRCSTRUCT structure, see "RCSTRUCT (Return Code
   Information Structure)" on page 151.

Return Values
On successful completion, this function returns values to the following fields in an
RCSTRUCT data structure:

$usParam$ The function does not use this field.

$ulParam1$ The function does not use this field.

$ulParam2$ The function does not use this field.

$ulRC$ Contains one of the following return codes:
   • SIM_RC_OK
   • SIM_RC_COMPLETION_ERROR
   • SIM_RC_INVALID_FOPTIONS
   • SIM_RC_INVALID_HSESSION
   • SIM_RC_INVALID_HSYNC
   • SIM_RC_INVALID_OBJECT_HANDLE
   • SIM_RC_INVALID_PRC
   • SIM_RC_OUT_OF_MEMORY

Guidelines for Use

Preparation: If you are using this API to generate retrieve requests, the optical
retrieve processor must be started and running to actually retrieve the object.

Effects: On successful completion of the function, either a retrieve request will be
generated for the object or the object will be interactively retrieved.

Related Functions
   • SimLibLogon

SimLibStoreNewObject (Store a New Object in an Existing Item)

Format
   SimLibStoreNewObject( hSession, hObj, ulConCls, pSMS, pObjBuffer, ulObjSize,
                        lSeqAfterPart, ulAffiliatedType, pAffiliatedData, pAsyncCtl, pRC )
SimLibStoreNewObject

Purpose
Use the SimLibStoreNewObject function to add a new object to an existing item. This is a streamlined version of the SimLibCatalogObject function with fewer options and data checks.

Parameters

\textbf{hSession} \quad \textbf{HSESSION} — input

The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

\textbf{hObj} \quad \textbf{HOBJ} — input

The pointer to an object handle block. For more information on the HOBJ structure, see “HOBJ (Handle to Query Stored Object)” on page 143.

\textbf{ulConCls} \quad \textbf{ULONG} — input

The content class identifier for the object (see Appendix B, “Predefined Content Classes,” on page 295). The value of this parameter tells what kind of data is in the new object.

To indicate the undefined content class, specify the value SIM_CC_UNKNOWN for this parameter. However, if you have created an undefined content class, other applications cannot use Content Manager for iSeries content class services to determine how to manipulate the contents of the objects you store.

\textbf{pSMS} \quad \textbf{PSMS} — input

Pointer to a system-managed storage (SMS) structure for an object. This structure uses only \texttt{szCollectionName}.

\textbf{pObjBuffer} \quad \textbf{PVOID} — input

The pointer to a memory buffer containing the object data.

\textbf{ulObjSize} \quad \textbf{ULONG} — input

The total size, in bytes, of the object.

\textbf{lSeqAfterPart} \quad \textbf{LONG} — input

Not supported.

\textbf{ulAffiliatedType} \quad \textbf{LONG} — input

The type of affiliated object to store. The defined values are:

\textbf{SIM_ANNOTATION}
Stores an annotation associated with a folder or a document.

\textbf{SIM_BASE}
Stores a base object such as a MO:DCA or TIFF file, that is not an annotation, note, or event associated with a folder or document.

\textbf{SIM_EVENT}
Stores an event associated with a folder or a document.

\textbf{SIM_MGDS}
Stores an MGDS (machine-generated data stream) associated with a folder or a document.
SIM_NOTE
Stores a note associated with a folder or a document.

\textit{pAffiliatedData} \textbf{PVOID} — input
The pointer to a data structure of the type ANNOTATIONSTRUCT. If the \textit{ulAffiliatedType} parameter contains the value SIM_ANNOTATION, \textit{pAffiliatedData} points to this structure, which contains additional data affiliated with the object. Otherwise, the Content Manager for iSeries system ignores this parameter. For more information on the ANNOTATIONSTRUCT structure, see "ANNOTATIONSTRUCT (Annotation Information Structure)" on page 134.

\textit{pAsyncCtl} \textbf{PASYNCCTLSTRUCT} — input
Not supported.

\textit{pRC} \textbf{PRCSTRUCT} — input/output
The pointer to the return data structure. For more information on the RSTRUCT structure, see "RCSTRUCT (Return Code Information Structure)" on page 151.

Return Values
On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

\textit{usParam} The function does not use this field.
\textit{ulParam1} The function does not use this field.
\textit{ulParam2} The function does not use this field.
\textit{ulRC} Contains one of the following return codes:
- SIM_RC_OK
- SIM_RC_COMMUNICATIONS_ERROR
- SIM_RC_COMPLETION_ERROR
- SIM_RC_INVALID_ANNOTATIONSTRUCT_PTR
- SIM_RC_INVALID_HSESSION
- SIM_RC_INVALID_POINTER
- SIM_RC_INVALID_PRC
- SIM_RC_INVALID_SMS_PTR
- SIM_RC_OUT_OF_MEMORY
- SIM_RC_PRIVILEGE_ERROR

Guidelines for Use

Preparation:
- To get the supported values for the \textit{ulConCls} parameter, use the \texttt{Ip2ListContentClasses} function.
- If 0 is specified for the part number, the next sequential part number is created. If part number is nonzero, that part number is used if it does not already exist. If it does exist, the first available number is returned. Part number 1 is typically a base part. This API lets you create part number 2 – for example, a note – before creating part number 1.

Exceptions: The Content Manager for iSeries system does not validate the content class parameter as a defined, known content class.
SimLibWriteAttr (Write an Attribute)

Format

```
SimLibWriteAttr( hSession, hItem, usAttributeId, pszAttributeValue, pAsyncCtl, pRC )
```

Purpose

Use the SimLibWriteAttr function to assign a value to an attribute associated with an open item. You can only modify a user-defined attribute.

Parameters

- **hSession**
  - HSESSION — input
  - The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

- **hItem**
  - HITEM — input
  - The handle to a virtual item. The SimLibOpenItemAttr function returns this handle.
  - To use the SimLibWriteAttr function, the item must currently be open in write access mode.

- **usAttributeId**
  - USHORT — input
  - The unique identifier assigned to an attribute.

- **pszAttributeValue**
  - PSZ — input
  - A null-terminated character string containing the value of an attribute. This string contains the value you assign to the attribute you specify in the usAttributeId parameter.

- **pAsyncCtl**
  - PASYNCCTLSTRUCT — input
  - Not supported.

- **pRC**
  - PRCSTRUCT — input/output
  - The pointer to the return data structure. For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

Return Values

On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

- **usParam**
  - The function does not use this field.

- **ulParam1**
  - The function does not use this field.

- **ulParam2**
  - The function does not use this field.

- **ulRC**
  - Contains one of the following return codes:
    - SIM_RC_OK
    - SIM_RC_ATTRIBUTE_READ_ONLY
\begin{itemize}
\item SIM_RC_COMPLETION_ERROR
\item SIM_RC_INVALID_HITEM_VALUE
\item SIM_RC_INVALID_HSESSION
\item SIM_RC_INVALID_PASSED_ATTRIBUTE_DATA
\item SIM_RC_INVALID_PATTRIBUTE_PTR
\item SIM_RC_INVALID_POINTER
\item SIM_RC_INVALID_PRC
\item SIM_RC_INVALID_USATTRIBUTEID_VALUE
\item SIM_RC_NO_WRITE_ACCESS
\item SIM_RC_OUT_OF_MEMORY
\end{itemize}

**Guidelines for Use**

**Preparation:** Use a conversion routine such as an integer-to-ASCII routine to change numeric data into a character string for this function.

**Effects:**
\begin{itemize}
\item This function copies the value of the pszAttributeValue parameter into the virtual item.
\item The item must be open for write access or the function returns an error, SIM_RC_NO_WRITE_ACCESS.
\item If the function fails, the Content Manager for iSeries system maintains the current attribute value.
\end{itemize}

**Exceptions:**
\begin{itemize}
\item The SimLibWriteAttr function validates only SIM_ATTR_FSTRING data types. It validates these data types by comparing maximum lengths of the attribute data with the Content Manager for iSeries-defined string. The SimLibCloseAttr and the SimLibSaveAttr functions validate the attribute contents by comparing the data with the data types configured through the SimLibWriteAttr function.
\item The SimLibWriteAttr function changes only the virtual copy in memory. It does not update the permanent database copy of the attribute. Use the SimLibSaveAttr or the SimLibCloseAttr function to make the modifications permanent.
\end{itemize}

**Related Functions**
\begin{itemize}
\item SimLibCloseAttr
\item SimLibGetAttrInfo
\item SimLibGetClassInfo
\item SimLibOpenItemAttr
\item SimLibSaveAttr
\end{itemize}

**SimLibWriteObject (Write an Object)**

\begin{verbatim}
SimLibWriteObject( hSession, hObjAcc, pBuffer, ulBytesToWrite, pAsyncCtl, pRC )
\end{verbatim}

**Purpose**
Use the SimLibWriteObject function to transfer the number of bytes you specify from the data buffer of your application to an open object. The write operation begins at the byte referenced by the current object pointer.
Parameters

\textbf{hSession} \quad \text{HSESSION} — \text{input}

The handle to the Content Manager for iSeries session information. The \textbf{SimLibLogon} function creates the session information.

\textbf{hObjAcc} \quad \text{HOBJACC} — \text{input}

The object access handle to the object that you want to write to. The value of this parameter identifies the current instance of the accessed object.

\textbf{pBuffer} \quad \text{PHBUF} — \text{input}

The data buffer pointer. The value of this parameter represents a pointer to the first byte of the data to be written to the object.

\textbf{ulBytesToWrite} \quad \text{ULONG} — \text{input}

The number of bytes to write to the object. The value of this parameter specifies the maximum number of bytes to write to the object during the transfer operation.

\textbf{pAsyncCtl} \quad \text{PASYNCCTLSTRUCT} — \text{input}

Not supported.

\textbf{pRC} \quad \text{PRCSTRUCT} — \text{input/output}

The pointer to the return data structure. For more information on the RSTRUCT structure, see \textit{“RSTRUCT (Return Code Information Structure)”} on page 151.

Return Values

On successful completion, this function returns values to the following fields in an RSTRUCT data structure:

\textbf{usParam} \quad \text{Contains the value 0.}

\textbf{ulParam1} \quad \text{Contains the number of bytes actually written.}

\textbf{ulParam2} \quad \text{The function does not use this field.}

\textbf{ulRC} \quad \text{Contains one of the following return codes:}

- \text{SIM_RC_OK}
- \text{SIM_RC_COMPLETION_ERROR}
- \text{SIM_RC_INVALID_BUFFER_PTR}
- \text{SIM_RC_INVALID_HSESSION}
- \text{SIM_RC_INVALID_OBJECT_ACCESS_HANDLE}
- \text{SIM_RC_INVALID_POINTER}
- \text{SIM_RC_INVALID_PRC}
- \text{SIM_RC_NO_WRITE_ACCESS}
- \text{SIM_RC_OUT_OF_MEMORY}
- \text{SIM_RC_RESIZE_FAILED}

Guidelines for Use

\textbf{Preparation:}

- Before you can use this function, you must open the object with SIM\_ACCESS\_READ\_WRITE access using one of the following functions:
  - \textbf{SimLibOpenObject}
  - \textbf{SimLibCreateObject}
  - \textbf{SimLibCatalogObject}
• If you are replacing an object with one that is smaller than the original, first truncate the original object to the size of the replacement object using the SimLibResizeObject function. Then you can replace the object using the SimLibWriteObject function. If the replacement object is larger than the original, resizing first is not necessary.

**Effects:** On successful completion of the function, the object pointer references the byte immediately following the data that was written.

**Example**

```c
#include <stdio.h>   /* Standard I/O header files */
#include <string.h>  /* Standard string header file */
#include "ekdviapi.h"  /* Content Manager for iSeries */

main()
{
    HSESSION hSession;   // get from logon
    HOBJACC hObjAcc;     // get from catalog, open, or create
    RCSTRUCT RC;
    PRCSTRUCT pRC = &RC;
    USHORT sResult;      // return codes
    CHAR pBuffer[4096];  // buffer
    ULONG ulBytesToWrite = 2048;

    /* fill buffer */

    /*Call the function*/

    sResult = SimLibWriteObject(
        hSession, hObjAcc, pBuffer, ulBytesToWrite, pAsyncCtl, pRC);

    if ((pRC->ulRC == SIM_RC_OK) && (ulBytesToWrite != pRC->ulParam1))
        printf("not all the bytes got written");
}
```

**Related Functions**
- SimLibCatalogObject
- SimLibCreateObject
- SimLibOpenObject
- SimLibResizeObject
- SimLibWriteObject

**SimWmActivateWorkPackage (Activate a Work Package)**

**Format**

```c
SimWmActivateWorkPackage( hSession, ulWorkPackageID, ulInstanceID, pAsyncCtl, pRC )
```

**Purpose**

Use the SimWmActivateWorkPackage function to release a suspended work package.
SimWmActivateWorkPackage

Parameters

**hSession**
HSESSION — input

The handle to the Content Manager for iSeries session information. The **SimLibLogon** function creates the session information.

**ulWorkPackageID**
ULONG — input

Identifier of the work package that represents the work being done, such as the document being routed.

**ulInstanceID**
ULONG — input

Identifier of the work package instance that distinguishes one parallel path from another within the process.

**pAsyncCtl**
PASYNCCTLSTRUCT — input

Not supported.

**pRC**
PRCSTRUCT — input/output

The pointer to the return data structure. For more information on the **RCSTRUCT** structure, see **“RCSTRUCT (Return Code Information Structure)”** on page 151.

Return Values

On successful completion, this function returns values to the following fields in an **RCSTRUCT** data structure:

- **usParam**
The function does not use this field.

- **ulParam1**
The function does not use this field.

- **ulParam2**
The function does not use this field.

- **ulRC**
Contains one of the following return codes:
  - SIM_RC_OK
  - SIM_RC_COMPLETION_ERROR
  - SIM_RC_INVALID_HSESSION
  - SIM_RC_INVALID_PRC

Related Functions

- SimWmSuspendWorkPackage

SimWmBeginProcess (Start a Work Package on a Pre-defined Process)

**Format**

```c
SimWmBeginProcess( hSession, pszProcessID, pszRouteName, pszWorkPackageDesc, ulNumVariables, pVariableList, usPriority, pAsyncCtl, pRC )
```

**Purpose**

Use the **SimWmBeginProcess** function to create a work package containing the item and start the work package on a predefined process.

**Parameters**

**hSession**
HSESSION — input
SimWmBeginProcess

The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

pszProcessID  PSZ — input
The identifier of the process.

pszRouteName  PSZ — input
Pointer to the name of the initial route within the process. If the pointer is NULL, the default route within the specified process is used.

pszWorkPackageDesc  PSZ — input
The NULL-terminated character string that specifies the work package description. It can be used as a comment about the task or as information the application uses as a key to an application database for more details about the work.

ulNumVariables  ULONG — input
Number of entries in the variable array. Maximum number of entries that can be specified is two. This field is ignored if the array pVariableList pointer is NULL.

pVariableList  PWMVARSTRUCT — input
Pointer to an array of WMVARSTRUCT structures containing the variable identifiers and values for work management variables.

Valid variable names are:

**SIMWM_ITEMID**
- The valid value for SIMWM_ITEMID is the item ID of a document or folder.

**SIMWM_INDEX_CLASS**
- The valid value for SIMWM_INDEX_CLASS is an index class identifier.

usPriority  USHORT — input
Priority of the work to be performed. The priority affects the work sequencing of the work package. A larger number is a higher priority. Use a priority of zero to request the default priority.

pAsyncCtl  PASYNCCCTLSTRUCT — input
Not supported.

pRC  PRCSTRUCT — input/output
The pointer to the return data structure. For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

**Return Values**
On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

usParam  Always zero.

ulParam1  Contains the work package ID.
**SimWmBeginProcess**

`ulParam2` Contains the work package instance.

`ulRC` Contains one of the following return codes:
- SIM_RC_OK
- OIM_WB_FULL
- SIM_RC_COMMUNICATIONS_ERROR
- SIM_RC_COMPLETION_ERROR
- SIM_RC_INVALID_HSESSION
- SIM_RC_INVALID_INDEX_CLASS
- SIM_RC_INVALID_ITEM_OR_FOLDER_VALUE
- SIM_RC_INVALID_POINTER
- SIM_RC_INVALID_PRC
- SIM_RC_INVALID_PROCESS_NAME
- SIM_RC_OUT_OF_MEMORY
- SIM_RC_PRIVILEGE_ERROR

**Guidelines for Use**

**Preparation:** To associate a work package to an item in an index class, specify variables, SIMWM_INDEX_CLASS and SIMWM_ITEMID. The `pVariableList` parameter can be NULL to reflect a work package with no direct database references. If `pVariableList` is not specified, the calling application is responsible for associating the work package ID to the object.

If the route name is not specified, the work package is routed to the first route in the specified predefined process.

**Exceptions:** When you use `SimWmBeginProcess` to start a work package on a process, the workbasket overload limit is ignored, meaning that the work package is always added to the workbasket. A return code of OIM_WB_FULL is returned, however, to indicate that the work package was placed in a workbasket whose overload limit has been reached.

**SimWmChangeVariables (Change Variable Values for a Work Package)**

**Format**

```
SimWmChangeVariables( hSession, ulWorkPackageID, ulInstanceID, ulNumVariables, pVariableList, pAsyncCtl, pRC )
```

**Purpose**

Use the `SimWmChangeVariables` function to create new variables that are associated with a work package, or to update variables that already exist.

**Parameters**

- `hSession` HSESSION — input
  
  The handle to the Content Manager for iSeries session information. The `SimLibLogon` function creates the session information.

- `ulWorkPackageID` ULONG — input
SimWmChangeVariables

Identifier of the work package.

\textit{ulInstanceID} \hspace{1em} \text{ULONG — input}

Identifier of the work package instance that distinguishes one parallel path from another within the process.

\textit{ulNumVariables} \hspace{1em} \text{ULONG — input}

Number of entries in the variable array.

\textit{pVariableList} \hspace{1em} \text{PWMVARSTRUCT — input}

Pointer to an array of WMVARSTRUCT structures containing the variable identifiers and values for work management variables.

\textit{pAsyncCtl} \hspace{1em} \text{PASYNCCTLSTRUCT — input}

Not supported.

\textit{pRC} \hspace{1em} \text{PRCSTRUCT — input/output}

The pointer to the return data structure. For more information on the RCSTRUCT structure, see "RCSTRUCT (Return Code Information Structure)" on page 151.

\textbf{Return Values}

On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

\textit{usParam} \hspace{1em} The function does not use this field.
\textit{ulParam1} \hspace{1em} The function does not use this field.
\textit{ulParam2} \hspace{1em} The function does not use this field.
\textit{ulRC} \hspace{1em} Contains one of the following return codes:

- SIM_RC_OK
- SIM_RC_COMPLETION_ERROR
- SIM_RC_INVALID_HSESSION
- SIM_RC_INVALID_POINTER
- SIM_RC_INVALID_PRC
- SIM_RC_INVALID_WM_VARIABLE

\textbf{Guidelines for Use}

\textbf{Preparation:} The pre-defined variable SIMWM_ACTION (*ACTION) is used by the IBM Content Manager for iSeries client to identify the last action selected by a user. The value assigned to this variable is based on the action list definition.

\textbf{Exceptions:} The variables SIMWM_ITEMID (*ITEMID) and SIMWM_INDEX_CLASS (*INDEXCLASS) are reserved for internal use and may not be created or changed using the \texttt{SimWmChangeVariables} function.

\textbf{Related Functions}

- \texttt{SimWmQueryVariables}
SimWmCreateWorkPackage

SimWmCreateWorkPackage (Create a Work Package)

Format

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SimWmCreateWorkPackage( hSession, pszWorkPackageDesc, ulNumVariables, pVariableList, usWorkPriority, pAsyncCtl, pRC )</td>
<td>Create a Work Package</td>
</tr>
</tbody>
</table>

Purpose

Use the SimWmCreateWorkPackage function to create a new work package that an application can use for ad hoc work control. This allows the application to route a work package containing a folder or document through one or more workbaskets without the requirement for a pre-defined process.

Parameters

- **hSession**  
  HSESSION — input  
  The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

- **pszWorkPackageDesc**  
  PSZ — input  
  Pointer to a description of the work package. It can be used as a comment about the task or as information the application uses as a key to an application database for more details about the work.

- **ulNumVariables**  
  ULONG — input  
  Number of entries in the variable array. This field is ignored if the array pVariableList pointer is NULL.

- **pVariableList**  
  PWMVARSTRUCT — input  
  Pointer to an array of WMVARSTRUCT structures containing the variable identifiers and values for work management variables. The parameter can be NULL to reflect a work package with no direct database references or a work package that an application associates to an object. To associate a work package to an item in an index class, include the variables SIMWM_INDEX_CLASS and SIMWM_ITEMID.

- **usWorkPriority**  
  USHORT — input  
  Priority of the work to be performed. The priority affects the work sequencing of the work package at the workbasket. A larger number is a higher priority. Use a priority of zero to request the default priority.

- **pAsyncCtl**  
  PASYNCCTLSTRUCT — input  
  Not supported.

- **pRC**  
  PRCSTRUCT — input/output  
  The pointer to the return data structure. For more information on the RCSTRUCT structure, see "RCSTRUCT (Return Code Information Structure)" on page 151.
Return Values
On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

- **usParam** Always zero.
- **ulParam1** Contains the work package ID.
- **ulParam2** Contains the work package instance.
- **ulRC** Contains one of the following return codes:
  - SIM_RC_OK
  - SIM_RC_COMPLETION_ERROR
  - SIM_RC_INVALID_INDEX_CLASS
  - SIM_RC_INVALID_ITEM_OR_FOLDER_VALUE
  - SIM_RC_PRIVILEGE_ERROR

Guidelines for Use

*Preparation:* You can specify variables to associate a work package with a specific library item. If `pVariableList` is not specified, the calling application is responsible for associating the work package ID to the object that is being processed. If it is specified, then the work management interface always returns the data to the application whenever the work package ID is referenced in an API. For example, when the calling application gets the next work package from a workbasket, the item ID would also be returned.

*Effects:* A new work package is created.

*Follow-Up Tasks:* `SimWmRouteWorkPackage` should be called to route the work package to a workbasket.

*Related Functions*
- `SimWmRouteWorkPackage`

SimWmEndCollectionPoint (Force a Work Package Out of a Collection Point)

**Format**

```c
SimWmEndCollectionPoint( hSession, ulWorkPackageID, ulInstanceID, pAsyncCtl, pRC )
```

**Purpose**

Use the `SimWmEndCollectionPoint` function to force a work package out of a collection point.

**Parameters**

- **hSession** HSESSION — input
  
  The handle to the Content Manager for iSeries session information. The `SimLibLogon` function creates the session information.

- **ulWorkPackageID** ULONG — input
  
  Identifier of the work package that represents the work being done, such as the document being routed.
SimWmEndCollectionPoint

ulInstanceID ULONG — input
Identifier of the work package instance that distinguishes one parallel path from another within the process.

pAsyncCtl PASYNCCTLSTRUCT — input
Not supported.

pRC PRCSTRUCT — input/output
The pointer to the return data structure. For more information on the RSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

Return Values
On successful completion, this function returns values to the following fields in an RSTRUCT data structure:

usParam The function does not use this field.
ulParam1 The function does not use this field.
ulParam2 The function does not use this field.
ulRC Contains one of the following return codes:
  • SIM_RC_OK
  • OIM_ITEM_NOT_SUSPENDED
  • SIM_RC_COMPLETION_ERROR
  • SIM_RC_INVALID_HSESSION
  • SIM_RC_INVALID_PRC
  • SIM_RC_PRIVILEGE_ERROR

SimWmEndProcess (End a Work Package on a Process)

Format

SimWmEndProcess( hSession, ulWorkPackageID, ulInstanceID, pAsyncCtl, pRC )

Purpose
Use the SimWmEndProcess function to force an end to an active work package. It removes the work package from workbaskets.

Parameters

hSession HSESSION — input
The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

ulWorkPackageID ULONG — input
Identifier of the work package that represents the work being done, such as the document being routed.

ulInstanceID ULONG — input
If only one instance exists, this parameter is ignored.

pAsyncCtl PASYNCCTLSTRUCT — input
SimWmEndProcess

Not supported.

pRC  PRCSTRUCT — input/output

The pointer to the return data structure. For more information on the RCSTRUCT structure, see "RCSTRUCT (Return Code Information Structure)" on page 151.

Return Values
On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

usParam  The function does not use this field.
ulParam1  The function does not use this field.
ulParam2  The function does not use this field.
ulRC  Contains one of the following return codes:
• SIM_RC_OK
• SIM_RC_COMPLETION_ERROR
• SIM_RC_INVALID_HSESSION
• SIM_RC_INVALID_PRC
• SIM_RC_PRIVILEGE_ERROR

Guidelines for Use
Effects:
• If the work package instance field is zero, it is assumed that the process is being ended; otherwise, the route is ended. If the work package is ended on a process, all instances of the work package are ended.
• To end a work package on an ad hoc route, specify only the work package ID.

Related Functions
• SimWmCreateWorkPackage
• SimWmGetWorkPackage

SimWmGetActionListInfo (Get Action List Information)

Format

SimWmGetActionListInfo( hSession, pszActionListName, pAsyncCtl, pRC )

Purpose
Use the SimWmGetActionListInfo function to obtain the detail information associated with an action list.

hSession  HSESSION — input

The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

pszActionListName  PSZ — Input

The pointer to the name of the action list.

pAsyncCtl  PASYNCCCTLSTRUCT — input

Not supported.

pRC  PRCSTRUCT — input/output
SimWmGetActionListInfo

The pointer to the return data structure. For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

Return Values
On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

- **usParam**: Contains the value 1 to indicate that ulParam1 contains a pointer.
- **ulParam1**: Contains a pointer to a WMACTIONLISTINFOSTRUCT data structure that provides the action list information. See “WMACTIONLISTINFOSTRUCT (Action List Data Structure)” on page 161 for additional information.
- **ulParam2**: The function does not use this field.
- **ulRC**: Contains one of the following return codes:
  - SIM_RC_OK
  - SIM_RC_COMMUNICATIONS_ERROR
  - SIM_RC_COMPLETION_ERROR
  - SIM_RC_INVALID_HSESSION
  - SIM_RC_INVALID_POINTER
  - SIM_RC_INVALID_PRC

Guidelines for Use

**Follow-Up Task:** When your application no longer needs the WMACTIONLISTINFOSTRUCT data, use the SimLibFree function to free the buffer containing the structure.

SimWmGetProcessInfo (Get Information About a Process)

**Format**

\[
\text{SimWmGetProcessInfo}(hSession, pszProcessID, fGetProcessInfo, pAsyncCtl, pRC)
\]

**Purpose**

Use the SimWmGetProcessInfo function to return detailed information for a specific process defined in the system. This function returns workbaskets and/or collection points associated with a specific process.

**Parameters**

- **hSession**: HFSESSION — input
  
  The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

- **pszProcessID**: PSZ — input
  
  Pointer to the process identifier.

- **fGetProcessInfo**: BITS — input
  
  Flag bits that select what information to return about the process. You can use the bitwise inclusive OR operator (\(|\) to combine them.
SIMWM_PROCESS_WORKBASKETS
Returns information about all workbaskets associated with the specified process.

SIMWM_PROCESS_COLLECTION_POINTS
Returns information about all collection points associated with the specified process.

SIMWM_PROCESS_ALL_LOCATIONS
Returns workbasket and collection point information associated with the specified process.

SIMWM_PROCESS_COUNT
Returns the number of workbaskets and collection points associated with the specified process.

pAsyncCtl PASYNCCTLSTRUCT — input
Not supported.

pRC PRCSTRUCT — input/output
The pointer to the return data structure. For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

Return Values
On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

usParam Contains the value 1 to indicate that ulParam1 contains a pointer.

ulParam1 Contains a pointer to a buffer where a WMPROCESSINFOSTRUCT data structure provides the process definition information. For more information on this data structure, see “WMPROCESSINFOSTRUCT (Process Information Data Structure)” on page 163.

ulParam2 Contains the number of locations. This value is dependent on the setting of fGetProcessInfo.

ulRC Contains one of the following return codes:
- SIM_RC_OK
- SIM_RC_COMPLETION_ERROR
- SIM_RC_ERROR_READING_FROM_FILE
- SIM_RC_FILE_NOT_FOUND
- SIM_RC_INVALID_GETPROCESSOPTIONS
- SIM_RC_INVALID_HSESSION
- SIM_RC_INVALID_POINTER
- SIM_RC_INVALID_PRC
- SIM_RC_ITEM_NOT_FOUND
- SIM_RC_PRIVILEGE_ERROR

Guidelines for Use

Follow-Up Tasks: When your application no longer needs the process information, use the SimLibFree(hSession, (PVOID)ulParam1, pRC) function to free the buffer.

Related functions:
SimWmGetWorkBasketInfo (Get Information about a Workbasket)

Format

SimWmGetWorkBasketInfo( hSession, pszWorkBasketID, pAsyncCtl, pRC )

Purpose
Use the SimWmGetWorkBasketInfo function to return information about the workbasket you specify.

Parameters

hSession  HSESSION — input
The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

pszWorkBasketID  PSZ — input
Pointer to the workbasket identifier.

pAsyncCtl  PASYNCCTLSTRUCT — input
Not supported.

pRC  PRCSTRUCT — input/output
The pointer to the return data structure. For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

Return Values
On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

usParam  Contains the value 1 to indicate that ulParam1 contains a pointer.

ulParam1  Contains a pointer to a buffer where a WORKBASKETINFOSTRUCT data structure provides detailed information about the specified workbasket. For more information on this data structure, see “WORKBASKETINFOSTRUCT (Workbasket Information Data Structure)” on page 168.

ulParam2  The function does not use this field.

ulRC  Contains one of the following return codes:
• SIM_RC_OK
• OIM_INVALID_PITEMIDWB_PTR
• SIM_RC_COMPLETION_ERROR
• SIM_RC_INVALID_HSESSION
• SIM_RC_INVALID_ITEM_ID
• SIM_RC_INVALID_PRC
• SIM_RC_PRIVILEGE_ERROR
Guidelines for Use

Follow-Up Tasks: When your application no longer needs the WORKBASKETINFOSTRUCT data, use SimLibFree to free the buffer.

Related Functions
- SimWmListWorkBaskets

SimWmGetWorkPackage (Get the Next Work Package from a Workbasket)

Format

```c
SimWmGetWorkPackage( hSession, pszWorkBasketID, ulWorkOrder,
ulWorkPackageID, ulInstanceID, pAsyncCtl, pRC )
```

Purpose

Use the SimWmGetWorkPackage function to get (open) a work package that is currently in a workbasket. The work package that is queued at the specified workbasket is then not available to other applications. This function can get a specific work package or the next work package currently available in the specified workbasket based on work order.

Parameters

- **hSession**: HSESSION — input
  The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

- **pszWorkBasketID**: PSZ — input
  Pointer to the workbasket identifier.

- **ulWorkOrder**: ULONG — input
  Order used for selecting an entry from the workbasket. The valid values are:
  - **NULL**: The server determines the work order and returns the first available work package, or returns the requested work package.
  - **SIMWM_ORDER_FIFO**: Make selection based on first in, first out (FIFO) order to return first available work package.
  - **SIMWM_ORDER_LIFO**: Make selection based on last in, first out (LIFO) order to return first available work package.
  - **SIMWM_ORDER_PRIORITY**: Make selection based on the work package priority to return first available work package.
  - **SIMWM_ORDER_SYSTEM_NEXT**: The server determines the work order and returns the next available work package.
SimWmGetWorkPackage

SIMWM_ORDER_FIFO_NEXT
Make selection for the next available work package based on first in, first out (FIFO) order.

SIMWM_ORDER_LIFO_NEXT
Make selection for the next available work package based on last in, first out (LIFO) order.

SIMWM_ORDER_PRIORITY_NEXT
Make selection for the next available work package based on the work package priority.

ulWorkPackageID
ULONG — input
Identifier of the work package that represents the work being done, such as the document being routed. Specify zero to retrieve the first work package. If a work package ID is specified, that work package or the next available work package is retrieved, depending on the value specified in ulWorkOrder.

ulInstanceID
ULONG — input
Identifier of the work package instance that distinguishes one parallel path from another within the process.

pAsyncCtl
PASYNCCTLSTRUCT — input
Not supported.

pRC
PRCSTRUCT — input/output
The pointer to the return data structure. For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

Return Values
On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

usParam
Contains the value 1 to indicate that ulParam1 contains a pointer to a data area.

ulParam1
Contains a pointer to a SNAPSHOTSTRUCT data structure that provides the returned item and associated work management information.

ulParam2
The function does not use this field.

ulRC
Contains one of the following return codes:
• SIM_RC_OK
• OIM_INVALID_PITEMIDWB_PTR
• SIM_RC_COMPLETION_ERROR
• SIM_RC_EMPTY_WORKBASKET
• SIM_RC_INVALID_HSESSION
• SIM_RC_INVALID_PRC
• SIM_RC_PRIVILEGE_ERROR

Guidelines for Use

Effects:
• If the work package ID is not specified, this function will retrieve the first available work package in the workbasket.
• If the work package ID is specified and ulWorkOrder is NULL, the specified work package is retrieved.
• If the work package ID is specified and ulWorkOrder is set to SIMWM_ORDER_SYSTEM_NEXT, SIMWM_ORDER_FIFO_NEXT, SIMWM_ORDER_LIFO_NEXT, or SIMWM_ORDER_PRIORITY_NEXT, the next available work package after the one specified is retrieved.
• Once the specified or next work package in the workbasket is retrieved, the work package is not accessible to other users.

Follow-Up Tasks:
• Call SimWmReturnWorkPackage to return the work package to the workbasket. This makes the work package available to other users.
• Call SimWmRouteWorkPackage to route the work package to another workbasket. This makes the work package available to other users at the destination workbasket.
• When your application no longer needs the SNAPSHOTSTRUCT data, use SimLibFree to free the buffer.

Related Functions
• SimWmReturnWorkPackage
• SimWmRouteWorkPackage

SimWmGetWorkPackagePriority (Get the Priority of a Work Package)

Format
SimWmGetWorkPackagePriority( hSession, ulWorkPackageID, ulInstanceID, pAsyncCtl, pRC )

Purpose
Use the SimWmGetWorkPackagePriority function to determine the priority assigned to a work package. The priority identifies the work order of items located in the workbasket. You can determine the current priority of an item even if the item is locked.

Parameters
hSession HSESSION — input
The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.
ulWorkPackageID ULONG — input
Identifier of the work package that represents the work being done, such as the document being routed.
ulInstanceID ULONG — input
Identifier of the work package instance that distinguishes one parallel path from another within the process.
pAsyncCtl PASYNCCTLSTRUCT — input
Not supported.
SimWmGetWorkPackagePriority

**pRC**
PRCSTRUCT — input/output

The pointer to the return data structure. For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

**Return Values**
On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

- **usParam**
  Contains the value 1 to indicate that ulParam1 contains a pointer.

- **ulParam1**
  Contains a pointer to a TIMESTAMP buffer that provides the date and time the work package entered the workbasket.

- **ulParam2**
  Contains the current priority of the specified work package.

- **ulRC**
  Contains one of the following return codes:
  - SIM_RC_OK
  - SIM_RC_COMPLETION_ERROR
  - SIM_RC_INVALID_HSESSION
  - SIM_RC_INVALID_PRC

**Guidelines for Use**

**Follow-Up Tasks:** When your application no longer needs the TIMESTAMP data, use SimLibFree to free the buffer.

**Related Functions**

- SimWmGetWorkPackage
- SimWmSetWorkPackagePriority
- SimWmRouteWorkPackage

SimWmListHistory (List the History of a Work Package)

**Format**

```c
SimWmListHistory( hSession, ulWorkPackageID, ulInstanceID, fHistoryRequest, pAsyncCtl, pRC )
```

**Purpose**
Use the SimWmListHistory function to obtain the log of activity for the specified work package.

**Parameters**

- **hSession**
  HSESSION — input
  The handle to the Content Manager for iSeries session information. The SimLibSimLibLogon function creates the session information.

- **ulWorkPackageID**
  ULONG — input
  Identifier of the work package that represents the work being done, such as the document being routed.

- **ulInstanceID**
  ULONG — input
  Identifier of the work package instance that distinguishes one parallel path from another within the process.
**SimWmListHistory**

### fHistoryReqs
- **BITS** — input
  - Not supported.

### pAsyncCtl
- **PASYNCCTLSTRUCT** — input
  - Not supported.

### pRC
- **PRCSTRUCT** — input/output
  - The pointer to the return data structure. For more information on the **RCSTRUCT** structure, see "**RCSTRUCT (Return Code Information Structure)**" on page 151.

### Return Values
On completion, this function returns values to the following fields in an **RCSTRUCT** data structure:

- **usParam**
  - Contains the value 1 to indicate that **ulParam1** contains a pointer.

- **ulParam1**
  - Contains a pointer to an array of **WMHISTLOGENTRYSTRUCT** structures containing the variable identifiers and values for a specific work package.

- **ulParam2**
  - Contains the number of variables in the array that **ulParam1** points to.

- **ulRC**
  - Contains one of the following return codes:
    - **SIM_RC_OK**
    - **SIM_RC_COMPLETION_ERROR**
    - **SIM_RC_INVALID_HSESSION**
    - **SIM_RC_INVALID_PRC**
    - **SIM_RC_OUT_OF_MEMORY**

### Guidelines for Use

**Effects:** On successful completion of the function, all history events associated with the work package are returned.

**Follow-Up Tasks:** When your application no longer needs the work management history information for the specified work package, use the **SimLibFree(hSession, (PVOID)ulParam1, pRC)** function to free the buffer.

### Related Functions
- **SimLibLogon**

### SimWmListProcesses (List the Processes)

#### Format

| SimWmListProcesses( hSession, pAsyncCtl, pRC ) |

#### Purpose
Use the **SimWmListProcesses** function to obtain a list of all existing processes in the Content Manager for iSeries system.

#### Parameters
- **hSession**
  - HSESSION — input
SimWmListProcesses

The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

\[ pAsyncCtl \] PASYNCCTLSTRUCT — input
Not supported.

\[ pRC \] PRCSTRUCT — input/output
The pointer to the return data structure. For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

Return Values
On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

\[ usParam \] Contains the value 1 to indicate that \( ulParam1 \) contains a pointer.
\[ ulParam1 \] Contains a pointer to an ITEMNAMESTRUCT array.
\[ ulParam2 \] Contains the number of elements in the array that \( ulParam1 \) points to.
\[ ulRC \] Contains one of the following return codes:
- SIM_RC_OK
- SIM_RC_COMPLETION_ERROR
- SIM_RC_ERROR_READING_FROM_FILE
- SIM_RC_FILE_NOT_FOUND
- SIM_RC_INVALID_HSESSION
- SIM_RC_INVALID_PRC
- SIM_RC_PRIVILEGE_ERROR

Guidelines for Use

Exceptions: This function provides all processes defined in the system. Use the SimWmGetProcessInfo function with one of the processes that SimWmListProcesses returns.

Follow-Up Tasks: When your application no longer needs the process list, use the SimLibFree( hSession, (PVOID)ulParam1, pRC) function to free the buffer.

SimWmListWorkBaskets (List the Workbaskets)

Format

SimWmListWorkBaskets( hSession, pAsyncCtl, pRC )

Purpose
Use the SimWmListWorkBaskets function to get a list of all workbaskets defined in the system.

Parameters

\[ hSession \] HSESSION — input
The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

\[ pAsyncCtl \] PASYNCCTLSTRUCT — input
Not supported.

\textbf{pRC} \quad \text{PRCSTRUCT} — input/output

The pointer to the return data structure. For more information on the \text{RCSTRUCT} structure, see \texttt{“RCSTRUCT (Return Code Information Structure)”} on page 151.

\textbf{Return Values}
On successful completion, this function returns values to the following fields in an \text{RCSTRUCT} data structure:

- \textit{usParam}: Contains the value 1 to indicate that \textit{ulParam1} contains a pointer.
- \textit{ulParam1}: Contains a pointer to an \text{ITEMNAMESTRUCT} array.
- \textit{ulParam2}: Contains the number of elements in the array that \textit{ulParam1} points to.
- \textit{ulRC}: Contains one of the following return codes:
  - \texttt{SIM\_RC\_OK}
  - \texttt{SIM\_RC\_COMPLETION\_ERROR}
  - \texttt{SIM\_RC\_INVALID\_HSESSION}
  - \texttt{SIM\_RC\_INVALID\_ITEM\_OR\_FOLDER\_VALUE}
  - \texttt{SIM\_RC\_INVALID\_PRC}
  - \texttt{SIM\_RC\_LIB\_CLIENT\_ERROR}
  - \texttt{SIM\_RC\_PRIVILEGE\_ERROR}

\textbf{Guidelines for Use}

\textbf{Exceptions}: This function does not provide detailed information about the definition of a workbasket. To get that information, use \texttt{SimWmGetWorkBasketInfo} with one of the identifiers that \texttt{SimWmListWorkBaskets} returns.

\textbf{Follow-Up Tasks}: When your application no longer needs the \text{ITEMNAMESTRUCT} array, use \texttt{SimLibFree} to free the buffer.

\textbf{Related Functions}

- \texttt{SimWmGetWorkBasketInfo}

\textbf{SimWmMatchEvent (Satisfy an Event for a Work Package)}

\textbf{Format}

\begin{verbatim}
SimWmMatchEvent( hSession, ulActivate, pszProcessID, pszCollectionPointName, ulWorkPackageID, ulInstanceId, ulEventType, pszEventCriteria, pAsyncCtl, pRC )
\end{verbatim}

\textbf{Purpose}
Use the \texttt{SimWmMatchEvent} function to satisfy an event for a work package that is at a collection point.

\textbf{Parameters}

- \textit{hSession} \quad \text{HSESSION} — input
  
  The handle to the Content Manager for iSeries session information. The \texttt{SimLibLogon} function creates the session information.
SimWmMatchEvent

ulActivate ULONG — input
Indicator of whether the collection point should be activated. The valid values are:

SIMWM_ACTIVATE_COLLECTION_POINT
Activate the collection point if the work package is not currently at the collection point.

SIMWM_NO_ACTIVATE_COLLECTION_POINT
Do not activate the collection point if the work package is not currently at the collection point.

pszProcessID PSZ — input
Pointer to the process identifier.

pszCollectionPointName PSZ — input
Pointer to the name of the collection point.

ulWorkPackageID ULONG — input
Identifier of the work package that represents the work being done, such as the document being routed.

ulInstanceID ULONG — input
Identifier of the work package instance that distinguishes one parallel path from another within the process.

ulEventType ULONG — input
The type of event to be satisfied at the collection point. The valid values are:

SIMWM_EVENT_INDEX_CLASS
The event is the arrival of an item of a specified index class.

SIMWM_EVENT_TIME
The event is the expiration of a time period.

SIMWM_EVENT_USERDEF_MIN
SIMWM_EVENT_USERDEF_MAX
The event is a user-defined event.

pszEventCriteria PSZ — input
Pointer to match criteria. If ulEventType is SIMWM_EVENT_INDEX_CLASS, the match criteria must be an index class identifier. If ulEventType is SIMWM_EVENT_TIME, this field is ignored and the current system date of the server is used as the match criteria.

pAsyncCtl PASYNCCTLSTRUCT — input
Not supported.

pRC PRCSTRUCT — input/output
The pointer to the return data structure. For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.
Return Values
On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

- **usParam**: The function does not use this field.
- **ulParam1**: The function does not use this field.
- **ulParam2**: The function does not use this field.
- **ulRC**: Contains one of the following return codes:
  - SIM_RC_OK
  - OIM_INVALID_RELEASE_CRITERIA
  - OIM_INVALID_WF_ITEM
  - OIM_ITEM_NOT_IN_WORKFLOW
  - OIM_ITEM_NOT_SUSPENDED
  - SIM_RC_COMPLETION_ERROR
  - SIM_RC_INVALID_HSESSION
  - SIM_RC_INVALID_POINTER
  - SIM_RC_INVALID_PRC
  - SIM_RC_INVALID_USCLASSID_VALUE

Guidelines for Use
This function either satisfies events or activates a work package at a collection point. If an event is matched for a specified work package, that work package event is satisfied. If an event is not matched and the activate flag is set to SIMWM_ACTIVATE_COLLECTION_POINT, the work package is activated at the collection point.

If the last event in an event list of the collection point is satisfied, the work package is released from the collection point and is sent to begin the route specified for that event list in the collection point definition.

Calling this function with event type of SIMWM_EVENT_TIME, causes all collection points to be tested for the date expiration criteria to have been satisfied. This function is equivalent to the Release pended work items function.

SimWmQueryVariables (Query Variables for a Specific Work Package)

**Format**
SimWmQueryVariables( hSession, ulWorkPackageID, ulInstanceID, pAsyncCtl, pRC )

**Purpose**
Use the SimWmQueryVariables function to return all variables and values associated with a specific work package.

**Parameters**
- **hSession**: HSESSION — input
  - The handle to the Content Manager for iSeries session information.
  - The SimLibLogon function creates the session information.
**SimWmQueryVariables**

`ulWorkPackageID`  
ULONG — input  
Identifier of the work package.

`ulInstanceID`  
ULONG — input  
Identifier of the work package instance that distinguishes one parallel path from another within the process.

`pAsyncCtl`  
PASYNCCRTLSTRUCT — input  
Not supported.

`pRC`  
PRCSTRUCT — input/output  
The pointer to the return data structure. For more information on the RCSTRUCT structure, see "RCSTRUCT (Return Code Information Structure)" on page 151.

**Return Values**

On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

- `usParam`  
Contains the value 1 to indicate that `ulParam1` contains a pointer. Otherwise, this field contains the value 0.

- `ulParam1`  
Pointer to an array of WMVARSTRUCT structures containing the variable identifiers and values for a specific work package.

- `ulParam2`  
Contains the number of variables in the array that `ulParam1` points to.

- `ulRC`  
Contains one of the following return codes:
  - SIM_RC_OK
  - SIM_RC_COMPLETION_ERROR
  - SIM_RC_INVALID_HSESSION
  - SIM_RC_INVALID_PRC

**Guidelines for Use**

**Follow-Up Tasks:** When your application no longer needs the work package variable information, use the `SimLibFree` function to free the buffer.

**SimWmQueryWorkPackage (Query a Work Package)**

**Format**

```c
SimWmQueryWorkPackage( hSession, ulWorkPackageID, ulInstanceID, 
pAsyncCtl, pRC )
```

**Purpose**

Use the `SimWmQueryWorkPackage` function to retrieve the contents and attributes of a work package.

**Parameters**

- `hSession`  
HSESSION — input
The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

*ulWorkPackageID*

ULONG — input

Identifier of the work package that represents the work being done, such as the document being routed.

*ulInstanceID*

ULONG — input

Identifier of the work package instance that distinguishes one parallel path from another within the process.

*pAsyncCtl*

PASYNCCTLSTRUCT — input

Not supported.

*pRC*

PRCSTRUCT — input/output

The pointer to the return data structure. For more information on the ROSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

**Return Values**

On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

*usParam*

Contains the value 1 to indicate that *ulParam1* contains a pointer to a data area.

*ulParam1*

Contains a pointer to a SNAPSHOTSTRUC data structure that provides the returned item and associated workflow information.

*ulParam2*

The function does not use this field.

*ulRC*

Contains one of the following return codes:

- SIM_RC_OK
- SIM_RC_COMPLETION_ERROR
- SIM_RC_INVALID_HSESSION
- SIM_RC_INVALID_INDEX_CLASS
- SIM_RC_INVALID_PRC
- SIM_RC_LIB_CLIENT_ERROR
- SIM_RC_PRIVILEGE_ERROR

**Guidelines for Use**

**Follow-Up Tasks:** When your application no longer needs the SNAPSHOTSTRUCT data, use SimLibFree to free the buffer.

**Related Functions**

- SimWmRouteWorkPackage

**SimWmReturnWorkPackage** (Return a Work Package to a Workbasket)

**Format**

SimWmReturnWorkPackage( hSession, ulWorkPackageID, ulInstanceID, usWorkPriority, pAsyncCtl, pRC )
SimWmReturnWorkPackage

Purpose
Use the SimWmReturnWorkPackage function to return a work package instance that is currently open in a workbasket back to that workbasket. This is the opposite of SimWmGetWorkPackage. After using this function, the work package instance is again available.

Parameters
hSession  HSESSION — input
The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

ulWorkPackageID  ULONG — input
Identifier of the work package that represents the work being done, such as the document being routed.

ulInstanceId  ULONG — input
Identifier of the work package instance that distinguishes one parallel path from another within the process.

usWorkPriority  USHORT — input
Priority of the work to perform. The priority affects the work sequencing as the work package moves through a process. A larger number is a higher priority. Use zero to keep the current priority.

pAsyncCtl  PASYNCTLSTRUCT — input
Not supported.

pRC  PRCSTRUCT — input/output
The pointer to the return data structure. For more information on the RCSTRUCT structure, see "RCSTRUCT (Return Code Information Structure)" on page 151.

Return Values
On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

usParam  The function does not use this field.
ulParam1  The function does not use this field.
ulParam2  The function does not use this field.
ulRC  Contains one of the following return codes:
• SIM_RC_OK
• SIM_RC_COMPLETION_ERROR
• SIM_RC_INVALID_HSESSION
• SIM_RC_INVALID_PRC
• SIM_RC_PRIVILEGE_ERROR

Guidelines for Use
Effects: The application can use this function when the user is unable to complete the work and needs to resume later. SimWmGetWorkPackage opens the work package, and SimWmReturnWorkPackage closes the work package, making it again available in the workbasket.
**Related Functions**
- SimWmGetWorkPackage
- SimWmRouteWorkPackage

**SimWmRouteWorkPackage (Route a Work Package)**

**Format**
```
SimWmRouteWorkPackage( hSession, pszWorkBasketID, ulWorkPackageID,
ulInstanceID, usWorkPriority, fRoute, pszOverrideAction, pAsyncCtl, pRC )
```

**Purpose**
Use the `SimWmRouteWorkPackage` function to assign a work package to a workbasket, reassign a work package from one workbasket to another, or continue a work package to the next step in a predefined process.

**Parameters**
- **hSession**
  HSESSION — input
  The handle to the Content Manager for iSeries session information. The `SimLibLogon` function creates the session information.

- **pszWorkBasketID**
  PSZ — input
  Pointer to the name of the workbasket. If NULL and the work package is on a process, the work package will be continued to the next step in the process.

- **ulWorkPackageID**
  ULONG — input
  Identifier of the work package that represents the work being done, such as the document being routed.

- **ulInstanceID**
  ULONG — input
  Identifier of the work package instance that distinguishes one parallel path from another within the process.

- **usWorkPriority**
  USHORT — input
  Priority of the work to be performed. The priority affects the work sequencing of the work package at the workbasket. A larger number is a higher priority. Use a priority of zero to request the default priority.

- **fRoute**
  BITS — input
  Work package routing control. Valid value is:
  
  **SIMWM_IGNORE_OVERLOAD**
  If NULL, workbasket overload limits will be checked.

- **pszOverrideAction**
  PSZ — input
  Pointer to the name of the action list to use when work package is routed to the next workbasket. This action list overrides the default action list associated with the next workbasket.

- **pAsyncCtl**
  PASYNCCTLSTRUCT — input
SimWmRouteWorkPackage

Not supported.

\[ pRC \]  
PRCSTRUCT — input/output

The pointer to the return data structure. For more information on the RCSTRUCT structure, see "RCSTRUCT (Return Code Information Structure)" on page 151.

**Return Values**

On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

- **usParam** Always zero.
- **ulParam1** Contains the work package ID.
- **ulParam2** Contains the work package instance.
- **ulRC** Contains one of the following:
  - SIM_RC_OK
  - OIM_INVALID_FOVERLOAD_VALUE
  - OIM_WB_FULL
  - SIM_RC_COMPLETION_ERROR
  - SIM_RC_INVALID_HSESSION
  - SIM_RC_INVALID_POINTER
  - SIM_RC_INVALID_PRC
  - SIM_RC_PRIVILEGE_ERROR

**Guidelines for Use**

This function can be used to continue an item on a process, assign an item to a workbasket, or reassign an item to another workbasket. If the SIMWM_IGNORE_OVERLOAD is not set and pszWorkBasketID is NULL, the item will be added to the workbasket even when an overload condition exists; however, the application will be notified of the overload condition. This function can be used in combination with SimWmQueryWorkPackage to determine the location of the work package before routing the work package.

**Exceptions:** If a work package is at a collection point, it cannot be routed until the events for the collection point are satisfied.

**Related Functions**

- SimWmCreateWorkPackage
- SimWmQueryWorkPackage

SimWmSetWorkPackagePriority (Set the Priority of a Work Package)

**Format**

SimWmSetWorkPackagePriority( hSession, ulWorkPackageID, ulInstanceID, usPriority, pAsyncCtl, pRC )

**Purpose**

Use the SimWmSetWorkPackagePriority function to set the priority of a work package. This priority can control the work order of work packages in the workbasket.
Parameters

hSession
HSESSION — input
The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

ulWorkPackageID
ULONG — input
Identifier of the work package that represents the work being done, such as the document being routed.

ulInstanceId
ULONG — input
Identifier of the work package instance that distinguishes one parallel path from another within the process.

usPriority
USHORT — input
Priority of the work to be performed. The priority affects the work sequencing of the work package. A larger number is a higher priority. Use a priority of zero to request the default priority.

pAsyncCtl
PASYNCCTLSTRUCT — input
Not supported.

pRC
PRCSTRUCT — input/output
The pointer to the return data structure. For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

Return Values
On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

usParam
The function does not use this field.

ulParam1
The function does not use this field.

ulParam2
The function does not use this field.

ulRC
Contains one of the following return codes:
- SIM_RC_OK
- SIM_RC_COMPLETION_ERROR
- SIM_RC_INVALID_HSESSION
- SIM_RC_INVALID_PRC
- SIM_RC_PRIVILEGE_ERROR

Guidelines for Use

Exceptions: The priority value can be between 1 and 65,535. The Content Manager for iSeries Client Application, however, only supports values between 1 and 31,999.

Related Functions
- SimWmGetWorkPackage
- SimWmGetWorkPackagePriority
- SimWmRouteWorkPackage
SimWmSuspendWorkPackage

SimWmSuspendWorkPackage (Suspend a Work Package)

Format

\[
\text{SimWmSuspendWorkPackage}( hSession, ulWorkPackageID, ulInstanceID, pSuspendCriteria, pAsyncCtl, pRC )
\]

Purpose

Use the \text{SimWmSuspendWorkPackage} function to suspend a work package instance that is currently in a workbasket, and cause the work package to remain unselectable until its suspend criteria are satisfied or the work package is explicitly reactivated.

Parameters

\textit{hSession}  
HSESSION — input

The handle to the Content Manager for iSeries session information. The \text{SimLibLogon} function creates the session information.

\textit{ulWorkPackageID}  
ULONG — input

Identifier of the work package that represents the work being done, such as the document being routed.

\textit{ulInstanceID}  
ULONG — input

Identifier of the work package instance that distinguishes one parallel path from another within the process.

\textit{pSuspendCriteria}  
PWMSUSPENDSTRUCT — input

Pointer to a single WMSUSPENDSTRUCT structure containing the criteria for suspension and release of a work package.

\textit{pAsyncCtl}  
PASYNCCTLSTRUCT — input

Not supported.

\textit{pRC}  
PRCSTRUCT — input/output

The pointer to the return data structure. For more information on the RCSTRUCT structure, see \textit{RCSTRUCT (Return Code Information Structure)} on page 151.

Return Values

On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

\textit{usParam}  
The function does not use this field.

\textit{ulParam1}  
The function does not use this field.

\textit{ulParam2}  
The function does not use this field.

\textit{ulRC}  
Contains one of the following:

- \text{SIM_RC_OK}
- \text{OIM_INVALID_READY_WB}
- \text{OIM_INVALID_RELEASE_CRITERIA}
- \text{SIM_RC_COMPLETION_ERROR}
• SIM_RC_INVALID_HSESSION
• SIM_RC_INVALID_ITEM_ID
• SIM_RC_INVALID_POINTER
• SIM_RC_INVALID_PRC
• SIM_RC_PRIVILEGE_ERROR

Guidelines for Use

Preparation:
• You can specify up to 8 index classes in the suspension criteria.
• You can suspend folders pending the arrival of other items of a specified index class, or until a period of time has expired.
• If you suspend for a specified index class(es), you must also specify a period of time.
• If you specify SIM_INDEX_ANY as the index class in the release criteria, the item will be suspended for the arrival of an item belonging to any index class defined in the system.

Effects:
• When the release criteria are satisfied, a formerly suspended item is assigned to the workbasket associated with those criteria in the WMSUSPENDSTRUCT data structure.

Exceptions:
• The item to suspend must be in a workbasket.
• SIMWM_NEXT is not a valid workbasket when an item is on an ad hoc process.
• Changes to the suspension state of an item do not change the checkout or access status of the item. If your application checks out an item and suspends it, it is the responsibility of the application to be sure that the item is checked in. When the item meets the release criteria, it becomes active and, if your application did not check the item in, it remains checked out by your application.
• If SIM_INDEX_ANY is entered as an index class, no other index class can be defined in the suspend criteria.
• If the item is currently suspended and SimWmSuspendWorkPackage is issued, the item will not be suspended again. The new suspend request will be ignored and the application will receive a successful completion.

Sim400ConvertCodepage ( Code Page Conversion )

Format

Sim400ConvertCodepage( hSession, iConvertDirection, chInputBuffer, chOutputBuffer, ulInputSize, ulOutputSize, pAsyncCtl, pRC )

Purpose
Use the Sim400ConvertCodepage function to handle code page conversion between the workstation and the iSeries.

Parameters

hSession HSESSION — input
Sim400ConvertCodepage

The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

\[ iConvertDirection \]

INT — input
Specify one of the following:
- SIM_400_CONVERT_TO400
- SIM_400_CONVERT_FROM400

\[ chInputBuffer \]

CHAR — input
The buffer to send to the server.

\[ chOutputBuffer \]

CHAR — input
Space for returned data.

\[ ulInputSize \]

ULONG — input
Length of the buffer that is being sent to the server. Maximum size is 32,700.

\[ ulOutputSize \]

ULONG — input
Size of the space for returned data.

\[ pAsyncCtl \]

PASYNCCTLSTRUCT — input
Not supported.

\[ pRC \]

PRCSTRUCT — input/output
The pointer to the return data structure. For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

Return Values

\[ usParam \]

The function does not use this field.

\[ ulParam1 \]

Contains the length of the output buffer.

\[ ulParam2 \]

The function does not use this field.

\[ ulRC \]

Contains one of the following return codes:
- SIM_RC_OK
- SIM_RC_LIB_CLIENT_ERROR

Related Functions

- Sim400SendReceive

Sim400SendReceive (Send Data to AS/400)

\[
\text{Sim400SendReceive}( \text{hSession}, \text{chInputBuffer}, \text{chOutputBuffer}, \text{ulInputSize}, \text{ulOutputSize}, \text{pAsyncCtl}, \text{pRC} )
\]

Purpose

Use the Sim400SendReceive function to send up to 32,700 bytes of data to the iSeries. The data sent to the server can be processed by a customer-written application, and the results can be returned to the workstation.
Parameters

**hSession**
HSESSION — input
The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

**chInputBuffer**
CHAR — input
The buffer to send to the server.

**chOutputBuffer**
CHAR — input
Space for returned data.

**ulInputSize**
ULONG — input
Length of the buffer that is being sent to the server. Maximum size is 32,700.

**ulOutputSize**
ULONG — input
Size of the space for returned data.

**pAsyncCtl**
PASYNCTLSTRUCT — input
Not supported.

**pRC**
PRCSTRUCT — input/output
The pointer to the return data structure. For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

Return Values

**usParam**
The function does not use this field.

**ulParam1**
Contains the number of bytes received.

**ulParam2**
The function does not use this field.

**ulRC**
Contains one of the following return codes:
- SIM_RC_OK
- SIM_RC_COMMUNICATIONS_ERROR

Example
Refer to sample program QVIRCVSND in source file QLBSRC in your QVI library. This sample program shows a COBOL program that receives data from the Sim400SendReceive function, and returns data to the function.

Related Functions
- Sim400ConvertCodepage

Ip2CloseTOC (Close a Table of Contents)

**Format**

```
Ip2CloseTOC( hSession, hTOC, pAsyncCtl, pRC )
```

**Purpose**
Use the Ip2CloseTOC function to close the specified table of contents and then release the table-of-contents handle.
Ip2CloseTOC

Parameters

\text{\textit{hSession}} \quad \text{HSESSION — input}

The handle to the Content Manager for iSeries session information. The \texttt{SimLibLogon} function creates the session information.

\text{\textit{hTOC}} \quad \text{HTOC — input}

The handle to the table of contents you want to close. Use the \texttt{SimLibGetTOC} function to get this handle.

\text{\textit{pAsyncCtl}} \quad \text{PASYNCCTLSTRUCT — input}

Not supported.

\text{\textit{pRC}} \quad \text{PRCSTRUCT — input/output}

The pointer to the return data structure. For more information on the \texttt{RCSTRUCT} structure, see “\texttt{RCSTRUCT (Return Code Information Structure)}” on page 151.

Return Values

On successful completion, this function returns values to the following fields in an \texttt{RCSTRUCT} data structure:

\text{\textit{usParam}} \quad The function does not use this field.

\text{\textit{ulParam1}} \quad The function does not use this field.

\text{\textit{ulParam2}} \quad The function does not use this field.

\text{\textit{ulRC}} \quad Contains one of the following return codes:

- \texttt{SIM RC_OK}
- \texttt{SIM RC_INVALID_HSESSION}
- \texttt{SIM RC_INVALID_POINTER}
- \texttt{SIM RC_INVALID_PRC}
- \texttt{SIM RC_LIB_CLIENT_ERROR}
- \texttt{SIM RC_OUT_OF_MEMORY}

Guidelines for Use

Effects:

- After you use this function to close the table of contents, you cannot use the table-of-contents handle (\textit{hTOC}) again.
- Use the \texttt{SimLibGetTOC} function to get a new table-of-contents handle.

Related Functions

- \texttt{Ip2CloseToc}
- \texttt{Ip2GetTOCUpdates}
- \texttt{Ip2TOCCount}
- \texttt{Ip2TOCStatus}
- \texttt{SimLibGetItemAffiliatedTOC}
- \texttt{SimLibGetTOC}

Ip2GetLibSessionInfo (Get the Information for a Library Session)

\textbf{Format}

\texttt{Ip2GetLibSessionInfo( hSession, pAsyncCtl, pRC)}
Purpose
Use the Ip2GetLibSessionInfo function to return information for the current
library session.

Parameters
hSession HSESSION — input
The handle to the Content Manager for iSeries session information.
The SimLibLogon function creates the session information.
pAsyncCtl PASYNCCTLSTRUT — input
Not supported.
pRC PRSTRUCT — input/output
The pointer to the return data structure. For more information on
the RCSTRUCT structure, see “RCSTRUCT (Return Code
Information Structure)” on page 151.

Return Values
On successful completion, this function returns values to the following fields in an
RCSTRUCT data structure:

usParam Contains the value 1 to indicate that ulParam1 contains a pointer.
ulParam1 Contains a pointer to a buffer with a LIBSESSIONINFOSTRUCT
data structure. For more information, on this data structure, see
“LIBSESSIONINFOSTRUCT (Library Session Information
Structure)” on page 148.
ulParam2 This function does not use this field.
ulRC Contains one of the following return codes:
• SIM_RC_OK
• SIM_RC_INVALID_HSESSION
• SIM_RC_INVALID_PRC

Guidelines for Use
Follow-Up Tasks: When your application no longer needs the
LIBSESSIONINFOSTRUCT data, use the SimLibFree(hSession, (PVOID)ulParam1,
pRC) function to free the buffer.

Ip2GetTOCUpdates (Get the Updates to a Table of Contents)

Format
Ip2GetTOCUpdates(hSession, hTOC, usUpdate, pAsyncCtl, pRC)

Purpose
Use the Ip2GetTOCUpdates function to refresh a table of contents that you
received from a previous SimLibGetTOC function.

Parameters
hSession HSESSION — input
The handle to the Content Manager for iSeries session information.
The SimLibLogon function creates the session information.
Ip2GetTOCUpdates

\(\text{HiTOC} \quad \text{HTOC} \quad \text{— \ input}\)

The handle to the table of contents that you want to refresh. Use the SimLibGetTOC function to get this handle.

\(\text{usUpdate} \quad \text{USHORT} \quad \text{— \ input}\)

Not supported.

\(\text{pAsyncCtl} \quad \text{PASYNCCTLSTRUCT} \quad \text{— \ input}\)

Not supported.

\(\text{pRC} \quad \text{PRCSTRUCT} \quad \text{— \ input/output}\)

The pointer to the return data structure. For more information on the RSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

**Return Values**

On successful completion, this function returns values to the following fields in an RSTRUCT data structure:

\(\text{usParam} \quad \text{Contains the total number of items in the table of contents.}\)

\(\text{ulParam1} \quad \text{Contains a pointer to a buffer with an array of TOCENTRYSTRUCT data structures which indicates the number of items that have been updated, deleted, or added. For more information on the TOCENTRYSTRUCT data structure, see “TOCENTRYSTRUCT (Table of Contents Entry Data Structure)” on page 157.}\)

\(\text{ulParam2} \quad \text{Contains the handle to the table of contents.}\)

\(\text{ulRC} \quad \text{Contains one of the following return codes:}\)

- SIM_RC_OK
- OIM_INVALID_FUPDATE VALUE
- OIM_INVALID_HTOC VALUE
- SIM_RC_COMMUNICATIONS_ERROR
- SIM_RC_COMPLETION_ERROR
- SIM_RC_INVALID_HSESSION
- SIM_RC_INVALID_ITEM_ID
- SIM_RC_INVALID_POINTER
- SIM_RC_INVALID_PRC
- SIM_RC_LIB_CLIENT_ERROR
- SIM_RC_OUT_OF_MEMORY

**Guidelines for Use**

**Follow-Up Tasks:** When your application no longer needs the table of contents, use the Ip2CloseTOC function to close the table of contents and release the handle.

**Related Functions**

- SimLibGetTOC
- Ip2CloseTOC
- Ip2TOCStatus
- Ip2GetTOCUpdates
Ip2ListAttrs (List the User-Defined Attributes)

Format

Ip2ListAttrs( hSession, pAsyncCtl, pRC )

Purpose
Use the Ip2ListAttrs function to get a list of the attributes in the system.

Parameters

'hSession' HSESSION — input
The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

'pAsyncCtl' PASYNCCTLSTRUCT — input
Not supported.

'pRC' PRCSTRUCT — input/output
The pointer to the return data structure. For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

Return Values
On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

'usParam' Contains the value 1 to indicate that ulParam1 contains a pointer.

'ulParam1' If the ulParam2 field contains a value greater than 0, this field contains a pointer to a buffer with a NAMESTRUCT array. Each element in this array provides the index attribute identifiers that are associated with a specific attribute name. For more information on this data structure, see “NAMESTRUCT (Name Data Structure)” on page 149.

'ulParam2' Contains the number of elements in the array that ulParam1 points to.

'ulRC' Contains one of the following return codes:
- SIM_RC_OK
- SIM_RC_COMMUNICATIONS_ERROR
- SIM_RC_COMPLETION_ERROR
- SIM_RC_INVALID_HSESSION
- SIM_RC_INVALID_POINTER
- SIM_RC_INVALID_PRC
- SIM_RC_LIB_CLIENT_ERROR
- SIM_RC_OUT_OF_MEMORY
- SIM_RC_PRIVILEGE_ERROR

Guidelines for Use

Effects:
- Use the SimLibGetAttrInfo function to get additional information about a specific index attribute.
- Attributes with negative IDs or those greater than 32767 are system attributes. You cannot modify these.
If an attribute has not been defined to any index class, it is not returned by Ip2ListAttrs.

Follow-Up Tasks: When your application no longer needs the array of index attribute identifiers, use the SimLibFree( hSession, (PVoid)ulParam1, pRC ) function to free the buffer.

Related Functions
- SimLibGetAttrInfo

Ip2ListContentClasses (List the Content Classes)

Format

| Ip2ListContentClasses( hSession, usContentClassType, pAsyncCtl, pRC ) |

Purpose

Use the Ip2ListContentClasses function to display the content class records that are in the library server database.

Parameters

- **hSession**
  
  HSESSION — input
  
  The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

- **usContentClassType**
  
  USHORT — input
  
  The type of content classes to list. The valid values are:
  
  - **OIM_SA_ALL_CC**
    
    Lists both the IBM-defined content classes and the user-defined content classes.
  
  - **OIM_SA_IBM_CC**
    
    Lists only the IBM-defined content classes.
  
  - **OIM_SA_USR_CC**
    
    Lists only the user-defined content classes.

- **pAsyncCtl**
  
  PASYNCCCTLSTRUCT — input
  
  Not supported.

- **pRC**
  
  PRCSTRUCT — input/output
  
  The pointer to the return data structure. For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

Return Values

On successful completion, this function returns values to the following fields in the RCSTRUCT data structure:

- **usParam**
  
  Contains the value 1, to indicate that ulParam1 contains a pointer. If no records exist for the specified content class type, this field contains the value 0.

- **ulParam1**
  
  Contains a pointer to the array of CONTENTCLASSINFO data structures containing the list of content classes. For more
information on this data structure, see "CONTENTCLASSINFO (Content Class Information Structure)" on page 142. If no records exist for the specified content class type, this field contains the value NULL.

ulParam2 Contains the number of content classes in the library server database. If ulRC contains an error code, ulParam2 contains the value NULL.

ulRC Contains one of the following return codes:
- SIM_RC_OK
- SIM_RC_COMMUNICATIONS_ERROR
- SIM_RC_COMPLETION_ERROR
- SIM_RC_INVALID_CC_TYPE
- SIM_RC_INVALID_HSESSION
- SIM_RC_INVALID_POINTER
- SIM_RC_INVALID_PRC
- SIM_RC_OUT_OF_MEMORY
- SIM_RC_PRIVILEGE_ERROR
- SIM_RC_QUERY_FAILED

Guidelines for Use

Follow-Up Tasks: When you finish with the content class information, use the SimLibFree( hSession, (VOID)ulParam1, pRC ) function to release allocated storage.

Ip2ListServers (List the Accessible Servers)

Format

Ip2ListServers( pServrInfo, ulServrInfoSize, fSrchfilter, pRC )

Purpose

Use the Ip2ListServers function to retrieve information about all the servers accessible to the system. You can use this function to determine the eligible libraries to display as part of a logon interaction.

Parameters

pServrInfo PSERVERINFOSTRUCT — input/output
The pointer to a buffer that contains an array of server names and types. The calling application allocates memory for this structure.

ulServrInfoSize ULONG — input
The size, in bytes, of the buffer allocated for the SERVERINFOSTRUCT array.

fSrchfilter ULONG — input
Not supported.

pRC PRCSTRUCT — input/output
The pointer to the return data structure. For more information on the RCSTRUCT structure, see "RCSTRUCT (Return Code Information Structure)" on page 151.
Ip2ListServers

Return Values
On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

usParam  Contains the value 1.
ulParam1  If usParam contains a value greater than 0, this field contains a pointer to an array of SERVERINFOSTRUCT data structures. “Guidelines for Use” explains how the value of the ulServrInfoSize parameter affects the value returned in ulParam1. For more information on the SERVERINFOSTRUCT data structure, see “SERVERINFOSTRUCT (Server Information Structure)” on page 153.
ulParam2  Contains the number of the servers returned by this call, though not necessarily the number of servers in the system.
ulRC  Contains one of the following return codes:
  • SIM_RC_OK
  • OIM_INVALID_PSERVERINFO_PTR
  • OIM_RC_INPUTBUF_TOO_SMALL
  • OIM_RC_ISO_CONNECT_FAILED
  • OIM_RC_ISO_LISTSVR_FAILED

Guidelines for Use

Exceptions:
  • Your application can connect to all the servers, but not necessarily log on to all of them. You must have a valid user ID and password to access the database on the server.
  • If the input value of ulServrInfoSize is too small to receive the data, error code OIM_RC_INPUTBUF_TOO_SMALL is returned, and the ulParam2 field of the RCSTRUCT data structure contains the number of servers found.

Related Functions
None

Ip2QueryClassPriv (Query the Privilege String for an Index Class or View)

Format
Ip2QueryClassPriv( hSession, usClassType, usID, pAsyncCtl, pRC )

Purpose
Use the Ip2QueryClassPriv function to return the evaluated privilege string for the index class that you specify. The evaluated privilege string indicates your access rights to the information in the system. You should use it with Ip2QueryPrivBuffer to determine access rights.

Parameters
hSession  HSESSION — input
  The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.
usClassType  USHORT — input
Not supported.

**usID**  
USHORT — input  
The ID of an index class.

**pAsyncCtl**  
PASYNCCTLSTRUCT — input  
Not supported.

**pRC**  
PRCSTRUCT — input/output  
The pointer to the return data structure. For more information on the RCSTRUCT structure, see "RCSTRUCT (Return Code Information Structure)" on page 151.

**Return Values**  
On successful completion, this function returns values to the following fields in the RCSTRUCT data structure:

- **usParam**  
This parameter contains the value 1 to indicate that **ulParam1** contains a pointer.

- **ulParam1**  
Contains a PSZ pointer. This pointer identifies the location of a CHAR szPrivilege[401] buffer where a data structure contains the evaluated privilege string.

- **ulParam2**  
The function does not use this field.

- **ulRC**  
Contains one of the following return codes:
  - SIM_RC_OK
  - SIM_RC_COMMUNICATIONS_ERROR
  - SIM_RC_COMPLETION_ERROR
  - SIM_RC_INVALID_CLASS_TYPE
  - SIM_RC_INVALID_HSESSION
  - SIM_RC_INVALID_POINTER
  - SIM_RC_INVALID_PRC
  - SIM_RC_INVALID_USCLASSID_VALUE
  - SIM_RC_LIB_CLIENT_ERROR
  - SIM_RC_OUT_OF_MEMORY

**Guidelines for Use**

**Effects:**
- The privilege string is evaluated for the class with respect to the user who got the hSession by logging on. The evaluated privilege string specifies the privileges of that user for the specified index class as computed by the access control algorithm.

**Follow-Up Tasks:** When your application no longer needs the data structure that **ulParam1** points to, use the SimLibFree(hSession,(PVOID)ulParam1, pRC) function to free the data structure.

**Ip2QueryPrivBuffer (Query a Privilege Buffer)**

**Format**

Ip2QueryPrivBuffer( pszPrivilege, ulAuthority, pRC )
Ip2QueryPrivBuffer

**Purpose**
Use the Ip2QueryPrivBuffer function to determine whether a certain authority is granted in a specified privilege buffer.

**Parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>pszPrivilege</td>
<td>PSZ — input</td>
<td>The current privileges set for the user.</td>
</tr>
<tr>
<td>ulAuthority</td>
<td>ULONG — input</td>
<td>The general privilege to search for. The valid values are:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OIM_ACL                       Determines the authority to create, update, and delete access lists.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OIM_ADD_ITEMS_TO_WB           Determines the authority to add an item to a workbasket.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OIM_ADD_ITEMS_TO_WF           Determines the authority to add an item to a workflow.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OIM_ADD_NEW_BASE_PART         Determines the authority to add a new document.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OIM_ADD_NOTE_TO_NOTELOG       Determines the authority to add a note object to the note log.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OIM_ATTRS                     Determines the authority to create, update, and delete attributes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OIM_CC                        Determines the authority to create, update, list and delete content classes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OIM_CHANGE_INDEX_CLASS        Determines the authority to change the index class of any items.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OIM_CHANGE_ITEMS_TO_WB        Determines the authority to change the priority of an item in a workbasket.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OIM_CHANGE_ITEMS_TO_WF        Determines the authority to change an item from the current workflow to a new workflow.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OIM_CHECK_IN_OUT_ITEMS        Determines the authority to check in and check out a folder or document.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OIM_CLASS                     Determines the authority to add and delete indexes on an index classes and query their DLLs.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OIM_CREATE_ITEMS              Determines the authority to create a folder or document.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OIM_DBUTILITY                 Determines the authority to allow UTILITY to access the database.</td>
</tr>
</tbody>
</table>
OIM_DELETE_BASE_PART
Determines the authority to delete a document.

OIM_DELETE_ITEMS
Determines the authority to delete a folder or document.

OIM_EXPORT
Determines the authority to export and to send mail that includes an object.

OIM_FAXIN
Determines the authority to receive a facsimile.

OIM_FAXOUT
Determines the authority to send a facsimile.

OIM_FAXSERVER
Determines the authority of the fax server to send or receive a facsimile.

OIM_FILEROOM
Determines the authority to access an application-defined fileroom.

OIM_IMPORT
Determines the authority to import and to receive mail.

OIM_LBOS_BACKUP
Determines the authority to back up the LAN-based object server.

OIM_LIB_SERV_BACKUP
Determines the authority to back up the library server.

OIM_LIB_SERV_CONFIG
Determines the authority to control the library server configuration.

OIM_LICENSE
Determines the authority to update the license information in the database.

OIM_LINK_ITEMS
Determines the authority to add a link between items and a folder.

OIM_OCR
Determines the authority to use an optical character recognition device.

OIM_PRINT
Determines the authority to print.

OIM_PRIV_SET
Determines the authority to create, update, and delete privilege sets.

OIM_READ_BASE_PART
Determines the authority to read a document part.

OIM_READ_HISTORY
Determines the authority to read a history event.

OIM_READ_NOTELOG
Determines the authority to read the note log.
OIM_READ_TOC
Determined the authority to read the folder table of contents.

OIM_READ_WORKBASKET
Determined the authority to get the workbasket information.

OIM_REMOVE_ITEMS_TO_WB
Determined the authority to remove an item from a workbasket.

OIM_REMOVE_ITEMS_TO_WF
Determined the authority to remove an item from a workflow.

OIM_REMOVE_LINKS
Determined the authority to delete a link between items and a folder.

OIM_SA_NLS
Determined the authority to update the supported languages in the database.

OIM_SA_OBJSERV
Determined the authority to update the object server information in the database.

OIM_SA_USER
Determined the general logon privileges of a user.

OIM_SA_WORKBASKET
Determined the authority to create, update, and delete workbaskets.

OIM_SA_WORKFLOW
Determined the authority to create, update, and delete workflows.

OIM_SCAN
Determined the authority to scan images.

OIM_SEARCH_INDEX_INFO
Determined the authority to read user-defined attributes for all index classes and all items in each index class.

OIM_SERVER
Determined the authority to act as a client on behalf of other clients.

OIM_SMS
Determined the authority to manage system-managed storage for a LAN-based object server.

OIM_SNAPSHOT_ALL
Determined the authority to use the SimLibGetItemSnapshot or SimLibGetTOCData functions on items.

OIM_SUPER_ADMIN
Determined the authority to bypass the access list.
OIM_SUSP_AND_ACTIVATE_ITEMS
   Determines the authority to suspend and activate a folder or document.

OIM_UPDATE_AVT_INFO
   Determines the authority to update user-defined attribute values for all index classes and all items in each index class.

OIM_UPDATE_BASE_PART
   Determines the authority to update a document.

OIM_UPDATE_NOTELOG
   Determines the authority to update or delete notes in the note log.

OIM_USER_GROUPS
   Determines the authority to create, update, and delete user groups.

OIM_USER_ID
   Determines the authority to create, update, and delete user IDs.

OIM_VIEW
   Determines the authority to create, update, and delete views.

OIM_WORKFLOW_CONTINUE
   Determines the authority to continue an item to the next step of a process.

OIM_WORKFLOW_FORCE_CONTINUE
   Determines the authority to force an item, with outstanding events pending, to the next step of a process.

OIM_WORKFLOW_SEARCH
   Determines the authority to search a process for items.

pRC
   PRCSTRUCT — input/output
   The pointer to the return data structure. For more information on the RCSTRUCT structure, see “RCSTRUCT (Return Code Information Structure)” on page 151.

Return Values
On successful completion, this function returns values to the following fields in the RCSTRUCT data structure:

usParam
   Contains the value 1 if the privilege set represented by pszPrivilege contains the specified authority. Otherwise the field contains the value 0.

ulParam1
   The function does not use this field.

ulParam2
   The function does not use this field.

ulRC
   Contains one of the following return codes:
   • SIM_RC_OK
   • SIM_RC_INVALID_POINTER
   • SIM_RC_INVALID_PRC
   • OIM_INVALID_PSZPRIVLEGED_STRING
   • SIM_INVALID_ULAUTHORITY
Ip2TOCCount

Ip2TOCCount (Count the Items in a Table of Contents)

Format

\[
\text{Ip2TOCCount}(\ hSession, \ pitemidItem, \ usItemType, \ usWipFilter, \ usSuspendFilter, \ usNbrOfClasses, \ pusClassIdList, \ pAsyncCtl, \ pRC)\
\]

Purpose

Use the Ip2TOCCount function to get a count of the items in a folder or workbasket that satisfy the filtering criteria that you specify. This function is similar to SimLibGetTOC, except that this function returns only a count of the items rather than a table of contents. The count includes all items, regardless of authority.

Parameters

- **hSession**: HSESSION — input
  The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

- **pitemidItem**: PITEMID — input
  The pointer to an item ID of a folder or workbasket.

- **usItemType**: USHORT — input
  The type of items to count. Here are the valid values:
  - SIM_DOCUMENT
    Counts documents.
  - SIM_FOLDER
    Counts folders.
  - SIM_ALL
    Counts all types of items.

- **usWipFilter**: USHORT — input
  Not supported.

- **usSuspendFilter**: USHORT — input
  Not supported.

- **usNbrOfClasses**: USHORT — input
  The number of index class identifiers in the list you specify as the value of the pusClassIdList parameter. Specify the value 0 for the usNbrOfClasses parameter to indicate that class is not a criterion for selecting items to count.

- **pusClassIdList**: PUSHORT — input
  The pointer to a list of index class identifiers that indicate the items to count. You can specify the value NULL for this parameter if you also specify the value 0 for the usNbrOfClasses parameter.

- **pAsyncCtl**: PASYNCCCTLSTRUCT — input
  Not supported.

- **pRC**: PRCSTRUCT — input/output
The pointer to the return data structure. For more information on the RCSTRUCT structure, see "RCSTRUCT (Return Code Information Structure)" on page 151.

Return Values
On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

usParam Contains the value 0.
ulParam1 Contains the count of items in the table of contents. If no items satisfy the filtering criteria, this field contains the value 0.
ulParam2 Contains the value 0.
ulRC Contains one of the following return codes:
• SIM_RC_OK
• SIM_RC_COMMUNICATIONS_ERROR
• SIM_RC_COMPLETION_ERROR
• SIM_RC_INVALID_HSESSION
• SIM_RC_INVALID_POINTER
• SIM_RC_INVALID_PRC
• SIM_RC_LIB_CLIENT_ERROR
• SIM_RC_OUT_OF_MEMORY
• SIM_RC_PRIVILEGE_ERROR

Guidelines for Use

Effects: If the item is not a folder or a workbasket, the function returns SIM_RC_INVALID_ITEM_TYPE.

Related Functions
• Ip2GetTOCUpdates
• SimLibGetTOC

Ip2TOCStatus (Get the Status of a Table of Contents)

Format

Ip2TOCStatus( hSession, hTOC, usCheck, pAsyncCtl, pRC )

Purpose
Use the Ip2TOCStatus function to return a value that indicates whether or not a table of contents has been changed.

Parameters

hSession HSESSION — input
The handle to the Content Manager for iSeries session information. The SimLibLogon function creates the session information.

hTOC HTOC — input
The handle to the table of contents for which you want to check the status. The SimLibGetTOC function returns this handle.

usCheck USHORT — input
Not supported.

pAsyncCtl PASYNCCTLSTRUCT — input
Ip2TOCStatus

Not supported.

\( pRC \)

PRCSTRUCT — input/output

The pointer to the return data structure. For more information on the RCSTRUCT structure, see "RCSTRUCT (Return Code Information Structure)" on page 151.

**Return Values**

On successful completion, this function returns values to the following fields in an RCSTRUCT data structure:

- **usParam**
  - Contains the value 0.

- **ulParam1**
  - If the table of contents has changed, this field contains the value TRUE. If there are no changes, this field contains the value FALSE.

- **ulParam2**
  - Contains the value 0.

- **ulRC**
  - Contains one of the following return codes:
    - SIM_RC_OK
    - OIM_EMPTY_WORKBASKET
    - OIM_INVALID_HTOC_VALUE
    - SIM_RC_COMMUNICATIONS_ERROR
    - SIM_RC_COMPLETION_ERROR
    - SIM_RC_INVALID_HSESSION
    - SIM_RC_INVALID_ITEM_ID
    - SIM_RC_INVALID_POINTER
    - SIM_RC_LIB_CLIENT_ERROR
    - SIM_RC_OUT_OF_MEMORY

**Guidelines for Use**

**Exceptions:** This function tells whether a table of contents has changed, but it does not return the updates. After you use the function, your application can use other functions to get the changes themselves. Because the time required for this function is nearly the same as the time required for SimLibGetTOC or SimLibGetTOCUpdates, you should use those functions instead, if possible.

- Use the Ip2GetTOCUpdates function to refresh the table of contents.
- Use the Ip2CloseTOC function to close the open table of contents and then use the SimLibGetTOC function to refresh the table of contents to reflect the values in the database.

**Related Functions**

- Ip2CloseTOC
- Ip2GetTOCUpdates
- SimLibGetTOC
Chapter 4. Common Data Structures

This part provides more detailed reference information that describes the common data structures and database tables used for Content Manager for iSeries. The data structures are listed alphabetically and are always in UPPERCASE in the Content Manager for iSeries code. The following information is provided about each data structure:

- Purpose
- Valid fields
- Valid field values
- Usage guidelines

Data Structures

**AFFTOCENTRYSTRUCT (Affiliated Table of Contents Entry Structure)**

This data structure provides information about which objects are affiliated with an item. It consists of the following:

```c
typedef struct _AFFTOCENTRYSTRUCT
{
    ULONG ulStruct;
    ANNOTATIONSTRUCT AnnotationData;
    ULONG ulObjType;
    OBJ Obj;
    ULONG ulObjConCls;
    ULONG ulObjLength;
    LONG lObjSeqAfter;
    ULONG ulObjFlags;
    TIMESTAMP tsCreate;
    TIMESTAMP tsChanged;
} AFFTOCENTRYSHOTSTRUCT, *PAFFTOCENTRYSTRUCT;
```

### Fields

- **ulStruct**
  - TYPE: ULONG — output
  - The length of the structure in bytes, including the length of this field.

- **AnnotationData**
  - TYPE: ANNOTATIONSTRUCT — output
  - The information associated with an annotation object. For more information, see `ANNOTATIONSTRUCT` (Annotation Information Structure).

- **ulObjType**
  - TYPE: ULONG — output
  - The type of object. The valid values are:
AFFTOCENTRYSTRUCT

SIM_ANNOTATION
Indicates that the item is an annotation associated with a folder or a document.

SIM_BASE
Indicates that the object is a base object such as a Mixed Object Document Content Architecture (MO:DCA) or Tag Image File Format (TIFF) file, and is not an annotation, note, or event associated with a folder or document.

SIM_NOTE
Indicates that the item is a note associated with a folder or a document.

Obj OBJ — output
The object handle data structure that identifies the object. For more information, see [HOBJ (Handle to Query Stored Object)]

ulObjConCls ULONG — output
The object content class of the object you query. The value SIM_CC_UNKNOWN indicates the undefined content class.

ulObjLength ULONG — output
The length of the object in bytes.

lObjSeqAfter LONG — output
The order of the object relative to other objects in the item.

Restriction: This is the value of the unsupported lSeqAfterPart parameter of the SimLibCreateObject function.

ulObjFlags ULONG — output
Not supported.

tsCreate TIMESTAMP — output
The date and time that the item or object was created.

tsChanged TIMESTAMP — output
The date and time that the item or object was changed.

ANNOTATIONSTRUCT (Annotation Information Structure)
This data structure provides information about an annotation affiliated with an object. It consists of the following:

typedef struct _ANNOTATIONSTRUCT
|
ULONG ulStruct;
ULONG ulPart;

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ANNOTATIONSTRUCT

<table>
<thead>
<tr>
<th>Field</th>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ulStruct</td>
<td>ULONG</td>
<td>The length of the structure in bytes, including the length of this field.</td>
</tr>
<tr>
<td>ulPart</td>
<td>ULONG</td>
<td>The part number of the object. Only positive values are valid.</td>
</tr>
<tr>
<td>ulPageNumber</td>
<td>ULONG</td>
<td>The page number that the annotation object refers to.</td>
</tr>
<tr>
<td>usX</td>
<td>USHORT</td>
<td>The X coordinate for the annotation object on the page that the value of the ulPageNumber field references.</td>
</tr>
<tr>
<td>usY</td>
<td>USHORT</td>
<td>The Y coordinate for the annotation object on the page that the value of the ulPageNumber field references.</td>
</tr>
<tr>
<td>usT</td>
<td>USHORT</td>
<td>Not supported.</td>
</tr>
<tr>
<td>usAnnotUnused</td>
<td>USHORT</td>
<td>A reserved field.</td>
</tr>
</tbody>
</table>

ATTRINFOSTRUCT (Attribute Information Structure)

This structure provides the data needed to create, modify, and list a user-defined attribute. It consists of the following:

typedef struct _ATTRINFOSTRUCT
{
    ULONG ulStruct;
    BOOL fUseBidirectional;
    BOOL fSymmetricSwapping;
    BOOL fShaping;
    LONG lMin;
    LONG lMax;
    BITS fTypeFlags;
    USHORT usAttrType;
    USHORT usHorizontalOrientation;
}
ATTRINFOSTRUCT

USHORT usVerticalOrientation;
USHORT usMode;
USHORT usNumericSelectionDefault;
CHAR szAttributeName;
CHAR achLanguageCode;

} ATTRINFOSTRUCT, *PATTRINFOSTRUCT;

Fields

ulStruct ULONG — output
The length of the structure in bytes, including the length of this field.

fUseBidirectional BOOL — output
This is always set to FALSE.

fSymmetricSwapping BOOL — input
This is always set to FALSE.

fShaping BOOL — input
This is always set to FALSE.

lMin LONG — input
The meaning of lMin varies with the value of the usAttrType parameter:
- It is the minimum length of the string and must contain the value 0 or a greater value, if usAttrType contains SIM_ATTR_FSTRING.
- When the data could be a double byte character string (DBCS), space must be allowed for the possible use of the shift in (SI) and the shift out (SO) indicators in a mixed string situation.
- It is the minimum value allowed if usAttrType contains SIM_ATTR_LONG.

lMax LONG — output
The meaning of lMax varies with the value of the usAttrType parameter:
- It is the maximum length of the string and must contain a value greater than 0 and greater than lMin, if usAttrType contains SIM_ATTR_FSTRING.
- It is the maximum value allowed if usAttrType contains SIM_ATTR_LONG.

fTypeFlags BITS — output
Not supported.

usAttrType USHORT — output
In Content Manager for iSeries, this is always set to SIM_ATTR_VSTRING.

usHorizontalOrientation USHORT — output
ATTRINFOSTRUCT

Not supported.

\textit{usVerticalOrientation} \hspace{1cm} USHORT — output

Not supported.

\textit{usMode} \hspace{1cm} USHORT — output

Not supported.

\textit{usNumericSelectionDefault} \hspace{1cm} USHORT — output

Not supported.

\textit{szAttributeName} \hspace{1cm} CHAR[\texttt{SIM\_ATTR\_NAME\_LENGTH}+1] — input/output

A NULL-terminated character string containing the application-defined name of the attribute.

\textit{achLanguageCode} \hspace{1cm} CHAR[\texttt{SIM\_LANGUAGE\_CODE\_LENGTH}+1] — output

The 3-character national language code for this attribute name. The values for language codes are described in the \textit{IBM National Language Design Guide: National Language Support Reference Manual Volume 2}.

\textbf{ATTRLISTSTRUCT (Attribute List Data Structure)}

This data structure defines a single system-defined or user-defined attribute value to be associated with an item. The structure is also used when creating an item. It consists of the following:

typedef struct \_ATTRLISTSTRUCT

\{
    ULONG \hspace{1cm} ulStruct;
    PSZ \hspace{1cm} pszAttributeValue;
    BITS \hspace{1cm} fAttrFlags;
    USHORT \hspace{1cm} usAttrId;
    USHORT \hspace{1cm} usAttrType;
\} \hspace{1cm} ATTRLISTSTRUCT, *PATTRLISTSTRUCT;

\textbf{Fields}

\textit{ulStruct} \hspace{1cm} ULONG — input/output

The length of the structure in bytes, including the length of this field.

\textit{pszAttributeValue} \hspace{1cm} PSZ — input/output

The pointer to a NULL-terminated character string containing the value of an attribute.

\textit{fAttrFlags} \hspace{1cm} BITS — output

Flags that denote attribute characteristics. These flags indicate whether the attribute value is accessible for reading, writing, or both, and whether it is required for the index class. The valid
values follow. You can use a bit-wise inclusive OR operator (|) to combine them.

**SIM_ATTR_READABLE**
Indicates that the attribute is accessible for reading for this index class.

**SIM_ATTR_READWRITE**
Indicates that the attribute is accessible for both reading and writing for this index class.

**SIM_ATTR_WRITEABLE**
Indicates that the attribute is accessible for writing for this index class.

**SIM_ATTR_ALLOW_NULL**
Indicates that the attribute value is not required for this index class.

`usAttrId`  
USHORT — input/output

The unique identifier of an attribute. See the note the follows this list for a discussion of the Content Manager for iSeries system-defined attributes.

`usAttrType`  
USHORT — input/output

In Content Manager for iSeries, this is always set to SIM_ATTR_VSTRING.

Content Manager for iSeries supports the system-defined attributes shown in Table 2.

**Table 2. Source of Values for System-Defined Attributes**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Description</th>
<th>How Assigned</th>
</tr>
</thead>
<tbody>
<tr>
<td>OIM_ID_ITEM_CREATE_TIMESTAMP</td>
<td>The timestamp when the item was created</td>
<td>System-assigned and system-maintained automatically</td>
</tr>
<tr>
<td>OIM_ID_ITEM_NAME</td>
<td>The name of the item</td>
<td>You can assign when creating an item and update when opening an item for read and write access</td>
</tr>
<tr>
<td>OIM_ID_SYS_MOD_TIMESTAMP</td>
<td>The timestamp for changes to the system-assigned or user-defined attributes of the item</td>
<td>System-assigned and system-maintained automatically</td>
</tr>
<tr>
<td>OIM_ID_ITEM_ID</td>
<td>The item ID of the item</td>
<td>System-assigned and system-maintained automatically</td>
</tr>
</tbody>
</table>

**CLASSATTRSTRUCT (Class Attribute Structure)**

This data structure contains specific information about the attributes defined for an index class. It consists of the following:

```c
typedef struct _CLASSATTRSTRUCT
```

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typedef struct _CLASSINDEXATTRSTRUCT
{
    ULONG ulStruct;
    USHORT usAttrId;
    USHORT usIndexSortOrder;
} CLASSINDEXATTRSTRUCT, *PCLASSINDEXATTRSTRUCT;

**CLASSINDEXATTRSTRUCT (Class Index Attribute Structure)**

This data structure contains information about an attribute within an index on an index class attributes table. It consists of the following:

typedef struct _CLASSINDEXATTRSTRUCT
{
    ULONG ulStruct;
    USHORT usAttrId;
    USHORT usIndexSortOrder;
} CLASSINDEXATTRSTRUCT, *PCLASSINDEXATTRSTRUCT;
CLASSINDEXATTRSTRUCT

Fields

<ulStruct> ULONG — output
The length of the structure in bytes, including the length of this field.

<usAttrId> USHORT — output
The unique identifier of an attribute. The attribute can be user-defined but not system-defined, and it must be in the index class for which this index is requested.

<usIndexSortOrder> USHORT — output
In Content Manager for iSeries, this is always set to SIM_INDEX_ASCENDING.

CLASSINDEXSTRUCT (Class Index Structure)

This data structure contains the index class attributes that are used to create a database index on an index class. It consists of the following:

typedef struct _CLASSINDEXSTRUCT
|
| ULONG ulStruct;
| BITS fIndexFlags;
| PCLASSINDEXATTRSTRUCT pClassIndexAttr;
| USHORT usNbrAttrIds;
| CHAR szIndexName;
|
| CLASSINDEXSTRUCT, *PCLASSINDEXSTRUCT;

Fields

<ulStruct> ULONG — output
The length of the structure in bytes, including the length of this field.

<fIndexFlags> BITS — output
Not supported.

<pClassIndexAttr> PCLASSINDEXATTRSTRUCT — output
A pointer to a ClassIndexAttrStruct data structure containing class index attribute information. For more information, see [CLASSINDEXATTRSTRUCT] (Class Index Attribute Structure).

<usNbrAttrIds> USHORT — output
The number of attribute IDs in the ClassIndexAttrStruct structure.

<szIndexName> CHAR[SIM_INDEX_NAME_LENGTH+1] — output
The unique name of an index class database index.
CLASSINFOSTRUCT (Index Class Information Structure)

This data structure provides information about an index class. It consists of the following:

typedef struct _CLASSINFOSTRUCT
{
    ULONG ulStruct;           // output
    PCLASSATTRSTRUCT pClassAttrStruct;       // output
    USHORT usNbrAttrIds;               // output
    USHORT usMaxVersions;             // output
    USHORT usIndexClass;              // output
    USHORT usViewID;                   // output
    CHAR szACLName;                    // output
    CHAR achLanguageCode;             // output
    CHAR szClassName;                 // output
    CHAR szDescription;               // output
    CHAR szCollectionName;            // output
    CHAR szStoreSite;                 // output
} CLASSINFOSTRUCT, *PCLASSINFOSTRUCT;

**Fields**

- **ulStruct**
  - **ULONG — output**
  - The length of the structure in bytes, including the length of this field.

- **pClassAttrStruct**
  - **PCLASSATTRSTRUCT — output**
  - A pointer to an array of class attribute structures.

- **usNbrAttrIds**
  - **USHORT — output**
  - The number of attribute IDs in the CLASSATTRSTRUCT array. For classes with no attributes, this value is 0, and the pClassAttrStruct field contains the value NULL.

- **usMaxVersions**
  - **USHORT — output**
  - Not supported.

- **usIndexClass**
  - **USHORT — output**
  - An index class identifier.

- **usViewID**
  - **USHORT — output**
  - The ID of an existing index class view.

- **szACLName**
  - **CHAR[SIM_ACCESS_LIST_NAME_LENGTH+1] — output**
  - The name of the access list (ACL) for the index class.

- **achLanguageCode**
  - **CHAR[SIM_LANGUAGE_CODE_LENGTH+1] — output**
  - The name of the index class.
CLASSINFOSTRUCT

The 3-character national language code for this index class name or view name. The values for language codes are described in the *IBM National Language Design Guide: National Language Support Reference Manual, Volume 2.*

*szClassName*  
CHAR[SIM_CLASS_NAME_LENGTH+1] — output

The name of the index class or view, expressed in the specified language.

*szDescription*  
CHAR[SIM_DESCRIPTION_LENGTH+1] — output

Not supported.

*szCollectionName*  
CHAR[SIM_COLLECTION_NAME_LENGTH+1] — output

The default collection for new objects in the specified index class. For a view, this is the same value as for the index class that is associated with the view. It is valid for a view only on the *SimLibGetClassInfo* function.

*szStoreSite*  
CHAR[SIM_SERVER_NAME_LENGTH+1] — output

Not supported.

**CONTENTCLASSINFO (Content Class Information Structure)**

This information structure provides the data you need to create and modify a content class. It consists of the following:

```c
typedef struct _CONTENTCLASSINFO
{
    ULONG ulStruct;
    USHORT usContentClsID;
    CHAR szContentClsName;
    CHAR szContentClsDesc;
} CONTENTCLASSINFO, *PCONTENTCLASSINFO;
```

**Fields**

*ulStruct*  
ULONG — output

The length of the structure in bytes, including the length of this field.

*usContentClsID*  
USHORT — output

An unique content class ID that Content Manager for iSeries generates.

*szContentClsName*  
CHAR[9] — output

The name of the content class.

*szContentClsDesc*  
CHAR[41] — output

The description of the content class.
**HOBJ (Handle to Query Stored Object)**

This handle identifies the stored object to query. This is actually a pointer to a data structure that consists of:

```c
typedef struct _OBJSTRUCT
{
    ULONG ulStruct;
    ULONG ulPart;
    SHORT sVersion;
    ITEMID szItemID;
    UCHAR chRepType;
    UCHAR chReserved;
} OBJ, *HOBJ;
```

**Fields**

- **ulStruct**
  - ULONG — input/output
  - The length of the structure in bytes, including the length of this field.

- **ulPart**
  - ULONG — input/output
  - The part number of the object. Only positive values are valid.

- **sVersion**
  - SHORT — input
  - Not supported.

- **szItemID**
  - ITEMID — input/output
  - The item ID of the object.

- **chRepType**
  - UCHAR[SIM_REP_TYPE] — input/output
  - Not supported.

- **chReserved**
  - UCHAR[SIM_OBJ_RESERVED_LENGTH] — input
  - Reserved.

**ICVIEWSTRUCT (Index Class View Information Structure)**

This data structure provides information about the index class or index class view information structure. It consists of the following:

```c
typedef struct _ICVIEWSTRUCT
{
    ULONG ulStruct;
    struct _ICVIEWSTRUCT *pNextView;
    PATTRLISTSTRUCT pAttr;
    USHORT usIndexClass;
    USHORT usViewId;
    USHORT usNumAttributes;
} ICVIEWSTRUCT, *PICVIEWSTRUCT;
```
### ITEMINFOSTRUCT (Item Information Structure)

This data structure provides the requested item information. It consists of the following:

```c
typedef struct _ITEMINFOSTRUCT
{
  ULONG ulStruct;
  BOOL fSuspended;
  USHORT usItemType;
  USHORT usIndexClass;
  ULONG ulOpenStatus;
  USHORT usWipStatus;
  USERID useridCheckout;
  CHAR szLabel;
} ITEMINFOSTRUCT, *PITEMINFOSTRUCT;
```

The following fields are included in the ITEMINFOSTRUCT structure:

- **ulStruct**: ULONG — output
  - The length of the structure in bytes, including the length of this field.

- **pNextView**: struct _ICVIEWSTRUCT * — output
  - The pointer to the next field in the linked list of view information for the item. Each field in this list is an ICVIEWSTRUCT data structure. For Content Manager for iSeries, this pointer always contains the value NULL.

- **pAttr**: PATTRLISTSTRUCT — output
  - The pointer to an array of ATTRLISTSTRUCT data structures. Each data structure contains either the system-defined or the user-defined attribute ID of the current view for this item. One data structure in the array specifies one attribute.

- **usIndexClass**: USHORT — output
  - The index class identifier for the item.

- **usViewId**: USHORT — output
  - The ID of an existing index class view.

- **usNumAttributes**: USHORT — output
  - The number of attribute values that exist for this item. The value of this field matches the number of ATTRLISTSTRUCT data structures that the pAttr field points to.
The length of the structure in bytes, including the length of this field.

*fSuspended*  
BOOL — output  
Not supported.

*uItemType*  
USHORT — output  
The type of items retrieved using the *SimLibGetItemInfo* function. The valid values are:

**SIM_DOCUMENT**  
Indicates that the item is a document.

**SIM_FOLDER**  
Indicates that the item is a folder.

**SIM_WORKBASKET**  
Indicates that the item is a workbasket.

**SIM_WORKFLOW**  
Indicates that the item is a process.

*uIndexClass*  
USHORT — output  
An index class identifier.

For the *SimLibGetItemInfo* function, this value specifies the index class ID for the item you are querying.

*ulOpenStatus*  
ULONG — output  
Indicator of whether the item is open for update. Together, this parameter and the *useridCheckout* parameter provide information about who has the item and for what purpose. The valid values are:

**SIM_ACCESS_READ_WRITE**  
Indicates that you have the item open for update.

**SIM_ACCESS_UNKNOWN**  
Indicates that you do not have the item open for update.

*uWipStatus*  
USHORT — output  
The current WIP status of the item. The value of this field indicates whether or not the item is suspended, as well as the workflow status of the item. The OR operator is used to combine one suspension status value with one workflow status value from the following groups:

**Suspension Status Values**  
Not supported.

**Workflow Status Values**

**OIM-CURRENT_WORKFLOW_ITEMS**  
Indicates that the item is in a process.
ITEMINFOSTRUCT

OIM_ITEMS_NOT_IN_WORKFLOW
Indicates that the item is not in a process.

useridCheckout

USERIDENT — output
The user ID of the person who has the item checked out. Together, this parameter and the ulOpenStatus parameter provide information about who has the item and for what purpose. The valid values are:

Your user ID
Indicates that you have the item checked out permanently and open for update, if ulOpenStatus contains the value SIM_ACCESS_READ_WRITE. Otherwise, you have the item checked out permanently but it is not open for update.

Other user ID
Identifies another user who has the item checked out, if ulOpenStatus contains SIM_ACCESS_UNKNOWN.

A null string
Indicates that you have the item open for update, if ulOpenStatus contains the value SIM_ACCESS_READ_WRITE. Otherwise, the item is not checked out.

szLabel

CHAR[SIM_LABEL_LENGTH+1] — output
A null-terminated string that contains the name or label of the item.

ITEMNAMESTRUCT (Item Name Data Structure)
This data structure provides the name associated with a workbasket or process item.

typedef struct_ITEMNAMESTRUCT
{
    ULONG ulStruct;
    ITEMID WItemID;
    CHAR szIDName;
    ULONG ulActive;

} ITEMNAMESTRUCT, *PITEMNAMESTRUCT;

Fields

ulStruct
ULONG — output
The length of the structure in bytes, including the length of this field.

WItemID
ITEMID — output
The item ID of either the workbasket or the process.
szIDName
  CHAR[OIM_ITEMNAME_LENGTH+1] — output
  The description of the item.

ulActive
  ULONG — output
  For Content Manager for iSeries, the status of the workbasket or process.
  The valid values are:

  SIMWM_ACTIVE
    Indicates the workbasket or process is active.

  SIMWM_INACTIVE
    Indicates the workbasket or process is marked for deletion.

LIBSEARCHCRITERIASTRUCT (Search Criteria Information Structure)

  This data structure provides information about which index class to search and the
  search expression itself. It consists of the following:

  typedef struct _LIBSEARCHCRITERIASTRUCT
  {
    ULONG ulStruct;
    ULONG ulReturnLimit;
    BITS fSearch;
    PSZ pszSearchString;
    USHORT usViewID;
    USHORT usSearchUnused;
  } LIBSEARCHCRITERIASTRUCT, *PLIBSEARCHCRITERIASTRUCT;

Fields

  ulStruct
    ULONG — input
    The length of the structure in bytes, including the
    length of this field.

  ulReturnLimit
    ULONG — input
    The maximum number of items that the search
    returns for the index class you specify. If you
    specify SIM_SEARCH_ALLVIEWS as the value of
    the fSearch field, the value of this field is the
    maximum number of items that the search returns
    per index class from each index class you search.
    Specify 0 as the value of this field to return all the
    items that match the search criteria for the index
    class you specify.

  fSearch
    BITS — input
    The search modification indicator. The value of this
    field determines a modification to the search. The
    valid values are:

    SIM_SEARCH_VIEW
      Searches only the view specified in the
usViewID field. If you specify this value, you must specify the ID of a valid view in the usViewID field.

**SIM_SEARCH_ALLVIEWS**
Searches all the appropriate current views, not just one view. If you specify this value, you must specify 0 as the value of the usViewID field. You can specify this value in only one of the data structures in an array of search criteria.

If you specify this value, the SimLibSearch function automatically searches only the views that contain the attributes you specify in the expression within the pszSearchString field.

**pszSearchString**
PSZ — input
A pointer to a null-terminated string. This field contains one or more expressions. Each expression describes the search conditions on an attribute. Use logical operators to combine expressions for the search. You can use an unlimited number of levels and parentheses. See [Guidelines for Search Expressions](#) following this list.

**usViewID**
USHORT — input
The ID of an existing index class.

**usSearchUnused**
USHORT — input
Reserved field.

**Restriction:** The SimLibSearch function does not use this value.

**Guidelines for Search Expressions**

**LIBSESSIONINFOSTRUCT (Library Session Information Structure)**
This data structure provides information about the current library session that you specify as the value of the HSESSION parameter, when you use the SimLibLogon function to start the current session. It consists of the following:

typedef struct _LIBSESSIONINFOSTRUCT
{
| ULONG     | ulStruct; |
| SESSION_P | pSession; |
| CHAR      | szDBName; |
| CHAR      | szApplicationName; |
| PATRON_ID | szUserIDSession; |
} LIBSESSIONINFOSTRUCT, *PLIBSESSIONINFOSTRUCT;
**NAMESTRUCT (Name Data Structure)**

This data structure provides the name associated with an attribute or index class view code. It consists of the following:

```c
typedef struct _NAMESTRUCT
{
    ULONG ulStruct;
    USHORT usID;
    CHAR szName;
    CHAR szDescription;
} NAMESTRUCT, *PNAMESTRUCT;
```

**Fields**

- **ulStruct**: ULONG — output
  - The length of the structure in bytes, including the length of this field.

- **usID**: USHORT — output
  - The ID of a valid attribute, an index class, or an index class view.

- **szName**: CHAR[SIM_CLASS_NAME_LENGTH+1] — output
  - The name of the index class or view in the current language.

- **szDescription**: CHAR[SIM_DESCRIPTION_LENGTH+1] — output
  - Not supported.

**OBJINFOSTRUCT (Object Information Structure)**

This data structure provides storage information about the object. It consists of the following:
typedef struct _OBJINFOSTRUCT
{
    ULONG ulStruct;
    ULONG ulObjSize;
    LONG lSMSRetention;
    LONG lEstimateRetrieveTime;
    ULONG ulAvail;
    ULONG ulObjConCls;
    USHORT usPageNum;
    TIMESTAMP tsCreate;
    TIMESTAMP tsExpiration;
    TIMESTAMP tsLastRef;
    TIMESTAMP tsModify;
    TIMESTAMP tsEnterSG;
    TIMESTAMP tsEnterSC;
    CHAR szCollectionName;
    CHAR szObjectName;
    CHAR szMgtCls;
    CHAR szStgCls;
    CHAR szDataCls;
    CHAR szStoreSite;
} OBJINFOSTRUCT, *POBJINFOSTRUCT;

Fields

ulStruct    ULONG — output
            The length of the structure in bytes, including the
            length of this field.

ulObjSize    ULONG — output
            The total size of the object in bytes.

lSMSRetention    LONG — output
            Not supported.

lEstimateRetrieveTime    LONG — output
            Not supported.

ulAvail    ULONG — output
            Not supported.

ulObjConCls    ULONG — output
            The object content class of the object you query.
            The value SIM_CC_UNKNOWN indicates the
            undefined content class.

usPageNum    USHORT — output
            Not supported.

tsCreate    TIMESTAMP — output
            The date and time that the item or object was
            created.

tsExpiration    TIMESTAMP — output
Not supported.

-tsLastRef
TIMESTAMP — output
Not supported.

-tsModify
TIMESTAMP — output
The date and time that the item or object was last modified.

-tsEnterSG
TIMESTAMP — output
Not supported.

-tsEnterSC
TIMESTAMP — output
Not supported.

-szCollectionName
CHAR[MAXCOLNMSZ] — input
Not supported.

-szObjectName
CHAR[MAXOBJNMSZ] — input
Not supported.

-szMgtCls
CHAR[MAXMGTCLSNMSZ] — output
Not supported.

-szStgCls
CHAR[MAXSTGCLSNMSZ] — output
Not supported.

-szDataCls
CHAR[MAXDATACLSNMSZ] — output
Not supported.

-szStoreSite
CHAR[MAXSTRSITENMSZ] — output
Not supported.

**RCSTRUCT (Return Code Information Structure)**

This data structure provides programming-interface function return code and data information. It consists of the following:

```c
typedef struct _RCSTRUCT
{
    ULONG ulStruct;
    ULONG ulRC;
    USHORT usReserved;
    USHORT usParam;
    ULONG ulParam1;
    ULONG ulParam2;
    #ifdef _OS400_
    PVOID pParam1;
    PVOID pParam2;
    #endif
    ULONG ulExtRC;
    ULONG ulExtReason;
    PVOID pApplData;
    ULONG ulApplData;
    ULONG ulReserved;
} RCSTRUCT;
```

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RCSTRUCT

HERR

| RCSTRUCT, *PRCSTRUCT;

Fields

ulStruct

U Long — output

The length of the structure in bytes, including the length of this field.

ulRC

U Long — output

The function return code.

usReserved

U Short — output

Not supported.

usParam

U Short — output

A field that indicates whether the ulParam1 field contains a pointer to a data area. The value 1 indicates that this is the case. Otherwise, this field contains the value 0.

ulParam1

U Long — output

A value or a pointer to either a data structure or an array of data structures.

ulParam2

U Long — output

A field that indicates the number of data structures in the array if the ulParam1 field contains a pointer to an array of data structures.

pParam1

P Void — output

A pointer used in place of ulParam1 when the function is executed on the server.

pParam2

P Void — output

A pointer used in place of ulParam2 when the function is executed on the server.

ulExtRC

U Long — output

A return code from other components that Content Manager for iSeries called directly or indirectly.

ulExtReason

U Long — output

Not supported.

pApplData

P Void — output

A P Void data field that your application can use to contain application data. Content Manager for iSeries does not use this data field. The value is preserved by the programming interface function and returned. For example, your application might use this field to point to a data structure, one that your application creates prior to using a function.
that requires the data. The function could use the data in that structure to process a user exit.

\textit{ulApplData} \qquad \text{ULONG — output}

A ULONG data field that your application can use to contain application data. Content Manager for iSeries does not use this data field. The value is preserved by the programming interface function and returned. For example, your application might use this field to point to a data structure, one that your application creates prior to using a function that requires the data. The function could use the data in that structure to process a user exit.

\textit{ulReserved} \qquad \text{ULONG — output}

Not supported.

\textit{hErrLog} \qquad \text{HERR — output}

Not supported.

\textbf{SERVERINFOSTRUCT (Server Information Structure)}

The structure contains information about a server defined to the system. This data structure is returned to the application that called it. It consists of the following:

\begin{verbatim}
typedef struct _SERVERINFOSTRUCT
{
    ULONG   ulStruct;
    CHAR    szServerName;
    CHAR    szServerType;
} SERVERINFOSTRUCT, *PSERVERINFOSTRUCT;
\end{verbatim}

\textbf{Fields}

\textit{ulStruct} \qquad \text{ULONG — input}

The length of the structure in bytes, including the length of this field.

\textit{szServerName} \qquad \text{CHAR[SERVERNAME_LENG+1] — output}

The name of the Content Manager for iSeries server.

\textit{szServerType} \qquad \text{CHAR[SERVERTYPE_LENG+1] — output}

The server type. Current server types include the following:

\begin{table}[h]
\begin{tabular}{|l|l|}
\hline
\textbf{Server Type} & \textbf{Explanation} \\
\hline
‘FRNCACHE’ & List manager cache \\
‘FRNREXE’ & Remote utility server \\
‘FRNCS’ & Configuration server \\
‘FRNOSADM’ & System-managed storage server \\
‘FRNOLM’ & List manager server \\
\hline
\end{tabular}
\end{table}
**SMS (System-Managed Storage Pointer)**

The pointer to the system-managed storage (SMS) data structure for an object. This data structure provides the information necessary to support the SMS for an object on a variety of object servers. This is a pointer to a data structure that consists of the following:

```c
typedef struct _SMS
{
    ULONG ulStruct;
    LONG lSMSRetention;
    CHAR szCollectionName;
    CHAR szObjectName;
    CHAR szMgtCls;
    CHAR szStgCls;
    CHAR szDataCls;
    CHAR szStoreSite;
    CHAR szStoreHint;
} SMS, *PSMS;
```

**Fields**

- **ulStruct**: ULONG — input
  
The length of the structure in bytes, including the length of this field.

- **lSMSRetention**: LONG — input
  
The period in days that Content Manager for iSeries retains the object in system-managed storage. The valid values range from 1 to 999 999 999.

- **szCollectionName**: CHAR[MAXCOLNMSZ] — input
  
The ASCII user-defined collection name. The value of this field references a zero-terminated string in client data space, containing a user-defined number of significant characters. This character string provides a meaningful name for the collection being created. If you do not require a collection name, specify the value NULL. After an object has been assigned to a collection on an object server, you cannot change the collection assignment.

- **szObjectName**: CHAR[MAXOBJNMSZ] — input
  
  Not supported.

- **szMgtCls**: CHAR[MAXMGTCLSNMSZ] — input
  
  Not supported.

- **szStgCls**: CHAR[MAXSTGCLSNMSZ] — input
  
  Not supported.

- **szDataCls**: CHAR[MAXDATAACLSNMSZ] — input
  
  Not supported.
SNAPSHOTSTRUCT (Snapshot Information Structure)

This data structure provides the view, attribute, and work management information for an item at a specific point in time. It consists of the following:

typedef struct _SNAPSHOTSTRUCT
{
    ULONG ulStruct;
    PWMSNAPSHOTSTRUCT pWmSnapshot;
    USHORT usNumWmSnapshots;
    PICVIEWSTRUCT plCView;
    USHORT usNumViews;
    USHORT usItemType;
    ULONG ulOpenStatus;
    ITEMID szItemID;
    USERID useridCheckout;
    TIMESTAMP tsCreate;
    TIMESTAMP tsModify;
} SNAPSHOTSTRUCT, *PSNAPSHOTSTRUCT;

**Fields**

*ulStruct*  
ULONG — output  
The length of the structure in bytes, including the length of this field.

*pWmSnapshot*  
PWMSNAPSHOTSTRUCT — output  
The pointer to the workflow information data structure of the type WMSNAPSHOTSTRUCT. The SimLibGetItemSnapshot function returns this structure when the you specify the value of the fReadAttrInd input parameter as SIM_WORK_ATTR. Otherwise, this field contains the value NULL.

Content Manager for iSeries supports the existence of an item in more than one workbasket, so it could be an array of workflow information for an item.

*usNumWmSnapshots*  
USHORT — input  
The number of elements in the array of WMSNAPSHOTSTRUCT that pWmSnapshot points to.

*plCView*  
PICVIEWSTRUCT — output
SNAPSHOTSTRUCT

The pointer to a linked list of view information for the item, where each element of the list is of the data type ICVIEWSTRUCT. If the item is not associated with any index class, or you do not retrieve system attributes, this pointer contains the value NULL.

Currently in Content Manager for iSeries, if the item is associated with an index class, there is only one element in the linked list containing information about the current index class view for the item. If the item is not associated with any index class, this pointer contains the value NULL.

usNumViews USHORT — output

The number of elements in the linked list pointed to by the pICView field in the SNAPSHOTSTRUCT data structure.

Currently in Content Manager for iSeries, if the item is associated with an index class, this field contains the value 1. This value indicates that the linked list of elements of the data type ICVIEWSTRUCT contains one element with information pertaining to the current index class view for the item. If the item is not associated with an index class, this field contains the value 0. In this case, however, the pICView pointer is still valid if you retrieve system attributes.

usItemType USHORT — output

The type of items retrieved using the SimLibGetItemSnapshot function. The valid values are:

SIM_DOCUMENT Indicates that the item is a document.

SIM_FOLDER Indicates that the item is a folder.

ulOpenStatus ULONG — output

Indicator of whether the item is open for update. Together, this parameter and the useridCheckout parameter provide information about who has the item and for what purpose. The valid values are:

SIM_ACCESS_READ_WRITE Indicates that you have the item open for update.

SIM_ACCESS_UNKNOWN Indicates that you do not have the item open for update.

szItemID ITEMID — output

An item ID.

useridCheckout USERIDENT — output
The user ID of the person who has the item checked out. Together, this parameter and the $ulOpenStatus$ parameter provide information about who has the item and for what purpose. The valid values are:

**Your user ID**
Indicates that you have the item checked out permanently and open for update, if $ulOpenStatus$ contains the value $SIM_ACCESS_READ_WRITE$. Otherwise, you have the item checked out permanently but it is not open for update.

**Other user ID**
Identifies another user who has the item checked out, if $ulOpenStatus$ contains $SIM_ACCESS_UNKNOWN$.

**A null string**
Indicates that you have the item open for update, if $ulOpenStatus$ contains the value $SIM_ACCESS_READ_WRITE$. Otherwise, the item is not checked out.

$tssCreate$ TIMESTAMP — output
The date and time that the item or object was created.

$tssModify$ TIMESTAMP — output
The date and time that the item or object was last modified.

**TOCENTRYSTRUCT (Table of Contents Entry Data Structure)**
This data structure provides information describing an entry in a list of the documents and folders contained in the specific folder or workbasket. It consists of the following:

```c
typedef struct _TOCENTRYSTRUCT {
    ULONG ulStruct;
    USHORT usItemStatus;
    USHORT usIndexClass;
    USHORT usItemType;
    ITEMID szItemID;
    TIMESTAMP tsItemChanged;
} TOCENTRYSTRUCT, *PTOCENTRYSTRUCT;
```

**Fields**

**$ulStruct$**
ULONG — input
The length of the structure in bytes, including the length of this field.

**$usItemStatus$**
USHORT — input
The status of the entry after the update. The valid values are:

- 0 (unmodified)
- SIM_TOC_ADD
- SIM_TOC_MODIFIED
- SIM_TOC_DELETE

usIndexClass

USHORT — input
An index class identifier.

usItemType

USHORT — input
The type of items retrieved using the SimLibGetTOC function. The valid values are:

SIM_DOCUMENT
Indicates that the item is a document.

SIM_FOLDER
Indicates that the item is a folder.

szItemID

ITEMID — input
An item ID.

tsItemChanged

TIMESTAMP — input
The timestamp of the item as stored in the library server.

USERACCESSSTRUCT (User Access Data Structure)

This data structure provides information describing the user who has checked out the referenced item. It consists of the following:

typedef struct _USERACCESSSTRUCT
|
ULONG ulStruct;
ULONG ulAccessLevel;
USERIDENT useridCheckout;
ITEMID szItemID;
|
USERACCESSSTRUCT, *PUSERACCESSSTRUCT;

Fields

ulStruct

ULONG — output
The length of the structure in bytes, including the length of this field.

ulAccessLevel

ULONG — output
Not supported.

useridCheckout

USERIDENT — output
The user ID of the person who checked out this item. If the item is not currently checked out, this field contains the value NULL.

szItemID

ITEMID — output
An item ID.

**USERLOGONINFOSTRUCT (User Logon Information Structure)**

This data structure provides information about the user’s session. It consists of the following:

typedef struct _USERLOGONINFOSTRUCT
{
  ULONG ulStruct;
  ULONG ulUserType;
  ULONG ulUserCCSID;
  PSZ pszUserDescription;
  CHAR szUserLanguage;
  CHAR szSessionType;
  TIMESTAMP tsPasswordExpire;
  CHAR szPrivString;
} USERLOGONINFOSTRUCT, *PUSERLOGONINFOSTRUCT;

**Fields**

- **ulStruct**
  ULONG — input
  The length of the structure in bytes, including the length of this field.

- **ulUserType**
  ULONG — input
  Not supported.

- **ulUserCCSID**
  ULONG — input
  Not supported.

- **pszUserDescription**
  PSZ — input
  Not supported.

- **szUserLanguage**
  CHAR[3] — input
  A fixed-length character array that indicates the language that this user prefers for dialogs and messages. The valid value is a standard IBM 3-character language code. The values for language codes are described in the IBM National Language Design Guide: National Language Support Reference Manual Volume 2.

- **szSessionType**
  CHAR[3] — input
  The type of logon session. The only valid value for this field is Ip2.

- **tsPasswordExpire**
  TIMESTAMP — input
  The date when the current password expires.

- **szPrivString**
  CHAR[7] — input
  A null-terminated character string that represents the privilege vector for the user. This string
consists of ASCII zeros and ones that correspond to the zeros and ones in the user’s corresponding privilege vector.

**WMACTIONLISTFUNCSTRUCT (Action List Function Structure)**

This data structure provides information about an action that is defined with an action list.

```c
typedef struct _WMACTIONLISTFUNCSTRUCT
{
    ULONG ulFuncNumber;
    ULONG ulActionType;
    ULONG ulFuncCode;
    CHAR szFuncPrompt[1];
    CHAR szAction[1];
    CHAR szIcon[1];
    CHAR szShortcut[1];
    CHAR szExitFuncName[1];
    CHAR szExitDLLName[1];
} WMACTIONLISTFUNCSTRUCT,
    *PWMACTIONLISTFUNCSTRUCT;
```

**Fields**

**ulFuncNumber**

ULONGLONG — output

The sequence number of the action within the action list.

**ulActionType**

ULONGLONG — output

Indicates whether an action is applicable for documents, folders, or both item types. The valid values are:

- **SIMWM_ACTION_DOCUMENT**
  The action is associated with document items.

- **SIMWM_ACTION_FOLDER**
  The action is associated with folder items.

- **SIMWM_ACTION_BOTH**
  The action is associated with both folder and document items.

**ulFuncCode**

ULONGLONG — output

The value that uniquely identifies an action.

**szFuncPrompt**

CHAR[SIMWM_AL_PROMPT+1] — output

The text prompt associated with this action.

**szAction**

CHAR[SIMWM_AL_ACTION+1] — output

The value to be assigned to the SIMWM_ACTION variable when this action is selected.

**szIcon**

CHAR[SIMWM_AL_ICON+1] — output
Icon associated with this action.

\texttt{szShortcut}\n
\begin{verbatim}
CHAR[\texttt{SIMWM_AL_SHORTCUT}+1] — output
\end{verbatim}

The keyboard shortcut associated with this action.

\texttt{szExitFuncName}\n
\begin{verbatim}
CHAR[\texttt{OIM_WB_FUNCTION_LENGTH}+1] — output
\end{verbatim}

If this is a user-defined action, this field contains the name of the user exit function to be run.

\texttt{szExitDLLName}\n
\begin{verbatim}
CHAR[\texttt{OIM_WB_DLL_LENGTH}+1] — output
\end{verbatim}

If this is a user-defined action, this field contains the name of the dynamic link library which contains the function \texttt{szExitFuncName}.

**WMACTIONLISTINFOSTRUCT (Action List Data Structure)**

This data structure provides all of the information associated with an action list definition.

\texttt{typedef struct _WMACTIONLISTINFOSTRUCT}

\begin{verbatim}
{
ULONG ulStruct;
CHAR szActionListName;
TIMESTAMP tsALCreate;
TIMESTAMP tsALModify;
CHAR szDescription;
ULONG ulALNumFunctions;
PWMACTIONLISTFUNCSTRUCT pALFunctions;
}
\end{verbatim}

\texttt{WMACTIONLISTINFOSTRUCT, *PWMACTIONLISTINFOSTRUCT;}

**Fields**

\texttt{ulStruct}\n
\begin{verbatim}
ULONG — output
\end{verbatim}

The length of the structure in bytes, including the length of this field.

\texttt{szActionListName}\n
\begin{verbatim}
CHAR[\texttt{SIMWM_ACTION_LENGTH}+1] — output
\end{verbatim}

The name of the action list.

\texttt{tsALCreate}\n
\begin{verbatim}
TIMESTAMP — output
\end{verbatim}

The date and time the action list was created.

\texttt{tsALModify}\n
\begin{verbatim}
TIMESTAMP — output
\end{verbatim}

The date and time the action list was last modified.

\texttt{szDescription}\n
\begin{verbatim}
CHAR[\texttt{SIMWM_AL_DESCRIPTION}+1] — output
\end{verbatim}

Description of the action list.
**WMACTIONLISTINFOSTRUCT**

- **ulALNumFunctions**
  - ULONG — output
  - The number of functions associated with this action list.

- **pALFunctions**
  - PWMATIONLISTFUNCSTRUCT — output
  - Pointer to the list of functions associated with this action list.

**WMHISTLOGENTRYSTRUCT (WMEvent History Structure)**

This data structure provides the history for a work package in an array of the history log entries for the work package.

```c
typedef struct _HISTLOGENTRY

| CHAR szEventID;
| TIMESTAMP tsCreated;
| CHAR szProcess;
| CHAR szLocation;
| USERIDENT szUser;
| CHAR szEventData;

|WMHISTLOGENTRYSTRUCT, *PWMHISTLOGENTRY;
```

**Fields**

- **szEventID**
  - CHAR[7] — output
  - The seven-character message ID.

- **tsCreated**
  - TIMESTAMP — output
  - The date and time of the event.

- **szProcessID**
  - CHAR[SIMWM_PROCESS_NAME_LENGTH+1] — output
  - The WorkFlow process name.

- **szLocation**
  - CHAR[SIMWM_LOC_NAME_LENGTH+1] — output
  - The WorkFlow location name.

- **szUser**
  - USERIDENT — output
  - The user ID.

- **szEventData**
  - CHAR[256] — output
  - The text description associated with the event.

**WMLOCATIONINFOSTRUCT (Work Process Location Information Structure)**

This data structure provides information associated with each location within a process.
typedef struct _WMLOCATIONINFOSTRUCT
{
    ULONG ulType;
    CHAR szLocation;
    CHAR szDescription;
    ULONG ulActive;
} WMLOCATIONINFOSTRUCT, *PWMLOCATIONINFOSTRUCT;

**Fields**

*ulType*  ULONG — output

Indicates whether the returned information is a workbasket or a collection point. The valid values are:

**SIM_WORKBASKET**

Indicates the location is a workbasket.

**SIM_COLLECTION_POINT**

Indicates the location is a collection point.

*szLocation*

CHAR[SIMWM_LOC_NAME_LENGTH+1] — output

The workbasket or collection point identifier.

*szDescription*

CHAR[SIMWM_LOC_DESC_LENGTH+1] — output

The text description associated with the location.

*ulActive*

ULONG — output

Not supported.

**WMPROCESSINFOSTRUCT (Process Information Data Structure)**

This data structure provides information about a specific process.

typedef struct _WMPROCESSINFOSTRUCT
{
    ULONG ulStruct;
    CHAR szProcessID;
    CHAR szProcessDescription;
    CHAR chAccessListName;
    USHORT usHistoryLogDisposition;
    ULONG ulNbrItemsInProcess;
    ULONG ulNbrLocations;
    UCHAR szPrivString;
    PWMLOCATIONINFOSTRUCT pLocations;
} WMPROCESSINFOSTRUCT, *PWMPROCESSINFOSTRUCT;
**WMPROCESSINFOSTRUCT**

**Fields**

- **ulStruct**
  - ULONG — output
  - The length of the structure in bytes, including the length of this field.

- **szProcessID**
  - CHAR[
    SIM\_PROCESS\_NAME\_LENGTH+1] — output
  - The process identifier.

- **szProcessDescription**;
  - CHAR[
    SIM\_DESCRIPTION\_LENGTH+1] — output
  - The text description associated with the process.

- **chAccessListName**
  - CHAR[
    ACCESS\_LIST\_NAME\_SIZE+1] — output
  - The name of the access list for the process.

- **usHistoryLogDispostion**
  - USHORT — output
  - Not supported

- **ulNbrItemsInProcess**
  - ULONG — output
  - The number of work packages on the process.

- **ulNbrLocations**
  - ULONG — output
  - The number of unique locations defined within the process.

- **szPrivString**
  - UCHAR[
    SIM\_PRIVSTRING\_LENGTH+1] — output
  - The evaluated privilege string for the user with respect to the process.

- **pLocations**
  - PWMLOCATIONINFOSTRUCT — output
  - The pointer to the array location information data structures of the type WMLOCATIONINFOSTRUCT.

**WMSNAPSHOTSTRUCT (Work Management Information Structure)**

This data structure provides workflow information associated with an item. It consists of the following:

```c
typedef struct _WMSNAPSHOTSTRUCT
{
    ULONG ulStruct;
    USHORT usWIPStatus;
    USHORT usReleaseType;
    USHORT usPriority;
    ITEMID szWorkFlowID;
    TIMESTAMP tsWFEntry;
    TIMESTAMP tsEnteredWB;
    ITEMID szWorkBasketID;

    // Additional fields as needed
} WMSNAPSHOTSTRUCT;
```
WMSNAPSHOTSTRUCT

ULONG ulWorkPackageID;
ULONG ulInstanceID;
ULONG ulLocationType;
CHAR szLocation;
TIMESTAMP tsEnteredLocation;
CHAR szOverrideAction;

}] WMSNAPSHOTSTRUCT, *PWMSNAPSHOTSTRUCT;

Fields

ulStruct

ULONG — output

The length of the structure in bytes, including the length of this field.

usWipStatus

USHORT — output

The current WIP status of the item. The value of this field indicates whether or not the item is suspended, as well as the workflow status of the item. The OR operator is used to combine one suspension status value with one workflow status value from the following groups:

Suspension Status Values

OIM_ITEMS_SUSPENDED
Indicates that the item is suspended.

OIM_ITEMS_NOT_SUSPENDED
Indicates that the item is not suspended.

Workflow Status Values

OIM-CURRENT_WORKFLOW_ITEMS
Indicates that the item is in a process.

OIM_ITEMS_NOT_IN_WORKFLOW
Indicates that the item is not in a process.

usReleasetype

Not supported.

usPriority

USHORT — output

The current priority of the item.

szWorkFlowID

ITEMID — output

The process, if any, that this item is assigned to.

tsWFEntry

TIMESTAMP — output

The date and time when this item entered the listed process.

tsEnteredWB

TIMESTAMP — output

The date and time this item entered the listed workbasket.
The workbasket identifier that this item is assigned to.

Identifier of the work package that represents the work being done, such as the document being routed.

Identifier of the work package instance that distinguishes one parallel path from another within the process.

Indicator of whether the location is a workbasket or collection point. The valid values are:

- **SIMWM_WORKBASKET**
  - Indicates the location is a workbasket.

- **SIMWM_COLLECTION POINT**
  - Indicates the location is a collection point.

The workbasket or collection point identifier of the location where the work package resides.

The date and time the item entered location.

Action list associated with this work package. This action list will override the default action list defined by the workbasket definition.

### WMSUSPENDSTRUCT (Suspend Work Package Data Structure)

This data structure provides data regarding the release criteria of a suspended item. It consists of the following:

```c
typedef struct _WMSUSPENDSTRUCT
{
    ULONG ulStruct;
    USHORT usReleaseType;
    TIMESTAMP tsExpDateTime;
    CHAR szExpWB;
    CHAR szReadyWB;
    USHORT usNumAwaitedClasses;
    USHORT usAwaitedClasses;
} WMSUSPENDSTRUCT, *PWMSUSPENDSTRUCT;
```
Fields

ulStruct
ULONG — input
The length of the structure in bytes, including the length of this field.

usReleaseType
ULONG — input
The type of criteria in effect for releasing an item from suspension. The valid values are:

SIMWM_SUSPEND_TIME
Suspend until the expiration time specified by tsExpDateTime.

SIMWM_SUSPEND_ANY_CLASS
Suspend until a folder receives an item of any index class listed in ausAwaitedClasses. A preset time is also required in tsExpDateTime.

SIMWM_SUSPEND_ALL_CLASS
Suspend until a folder receives an item from each class listed in ausAwaitedClasses. A preset time is also required in tsExpDateTime.

tsExpDateTime
TIMESTAMP — input
The date and time to release the work package from suspension.

usNumAwaitedClasses
USHORT — input
The number of index class entries in the ausAwaitedClasses array.
If SIM_INDEX_ANY is entered for ausAwaitedClasses, this number must be one (1).

usAwaitedClasses
CHAR[SIMWM_MAX_AWAIT_CLASSES] — input
An array of one to eight index classes that you can specify as suspension criteria for a particular folder work package. The index class SIM_INDEX_ANY may be specified to suspend a folder work package until the arrival of an item of any index class.

szExpWB
CHAR[SIM_ITEM_ID_LENGTH+1] — input
The identifier of the workbasket to send the suspended work package to if the expiration time criteria are satisfied. If SIMWM_NEXT is specified, the work package will be continued to the next step of a process.

szReadyWB
CHAR[SIM_ITEM_ID_LENGTH+1] — input
The identifier of a workbasket to send the suspended folder work package to if the suspension criteria are satisfied by adding one of the items of a specified index class to the folder item. If SIMWM_NEXT is specified, the work package will be continued to the next step of a process.

WMVARSTRUCT (Work Package Variable Data Structure)
This data structure contains the identifier and associated value of a system or user-defined work package variable. It consists of the following:
typedef struct _WMVARSTRUCT
{
  ULONG   ulStruct;
  CHAR    szVarName;
  CHAR    szVarValue;
} WMVARSTRUCT, *PWMVARSTRUCT;

**Fields**

*ulStruct*  
ULONG — input/output  
The length of the structure in bytes, including the length of this field.

*szVarName*  
CHAR [SIMWM_VAR_NAME_LENGTH+1] — input/output  
The name of the variable. The following constants represent the system variable names:

- **SIMWM_ITEMID**  
  Item being routed.

- **SIMWM_INDEX_CLASS**  
  Index class of the item.

- **SIMWM_PRIORITY**  
  Priority of the work package.

- **SIMWM_ACTION**  
  Action selected by the user.

*szVarValue*  
CHAR[SIMWM_VAR_NAME_LENGTH+1] — input/output  
Pointer to a string which contains the value of the variable.

**WORKBASKETINFOSTRUCT (Workbasket Information Data Structure)**

This data structure provides the information used to create and modify a workbasket. It consists of the following:

typedef struct _WORKBASKETINFOSTRUCT
{
  ULONG   ulStruct;
  CHAR    szWorkBasketName;
  CHAR    chAccessListName;
  USHORT  usWBLoadLimit;
  BOOL    bRemoveAfterIndex;
  BOOL    bSystemCntl;
  CHAR    szUserFunName;
  CHAR    szUserDLLName;
  UCHAR   szWorkBasketPrivString;
  ULONG   ulItemStatusFlag;
  CHAR    szDefaultAction;
} WORKBASKETINFOSTRUCT;
USHORT usWorkbasketType;
CHAR szEntryFunName;
CHAR szEntryDLLName;
CHAR szExitFunName;
CHAR szExitDLLName;
CHAR szUserDefWBExitFunName;
CHAR szUserDefWBExitDLLName;

] WORKBASKETINFOSTRUCT, *PWORKBASKETINFOSTRUCT;

**Fields**

1. **ulStruct**
   
   ULONG — output
   
   The length of the structure in bytes, including the length of this field.

2. **szWorkBasketName**
   
   CHAR[OIM_WB_NAME_LENGTH+1] — output
   
   The name of the workbasket.

3. **chAccessListName**
   
   CHAR[ACCESS_LIST_NAME_SIZE+1] — output
   
   The name of the access list for the workbasket.

4. **usWBLoadLimit**
   
   USHORT — output
   
   The workbasket overload limit.
   
   If you try to add an item to the workbasket and the number of items would exceed this limit, the item is not added. However, when you are adding the item you can override this limit and add the item anyway.

5. **bRemoveAfterIndex**
   
   BOOL — output
   
   A flag that indicates whether the system removes the item from the workbasket after indexing. The valid values are:

   **TRUE** Removes the item from this workbasket after it has been indexed.

   **FALSE** Does not remove the item from this workbasket after it has been indexed.

6. **bSystemCntl**
   
   BOOL — output
   
   A flag that indicates whether the system controls item priority within the workbasket. The valid values are:

   **TRUE** Indicates that this is a system-assigned workbasket. The system provides the user with the next item in the workbasket when requested. The priority or date of the work package and the order defined for the workbasket–LIFO, FIFO, or priority–determines the order.
**FALSE**
Indicates that this is not a system-assigned workbasket. The user can choose any item in the workbasket.

- **szUserFunName**
  CHAR[OIM_WB_FUNCTION_LENGTH+1] — output
  The name of the user exit function to call when the workbasket’s overload trigger exceeds the limit specified as the value of the *usWBLoadLimit* field. The DLL and function name are for use by your application.

- **szUserDLLName**
  CHAR[OIM_WB_DLL_LENGTH+1] — output
  The name of a DLL that contains the user exit function. The DLL and function name are for use by your application.

- **szWorkBasketPrivString**
  UCHAR[SIM_PRIVSTRING_LENGTH+1] — output
  The evaluated privilege string for the user with respect to the workbasket.

- **ullItemStatusFlag**
  ULONG — output
  Workbasket status flag. The valid values are:

  - **SIMWM_ACTIVE**
    Indicates the workbasket is active.

  - **SIMWM_INACTIVE**
    Indicates the workbasket is marked for deletion.

- **szDefaultAction**
  CHAR(SIMWM_ACTION_LENGTH+1) — output
  The default action list associated with this workbasket.

- **usWorkbasketType**
  USHORT — output
  The workbasket type. A value of 50-99 represents a user-defined workbasket.

- **szEntryFunName**
  CHAR[OIM_WB_FUNCTION_LENGTH+1] — output
  The user exit function the application will call when an item is selected and opened at the workbasket.

- **szEntryDLLName**
  CHAR[OIM_WB_DLL_LENGTH+1] — output
  The name of the DLL that contains the entry user exit function.

- **szExitFunName**
  CHAR[OIM_WB_FUNCTION_LENGTH+1] — output
  The user exit function the application will call when the user has completed working with an item at the workbasket.

- **szExitDLLName**
  CHAR[OIM_WB_DLL_LENGTH+1] — output
The name of the DLL that contains the completion user exit function.

- **szUserDefWBExitFunName**
  - `CHAR[OIM_WB_FUNCTION_LENGTH+1]` — output
  - The user exit function the application will call when the workbasket is a user-defined workbasket.

- **szUserDefWBExitDLLName**
  - `CHAR[OIM_WB_DLL_LENGTH+1]` — output
  - The name of the DLL that contains the user-defined workbasket function.
Chapter 5. Using the OLE Automation Interface

Using the APIs provided with the Content Manager for iSeries client, you can enable another Windows-based application to log on to Content Manager for iSeries, perform document and folder searches, display table of contents (TOC) lists for search results, folders, or workbaskets, and even display and annotate documents. You accomplish this by using APIs that are based on OLE 2.0 Automation.

Programming with OLE Automation

OLE automation enables an application’s command operations to be manipulated from outside that application. The Client for Windows provides OLE automation objects that can be manipulated from programs built using programming environments such as Visual Basic (Version 3.0 or above), Visual C++, and PowerBuilder. To manipulate Client for Windows objects, you need to know the properties and methods for each object.

Properties

Properties are similar to Visual Basic variables, except they are located inside Client for Windows objects. Just as you can read or write variables, you can set (that is, write) or get (that is, read) properties. Not all properties are read/write properties; some properties are read-only and others are write-only. For example, the Visible property of the Application object is a read/write property that can be used to find out whether the program is currently visible on the screen. If the value of the property is set to True, the program is currently visible. Setting the value of the Visible property to False causes the program to be hidden. On the other hand, the Name property of the Item object is a read-only property that contains the name by which Content Manager for iSeries refers to the item. An example of a write-only property is the Application property Password.

Methods

Methods are similar to Visual Basic procedures or function procedures. You can call a method to perform an operation inside the Client for Windows (that is, invoke a command operation). For example, the OpenWorkbasket method of the Application class displays the Open Workbasket dialog.

Client for Windows Objects

The Client for Windows OLE automation objects are designed according to Microsoft® guidelines. Therefore, as is the case with all applications that follow these guidelines, the Client for Windows has an Application object, a Documents collection object, and a Document object.

In addition, the Client for Windows has an Items collection object to manage multiple Item objects, and an Item object that provides information and interfaces to Content Manager for iSeries items like documents, folders, and workbaskets. Also provided is an Image object that holds the document currently open in the image viewer.

An information-only class called Error is provided to allow applications to determine what errors have occurred.
Finally, the Client for Windows also supports two helper objects (EnumDocument and EnumItem) that are needed by Visual Basic to provide object iteration, although they are not created when programming with Visual Basic.

Collection objects are similar to arrays in the sense that they are used to hold other objects. The Documents collection holds Document objects, while the Items collection holds Item objects. All OLE automation collection objects share the same methods and properties.

See “Programming Tips” on page 175 for general information about programming with OLE automation and the objects provided with the Client for Windows.

In addition to Visual Basic, the Client for Windows OLE automation API can be used with any programming language or fourth-generation language (4GL) that supports OLE automation.

**Application Object**

The main Client for Windows object is the Application object. Once a program obtains access to the Application object, it can get hold of or create all other Client for Windows objects.

The methods and properties of the Application object apply to the Client for Windows as a whole. For example, the Logon method is invoked to log on to Content Manager for iSeries, and the Quit method is invoked to exit the program. Therefore, programs designed to interface with the Client for Windows must first create the Application object.

Once the Client for Windows is running, it can be used to interact with Content Manager for iSeries. You can open a TOC, which equates to a Document object in OLE automation, you can find or create items (Item object), and you can display documents (Image object).

**Documents Collection**

The Documents collection can be compared to a queue holding TOCs (folders, search results or workbaskets). The TOCs are represented by Document objects.

Most Document objects are opened by calling the Documents method OpenTOC, with an Item object as a parameter.

**Document Object**

Once a Document object has been created through the OpenTOC method of the Documents collection, the object can be displayed, and a number of methods can be executed. For example, you can query any of the items that are currently selected in the Document TOC by the user.

**Error Object**

If an error occurs, all of the pertinent information for the error will be stored in this object, including Content Manager for iSeries return codes.

**Image Object**

The Image object represents a special document. It is the currently visible Content Manager for iSeries document. The Image object is opened by calling its OpenDocument method with an Item object as a parameter.
Items Collection

The Items collection object is simply a list of Items that are related. For example, the Document method Selections returns the Items collection containing all of the items that are currently selected. It has methods that return a specific Item object from the collection, and also has housekeeping methods to delete Item objects and the Items collection instance.

You can have more than one Items collection defined at one time. However, it is your responsibility to keep track of the Items collections, because the only way to get an Items collection is when it is returned from a method.

Item Object

The Item object represents a Content Manager for iSeries item like a document, folder, or workbasket. The Item object enables you to display the item (by passing it as a parameter to other objects), query its index class and key fields, re-index it, and perform a number of other actions.

The Item object also contains properties describing itself.

Programming Tips

The OLE automation API can be used to integrate the Client for Windows into your application. To integrate the Client for Windows using this API, the development environment for your application must be able to access OLE automation objects. For example, Microsoft Visual Basic, Microsoft Visual C++, and PowerBuilder, as do a number of applications like Microsoft Excel and Microsoft Access.

The following provides programming tips for programming with OLE automation, including information on releasing objects and handling errors.

Releasing Objects

Programming with OLE automation requires paying attention to object release; programs that allocate objects are responsible for freeing the objects after use. For example, a Client for Windows object is created in Visual Basic as follows:

```vbscript
Dim MyItem As Object
Set MyItem = MyApp.GetWorkbasket("To be indexed")
```

In this operation, the Client for Windows allocates memory to hold the Item object and returns a pointer to the object. The pointer is stored in the MyItem variable.

To release the Item object, use a statement as follows:

```vbscript
Set MyItem = Nothing
```

In this operation, the Client for Windows releases the memory it previously allocated for the Item object. Failure to release objects results in the Client for Windows eventually running out of memory. Also, the Client for Windows does not actually exit if any objects are still open.

Handling Errors

The Client for Windows throws an exception when it detects an error. In Visual Basic, exceptions can be caught with the On Error statement. Programs that count on exceptions to catch errors do not need to check the return value after calling a method.
A viable strategy for processing the Client for Windows errors is to execute an On Error Resume Next statement at program start-up and to test the value of the built-in Visual Basic Err variable upon return from a method. When Err is nonzero, an error has occurred and the Error object can be consulted to obtain the details (the Error object can be found as a property of the Application object). The Error object contains the actual error codes and the error message string.

Most methods return an error status. The type of this status is VT_I4, which in Visual Basic translates to the Long data type. The error status is either zero (successful) or nonzero (error detected). When an error has been detected, details about the problem can be obtained by consulting the Error object.

**Property and Argument Types**

The arguments and properties are listed in Chapter 7. These types can be translated into Visual Basic types and Visual C++ types by consulting the following table:

<table>
<thead>
<tr>
<th>OLE Type</th>
<th>VisualBasic</th>
<th>C++</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VT_BSTR</td>
<td>String</td>
<td>Char Array, zero terminated</td>
<td>An ASCII string. Can have any type of character data, but usually holds user readable text.</td>
</tr>
<tr>
<td>VT_DISPATCH</td>
<td>Object</td>
<td>IDispatch*</td>
<td>A reference to an OLE object. Read the method or property to determine what type of object will be returned.</td>
</tr>
<tr>
<td>VT_VARIANT (safe array)</td>
<td>Array (VB 4.0 or greater only)</td>
<td>IVarient*</td>
<td>A safe array of objects. In the areas where safe arrays are used, the object type is VT_BSTR.</td>
</tr>
<tr>
<td>VT_I4</td>
<td>Number</td>
<td>long</td>
<td>A long integer. Can be positive or negative. The acceptable range is -2 147 483 648 to +2 147 483 647.</td>
</tr>
<tr>
<td>VT_EMPTY</td>
<td>(N/A)</td>
<td>void</td>
<td>No value.</td>
</tr>
<tr>
<td>VT_UNKNOWN</td>
<td>(N/A)</td>
<td>IVarient*</td>
<td>A structure used internally by OLE automation.</td>
</tr>
<tr>
<td>VT_BOOL</td>
<td>Boolean</td>
<td>int</td>
<td>A logical value with two possible values: TRUE or FALSE.</td>
</tr>
</tbody>
</table>

**Sample Visual Basic Program**

This section shows the code for a Visual Basic program that starts the Client for Windows and causes it to display the “To be indexed” workbasket. Then it displays the first item in the workbasket, whether it is a document or a folder. To keep the example readable, no error handling has been taken into account. The best way to learn from this program is to type it into Visual Basic and then trace through it by repeatedly pressing the F8 key.

```vbs
' This example invokes the Client for Windows and causes it to display the
' To be indexed workbasket, then displays the first item in the workbasket,
' whether it is a document or a folder.
' Data declarations
Dim VicApp As Object
Dim Workbasket As Object
Dim Docs As Object
Dim Doc As Object
Dim Item As Object
' Get the application objects
```
Set VicApp = CreateObject("Vic.Application")
' Set login information
  VicApp.User = "GLEND"
  VicApp.Password = "PASSWORD"
' Log into Content Manager for iSeries
  VicApp.Logon
' Get the workbasket item
  Set Workbasket = VicApp.GetWorkbasket("To be indexed")
' Display the workbasket
  Set Docs = VicApp.Documents
  Set Doc = Docs.OpenTOC(Workbasket)
' Get next item from workbasket
  Set Item = Workbasket.NextWorkbasketItem
' Find out if the item is a folder or a document
  If (Item.Type = 1) Then
    ' Document! Display it.
    VicApp.Image.OpenDocument Item
  Else
    ' Must be a folder. Display it.
    Docs.OpenTOC Item
  End If
' Clean up
  Set Workbasket = Nothing
  Set Docs = Nothing
  Set Doc = Nothing
  Set Item = Nothing
  VicApp.Quit
  Set VicApp = Nothing

In this example, the Client for Windows is loaded, and then the user name and password to be used, while logging onto the default Client for Windows Library Server are configured. Next, the Client for Windows log on is executed.

After getting the “To be indexed” workbasket item, the workbasket is opened using the Documents object.

The next step is to get the next item in the workbasket and determine if it is a document or a folder. If it is a folder, it is passed to the Documents object, while a document is passed to the Image object.

Finally, the Client for Windows ends.

Properties and Methods of OLE Objects for Windows

This section describes the properties and methods associated with all Windows client application objects.

Application Object

The Application object gets and sets application-level states, such as log on and quit.

Properties

The Application object has the following properties.

Application

  The Application property returns the Application object.
  Data Type: VT_DISPATCH (Application)

Documents

  The Documents property holds a collection of Document objects. A document, in Client for Windows terms, is a Table of Contents view.
Data Type: VT_DISPATCH (Documents)

**Error**
The error information for the most recent method error.
Data Type: VT_DISPATCH (Error)

**HWND**
This property returns the client’s main window handle. This is a read only property.
Data Type: VT_14

**Image**
The Image property holds the IBM Content Manager for iSeries document that is currently visible in the image viewer. If no document is visible, Image returns NULL.
Data Type: VT_DISPATCH (Image)

**KeyFieldTranslation**
The KeyFieldTranslation property sets the Item.KeyFields property to either translate or not translate the values that have been retrieved or set, depending on the value of the KeyFieldTranslation property.
Data Type: VT_BOOL

**NewPassword**
The NewPassword property is used to change the user’s password. You should set this property before calling the Logon method. If the user successfully logs on, the user’s password is changed. The default value is NULL.
Data Type: VT_BSTR

**Password**
The Password property is the password to be used when the Logon method is called to log on to the IBM Content Manager for iSeries Library Server. Reference the description of the Application object’s Logon method for a description of the possible values and results.
Data Type: VT_BSTR

**Server**
The Server property contains the name of the Library Server that is logged on to when the Logon method is called. Reference the description of the Application object’s Logon method for a description of the possible values and results.
Data Type: VT_BSTR

**User**
The User property c Application object’s Logon method for a description of the possible values and results.
Data Type: VT_BSTR

**Visible**
The Visible property contains the visible status of the Windows Client frame window. The default value is False (0).
Data Type: VT_BOOL

**Methods**
The Application object supports the following methods.

**Activate**
This method attempts to force the client into the foreground.
Parameters: None
Returns: None

**ClassArray**

The ClassArray method returns a safe array of VT_BSTRs containing the names of all of the index classes defined at the time the Logon method was executed.

Parameters: None

Returns: VT_VARIANT (safe array of VT_BSTR)

**ClassKeyFieldArray**

The ClassKeyFieldArray method returns a safe array of VT_BSTRs containing the names of all of the key fields associated with the specified index class at the time the Logon method was executed.

Parameters: Index Class as VT_BSTR

Returns: VT_VARIANT (safe array of VT_BSTR)

**ClassKeyFieldList**

The ClassKeyFieldList method returns a string with all of the key fields associated with the specified index class at the time the Logon method was executed. The key fields are separated by the string separator argument.

Parameters: IndexClass as VT_BSTR, Separator as VT_BSTR

Returns: VT_BSTR

**ClassList**

The ClassList method returns a string with a list of all of the index classes defined at the time the Logon method was executed. The index classes are separated by the string separator argument.

Parameters: Separator as VT_BSTR

Returns: VT_BSTR

**ContentClassArray**

The ContentClassArray method returns a safe array of VT_BSTRs containing the names of all content classes that were defined at the time the Logon method was executed.

Parameters: None

Returns: VT_VARIANT (safe array of VT_BSTR)

**ContentClassList**

The ContentClassList method returns a string with all of the content classes that were defined at the time the Logon method was executed. The content classes are separated by the separator argument.

Parameters: Separator as VT_BSTR

Returns: VT_BSTR

**CreateDocument**

The CreateDocument method returns an Item object that represents a newly created document. It contains no objects (pages), and is indexed with a NOINDEX index class. The source key field is filled in with the Source argument’s value, the name key field is filled in with the contents of the User property, and the timestamp key field is the exact time and date that the document was created.

Parameters: Source as VT_BSTR
Returns: VT_DISPATCH (Item)

CreateFolder
The CreateFolder method returns an Item object that represents a newly created folder. It contains no items in its TOC, and is indexed with a NOINDEX index class. The Source key field is filled in with the Source argument’s value, the UserID key field is filled in with the contents of the User property, and the Timestamp key field is the exact time and date that the document was created.

Parameters: Source as VT_BSTR
Returns: VT_DISPATCH (Item)

DisableMenus
This DisableMenus method allows you to disable menu classes. You specify the menus to be disabled using the Flags argument. The valid values for this method are listed below:
- IP2_DISABLE_CHECKINOUT (0x001)
  Prevents the user from checking items in or out
- IP2_DISABLE_DELETE (0x002)
  Prevents the user from deleting items
- IP2_DISABLE_EXPORT (0x004)
  Prevents the user from exporting items
- IP2_DISABLE_FAXOUT (0x008)
  Prevents the user from faxing items
- IP2_DISABLE_FOLDER_FUNCTIONS (0x0010)
  Prevents the user from adding items to an existing folder, adding items to a new folder, or removing items from a folder
- IP2_DISABLE_INDEX_CLASS_CHANGE (0x0020)
  Prevents the user from changing to a different index class. The user can still edit the key fields for the index class.
- IP2_DISABLE_INDEX_VALUE_CHANGE (0x0040)
  Prevents the user from changing to a different index class and from editing the key fields from the index class. The user can browse the menu and copy the values listed in the window. If you specify this value, the system ignores the IP2_DISABLE_INDEX_CLASS_CHANGE flag.
- IP2_DISABLE_NOTE_APPEND (0x0100)
  Prevents the user from editing previously saved notes and from adding new notes. The user can open and copy existing notes in browse mode. When no notes exist, the Note Log window is not displayed. If you specify this value, the system ignores the IP2_DISABLE_NOTE_EDIT flag.
- IP2_DISABLE_NOTE_EDIT (0x0080)
  Prevents the user from editing previously saved notes; however, the user can still add new notes
- IP2_DISABLE_OPTIONS (0x8000)
  Prevents the user from using the Options—Preferences or Options—Layout menu options.
- IP2_DISABLE_PRINT (0x0200)
  Prevents the user from printing items
• **IP2_DISABLE_SEARCH** (0x4000)
  Prevents the user from searching

• **IP2_DISABLE_WORKBASKET_ACTIVATE** (0x0400)
  Prevents the user from removing an item from suspended status

• **IP2_DISABLE_WORKBASKET_REMOVAL** (0x0800)
  Prevents the user from removing items from a workbasket or routing them from one workbasket to another

• **IP2_DISABLE_WORKBASKET_SUSPEND** (0x1000)
  Prevents the user from suspending items

• **IP2_DISABLE_WORKFLOW** (0x2000)
  Prevents the user from starting an item in a workflow, changing an item’s workflow, completing an item’s workflow, or removing an item from its workflow

These values can be combined in order to disable more than one class at a time. If you call the DisableMenus method with a *Flags* argument of zero, the method will make the menus fully available.

You can use the optional *Hide* argument to delete the menu options instead of disabling them. However, if you delete a menu item, you cannot restore that item by setting a lower restriction value.

Parameters: *Flags* as VT_14, *Hide* as VT_VARIANT (optional, usually VT_BOOL)

Returns: VT_NONE

**ExtendedPrintSetup**

The ExtendedPrintSetup method allows the external application to modify the default printing behavior for the client. The options described are extended print features that cannot be configured from the standard user interface.


Returns: VT_I4

• *Comments* is an alternate way of not printing the annotations. This option duplicates the *PrintMarkup* argument in the Item.PrintItem method.

• *Borders* enables or disables a single pixel line around the image. This feature is most useful if you set *SinglePage* to false (see next bullet).

• *SinglePage* can be used in conjunction with the *NumRows*, *NumColumns*, and *HorizPages* arguments to define how to arrange images on pages. If *SinglePage* is true, only one image prints on each page. If *SinglePage* is false, the other three arguments define how many images to print on each page.

• *HorizPages* is used when the *SinglePage* argument is false. *HorizPages* specifies image orientation on the printed page: true for horizontal and false for vertical.

• *PageNumbers* prints the page number on each image. If *PageNumbers* is set to true, the page number prints in the upper left corner of each image (a page might show more than one image).
- NumRows and NumColumns are used when the SinglePage argument is false. NumRows and NumColumns define how many images to horizontally and vertically display on a single printed page.

GetWorkbasket
The GetWorkbasket method returns the Item object associated with the workbasket specified in the Name argument. Note that the workbasket name is not case sensitive.

Parameters: Name as VT_BSTR
Returns: VT_DISPATCH (Item)

ItemID
The ItemID method returns an Item object with the item ID specified. Reference the Item object properties for a description of the ItemID property.

Parameters: Item as VT_BSTR
Returns: VT_DISPATCH (Item)

KeyFieldArray
The KeyFieldArray method returns a safe array of VT_BSTRs containing the names of all of the index classes defined at the time the Logon method was executed.

Parameters: None
Returns: VT_VARIANT (safe array of VT_BSTR)

KeyFieldList
The KeyFieldList method returns a string with all of the key fields defined at the time the Logon method was executed. The key fields are separated by the string separator argument.

Parameters: Separator as VT_BSTR
Returns: VT_BSTR

Logon
The Logon method logs on to IBM Content Manager for iSeries. If the User, Password, and Server properties have all been set, a log on will be attempted with that information. If any of the previously mentioned properties were not filled in, or the initial log on attempt was unsuccessful, a log on screen will be displayed for the operator to fill in the remaining information. If the Password property is filled in prior to calling the Logon method, but the User property was not, the password information will be ignored.

The Server property is pre-initialized with the last library server that was logged onto, or "LIBS RVR2" if no successful logon has occurred.

The return value is 0 for a successful log on, or no-zero if there was an error.

Parameters: None
Returns: VT_I4

OpenBasicSearch
The OpenBasicSearch method displays the basic search dialog box, allowing the operator to fill in a search. Note that the resulting Document object is not returned.

Parameters: None.
OpenScan
The OpenScan method displays the scan dialog box, allowing the operator to open a scan session. Note that the resulting Document object is NOT returned.

Parameters: None.

Returns: None

OpenWorkbasket
The Workbasket method displays the Workbasket selection dialog box, allowing the user to select a workbasket to open. Note that the Document object that results is NOT returned.

Parameters: None.

Returns: None

PrintSetup
The PrintSetup method allows the external application to modify the default printing behavior for the client. Values specified with this method are saved as the default print settings, not only for OLE Automation printing, but also for user-initiated printing.

Parameters: Printer as VT_BSTR, PaperSize as VT_I2, Portrait as VT_BOOL, Copies as VT_I2, Scaling as VT_VARIANT (optional, usually VT_BOOL).

Returns: VT_I4

- Printer specifies the name of the printer to print to.
- PaperSize defines the paper type. Specify the paper type you want by assigning the number that corresponds to it (1 through 41) in the following list:
  1. Letter 8 1/2 x 11 in
  2. Letter Small 8 1/2 x 11 in
  3. Tabloid 11 x 17 in
  4. Ledger 17 x 11 in
  5. Legal 8 1/2 x 14 in
  6. Statement 5 1/2 x 8 1/2 in
  7. Executive 7 1/4 x 10 1/2 in
  8. A3 297 x 420 mm
  9. A4 210 x 297 mm
  10. A4 Small 210 x 297 mm
  11. A5 148 x 210 mm
  12. B4 (JIS) 250 x 354
  13. B5 (JIS) 182 x 257 mm
  14. Folio 8 1/2 x 13 in
  15. Quarto 215 x 275 mm
  16. 10x14 in
  17. 11x17 in
  18. Note 8 1/2 x 11 in
  19. Envelope #9 3 7/8 x 8 7/8
  20. Envelope #10 4 1/8 x 9 1/2
  21. Envelope #11 4 1/2 x 10 3/8
22. Envelope #12 4 \276 x 11
23. Envelope #14 5 x 11 1/2
24. C size sheet
25. D size sheet
26. E size sheet
27. Envelope DL 110 x 220 mm
28. Envelope C5 162 x 229 mm
29. Envelope C3 324 x 458 mm
30. Envelope C4 229 x 324 mm
31. Envelope C6 114 x 162 mm
32. Envelope C65 114 x 229 mm
33. Envelope C3 324 x 458 mm
34. Envelope B4 250 x 353 mm
35. Envelope B5 176 x 250 mm
36. Envelope B6 176 x 125 mm
37. Envelope Monarch 3.875 x 7.5 in
38. 6 3/4 Envelope 3 5/8 x 6 1/2 in
39. US Std Fanfold 14 7/8 x 11 in
40. German Std Fanfold 8 1/2 x 12 in
41. German Legal Fanfold 8 1/2 x 13 in

- **Portrait** defines the print orientation (true = Portrait, false = Landscape).
- **Copies** specifies the number of copies to print.
- **Scaling** specifies whether the printing occurs as "fit to page" size or "normal" size. If Scaling is set to True (non zero) or omitted, printing is done as "fit to page". If Scaling is set to False, printing is done as "normal" size.

**QueryPrivilege**
The QueryPrivilege method allows an external application to determine the actual privileges for a user who is currently logged on. The application can check general privileges or specific privileges (such as those for an index class or workbasket).

Parameters: Authority as VT_I4, Context as VT VARIANT (optional, VT_BOOL(Item) or VT_BSTR).

Returns: VT_BOOL
- **Authority** defines which privilege to check. You can set this value to any of the OIM_ values supported by the Folder Manager function Ip2QueryPrivBuffer.
- **Context** determines evaluated privileges for different contexts. If you do not enter a value for Context, the user’s general privilege is returned. You can also set Context to one of the following:
  - A dispatch to an Item object: a folder, document, or workbasket
  - The name of an index class (VT_BSTR)
  - The name of a workflow (VT_BSTR)

**Quit**
The Quit method ends the Client for Windows application. All open documents (TOCs), any image viewer sessions, and all outstanding Item and Items objects are closed.

Parameters: None
Returns: None

Search

The Search method returns an Item that represents the results of a search conducted on the system file room with an optional index class and key field wildcard search string. The search results folder is deleted automatically when it is closed, unless the index class is changed. The format of the search string is defined in "LIBSEARCHCRITERIASTRUCT (Search Criteria Information Structure)" on page 147.

When TypeFilter=1, only folders are returned.
When TypeFilter=2, only documents are returned.
Any other TypeFilter value returns both documents and folders.
If WipFilter=1, items not in a workflow are returned.
If WipFilter=2, items that are currently in a workflow are returned.
If WipFilter=4, items that were cancelled from a workflow are returned.
If WipFilter=8, items that completed a workflow are returned.
The WipFilter values may be combined with a binary OR operator.
If SuspendFilter=1, active items are returned. active or suspended items.
If SuspendFilter=2, suspended items are returned.
Any other SuspendFilter value returns items that are either suspended or activated.
Parameters:
   IndexClass as VT_BSTR (optional)
   SearchString as VT_BSTR (optional)
   TypeFilter as VT_VARIANT (optional, usually VT_I2)
   WipFilter as VT_VARIANT (optional, usually VT_I2)
   SuspendFilter as VT_VARIANT (optional, usually VT_I2)

Returns: VT_DISPATCH (Item)

SetPrintRect

The SetPrintRect method allows you to define a rectangle that contains the images when they are printed on the page. Values specified with this method are saved as the default print settings, not only for OLE Automation printing, but also for user-initiated printing.

Parameters: RectLeft as VT_I2, RectTop as VT_I2, RectRight as VT_I2, RectBottom as VT_I2.

Returns: None

The four arguments define the distance in millimeters of each box side from the upper left hand corner of the paper. You can reset the print rectangle to "none" by calling the SetPrintRect method again and setting all arguments set to 0.

Attention: If you specify a rectangle that doesn’t fit on the paper, some or all of the image does not appear on your print out.
**WorkbasketArray**

The WorkbasketArray method returns a safe array of VT_BSTRs containing the names of all the workbaskets defined at the time the Logon method was executed.

Parameters: None

Returns: VT_VARIANT

**WorkbasketList**

The WorkbasketList method returns a string with a list of all of the workbaskets defined at the time the Logon method was executed. The workbaskets are separated by the string separator argument.

Parameters: Separator as VT_BSTR

Returns: VT_BSTR

---

**Document Object**

The Document object holds information about a Table of Contents (TOC).

**Properties**

**Application**

The Application property returns the Application object.

Data Type: VT_DISPATCH (Application)

**Count**

The Count property returns the number of items that are listed in the TOC.

Data Type: VT_14

**Item**

The Item property returns the Item object that is associated with this Document (TOC).

Data Type: VT_DISPATCH (Item)

**Page**

The Page property contains the selected page number. This property is valid only for documents, not workbaskets or folders. The default value is 0.

Data Type: VT_I4

**PageCount**

The PageCount property contains the number of pages in a document. This property is valid only for documents, not workbaskets or folders. The default value is 0. This is a read only property.

Data Type: VT_I4

**Parent**

The Parent property returns the parent of the Document object (which is the Documents collection object).

Data Type: VT_DISPATCH (Documents)

**SelectedCount**

The SelectedCount property returns the number of items that are selected in the TOC.

Data Type: VT_14

**Type**

The Type property returns the type of item that is open in the document: a folder, workbasket, or a document. The actual values are:

1 - Document
2 - Folder
3 - Workbasket
1024 - Scan (the basic scan viewer, no other property or method works on this type)

The default value is 0 (error). This is a read only property.

Data Type: VT_I4

Methods
The Document object supports the following methods.

Activate
The Activate method brings the TOC window associated with this document to the foreground.
Parameters: None
Returns: VT_I4

CaretIndex
The CaretIndex method returns the index of the caret item (the item that contains the dotted-line rectangle in the grid) in a folder or workbasket.
Parameters: None
Returns: VT_I4

ClearSelect
The ClearSelect method clears all of the current selections in the TOC.
Parameters: None
Returns: VT_I4

Close
The Close method closes the window associated with the associated document (TOC) and removes the document from the Documents collection. The remaining Document objects in the collection will be shifted down to prevent gaps in the collection.
Parameters: VT_VARIANT (optional, usually VT_BOOL)
Returns: VT_I4

CloseIt
The CloseIt method is the same as the Close method. It is implemented solely to support VisualBasic, which uses Close as a reserved word. The CloseIt method closes the window associated with the associated document (TOC) and removes the document from the Documents collection. The remaining Document objects in the collection will be shifted down to prevent gaps in the collection.
Parameters: VT_VARIANT (optional, usually VT_BOOL)
Returns: VT_I4

DisplayPage
The DisplayPage method forces the page specified to be displayed in a document. This method is valid only for documents, not workbaskets or folders.
Parameters: Page as VT_I4
Returns: VT_I4
FirstPage
The FirstPage method displays the first page in a document. This method is valid only for documents, not workbaskets or folders.
Parameters: None
Returns: VT_I4

IndexedItem
The IndexedItem method returns a single item from Document based on its index (specified with the Index argument) from a folder or workbasket.
Parameters: Index as VT_I4
Returns: VT_DISPATCH (Item)

LastPage
Displays the last page in a document. This method is valid only for documents, not workbaskets or folders.
Parameters: None
Returns: VT_I4

Maximize
The Maximize method maximizes the Document object in the main client window, hiding all other Document objects.
Parameters: None
Returns: VT_I4

Minimize
The Minimize method minimizes the Document object in the main client window.
Parameters: None
Returns: VT_I4

NextPage
The NextPage method displays the next page (current page, plus 1) in a document. This method is valid only for documents, not workbaskets or folders.
Parameters: None
Returns: VT_I4

PreviousPage
The PreviousPage method displays the previous page (current page, minus 1) in a document. This method is valid only for documents, not workbaskets or folders.
Parameters: None
Returns: VT_I4

Restore
The Restore method restores the Document object in the main client window to its original state (neither minimized or maximized).
Parameters: None
Returns: VT_I4
Selections
The Selections method returns an Items collection containing all of the Item objects that are selected in the Document (TOC).

Parameters: None
Returns: VT_DISPATCH (Items)

SelectRange
The SelectRange method selects a range of items in the TOC. The arguments are the zero-based index of the first and last items to be selected.

Parameters:
  First as VT_I4
  Last as VT_I4

Returns: VT_I4

Zoom
The Zoom method changes the zoom ration of the Document object. For example, if you set the zoom ratio to 100, the image is shown at full size, pixel for pixel. If you set the zoom ration to 50, the image is shown in half height. Zoom only works on documents, not folders or workbaskets.

Parameters: Percent as VT_I4
Returns: VT_I4

ZoomFit
The ZoomFit method allows you to fit the document image into the viewing rectangle. The Type argument specifies how to fit: 1 means fit height, 0 means fit width. ZoomFit only works on documents, not folders or workbaskets.

Parameters: Fit as VT_I4
Returns: VT_I4

ZoomRect
ZoomRect allows you to specify a rectangle to zoom to in the Document object. The left, top, right, and bottom arguments specify the bounding rectangle to display as large as possible in the viewing rectangle (the viewer window). The arguments are specified in pixels. ZoomRect only works on documents, not folders or workbaskets.

Parameters:
  Left as VT_I4
  Top as VT_I4
  Right as VT_I4
  Bottom as VT_I4

Returns: VT_I4

Documents Object
The Documents collection object is a collection of all of the open Document objects (TOCs).

Properties
The Document object has the following properties.
Active
The Active property holds the index of the Document object that currently has the focus. This is a read only property.
Data Type: VT_I4

Application
The Application property returns the Application object.
Data Type: VT_DISPATCH (Application)

Count
The Count property holds the number of Document objects currently in the collection.
Data Type: VT_I4

Parent
The Parent property returns the parent of the Documents collection object (which is the Application object).
Data Type: VT_DISPATCH (Application)

Methods
The Document object supports the following methods.

Cascade
The Cascade method arranges all of the open Document objects that are not minimized in a cascaded manner.
Parameters: None.
Returns: VT_I4

Close
The Close method closes all windows associated with the Documents objects and removes the Document objects from the Documents collection.
Parameters: None
Returns: None

CloseIt
Attention: The CloseIt method is the same as the Close method. It is implemented solely to support VisualBasic, which uses Close as a reserved word. The Close method closes all windows associated with the Documents objects and removes the Document objects from the Documents collection.
Parameters: None
Returns: VT_I4

Item
The Item method returns one of the Document objects contained in the collection.
Parameters: Index as VT_I4
Returns: VT_DISPATCH (Document)

OpenDocument
The OpenDocument method creates a new Document object for the document and adds it to the Documents collection. If the Browse argument is set to TRUE, the document is opened without being locked, allowing other users to open it.
Parameters:
   Index as VT_DISPATCH (Item)
   Browse as VT_VARIANT (optional, usually VT_BOOL)
Returns: VT_DISPATCH (Document)

**OpenTOC**
The OpenTOC method creates a new Document object for the specified workbasket or folder and adds it to the Documents collection. If the Browse argument is set to TRUE, the folder is opened without being locked, allowing other users to open it. Browse has no affect on workbaskets.

Parameters:
- Index as VT_DISPATCH (Item)
- Browse as VT_VARIANT (optional, usually VT_BOOL)

Returns: VT_DISPATCH (Document)

**Tile**
The Tile method arranges all of the open Document objects that are not minimized in a tiled manner. The Vertical argument specifies if the objects should be set primarily vertically (non-zero) or horizontally (zero).

Parameters: Vertical as VT_I4

Returns: VT_I4

**Error Object**
The Error object describes the details about any error that may have happened while executing a method in Client for Windows.

**Properties**
The Error object has the following properties.

**ErrorMessage**
The ErrorMessage property contains a descriptive error code describing what went wrong and what Client for Windows was doing at the time.

Data Type: VT_BSTR

**ExtReturnCode**
The ExtReturnCode property contains the extended return code that was returned when the error was detected.

Data Type: VT_I4

**ReturnCode**
When detecting an error, the ReturnCode property contains the error code. OLE Automotation methods now return standardized error codes—either uniform four digit codes described in the "Messages and Codes" manual or values described in the fnwole.h header file, as shown in Table 3.

Data Type: VT_I4

<table>
<thead>
<tr>
<th>Error Code</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>OLEAPI_RC_NOT_LOGGED_ON</td>
<td>12000</td>
</tr>
<tr>
<td>OLEAPI_RC_INVALID_INDEXCLASS</td>
<td>12001</td>
</tr>
<tr>
<td>OLEAPI_RC_INSUFFICIENT_MEMORY</td>
<td>12002</td>
</tr>
<tr>
<td>OLEAPI_RC_NO_ITEMS_FOUND</td>
<td>12003</td>
</tr>
<tr>
<td>OLEAPI_RC_INVALID_WORKBASKET</td>
<td>12004</td>
</tr>
<tr>
<td>OLEAPI_RC_ALREADY_LOGGED_ON</td>
<td>12005</td>
</tr>
<tr>
<td>OLEAPI_RC_INVALID_ARGUMENT</td>
<td>12006</td>
</tr>
</tbody>
</table>

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Table 3. Standardized OLE API Return Codes (continued)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OLEAPI_RC_NO_DOC_OPEN</td>
<td>12007</td>
</tr>
<tr>
<td>OLEAPI_RC_INVALID_ITEM</td>
<td>12008</td>
</tr>
<tr>
<td>OLEAPI_RC_INDEX_OUT_OF_RANGE</td>
<td>12009</td>
</tr>
<tr>
<td>OLEAPI_RC_INVALID_KEYFIELD</td>
<td>12010</td>
</tr>
<tr>
<td>OLEAPI_RC_ERROR_PRINTING</td>
<td>12011</td>
</tr>
<tr>
<td>OLEAPI_RC_INVALID_CONTENT_CLASS</td>
<td>12012</td>
</tr>
<tr>
<td>OLEAPI_RC_ITEM_NOT_FOLDER</td>
<td>12013</td>
</tr>
<tr>
<td>OLEAPI_RC_ITEM_NOT_WORKBASKET</td>
<td>12014</td>
</tr>
<tr>
<td>OLEAPI_RC_ITEM_NOT_WORKFLOW</td>
<td>12015</td>
</tr>
<tr>
<td>OLEAPI_RC_ERROR_GETTING_PART</td>
<td>12016</td>
</tr>
<tr>
<td>OLEAPI_RC_ERROR_UNLOCKING</td>
<td>12017</td>
</tr>
<tr>
<td>OLEAPI_RC_INVALID_DOCUMENT</td>
<td>12018</td>
</tr>
<tr>
<td>OLEAPI_RC_NOT_TOC_DOCUMENT</td>
<td>12019</td>
</tr>
<tr>
<td>OLEAPI_RC_INSUFFICIENT_PRIVS</td>
<td>12020</td>
</tr>
<tr>
<td>OLEAPI_RC_NO_SELECTIONS</td>
<td>12021</td>
</tr>
<tr>
<td>OLEAPI_RC_NOT_DOC_DOCUMENT</td>
<td>12022</td>
</tr>
<tr>
<td>OLEAPI_RC_ITEM_NOT_TOC</td>
<td>12023</td>
</tr>
<tr>
<td>OLEAPI_RC_ITEM_NOT_DOCUMENT</td>
<td>12024</td>
</tr>
<tr>
<td>OLEAPI_RC_TEMP_FOLDER</td>
<td>12030</td>
</tr>
<tr>
<td>OLEAPI_RC_VALIDATION_ERROR</td>
<td>12040</td>
</tr>
<tr>
<td>OLEAPI_RC_UNABLE_TO_QUIT</td>
<td>12100</td>
</tr>
<tr>
<td>OLEAPI_RC_FAX_NOT_INSTALLED</td>
<td>12110</td>
</tr>
<tr>
<td>OLEAPI_RC_FAX_GEN_ERROR</td>
<td>12111</td>
</tr>
<tr>
<td>OLEAPI_RC_FAX_EMPTY_TOC</td>
<td>12112</td>
</tr>
<tr>
<td>OLEAPI_RC_FAX_NODOCSIN_TOC</td>
<td>12113</td>
</tr>
</tbody>
</table>

Methods
The Error object does not have any methods.

Image Object
Attention: In place of the Image Object, we recommend using the Document and Documents Objects to permit the ability to open more than one document at a time.

The Image object holds the currently visible document.

Properties
The Image object supports the following properties.

Application
The Application property returns the Application object.
Data Type: VT_DISPATCH (Application)

Item
The Item property returns the Item object that is associated with this Image.
Data Type: VT_DISPATCH (Item)
Page The Page property contains the selected page number.
Data Type: VT_I4

Parent The Parent property returns the parent of the Image object (which is the Application object).
Data Type: VT_DISPATCH (Application)

Methods
The Image object supports the following methods.

Close The Close method closes all windows associated with the Image object. If the Save argument is True, any changes to the object are saved. If the Save argument is False, changes are thrown away. If the Save argument is not specified, a message box asks the user if they want to save the changes or not.

Parameters: Save as VT_VARIANT (optional, usually VT_BOOL)
Returns: None

CloseIt Attention: The CloseIt method is the same as the Close method. It is implemented solely to support VisualBasic which uses Close as a reserved word. The CloseIt method closes all windows associated with the Image object. If the Save argument is True, any changes to the object are saved. If the Save argument is False, changes are thrown away. If the Save argument is not specified, a message box asks the user if they want to save the changes or not.

Parameters: Save as VT_VARIANT (optional, usually VT_BOOL)
Returns: None

DisplayPage The DisplayPage method forces the page specified to be displayed in the image viewer.
Parameters: Page as VT_I4
Returns: VT_I4

FirstPage The FirstPage method displays the first page in the viewer.
Parameters: None
Returns: VT_I4

LastPage The LastPage method displays the last page in the viewer.
Parameters: None
Returns: VT_I4

NextPage The NextPage method displays the next page (current page + 1) in the viewer.
Parameters: None
Returns: VT_I4

OpenDocument The OpenDocument method opens a new IBM Content Manager for iSeries
document in the image viewer. The argument Index is the item that is to be opened. An Item error will occur if the item is not a workbasket or folder.

Parameters: Index as VT_DISPATCH (Item)
Returns: VT_I4

**PreviousPage**

The PreviousPage method displays the previous page (current page – 1) in the viewer.

Parameters: None
Returns: VT_I4

**Item Object**

The Item object represents an item like a folder, workbasket, or document.

**Properties**

The Item object supports the following properties.

**Application**

The Application property returns the Application object.

Data Type: VT_DISPATCH (Application)

**CheckedStatus**

The CheckedStatus property returns the user who has the item checked out, if any.

Data Type: VT_BSTR

**Class**

The Class property is the index class of the item. Changes to the key field values are not updated until you call the UpdateIndex method. This is a read/write property.

Data Type: VT_BSTR

**ItemID**

The ItemID property is a string that uniquely defines each item in the IBM Content Manager for iSeries fileroom.

Data Type: VT_BSTR

**Name**

The Name property returns IBM Content Manager for iSeries’s name for the item. This property is based on the key field selected as the identifier (if any) when the index class was created. If the item is a workbasket the workbasket name is returned.

Data Type: VT_BSTR

**PartCount**

The PartCount property returns the number of parts stored in a document.

Data Type: VT_I4

**Parent**

The Parent property returns the parent of the Image object (which can be the Application object or an Items object).

Data Type: VT_DISPATCH (Application or Items)

**Priority**

The Priority property returns the workbasket priority of the item. Valid
values are 1 to 31,999, where 1 is the lowest priority. If the item is not in a workbasket, the Priority property returns the class default priority, and is read-only.

Data Type: VT_14

**SystemAssigned**

Returns TRUE if the workbasket is a system assigned workbasket.

Data Type: VT_BOOL

**TOCCount**

The TOCCount property returns the number of items that are indexed in this table of contents.

Data Type: VT_14

**Type**

The Type property returns the item type of the item. A value of 1 means a document, 2 means folder, and 3 means workbasket.

Data Type: VT_14

**Methods**

The Item object supports the following methods.

**Activate**

The Activate method removes the suspended status from a suspended item.

Parameters: None

Returns: VT_I4

**AddAnnotationPart**

The AddAnnotationPart method can be used to add an annotation part to an existing document. The Path argument must be a full path to the new annotation part to be used with the document. If an annotation part already exists, it will be replaced by the new annotation file. Note that an extension of ".T_L" is assumed and will be used even if a different extension is provided.

Parameters: Path as VT_BSTR

Returns: VT_I4

**AddPart**

The AddPart method adds a file as an object to the item. You must specify a full path and a content class. Optionally, you can specify that the Library Server should choose the Object Server and Collection for a new part according to its rules (usually the User’s default Object Server and Collection).

Parameters:

- Path as VT_BSTR
- ContentClass as VT_BSTR
- SMSOption as VT_VARIANT (optional, usually VT_BOOL)

If SMSOption is set to TRUE (non-zero) or omitted, the Index Class’s default Object Server and collection will be used (original behavior). If SMSOption is set to FALSE (0), the Library Server will choose the Object Server and Collection, based on the configuration (usually the defaults for the user).

Returns: VT_14
AddToFolder
The AddToFolder method adds the Item to the folder specified as another Item object.
Parameters: Folder as VT_DISPATCH (Item)
Returns: VT_I4

ChangeNotes
The ChangeNotes method saves the argument value as the note log.
Parameters: Value as VT_BSTR
Returns: VT_I4

ChangeWorkflow
The ChangeWorkflow method allows you to specify a new workflow to send the item through. The new workflow is specified by name with the WorkFlow argument.
Parameters: WorkFlow as VT_BSTR
Returns: VT_I4

CheckIn
The CheckIn method checks the item in, allowing anyone to modify it.
Parameters: None
Returns: VT_I4

CheckOut
The CheckOut method checks the item out to the current user, disabling anyone else from modifying it.
Parameters: None
Returns: VT_I4

Close
The Close method unlocks the item previously locked with the Open method or NextWorkbasketItem (the resulting item, not the workbasket).
Parameters: None
Returns: VT_I4

CloseIt
Attention: The CloseIt method is the same as the Close method. It is implemented solely to support VisualBasic, which uses Close as a reserved word. The CloseIt method unlocks the item previously locked with the Open method or NextWorkbasketItem (the resulting item, not the workbasket).
Parameters: None
Returns: VT_I4

CloseNotes
The CloseNotes method closes the open note log without saving any changes.
Parameters: None
Returns: VT_I4

CloseParts
The CloseParts method closes all of the open part files (pages) without saving any changes.
Parameters: None
Returns: VT_I4

**CompleteWorkflow**
The CompleteWorkflow method marks the item as successfully finishing a workflow.
Parameters: None
Returns: VT_I4

**Delete**
The Delete method removes the item from the fileroom. This is a non-recoverable operation, so use this method with care.
Parameters: None
Returns: VT_I4

**DeletePart**
The DeletePart method deletes the specified object (part) from the item.
Parameters: Index as VT_I4
Returns: VT_I4

**FaxItem**
The FaxItem method sends the item to the fax subsystem if it is loaded. The argument withSubFolderContents, if specified and set to True (non-zero), enables you to fax the documents contained in folders.
Parameters: withSubFolderContents as VT_VARIANT (optional, usually VT_BOOL)
Returns: VT_I4

**GetAnnotationFile**
The GetAnnotationFile method retrieves the annotation file for the item.
Parameters: None
Returns: VT_BSTR

**GetHistoryLog**
The GetHistoryLog method retrieves the work history for the item.
Parameters: None
Returns: VT_BSTR

**GetKeyFields**
The GetKeyFields method returns the value for the given key field of an item.
Parameters: Name as VT_BSTR
Returns: VT_BSTR

**GetNotes**
The GetNotes method retrieves the text of the note log from IBM Content Manager for iSeries and returns it to the calling application. The item is checked out in IBM Content Manager for iSeries the first time you call this method.
Parameters: None
Returns: VT_BSTR
GetPartContentClass
The GetPartContentClass method returns the content class of the part file
specified with the Index argument.

Parameters: Index as VT_I4
Returns: VT_BSTR

GetPartFile
The GetPartFile method retrieves an object file from IBM Content Manager
for iSeries, stores it on the local workstation, and returns the full path to
the temporary file. The Item is checked out in IBM Content Manager for
iSeries the first time you call this method.

Parameters: Index as VT_I4
Returns: VT_BSTR

GetParentFolders
The GetParentFolders method returns an Items collection of folders. Each
of these folders contains the document of the folder that calls the method.

Parameters: None
Returns: VT_DISPATCH (Items)

GetTOCItem
The GetTOCItem method returns the Item object specified from the TOC.

Parameters: Index as VT_I4
Returns: VT_DISPATCH (Item)

NextWorkbasketItem
The NextWorkbasketItem method returns the next available item by order
of priority in a workbasket.

Parameters: None
Returns: VT_DISPATCH (Item).

Open
The Open method locks the item. No other user can modify index
information or modify parts when the item is locked. You must use the
Close or CloseIt methods to unlock the item.

Parameters: None
Returns: None

PreStage
The PreStage method stages an off-line part for future retrieval. Call this
method if Item.GetPartFile returns a 6265
(SIM_RC_OBJECT_BEINGPROMOTED) exception, which indicates that the
part object is on an off-line storage device.

Parameters: Index as VT_I4
Returns: None

PrintItem
The PrintItem method prints the item to the currently selected printer
using the current print options. If ShowDialog is true, the print dialog
displays where the user can select a different printer, modify options, or
cancel printing.

Parameters: ShowDialog as VT_BOOL, PrintImage as VT_VARIANT,
StartPage as VT_VARIANT, EndPage as VT_VARIANT, PrintMarkup as
VT_VARIANT, PrintIndex as VT_VARIANT, PrintNoteLog as VT_VARIANT, PrintTOC as VT_VARIANT, PrintContents as VT_VARIANT

Returns: VT_I4

- PrintImage (optional) specifies whether or not to print the base parts of the document, also known as images. If you also select PrintMarkup (optional), any defined annotations are printed on the image.

- StartPage (optional) and EndPage (optional) specify the desired base part page ranges to print. The pages are numbered starting from 1.

Examples:
- To print the middle three pages of a five-page document, set StartPage to 2 and EndPage to 4.
- To print an entire document, set StartPage to 1 and EndPage to 10000 or some other sufficiently large number.

- PrintIndex and PrintNoteLog allow you to specify whether the indexing and note log information prints for documents and folders. Workbaskets ignore these arguments. However, you can print out the note logs and index information for the documents and folders contained in the workbasket by setting PrintIndex and PrintNoteLog to true in workbaskets.

- PrintTOC and PrintContents specify how to print workbaskets and folders. If PrintTOC is true, the list of items contained in the folder or workbasket prints. If PrintContents is true, the folders and documents contained in the table of contents prints as well.

RefreshTOC

The RefreshTOC method re-samples the TOC of a workbasket or folder. If you did not call this method any changes to a workbasket or folder’s TOC will not be recognized by methods in the Item class.

Parameters: None

Returns: VT_I4

RemoveFromFolder

The RemoveFromFolder method removes the item from the folder specified as an argument.

Parameters: Folder as VT_DISPATCH (Item)

Returns: VT_I4

RemoveFromWorkbasket

The RemoveFromWorkbasket method removes the item from the workbasket specified as an argument.

Parameters: Workbasket as VT_DISPATCH (Item)

Returns: VT_I4

RemoveFromWorkflow

The RemoveFromWorkflow method marks the item as being canceled from workflow.

Parameters: None

Returns: VT_I4

RouteToWorkbasket

The RouteToWorkbasket method adds this item to a workbasket, removing it from any workbasket it is currently in. The workbasket is specified by its
Item object. If Force is specified as TRUE, the item is added to the workbasket, even if the workbasket is already full.

Parameters:
- Workbasket as VT_DISPATCH (Item)
- Priority as VT_VARIANT (optional, usually VT_I4)
- Force as VT_VARIANT (optional, usually VT_BOOL)

Returns: VT_I4

**SavePart**

The SavePart method saves any changes that occurred to the part file specified and its annotation file.

Returns: VT_I4

**SetKeyFields**

The SetKeyFields method sets the value for the given field of an item. To store updated key fields to the server, you must call the UpdateIndex method.

Parameters: Name as VT_BSTR; NewValue as VT_BSTR

Returns: None

**StartWorkflow**

The StartWorkflow method adds the item into the specified workflow.

Parameters:
- Workflow as VT_BSTR
- Workbasket as VT_VARIANT (optional, usually VT_DISPATCH)
- Priority as VT_VARIANT (optional, usually VT_I4)

Returns: VT_I4

**Suspend**

The Suspend method causes the item to be suspended, pending some future event. This event is a time and date, but could also be an item being included in a folder item.

Parameters:
- Timestamp as VT_VARIANT (optional, usually VT_BSTR)
- TimeoutWorkbasket as VT_VARIANT (optional, usually VT_DISPATCH)
- Classes as VT_VARIANT (optional, usually VT_BSTR)
- Criteria as VT_VARIANT (optional, usually VT_I4)
- ReadyWorkbasket as VT_VARIANT (optional, usually VT_DISPATCH)

If **Timestamp** is specified, the item is suspended, pending a time event. When the time event is triggered, the item is activated and placed in the TimeOutWorkbasket workbasket. The Timestamp argument must be in a format like the following example:

1997-09-30-08.05.23.000000

If **Classes** is specified (only valid for folder items), the item is suspended, pending a time event or a folder event. When the time event is triggered, the item is activated and placed in the TimeOutWorkbasket workbasket. If the folder event is triggered before the timeout, the item is activated and placed in the ReadyWorkbasket workbasket.
The optional Classes argument is a string containing a list of index classes separated by semicolons (;). This list is used to indicate which index classes will trigger an activation.

The optional Criteria argument, which is only valid for folder items, should be zero (0) to indicate an OR condition, or one (1) to indicate an AND condition. This condition is used when determining if one or all of the index classes specified in the Classes argument must be indexed before the folder is activated.

Returns: VT_I4

UpdateIndex
The UpdateIndex method saves any changes that you have made to the Index Class and/or key fields (using the Class property and/or the SetKeyFields method). Until this method is called no changes are stored.
Parameters: None
Returns: VT_I4

Items Collection
The Items collection holds a list of Item objects, allowing you to access the contained objects. An Items collection typically is a result of the Document method SelectionList.

Properties
Application
The Application property returns the Application object.
Data Type: Application

Count
The Count property returns the number of Item objects referenced in the Items collection.
Data Type: VT_I4

Parent
The Parent property returns the parent of the Items collection (which is usually a Document object).
Data Type: VT_DISPATCH (Document)

Methods
_NewEnum
The _NewEnum method returns an unknown which supports the IID_IEnumVARIANT. _NewEnum is a restricted method that cannot be invoked like the other methods. It is used to implement loop constructs in macro languages such as Visual Basic.
Parameters: None
Returns: VT_UNKNOWN

Close
The Close method closes the Items collection.
Parameters: None.
Returns: VT_I4

CloseIt
Attention: The CloseIt method is the same as the Close method. It is
implemented solely to support VisualBasic which uses Close as a reserved
word. The CloseIt method closes the Items collection.

Parameters: None

Returns: VT_I4

**Item**  
The Item method returns an Item object from the Items collection.

Parameters: Index as VT_I4

Returns: VT_DISPATCH (Item)
Chapter 6. Sample High-Level Programming Interface

Sample High-Level Programming Interface for Visual Basic

The Content Manager for iSeries client high-level programming interface is a set of frequently used folder and document management functions. These high-level functions have a simple call interface reflecting how users access documents and folders in Content Manager for iSeries. Some highlights of the Content Manager for iSeries client high-level programming interface using Visual Basic are as follows:

- Approximately 30 functions for frequently used folder and document management functions
- Single workstation logon to Content Manager for iSeries by means of the Client for Windows application
- Visual Basic OLE automation source code provided

In addition, the Client for Windows can allow multiple applications to access Content Manager for iSeries simultaneously.

General Use

The Content Manager for iSeries client high-level programming interface interacts with the basic components of the Content Manager for iSeries data model: documents, folders, and workbaskets. A Content Manager for iSeries document consists of a set of closely related objects or parts.

The Content Manager for iSeries client high-level programming interface provides functions to create, view, update and delete typical Content Manager for iSeries documents composed of a single base part (for example a scanned document or word processing file) and a single note part. Use of the Content Manager for iSeries high-level programming interface with documents containing multiple base parts can produce unexpected or undesired results. For additional information about the Content Manager for iSeries data model, see "Understanding the Logical Data Model" on page 5.

The Client for Windows ' OLE automation interface does provide the ability to manipulate multiple base part documents. Because Visual Basic source code is provided, the user might want to customize the VHLPI to handle other document compositions.

Lists of data returned by VHLPI functions can be filtered based upon the privileges set for the user ID that has logged on. In addition, the user should be aware that index class and attribute names specified as parameters to VHLPI functions are normally case-sensitive.

Visual Basic Parameters and Variables

All Visual Basic variables passed to VHLPI functions as parameters should be of type Variant or Variant Array. If a Variant Array is passed, the size of the array, excluding element index 0, should be contained in element 0 of the array.

NULL values can be set by assigning the variable to an empty string, "".
There are several global variables which are included with the VHLPI code module, FRNWWFVB.BAS. These global variables can be accessed by any Visual Basic program which includes FRNWWFVB.BAS. The global variables are as follows:

- **VhlApplObj** - Client for Windows Application Object
- **VhlDocsObj** - Client for Windows Documents Collection Object
- **VhlErrorObj** - Client for Windows Error Object

These global variables are created via the **VbVhlLoadFuncs** function and they are freed by the **VbVhlDropFuncs** function. A Visual Basic program must call **VbVhlLoadFuncs** before using VHLPI functions, and should call **VbVhlDropFuncs** before ending to free these objects.

Once these variables have been created, the Visual Basic program can invoke methods or get/set properties associated with them. For instance, to find out what server the Client for Windows is logged on to, the following could be executed:

```vbscript
' Create Objects
ulRC = VbVhlLoadFuncs

' Get what server is logged on
Server$ = VhlApplObj.Server

' Display the server name
MsgBox "The server is " & Server$
```

**Access to the Client for Windows**

The Client for Windows can be used to maintain a constant logon session with Content Manager for iSeries. When started, this program logs on to Content Manager for iSeries and then waits for operator commands. Once logged on, other applications through the OLE automation interface can use the Content Manager for iSeries logon session established.

By using the Client for Windows logon session, other applications do not need to logon to Content Manager for iSeries, instead they must create an OLE automation Application Object from the Client for Windows. This can be done by executing the following:

```vbscript
Set VhlApplObj = CreateObject("Vic.Application")
```

where VhlApplObj is the global variable object included in the VHLPI code module, FRNWWFVB.BAS.

The **VbVhlLoadFuncs** function does this processing, plus initializes other global data objects. It is recommended that Visual Basic programs use the **VbVhlLoadFuncs** and **VbVhlDropFuncs** to get and end access to the Client for Windows.

The above description pertains to the situation where the Client for Windows is started and logged on before subsequent Visual Basic applications are executed. If this is not the case, it will be necessary for the Visual Basic application to issue logon and logoff commands as discussed in the next section.

**Using Logon/Logoff with the Client for Windows**

If the Client for Windows is not started and logged on before the Visual Basic application is executed, the application must call **VbVhlLogon** instead of **VbVhlLoadFuncs**. **VbVhlLogon** will cause the Client for Windows to be started and then issue the **Logon** method to logon to Content Manager for iSeries.
Once the Client for Windows is logged on to Content Manager for iSeries, any subsequent attempt to logon, even if the user ID or server information is different, does not cause another logon attempt. All subsequent logons will simply use the original logon session and no error indication will be provided.

The **VbVhlLogoff** will issue the *Logoff* method and close the Client for Windows, even if other applications are using the logon session. If it is not desired to terminate the Client for Windows, then **VbVhlDropFuncs** should be used to terminate access only for the current application.

### Samples of High Level Programming Interface APIs for Windows

**VbVhlAddFolderItem (Add an Item to a Folder)**

#### Format

\[
\text{VbVhlAddFolderItem( ItemId, FolderId )}
\]

#### Purpose

Use this function to add a document or folder (specified by its Item Id) to an existing folder (specified by the folder’s Item Id).

#### Parameters

- **ItemId** — input
  
The Item Id of the document or folder which is to be added to the folder.

- **FolderId** — input
  
The Item Id of the folder.

#### Guidelines for Use

The Item Ids for both the item to add and the folder must be valid.

#### Visual Basic Source Code

Function **VbVhlAddFolderItem** (ItemID, FolderId)

```visualbasic
' Declarations
Dim ItemObj As Object
Dim FolderObj As Object

' Setup Error handler
On Error GoTo VhlAddFolderError
u1RC = 0

' Get the Folder Object
Set FolderObj = VhlApplObj.ItemID(FolderId)

' Get the ItemID Object
Set ItemObj = VhlApplObj.ItemID(ItemID)

' Put ItemId into Folder
u1RC = ItemObj.AddToFolder(FolderObj)

VhlAddFolderEnd:

' Free the objects
Set ItemObj = Nothing
Set FolderObj = Nothing
```

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VbVhlAddFolderItem

' Set return value to error code
VbVhlAddFolderItem = uIRC

Exit Function

VhlAddFolderError:

' Set return value to error code
uIRC = VhlErrorObj.ReturnCode

Resume VhlAddFolderEnd

End Function

VbVhlAdminItemNoteLog (Administer Document Item Note Logs)

Format

VbVhlAdminItemNoteLog( ItemID, FuncInd, NoteText )

Purpose
Use this function to replace, delete, get or append notes to an item’s note log.

Parameters

ItemID — input
The Id of the Item.

FuncInd — input
The function indicator which must be one of the following —
"APPEND"
Append NoteText to the item’s note log.
"DELETE"
Delete the item’s note log.
"REPLACE"
Replace the item’s note log with NoteText.
"GET" Copy item’s note log text to NoteText.

NoteText — input/output
The Visual Basic variable name containing the text value of the Note.
- If FuncInd = GET, then the function copies the item’s note log text into this Visual Basic variable.
- If FuncInd = REPLACE the function replaces the requested item’s note log with the contents of this Visual Basic variable.
- If FuncInd = APPEND the function appends the text contained in this Visual Basic variable to the requested item’s note log.

Guidelines for Use
The Item Id for the document must be valid.
Visual Basic Source Code

Function VbVhlAdminItemNoteLog (ItemId, FuncInd, NoteText)

' Declarations
Dim ItemObj As Object

' Setup Error handler
On Error GoTo VhlAdminNoteError
ulRC = 0

' Get the Item object
Set ItemObj = VhlApplObj.ItemID(ItemId)

' Determine what to do
Select Case FuncInd
Case "APPEND"
    OldNoteText = ItemObj.GetNotes
    ulRC = ItemObj.ChangeNotes(OldNoteText & NoteText)
Case "DELETE"
    ulRC = ItemObj.ChangeNotes(""")
Case "REPLACE"
    ulRC = ItemObj.ChangeNotes(NoteText)
Case "GET"
    NoteText = ItemObj.GetNotes
End Select

VhlAdminNoteEnd:

' Free the object
Set ItemObj = Nothing

' Set return value to error code
VbVhlAdminItemNoteLog = ulRC

Exit Function

VhlAdminNoteError:

' Set return code to error code
ulRC = VhlErrorObj.ReturnCode

Resume VhlAdminNoteEnd

End Function

VbVhlChangeItemIndex (Change an Item’s Index Class)

Format

VbVhlChangeItemIndex( ItemId, ClassName, AttrName(), AttrValue() )

Purpose
Use this function to associate a different index class name and index class attributes (name/values) to an existing document or folder (specified by an Item Id).

Parameters

ItemId — input
The Item Id of the document or folder which is to be changed.

ClassName — input
VbVhlChangeItemIndex

The name of the new index class name for the item.

AttrName()
— input

An array of attribute names which correspond to the array of attribute values in AttrValue(). These attribute names must be defined for the specified ClassName.

Note: Array index 0 must contain the number of array elements.

AttrValue()
— input

An array of attribute values which correspond to the array of attribute names in AttrName(). These attribute values must be valid for the data type defined in index class ClassName for this attribute.

Note: Array index 0 must contain the number of array elements.

Guidelines for Use
The ItemId and index class name specified must exist prior to using this function. Also the attributes in the input array list must be defined for this index class and all required attributes of the index class must be specified in the array list.

Note that when specifying attribute name and value arrays, each attribute name array element must have a corresponding attribute value array element at the same array index.

Visual Basic Source Code
Function VbVhlChangeItemIndex (ItemId, ClassName, AttrName(), AttrValue())

' Declarations
Dim ItemObj As Object

' Setup Error handler
On Error GoTo VhlChgIndexError
ulRC = 0

' Get the search results folder
Set ItemObj = VhlApplObj.ItemID(ItemId)

' Update Item index class
ItemObj.Class = ClassName

' Update the Item attributes
For i = 1 To AttrName(0)
   ItemObj.KeyFields(AttrName(i)) = AttrValue(i)
Next

' Update the Items Index Class and attribute information
ulRC = ItemObj.UpdateIndex

VhlChgIndexEnd:

' Free the objects
Set ItemObj = Nothing

' Set return value to error code
VbVhlChangeItemIndex = ulRC

Exit Function

VhlChgIndexError:
VbVhlCloseDocViews (Close the Document Image View Window)

Format

VbVhlCloseDocViews(fUpdate)

Purpose
This function closes the document which is currently displayed in the Image viewer.

Parameters

fUpdate
— input
Flag (True or False) to specify whether changes made to the document being displayed are to be saved.

Guidelines for Use
The document display window currently displayed in the Image viewer is closed after executing this function. The fUpdate parameter determines whether any changes (annotation, highlighting, and so forth) made to the document are saved.

Visual Basic Source Code

Function VbVhlCloseDocViews(fUpdate)

' Declarations
Dim ImageObj As Object

' Setup Error handler
On Error GoTo VhlCloseDocError
u1RC = 0

' Close Document being displayed
Set ImageObj = VhlApplObj.Image
If Not (ImageObj Is Nothing) Then
    ImageObj.CloseIt(fUpdate)
End If

VhlCloseDocEnd:
' Set return value to error code
VbVhlCloseDocViews = u1RC

Exit Function

VhlCloseDocError:
' Set return code to error code
u1RC = VhlErrorObj.ReturnCode

Resume VhlCloseDocEnd

End Function
VbVhlCopyDoc

VbVhlCopyDoc (Create a Copy Of a Document)

<table>
<thead>
<tr>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>VbVhlCopyDoc( NewDocID, DocID, ClassName, AttrName(), AttrValue() )</td>
</tr>
</tbody>
</table>

**Purpose**
Use this function to create a new document and copy all the objects from an existing document into it. The new document can be set to a new index class or the default index class.

**Parameters**

*NewDocID*
— output

The Item Id for the created document is returned into this Visual Basic variable.

*DocID* — input

The Item Id of the original document.

*ClassName* — input

The name of the new index class for the new document. If set to NULL, the index class will be set to NOINDEX.

*AttrName()* — input

An array of attribute names which correspond to the array of attribute values in *AttrValue()*.

These attribute names must be defined for the specified ClassName. Not used if ClassName is NULL.

**Note:** Array index 0 must contain the number of array elements.

*AttrValue()* — input

An array of attribute values which correspond to the array of attribute names in *AttrName()*.

These attribute values must be valid for the data type defined in index class ClassName for this attribute. Not used if ClassName is NULL.

**Note:** Array index 0 must contain the number of array elements.

**Guidelines for Use**
The document Item Id must be valid. If ClassName is not NULL, it must exist prior to using this function. Also the attributes in the input array list must be defined for this index class and all required attributes that are used for uniquely indexing the index class must be specified in the new attribute array list.

If ClassName is NULL, the index class of the new document will be set to NOINDEX, with attribute Source set to ”COPY” and attributes Name and Timestamp set to the User Id and current time.

The newly created document Item ID is stored in the specified Visual Basic variable, NewDocID.
Visual Basic Source Code

Function VbVhlCopyDoc (NewDocId, DocId, ClassName, AttrName(), AttrValue())

' Declarations
Dim ItemObj As Object
DimNewItemObj As Object

' Setup Error handler
On Error GoTo VhlCopyDocError
ulRC = 0

' Get the Document object
Set ItemObj = VhlApplObj.ItemID(DocId)
' Make sure the object is a document
If ItemObj.Type <> 1 Then
   ' Return with error - SBVI_BAD_DOCUMENT
   ulRC = 909
   GoTo VhlCopyDocEnd
End If

' Create a new document
SetNewItemObj = VhlApplObj.CreateDocument("COPY")
NewDocId =NewItemObj.ItemID

' Update the new document with Index Class information if provided
If (ulRC = 0) And (ClassName <> "") Then
   ' Change the Items Index Class
   ulRC = VbVhlChangeItemIndex(NewDocId, ClassName, AttrName(), AttrValue())
End If

' Copy document base parts into new document
i = 0
While (ulRC = 0) And (i < ItemObj.PartCount)
   ContentClass = ItemObj.GetPartContentClass(i)
   TempFile = ItemObj.GetPartFile(i)
   ulRC =NewItemObj.AddPart(TempFile, ContentClass)
   i = i + 1
Wend
' Close the original document
RC = ItemObj.CloseParts

VhlCopyDocEnd:

' Free the objects
Set ItemObj = Nothing
SetNewItemObj = Nothing

' Set return value to error code
VbVhlCopyDoc = ulRC

Exit Function

VhlCopyDocError:

' Set return code to error code
ulRC = VhlErrorObj.ReturnCode

Resume VhlCopyDocEnd

End Function
VbVhlCreateFolder (Create a New Folder)

Format

VbVhlCreateFolder( FolderId, ClassName, AttrName(), AttrValue() )

Purpose

Use this function to create a folder using the specified index class name and index attributes (name/values).

Parameters

FolderId

— output

The name of the Visual Basic Variable into which the created folder Item Id is stored.

ClassName

— input

The name of the index class for the folder. If NULL, the name "NOINDEX" is used.

AttrName()

— input

An array of attribute names which correspond to the array of attribute values in AttrValue(). These attribute names must be defined for the specified ClassName. Not used if ClassName is NULL.

Note: Array index 0 must contain the number of array elements.

AttrValue()

— input

An array of attribute values which correspond to the array of attribute names in AttrName(). These attribute values must be valid for the data type defined in index class ClassName for this attribute. Not used if ClassName is NULL.

Note: Array index 0 must contain the number of array elements.

Guidelines for Use

The index class name specified must be defined prior to using this function. Also the attribute names in the input array list must be defined for this index class and all required attributes of the index class must be specified in the array list.

If ClassName is NULL, the index class of the new folder will be set to NOINDEX, with attribute Source set to "CREATE" and attributes Name and Timestamp set to the User Id and current time.

The created folder Item Id is stored in the specified Visual Basic Variable, FolderId.

Visual Basic Source Code

Function VbVhlCreateFolder (FolderId, ClassName, AttrName(), AttrValue())

' Declarations
Dim FolderObj As Object
' Setup Error handler
On Error GoTo VhlCreFoldError
ulRC = 0

' Create the folder
Set FolderObj = VhlApplObj.CreateFolder("CREATE")
FolderId = FolderObj.ItemID
If (ulRC = 0) And (ClassName <> "") Then
  ' Change the Items Index Class
  ulRC = VbVhlChangeItemIndex(FolderId, ClassName, AttrName(), AttrValue())
End If

VhlCreFoldEnd:

  ' Free the object
  Set FolderObj = Nothing

  ' Set return value to error code
  VbVhlCreateFolder = ulRC

  Exit Function

VhlCreFoldError:

  ' Set return code to error code
  ulRC = VhlErrorObj.ReturnCode

  Resume VhlCreFoldEnd

End Function

**VbVhlCreateFolderAddItem** (Create a Folder and Add an Item)

<table>
<thead>
<tr>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>VbVhlCreateFolderAddItem( FolderId, ItemId, ClassName, AttrName(), AttrValue() )</td>
</tr>
</tbody>
</table>

**Purpose**
Use this function to create a folder using the specified index class name and index attributes (name/values). This function can also be used to add a document or folder (specified by an Item Id) to the newly created folder.

**Parameters**

- **FolderId**
  - output
  - The name of the Visual Basic Variable into which the created folder Item Id is stored.

- **ItemId**
  - input
  - The Item Id of the document or folder which is to be added to the newly created folder.

- **ClassName**
  - input
  - The name of the index class for the folder. If NULL, the name "NOINDEX" is used.

- **AttrName()**
  - input
An array of attribute names which correspond to the array of attribute values in *AttrValue()*. These attribute names must be defined for the specified *ClassName*. Not used if *ClassName* is NULL.

**Note:** Array index 0 must contain the number of array elements.

*AttrValue()*  
— input  
An array of attribute values which correspond to the array of attribute names in *AttrName()*. These attribute values must be valid for the data type defined in index class *ClassName* for this attribute. Not used if *ClassName* is NULL.

**Note:** Array index 0 must contain the number of array elements.

**Guidelines for Use**  
The Item ID and index class name specified must be defined prior to using this function. Also the attribute names in the input array list must be defined for this index class and all required attributes of the index class must be specified in the list.

If *ClassName* is NULL, the index class of the new folder will be set to NOINDEX, with attribute *Source* set to "CREATE" and attributes *Name* and *Timestamp* set to the User ID and current time.

The created folder item ID is stored in the specified Visual Basic variable, *FolderID*.

**Visual Basic Source Code**  
Function *VbVhlCreateFolderAddItem* (FolderId, ItemID, ClassName,  
*AttrName(), AttrValue())

```
' Declarations
Dim FolderObj As Object
Dim ItemObj As Object

' Setup Error handler
On Error GoTo VhlCreFoldAddError
ulRC = 0

' Create the folder
Set FolderObj = VhlApp1Obj.CreateFolder("CREATE")
FolderId = FolderObj.ItemID

' Get the ItemID Object
Set ItemObj = VhlApp1Obj.ItemID(ItemID)

' Put ItemId into Folder
ulRC = ItemObj.AddToFolder(FolderObj)
If (ulRC = 0) And (ClassName <> "") Then
    ' Change the Items Index Class
    ulRC = VbVhlChangeItemIndex(FolderId, ClassName, *AttrName(), AttrValue())
End If

VhlCreFoldAddEnd:
' Free the objects
Set FolderObj = Nothing
Set ItemObj = Nothing

' Set return value to error code
VbVhlCreateFolderAddItem = ulRC
```

Exit Function
VbVhlDeleteItem (Delete an Item)

Format

```
VbVhlDeleteItem( ItemID )
```

Purpose
Use this function to delete a document or folder as specified by the Item Id, Content Manager for iSeries.

Parameters

- **ItemID** — input
  
  The Item Id of the document or folder to be deleted from Content Manager for iSeries.

Guidelines for Use
The document or folder specified is physically deleted.

Visual Basic Source Code

```
Function VbVhlDeleteItem (ItemID)
    ' Declarations
    Dim ItemObj As Object

    ' Setup Error handler
    On Error GoTo VhlDeleteError
    uIRC = 0

    ' Get the ItemID Object
    Set ItemObj = VhlApplObj.ItemID(ItemID)

    ' Delete the Item
    uIRC = ItemObj.DeleteIt

VhlDeleteEnd:
    ' Free the objects
    Set ItemObj = Nothing

    ' Set return value to error code
    VbVhlDeleteItem = uIRC

    Exit Function

VhlDeleteError:
    ' Set return value to error code
    uIRC = VhlErrorObj.ReturnCode

    Resume VhlDeleteEnd

End Function
```
VbVhlDisplayDocView

**VbVhlDisplayDocView (Display a Document Image)**

<table>
<thead>
<tr>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>VbVhlDisplayDocView( DocId, fUpdate )</td>
</tr>
</tbody>
</table>

**Purpose**
This function displays a document image (specified by Item Id) in the Image viewer.

**Parameters**

*DocId* — input

The Item Id of the document image to be displayed.

*fUpdate* — input

Flag (*True* or *False*) to specify whether changes made to the document currently displayed are to be saved.

**Guidelines for Use**
The document currently displayed in the Image viewer is closed before the specified new document is displayed. The *fUpdate* parameter determines whether any changes (annotation, highlighting, and so forth) made to the previous document are saved.

**Visual Basic Source Code**

```vbnet
Function VbVhlDisplayDocView (ItemID, fUpdate) ' Declarations
    Dim ItemObj As Object
    Dim ImageObj As Object

    ' Setup Error handler
    On Error GoTo VhlDispDocError
    ulRC = 0

    ' Get the Item object
    Set ItemObj = VhlApplObj.ItemID(ItemID)

    ' Close Document being displayed
    Set ImageObj = VhlApplObj.Image
    If Not (ImageObj Is Nothing) Then
        ImageObj.CloseIt (fUpdate)
    End If

    ' Display Document
    ulRC = ImageObj.OpenDocument(ItemObj)

    VhlDispDocEnd:

    ' Free the object
    Set ItemObj = Nothing

    ' Set return value to error code
    VbVhlDisplayDocView = ulRC

    Exit Function

VhlDispDocError:

    ' Set return code to error code
```

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VbVhlDisplayVIItem (Display Item Using the Client for Windows)

**Format**

```
VbVhlDisplayVIItem( ItemID, fUpdate )
```

**Purpose**

The Client for Windows application is used to display the contents of a document, folder, or workbasket. A document will be displayed in the Image viewer, while folders and workbaskets are displayed in the Client for Windows main window as a separate window.

**Parameters**

- **ItemID** — input
  
  The Item ID of the Document or Folder to be displayed.

- **fUpdate** — input
  
  Flag (True or False) to specify whether changes made to the document currently displayed are to be saved. This is only used if the Item Id specified is a document.

**Guidelines for Use**

The Document, Folder, or Workbasket information is displayed using the Client for Windows application. A document will be displayed in the Image viewer, while folders and workbaskets are displayed in the Client for Windows main window as a separate window. The fUpdate parameter is only used if a document is specified, this flag determines whether any changes to the currently displayed document are saved.

**Visual Basic Source Code**

Function VbVhlDisplayVIItem (ItemID, fUpdate)

```
' Declarations
Dim ItemObj As Object
Dim ImageObj As Object
Dim FolderObj As Object

' Setup Error handler
On Error GoTo VhlDispItemError
u1RC = 0

' Get the Item object
Set ItemObj = VhlApplObj.ItemID(ItemID)

' Find out if the item is a folder or a document
If (ItemObj.Type = 1) Then
  ' Close Document being displayed
  Set ImageObj = VhlApplObj.Image
  If Not (ImageObj Is Nothing) Then
    ImageObj.CloseIt (fUpdate)
End Function
```
VbVhlDisplayVIItem

    End If
    ' Display Document
    ulRC = ImageObj.OpenDocument(ItemObj)
Else
    ' Must be a folder. Display it.
    Set FolderObj = VhlDocsObj.OpenTOC(ItemObj)
End If

VhlDispItemEnd:
    ' Free the object
    Set ItemObj = Nothing
    Set FolderObj = Nothing
    Set ImageObj = Nothing
    ' Set return value to error code
    VbVhlDisplayVIItem = ulRC

    Exit Function

VhlDispItemError:
    ' Set return code to error code
    ulRC = VhlErrorObj.ReturnCode

    Resume VhlDispItemEnd

End Function

VbVhlDropFuncs (End Access to VHLPI Functions)

<table>
<thead>
<tr>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>VbVhlDropFuncs()</td>
</tr>
</tbody>
</table>

Purpose
Use this API to end access to the Client for Windows’s OLE automation interface. Any subsequent use of the VHLPI functions will fail.

Guidelines for Use
After executing this function, the Visual Basic program cannot call any VHLPI functions. To establish access to these functions, use the VbVhlLoadFuncs API.

Visual Basic Source Code

Function VbVhlDropFuncs ()

    ' Setup Error handler
    On Error GoTo VhlDropError

    ' End access with OLE interface
    ulRC = 0
    Set VhlDocsObj = Nothing
    Set VhlErrorObj = Nothing
    Set VhlAppObj = Nothing

VhlDropEnd:

    ' Set return value to error code
    VbVhlDropFuncs = ulRC

    Exit Function

VhlDropError:

    ' Set return code to error code
VbVhlExportDocObj (Export a Document Base Object)

Format

VbVhlExportDocObj (DocId, FileName, PartNum)

Purpose
This function creates a disk file containing a base object of a document (specified by DocId).

Parameters

DocId — input
The Item Id for the document whose base part is to be exported.

FileName — input
The name (path included) of the file to create.

PartNum — input
The part number of the base object to export. "0" represents the first base part.

Guidelines for Use
The document Item Id must be valid and the document base object must be able to be represented in a file.

Visual Basic Source Code

Function VbVhlExportDocObj (DocId, Filename, PartNum)

    ' Declarations
    Dim DocObj As Object

    ' Setup Error handler
    On Error GoTo VhlExportDocError
    u1RC = 0

    ' Get the document object
    Set DocObj = VhlApplObj.ItemID(DocId)

    ' Copy document base part into file
    TempFile = DocObj.GetPartFile(PartNum)
    Name TempFile As Filename

    ' Close the document
    RC = DocObj.CloseParts

VhlExportDocEnd:

    ' Free the object
    Set DocObj = Nothing

    ' Set return value to error code
    VbVhlExportDocObj = u1RC

VhlExportDocError:

    u1RC = Err
    Resume VhlExportDocEnd

End Function
VbVhlExportDocObj

Exit Function

VhlExportDocError:

' Set return code to error code
ulRC = VhlErrorObj.ReturnCode
Resume VhlExportDocEnd

End Function

VbVhlGetVIUserID (Get the Logon User ID)

Format
VbVhlGetVIUserID()

Purpose
Use this function to return the logged-on User Id.

Guidelines for Use
A NULL User ID is returned in case of an error, say for example, no logon session exists.

Visual Basic Source Code
Function VbVhlGetVIUserID ()

' Setup Error handler
OnError GoTo VhlGetUserError
ulRC = 0

' Set return value to UserID
VbVhlGetVIUserID = VhlAppObj.User

VhlGetUserEnd:

Exit Function

VhlGetUserError:

' Set return code to error code
VbVhlGetVIUserID = VhlErrorObj.ReturnCode
Resume VhlGetUserEnd

End Function

VbVhlImportDocObj (Import a Document Base Object)

Format
VbVhlImportDocObj( DocId, FileName, ContentClass, ClassName, AttrName(), AttrValue() )

Purpose
This function creates a document base object from a disk file format of the document base part.
Parameters

DocId — output

The name of the Visual Basic Variable into which the document Item Id is stored.

FileName
— input

The name (path included) of the file containing the document base part (file extension is included).

ContentClass
— input

The content class name for the file.

ClassName
— input

The name of the index class for the document. If NULL or not specified, the name "NOINDEX" is used.

AttrName()
— input

An array of attribute names which correspond to the array of attribute values in AttrValue(). These attribute names must be defined for the specified ClassName. Not used if ClassName is NULL.

Note: Array index 0 must contain the number of array elements.

AttrValue()
— input

An array of attribute values which correspond to the array of attribute names in AttrName(). These attribute values must be valid for the data type defined in index class ClassName for this attribute. Not used if ClassName is NULL.

Note: Array index 0 must contain the number of array elements.

Guidelines for Use

The index class name specified must exist prior to using this function. Also the attribute names in the input array list must be defined for this index class and all required attributes of the index class must be specified in the list.

The created document Item Id is stored in the specified Visual Basic Variable, DocId.

Visual Basic Source Code

Function VbVhlImportDocObj (DocId, FileName, ContentClass, ClassName, AttrName(), AttrValue())

' Declarations
Dim DocObj As Object

' Setup Error handler
On Error GoTo VhlImportDocError
ulRC = 0

' Create the document and add the file
Set DocObj = VhlApp1Obj.CreateDocument("IMPORT")
VbVhlImportDocObj

DocId = DocObj.ItemID
ulRC = DocObj.AddPart(Filename, ContentClass)
If (ulRC = 0) And (ClassName <> "") Then
  ' Change the Items Index Class
  ulRC = VbVhlChangeItemIndex(DocId, ClassName, AttrName(), AttrValue())
End If

VhlImportDocEnd:
  ' Free the object
  Set DocObj = Nothing
  ' Set return value to error code
  VbVhlImportDocObj = ulRC

  Exit Function

VhlImportDocError:
  ' Set return code to error code
  ulRC = VhlErrorObj.ReturnCode

  Resume VhlImportDocEnd

End Function

VbVhlListContClasses (List all Content Classes)

Format

VbVhlListContClasses(CCList())

Purpose
Use this function to list all content classes.

Parameters

CCList() — output

  The name of the Visual Basic variable into which is stored the list of all
  content classes. This Visual Basic variable name will be an array variable
  with the index count (number of content classes returned) stored in
  CCList(0). The format of the Visual Basic array is as follows:

  CCList(0)— # of content classes
  CCList(n)— Content Class name n

Guidelines for Use
This function lists both the IBM-defined Content Classes and the user-defined
content classes.

Visual Basic Source Code

Function VbVhlListContClasses(CCList())

  ' Declarations
  Dim i, uStart, uEnd, uLen, uTotLen As Long

  ' Setup Error handler
  On Error GoTo VhlContListError
  ulRC = 0

  ' Get the list of Cont Classes
strRet = VhlApp1Obj.ContentClassList(";")
ulTotLen = Len(strRet)

' Add Cont classes to List array
i = 0
ReDim CList(1)
CList(0) = 0
ulStart = 1
Do
' Each name separated by a ";"
ulEnd = InStr(ulStart, strRet, ";")
If (ulEnd = 0) Then
    ulEnd = ulTotLen + 1
End If
ulLen = ulEnd - ulStart

' Set next array variable to Cont Class name
i = i + 1
ReDim Preserve CList(i + 1)
CList(i) = Mid$(strRet, ulStart, ulLen)

' Setup for next loop
ulStart = ulEnd + 1
Loop Until (ulStart >= ulTotLen)

' Set total number of Cont Classes in array
CList(0) = i

VhlContListEnd:

' Set return value to error code
VbVhlListContClasses = ulRC

Exit Function

VhlContListError:

' Set return code to error code
ulRC = VhlErrorObj.ReturnCode
Resume VhlContListEnd

End Function

VbVhlListFolderItems (List Folder Contents)

Format

VbVhlListFolderItems(ItemList(), FolderID, IndexClass() )

Purpose

Use this function to list all document and folder Item IDs contained in a folder (specified by the folder’s Item ID), and matching the optional index classes array specification.

Parameters

ItemList()
— output

The name of the Visual Basic Variable into which is stored the list of documents and folders contained in the specified folder’s table of contents and also matching the optional index classes. This Visual Basic Variable
name will be an array variable with the index count (number of Item IDs returned) stored in ItemList(0,0), and for each returned item, a structure of three Visual Basic array elements are created, such as:

ItemList(n,1) — Item ID  
ItemList(n,2) — Item Type  
—— (1) Document  
—— (2) Folder  
—— (?) Unknown  
ItemList(n,3) — Index class

FolderID  
— input  
The Item Id of the folder to list.

IndexClass()  
— input  
Optional index classes to filter the items returned. If no elements specified, all the items in the Folder's table of contents will be returned, regardless of its index class.

**Note:** Array index 0 must contain the number of array elements in the list.

**Guidelines for Use**  
The folder Item Id must exist prior to this call. This function can also be used to list the contents of a workbasket.

**Visual Basic Source Code**

```
Function VbVhlListFolderItems (ItemList(), FolderId, IndexClass())

' Declarations  
Dim FolderObj As Object  
Dim ContentObj As Object  
Dim ulTOCCnt, ulStart, ulEnd, ulLen, ulTotLen As Long

' Setup Error handler  
On Error GoTo VhlLstFldError  
ulRC = 0

' Get the Folder Object  
Set FolderObj = VhlApplObj.ItemID(FolderId)

' Setup return array based on size of folder  
ulTOCCnt = FolderObj.TOCCount  
ReDim ItemList(ulTOCCnt + 1, 4)  
ItemList(0, 0) = 0

' Get the list of Item Objects in the Folder  
j = 1  
For i = 1 To ulTOCCnt  
    Set ContentObj = FolderObj.GetTOCItem(i - 1)  
    ItemList(j, 0) = 3  
    ItemList(j, 1) = ContentObj.ItemID  
    ItemList(j, 2) = ContentObj.Type  
    ItemList(j, 3) = ContentObj.Class  
    Set ContentObj = Nothing  
    ' Check if Index Class filter was provided  
    Found = False  
    If IndexClass(0) <> 0 Then  
        For k = 1 To IndexClass(0)  
            If IndexClass(k) = ItemList(j, 3) Then
```
VbVhlListFolderItems

Found = True
Exit For
End If
Next k
Else
  Found = True
End If
' Only send back Items found in Index Class list
If Found Then
  ItemList(0, 0) = j
  j = j + 1
End If
Next i

VhlListFldEnd:

' Free the objects
Set ContentObj = Nothing
Set FolderObj = Nothing

' Set return value to error code
VbVhlListFolderItems = uIRC

Exit Function

VhlListFldError:

' Set return code to error code
uIRC = VhlErrorObj.ReturnCode
Resume VhlListFldEnd

End Function

VbVhlListFolderItemsAttr (List Folder Contents and Their Attributes)

Format
VbVhlListFolderItemsAttr(ItemList(), FolderId)

Purpose
Use this function to list all document and folder Item IDs contained in a folder (specified by the folder’s Item Id).

Parameters
ItemList()
— output
The name of the Visual Basic Variable into which is stored the list of documents and folders contained in the specified folder’s table of contents. This Visual Basic Variable name will be an array variable with the index count (number of Item IDs returned) stored in ItemList(0,0), and for each returned item, a structure of Visual Basic array elements are created, such as:

ItemList(n,0)— size of array
ItemList(n,1)— Item ID
ItemList(n,2)— Item Type
—— (1)Document
FolderId
— input

The Item Id of the folder to list.

Guidelines for Use
The folder Item Id must exist prior to this call. This function can also be used to list the contents of a workbasket.

Visual Basic Source Code
Function VbVhiListFolderItemsAttr (ItemList(), FolderId)

' Declarations
Dim FolderObj As Object
Dim ContentObj As Object
Dim ulTOCCnt, ulStart, ulEnd, ulLen, ulTotLen As Long

' Setup Error handler
On Error GoTo VhlLstFldAttrError
ulRC = 0

' Get the Folder Object
Set FolderObj = VhlApplObj.ItemID(FolderId)

' Setup return array based on size of folder
ulTOCCnt = FolderObj.TOCCount
ReDim ItemList(ulTOCCnt + 1, 4)
ItemList(0, 0) = 0

' Get the list of Item Objects in the Folder
For i = 1 To ulTOCCnt
    Set ContentObj = FolderObj.GetTOCItem(i - 1)
    ItemList(i, 1) = ContentObj.ItemId
    ItemList(i, 2) = ContentObj.Type
    ItemList(i, 3) = ContentObj.Class
    ItemList(0, 0) = i
    ItemList(i, 0) = 3

' Get the list of Index Class attributes
strRet = VhlApplObj.ClassKeyFieldList(ContentObj.Class, ";")
ulTotLen = Len(strRet)
j = 3
ulStart = 1
' Add attributes to List array
Do
    ' Each name separated by a ";"
    ulEnd = InStr(ulStart, strRet, ";")
    If (ulEnd = 0) Then
        ulEnd = ulTotLen + 1
    End If
    ulLen = ulEnd - ulStart
    AttrName = Mid$(strRet, ulStart, ulLen)

    ' Set next array variables to attribute name and value
    j = j + 1
    ReDim Preserve ItemList(i, j + 2)
    ItemList(i) = AttrName
    j = j + 1

Omitting the End Do...
ItemList(i, j) = ContentObj.KeyFields(AttrName)

' Setup for next loop
ulStart = ulEnd + 1
Loop Until (ulStart >= ulTotLen)

' Reset total number of variables in array
ItemList(i, 0) = j
' Free the current Item object
Set ContentObj = Nothing

Next i

VhlLstFldAttrEnd:

' Free the objects
Set ContentObj = Nothing
Set FolderObj = Nothing

' Set return value to error code
VbVhlListFolderItemsAttr = ulRC

Exit Function

VhlLstFldAttrError:

' Set return code to error code
ulRC = VhlErrorObj.ReturnCode

Resume VhlLstFldAttrEnd

End Function

VbVhlListIndexClassAttr (List All Attributes Of an Index Class)

Format
VbVhlListIndexClassAttr( AttrList(), ClassName )

Purpose
This function lists all the attributes of a specified Index Class.

Parameters

AttrList()
— output
The name of the Visual Basic variable into which is stored the list of all the attribute names of the specified Index Class name. This Visual Basic variable name will be a array variable with the index count (number of attributes returned) stored in AttrList(0). The format of the Visual Basic array is as follows:

AttrList(0) — # of attributes
AttrList(n) — Attribute Name n

ClassName
— input
The Index class name for which all attribute names are to be listed.
Guidelines for Use
This function lists only attributes of an Index Class name for which the user has access.

Visual Basic Source Code
Function VbVhlListIndexClassAttr (AttrList(), ClassName)

' Declarations
Dim i, ulStart, ulEnd, ulLen, ulTotLen As Long

' Setup Error handler
On Error GoTo VhlClassAttrError
ulRC = 0

' Get the list of Index Class attributes
strRet = VhlApplObj.ClassKeyFieldList(ClassName, ";")
ulTotLen = Len(strRet)

' Add attributes to List array
i = 0
ReDim AttrList(1)
AttrList(0) = 0
ulStart = 1
Do
  ' Each name separated by a ";"
  ulEnd = InStr(ulStart, strRet, ";")
  If (ulEnd = 0) Then
    ulEnd = ulTotLen + 1
  End If
  ulLen = ulEnd - ulStart

  ' Set next array variable to attribute name
  i = i + 1
  ReDim Preserve AttrList(i + 1)
  AttrList(i) = Mid$(strRet, ulStart, ulLen)

  ' Setup for next loop
  ulStart = ulEnd + 1
Loop Until (ulStart >= ulTotLen)

' Set total number of attributes in array
AttrList(0) = i

VhlClassAttrEnd:

  ' Set return value to error code
  VbVhlListIndexClassAttr = ulRC

  Exit Function

VhlClassAttrError:

  ' Set return code to error code
  ulRC = VhlErrorObj.ReturnCode

  Resume VhlClassAttrEnd

End Function
VbVhlListIndexClasses (List all Index Classes)

Format

VbVhlListIndexClasses(IxClassList())

Purpose
Use this function to list all user accessible Index Classes.

Parameters

IxClassList()
— output

The name of the Visual Basic variable into which is stored the returned Index Classes. This Visual Basic variable name will be an array variable with the index count (number of index classes returned) stored in IxClassList(0). The format of the Visual Basic array is as follows:

IxClassList(0)— # of index classes
IxClassList(n)— Index Class name n

Visual Basic Source Code

Function VbVhlListIndexClasses (IxClassList())

' Declarations
Dim i, ulStart, ulEnd, ulLen, ulTotLen As Long

' Setup Error handler
On Error GoTo VhlClassListError
ulRC = 0

' Get the list of Index Classes
strRet = VhlApplObj.ClassList(;) 
ulTotLen = Len(strRet)

' Add Index classes to List array
i = 0
ReDim IxClassList(1)
IxClassList(0) = 0
ulStart = 1
Do
  ' Each name separated by a ";"
  ulEnd = InStr(ulStart, strRet, ";")
  If (ulEnd = 0) Then
    ulEnd = ulTotLen + 1
  End If
  ulLen = ulEnd - ulStart

  ' Set next array variable to Index Class name
  i = i + 1
  ReDim Preserve IxClassList(i + 1)
  IxClassList(i) = Mid$(strRet, ulStart, ulLen)

  ' Setup for next loop
  ulStart = ulEnd + 1
Loop Until (ulStart >= ulTotLen)

' Set total number of Index Classes in array
IxClassList(0) = i

VhlClassListEnd:
VbVhlListIndexClasses

' Set return value to error code
VbVhlListIndexClasses = uRC

Exit Function

VhlClassListError:

' Set return code to error code
uRC = VhlErrorObj.ReturnCode

Resume VhlClassListEnd

End Function

VbVhlListItemCC (List a Base Object’s Content Class)

<table>
<thead>
<tr>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>VbVhlListItemCC( ItemCC, ItemId, PartNum )</td>
</tr>
</tbody>
</table>

**Purpose**
This function lists the Content Class associated with a base object of the specified Item Id.

**Parameters**

*ItemCC*  
— output  
The name of the Visual Basic Variable into which is stored the returned Content Class name.

*ItemId*  
— input  
The Item Id.

*PartNum*  
— input  
The part number of the document to return content class information. “0” represents the first base part.

**Guidelines for Use**
The Item Id must exist prior to this call.

**Visual Basic Source Code**

Function VbVhlListItemCC (ItemCC, ItemId, PartNum)

' Declarations
Dim ItemObj As Object

' Setup Error handler
On Error GoTo VhlItemCCError
uRC = 0

' Get the Item object
Set ItemObj = VhlApplObj.ItemID(ItemId)

' Copy content class of document base part
ItemCC = ItemObj.GetPartContentClass(PartNum)

VhlItemCCEnd:
' Free the object
Set ItemObj = Nothing

' Set return value to error code
VbVhlListItemCC = u1RC

Exit Function

VhlItemCCError:

' Set return code to error code
u1RC = VhlErrorObj.ReturnCode

Resume VhlItemCCEnd

End Function

**VbVhlListItemInfo (List an Item’s Index Class and Attribute Information)**

**Format**

\[ \text{VbVhlListItemInfo}(\text{Info}, \text{Id}) \]

**Purpose**

This function lists information about the specified Item Id such as — item type, index class type, and attribute names and values.

**Parameters**

*Info* — output

The name of the Visual Basic Variable into which is stored the item information. This Visual Basic Variable name will be an array variable with the index count (size of the array variable) stored in *Info(0)*, and a structure such as:

- *Info(0)* — array size
- *Info(1)* — Item ID
- *Info(2)* — Item Type
  - (1)Document
  - (2)Folder
  - (3)Workbasket
  - (?)Unknown
- *Info(3)* — Index class
- *Info(3+m)* — Attribute name m
- *Info(3+m)* — Attribute value m

*Id* — input

The Item Id.

**Guidelines for Use**

The Item Id must exist prior to this call. Index class and attribute information do not pertain to workbasket items.
Visual Basic Source Code

Function VbVhlListItemInfo (ItemList(), ItemID)

' Declarations
Dim ItemObj As Object
Dim ulTOCCnt, ulStart, ulEnd, ulLen, ulTotLen As Long

' Setup Error handler
On Error GoTo VhlListInfoError
ulRC = 0

' Get the Item Object
Set ItemObj = VhlApplObj.ItemID(ItemID)

' Get the list of Item Objects in the Folder
ReDim ItemList(10)
ItemList(0) = 3
ItemList(1) = ItemObj.ItemID
ItemList(2) = ItemObj.Type
ItemList(3) = ItemObj.Class

' Workbaskets don't have attributes
IfItemList(2) > 2 Then
   GoTo VhlListInfoEnd
End If

' Get the list of Index Class attributes
strRet = VhlApplObj.ClassKeyFieldList(ItemObj.Class, ";")
ulTotLen = Len(strRet)
i = 3
ulStart = 1
' Add attributes to List array
Do
   ' Each name separated by a ";"
   ulEnd = InStr(ulStart, strRet, ";")
   If (ulEnd = 0) Then
      ulEnd = ulTotLen + 1
   End If
   ulLen = ulEnd - ulStart
   AttrName = Mid$(strRet, ulStart, ulLen)

   ' Set next array variables to attribute name and value
   i = i + 1
   ReDim Preserve ItemList(i + 2)
   ItemList(i) = AttrName
   i = i + 1
   ItemList(i) = ItemObj.KeyFields(AttrName)

   ' Setup for next loop
   ulStart = ulEnd + 1
Loop Until (ulStart >= ulTotLen)

' Set total number of variables in array
ItemList(0) = i

VhlListInfoEnd:

' Free the objects
Set ItemObj = Nothing

' Set return value to error code
VbVhlListItemInfo = ulRC

Exit Function

VhlListInfoError:
VbVhlListItemInfo

' Set return code to error code
ulRC = VhlErrorObj.ReturnCode
Resume VhlListInfoEnd
End Function

VbVhlListWBItems (List Workbasket Contents)

Format

VbVhlListWBItems( ItemList(), WorkBasket )

Purpose
This function lists all the document and folder Item IDs that are contained in the workbasket (specified by name).

Parameters

ItemList() — output
The name of the Visual Basic Variable into which the Item IDs are stored. This Visual Basic Variable name will be an array variable with the number of items stored in ItemList(0), and the Item IDs in ItemList(1) through ItemList(n).

WorkBasket — input
The workbasket name.

Guidelines for Use
The workbasket name must be valid.

Visual Basic Source Code

Function VbVhlListWBItems (ItemList(), WBinObject)

' Declarations
Dim WBObj As Object
Dim ContentObj As Object
Dim uTOCCnt As Long

' Setup Error handler
On Error GoTo VhlListWBItemError
ulRC = 0

' Get the WB Object
Set WBObj = VhlAppObj.ItemID(WBinObject)

' Setup return array based on size of WB
uTOCCnt = WBObj.TOCCount
ReDim ItemList(uTOCCnt + 1)
ItemList(0) = 0

' Get the list of Item Objects in the WB
j = 1
For i = 1 To uTOCCnt
    Set ContentObj = WBObj.GetTOCItem(i - 1)
    ItemList(j) = ContentObj.ItemID
    Set ContentObj = Nothing
    ItemList(0) = j
    j = j + 1
VbVhlListWorkBaskets (List All Workbasket Names)

Format
VbVhlListWorkBaskets( WkBasketList() )

Purpose
Use this function to list all the workbasket names and descriptions.

Parameters
WkBasketList()
— output

The name of the Visual Basic variable into which is stored the list of
defined workbasket names. This Visual Basic variable name will be an
array variable with the index count (number of workbaskets returned)
stored in WkBasketList(0), and the workbasket names stored in
WkBasketList(1) through WkBasketList(n).

Visual Basic Source Code
Function VbVhlListWorkBaskets (WBList())

' Declarations
Dim i, ulStart, ulEnd, ulLen, uITotLen As Long

' Setup Error handler
On Error GoTo VhlListWBError
ulRC = 0

' Get the list of WorkBaskets
strRet = VhlApp10Obj.WorkBasketList(";")
ulTotLen = Len(strRet)

' Add Index classes to List array
i = 0
ReDim WBList(1)
WBList(0) = 0
ulStart = 1
Do
  ' Each name separated by a ";"
  Next i
VbVhlListWorkBaskets

ulEnd = InStr(ulStart, strRet, ";")
If (ulEnd = 0) Then
    ulEnd = ulTotLen + 1
End If
ulLen = ulEnd - ulStart

' Set next array variable to Index Class name
i = i + 1
ReDim Preserve WBLList(i + 1)
WBLList(i) = Mid$(strRet, ulStart, ulLen)

' Setup for next loop
ulStart = ulEnd + 1
Loop Until (ulStart >= ulTotLen)

' Set total number of Index Classes in array
WBLList(0) = i

VhlListWBEnd:

' Set return value to error code
VbVhlListWorkBaskets = ulRC

Exit Function

VhlListWBErro:

' Set return code to error code
ulRC = VhlErrorObj.ReturnCode

Resume VhlListWBEnd

End Function

VbVhlLoadFuncs (Get Access to VHLPI Functions)

<table>
<thead>
<tr>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>VbVhlLoadFuncs()</td>
</tr>
</tbody>
</table>

**Purpose**
Use this function to gain access to the VHLPI functions for Visual Basic. This allows the Visual Basic program to call these functions.

**Guidelines for Use**
After executing this function, the Visual Basic program can call any VHLPI function. To terminate access to these functions, use the VbVhlDropFuncs function.

**Visual Basic Source Code**

Function VbVhlLoadFuncs ()

    ' Setup Error handler
    On Error GoTo VhlLoadError
    ulRC = 0

    ' Get the application object
    Set VhlApplObj = CreateObject("Vic.Application")

    ' Setup Global Application Objects
    Set VhlDocsObj = VhlApplObj.Documents
    Set VhlErrorObj = VhlApplObj.Error

VhlLoadEnd:
VbVhlLoadFuncs

' Set return value to error code
VbVhlLoadFuncs = uIRC

Exit Function

VhlLoadError:

' Set return code to error code
uIRC = Err
Resume VhlLoadEnd

End Function

VbVhlLogoff (End Access to IBM Content Manager for iSeries)

Format
VbVhlLogoff()

Purpose
Use this API to end access and close the Client for Windows. Any subsequent use of the VHLPI functions will fail.

Guidelines for Use
After executing this function, the Client for Windows will be closed and no Visual Basic program can call VHLPI functions. To establish access to these functions, use the VbVhlLogon API.

Visual Basic Source Code
Function VbVhlLogoff ()

' Setup Error handler
On Error GoTo VhlLogoffError

' Logoff from the system
uIRC = 0
VhlApp1Obj.Quit
Set VhlDocsObj = Nothing
Set VhlErrorObj = Nothing
Set VhlApp1Obj = Nothing

VhlLogoffEnd:

' Set return value to error code
VbVhlLogoff = uIRC

Exit Function

VhlLogoffError:

' Set return code to error code
uIRC = Err
Resume VhlLogoffEnd

End Function
VbVhlLogon (Get Access to IBM Content Manager for iSeries)

**Format**

```
VbVhlLogon()
```

**Purpose**

Use this function to logon and gain access to the VHLPI functions for Visual Basic. This allows the Visual Basic program to call these functions.

**Guidelines for Use**

After executing this function, the Visual Basic program can call any VHLPI function. To logoff and close the Client for Windows, use the VbVhlLogoff function. To simply terminate access to these functions, use the VbVhlDropFuncs function.

**Visual Basic Source Code**

Function VbVhlLogon (UserId, Password, LibServer)

```vbnet
' Setup Error handler
On Error GoTo VhlLogonError
ulRC = 0

' Get the application object
Set VhlApp1Obj = CreateObject("Vic.Application")

' Set logon information
VhlApp1Obj.User = UserId
VhlApp1Obj.Server = LibServer
VhlApp1Obj.Password = Password

' Display the Logon screen and Log onto the system
ulRC = VhlApp1Obj.Logon
If (ulRC = 0) Then
    ' Setup Global Application Objects
    Set VhlDocsObj = VhlApp1Obj.Documents
    Set VhlErrorObj = VhlApp1Obj.Error
Else
    ' Release application object
    Set VhlApp1Obj = Nothing
End If

VhlLogonEnd:

    ' Set return value to error code
    VbVhlLogon = ulRC

    Exit Function

VhlLogonError:

    ' Set return code to error code
    ulRC = Err
    Resume VhlLogonEnd

End Function
```
**VbVhlRemoveFolderItem**

**VbVhlRemoveFolderItem (Remove an Item From a Folder)**

<table>
<thead>
<tr>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>VbVhlRemoveFolderItem(ItemId, FolderId)</td>
</tr>
</tbody>
</table>

**Purpose**
This function removes a document or folder (specified by Item Id) from a folder (specified by the folder’s Item Id).

**Parameters**

*ItemId* — input  
The Item Id for the document or folder to be removed.

*FolderId* — input  
The Item Id for the folder.

**Guidelines for Use**
The document or folder specified is NOT physically deleted. It is simply disassociated with the folder.

**Visual Basic Source Code**

```visualbasic
Function VbVhlRemoveFolderItem (ItemID, FolderId)
    ' Declarations
    Dim ItemObj As Object
    Dim FolderObj As Object

    ' Setup Error handler
    On Error GoTo VhlRemFolderError
    uIRC = 0

    ' Get the Folder Object
    Set FolderObj = VhlApplObj.ItemID(FolderId)

    ' Get the ItemID Object
    Set ItemObj = VhlApplObj.ItemID(ItemID)

    ' Put ItemId into Folder
    uIRC = ItemObj.RemoveFromFolder(FolderObj)

    VhlRemFolderEnd:

    ' Free the objects
    Set ItemObj = Nothing
    Set FolderObj = Nothing

    ' Set return value to error code
    VbVhlRemoveFolderItem = uIRC

    Exit Function

VhlRemFolderError:

    ' Set return value to error code
    uIRC = VhlErrorObj.ReturnCode

    Resume VhlRemFolderEnd

End Function
```

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**VbVhlScanDoc (Scan Documents)**

```
Format
VbVhlScanDoc()
```

**Purpose**
This function invokes the Scan facility. This enables the user to scan images and create new documents. The created document’s Item Ids will **not** be returned when the user closes the Scan window.

**Guidelines for Use**
The user interacts with the Scan facility to perform the work. Hence the user controls how and when documents are created via his commands to the Scan facility.

**Visual Basic Source Code**

Function VbVhlScanDoc ()

' Setup Error handler
On Error GoTo VhlScanDocError
ulRC = 0

' Scan some documents
VhlApp1Obj.OpenScan

VhlScanDocEnd:
Exit Function

VhlScanDocError:

' Set return code to error code
VbVhlScanDoc = VhlErrorObj.ReturnCode
Resume VhlScanDocEnd

End Function

---

**VbVhlSearchAdv (Advanced Search for Items)**

```
Format
VbVhlSearchAdv( ItemList(), ClassName, Criteria, TypeFilter, WIPFilter, SuspendFilter )
```

**Purpose**
This function lists all the Item Ids matching the supplied search criteria. The list of returned Item Ids can be filtered based upon the values supplied for the various filter parameters.

**Parameters**

- `ItemList()`: — output
The name of the Visual Basic Variable into which the document list of Item Ids is stored. This Visual Basic Variable name will be an array variable with the number of items stored in ItemList(0), and the Item Ids in ItemList(1) through ItemList(n).

**ClassName**
— input

The name of the index class.

**Criteria**
— input

The search criteria. See “Guidelines for Use.”

**TypeFilter**
— input

The type value of item to search for. Valid values are —

- 1(SIM_DOCUMENT)
- 2(SIM_FOLDER)
- other(SIM_FOLDER_DOC)

**WIPFilter**
— input

The Work In Progress status for items to return. The values for WIP status can be ORed together if more than one criteria is desired. Valid values are —

- 1(OIM_ITEMS_NOT_IN_WORKFLOW)
- 2(OIM_CURRENT_WORKFLOW_ITEMS)
- 4(OIM_CANCELLED_WORKFLOW_ITEMS)
- 8(OIM_COMPLETED_WORKFLOW_ITEMS)

**SuspendFilter**
— input

The suspension status for items to return. Valid values are —

- 1(OIM_ITEMS_NOT_SUSPENDED)
- 2(OIM_ITEMS_SUSPENDED)
- other(OIM_ITEMS_ALL)

### Guidelines for Use
The specified index class name must exist prior to using this function. Also the Attribute Ids in the search specification must be defined for this index class.

The syntax of the search criteria is — "Attribute Operator Value" where

- **Attribute** is the Id of an attribute which must be defined in IBM Content Manager for iSeries. This attribute Id is in the format, Annn, where nnn is the attribute number.

- **Operator** is a text string representing the operation where valid "Operator" values are EQ, ==, LEQ, <=, GEQ, >=, LT, <, GT, >, NEQ, <>, IN, NOTIN, LIKE, NOTLIKE, BETWEEN, NOTBETWEEN.

- **Value** can be text, numbers, or the word NULL. The "Value" text can also contain the character '%' which matches any characters or the character '_' which matches any single character. Examples of valid "Operator Value" search criteria are:
  - "LIKE E%"
The system uses the search criteria to find any matching Item Ids in the database, via a dynamic SQL query.

**Visual Basic Source Code**

Function VbVhlSearchAdv (ItemList(), ClassName, Criteria, TypeFilter, WIPFilter, SuspendFilter)

' Declarations
Dim FolderObj As Object
Dim ContentObj As Object
Dim ulTOCCnt, u1Start, u1End, u1Len, u1TotLen As Long

' Setup Error handler
On Error GoTo VhlSearchAdvError
u1RC = 0

' Get the search results folder
Set FolderObj = VhlApplObj.Search(ClassName, Criteria, TypeFilter, WIPFilter, SuspendFilter)

' Setup return array based on size of folder
ulTOCCnt = FolderObj.TOCCount
ReDim ItemList(ulTOCCnt + 1)
ItemList(0) = 0

' Get the list of Item Objects in the Folder
For i = 1 To ulTOCCnt
    Set ContentObj = FolderObj.GetTOCItem(i - 1)
    ItemList(i) = ContentObj.ItemID
    Set ContentObj = Nothing
    ItemList(0) = i
Next

VhlSearchAdvEnd:
' Free the objects
Set ContentObj = Nothing
Set FolderObj = Nothing

' Set return value to error code
VbVhlSearchAdv = u1RC

Exit Function

VhlSearchAdvError:
' Set return code to error code
u1RC = VhlErrorObj.ReturnCode

Resume VhlSearchAdvEnd

End Function

**VbVhlSearchItem (Search for Items)**

<table>
<thead>
<tr>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>VbVhlSearchItem(ItemList(), ClassName, Criteria)</td>
</tr>
</tbody>
</table>
VbVhlSearchItem

Purpose
This function lists all the Item Ids of the specified index class name, which contain attribute names/values matching the supplied search criteria.

Parameters
ItemList() — output
The name of the Visual Basic Variable into which the document list of Item Ids is stored. This Visual Basic Variable name will be an array variable with the number of items stored in ItemList(0), and the Item Ids in ItemList(1) through ItemList(n).

ClassName — input
The name of the index class.

Criteria — input
The search criteria. See “Guidelines for Use” on page 240.

Guidelines for Use
The specified index class name must exist prior to using this function. Also the Attribute Ids in the search specification must be defined for this index class.

The syntax of the search criteria is — "Attribute Operator Value" where

- **Attribute** is the Id of an attribute which must be defined. This attribute Id is in the format, Annn, where nnn is the attribute number.
- **Operator** is a text string representing the operation where valid "Operator" values are EQ, ==, LEQ, <=, GEQ, >=, LT, <, GT, >, NEQ, <>, IN, NOTIN, LIKE, NOTLIKE, BETWEEN, NOTBETWEEN.
- **Value** can be text, numbers, or the word NULL. The "Value" text can also contain the character '%' which matches any characters or the character '_' which matches any single character. Examples of valid "Operator Value" search criteria are:
  - "LIKE E%"
  - "< 123"
  - "== NULL"

The system uses the search criteria to find any matching Item Ids in the database, via a dynamic SQL query.

Visual Basic Source Code
Function VbVhlSearchItem (ItemList(), ClassName, Criteria)

' Declarations
Dim FolderObj As Object
Dim ContentObj As Object
Dim ulTOCCnt, ulStart, ulEnd, ulLen, ulTotLen As Long

' Setup Error handler
On Error GoTo VhlSearchError
ulRC = 0

' Get the search results folder
Set FolderObj = VhlApplObj.Search(ClassName, Criteria)
' Setup return array based on size of folder
ulTOCCnt = FolderObj.TOCCount
ReDim ItemList(ulTOCCnt + 1)
ItemList(0) = 0

' Get the list of Item Objects in the Folder
For i = 1 To ulTOCCnt
    Set ContentObj = FolderObj.GetTOCItem(i - 1)
    ItemList(i) = ContentObj.ItemID
    Set ContentObj = Nothing
    ItemList(0) = i
Next

VhlSearchEnd:

' Free the objects
Set ContentObj = Nothing
Set FolderObj = Nothing

' Set return value to error code
VbVhlSearchItem = ulRC

Exit Function

VhlSearchError:

' Set return code to error code
ulRC = VhlErrorObj.ReturnCode

Resume VhlSearchEnd

End Function
Chapter 7. Content Manager for iSeries Programming Interface APIs on the Server

Server Versions of the Content Manager for iSeries Client APIs

The Content Manager for iSeries client APIs are also available as equivalent server APIs for the Content Manager for iSeries. Sample programs using some of these APIs are available in COBOL, RPG and C. For information, refer to the sample programs in the QSMPSRC source file in your QVI library. Also provided are sample data structures in the following source files: QVIPRGCYPY, QVICBLCPY and H. Create your custom modules using ILE C/400®, ILE COBOL/400®, ILE RPG/400®, or VisualAge/400. Then create a program binding your new modules with service program QVIAPI.

The Content Manager for iSeries Application Programming Guide & Reference (SC23–4586) may be used as a reference, noting these differences:

- Pointers are 16 bytes on the Content Manager for iSeries, so all pointers returned in the RCSTRUCT are accessed through pParam2 instead of ulParam1 and ulParam2.
- When running the APIs on the Content Manager for iSeries, the server code is run in the same job space as the application calling the APIs – a separate job is not started.
- Only image data accessible on the Content Manager for iSeries can be opened through SimLibOpenObject.
- Two workstation APIs do not have equivalent server versions. Sim400SendReceive and Sim400ConvertCodepage are available on the workstation only.
- The VI400TST program is available to run on either the Content Manager for iSeries of the workstation to verify the behavior of any API.

Server-only Content Manager for iSeries APIs

The following Content Manager for iSeries API exists on the server only; there is no API of a similar name on the workstation.

QVISNDRCV (Send and Receive Buffer)

**Purpose**

QVISNDRCV is a generic function for sending data to and receiving data from a workstation. This function can be used by Content Manager for iSeries applications to display documents through the Content Manager for iSeries client. A reset option is also included to close the document workstation.

**Parameters**

*Communication_Type*

INT—input/output

The communication type to use. Valid values are:

0  Detect

The connection used for the application will be used, as determined by the device description. Value will be returned as 1
or 2, unless an error occurs. This would be used except when a specific workstation address is to be used, such as for printing.

1. APC (CPI-C). For explicity using APPC.
2. TPC/IP. For example using TCP/IP.

**Partner_Address**
CHAR[20]—input/output

Address for the workstation with at least one trailing blank. This may be the fully qualified LU name for CPI-C or the TCP/IP address. If Communication_Type is set to 0, this field is ignored, but the workstation address will be returned here.

**Partner_TPName**
CHAR[20] — input/output

Transaction program name for APPC. If passed as blank, the default is EKDVICLA, which is provided by Content Manager for iSeries.

**Partner_ModeName**
CHAR[10]

Mode name for APPC, with at least one trailing blank. If passed as blank, made name will be #INTER.

**Partner_PortNumber**
INT — input/output

For a TCP/IP connection, the port number on the workstation. If passed as 0, the default is 31015.

**communication_handle**
CHAR[20]

Contains the communication handle. If blank and the buffer size is not zero, a conversation will be allocated or a socket will be opened to connect to the workstation. If the buffer size is 0, and this field is not blank, the conversation will be deallocated or the socket will be closed.

**dllname**
CHAR — input/output

The name of the DLL, null or blank terminated, to be loaded on the workstation. The function in the DLL must be:

```c
int vi400comm (int * buffer_size, char * buffer)
```

If a non-zero return is received, the workstation program will be ended. The user would then have to start it again to be able to initiate another display request.

If passed as blank, the default is EKDVIDSP.DLL, which is provided by Content Manager for iSeries to support host-initiated display requests.

**host_code_page**
INT — input

If 0, QVISNDRCV will extract the current code page. All data in the buffer must be translatable characters. To send binary data that is not converted, use −1.

**buffer_size**
INT — input/output
Pointer to the size of the buffer to send from and receive into. The maximum size is 32760 bytes. If 0 on the host, the conversation or socket will be closed. If non-zero on return, the buffer contains data sent from the workstation. No more than 32500 bytes can be sent or received. The rest of the 32K is for control information.

**buffer** CHAR — input/output

Pointer to the buffer to send from and receive into. This must be at least as long as the *buffer_size* specified, or the size of the buffer returned. Providing a return buffer that is smaller than the amount of data returned will not cause an explicit error, but will probably cause the calling program to fail.

**Return Values**
The function returns an integer return code if an error occurs in the Content Manager for iSeries code.

Sample code is provided which supports host-initiated display requests using the Content Manager for iSeries. This code will return the following character return codes in the buffer passed back to the calling application:

1. Content Manager for iSeries was not started
2. Null buffer passed
3. First byte not R (reset) or D (display)
4. Invalid item ID length
5. Invalid item ID
6. Problem accessing item
7. Content Manager for iSeries error

**Guidelines for Use**
All parameters are passed by reference. Character variables may be null or blank terminated.

Create your custom modules using ILE C/400, ILE COBOL/400, ILE RPG/400, or VisualAge/400. Then create a program binding your new modules with service program QVISNDRCV.

Two workstation programs for communications are provided: EKDVICLA for APPC communications and EKDVICLTL for TCP/IP communications. If called with defaults, the address of the workstation and the communication type will be determined automatically.

For APPC communications, the program EKDVICLA can be pre-started or defined as a transaction program to be started by the attach manager. If you are using Personal Communications for APPC support, to define the transaction program EKDVICLA, set Receive_Allocate timeout to 0, and check Dynamically loaded, Queued TP, and Background process. If the program is not already running when requested by a program on the iSeries, it will be automatically started. By setting the timeout to 0, the program will remain active even after the conversation is deallocated.

For TCP/IP communications, the program EKDVICLTL must be pre-started on the workstation. If the port number (31015) is not acceptable, a different value may be passed as a parameter when starting EKDVICLTL.
Sample Source
Refer to sample source program, QVIDSPTST, in file QCSRC in your QVI library. This program is provided as a sample for calling QVISNDRCV from a C program on the server. It contains, defines, and structures that you will find useful when creating your custom code.
Chapter 8. Content Manager for iSeries User Exits

User exits provided by Content Manager for iSeries are specific points in the program where you can specify your own processing routines. You may create exit programs which provide a level of customization by accessing a database or integrating with another application.

Client User Exits

The user exit points described here are invoked by the Content Manager for iSeries. Use the following user exits in conjunction with the Client for Windows.

AlternateSearchUserExit (alternate search user exit)

Format

```
SHORT AlternateSearchUserExit( hSession, hWnd, szUserID, usTypeFilter, fWipFilter, usSuspendFilter, usIndexClass, usNumCriteria, pCriteria, pItemIdsResultFolder)
```

Purpose

Use the `AlternateSearchUserExit` to replace the search function of the client application program with your own search routine. The exit returns the results of the search operation in a search result folder.

Parameters

`hSession`

HSESSION — input

Session handle returned by `SimLibLogon`.

`hWnd`

HWND — input

The handle to a window. The device manager uses this handle to identify the window where any operation of an end-user interface occurs, such as the display of error messages.

`pszUserID`

PSZ — input

The 0-terminated character string containing the user ID of the user who receives the search results. This parameter is not case-sensitive.

`usTypeFilter`

USHORT — input

The type of items to search for. The valid values are:

- `SIM_DOCUMENT` Indicates that the item is a document.
- `SIM_FOLDER` Indicates that the item is a folder.
- `SIM_FOLDER_DOC` Indicates that the item can be either a folder or a document.
fWipFilter

BITS — input

The work-in-process status of the items to search for. The following are valid values. You can use a bit inclusive OR operator (|) to combine them.

**OIM_ITEMS_NOT_IN_WORKFLOW**

Searches for items not in a workflow.

**OIM_CURRENT_WORKFLOW_ITEMS**

Searches for items in a workflow.

**OIM_CANCELED_WORKFLOW_ITEMS**

Searches for items removed from a workflow.

**OIM_COMPLETED_WORKFLOW_ITEMS**

Searches for items that completed their workflow.

**OIM_ALL**

Searches without regard for the work-in-process status of the object. Do not combine this value with the others. It is equivalent to using all the other values.

usSuspendFilter

USHORT — input

The suspension status of the items to search for. The valid values are:

**OIM_ITEMS_SUSPENDED**

Searches for suspended items.

**OIM_ITEMS_NOT_SUSPENDED**

Searches for items that are not suspended.

**OIM_ALL**

Searches without regard for the suspension status of the object. Do not combine this value with the others. It is equivalent to using all the other values.

usIndexClass

USHORT — input

The index class identifier of the index class for the folder you create for the search results. Ensure that the index class you assign to the created folder has no required attributes. Otherwise, the search fails and the folder is not created.

If you do not want to assign an index class to the folder you create, specify the value 0 for this parameter.

If the value of the fMemListRequest parameter is TRUE or the value of the usStatDyn parameter is SIM_SEARCH_BUILD_ONLY, IBM Content Manager for iSeries ignores this value.

usNumCriteria

USHORT — input

The number of elements in the pCriteria array.

pCriteria

PLIBSEARCHCRITERIASTRUCT — input

The pointer to an array specifying the search criteria for each view to be searched. The array it points to must have at least one element.
pItemIDResultFolder
PITEMID — output
The pointer to the search results folder.

Return values
The exit returns SIM_RC_OK to indicate that the search operation completed normally. All other return values indicate an abnormal ending and are logged as errors.

On successful completion, the function identifies the search results folder in the value of the ItemidResultFolder output parameter.

Comments
The Alternate Search user exit routine works at the view level. When running a basic search, if the search is against a particular view, the client application program loads the exit for that view. If the search is against all views, the client application program loads the exit for the base view of the NOINDEX class. For advanced search, the client application program loads the exit for the base view of the NOINDEX class.

ChangeSMSUserExit (change system-managed storage user exit)

<table>
<thead>
<tr>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHORT ChangeSMSUserExit( hwnd, pExitStruct, pfContinue)</td>
</tr>
</tbody>
</table>

Purpose
This user exit routine is called whenever the index class is changed for an item before the library object window is closed. The exit is passed the ItemID of the item and returns a flag indicating whether default processing should continue. The default processing calls SimLibChangeObjSMS for each of the item’s parts using the object server and collection information defined in the item’s new index class.

Use the system administration program to specify this user exit routine in the settings notebook of the index class. Refer to the System Administration Guide.

Parameters
hwnd  HWND — Input

Anchor window for message boxes. This parameter can be used to display messages and associate them with the application window.

pExitStruct  PUSEREXITSTRUCT — Input

User-defined attribute fields and other relevant information for the open document are passed in the pExitStruct parameter.

pfContinue  PBOOL — Output

Pointer to the continue flag. Set this value to TRUE to continue with default processing.
Internal representation

USEREXITSTRUCT:
   typedef struct
   |
   HSESSION
    hSession;
   ITEMID
    uidItem;
   USHORT
    itemidWorkflowId;
   BOOL
    fIsUnindexed;
   USHORT
    hOrigClass;
   USHORT
    hClass;
   CHAR
    szUserId[LST_USERID_LEN+1];
   CHAR
    szUserHandle[LST_USERID_LEN+1];
   USHORT
    usAccessLevel;
   SHORT
    sFields;
   FIELDVALUE *
    pFields;
   } USEREXITSTRUCT;

typedef USEREXITSTRUCT * PUSEREXITSTRUCT

where:

hSession
   Session handle returned by SimLibLogon.

uidItem
   Is the ItemID of the current document or folder to be changed.

itemidWorkflowId
   Is the workflow ID of the opened document or folder to be changed. This value is NULL if the object is not in a workflow.

fIsUnindexed
   This value is TRUE if the object is a new document that has not been indexed in the system.

hOrigClass
   Is the original class ID of the opened document or folder.

hClass
   Is the current class ID of the opened document or folder.

szUserId[LST_USERID_LEN+1]
   Is the user ID of the user saving the document or folder.

szUserHandle[LST_USERID_LEN+1]
   This parameter is reserved.

usAccessLevel
   Is the access privilege the user has for this document or folder. The valid value is:
   UX_PRIV_WRITE when the user opens this object in UPDATE mode.
sFields is the number of fields passed to the exit in the pFields parameter.

pFields is the pointer to an array of FIELDVALUE data structures. The configuration and content of the user-defined attributes for this document or folder is passed to the exit in these data structures.

FIELDVALUE:

typedef struct
{
    USHORT usFieldId;
    USHORT usDataType;
    USHORT usMaxLength;
    BOOL fIsReq;
    PSZ pBuffer;
} FIELDVALUE;

typedef FIELDVALUE * PFIELDVALUE

where:

usFieldId
    Is the user-defined attribute ID.

usDataType
    Is IBM Content Manager for iSeries data type of the attribute in the usFieldId parameter. This is a numeric equivalent representing the data type.

usMaxLength
    Is the maximum number of bytes in the pBuffer parameter to appear in the Index Form window, excluding the NULL terminator.

fIsReq
    This value is TRUE if the field is required.

pBuffer
    Is the current value of the attribute in ASCIIZ display format. The buffer length is the value in the usMaxLength parameter plus one for the NULL terminator.

Results
The function returns SHORT with zero as SUCCESS. If any value other than zero is returned, default processing occurs.

If the call is successful, the value returned in the pfContinue parameter is checked.

Comments
The exit routine must not free the buffers that are passed in. All items sent to the exit are read-only copies. This exit must not modify these data structures.

The index form is closing when this user exit routine is called.

If a class has both the Save Record and Change SMS user exit routines specified, the Save Record user exit routine is called first.
DetNextWBUserExit (determine next workbasket user exit)

Format

SHORT DetNextWBUserExit( hwnd, usOperation, sNumberOfITEMIDs,
pListofITEMIDs, pExitStruct, pNextWorkBasketITEMID, pfComplete, pfContinue)

Purpose

The client application program calls this user exit routine from one of three functions within IBM Content Manager for iSeries. The exit is associated with a particular index class. This exit routes an item of this class to another workbasket, starts the item in a workflow, or changes its workflow.

The client application program calls this user exit routine whenever the user chooses the Route to option on the Process menu if the index class of the item defines the exit. By default, IBM Content Manager for iSeries determines if the item is in a workflow. If it is, it determines the next workbasket in the workflow. The system selects this workbasket in the resulting dialog box.

The client application program calls this user exit routine prior to displaying the Route To dialog box, regardless of whether the item is in a workflow. If the user exit routine returns a workbasket ITEMID, the workbasket appears as selected in the Route To dialog box. The user can still select a different workbasket in which to route the items. The user exit routine can perform any required processing and notifies IBM Content Manager for iSeries that the route operation should not continue. In this case, the Route To dialog box does not appear.

The client application also calls this user exit routine when the user selects the Start workflow or Change workflow option on the Process menu. The default processing for the Start workflow option includes routing the item to the first workbasket in the workflow. For a Change workflow action, the user can optionally route the item to the first workbasket.

The system does not call the Determine Next Workbasket User Exit during an automatic workflow operation.

The client application program calls this user exit routine prior to the actual routing of the item. The system routes this item to the specified workbasket. A valid workbasket must be returned in this case, because an item in a workflow must always be in a workbasket, even if the workbasket is not part of the workflow.

Use the system administration program to specify this user exit routine in the Next workbasket field of the index class settings notebook. Refer to the IBM Content Manager for iSeries: System Administration Guide.

Parameters

hwnd

HWND — input

Anchor window for message boxes. You can use this parameter to display messages and associate them with the application window.

usOperation

USHORT — input
This value indicates the operation that called the user exit routine. The value is one of the following:
- UX_ROUTE
- UX_START_WORKFLOW
- UX_CHANGE_WORKFLOW

sNumberOfITEMIDs
USHORT — input
This value specifies the number of ItemIDs in the list that is pointed to by the pListofITEMIDs parameter. If this number is greater than one, the user selects multiple objects from the table of contents of a folder or workbasket.

pListofITEMIDs
PITEMID — input
This parameter is the pointer to the list of ItemIDs for the documents and folders the user wants to route.

pExitStruct
PUSEREXITSTRUCT — input
If the document or folder being routed is open when the exit is called, the user-defined attributes for the object and other relevant information are passed in the pExitStruct parameter. The values in the data structure include changes made to the class and attributes in the Index Form window.

If the object being routed is not open, the pListofITEMIDs parameter points to a list of one or more ItemIDs the user selects from the Table of Contents window. The pExitStruct values are NULL except for the szUserId parameter, that contains the current value.

pNextWorkBasketITEMID
PITEMID — input/output
Initially contains a pointer to the ItemID of the next workbasket recommended by IBM Content Manager for iSeries. If the document or folder being routed is not in a workflow, the initial ItemID value contains zeros. Replace this value only if the user exit routine returns the ItemID of a valid workbasket in the system.

pfComplete
PBOOL — input/output
Set this parameter to TRUE if IBM Content Manager for iSeries recommends marking this object as complete for the workflow when the user exit routine returns control. When the document or folder is marked complete, the system automatically removes it from the workbasket.

**Recommendation:** Do not set this parameter to TRUE if a user selects multiple workflow objects that should not be marked as complete.

pfContinue
PBOOL — output
Set this parameter to FALSE to cancel the route to action. This value lets the user exit routine perform all routing without letting the user override the suggestion. If you set this flag to FALSE, the Route To dialog box does not appear. The system ignores this parameter when the user exit routine is called during a Save, Start workflow, or Change workflow operation.
Internal representation

USEREXITSTRUCT::
    typedef struct
    {
        HSESSION hSession;
        ITEMID uidItem;
        ITEMID itemidWorkflowId;
        BOOL fIsUnindexed;
        USHORT hOrigClass;
        USHORT hClass;
        CHAR szUserId[LST_USERID_LEN+1];
        CHAR szUserHandle[LST_USERID_LEN+1];
        USHORT usAccessLevel;
        SHORT sFields;
        FIELDVALUE * pFields;
    } USEREXITSTRUCT;

typedef USEREXITSTRUCT * PUSEREXITSTRUCT

where:

uidItem
    Is the ItemID of the current document or folder the user wants to route if only one item is being routed. If the user wants to route more than one item, the value is NULL. This value is NULL if the user does not open this object.

itemidWorkflowId
    If called during a Start workflow action or Change workflow action, this value is the workflow ID of the document or folder the user wants to route. The value is also the workflow ID if the user selects the route to action for a single document or folder. If the user selects the Route to option for more than one document or folder, the value is NULL.

fIsUnindexed
    This value is always NULL.

hOrigClass
    This value is always NULL.

hClass
    This value is always NULL.

szUserId[LST_USERID_LEN+1]
    This value is the user ID of the user routing the document or folder.

szUserHandle[LST_USERID_LEN+1]
    This parameter is reserved.

usAccessLevel
    This value is always NULL.
**Fields**
This value is always NULL.

**pFields**
This value is always NULL.

**FIELDVALUE:**
typedef struct
{  
USHORT  
usFieldId;
USHORT  
usDataType;
USHORT  
usMaxLength;
BOOL    
flsReq;
PSZ     
pBuffer;
} FIELDVALUE;

typedef FIELDVALUE * PFIELDVALUE

where:
usFieldId
Is the user-defined attribute identifier.

usDataType
Is IBM Content Manager for iSeries data type of the attribute in the 
usFieldId parameter. This is a numeric equivalent representing the data

type.

usMaxLength
Is the maximum number of bytes in the pBuffer parameter to appear in the 
Index Form window, excluding the NULL terminator.

flsReq  This value is TRUE if the field is required.

pBuffer  Is the current value of the attribute in ASCII display format. The buffer

length is the value in the usMaxLength parameter plus one to represent the

NULL terminator.

**Results**
The function returns a value of SHORT with zero for SUCCESS. Another value is

assumed to be an error and an error message appears.

If the exit completes successfully, the pfComplete parameter is checked. If this

parameter is set to TRUE, IBM Content Manager for iSeries displays a message box

that recommends marking the selected objects as complete for this workflow. This

parameter is ignored if the object is not in a workflow.

If the pfComplete parameter is not set to TRUE, the value in the

pNextWorkBasketITEMID parameter is used as the recommended destination for the

selected objects. This value must point to a valid IBM Content Manager for iSeries

workbasket ItemID. The user can override these recommendations for both cases,

either the next workbasket or completion. If the user exit routine is called during a

route operation and pfContinue is FALSE, the Route To dialog box does not appear.

**Comments**
The exit routine must not free the buffers that are passed in. All items sent to the

exit are read-only copies. These data structures must not be modified by this exit.

Do not perform any OIM function calls to change the workflow status or
DetermineWorkflowUserExit (determine workflow user exit)

**Format**

```
SHORT DetWorkflowUserExit( hwnd, puidItem, pExitStruct, puidWorkflow,
puidWorkbasket)
```

**Purpose**

The client application program calls this user exit routine when a user saves a document or folder with an index class that is defined to automatically start items in a workflow when they are saved. The client application program calls this user exit routine only when these items have never been in a workflow before. Although this user exit routine is specified for a particular index class, the same user exit routine can be used for multiple index classes.

IBM Content Manager for iSeries automatically provides the user exit routine with the default workflow for the index class, as specified by the system administrator. The user exit routine can specify that the item should be started in a different workflow, the default workflow, or no workflow.

This user exit routine can also optionally specify the workbasket where the item is to be routed. When an item is specified to be in a workflow, it must be in a workbasket even if the workbasket is not in the workflow where the item is. If the user exit routine does not explicitly specify a workbasket, IBM Content Manager for iSeries routes the item to the first workbasket in the workflow.

Use the system administration program to specify this user exit routine in the Automatic workflow field of the index class settings notebook. Refer to the Administration and Operation Guide.
Parameters

hwnd  HWND — Input
Anchor window for message boxes. This parameter can be used to display messages and associate them with the application window.

puidItem  PITEMID — input
Pointer to the ItemID of the item being saved.

pExitStruct  PUSEREXITSTRUCT — Input
User-defined attributes for the document or folder and other relevant information are passed in the pExitStruct parameter.

puidWorkflow  PITEM — Input/Output
Pointer to the workflow item ID that the item should be started in. The workflow ID provided as input to the user exit routine is the default workflow for the class, as defined by the system administrator.

The user exit routine should set the workflow ID to one of the following:

no change
Uses the default workflow.

workflow item id
Where the item is to be started must be defined.

a null id (Set at least the first character of UID null)
Cancels automatic workflow processing. The item is not started in a workflow.

puidWorkBasket  PITEMID — Output
Pointer to the Workbasket ITEMID that the item being saved should be routed to after it is started in the workflow. This parameter points to a NULL ITEMID when the exit is called. The user exit routine should set this parameter to a valid workbasket ItemID if the item should be routed to a workbasket other than the first workbasket in the workflow. If this parameter is still a NULL ITEMID when the user exit returns, IBM Content Manager for iSeries routes the item to the first workbasket in the workflow.

Internal representation

USEREXITSTRUCT:
typedef struct
{
   HSESSION  hSession;
   ITEMID    uidItem;
   USHORT    itemidWorkflowId;
   BOOL      fIsUnindexed;
   USHORT    hOrigClass;
}
USHORT
  hClass;
CHAR
  szUserId[LST_USERID_LEN+1];
CHAR
  szUserHandle[LST_USERID_LEN+1];
USHORT
  usAccessLevel;
SHORT
  sFields;
FIELDVALUE *
  pFields;
} USEREXITSTRUCT;
typedef USEREXITSTRUCT * PUSEREXITSTRUCT

where:

hSession
  Session handle returned by SimLibLogon.

uidItem
  Is the ItemID of the current document or folder to be saved.

itemidWorkflowId
  This parameter is always null.

fIsUnindexed
  This value is TRUE if the object is a new document that has not been
  indexed in the system.

hOrigClass
  Is the original class ID of the opened document or folder.

hClass
  Is the current class ID of the opened document or folder. This value is the
  same as the hOrigClass parameter unless the user specifies a new index
  class.

szUserId[LST_USERID_LEN+1]
  Is the user ID of the user saving the document or folder.

szUserHandle[LST_USERID_LEN+1]
  This parameter is reserved.

usAccessLevel
  Is the access privilege the user has for this document or folder. The valid
  value for this user exit is:
    UX_PRIV_WRITE when the user opens this object in UPDATE mode.

sFields
  Is the number of fields passed to the exit in the pFields parameter.

pFields
  Is the pointer to an array of FIELDVALUE data structures. The
  configuration and content of the user-defined attributes for this document
  or folder are passed to the exit in these data structures.

FIELDVALUE:
typedef struct
{
  USHORT
    usFieldId;
  USHORT
    usDataType;
}
USHORT
  usMaxLength;
BOOL  fIsReq;
PSZ    pBuffer;
} FIELDVALUE;

typedef FIELDVALUE * PFIELDVALUE

where:
usFieldId
    Is the user-defined attribute ID.
usDataType
    Is IBM Content Manager for iSeries data type of the attribute in the
usFieldId parameter. This is a numeric equivalent representing the data
    type. Refer to the section "Attribute types" in the frnpfi.h header file for
    the define statements and content requirements for these numbers.
usMaxLength
    Is the maximum number of bytes in the pBuffer parameter to appear in the
    Index Form window, excluding the NULL terminator.
fIsReq
    This value is TRUE if the field is required. If this parameter is set to TRUE
    and this FIELDVALUE data structure is modified by the exit, the value in
    pBuffer must not be changed to NULL.
pBuffer
    Is the current value of the attribute in ASCIIZ display format. The buffer
    length is the value in the usMaxLength parameter plus one to represent the
    NULL terminator.

Results
This user exit routine returns a value of type SHORT. It should return a value of
    zero for successful completion of the user exit routine. If it returns another value,
    the item is not started in a workflow, and an error message appears.

If the user exit routine completes successfully, the item is started in the workflow
    specified by the puidWorkflow parameter. If this parameter specifies a workflow ID
    of null, then the item is not started in a workflow and the automatic workflow
    processing is canceled. If the user exit routine specified a workbasket to route the
    item to, the item is routed to that workbasket by IBM Content Manager for iSeries
    after the item is started in the workflow. If the user exit does not specify a
    workbasket, the item is routed to the first workbasket in the workflow.

Comments
This user exit routine must not modify or free any of the buffers that are passed in.
    Do not start this item in a workflow with the Ip2StartWorkFlow function in this
    user exit routine unless the exit cancels workflow processing by returning null for
    the workflow ID.

This exit is called when a document or folder is saved after modifying the index
    values or changing the class of the item. It is not called if index values are not
    modified or if the Index Form is not open when the item is saved. This exit is
    called after the Save Record user exit routine is called.

Automatic workflow processing is performed only if the item being saved is not in
    a workflow and has never been in a workflow. Therefore, this user exit routine is
    called only if the item being saved has never been in a workflow.
This user exit routine is called when folders with an index class that specifies this user exit routine are created during auto-filing.

The index values that are passed to the user exit routine are in display format, not in the internal format in which data is stored in the database.

GetAttributeValueList (Get attribute value list)

<table>
<thead>
<tr>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>INT cdecl GetAttributeValueList(hSession, nClassView, nAttrID, reserved, pControlType, pSortOption, ListValues, pNumValues, nMaxValueLen)</td>
</tr>
</tbody>
</table>

Purpose
This user exit routine allows you to extend the Edit Index window to include a combination list box. The actual values to be listed are returned by this user exit routine. This user exit routine must be contained in a Dynamic Library Link (DLL) named frmuae1.d11. This user exit routine is called for each attribute ID in an index class. The routine returns:

- Information about the type of control (entry field, combination list box with an entry field, combination list box without an entry field).
- The ordering option: whether to sort the list or display it as listed in the array.
- The list of values to display.

A sample of this user exit is located in the %FRNROOT%\SAMPLES directory.

Parameters

hSession
HSESSION - Input
Session handle returned by SimLibLogon.

nClassView
INT - Input
The index class view for which the nAttrID field, below, is being checked to determine the desired control type.

nAttrID
INT - Input
The key field being checked for the desired control type.

reserved
PVOID
Reserved parameter for future use; currently set to NULL.

pControlType
INT * - Output
Returns one of the following:

- 0 for a standard entry field
- 1 for a list box that allows text entry
- 2 for a static list box

pSortOption
INT * - Output
Returns one of the following:
• 0 to leave the combo values in the order returned
• 1 to have the list sorted alphabetically

ListValues
PPSZ - Output
An array of character pointers, each pointing to a zero-terminated string representing one of the values that will be displayed in the list box. If the field is a standard edit field (*pControlType=0), this array should have the size of 1. This also means that GetValueListLength, below, should return 1 in *pNumValues.

Restriction: Do not fill in more values than are specified in pNumValues, below.

pNumValues
INT * - Input and output
On input, this is the number of values returned in pNumValues from the GetValueListLength() function. This value can be left alone or decreased if fewer values are actually used. This value must not be incremented.

nMaxValueLen
INT - Input
The value that is returned through pMaxValueLen in GetValueListLength().

Results/Return Values
0 for success; non-zero for error.

Comments
Because this user exit routine is called for every field in the Edit Index window, it must run quickly.

GetValueListLength (Get value list length)

Format
INT cdecl GetValueListLength(hSession, nClassView, nAttrID, reserved, pNumValues, pMaxValueLen)

Purpose
This user exit routine returns the number of values and the maximum value length for the specified attribute ID, from the specified index class. The client calls this function for every field of every index class to determine if there is a list of values for the attribute and if there is, how much space to allocate for it. This user exit routine must be contained in a DLL named frnwueal.dll.

A sample of this user exit routine is located in the %FRNROOT%\SAMPLES directory.

Parameters
hSession
HSESSION - Input
Session handle returned by SimLibLogon.

nClassView
INT - Input
The index class view for which the nAttrID field, below, is being checked to determine the desired control type.

*nAttrID*

INT - Input

The attribute being checked for the desired control type.

*pNumValues*

INT * - Output

The default is 0 (*pNumValues=0). If the attribute is to have values, set this to the number of values.

*pMaxValueLen*

INT * - Output

The default is 0 (*pMaxValueLen=0). If the attribute is to have values, set this to the maximum length of any value.

**Results/Return Values**

0 for success; non-zero for error.

**Comments**

This function gets called for every field in the Edit Index dialog so be sure that it works quickly.

**OverloadTriggerUserExit (overload trigger user exit)**

The suspension criteria include:

- A timeout as detected by the expired time check utility.
- Adding an item to a folder using the `SimLibAddFolderItem` function. Adding an item to a folder through the user interface triggers this user exit routine.

The overload trigger is the number specified in the system administration program for the maximum quantity of items allowed in the workbasket. If the overload condition is triggered for the workbasket, the user exit routine is processed.

By default, IBM Content Manager for iSeries displays a message that the overload condition has occurred, and lets the user cancel the route, select a different workbasket as the destination, or force the items into the original workbasket. This
user exit routine can also be used to replace the default IBM Content Manager for iSeries processing. You can specify an alternate workbasket to be used as the backup and return the ITEMID of that alternate to IBM Content Manager for iSeries.

Use the system administration program to specify this user exit routine in the workbasket settings notebook. Refer to the *Administration and Operation Guide*.

**Parameters**

\textit{hwnd} \quad HWND — Input

Anchor window for message boxes. This parameter can be used to display messages and associate them with the application window.

\textit{usOperation} \quad USHort — input

This value indicates the operation that called the user exit routine. The value is one of the following:

- UX\_SAVE\_ITEM
- UX\_ROUTE
- UX\_START\_WORKFLOW
- UX\_CHANGE\_WORKFLOW
- UX\_SCAN\_ITEM
- UX\_IMPORT\_ITEM

\textit{usNumberOfITEMIDs} \quad USHort — Input

Number of ItemIDs in the \textit{pListofITEMIDs} parameter.

\textit{usIndex} \quad USHort — Input

The item that cause the overload condition to occur.

\textit{pListofITEMIDs} \quad PITEMID — Input

Pointer to a list of ItemIDs of the items to be routed to the workbasket.

\textit{pExitStruct} \quad PUSEREXITSTRUCT — Input/output

If the document or folder being routed is open at exit processing time, the user-defined attribute fields and other relevant information for the object are passed in the \textit{pExitStruct} parameter. The values in the data structure include changes the user made to the class and attributes in the Index Form window.

If the object being routed is not open, the \textit{pListofITEMIDs} parameter points to a list of one or more ItemIDs selected by the user from the Table of Contents window. The \textit{pExitStruct} parameters are NULL except for \textit{szUserId}, that contains the current value.

\textit{pWorkBasketITEMID} \quad PITEMID — Input

Pointer to the ITEMID of the original destination workbasket causing the overload trigger.

\textit{pNewWorkBasketITEMID} \quad PITEMID — Output
Pointer to a buffer containing a NULL ITEMID. Replace this with the ItemID of a valid workbasket in the system to be used as a backup destination.

**Internal representation**

**USEREXITSTRUCT:**

typedef struct

    {
        HSESSION
            hSession
        ITEMID
            uidItem;
        USHORT
            itemidWorkflowId;
        BOOL
            fIsUnindexed;
        USHORT
            hOrigClass;
        USHORT
            hClass;
        CHAR
            szUserId[LST_USERID_LEN+1];
        CHAR
            szUserHandle[LST_USERID_LEN+1];
        USHORT
            usAccessLevel;
        SHORT
            sFields;
        FIELDVALUE *
            pFields;
    } USEREXITSTRUCT;

typedef USEREXITSTRUCT * PUSEREXITSTRUCT

where:

*hSession*

Session handle returned by SimLibLogon.

*uidItem*

Is the ItemID of the current document or folder to be routed.

*itemidWorkflowId*

Is the workflow ID of the opened document or folder to be routed. This value is NULL if the object is not opened by this user or if the object is not in a workflow.

*fIsUnindexed*

This value is TRUE if the object is a new document that has not been indexed in the system. This value is FALSE if the object is not opened by this user.

*hOrigClass*

Is the original class ID of the opened document or folder. This value is NULL if the object is not opened by this user.

*hClass*

Is the current class ID of the opened document or folder. This value is the same as the *hOrigClass* parameter unless the user specified a new index class. This value is NULL if the object is not opened by this user.
szUserId[LST_USERID_LEN+1]
Is the user ID of the user routing the document or folder.

szUserHandle[LST_USERID_LEN+1]
This parameter is reserved.

usAccessLevel
Is the access privileges the user has for this document or folder. This value is NULL if the object is not opened by this user. The valid values are:
- UX_PRIV_READ when the user opens this object in BROWSE mode.
- UX_PRIV_WRITE when the user opens this object in UPDATE mode.

sFields  Is the number of fields passed to the exit in the pFields parameter. This value is zero if the object is not opened by this user or if the user selects the Route to option for an opened document or folder while the Index Form window for that object is closed.

pFields  Is the pointer to an array of FIELDVALUE data structures. The configuration and content of the user-defined attributes for this document or folder are passed to the exit in these data structures. This value is NULL if the object is not opened by this user or if the user selects the Route to option for an opened document or folder while the Index Form window for that object is closed.

FIELDVALUE:
typedef struct
{
USHORT  usFieldId;
USHORT  usDataType;
USHORT  usMaxLength;
BOOL    fIsReq;
PSZ     pBuffer;
} FIELDVALUE;

typedef FIELDVALUE * PFIELDVALUE

where:

usFieldId
Is the user-defined attribute ID.

usDataType
Is IBM Content Manager for iSeries data type of the attribute in the usFieldId parameter. This is a numeric equivalent representing the data type. Refer to the section "Attribute types" in the fnpfi.h header file for the define statements and content requirements for these numbers.

usMaxLength
Is the maximum number of bytes in the pBuffer parameter to appear in the Index Form window, excluding the NULL terminator.

fIsReq  This value is TRUE if the field is required.

pBuffer  Is the current value of the attribute in ASCIIZ display format. The buffer length is the value in the usMaxLength parameter plus one to represent the NULL terminator.
Results
The function returns a value of SHORT with zero as SUCCESS. If the call completes successfully, the value in the pNewWorkBasketITEMID parameter is used as the alternate destination. This must be a valid IBM Content Manager for iSeries workbasket ItemID. If this ItemID is the same as the overloaded workbasket or if this value contains a NULL ITEMID, the items are forced into the original workbasket and the overload condition is ignored.

If the call returns any value other than zero, an error message appears, and the items are not routed to any workbasket.

If an error is returned while the user exit routine is called during a save, the item is saved but not placed in a workflow or routed to any workbasket.

If the new workbasket routing results in another overload, this user exit routine is called again.

Comments
The exit routine must not free the buffers that are passed in. All parameters sent to the exit are read-only copies. Buffers should not be modified or unallocated.

If the pNewWorkBasketITEMID parameter is still NULL after the exit completes, the selected items are forced into the original workbasket destination.

If the Index Form window is not opened when the user selects the Route to option from the Process menu, the pFields pointer and the sFields parameter in the USEREXITSTRUCT data structure are NULL. In this case, the FIELDVALUE data structures that normally contain details about the user-defined attributes are not passed to the user exit routine.

Avoid assigning two workbasket as backup for each other. In this case, you can begin an endless loop of circular references if both workbasket are overloaded.

QuerySortUserExit (query sort user exit)

| Format | SHORT QuerySortUserExit( hSession, hwnd, pSortList, usItemCount, pszUserId, usSortObject) |

Purpose
This user exit routine is called when a folder or workbasket is opened that contains documents or folders in a class for which the exit is defined. This includes a folder created as a result of a fileroom search. You can program this exit to sort and modify the table of contents of the folder or workbasket before it appears on the screen. This function lets you define a specific sort order other than the default ascending or descending order provided by IBM Content Manager for iSeries. The exit can also be used to filter out selected documents and folders to prevent display and user access to those objects. It can also be called prior to printing the table of contents of a folder.

You can assign this user exit routine on a class basis using IBM Content Manager for iSeries. Each class represented in a folder or workbasket table of contents is sorted according to the user exit routine specified for that class. If more than one class in the folder or workbasket calls this user exit routine, each exit routine is
called and completed sequentially prior to the display of the contents. Only the documents and folders assigned to a specific class are passed to the exit routine called for that class.

Use the system administration program to specify this user exit routine in the Sort field of the index class settings notebook. Refer to the Administration and Operation Guide.

**Parameters**

- **hSession**
  HSESSION — Input
  
  Session handle returned by SimLibLogon.

- **hwnd**
  HWND — Input
  
  Anchor window for message boxes. This parameter can be used to display messages and associate them with the application window.

- **pSortList**
  PUSERSORTSTRUCT — Input/Output
  
  Pointer to an array of documents and folders to be sorted. Each document or folder is represented by a USERSORTSTRUCT data structure.

- **usItemCount**
  USHORT — Input
  
  Number of documents and folders in the pSortList parameter.

- **pszUserId**
  PSZ — Input
  
  User ID name of the user opening the folder or workbasket. This is the ID specified through the API.

- **usSortObject**
  USHORT — Input
  
  Type of object that appears. The valid values are:
  
  - SIM_FOLDER when the table of contents is sorted for a folder display. This includes search results folders.
  - SIM_WORKBASKET when the table of contents is sorted for a workbasket display.

**Internal representation**

**USERSORTSTRUCT:**

```c
typedef struct
{
    USHORT usType;
    USHORT usClass;
    ITEMID uid;
    USHORT usPriority;
    PCHAR * pszVals;
    PCHAR * pszWbVals;
} USERSORTSTRUCT;
```

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ATLIST *
    *pAttrList;
BOOL fCheckedOut;
USHORT usFlags;
} USERSORTSTRUCT;

typedef USERSORTSTRUCT * PUSERSORTSTRUCT;

where:

usType Is the type of object. The valid values are:
    SIM_DOCUMENT when the object is a document.
    SIM_FOLDER when the object is a folder.

usClass Is the current view identifier of the index class for this object.

uid Is the IBM Content Manager for iSeries ITEMID of this object.

usPriority Is the priority for this object.

pszVals Is the pointer to an array of display values in ASCII format for this
document or folder. These values include the user-defined attributes and
the following system attributes:
    Workflow name
    Priority
    Check-out ID
    Suspend status.

A NULL ASCII string appears in the array for each attribute that is not in
the user’s current layout for this index class. For each value in this array,
there is a corresponding value in the ATLIST data structure from the
pAttrList parameter.

pszWbVals Is the pointer to the workbasket view values for an object. The values
included are in this order:
    Priority
    Date of entry to the workbasket
    Time of entry to the workbasket
    Class name

This is the time and date stamp indicating the time of entry to this
workbasket. This pointer is NULL if the usSortObject is equal to
SIM_FOLDER.

pAttrList Is the pointer to an ATLIST data structure. This data structure contains
detailed information about the attribute values that appear for this object.
These values include the user-defined attributes and the following system
attributes:
    Workflow name
    Priority
    Check-out ID
    Suspend status.

fCheckedOut This value is TRUE if the object is checked out.
set this parameter to SF_HIDE if this object should not appear in the sorted table of contents. the count reflects items that are not hidden.

atlist:
typedef struct
{
    USHORT
        Usclass;
    USHORT
        Uscount;
    ATINFO *
        Patinfo;
    USHOrT
        Ususercount;
    USHORT *
        PatidUserList;
} ATLIST;
typedef ATLIST * PATLIST;

where:

usClass
    is the current view id for the index class stored for this object. this is the same value as the usClass parameter in the userSOrtS Truct data structure.

usCount
    is the number of attributes listed in the array referred to in the patinfo parameter.

patinfo
    is the pointer to an array of ATINFO data structures. there is a separate data structure for each user-defined attribute and these system attributes:
    - Workflow name
    - Priority
    - Check out ID
    - Suspend status.

when this user exit routine is called from a print operation, only the attributes in the user’s current layout are included in the array.

usUserCount
    is the number of attributes listed in the array referred to in the patidUserList parameter.

patidUserList
    is the pointer to an array of USHOrTs. there is a separate USHort for each user-defined attribute of this object to appear in the Table of Contents window. these attributes are selected by each user from the list of attributes assigned to this index class. only these selected attributes can be viewed.

atinfo:
typedef struct
{
    USHORT
        Atid;
    PATTRINFOSTRUCT
        Pai;
}
typedef ATINFO * PATINFO;

where:

\textit{atid}  
Is the attribute ID defined in the ATTRINFOSTRUCT data structure pointed to by the \textit{pai} parameter.

\textit{pai}  
Is the pointer to an ATTRINFOSTRUCT data structure. This data structure contains the attribute name in the system, data type, minimum length, and maximum length.

\textbf{Results}

The function returns a value of SHORT with zero as SUCCESS. The table of contents of the folder or workbasket appears in random order.

If the exit completes successfully, the items appear in the order in which they are sorted in USERSORTSTRUCT array (\textit{pSortList [0]}, \textit{pSortList [1]}). If the \textit{usFlags} parameter is set to SF_HIDE, the document or folder does not appear with the other objects in its index class.

\textbf{Comments}

The exit routine must not free the buffers that are passed in. This exit does not allow changes to the user layout of the Table of Contents window.

The attribute values cannot be modified by the exit. These attributes are listed in the \textit{patidUserList} parameter of the ATLST data structures.

This exit is not called if the workbasket being opened is specified for system-assigned work through the system administration program. If the user displays a workbasket in priority mode, IBM Content Manager for iSeries ignores the order returned by the user exit routine. Items that are specified to be hidden do not appear.

This function is processed prior to the display of the list.

\textbf{SaveRecordUserExit (save record user exit)}

\begin{verbatim}
SHORT SaveRecordUserExit( hwnd, pPreSaveStruct, ppszErrorMsgs, ppusFieldIdsInError)
\end{verbatim}

\textbf{Purpose}

This user exit routine is called when a user chooses to save changes to the user-defined attributes of a document or folder. The index attribute fields are passed to the exit for processing. The new attribute data entered in the Index Form window can be validated by matching the information in your existing files. This exit also allows changes to the user-defined attribute fields.

If the fields are modified by the exit, they are audited by IBM Content Manager for iSeries before the record is written to the database. The audits compare the data returned using the following guidelines:

Data type — the format and content of the data must conform to the requirements of the data type for the attribute.
Minimum length — the minimum length requirement of the data string, or minimum numeric value for certain data types, must be met if specified for the attribute.

Maximum length — the maximum length requirement of the data string, or maximum numeric value for certain data types must be met if specified for the attribute.

Required fields must be specified.

The exit can return a list of error messages to indicate any errors in the user-specified values. The error messages appear in the Index Form Errors window. The display fields of the attributes corresponding to the error messages are flagged with a question mark in the Index Form window.

Use the system administration program to specify this user exit routine in the Save field in the index class settings notebook. Refer to the Administration and Operation Guide.

**Parameters**

hwnd  
HWND — Input

Anchor window for message boxes. This can be used to display messages and associate them with the application window.

**Restriction** Because the frame is disabled during the save, do not use this window (hwnd) as the parent of a dialog. You can use the desktop as the parent, and you can use this window (hwnd) as the owner.

*pPreSaveStruct*

USEREXITSTRUCT — Input/output

User-defined attributes for the document or folder and other relevant information are passed in the *pPreSaveStruct* parameter.

*ppszErrorMsgs*

PSZ * — Output

Address of a pointer. The pointer must be set by your exit routine to point to a data stream of ASCIIZ strings representing error messages. Each error message must correspond with an attribute ID in the *ppusFieldIdsInError* parameter. The required format of the error data stream is defined in the Results section. This buffer must be allocated by the user exit routine and is deallocated by IBM Content Manager for iSeries.

*ppusFieldIdsInError*

PUSHORT *— Output

Address of a pointer to an array of attribute IDs associated with the error messages returned in the *ppszErrorMsgs* parameter. The valid attribute IDs are passed to the exit in the *usFieldId* parameter of the FIELDVALUE data structures. This buffer must be allocated by the user exit routine; it is deallocated by IBM Content Manager for iSeries.

**Internal representation**

USEREXITSTRUCT:

typedef struct

{  
    HSESSION
        hSession  

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ITEMID
    uidItem;
USHORT
    itemidWorkflowId;
BOOL
    fIsUnindexed;
USHORT
    hOrigClass;
USHORT
    hClass;
CHAR
    szUserId[LST_USERID_LEN+1];
CHAR
    szUserHandle[LST_USERID_LEN+1];
USHORT
    usAccessLevel;
SHORT
    sFields;
FIELDVALUE *
    pFields;
} USEREXITSTRUCT;

typedef USEREXITSTRUCT * PUSEREXITSTRUCT

where:

hSession
    Session handle returned by SimLibLogon.

uidItem
    Is the ItemID of the current document or folder to be saved.

itemidWorkflowId
    This parameter is always NULL.

fIsUnindexed
    This value is TRUE if the object is a new document that has not been
    indexed in the system.

hOrigClass
    Is the original class ID of the opened document or folder.

hClass
    Is the current class ID of the opened document or folder. This value is the
    same as the hOrigClass parameter unless the user specifies a new index
    class.

szUserId[LST_USERID_LEN+1]
    Is the user ID of the user saving the document or folder.

szUserHandle[LST_USERID_LEN+1]
    This parameter is reserved.

usAccessLevel
    Is the access privilege the user has for this document or folder. The valid
    value for this user exit routine is:
    UX_PRIV_WRITE when the user opens this object in UPDATE mode.

sFields
    Is the number of fields passed to the exit in the pFields parameter.

pFields
    Is the pointer to an array of FIELDVALUE data structures. The
    configuration and content of the user-defined attributes for this document
    or folder are passed to the exit in these data structures.
typedef struct
{
  USHORT  usFieldId;
  USHORT  usDataType;
  USHORT  usMaxLength;
  BOOL    fIsReq;
  PSZ     pBuffer;
} FIELDVALUE;

typedef FIELDVALUE * PFIELDVALUE

where:

usFieldId
  Is the user-defined attribute ID.

usDataType
  Is IBM Content Manager for iSeries data type of the attribute in the usFieldId parameter. This is a numeric equivalent representing the data type. Refer to the section “Attribute types” in the frnpfi.h header file for the define statements and content requirements for these numbers.

usMaxLength
  Is the maximum number of bytes in the pBuffer parameter to appear in the Index Form window, excluding the NULL terminator.

fIsReq
  This value is TRUE if the field is required. If this parameter is set to TRUE and this FIELDVALUE data structure is modified by the exit, the value in pBuffer must not be changed to NULL.

pBuffer
  Is the current value of the attribute in ASCIIIZ display format. The buffer length is the value in the usMaxLength parameter plus one to represent the NULL terminator.

Results

The function returns a value of SHORT with zero for SUCCESS. If any other value is returned, the Save operation is ended. An error message appears.

If the exit routine completes successfully, the error string pointer address in the ppszErrorMsgs parameter is interrogated. If the error string pointer is NULL or it points to a NULL error string, the attribute values returned in the FIELDVALUE data structures are audited by IBM Content Manager for iSeries against the data type, minimum, and maximum length requirements. Audit errors appear in the Index Errors window. A question mark appears beside each attribute field in the Index Form window with audit errors. In this case, the user must correct the errors and select the Save option again to save the record in IBM Content Manager for iSeries database.

The error string pointer in the ppszErrorMsgs parameter refers to the messages to appear. The format of the error message string is:

  string1 (zero-terminated) <one or more zero-terminated strings >zero terminator
These error messages appear in the Index Errors window. Each zero-terminated string appears on a new line in the window. Any audit errors found by IBM Content Manager for iSeries appear in the same Index Errors window.

If an error message string is returned by the exit, the pointer addressed in the `ppusFieldIdsInError` parameter must be set to point to an array of attribute IDs in error. There must be one attribute ID in this array for each message in the error string referred to by the `ppszErrorMsgs` parameter. The user-defined attribute name from the Index Form window appears to the left of its corresponding error message in the Index Errors window. A question mark appears next to the field on the Index Form window.

**Comments**
The exit routine must not free the buffers that are passed in. All items sent to the exit are read-only copies except the user-defined attributes in the FIELDVALUE data structures.

This exit is called when a document or folder is saved after modifying the user-defined attributes of the object. This exit is called prior to the Change System-Managed Storage user exit routine if both are specified for the current index class. Validation of the user-defined attribute fields is performed after the user exit routine is completed. IBM Content Manager for iSeries frees the error message buffer allocated by the exit after displaying the error messages to the user.

This exit is not processed if the Index Form window is not opened or if the user has not changed the class or attributes of the object.

**UserActionUserExit (Workflow User Action User Exit)**

```c
SHORT EXPENTRY UserActionUserExit( hSession, hWnd, 
pWorkManagementInfo, pExitStruct, pszAction )
```

The client application program calls this user exit when a user-defined action (function code 0050) is selected at a workbasket.

Use the Workflow Builder feature to specify this user exit and associate it with a user action function in an action list definition.

**Parameters**

- **hSession**
  
  HSESSION — input
  
  Session handle returned by `SimLibLogon`.

- **(hWnd)**
  
  HWND — input
  
  Anchor window for message boxes. You can use this parameter to display messages and associate them with the application window.

- **pWorkManagementInfo**
  
  PWMSNAPSHOTSTRUCT — input
  
  The pointer to a buffer where a WMSNAPSHOTSTRUCT data structure provides detailed work management information about the item selected.
UserOptionUserExit (User-option User Exit)

Format

SHORT EXPENTRY UserOptionUserExit( hSession, hWnd, pExitStruct )

The client application program calls this user exit when a user-defined option is selected from the Selected menu for an item.

Use the system administration function to specify this user in the index class profile. Refer to the IBM Content Manager for iSeries: System Administration Guide for more information.

Parameters

hSession

HSESSION — input
Session handle returned by SimLibLogon.

hWnd

HWND — input
Anchor window for message boxes. You can use this parameter to display messages and associate them with the application window.

pExitStruct

PUSEREXITSTRUCT — input
Contains index class and attribute information associated with the selected item.

This user exit returns a value of type SHORT. It should return a value of zero for successful completion of the user exit. If it returns another value, an error message is displayed.

WBItemSelectedUserExit (Workbasket Item Selected User Exit)

Format

SHORT EXPENTRY WBItemUserExit( hSession, hWnd, pWorkManagementInfo, pExitStruct, pfContinue )

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The client application program calls this user exit when an item is selected at a workbasket. The exit is called before the item is displayed to the user.

Use the system administration function to specify this user exit in the workbasket profile. Refer to the *IBM Content Manager for iSeries: System Administration Guide* for more information.

**Parameters**

**hSession**

HSESSION — input

Session handle returned by `SimLibLogon`.

**hWnd**

HWND — input

Anchor window for message boxes. You can use this parameter to display messages and associate them with the application window.

**pWorkManagementInfo**

PWMSHOTSTRUCT — input

The pointer to a buffer where a WMSHOTSTRUCT data structure provides detailed work management information about the item selected.

**pExitStruct**

USEREXITSTRUCT — input

Contains index class and attribute information associate with the selected item.

**pfContinue**

PBOOL — output

Pointer to the continue flag. Set this value to TRUE to continue with the display of the selected item. Set this to FALSE to bypass the display of the item.

**Results**

This user exit returns a value of type SHORT. It should return a value of zero for successful completion of the user exit. If it returns another value, an error message is displayed.

**WBItemCompletedUserExit** *(Workbasket Item Completed User Exit)*

**Format**

```c
SHORT EXPENTRY WBItemCompletedUserExit( hSession, hWnd,
    pWorkManagementInfo, pExitStruct, pszAction, pfContinue )
```

The client application program calls this user exit when an action is selected at a workbasket that will complete working the item. The exit is called before the action is processed by the client.

Use the system administration function to specify this user exit in the workbasket profile. Refer to the *IBM Content Manager for iSeries: System Administration Guide* for more information.
Parameters

**hSession**
HSESSION — input
Session handle returned by SimLibLogon.

**hWnd**
HWND — input
Anchor window for message boxes. You can use this parameter to display messages and associate them with the application window.

**pWorkManagementInfo**
PWMSNAPSHOTSTRUCT — input
The pointer to a buffer where a WMSNAPSHOTSTRUCT data structure provides detailed work management information about the item selected.

**pExitStruct**
PUSEREXITSTRUCT — input
Contains index class and attribute information associate with the selected item.

**pszAction**
PSZ — input
The null-terminated character string containing the action selected. This is the value of the SIMWM_ACTION variable.

**pfContinue**
PBOOL — output
Pointer to the continue flag. Set this value to TRUE to continue with the display of the selected item. Set this to FALSE to bypass the display of the item.

Results
This user exit returns a value of type SHORT. It should return a value of zero for successful completion of the user exit. If it returns another value, an error message is displayed.

**UserDefinedWBUserExit (User-defined Workbasket User Exit)**

**Format**

```markdown
SHORT EXPENTRY UserDefinedWBUserExit( hSession, hWnd, pWorkBasketInfo, pszUserId )
```

The client application program calls this user exit when a user selects to open a workbasket of type 50 through 99. The user-defined workbasket type and this exit let you take advantage of the process control and workbasket control functions provided by Content Manager for iSeries. However, the interface to the workbasket and its contents are controlled by your own definition through this exit.

Use the system administration function to specify this user exit in the workbasket profile. Refer to the *IBM Content Manager for iSeries: System Administration Guide* for more information.
**Parameters**

*hSession*

HSESSION — input

Session handle returned by SimLibLogon.

*hWnd*

HWND — input

Anchor window for message boxes. You can use this parameter to display messages and associate them with the application window.

*pWorkBasketInfo*

PWORKBASKETINFOSTRUCT — input

The pointer to a buffer where a WORKBASKETINFOSTRUCT data structure provides detailed information about the user-defined workbasket.

*pszUserID*

PSZ — input

The null-terminated character string containing the user ID of the user calling this user exit.

**Results**

This user exit returns a value of type SHORT. It should return a value of zero for successful completion of the user exit. If it returns another value, an error message is displayed.

---

**Server User Exits**

The user exit points described here are invoked on the Content Manager for iSeries server.

**Note:** When calling the Content Manager for iSeries APIs from within any of the server exit points, the call must ensure that the SimLibLogoff API is called after the last API is called. Failure to do so may lead to unexpected results upon subsequent calls.

Content Manager for iSeries uses the OS/400 Registration Facility function to determine the exit programs to call. To add an exit program, enter the Work with Registration Information (WRKREGINF) command. On the Work with Registration Information screen, find the exit point and format name that you want to work with (see Table 1 for a list of the exit points and format names). Select option 8 (Work with Exit Programs) to work with exit programs for the specific exit point and format name. On the Work with Exit Programs screen do the following:

- If there is no program currently defined for the exit point, use option 1 (Add) to add an exit program entry. Enter a program number of 1 and the program name and library name for the program.
- If there is currently a program defined and you want to change the name of the program or the library, you must first remove the current entry using option 4 (Remove), then you must add the new program entry using option 1 (Add). Although the registration facility supports multiple exit programs, Content Manager for iSeries only supports one exit program per exit point.

If the Content Manager for iSeries exit points do not appear in the list, perform the following action from a command prompt to have them added:

CALL EKDCSUEREG PARM('')
After this call has completed, the list of exit points will be registered.

Table 4. Content Manager for iSeries Exit Points.

<table>
<thead>
<tr>
<th>EXIT POINT NAME</th>
<th>FORMAT NAME</th>
<th>EXIT PROGRAM NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>QIBM_VI-LOGON</td>
<td>VIF0100</td>
<td>User-defined</td>
</tr>
<tr>
<td>QIBM_VI_LOGOFF</td>
<td>VIF0100</td>
<td>User-defined</td>
</tr>
<tr>
<td>QIBM_VI_SAVE_ATTR</td>
<td>VIF0100</td>
<td>User-defined</td>
</tr>
<tr>
<td>QIBM_VI_CRT_OBJECT</td>
<td>VIF0100</td>
<td>User-defined</td>
</tr>
<tr>
<td>QIBM_VI_DLT_OBJECT</td>
<td>VIF0100</td>
<td>User-defined</td>
</tr>
<tr>
<td>QIBM_VI_OPEN_OBJECT</td>
<td>VIF0100</td>
<td>User-defined</td>
</tr>
<tr>
<td>QIBM_VI_CRT_ITEM</td>
<td>VIF0100</td>
<td>User-defined</td>
</tr>
<tr>
<td>QIBM_VI_ITEM_CREATED</td>
<td>VIF0100</td>
<td>User-defined</td>
</tr>
<tr>
<td>QIBM_VI_DLTI ITEM</td>
<td>VIF0100</td>
<td>User-defined</td>
</tr>
<tr>
<td>QIBM_VI_IMP_CREATED</td>
<td>VIF0100</td>
<td>User-defined</td>
</tr>
<tr>
<td>QIBM_VI_IMP_ITEM</td>
<td>VIF0100</td>
<td>User-defined</td>
</tr>
<tr>
<td>QIBM_VI_ADD_FLR_ITEM</td>
<td>VIF0100</td>
<td>User-defined</td>
</tr>
<tr>
<td>QIBM_VI_ROUTE_WP</td>
<td>VIF0100</td>
<td>User-defined</td>
</tr>
<tr>
<td>QIBM_VI_GET_WP</td>
<td>VIF0100</td>
<td>User-defined</td>
</tr>
<tr>
<td>QIBM_VI_RETURN_WP</td>
<td>VIF0100</td>
<td>User-defined</td>
</tr>
<tr>
<td>QIBM_VI_END_PROCESS</td>
<td>VIF0100</td>
<td>User-defined</td>
</tr>
<tr>
<td>QIBM_VI_SET_VARIABLE</td>
<td>VIF0100</td>
<td>User-defined</td>
</tr>
</tbody>
</table>

Logon User Exit

This user exit is called when a request is made to logon to Content Manager for iSeries using SimLibLogon.

Table 5. Logon User Exit Parameters

<table>
<thead>
<tr>
<th>FIELD</th>
<th>DESCRIPTION</th>
<th>INPUT/OUTPUT</th>
<th>FORMAT</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>User</td>
<td>identifier</td>
<td>Input</td>
<td>Character</td>
<td>10</td>
</tr>
<tr>
<td>Address</td>
<td>Workstation name or address.</td>
<td>Input</td>
<td>Character</td>
<td>15</td>
</tr>
</tbody>
</table>

Logoff User Exit

This user exit is called when a request is made to logoff of Content Manager for iSeries using SimLibLogoff.

Table 6. Logoff User Exit Parameters

<table>
<thead>
<tr>
<th>FIELD</th>
<th>DESCRIPTION</th>
<th>INPUT/OUTPUT</th>
<th>FORMAT</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>No parameters</td>
<td>This user exit is called when a request is made to logoff for Content Manager for iSeries using SimLibLogoff.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Save Attributes User Exit

This user exit is called when a request is made to save changes to the attributes of a document or folder using SimLibSaveAttr or SimLibCloseAttr. This exit point is
before the attributes are actually updated. Given this, you may validate or modify attributes within the exit program. Modified attributes are not validated upon return from the exit.

This exit is invoked prior to privilege verification and input validation.

Table 7. Save Attributes Exit Parameters

<table>
<thead>
<tr>
<th>FIELD</th>
<th>DESCRIPTION</th>
<th>INPUT/OUTPUT</th>
<th>FORMAT</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item ID</td>
<td>Identifier of the item for which attributes will be changed.</td>
<td>Input</td>
<td>Character</td>
<td>16</td>
</tr>
<tr>
<td>Index Class</td>
<td>An index class identifier for the set of user-defined attributes to associate with the item.</td>
<td>Input</td>
<td>Binary</td>
<td>4</td>
</tr>
<tr>
<td>Attributes</td>
<td>Table of attribute identifiers and values associated with the item.</td>
<td>Input/Output</td>
<td>Character</td>
<td>*</td>
</tr>
<tr>
<td>Return Value</td>
<td>Indicates how subsequent processing should continue. Valid values are:</td>
<td>Output</td>
<td>Binary</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>• 0 - Normal processing. The attributes will be modified.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• non-zero - Error processing. The request to change the attributes should not be processed.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The format of the Attributes parameter is:

Table 8. Attributes

<table>
<thead>
<tr>
<th>FIELD</th>
<th>TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of attributes</td>
<td>Binary (4)</td>
</tr>
<tr>
<td>Attribute table</td>
<td>Char (*)</td>
</tr>
</tbody>
</table>

The attribute table consists of an array of attribute table entries. The number of entries in the attribute table is based on the value in the Number of Attributes parameter above.

Table 9. Attribute Table Entry

<table>
<thead>
<tr>
<th>FIELD</th>
<th>TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute identifier</td>
<td>Binary (4)</td>
</tr>
<tr>
<td>Attribute type</td>
<td>Binary (4)</td>
</tr>
<tr>
<td>Attribute length</td>
<td>Binary (4)</td>
</tr>
<tr>
<td>Attribute value</td>
<td>Char (*)</td>
</tr>
</tbody>
</table>

Create Object User Exit

This user exit is called when a request is made to create an object using SimLibCreateObject. This exit point is after the create object request has been processed. Therefore, the item identifier and part number are the new object. This exit is invoked only if the create request was successfully processed.

Table 10. Create Object Exit Parameters

<table>
<thead>
<tr>
<th>FIELD</th>
<th>DESCRIPTION</th>
<th>INPUT/OUTPUT</th>
<th>FORMAT</th>
<th>SIZE</th>
</tr>
</thead>
</table>

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Table 10. Create Object Exit Parameters (continued)

<table>
<thead>
<tr>
<th>FIELD</th>
<th>DESCRIPTION</th>
<th>INPUT/OUTPUT</th>
<th>FORMAT</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item identifier</td>
<td>Item identifier of the object.</td>
<td>Input</td>
<td>Character</td>
<td>16</td>
</tr>
<tr>
<td>Part number</td>
<td>The part number of the object.</td>
<td>Input</td>
<td>Binary</td>
<td>4</td>
</tr>
<tr>
<td>Version</td>
<td>Version number of the object.</td>
<td>Input</td>
<td>Binary</td>
<td>4</td>
</tr>
<tr>
<td>Affiliated type</td>
<td>The type of affiliated values are:</td>
<td>Input</td>
<td>Binary</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>• SIM_ANNOTATIVE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• SIM_BASE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• SIM_EVENT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• SIM_MGDS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• SIM_NOTE</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Delete Object User Exit

This user exit is called when a request is made to delete an object using SimLibDeleteObject. This exit point is after the delete request has been processed.

Table 11. Delete Object Exit Parameters

<table>
<thead>
<tr>
<th>FIELD</th>
<th>DESCRIPTION</th>
<th>INPUT/OUTPUT</th>
<th>FORMAT</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item identifier</td>
<td>Item identifier of the object.</td>
<td>Input</td>
<td>Character</td>
<td>16</td>
</tr>
<tr>
<td>Part number</td>
<td>The part number of the object.</td>
<td>Input</td>
<td>Binary</td>
<td>4</td>
</tr>
<tr>
<td>Delete option</td>
<td>Valid delete options are:</td>
<td>Input</td>
<td>Binary</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>• SIM_DELETE_ITEM — Delete item if no more parts left.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• SIM_DELETE_OBJECT — Don’t delete the item, even if no more parts are left.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return code</td>
<td>Return code after processing delete object requests.</td>
<td>Input</td>
<td>Binary</td>
<td>4</td>
</tr>
</tbody>
</table>

Open Object User Exit

This user exit is called when a request is made to open an object using SimLibOpenObject. This exit point is called prior to the request being processed.

Table 12. Open Object Exit Parameters

<table>
<thead>
<tr>
<th>FIELD</th>
<th>DESCRIPTION</th>
<th>INPUT/OUTPUT</th>
<th>FORMAT</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item identifier</td>
<td>Item identifier of the object.</td>
<td>Input</td>
<td>Character</td>
<td>16</td>
</tr>
<tr>
<td>Part number</td>
<td>Part number of the object.</td>
<td>Input/Output</td>
<td>Binary</td>
<td>4</td>
</tr>
<tr>
<td>Access Level</td>
<td>Type of Access given to the object when opened. Valid values are:</td>
<td>Input/Output</td>
<td>Binary</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>• SIM_ACCESS_READ_WRITE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• SIM_ACCESS_SHARED_READ</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 12. Open Object Exit Parameters (continued)

<table>
<thead>
<tr>
<th>Return Value</th>
<th>DESCRIPTION</th>
<th>OUTPUT</th>
<th>FORMAT</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Normal processing. The object will be opened.</td>
<td>Output</td>
<td>Binary</td>
<td>4</td>
</tr>
<tr>
<td>Non-zero</td>
<td>Error processing and the request to open will not be processed and this return value will be returned to the user.</td>
<td>Output</td>
<td>Binary</td>
<td>4</td>
</tr>
</tbody>
</table>

Create Item User Exit

This user exit is called when a request is made to create an item using SimLibCreateItem. This exit point is before the item is created. Given this, you may validate or modify the index class and associated attributes within the exit program.

This exit is invoked prior to privilege verification and input validation.

Table 13. Create Item Exit Parameters

<table>
<thead>
<tr>
<th>FIELD</th>
<th>DESCRIPTION</th>
<th>INPUT/OUTPUT</th>
<th>FORMAT</th>
<th>SIZE</th>
</tr>
</thead>
</table>
| Item type   | The type of item you want to create. The valid values are:  
|             | • SIM_DOCUMENT - Indicates that the item is a document.  
|             | • SIM_FOLDER - Indicates that the item is a folder.     | Input        | Binary | 4    |
| Index class | An index class identifier for the set of user-defined attributes to associate with this item. | Input/Output | Binary | 4    |
| Attributes  | Table of attribute identifiers and values associated with the item created. | Input/Output | Character | * |
| Return value| Indicates how subsequent processing should continue. Valid values are:  
|             | • 0 - Normal processing. The item will be created.  
|             | • non-zero - Error processing. The request to create an item should not be processed. | Output       | Binary | 4    |

See [Table 8 on page 282](#) for a definition of the Attributes parameter.

Item Created User Exit

This user exit is called when a request is made to create an item using SimLibCreateItem. This exit point is after the item has been created.

Table 14. Item Created Exit Parameters

<table>
<thead>
<tr>
<th>FIELD</th>
<th>DESCRIPTION</th>
<th>INPUT/OUTPUT</th>
<th>FORMAT</th>
<th>SIZE</th>
</tr>
</thead>
</table>
### Item Created Exit Parameters (continued)

<table>
<thead>
<tr>
<th>FIELD</th>
<th>DESCRIPTION</th>
<th>INPUT/OUTPUT</th>
<th>FORMAT</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item type</td>
<td>The type of item that was created. The valid values are:</td>
<td>Input</td>
<td>Binary</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>• SIM_DOCUMENT - Indicates that the item is a document.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• SIM_FOLDER - Indicates that the item is a folder.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Index class</td>
<td>An index class identifier for the set of user-defined attributes associated with this item.</td>
<td>Input</td>
<td>Binary</td>
<td>4</td>
</tr>
<tr>
<td>Attributes</td>
<td>Table of attribute identifiers and values associated with the item created.</td>
<td>Input</td>
<td>Character</td>
<td>*</td>
</tr>
<tr>
<td>Item ID</td>
<td>The identifier of the item created.</td>
<td>Input</td>
<td>Character</td>
<td>16</td>
</tr>
</tbody>
</table>

See Table 8 on page 282 for a definition of the attribute parameter.

### Delete Item User Exit

This user exit is called when a request is made to delete an item using SimLibDeleteItem. This exit point is after the item has been deleted.

<table>
<thead>
<tr>
<th>FIELD</th>
<th>DESCRIPTION</th>
<th>INPUT/OUTPUT</th>
<th>FORMAT</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item ID</td>
<td>The identifier of an item that was deleted.</td>
<td>Input</td>
<td>Character</td>
<td>16</td>
</tr>
<tr>
<td>Return code</td>
<td>Return code after processing delete item request.</td>
<td>Input</td>
<td>Binary</td>
<td>4</td>
</tr>
</tbody>
</table>

### Object Import Create Item User Exit

This user exit is called when the object import function creates an item. This exit point is before the item is created. Given this, you may validate or modify the index class and associated attributes within the exit program.

This exit is invoked prior to privilege verification and input validation.

<table>
<thead>
<tr>
<th>FIELD</th>
<th>DESCRIPTION</th>
<th>INPUT/OUTPUT</th>
<th>FORMAT</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item type</td>
<td>The type of item you want to create. The valid values are:</td>
<td>Input</td>
<td>Binary</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>• SIM_DOCUMENT - Indicates that the item is a document.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• SIM_FOLDER - Indicates that the item is a folder.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Index class</td>
<td>An index class identifier for the set of user-defined attributes to associate with this item.</td>
<td>Input/Output</td>
<td>Binary</td>
<td>4</td>
</tr>
<tr>
<td>Attributes</td>
<td>Table of attribute identifiers and values associated with the item created.</td>
<td>Input/Output</td>
<td>Character</td>
<td>*</td>
</tr>
</tbody>
</table>
Return value | Indicates how subsequent processing should continue. Valid values are:
| | • 0 - Normal processing. The item will be created.
| | • non-zero - Error processing. The request to create an item should not be processed. | Output | Binary | 4

See Table 8 on page 282 for a definition of the Attributes parameter.

Object Import Item Created User Exit

This user exit is called when the object import function creates an item. This exit point is after the item has been created.

Table 17. Object Import Item Created Exit Parameters

<table>
<thead>
<tr>
<th>FIELD</th>
<th>DESCRIPTION</th>
<th>INPUT/OUTPUT</th>
<th>FORMAT</th>
<th>SIZE</th>
</tr>
</thead>
</table>
| Item type | The type of item that was created. The valid values are:
| | • SIM_DOCUMENT - Indicates that the item is a document.
| | • SIM_FOLDER - Indicates that the item is a folder. | Input | Binary | 4 |
| Index class | An index class identifier for the set of user-defined attributes associated with this item. | Input | Binary | 4 |
| Attributes | Table of attribute identifiers and values associated with the item created. | Input | Character | * |
| Item ID | The identifier of the item created. | Input | Character | 16 |

See Table 8 on page 282 for a definition of the attribute parameter.

Add Folder Item User Exit

This user exit is called when a request is made to add an item to a folder using SimLibAddFolderItem. This exit point is before the item is added to the folder, giving you the option of changing the destination folder.

This exit is invoked prior to privilege verification and input validation.

Table 18. Add Folder Item Exit Parameters

<table>
<thead>
<tr>
<th>FIELD</th>
<th>DESCRIPTION</th>
<th>INPUT/OUTPUT</th>
<th>FORMAT</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Folder ID</td>
<td>The identifier of the folder to which the item will be added.</td>
<td>Input/Output</td>
<td>Character</td>
<td>16</td>
</tr>
<tr>
<td>Item ID</td>
<td>The identifier of the item to be added to the folder.</td>
<td>Input</td>
<td>Character</td>
<td>16</td>
</tr>
</tbody>
</table>
Table 18. Add Folder Item Exit Parameters (continued)

<table>
<thead>
<tr>
<th>FIELD</th>
<th>DESCRIPTION</th>
<th>INPUT/OUTPUT</th>
<th>FORMAT</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return value</td>
<td>Indicates how subsequent processing should continue. Valid values are:</td>
<td>Output</td>
<td>Binary</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>• 0 - Normal processing. The item will be added to the folder.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• non-zero - Error processing. The request to add the item to the folder should not be processed.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Route Work Package User Exit

This user exit is called when a request is made to route a work package using `SimWmRouteWorkPackage`. This exit point is before the work package is routed, giving you the option of changing the destination workbasket.

This exit is invoked prior to privilege verification and input validation.

Table 19. Route Work Package Exit Parameters

<table>
<thead>
<tr>
<th>FIELD</th>
<th>DESCRIPTION</th>
<th>INPUT/OUTPUT</th>
<th>FORMAT</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workbasket</td>
<td>Workbasket identifier.</td>
<td>Input/Output</td>
<td>Character</td>
<td>11</td>
</tr>
<tr>
<td>Work Package ID</td>
<td>Identifier of the work package that represents the work being done.</td>
<td>Input</td>
<td>Binary</td>
<td>4</td>
</tr>
<tr>
<td>Instance ID</td>
<td>The identifier of the work package instance that distinguishes one parallel path from another within the process.</td>
<td>Input</td>
<td>Binary</td>
<td>4</td>
</tr>
<tr>
<td>Priority</td>
<td>Priority of the work. The priority affects the work sequencing as the work package moves through a process. A larger number is a higher priority.</td>
<td>Input/Output</td>
<td>Binary</td>
<td>4</td>
</tr>
<tr>
<td>Continue</td>
<td>• 0 - Continue with normal route processing.</td>
<td>Output</td>
<td>Binary</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>• non-zero - All required processing was performed within the exit, bypass any additional processing.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return value</td>
<td>If continue is non-zero, this is the error code to be returned.</td>
<td>Output</td>
<td>Binary</td>
<td>4</td>
</tr>
</tbody>
</table>

Get Work Package User Exit

This user exit is called when a request is made to get a work package using `SimWmGetWorkPackage`. This exit work order and work package ID-instance may be overridden.

This exit is invoked prior to privilege verification and input validation.

Table 20. Get Work Package Exit Parameters

<table>
<thead>
<tr>
<th>FIELD</th>
<th>DESCRIPTION</th>
<th>INPUT/OUTPUT</th>
<th>FORMAT</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workbasket</td>
<td>Workbasket identifier.</td>
<td>Input</td>
<td>Character</td>
<td>11</td>
</tr>
</tbody>
</table>
Table 20. Get Work Package Exit Parameters (continued)

<table>
<thead>
<tr>
<th>Work Order</th>
<th>Order used for selecting an entry from the workbasket. Valid values are:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIMWM_ORDER_FIFO</td>
<td>Make selection based on first in, first out, order to return first available work package.</td>
</tr>
<tr>
<td>SIMWM_ORDER_LIFO</td>
<td>Make selection based on last in, first out order to return first available work package.</td>
</tr>
<tr>
<td>SIMWM_ORDER_PRIORITY</td>
<td>Make selection based on the work package priority to return first available work package.</td>
</tr>
<tr>
<td>SIMWM_ORDER_SYSTEM_NEXT</td>
<td>The server determines the work order and returns the next available work package.</td>
</tr>
<tr>
<td>SIMWM_ORDER_FIFO_NEXT</td>
<td>Make selection for the next available work package based on first in, first out (FIFO) order.</td>
</tr>
<tr>
<td>SIMWM_ORDER_LIFO_NEXT</td>
<td>Make selection for the next available work package based on last in, first out (LIFO) order.</td>
</tr>
<tr>
<td>SIMWM_ORDER_PRIORITY_NEXT</td>
<td>Make selection for the next available work package based on the work package priority.</td>
</tr>
<tr>
<td>NULL</td>
<td>If work package ID is specified, select this work package. If work package ID is 0, the server determines the work order and returns the first available work package.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FIELD</th>
<th>DESCRIPTION</th>
<th>INPUT/OUTPUT</th>
<th>FORMAT</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work package ID</td>
<td>Identifier to the work package that represents the work being done.</td>
<td>Input/Output</td>
<td>Binary</td>
<td>4</td>
</tr>
<tr>
<td>Instance ID</td>
<td>Identifier of the work package instance that distinguishes one parallel path from another within the process.</td>
<td>Input/Output</td>
<td>Binary</td>
<td>4</td>
</tr>
</tbody>
</table>

Return Work Package User Exit

This user exit is called when a request is made to return a work package using SimWmReturnWorkPackage. This exit point is before the return work package request has been processed. The priority may be overridden.

This exit is invoked prior to privilege verification and input validation.

Table 21. Return Work Package Exit Parameters

<table>
<thead>
<tr>
<th>FIELD</th>
<th>DESCRIPTION</th>
<th>INPUT/OUTPUT</th>
<th>FORMAT</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 21. Return Work Package Exit Parameters (continued)

<table>
<thead>
<tr>
<th>FIELD</th>
<th>DESCRIPTION</th>
<th>INPUT/OUTPUT</th>
<th>FORMAT</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work package ID</td>
<td>Identifier of the work package that represents the work being done.</td>
<td>Input</td>
<td>Binary</td>
<td>4</td>
</tr>
<tr>
<td>Instance ID</td>
<td>Identifier of the work package instance that distinguishes one parallel path from another within the process.</td>
<td>Input</td>
<td>Binary</td>
<td>4</td>
</tr>
<tr>
<td>Priority</td>
<td>Priority of the work to perform. The priority affects the work sequencing as the work package moves through a process. A larger number is a higher priority.</td>
<td>Input/Output</td>
<td>Binary</td>
<td>4</td>
</tr>
</tbody>
</table>

End Process User Exit

This user exit is called when a request is made to end a work package on a route, using SimWmEndProcess. This exit point is before the work package is ended.

This exit is invoked prior to privilege verification and input validation.

Table 22. End Process Exit Parameters

<table>
<thead>
<tr>
<th>FIELD</th>
<th>DESCRIPTION</th>
<th>INPUT/OUTPUT</th>
<th>FORMAT</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work package ID</td>
<td>Identifier of the work package that represents the work being done.</td>
<td>Input</td>
<td>Binary</td>
<td>4</td>
</tr>
<tr>
<td>Instance ID</td>
<td>Identifier of the work package instance that distinguishes one parallel path from another within the process.</td>
<td>Input</td>
<td>Binary</td>
<td>4</td>
</tr>
</tbody>
</table>
| Continue   | • 0 - Continue with normal end processing. 
• non-zero - All required processing was performed within the exit, bypass any additional processing. | Output       | Binary | 4    |
| Return value| If continue is non-zero, this is the error code to be returned.              | Output       | Binary | 4    |

Set Variable User Exit

This user exit is called during workflow processing, when a variable is being interrogated. The process will first determine if the variable is one of the following:

• Process
• Index class
• An existing variable
• Key field

If the variable is none of the above, the process will assume that the variable is an external variable and call this user exit to get the variable value.

Table 23. Set Variable Exit Parameters

<table>
<thead>
<tr>
<th>FIELD</th>
<th>DESCRIPTION</th>
<th>INPUT/OUTPUT</th>
<th>FORMAT</th>
<th>SIZE</th>
</tr>
</thead>
</table>
Table 23. Set Variable Exit Parameters (continued)

<table>
<thead>
<tr>
<th>FIELD</th>
<th>DESCRIPTION</th>
<th>INPUT/OUTPUT</th>
<th>FORMAT</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work package ID</td>
<td>Identifier of the work package that represents the work being done.</td>
<td>Input</td>
<td>Binary</td>
<td>4</td>
</tr>
<tr>
<td>Instance ID</td>
<td>Identifier of the work package instance that distinguishes one parallel path from another within the process.</td>
<td>Input</td>
<td>Binary</td>
<td>4</td>
</tr>
<tr>
<td>Variable name</td>
<td>Name of the variable to process.</td>
<td>Input</td>
<td>Character</td>
<td>10</td>
</tr>
<tr>
<td>Variable value</td>
<td>Value of the variable</td>
<td>Input/Output</td>
<td>Character</td>
<td>40</td>
</tr>
<tr>
<td>Return value</td>
<td>Indicates how subsequent processing should continue.</td>
<td>Output</td>
<td>Binary</td>
<td>4</td>
</tr>
</tbody>
</table>

0  Normal processing, Create variable.

Non-zero  Error processing. The request to create the variable should not be processed.

Server User Exit for Process Definitions

This user exit is called as a step in a process when the process definition includes a user exit node.

Unlike the previous server user exits, the user exit node user exit is not entered in the OS/400 Registration Facility. When you define the user exit node as part of your process definition in Workflow Builder, you specify the program and library to be called.

Table 24. User Exit Node Exit Parameters

<table>
<thead>
<tr>
<th>FIELD</th>
<th>DESCRIPTION</th>
<th>INPUT/OUTPUT</th>
<th>FORMAT</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work package ID</td>
<td>Identifier of the work package that represents the work being done.</td>
<td>Input</td>
<td>Decimal</td>
<td>10</td>
</tr>
<tr>
<td>Instance ID</td>
<td>Identifier of the work package instance that distinguishes one parallel path from another within the process.</td>
<td>Input</td>
<td>Decimal</td>
<td>5</td>
</tr>
<tr>
<td>Return value</td>
<td>If the return value is 0, processing continues with the next command in the route definition. If the return value has any other value, error message EKD-1111 is logged to the error log file and the next command in the route definition is processed.</td>
<td>Output</td>
<td>Decimal</td>
<td>4</td>
</tr>
<tr>
<td>Reserved</td>
<td>Reserved for future use.</td>
<td>Input</td>
<td>Character</td>
<td>512</td>
</tr>
</tbody>
</table>
Appendix A. Guidelines for Search Expressions

Included in this appendix are some guidelines to follow when you are searching a Content Manager for iSeries client application.

Logical Operators for Searches

The following are the valid logical operators in order of precedence:

- **NOT or ^**  Negate the condition that follows.
- **AND or &**  Both the preceding condition and the condition that follows must be true.
- **OR or |**  Either the preceding condition or the condition that follows is true.

The following examples illustrate the precedence rules.

Let W, X, Y, and Z represent expressions in the following string:

\[ W \text{ OR } X \text{ AND } \text{ NOT } Y \text{ AND } Z \]

Using the default precedence rules, this string is the same as the following:

\[ W \text{ OR } ( X \text{ AND } (\text{ NOT } Y) \text{ AND } Z ) \]

You can use parentheses to alter precedence and change the meaning of the string. For example:

\[ (W \text{ OR } X) \text{ AND } \text{ NOT } (Y \text{ AND } Z) \]

**Note:** You can enter the logical operators in uppercase, lowercase, or mixed case.

Search Expressions

Each search expression takes the following form: Attribute Operator Value Element

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>An attribute. You can enter attributes in uppercase, lowercase, or mixed case.</td>
</tr>
<tr>
<td>nnn</td>
<td>A decimal attribute ID. This value identifies either a user-defined attribute or a system-defined attribute as it exists in Content Manager for iSeries.</td>
</tr>
</tbody>
</table>

Operator

A relational operator. You can enter operators in uppercase, lowercase, or mixed case. The following are the valid operators.

<table>
<thead>
<tr>
<th>Operator</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>EQ or ==</td>
<td>Equal to</td>
</tr>
</tbody>
</table>
LEQ or <=  Less than or equal to
GEQ or >=  Greater than or equal to
LT or <   Less than
GT or >   Greater than
NEQ or <> Not equal to
IN       In a list of values
NOTIN    Not in a list of values
LIKE     Like
NOTLIKE  Not like
BETWEEN  Between two values
NOTBETWEEN  Not between two values

Value

A string value, a numeric value, or the value NULL.

You must enclose string values within quotation marks. Use two quotation marks together to specify a zero-length string. Use two blanks within two quotation marks to specify a string of two blanks. Note that neither a zero-length string or a string of two blanks is equivalent to the value NULL.

You can place a plus or a minus sign before a numeric value. Optionally, you can specify a numeric value as a string.

Use the reserved word null to specify the value NULL. You can specify the value NULL for the EQ and NEQ operators only. The following are examples of valid values:

"xxxxx"
null
*123*
+123
123

Note: The values “123”, +123, and 123 are equivalent.

Relational Operators for Searches

When you use the following relational operators, you must specify value strings in certain special formats:

- BETWEEN
- NOTBETWEEN
- LIKE
- NOTLIKE
- IN
- NOTIN

When you use either the BETWEEN operator or the NOTBETWEEN operator, you must specify all value strings within an expression in the same format. The following are examples of valid expressions:
A1 BETWEEN 100 200
A51 BETWEEN '1995-01-01' '2020-09-29'
A49 BETWEEN '1990-01-01-00.00.00.000000' '1920-02-02-00.00.00.000003'
A50 BETWEEN '13.00.00' '17.00.00'
A2 NOTBETWEEN "FIRST" "LAST"

When you use either the LIKE operator or the NOTLIKE operator, use the percent sign (%) or the underscore character (_) in SQL format to specify searches for partial strings.

Specify the percent sign to match any character. For example, the following expression searches for any value that begins with the character S:
A3 LIKE "S%"

Specify the underscore character to match any character in a certain position. For example, the following expression searches for any value that begins with the character string PA, contains any character in the third position, and contains the character K in the fourth and final position:
A8 LIKE "PA_K"

When you use either the IN operator or the NOTIN operator, you must enclose string values within apostrophes ('') and enclose the entire set of values within parentheses. Additionally, you must place a comma (,) between any two values within an expression. The following are examples of valid expressions:
A4 IN "('Monday', 'Tuesday', 'Wednesday')"
A50 NOTIN "('15.30.03') "
A51 NOTIN "('1994-08-31') "
A49 NOTIN "('1920-02-02-00.00.00.000001') "
A5 NOTIN "(1,3,5,7,9)"

If you specify any attribute in an expression that does not belong to the index class you specify for that expression in this data structure, the search method fails. In such a case, the function fails regardless of any other correctly structured portion of the expression.

In the following example, the function fails if the index class you specify contains only attribute 10 and attribute 12:
(A12 == 3) OR (A38 < 5)

The expression in the preceding example causes the method to fail because the index class you specify does not contain attribute 38.

If you specify a null string (""") as the value of the index class, the method automatically searches only the index classes that contain the attributes you specify in the expression within the search string. If that expression consists of system attribute IDs only, the function searches all current index classes.

Process/Location Search

Process and location are the only system-defined attributes which may be specified within a search. The associated attribute identifiers are SIM_INDEX_ATTR_PROCESS and SIM_INDEX_ATTR_LOCATION, respectively. If you would like to specify process and location within a search, the first search expression must contain the process criteria. Location is optional, but if specified, the second search expression must contain location criteria, including location type. The value element of the search expressions should contain a valid process or
location identifier. The search expressions should not contain an operator. Valid location types are SIMWM_WORKBASKET and SIMWM_COLLECTION_POINT. For example:

A-20 "PAPPLICANT" A-21 3 "WWORK05"


Appendix B. Predefined Content Classes

Table 25 lists the predefined content classes for Content Manager for iSeries.

<table>
<thead>
<tr>
<th>Content Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIM_CC_ADVWRITE</td>
<td>HP AdvanceWrite Plus format</td>
</tr>
<tr>
<td>SIM_CC_AIX_EXE</td>
<td>AIX® executable program</td>
</tr>
<tr>
<td>SIM_CC_AIXCMD</td>
<td>AIX command file</td>
</tr>
<tr>
<td>SIM_CC_AMIPRO</td>
<td>Ami Pro format</td>
</tr>
<tr>
<td>SIM_CC_AOCA</td>
<td>Audio Object Content Architecture (AOCA) data only</td>
</tr>
<tr>
<td>SIM_CC_ASCII</td>
<td>Flat ASCII text</td>
</tr>
<tr>
<td>SIM_CC_BCOCA</td>
<td>Tiled Bar Code Object Content Architecture (BCOCA) data only</td>
</tr>
<tr>
<td>SIM_CC_BKMGR_READ</td>
<td>BookManager® Read format</td>
</tr>
<tr>
<td>SIM_CC_BINARY</td>
<td>Unformatted binary data</td>
</tr>
<tr>
<td>SIM_CC_DESCRIBE</td>
<td>DeScribe text editor</td>
</tr>
<tr>
<td>SIM_CC_DIGITAL</td>
<td>Digital DX and WPS-Plus format</td>
</tr>
<tr>
<td>SIM_CC_DWRITE</td>
<td>DisplayWrite®</td>
</tr>
<tr>
<td>SIM_CC_EBCDIC</td>
<td>Flat EBCDIC text</td>
</tr>
<tr>
<td>SIM_CC_ENABLE</td>
<td>Enable format</td>
</tr>
<tr>
<td>SIM_CC_EXCEL</td>
<td>Microsoft Excel</td>
</tr>
<tr>
<td>SIM_CC_FAXGRP3</td>
<td>Fax image in group 3 format</td>
</tr>
<tr>
<td>SIM_CC_FRN_NOTE</td>
<td>Application note log</td>
</tr>
<tr>
<td>SIM_CC_FRN_HISTORY</td>
<td>Application history log</td>
</tr>
<tr>
<td>SIM_CC_FWORK</td>
<td>Framework format</td>
</tr>
<tr>
<td>SIM_CC_GOCA</td>
<td>Graphic Object Content Architecture (GOCA) data only</td>
</tr>
<tr>
<td>SIM_CC_IBMFFT</td>
<td>DCA - Final Form text</td>
</tr>
<tr>
<td>SIM_CC_IBMW A</td>
<td>IBM Writing Assistant</td>
</tr>
<tr>
<td>SIM_CC_INTER</td>
<td>Interleaf Publisher format</td>
</tr>
<tr>
<td>SIM_CC_IOCA_FS11</td>
<td>Image Object Content Architecture (IOCA) data only</td>
</tr>
<tr>
<td>SIM_CC_IOCA_IRM</td>
<td>IRM version of IOCA, non-standard</td>
</tr>
<tr>
<td>SIM_CC_IOCA_TILED</td>
<td>Tiled IOCA only</td>
</tr>
<tr>
<td>SIM_CC_LEGACY</td>
<td>Legacy format</td>
</tr>
<tr>
<td>SIM_CC_MacWrite</td>
<td>MacWrite format</td>
</tr>
<tr>
<td>SIM_CC_MASS</td>
<td>MASS 11 format</td>
</tr>
<tr>
<td>SIM_CC_MGDS</td>
<td>IBM machine-generated data stream (MGDS) format (for forms, for example)</td>
</tr>
<tr>
<td>SIM_CC_RICHTEXT</td>
<td>Microsoft Rich Text format</td>
</tr>
<tr>
<td>SIM_CC_MODCA_FORM</td>
<td>Mixed Object Document Content Architecture (MO:DCA) form overlay structure</td>
</tr>
<tr>
<td>Content Class</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------------------------------------------------</td>
</tr>
<tr>
<td>SIM_CC_MODCA_IS2</td>
<td>MO:DCA-P document</td>
</tr>
<tr>
<td>SIM_CC_MODCA_PAGE</td>
<td>MO:DCA page structure only</td>
</tr>
<tr>
<td>SIM_CC_MSCRIPT</td>
<td>Lotus® Manuscript format</td>
</tr>
<tr>
<td>SIM_CC_MULTIMATE</td>
<td>Multimate** and Multimate/Advantage** format</td>
</tr>
<tr>
<td>SIM_CC_MSTSOFT</td>
<td>Mastersoft internal format</td>
</tr>
<tr>
<td>SIM_CC_OF5WRITE</td>
<td>Office Writer</td>
</tr>
<tr>
<td>SIM_CC_OS2EXE</td>
<td>OS/2® Version 2 executable program</td>
</tr>
<tr>
<td>SIM_CC_OS2CMD</td>
<td>OS/2 Version 2 command file</td>
</tr>
<tr>
<td>SIM_CC_OS2DLL</td>
<td>OS/2 Version 2 Dynamic Link Library (DLL)</td>
</tr>
<tr>
<td>SIM_CC_OS2V12_BMP</td>
<td>OS/2 Version 1.2 bitmap</td>
</tr>
<tr>
<td>SIM_CC_OS2V13_BMP</td>
<td>OS/2 Version 1.3 bitmap</td>
</tr>
<tr>
<td>SIM_CC_OS2V2_BMP</td>
<td>OS/2 Version 2.0 bitmap</td>
</tr>
<tr>
<td>SIM_CC_PCX</td>
<td>PCX</td>
</tr>
<tr>
<td>SIM_CC_PEACh</td>
<td>PeachText 5000 format</td>
</tr>
<tr>
<td>SIM_CC_PFS</td>
<td>PFS:First Choice format</td>
</tr>
<tr>
<td>SIM_CC_POSTSCRIPT</td>
<td>PostScript data</td>
</tr>
<tr>
<td>SIM_CC_PPDS</td>
<td>Printer data stream</td>
</tr>
<tr>
<td>SIM_CC_PRS</td>
<td>Freelance presentation</td>
</tr>
<tr>
<td>SIM_CC_PWRITE</td>
<td>Professional Write format</td>
</tr>
<tr>
<td>SIM_CC_QAWRITE</td>
<td>QA Write format</td>
</tr>
<tr>
<td>SIM_CC_QUATTRO</td>
<td>Quattro Pro format</td>
</tr>
<tr>
<td>SIM_CC_RFILE</td>
<td>Rapid File format</td>
</tr>
<tr>
<td>SIM_CC_RFT</td>
<td>IBM RFT:DCA</td>
</tr>
<tr>
<td>SIM_CC_TARGA</td>
<td>TARGA</td>
</tr>
<tr>
<td>SIM_CC_TEXT</td>
<td>Text (where code page is unknown or variable)</td>
</tr>
<tr>
<td>SIM_CC_TIFF_G3_FINE</td>
<td>Tagged Image File Format (TIFF) header, higher resolution fax</td>
</tr>
<tr>
<td>SIM_CC_TIFF_G3_STANDARD</td>
<td>TIFF header, standard fax</td>
</tr>
<tr>
<td>SIM_CC_TIFF_IRM</td>
<td>IRM version of TIFF, single page</td>
</tr>
<tr>
<td>SIM_CC_TIFF_SINGLE_STRIP</td>
<td>Raster in a single strip</td>
</tr>
<tr>
<td>SIM_CC_TIFF5</td>
<td>TIFF V5, multi-page allowed</td>
</tr>
<tr>
<td>SIM_CC_TIFF5_PAGE</td>
<td>TIFF V5, single page</td>
</tr>
<tr>
<td>SIM_CC_TIFF6</td>
<td>TIFF V6, multi-page</td>
</tr>
<tr>
<td>SIM_CC_TIFF6_PAGE</td>
<td>TIFF V6, single page</td>
</tr>
<tr>
<td>SIM_CC_TOTALWORD</td>
<td>Total Word format</td>
</tr>
<tr>
<td>SIM_CC_UNIPLEX</td>
<td>Uniplex onGo format</td>
</tr>
<tr>
<td>SIM_CC_UNKNOWN</td>
<td>Content class unknown</td>
</tr>
<tr>
<td>SIM_CC_USER</td>
<td>Start of user-defined content classes</td>
</tr>
<tr>
<td>SIM_CC_VKS</td>
<td>Volkswriter format</td>
</tr>
<tr>
<td>SIM_CC_WANGPC</td>
<td>WANG PC format</td>
</tr>
<tr>
<td>Content Class</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>SIM_CC_WG1</td>
<td>Graphics, from Lotus 1-2-3/G</td>
</tr>
<tr>
<td>SIM_CC_WINV3_BMP</td>
<td>Microsoft Windows Version 3 bitmap</td>
</tr>
<tr>
<td>SIM_CC_WINWRITE</td>
<td>Windows Write format</td>
</tr>
<tr>
<td>SIM_CC_WKS</td>
<td>Lotus spreadsheet format</td>
</tr>
<tr>
<td>SIM_CC_WORD</td>
<td>Microsoft Word format</td>
</tr>
<tr>
<td>SIM_CC_WORDSTAR</td>
<td>Wordstar format</td>
</tr>
<tr>
<td>SIM_CC_WP</td>
<td>WordPerfect format</td>
</tr>
<tr>
<td>SIM_CC_WRITENOW</td>
<td>WriteNow format</td>
</tr>
<tr>
<td>SIM_CC_XYWRITE</td>
<td>XyWrite format</td>
</tr>
</tbody>
</table>
Appendix C. External References

Many Content Manager for iSeries customers have other repositories of data on their iSeries or within their network, and would like the ability to access that data through the Content Manager for iSeries Windows client and programming interfaces. These external documents should be treated exactly the same as a Content Manager for iSeries document, including search, addition to folders, and inclusion in workflow. The end user should not need to know the location of the document, or know that the content is not managed by Content Manager for iSeries.

To satisfy the requirement to access external documents as if they were Content Manager for iSeries documents, support for External References is being made available. An External Reference is simply the indexing information that Content Manager for iSeries already uses, plus the location information needed by another application to retrieve the document content. In the simplest form, this might be the path name of a file stored in the iSeries file system or on a network drive accessible to workstations.

To define an External Reference to Content Manager for iSeries, a file must first be created containing the location information and the Content Manager for iSeries indexing information such as the Index Class, Key Fields, and Content Class. Each record in this file represents one document that is to be indexed into Content Manager for iSeries. By indexing all documents in the file at once, instead of calling the Content Manager for iSeries APIs for each document, processing time is minimized. On a model 510, indexing 1000 documents takes approximately seven seconds.

Four types of External References are supported:

- An OS/400 file
- A workstation (or network) file
- Data retrieved by a program called on the server
- Data retrieved by a program called on the workstation

After indexing the External References, they can be accessed through the Content Manager for iSeries APIs. These APIs are used today by the Content Manager client, the Content Connect client, and applications written by business partners and customers. These applications will now be able to transparently access documents stored in other locations, but indexed by Content Manager for iSeries.

The Content Class capability of the Content Manager Client is key to this solution. When the Content Manager Client opens a document, the Content Class associated with the document controls whether it will be displayed by the Content Manager Viewer, or passed to another application. For example, if a video or audio clip is imported, the user would identify the Content Class as AVI. When the document is opened, the Content Manager Client would start MPLAY32 to play the video. This makes it possible for any type of document to be indexed by Content Manager for iSeries, located through search interfaces, and displayed either by the Content Manager Viewer or an alternate program.

There are many uses for External References. For example, it would be possible to store a large number of documents (images, video clips, text, and so forth) on a CD or DVD, duplicate it for all users, then index those documents into Content
Manager for iSeries. By storing the path name to each of the files, users could quickly retrieve a document even if they are using a dial-up connection. The same indexing approach could be used for files on a iSeries or on a LAN drive.

For even more flexibility, a program can be called on either the workstation or iSeries to retrieve the data. For example, the document that is indexed into Content Manager for iSeries might refer to an employee record. The called program could gather information from multiple databases and prepare a simple text representation, an image, or even an HTML document that is returned to the workstation. The Content Manager client, using the Content Class, would either display the results directly, or pass the document to another program for display.

With support for External References, any information can be indexed by Content Manager for iSeries, located, managed, and displayed through the Content Manager Client. You now have the option to maintain a single, central index of all your enterprise documents, and increased flexibility for constructing documents dynamically.

Creating External References

To index one or more documents as external references, create records in the file EKD0314, and then run the indexing program QVIXRFINX. The following fields are defined in EKD0314:

INDEX CLASS

This is the name (not description) of the Content Manager for iSeries index class into which the document is to be indexed. If the index class specified does not exist, it can be created later. (If the index class does not exist, the documents cannot be located through the Content Manager for iSeries APIs or any application using the APIs.)

KEY1-KEY8 DATA

These fields contain the attributes for indexing the document. They will be written to EKD0312 (the indexing file) exactly as they appear in EKD0314.

CREATE DATE, CREATE TIME, USER ID

These fields will be written exactly as they appear.

CONTENT CLASS

For any document that type that can be processed directly by the Content Manager Client, use 0. For others, review EKD0318 to find an appropriate Content Class. If a Content Class does not exist, use DFU or another utility to define a Content Class. At this time, there is not an administrative interface for defining Content Classes.

EXTERNAL REFERENCE TYPE

Four types are supported:

1. The External Reference field contains information that is used by another program (the Object Handler) on the iSeries to retrieve the data. In this example, a fully qualified iSeries library, file, and member name is passed to the program QVIXRFSMMP.

2. The External Reference field contains a fully qualified iSeries path. This may be a library/file/member as above, or the name of an IFS file.

3. The External Reference field contains information that is used by another program (the Object Handler) on the workstation to retrieve the data. The specified program must be a DLL containing the function name vi400extref with the following prototype:
For a type 3 reference, the Object Handler is the name of a workstation DLL containing the following function. A non-zero return code will be returned as an error in SimLibOpenObject.

The External Reference field contains a fully qualified path name that can be accessed from the workstation.

**EXTERNAL REFERENCE**

The location data, either a file name or information to be passed to the Object Handler.

**OBJECT HANDLER LIBRARY**

For a type 1 reference only, the name of the iSeries library containing the Object Handler program.

**OBJECT HANDLER PROGRAM**

For a type 1 reference, the name of the iSeries program to receive the External Reference. This will be a standalone program that receives as input the following structure:

<table>
<thead>
<tr>
<th>RCAREA</th>
<th>CHAR(8)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-blank return code will be written to EKD0080 to indicate an error</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FILENAME</th>
<th>CHAR(256)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The content to be returned through the Content Manager for iSeries APIs must be written to the temporary file specified.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXTREF</th>
<th>CHAR(256)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The external reference, or location information, used to locate the document content</td>
</tr>
</tbody>
</table>

**ITEM ID**

This field should initially be blank. This field will be set to the Item ID created by the indexing process. When non-blank, the record is assumed to already be indexed, so will be skipped by QVIXRFINX.

After creating EKD00314, the indexing program QVIXRFINX may be run. This program can be called from a command line or another program. All required files are opened, a sufficient number of document IDs reserved, and each document is indexed. If there is any program failure, QVIXRFINX may be restarted and only those records which have not already been indexed will be processed.

**Limitations:** Documents are indexed using this batch approach to provide the best possible performance. At this time, there is no API provided to index such documents from another application. There is no security checking, so only selected users should be given authorization to QVIXRFINX. Fields are not validated during processing.
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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.

content class. A number that indicates the data format of an object, such as MO:DCA, TIFF, or ASCII.

control files. Files that govern the categories of work performed by an operator and the types of documents the system recognizes.

convenience workstation. A display workstation equipped with a printer and a scanner.

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.

D

DASD. Direct access storage device.

DDM. Distributed data management.

DBCS. Double-byte character set.

decision point. (1) The point where work packages continue on their current route or switch to an alternate route, depending on the specific information in each work package. Decision points are tables consisting of variable names, values, and routes. (2) A decision point is part of a work process. For example, a decision point is where work packages that are part of the “open a new account” work process receive approval or not based on credit information.

See also collection point.

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.

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.

E

export. A process used to write data from a document in a system folder to a file. Export and import processes can be used to transfer documents among systems.

F

first in first out (FIFO). A queueing technique in which the next item to be retrieved is the item that has been in the queue for the longest time.

folder. In Content Manager for iSeries, an object that can contain other folders or documents.

folder balancing. In the iSeries, the process by which documents are distributed evenly among the available folders in the system.

folder manager. In IBM Content Manager for iSeries systems other than Content Manager for iSeries, the term used to describe the data model and a subset of the APIs. In Content Manager for iSeries, this term refers to the entire set of Content Manager for iSeries APIs.

G

Group III. A compression algorithm that conforms to a standard promulgated by the International Telegraph and Telephone Consultative Committee (CCITT).

H

HTML. Hypertext markup language.

I

image. (1) A single page of information; the result of scanning, or digitizing, a single sheet of paper. (2) An electronic representation of a picture produced by means of sensing light, sound, electron radiation, or other emanations from the picture or reflected by the
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 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.

cpool 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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