



System i

IBM Content Manager OnDemand for i5/OS Common Server Administration Guide

Version 6 Release 1

SC27-1161-04





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Note

Before using this information and the product it supports, read the information in “Notices” on page 269.

This edition applies to IBM Content Manager OnDemand for i5/OS Common Server, Version 6 Release 1 and to all subsequent releases and modifications until otherwise indicated in new editions. This edition replaces SC27-1161-03.

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About IBM Content Manager OnDemand for i5/OS Common Server Administration Guide (SC27-1161)

The information in this book can help administrators maintain an IBM® Content Manager OnDemand for i5/OS Common Server Version 6 Release 1 (OnDemand) system.

This book describes how to:

- Maintain the database
- Manage disk and archive storage
- Use the administrative client to define reports to the system and maintain other types of objects on the system
- Load reports and other types of data into the system
- Use administrative commands to complete other types of tasks

Before you begin, IBM recommends that you familiarize yourself with concepts and terminology used in this book. See the *IBM Content Manager OnDemand for i5/OS Common Server: Planning and Installation Guide* for information about OnDemand.

Who should read this book

This book is of primary interest to administrators who are responsible for implementing and maintaining an OnDemand system. Some administrators can use this book and the tools described in it to define reports to the system. Other administrators can use this book and the tools described in it to maintain users, groups, printers, and so forth. Still other administrators can use the administrative commands described in this book to maintain the database, disk and archive storage, extract documents from the system, and so forth.

How this book is organized

Part 1, “Database administration,” on page 1 describes the key database objects that you will need to understand to perform the tasks in this book, describes how to maintain the database, and provides information about backup and recovery. This part contains the following sections:

- Chapter 1, “Database concepts,” on page 3
- Chapter 2, “Database maintenance,” on page 5
- Chapter 3, “Migrating and importing index data,” on page 9

Part 2, “Storage administration,” on page 13 contains information about managing disk and archive storage devices and objects. This part has the following sections:

- Chapter 4, “Document storage,” on page 15
- Chapter 5, “Using Tivoli Storage Manager,” on page 23
- Chapter 6, “Backup and recovery,” on page 31

Part 3, “Using System i Navigator for OnDemand administration,” on page 35 contains information about System i Navigator, a program that you can use to define and maintain objects on the system. For example, you can use System i Navigator to define reports to OnDemand and maintain OnDemand users, groups and printers. This part contains the following sections:

Chapter 7, "Installation," on page 37 describes the hardware, software, memory, and disk space requirements for the administrative client and how to install the administrative client

Chapter 8, "Introduction," on page 41 provides an introduction to the System i Navigator, including how to start the program, log on to a server, and maintain passwords, describes the types of tasks that you can do with the System i Navigator, and contains information about the system parameters that you can maintain with the System i Navigator

Chapter 9, "Concepts," on page 53 provides an overview of the OnDemand objects: users, groups, printers, migration policies and storage sets, application groups, applications, and folders.

Chapter 10, "Examples," on page 69 provides step-by-step instructions for using the System i Navigator to define users, groups, printers, migration policies and storage sets, and reports to the system

Part 4, "Loading data," on page 119 provides information about and examples of loading reports on the system. This part contains the following sections:

Chapter 11, "Loading spooled file data," on page 121

Chapter 12, "Loading image files," on page 129

Chapter 13, "Loading user-defined data," on page 137

Chapter 14, "Restarting a load process," on page 145

Chapter 15, "Importing and exporting OnDemand objects through batch administration," on page 147

Chapter 16, "Deleting a report," on page 159

Chapter 17, "Managing the server," on page 163

Part 5, "Server administration," on page 161 describes errors and alerts, system logging and how to find the server job system logging, how to find the server job, and how to restart journaling.

Appendix A, "Command reference," on page 169 contains reference information about the OnDemand server commands.

Appendix B, "System log messages," on page 175 contains many of the most common messages found in the OnDemand System Log.

Appendix C, "5250 host connection to client viewer," on page 203 describes the OnDemand 5250 Host Connection, which allows an i5/OS application to send information to the OnDemand client workstation viewer program (the viewer).

Appendix D, "Server printing and faxing," on page 207 describes how to define some of the server print parameters in your Common Server application definition.

Appendix E, "API and user exit reference," on page 211 describes the OnDemand APIs.

Appendix F, "Automating ARSLOAD data loading," on page 261 describes how to automate the ARSLOAD command.

Appendix G, "Alternative to starting the administrative client," on page 263 describes a different way to start the administrative client.

Appendix H, "Accessibility features," on page 267 describes OnDemand features that provide accessibility to users with disabilities.

Conventions and terminology used in this book

The term Windows® client refers to the OnDemand client software that runs under Windows 2000, Windows XP, and Windows Server 2003.

Prerequisite and related information

Use the IBM i5/OS Information Center as your starting point for looking up System i5 technical information.

You can access the Information Center in two ways:

- From the following Web site: <http://www.ibm.com/systems/i/infocenter/>
- From CD-ROMs that ship with your i5/OS order: *System i5 Information Center SK3T-4091-07*

The IBM i5/OS Information Center contains:

- Updated and new information, including i5/OS installation and upgrades, data migration, service and troubleshooting, availability, System i integration, connecting to System i, database, Linux, WebSphere, Java, CL commands, system APIs, and manuals.
- Advisors and other interactive tools to assist in troubleshooting and configuring your i5/OS software.

OnDemand Information Center

In addition to the i5/OS Information Center (previously mentioned), be sure to visit the OnDemand Information Center, which focuses only on information pertaining to Content Manager OnDemand. The OnDemand Information Center provides fast, online centralized access to product information. It is a task-based documentation repository that allows you to search across the entire product library for commands, error codes, or any other topic of interest. You can bookmark pages of interest and retrieve them later for quick reference.

To access the OnDemand Information center, go to <http://publib.boulder.ibm.com/infocenter/cmod83/index.jsp>.

Traditional product documentation has been moved from the library page to the support page on the CM OnDemand for System i5 product Web site. To see a list of all available OnDemand for System i5 product documentation, go to <http://www.ibm.com/software/data/ondemand/400/support.html>. Under the "Learn" heading, select "Version 6.1 documentation (all supported languages)."

System i Navigator

IBM System i Navigator is a powerful graphical interface for managing your System i5 servers. System i Navigator functionality includes system navigation, configuration, planning capabilities, and online help to guide you through your tasks. System i Navigator makes operation and administration of the server easier and more productive and is the only user interface to the new, advanced features of the i5/OS operating system. It also includes Management Central for managing multiple servers from a central server.

For more information on System i Navigator, see the i5/OS 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 OnDemand documentation. Visit the IBM Data Management Online Reader's Comment Form (RFC) page at www.ibm.com/software/data/rcf.

Be sure to include the name of the product, the version number of the product, and the name of the book. 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).

Product support

Product support is available on the Web. See www.ibm.com/software/data/ondemand/400/support.html.

The IBM support center maintains product updates for OnDemand. You can obtain the latest product updates for the end-user client and the administrative client from IBM service on the Web at <ftp://service.software.ibm.com/software/ondemand/fixes/>.

The current list of OnDemand server and System i Navigator component PTFs is available in informational APAR II14283.

If you encounter problems or errors running any of the OnDemand programs, you can call the IBM support center to obtain software problem and defect support.

Summary of changes

This edition of *IBM Content Manager OnDemand for i5/OS Common Server Administration Guide* contains new technical information. There might be some instances where changes were made, but change bars are missing. Significant changes to note are:

- A new batch administration API (ARSXML) is now available that performs many administrative functions (such as adding users, changing permissions, and exporting/importing definitions) in a batch environment that previously could be done only by using the interactive OnDemand Administrator Client.
- Tivoli Storage Manager (TSM) support was added to the product in release V6R1.
- Independent Auxiliary Storage Pools (IASPs) are now supported as an option for your OnDemand instance libraries and archive media.
- An NFS-mounted file system can now be used as a disk pool, either as primary or backup media. Go to the OnDemand Support web site at <http://www.ibm.com/software/data/ondemand/400/support.html>, and enter the search words 'NFS disk pool' to locate detailed setup instructions.
- The IFS structure of disk pools for newly-archived data has changed to include an additional directory level. As objects are placed in a disk pool, a subdirectory is created for the year, month, and day (YYYYMMDD) the object was moved to the disk pool, and the object is placed under that subdirectory. Objects that are already in the disk pool will stay where they are and will not be included in the new structure. Over time as these objects expire or move to another level, the disk pool will end up with objects only in the new structure. This new structure will allow for more granular backups to be made. Backups can then be done for a specific year, or year and month, or even a specific day.
- New logging and tracing options are now available for enhanced problem determination. These tracing parameters can be set by using the OnDemand Administrator Client.
- Two new commands were added to the OnDemand licensed program product in release V6R1. The Change Policy Level Date (CHGPLDOND) command provides flexibility in changing the date that archived data will move from one archive medium to another. The Migrate Media (MGRMEDRDAR) command provides a tool to move migrated Spool File Archive data from one media type to another.
- New parameters were added to the ARSLOAD API.
- The COPIES and PAGERANGE optional parameters have been removed from the Print Report from OnDemand (PRTRPTOND) command in release V6R1, and should be removed from any CL programs or job scheduler entries that may currently specify them.
- The VALIDATE optional parameter has been removed from the Start Disk Storage Management (STRDSMOND) command in release V6R1, and should be removed from any CL programs or job scheduler entries that may currently specify them.
- The postprocessor program sample code and documentation have been significantly enhanced.
- Spool File Archive, Object Archive, Record Archive, AnyStore, and Spool File Archive Client/Server support (product options 1, 2, 3, 4, and 5) have been removed from the OnDemand licensed program product in release V6R1. As stated in IBM Announcement Letter 206-030, dated 14 February 2006, and in both V5.3 and V5.4 OnDemand Read This First documents, V5.4 was the last

| release that Spool File Archive, AnyStore, Record Archive, and Object Archive
| will be shipped and supported. Beginning with OnDemand V5.3, a Spool File
| Archive migration utility has been included with the OnDemand licensed program
| product, providing capability to migrate report definitions and indexes from the
| legacy Spool File Archive environment to the Common Server environment.
| Spool File Archive customers have been encouraged to learn about Common
| Server and plan for their migration to Common Server. New installations and new
| applications of OnDemand should be deployed using the Common Server
| environment.

- The migration utility for Spool File Archive to Common Server migration (and related documentation in Appendices A and B of the Common Server Planning and Installation Guide) has been removed from the OnDemand licensed program product (in conjunction with Spool File Archive no longer shipping with release V6.1). Refer to the 5.4 version of the publication if you need information on migration.

Part 1. Database administration

This part is of primary interest to administrators responsible for configuring and maintaining the OnDemand database. This part is organized as follows:

- Database concepts
- Database maintenance
- Migrating and importing index data

Chapter 1. Database concepts

This section provides an overview of the key database objects:

- System
- Instance
- Database
- Table
- Index
- Journals and Journal Receivers

System

A database *system* represents a physical machine that contains a copy of the database manager. In OnDemand, the *server* is the physical machine referred to as the *system*.

Instance

An OnDemand instance is a logical server environment consisting of a server and its own separate database and disk space. Each OnDemand instance (the server, database and disk):

- Has its own definition of folders, application groups, applications and printers
- Must run in a single CCSID
- Has different security (users, groups, folder and application group permissions)
- Must have its name specified on commands if it is not the default instance
- Has its own System Log

Some reasons you might have multiple instances on a machine are:

- To have distinct test and production environments
- To have databases using different CCSIDs

For OnDemand, IBM recommends that you name your primary production, or only, instance *QUSROND*. This is the default OnDemand instance that is used on all OnDemand commands unless you explicitly specify a different instance name. Using this as your primary OnDemand instance will save you from having to specify an instance name in most cases.

Database

A collection of data that is stored in tables. In OnDemand, generally speaking, there are two types of tables:

- System tables, which contain information about the objects you define to the system, such as users, groups, application groups, applications, folders, storage sets, and printers. There are also system tables that contain information OnDemand uses to control and maintain the system.
- Application group tables, which contain the index data for the reports that you load on the system

Table

A table consists of data logically arranged in columns and rows. For example, when you create an application group, the system creates a table definition that contains one column for each field that you define. When you load a report into an application group, the system adds one row to an application group table for each document contained in the report.

Index

In OnDemand, an index is a key that points to a document. An index allows more efficient access to documents by creating a direct path to a document through pointers.

You define indexes when you create an application group. The indexes should contain information that uniquely identify a document, such as date, account number, and customer name. Indexes are populated by values extracted from a report when you load a report on the system. Each row in an application group table identifies one document.

However, keep in mind that you do not want lots of indexes on a report just to have indexes. You should have a good business reason to have an index. While indexes can help you find documents faster, having too many of them can slow you down when you load reports on the system. Every time you add a new row (document) to a table, you have to add a row to each and every one of the indexes for that table. So the more indexes that you have, the longer it may take when you load a report.

The SQL optimizer automatically chooses the most efficient way to access data in tables. The optimizer takes indexes into consideration when determining the fastest access path to data.

Journals and journal receivers

Each database includes recovery journals and journal receivers, which are used to recover from application or system errors. In combination with database backups, journals are used to recover the consistency of the database right up to a point in time when an error occurred.

All instances have journals associated with them. These journals keep records of database changes. Journals prevent a failure (system power, application error) from leaving a database in an inconsistent state. They restore the state of a database to the point before the change. Journals can also enable forward recovery to any point in time before the failure.

In planning for disaster recovery, be sure to remember that journals must be stored off site, or at least safely away from the disaster, in order to recover your database beyond the point of the last full, off line backup.

Chapter 2. Database maintenance

You need to maintain the OnDemand database to keep it performing in an optimal manner. IBM recommends that you run the following database maintenance tasks on a regular basis:

- Expire index data that has reached its life of data and indexes period
- Migrate indexes to archive storage, if your organization needs to keep indexes for some period of time after users no longer need to retrieve the documents to which they point. This is not recommended.

Before you begin

IBM recommends that you do the following:

- Keep the index data for any given version of a report in the database on disk at least until such time that 99 percent of the requests for the report have passed. As a rule of thumb, if there is any chance that someone in your organization will need to retrieve a version of a report, keep the index data in the database – don't allow it to be migrated.
- Expire data periodically, and migrate index data only when absolutely necessary.
- Select Multiple Loads per Database Table when you define the Database Organization within your application group definitions. With this selection, each time that you load a report into an application group, OnDemand inserts the index records into an existing database table. Index records for every report loaded into the application group are stored in the same database table. OnDemand maintains the application group data so that, as far as a user querying the application group knows, they appear to reside in one database table. OnDemand automatically segments the application group data when it grows beyond a certain size (unless you select Single table for all loads). OnDemand maintains a segment table for each application group. The segment table provides faster query performance by limiting searches to a specific table of application group data, using a date value to construct the query. This method is the default, and should be used in most cases.

Expiring index data

Indexes *expire* (are eligible for removal) because their life of data period has passed. The indexes, and the documents that they point to, can then be removed from the system. When you remove an index, information about the document to which it points is removed from the database (the document can no longer be retrieved). However, because indexes are eligible to be removed does not mean that they will be deleted from the database. OnDemand does not delete expired index data from the database until expiration processing runs.

The application group expiration policy determines when index data is eligible for deletion from the database. You define the expiration policy when you create the application group. The following properties on the Storage Management page comprise the expiration policy:

- Life of data and indexes. The length of time in days to maintain index data and documents on the system. After the index data is on the system for this number of days, it is eligible to be deleted. The value of *Life of Data and Indexes* is set in the Storage Management tab of the OnDemand application group definition. If

you change this value after you have loaded data, the change affects the data that is already in OnDemand as well as any new data loaded after the change is made.

Tip: If you specify Never Expire, then expiration processing is disabled for the application group. (That is, index data will not be removed from the database.)

- **Expiration Type.** Determines whether individual indexes or an entire table of index data is deleted at a time. When OnDemand deletes index data, it either deletes a row (if the Expiration Type is Document) or deletes a table (if the Expiration Type is Segment or Load). The amount of index data in a table and the number of reports the data represents is determined by the Database Organization. If the Database Organization is Multiple Loads per Database Table, then by default, a table of index data can hold up to 10 million indexes (unless you select Single table for all loads, in which case there is no maximum number of records for the index table). These types of tables usually hold the indexes for many reports. If the Database Organization is Single Load per Database Table, then each table holds the indexes for one and only one load.

A table of index data is not eligible to be deleted until the latest date in any of its rows reaches the Life of Data and Indexes period. For example, suppose that the Life Of Data and Indexes is set to 365 days, the Expiration Type is set to Segment, and the Database Organization is set to Multiple Loads per Database Table. By default, a table will contain approximately 10 million rows. Further, suppose that a report is loaded into the application group once every month and that each report adds one million rows to the database. Each table can hold the index data from approximately 40 reports. Using these assumptions, the data that is loaded into the application group in January will not be eligible to be deleted by expiration processing until 40 months (more than three years). If you need to remove the index data for a report as soon as it reaches its Life of Data and Indexes period, then set the Database Organization to Single Load per Database Table and set the Expiration Type to Segment or Load. (And run expiration processing at least once a month.) You should consider selecting Single table for all loads if you have a small number of documents to be archived over time. You would not want to select Single table for all loads if your Expiration Type is Segment.

OnDemand's disk storage manager and the archive storage manager delete the documents that expired index data points to independently of each other. OnDemand uses the application group's expiration policy to determine when indexes and documents expire and should be removed from the system. The archive storage manager marks documents for removal based on the criteria specified in the migration policy. However, you should specify the same criteria to the disk storage manager and the archive storage manager. In other words, the sum of the Duration values for all migration policy storage levels plus the value for the Days in Cache should equal the Life of Data and Indexes value in the application group.

How to expire index data

OnDemand does not delete expired index data from the database until expiration processing runs. The STRDSMOND command is the expiration utility. You can schedule the STRDSMOND command to run automatically or you can run it manually. You should make sure that the STRDSMOND command runs periodically so that OnDemand deletes indexes when it is time to do so (so that expired documents can no longer be retrieved).

When the STRDSMOND command removes indexes, it saves the following message in the System Log:

```
128 ApplGrp Segment Expire (ApplGrp) (Segment)
```

One message is saved in the System Log for each table that was deleted during expiration processing.

Note: While not recommended, if you have migrated indexes to archive media, then the STRASMOND command will perform expiration processing on that index data.

Migrating indexes

Note: This section provides an overview of the process of migrating index data from the database to archive storage. See Chapter 3, “Migrating and importing index data,” on page 9 for information about configuring the system for migration processing.

OnDemand provides automatic migration to move indexes from the database to archive storage to maintain seldom used indexes for long periods of time.

Important: If you use migration to move indexes to archive storage, make sure that you migrate them after there is no longer a need to retrieve the documents to which they point.

The STRDSMOND command uses an application group’s migration policy to control when migration of indexes for an application group occurs:

- **Migration of Indexes.** If you specify No Migration, then migration of indexes is disabled for the application group. (That is, index data will not be migrated.) If you specify Migrate After *n* Days, then index data is eligible to be migrated after reaching the specified number of days. Indexes will be migrated the next time that the STRDSMOND command runs.
- **Life of Data and Indexes.** The length of time in days to maintain index data on the system. For migration, this value must be greater than the Migrate After *n* Days value. The value of *Life of Data and Indexes* is set in the Storage Management tab of the OnDemand application group definition. If you change this value after you have loaded data, the change affects both the data that already exists in OnDemand as well as any new data loaded after the change has been made.

OnDemand does not migrate index data from the database to archive media until migration processing runs. The STRDSMOND command is the migration utility. You can control automatic migration processing by scheduling the command to run with the appropriate options. You can also manually start migration processing by running the command from the command line.

After a migrated table is successfully loaded into the System Migration application group, the table is deleted from the database. However, OnDemand keeps track of all migrated tables. That way, if index data in a migrated table is needed, then OnDemand can alert an administrator to take action (such as **manually** import the table back into the database).

How to migrate indexes

You can control automatic migration processing by scheduling the STRDSMOND command to run with the appropriate options. You can also manually start migration processing by running the STRDSMOND command from the command line.

When the STRDSMOND command migrates indexes, it saves the following messages in the System Log. A set of three messages should be saved in the System Log for each table that is migrated from the database to archive storage:

```
166 ApplGroup Segment Export (AppGrp) (Segment)
14 DB Info Exported (SQL Code)
87 AppGrp Load (System Migration)
```

The first message identifies a table of application group index data that is to be migrated from the database to archive storage. The second message reports the status of exporting the table from the database to temporary storage. The third message reports the loading of information about the migrated table into the System Migration application group. The System Migration application group must be assigned to a storage set that identifies an archive storage media type (such as optical or tape).

Chapter 3. Migrating and importing index data

Index migration is the process by which OnDemand moves index data from the database to archive storage. This process optimizes database storage space while allowing you to maintain index data for a very long time. You typically migrate index data after users no longer need to access the information, but for legal or other business requirements, you still need to maintain the data for some number of years. If a user queries index data that has been migrated, an administrator must import a copy of the migrated table into the database. After maintaining the imported table in the database for a specified number of days, OnDemand deletes it from the database.

This section provides information about importing index data into the database, including what happens when a user queries for migrated data, how to import the index table or tables required by the query, and what happens after you import a table into the database.

IBM assumes that an experienced OnDemand administrator will use the information provided in this section. If you have questions about any of the topics in this section or if you would like help configuring your system to support migrating and importing of index data, please contact the IBM support center.

In general, migrating index data is not recommended.

Configuring the system

There are a number of things you should consider regarding system configuration before you make any decisions about index migration.

System Log messages

OnDemand provides the System Log for administrators to monitor the system. When you install and configure OnDemand, you initialize the System Log tables. The System Log is critical to the operation of the system.

When OnDemand processes a query for application group indexes that have been migrated to archive storage, it saves a message in the System Log and sends a message to the System Log user exit program. A message is also sent to the QSYSOPR message queue.

You can configure the system to examine the messages that OnDemand sends to the System Log user exit and mail them to an administrator or send them to another program. You can also configure the System Log user exit program to determine what action to take when a user queries for data that has been migrated to archive storage. See Appendix B, "System log messages," on page 175 for more information and a list of the most common System Log messages.

System Log user exit program

When a client queries index data that has been migrated to archive storage, OnDemand saves message number 168 ApplGrp Segment Not Available in the System Log. OnDemand also sends the message to the System Log user exit program. If you have defined your own System Log user exit program, then you can determine the action to take when OnDemand sends the message to the System Log user exit program. For example, you may want the program to notify an administrator that a request for a table of migrated index data has occurred. Please

see the *IBM Content Manager OnDemand for i5/OS Common Server Planning and Installation Guide* for more information about the System Log user exit program.

Archive Storage Manager

Before OnDemand can migrate index data to archive storage, you must configure a migration policy with the information that the archive storage manager uses to maintain the data. The migration policy should maintain the data indefinitely. If you need the system to maintain a backup copy of the index data, then you should specify this in the migration policy.

Storage sets

OnDemand uses the System Migration application group to manage all index data that is migrated to archive storage. You must assign the System Migration application group to a storage set that identifies an archive storage media type.

Application groups

When you define an application group, you specify the storage management information that determines how long OnDemand maintains data stored in the application group and when OnDemand takes certain actions. For example:

- **Life of Data and Indexes.** Determines the length of time that OnDemand maintains index data and report data stored in the application group.
- **Migration of Indexes.** Determines the number of days before OnDemand moves index data from the database to archive storage.

You should plan to migrate index data only after users no longer need to access the reports to which it refers. Only in exceptional situations should users need to access index data that has been migrated. If a user needs to access index data that has been migrated to archive media, the process of importing the table back into the database requires **manual** actions by an administrator, and usually results in a significant delay in completing the query. The import process also requires additional space in the database to hold the imported tables, additional log file storage, and temporary storage on the server to run the import process.

- **Keep Imported Migrated Indexes.** Determines how long that OnDemand maintains the imported index data in the database before it is scheduled for deletion.

If you need to maintain index data in archive storage, then you must configure the Migration of Indexes in your application groups. You must specify the number of days to keep the index data on disk in Keep Imported Migrated Indexes. OnDemand will schedule imported index data for deletion from the database after it resides in the database for the number of days specified in Keep Imported Migrated Indexes or Life of Data and Indexes, whichever occurs first.

You can use the administrative client to configure your application groups.

What happens when a user queries migrated data

There are several ways to be notified when a user requests queries migrated index data.

Message to the user

When the server determines that the index data required to complete a query has been migrated to archive storage, it sends a message to the client program. The

message states that the data required to complete the query is not available and that the user should contact an administrator.

Message to the System Log

When OnDemand determines that the index data required to complete a query has been migrated to archive storage, it saves a message in the System Log. An administrator can open the System Log folder to search for and display messages in the System Log.

OnDemand also sends a message to the QSYSOPR message queue and the System Log user exit program. You can configure the system to examine the message and send an alert to an administrator or call another program to take some action. See Appendix B, “System log messages,” on page 175 for more information and a list of the most common System Log messages.

Importing index data

If index data is to be imported back from archive media, it is important to consider the following:

Verify database storage space

Importing migrated index data from archive storage back into the database requires additional database storage. Before you import the index data, you should verify that sufficient free space is available.

Verify database log file space

Importing migrated index data from archive storage back into the database requires database journal storage. Before you import the index data, you should verify that sufficient free space is available.

Run the STRIMPOND command

OnDemand provides the STRIMPOND command to import tables of migrated index data from archive storage back into the database. (The name of the application group and the index table to import can be obtained from the message that OnDemand saved in the System Log.)

After the STRIMPOND command completes the import operation, you can open the System Log folder to see the messages that were generated by the import process. The messages will reference the ARSADMIN program name. See Appendix B, “System log messages,” on page 175 for more information and a list of the most common System Log messages.

See online help for more information about the STRIMPOND command and its parameters.

After you import index data

After you import index data from archive storage back into the database, you should notify the user to retry the query.

Expiring imported migrated indexes

OnDemand schedules an imported index table for deletion after it resides in the database for the number of days specified in the Length of Time to Keep Imported

Indexes property in application groups. After an imported index data reaches the specified value, the next time that the STRDSMOND command runs, the imported index table is deleted from the database. (However, the table still exists in archive storage.)

You typically configure the STRDSMOND command to run automatically on a regular schedule. You can also run the STRDSMOND command manually.

Configuring index migration

If you find that your users are often querying for index data that has been migrated to archive storage, then IBM recommends that you configure your application groups to increase the length of time that OnDemand maintains the index data in the database. This should reduce the number of queries that need migrated index data.

Keeping imported migrated indexes

OnDemand schedules imported index data for deletion after the index data resides in the database for the number of days specified in Keep Imported Migrated Indexes or Life of Data and Indexes, whichever occurs first.

Part 2. Storage administration

This part is of primary interest to administrators responsible for configuring and maintaining disk and archive storage. This part is organized as follows:

- Document storage
- Backup and recovery

Chapter 4. Document storage

This section is organized as follows:

- Defining document storage management
- Migrating documents
- Removing documents

Defining document storage management

The document storage management definitions determine where and when OnDemand stores documents and how it maintains them.

When you load a document into OnDemand, you assign it to an application group. The application group is the last document storage management component that you define, because it requires storage set and migration policy definitions, which you must create first. The application group identifies the storage set and determines where documents should be loaded. You assign each application group to a storage set. You can load documents onto disk, onto archive media, or onto both disk storage and archive storage. The disk storage manager maintains documents on disk. The archive storage manager maintains documents on archive media. The archive storage manager uses a migration policy to determine where to store documents and how long to maintain them. After a document ages for the specified number of days, the migration process can move it from disk to archive storage.

| This chapter refers to the OnDemand Archive Storage Manager (ASM) as the
| storage manager for your OnDemand data. However, Tivoli Storage Manager can
| be enabled to be used in addition to, or in place of ASM on your i5/OS server. See
| Chapter 5, “Using Tivoli Storage Manager” for more information on using the Tivoli
| Storage Manager.

Application groups

The application group is the last component that you must define because it requires storage set and migration policy definitions. The application group provides a way to group related documents. All documents in the application group are loaded on the media that is part of the storage set to which the application group is assigned. All documents in the application group migrate according to the rules that are defined for the application group’s migration policy.

Use the administrative client to create the application groups that determine the document storage for your documents. You typically define one application group for each set of your documents that have similar storage requirements. For example, documents that must be retained for a specific length of time, in specific storage locations and stored on specific types of media.

Loading

An application group definition contains the rules for loading documents into an application group. It requires one or more storage sets, which you must create first. The application group determines if documents are loaded onto disk, archive storage, or both. If the application group causes documents to be stored only on disk, then the migration policy specifies when (or if) documents are copied to archive storage.

See the following properties on the Storage Management tab of the application group:

- Storage Set Name. Determines where documents will be loaded.

Note: If you specify Cache Only, documents can only be loaded onto disk. This value cannot be changed later, so carefully consider possible future requirements before you select Cache Only. Unless you are certain that you will **never** want to migrate the data for this application group from disk (cache), a better choice might be to create your own migration policy or select another storage set from the pulldown list. Your new migration policy/storage set could be defined to use ASP01 (the system Auxiliary Storage Pool on disk on your System i5™ system) as the first level of storage, and then later optical or tape could be added.

- Cache Data. Determines if documents will be loaded into disk storage.

Note: If the storage set is a cache-only storage set, documents must be loaded onto disk. For this reason, you cannot select No for Cache Data if the storage set is cache-only.

- Migrate Data from Cache (on the Advanced panel). If you specify When Data is Loaded, then documents will be loaded into archive storage. (Migration is disabled for the application group.)

Migrating

Migration is the process of copying documents from disk to archive storage as controlled by the rules of the application group's migration policy. However, because a document is eligible to be migrated does not mean that it will be migrated. Other factors affect migration, such as the frequency with which you run migration processing (migration cannot take place until you run migration processing).

A migration policy contains the rules for migrating the documents in an application group. The Storage Management tab defines how long a document stays on disk and, through the storage set and migration policy, where the document will be moved next. The migration policy level identifies the next location.

See the following settings on the Storage Management tab:

- Storage Set Name. Determines the next location for documents.

Note: If you specify Cache Only, then migration is disabled for the application group.

- Migrate Data From Cache. Determines when documents are eligible to be migrated.

Note: If you specify No or When Data is Loaded, then migration is disabled for the application group.

Disk storage manager

The Disk Storage Manager (DSM, which is initiated by using the STRDSMOND command) maintains documents in cache (on disk, not in a disk pool). Documents migrate from disk storage to archive storage based on the migration policy that is defined for the application group. The disk storage manager can delete documents after they exceed the *Cache Data for n Days* or *Life of Data*, whichever occurs first. See "Removing documents" on page 19 for more information.

Archive storage manager

The Archive Storage Manager (ASM, which is initiated by using the STRASMOND command) is the interface to the archive media (typically optical or tape). The archive storage manager maintains a backup or long-term copy of documents. Before loading documents, you must define storage sets and migration policies, optical volumes, tape devices, and tape volumes. The archive storage manager can delete documents after they exceed the retention period specified in the migration policy levels and reach the expiration level. See “Removing documents” on page 19 for more information.

Migrating documents

OnDemand provides automatic migration to copy documents from disk storage to archive storage (for documents that were not copied to archive storage during the load process) and to make documents eligible for deletion to maintain free space on disk. Automatic migration is provided by using the Start Disk Storage Management (STRDSMOND) and Start Archived Storage Management (STRASMOND) commands. Migration helps to ensure that there is sufficient free space on disk, where faster response time can provide the most benefit to your users.

Important:

- You should run migration processing on a regular schedule to make sure that a backup copy of your documents gets created as soon as practically possible. If you defer the migration of documents to archive storage, and disk storage were to become corrupted, then you could be left without a copy of your documents.
- The STRASMOND command must only be run in batch (SBMJOB parameter set to *YES). Running this command interactively (with SBJOB(*NO)) may cause SQL errors.
- By default, the QUSROND default instance is used, and will produce the desired results for most systems. If you need to run the STRASMOND command for multiple instances, you must issue the command separately for each instance. Note that if you initiate the archive storage manager by running the STRDSMOND command with RUNASM(*YES), then the instance name is passed from the disk storage manager and no further specifications are needed.
- If you run STRDSMOND for a specific application group (rather than the default of *ALL) and you set the Run ASM (RUNASM) parameter to *YES, be aware that ASM will run for ALL application groups, even though you have named a specific application group for DSM to use. You can, however, name a specific Policy for ASM to process, if desired. Also note that when you specify RUNASM(*YES), OnDemand will initiate a separate batch job for ASM.
- If you specify Cache Data for 90 Days on the Storage Management tab within the application group, DSM will keep the data in the i5/OS IFS directory for 90 days after the report date (a segment field) before it removes the data from the IFS CACHE directory. **Important:** If the data has not been sent to ASM and the Cache Data for xx Days has been reached, the data will be lost. The expiration and migration information is set at the time the data is archived and cannot be changed. To determine when data is sent to ASM, select the Advanced button on the Storage Management tab within the Application Group. Remember, the Life of Data and Indexes should be the total of Cache Data days from the application group and the sum of the Duration at this level for all levels of the Migration Policy that is used for this application group. For example:

- The value for Cache Data days is 90 days, the Migration Policy for this application group has two levels, 100 days at the diskpool level and 7 years at the optical level so the Life of Data and Indexes value should be set to 2745 days.
- Data is passed to ASM based on the criteria specified in the Migrate Data from Cache section on the Advanced panel of the Storage Management tab:

No Data is never passed to the archive media.

When Data is Loaded

Archive objects are passed to ASM when the store process runs from one of the load processes, such as ADDRPTOND, STRMONOND, arslod, arsdoc add.

Next Cache Migration

Archived objects are passed to ASM the next time STRDSMOND is run.

After xx Days in Cache

Archived objects are passed to ASM after xx days, and when STRDSMOND is run. After the data is sent to ASM and has entered a level as specified in the migration policy, the number of days at that level can only be changed using the Change Policy Level Data (CHGPLDOND) command for that particular data. If you change any of these values in the migration policy (instead of using the CHGPLDOND command), only newly archived documents are affected. All previously archived documents are unaffected.

You control automatic migration processing by scheduling the STRDSMOND and STRASMOND commands to run with the appropriate options. See your operating system information for details about how to schedule tasks. You can also start migration processing by running the command manually.

The STRDSMOND command uses an application group's storage management information to control when movement of data for an application group occurs:

- If you use **Next Cache Migration** to control when migration for an application group occurs, then the disk storage manager runs migration processing each time that you start the STRDSMOND command with the appropriate options.
- If you use **After n Days in Cache** to control when migration for an application group occurs, then a document must be stored on disk for at least the specified number of days before it is eligible to be migrated.

The disk space that migrated documents occupy can be reused after expiration processing completes. When you run migration processing, you should also run expiration processing so that the disk storage manager can reclaim the disk storage space occupied by migrated documents.

Processes that should not be run simultaneously

The following list identifies Common Server processes that should not be run at the same time:

- Do not run multiple Start Archived Storage Management (STRASMOND) commands against the same migration policy.
- Do not run multiple Start Disk Storage Management (STRDSMOND) commands.
- Do not run STRDSMOND while loading data using the following commands:
 - Add Report to OnDemand (ADDRPTOND)

- Start Monitor for OnDemand (STRMONOND)
- ARSLOAD API
- ARSDOC add API
- Do not run STRDSMOND and STRASMOND at the same time. (ASM can start after DSM completes.)
- Do not perform system backups while any of the following processes are running:
 - ADDRPTOND, STRMONOND, ARSLOAD, ARSDOC add
 - STRDSMOND
 - STRASMOND
 - The instance server is running (for example, the QUSROND server job)

Migration processing in the system log

When you run the STRDSMOND command, it saves messages about its activities in the system log. The types of messages saved in the system log depend on the options that you specify when you run the STRDSMOND command and can be found by searching for the user ARSMAINT for the time that STRDSMOND was running. The number of messages saved in the system log during a migration process depends on the options that you specify for the STRDSMOND command and the number of application groups and segments of data processed. Although you can run multiple STRDSMOND commands for different application groups within the same instance or different instances, it is not recommended. Table 1 shows the messages you see in the system log following the migration.

Table 1. Messages from the STRDSMOND command in the OnDemand system log

Message number	Message information	Explanation
110 Cache Migration	(Date) (Server)	About to begin disk migration on the specified server.
197 Cache Migration	(ApplGrp) (ObjName) (Server)	One of these messages for each storage object migrated to archive storage. Migration copies a storage object if its "After n Days in Cache" period has passed or the application group uses the "Next Cache Migration" migration method.
124 Filesystem Statistics	(filesystem) (% full) (server)	One of these messages each time you run the STRDSMOND command. Message is Informational only, to report the percentage of space used in the system auxiliary storage pool (ASP).

Removing documents

Documents *expire* (are eligible for removal) because their disk expiration date or archive retention period has passed. Expired documents can then be removed by the storage managers. The disk storage manager identifies documents for removal by using the application group's expiration information. The archive storage manager marks documents for removal based on the criteria defined in the migration policy.

Documents expire from disk when they reach their disk expiration date. If a document's disk expiration date is less than its Life of Data period, then the document is simply removed from disk storage. Subsequent requests for the document are satisfied by the archive storage manager. When the document reaches its Life of Data period, information about it is removed from the OnDemand

database (the document can no longer be retrieved). When the document's archive retention period has passed, information about it is removed from the archive storage manager database.

Because a document is eligible to be removed does not mean that it will be deleted from storage. The disk storage manager does not delete expired documents from storage until expiration processing runs. During expiration processing, the archive storage manager deletes information about expired documents from its database. However, the actual documents may remain on archive media until such time that the media on which they reside is reinitialized.

Important: The disk storage manager and the archive storage manager delete documents independently of each other. Each uses its own criteria to determine when documents expire and should be removed from the system. Each uses its own utilities to remove documents. However, for final removal of documents from the system, you should specify the same criteria to the disk storage manager and the archive storage manager. In other words, the sum of the Duration values for all migration policy storage levels plus the value for the Days in Cache should equal the Life of Data and Indexes value in the application group.

Removing documents from disk storage

The options specified on the Storage Management tab when the application group is created determines when documents are eligible for deletion from disk. The options on the Storage Management tab are as follows:

- Cache Data for n Days. The length of time in days to keep documents on disk. After a document reaches this value, it is eligible to be deleted from disk.
- Life of Data. The length of time in days to maintain documents on the system.

Note: If you specify Never Expire, then expiration processing is disabled for the application group.

- Expiration Type. Determines whether one or more documents are eligible to be deleted at a time. For example, by default, the **Load** expiration type means that the set of documents that were loaded together will also expire together.

Note: Segment (in contrast to Load) is another possible choice for expiration type. This is the first time that a *segment* has been mentioned. Up to now, the term *documents* has been used, which is the data object that most people associate with the OnDemand system. However, administrators who maintain the system may also work with segments, which represent many documents, and *storage objects*, which are containers of compressed documents that are maintained by the storage managers.

The disk storage manager does not delete expired documents from disk until expiration processing runs. The STRDSMOND command is the expiration utility. You can schedule the STRDSMOND command to run automatically or you can run it manually. You should make sure that the STRDSMOND command runs periodically so that the disk storage manager can reclaim the space that is occupied by expired documents.

Expiration processing in the system log

When you run the STRDSMOND command, it saves messages about its activities in the system log. These messages can be found by searching on user ARSMAINT for the time period that STRDSMOND was running. The types of messages saved

in the system log depend on the options that you specify when you run the STRDSMOND command. The number of messages saved in the system log each time that expiration processing runs depends on the options that you specify for the STRDSMOND command and the number of application groups and segments of data processed. Table 2 lists the messages you could see in the system log following expiration processing.

Table 2. Messages from the STRDSMOND command in the OnDemand System Log

Message Number	Message Information	Explanation
109 Cache Expiration	(Date) (Min%) (Max%) (Server)	About to begin disk expiration processing on the specified server.
196 Cache Migration	(ApplGrp) (ObjName) (Server)	One of these messages for each storage object deleted from disk. A storage object is eligible to be deleted when its "Cache Data for n Days" or "Life of Data" period has passed, whichever occurs first.
124 Filesystem Statistics	(filesystem) (% full) (Server)	One of these messages each time you run the STRDSMOND command. Message is Informational only, to report the percentage of space used in the system auxiliary storage pool (ASP).

Important: In addition to the messages listed in Table 2, you should monitor the system log every day for messages that indicate that your disk space is becoming full. The STRDSMOND command automatically saves a message in the system log when the amount of space used in a disk storage file system exceeds a threshold. The threshold is 90%.

Removing documents from archive storage

Note: Removing a document from archive storage means that the backup or long-term copy of the document will be deleted from the system. You typically remove documents from archive storage when you no longer have a business or legal requirement to keep them.

A migration policy specifies the criteria that makes a document eligible for deletion. Documents become eligible for deletion under the following conditions:

- Administrators delete documents from archive media (using the Remove Report from OnDemand (RMVRPTOND) command)
- An archived document exceeds the time criteria defined in the migration policy (processed by the Start Archived Storage Management (STRASMOND) command)

The archive storage manager does not delete information about expired documents from its database until expiration processing runs. You can run expiration processing either automatically or manually using the STRASMOND command (or you can use the STRDSMOND command with the Run ASM parameter set to *YES). You should make sure that expiration processing runs periodically to allow the archive storage manager to reuse storage space that is occupied by expired documents. When expiration processing runs, the archive storage manager deletes documents from its database. The storage space that these documents occupy then may become reusable.

Chapter 5. Using Tivoli Storage Manager

By default, OnDemand's Archive Storage Manager (ASM) is the standard (and only) storage manager for an i5/OS server. Tivoli Storage Manager (TSM) can be used in addition to, or in place of, ASM on your i5/OS server. Data that is already stored into ASM cannot be migrated to Tivoli Storage Manager, nor can data in Tivoli Storage Manager be migrated to ASM.

This section is organized as follows:

- Hardware prerequisites
- Software prerequisites
- Setup instructions
- Use instructions

Hardware prerequisites

Tivoli Storage Manager support requires an external Tivoli Storage Manager server to be installed, configured, and fully operational. For details on configuring a Tivoli Storage Manager server, see the Tivoli Storage Manager reference documentation at <http://publib.boulder.ibm.com/infocenter/tivihelp/v1r1/index.jsp>.

Software prerequisites

The following software products are required for enabling Tivoli Storage Manager:

- Tivoli Storage Manager APIs: Tivoli Storage Manager support requires the 5.3.3 or later release level of the Tivoli Storage Manager APIs (product number 5733-197) to be installed on your i5/OS server. You can download the APIs from <ftp://ftp.software.ibm.com/storage/tivoli-storage-management/maintenance/client>. See the README file at this FTP site for licensing information for these products.
- OnDemand Common Server environment. Tivoli Storage Manager support is not available for the OnDemand Spool File Archive environment.

Setting up Tivoli Storage Manager

To install and configure Tivoli Storage Manager, follow these general steps:

1. Install the Tivoli Storage Manager APIs on the i5/OS system.
2. Update your OnDemand `ars.cfg` file.
3. Create or update your `dsm.opt` file.
4. Create or update your `dsm.sys` file.
5. Configure OnDemand to use Tivoli Storage Manager by doing *one* of the following:
 - Create a storage set and storage node for Tivoli Storage Manager.
 - Update an existing storage set with a new storage node (if you plan to change an existing application group from using ASM to Tivoli Storage Manager).
6. Verify your Tivoli Storage Manager storage set and storage node.

Install the Tivoli Storage Manager APIs on your i5/OS system

To install the Tivoli Storage Manager APIs:

1. Go to ftp://ftp.software.ibm.com/storage/tivoli-storage-management/maintenance/client.
2. Go to v5r3 > OS400, and open the folder of the highest release level listed (v533 at the time this document was created).
3. Copy the file qansapi.file to your local drive.
4. Create a save file on your i5/OS server called QANSAPI. Put this file in any library you choose. Then specify that library (if it is not in your library list) when you name the save file.
5. Using FTP, send the qansapi.file to an i5/OS save file named QANSAPI.
6. Restore the Tivoli Storage Manager APIs (product number 5733-197) onto your i5/OS server:


```
RSTLICPGM LICPGM(5733197) DEV(*SAVF) SAVF(QANSAPI)
```
7. Read the TSM533C_OS400_README.FTP and TSM533C_OS400_README_enu.htm files from the FTP site.

Update your OnDemand ars.cfg file

Add the ARS_STORAGE_MANAGER=TSM entry

Tivoli Storage Manager support is enabled by adding specific lines to the ars.cfg file. The ars.cfg file is located in the IFS on your i5/OS server in the /QIBM/UserData/OnDemand/instancename directory, where *instancename* is the name of the OnDemand instance for which you want to enable Tivoli Storage Manager support.

1. Modify the ars.cfg file by adding these lines:

```
#
# TIVOLI STORAGE MANAGER (TSM) ENABLEMENT
ARS_STORAGE_MANAGER=TSM
```

2. Save the file.

When the OnDemand server detects this entry it enables both Tivoli Storage Manager and ASM as storage managers for this particular OnDemand instance.

Add the DSMI_DIR=, DSMI_CONFIG=, and DSMI_LOG= entries

When Tivoli Storage Manager is enabled, the server looks for particular configuration files. To tell Tivoli Storage Manager where these Tivoli Storage Manager configuration files reside:

1. Open the ars.cfg file located in /QIBM/UserData/OnDemand/*instance_name*, where *instance_name* is the name of the OnDemand instance for which you are modifying the ars.cfg file
2. Add the following lines:

```
#
# TIVOLI STORAGE MANAGER (TSM) CONFIGURATION FILE LOCATIONS
DSMI_DIR=/usr/Tivoli/TSM/Client/API/bin
DSMI_CONFIG=/usr/Tivoli/TSM/Client/API/bin/dsm.opt
DSMI_LOG=/QIBM/UserData/OnDemand/QUSROND/TMP
```

where *QUSROND* may need to be replaced by your instance name, if you are not using the default QUSROND instance.

You should copy the above lines verbatim, with no modifications. After you have updated the ars.cfg file, you must stop and restart your instance for the changes to take effect.

Create or update your dsm.opt file

To enable Tivoli Storage Manager support, a file named *dsm.opt* must exist, and it must contain the name of a server that is listed in your *dsm.sys* file. The *dsm.opt* file must exist in IFS on your i5/OS server in the */usr/tivoli/tsm/client/api/bin* directory. (This path is specified in the *ars.cfg* file, as the value of the *DSMI_CONFIG* entry.)

The following example shows a *dsm.opt* file, where the Tivoli Storage Manager server name is *TMSERVER*. Note that this example can also be found on your i5/OS server in the */usr/tivoli/TSM/Client/API/bin* directory in the file *dsm.opt.smp*. (You can copy the *dsm.opt.smp* file to a file named *dsm.opt* in the same directory to help ensure the *dsm.opt* file is correct.)

```
*****
* Tivoli Storage Manager                                     *
*                                                                 *
* Client User Options file for OS/400 (dsm.opt)             *
*****
* This file contains an option you can use to specify the TSM
* server to contact if more than one is defined in your client
* system options file (dsm.sys).
*****

Servername      TMSERVER
```

Create or update your dsm.sys file

To enable Tivoli Storage Manager support, a file named *dsm.sys* must also exist, and it must contain a section for each Tivoli Storage Manager server that OnDemand will communicate with. The server name specified in the first line of the section must match the name of a server that is listed in your *dsm.opt* file. The file must exist in IFS on your i5/OS server in the */usr/tivoli/tsm/client/api/bin* directory (the path specified in the *DSMI_CONFIG* entry you added to the *ars.cfg* file). The following example shows a *dsm.sys* file, in which the Tivoli Storage Manager server name is *TMSERVER*. Note that this example can also be found on your i5/OS server in the */usr/Tivoli/TSM/Client/API/bin* directory in the file *dsm.sys.smp*. You can copy the sample *dsm.sys.smp* file to a file named *dsm.sys* (in the same directory) to help ensure the *dsm.sys* file you create is correct.

```
*****
* Tivoli Storage Manager                                     *
*                                                                 *
* Client System Options file for OS/400 (dsm.sys)           *
*****
* This file contains the minimum options required to get started
* using TSM. Copy dsm.sys.smp to dsm.sys. In the dsm.sys file,
* enter the appropriate values for each option listed below.
* If your client node communicates with multiple TSM servers, be
* sure to add a stanza, beginning with the SERVERNAME option, for
* each additional server.
*****

Servername      TMSERVER
COMMethod      TCPip
TCPPort        1500
TCPServeraddress  tmserver.company.com
COMPRESSION     OFF
ENABLEARCHIVERETENTIONPROTECTION  YES
```

It is recommended that you enter these lines as shown, with no modifications, except the following additions:

TSMSERVER

Tivoli Storage Manager Server alias. Use this value or replace it with a name of your choice. The name does not need to match any particular part of your OnDemand or Tivoli Storage Manager configuration, but it must match the value used in the dsm.opt file.

tsmsrvr.company.com

Replace this with the host name or TCP/IP address of your Tivoli Storage Manager server.

Configure OnDemand to use Tivoli Storage Manager

Controlling which storage manager an application group uses is determined by the storage set (and the corresponding storage nodes) associated with the application group. By design, you can not use the OnDemand Administrator Client to create or maintain storage sets and storage nodes. This use of the Administrator Client is disabled for i5/OS servers, because the storage sets and storage nodes needed for ASM are automatically added by the System i Navigator OnDemand Archive plug-in when you create a migration policy. However, storage sets and storage nodes for use with Tivoli Storage Manager must be added or modified by using the OnDemand arsadm API running within the qshell environment on your i5/OS server.

Depending on your requirements, you can choose to create a new storage set and corresponding storage node for Tivoli Storage Manager, *or* you can choose to update an existing storage set with a new storage node for Tivoli Storage Manager. Only one of the two sets of instructions needs to be performed, although you can choose to do both if you have requirements to use both new and existing storage sets for Tivoli Storage Manager.

Create the OnDemand storage set and storage node

Use this procedure if you plan to create a new storage set and storage node to use with a new application group.

This is an example of the arsadm API call (run within qshell on your i5/OS server) to add a storage set and storage node for Tivoli Storage Manager:

```
arsadm set -h QUSROND -a a -n TSMSET -A a -N TSMNODE -T n -i tsmnode -w
password -d 'Tivoli Storage Manager' -D 'TSM Node' -v
05/29/07 10:33:17: Querying for storage sets on server 'QUSROND'...
05/29/07 10:33:17: Query successful
05/29/07 10:33:17: Adding storage set 'TSMSET' ...
05/29/07 10:33:17: Add successful
05/29/07 10:33:17: Adding node 'TSMNODE' in storage set 'TSMSET' ...
05/29/07 10:33:17: Add successful
05/29/07 10:33:17: arsadm completed.
```

Parameter	Value	Description
arsadm	N/A	API name
set	N/A	Indicates that you are working with storage sets
-h	QUSROND	Instance name in which you are creating the storage set and node
-a	a	Action invoked on storage set; for example, <i>a=add</i>
-n	TSMSET	Storage set you are creating
-A	a	Action invoked on the storage node; for example, <i>a=add</i>
-N	TSMNODE	Storage node you are creating
-T	n	Node type; for example, <i>n=not z/OS or OS/390</i>

Parameter	Value	Description
-i	tsmnode	Tivoli Storage Manager node to use
-w	password	Tivoli Storage Manager node password
-d	'Tivoli Storage Manager'	Text description of the storage set
-D	'TSM Node'	Text description of the storage node
-v	N/A	Verbose mode, both informational and error messages issued

For more information about invoking OnDemand APIs within qshell, see Appendix E, “API and user exit reference,” on page 211. For further information on the `arsadm` API, see the *DB2 Content Manager OnDemand for Multiplatforms Administration Guide* (SC18-9237).

Update an existing storage set with a new storage node

Use this procedure if you plan to change an existing application group from using ASM to using Tivoli Storage Manager.

If you have an existing application group that is currently using ASM, and you want to change it to use Tivoli Storage Manager, you can update the existing storage group (that is named in the application group definition) to add a Tivoli Storage Manager storage node, and then change the storage node designated for loading data to point to the new Tivoli Storage Manager storage node.

In the following example of the `arsadm` API call, the call creates the Tivoli Storage Manager storage node for an existing storage set, and designates that node to be used for loading data. (This could be done in two steps: add the node, and then designate it for loading with a second `arsadm` set command.)

```
arsadm set -h QUSROND -a u -n LONGTERM -A a -N TSMNODE -l TSMNODE -T n -i
  tsmnode -w password -D 'TSM Node' -v
05/29/07 16:43:17: Querying for storage sets on server 'QUSROND'...
05/29/07 16:43:17: Query successful
05/29/07 16:43:17: Adding node 'TSMNODE' in storage set 'LONGTERM'...
05/29/07 16:43:17: Add successful
05/29/07 16:43:17: Updating node 'LONGTERM' in storage set 'LONGTERM'...
05/29/07 16:43:17: Update successful
05/29/07 16:43:17: arsadm completed
```

Parameter	Value	Description
<code>arsadm</code>	N/A	API name
<code>set</code>	N/A	Indicates that you are working with storage sets
-h	QUSROND	Instance name in which you are creating the storage node
-a	u	Action invoked on storage set; for example, <i>u=update</i>
-n	LONGTERM	Storage set you are updating
-A	a	Action invoked on the storage node; for example, <i>a=add</i>
-N	TSMNODE	Storage node you are creating
-l	TSMNODE	Directs the storage set to use node TSMNODE to load data
-T	n	Node type; for example, <i>n=not z/OS or OS/390</i>
-i	tsmnode	TSM node to use
-w	password	TSM node password

Parameter	Value	Description
-D	'TSM Node'	Text description of the storage node
-v	N/A	Verbose mode, both informational and error messages issued

The load ID before the change was 5479-19-0-1FAA-12041-12041 (node 19 is LONGTERM). The load ID after the change is 5479-33-0-2FAA-12041-12041 (node 33 is TSMNODE).

Verify your Tivoli Storage Manager storage set and storage node

After you have successfully run the `arsadm` API, you can use the OnDemand Administrator client to confirm the correct setup by viewing the storage set definition you are using for Tivoli Storage Manager. In the Storage Nodes list box, nodes that are used to load data are marked with an asterisk (*).

Use instructions

Tivoli Storage Manager processing is invoked in one of two ways:

- When data is loaded into OnDemand (if "Migrate Data From Cache" is set to "When Data is Loaded" on the Advanced panel of the Storage Management tab within the application group definition). This process is invoked either by issuing the Add Report to OnDemand (`ADDRPTOND`) command, or by issuing the Start Monitor for OnDemand (`STRMONOND`) command.
- As part of the OnDemand Disk Storage Management (DSM) process (if "Migrate Data from Cache" is set to "Next Cache Migration" or "After x Days in Cache" on the Advanced panel of the Storage Management tab within the application group definition). This process is invoked by issuing the Start Disk Storage Management (`STRDSMOND`) command.

No special parameters for data loading or the `STRDSMOND` command are required to trigger the Tivoli Storage Manager step. By configuring Tivoli Storage Manager support as described earlier, data loading and DSM will automatically invoke Tivoli Storage Manager as needed during processing. The Archive Storage Management process (ASM, started by the Start Archived Storage Mgmt (`STRASMOND`) command or the `RUNASM(*YES)` parameter of the `STRDSMOND` command) is not required unless other OnDemand data is managed by ASM in addition to the OnDemand data managed by Tivoli Storage Manager.

Checking objects in Tivoli Storage Manager

After you start storing data, you can use the following commands to check the status of objects archived to Tivoli Storage Manager. For more information about administering a Tivoli Storage Manager server, see the Tivoli Storage Manager documentation at <http://publib.boulder.ibm.com/infocenter/tivihelp/v1r1/index.jsp>.

Integrated Solutions Console

The IBM Integrated Solutions Console (ISC) with the Tivoli Storage Manager Administration Center can be used to check statistics, such as capacity and percent utilized. For information on installing and using the Administration Center, see the Tivoli Storage Manager documentation at <http://publib.boulder.ibm.com/infocenter/tivihelp/v1r1/index.jsp>.

Command Line

You can also use the Tivoli Storage Manager Administrative Client Command Line (`dsmadm.exe`) to check statistics. To install the Administrative Client Command

Line files, you must select "Custom Setup" when installing the Tivoli Storage Manager clients. From the Windows Start menu select **All Programs > Tivoli Storage Manager > Administrative Command Line**. Log onto the Tivoli Storage Manager server and enter your commands.

Additional information

- If "Migrate Data from Cache" is set to "When Data is Loaded" on the Advanced panel of the Storage Management tab in the application group definition, the load will fail if Tivoli Storage Manager is not running, or the communication connection cannot be made with the Tivoli Storage Manager server. The system log message 88 will contain entries similar to this:

```
Connection cannot be established for the >tsmsserver.company.com< server
Unable to store the object >10FAAA<. Object size 40034
Connection cannot be established for the >tsmsserver.company.com< server
Unable to unload data from OnDemand - LoadId(5048-14-0-10FAAA-11303-11303)
  Rows Deleted (0)
05/30/07 13:25:43 -- Unloading of data failed
```

- If "Migrate Data from Cache" is set to "Next Cache Migration" on the Advanced panel of the Storage Management tab in the application group definition, you must run DSM to migrate the data to Tivoli Storage Manager.
- If the password of the Tivoli Storage Manager node expires, attempting to migrate data to Tivoli Storage Manager generates system log message 20 with entries similar to this:

```
SM Error: ANS1352E (RS52) The session is rejected. Your password has expired.,
RC=52, Reason=0, File=arssmsms.C, Line=531 Srvr- >ondemand.server.company.com 10.44.122.55<-
```

- If the Tivoli Storage Manager node name is spelled incorrectly when the storage set is created, attempting to migrate data to Tivoli Storage Manager generates system log message 20 with entries similar to this:

```
SM Error: ANS1352E (RC53) Session rejected: Unknown or incorrect ID entered,
RC=53, Reason=0, File=arssmsms.C, Line=531, Srvr- >rdr400x.rtp.raleigh.ibm.com 9.42.125.55<-
```

Chapter 6. Backup and recovery

It is important to implement a backup plan that will serve to protect your data archives in the event your organization experiences a disaster, large or small. You need to have a plan and prepare so that you can recover.

Backup considerations

Items you need to consider when planning your regular backups include:

- How to recover the optical or tape media itself
You should consider having a copy of the media stored at an offsite location.
- How to recover the data on disk
You should have procedures in place that backup all of the OnDemand data that normally resides on disk, as well as any stored data that has not yet migrated to optical or tape.

Remember: Disk backups will contain database files that reflect the actual archive data location and status at the time of backup. DO NOT restore from a backup that is one week old. Archived data might have migrated to optical or tape, but database control files identify incorrectly the archived data location as disk. In order to minimize this situation, you should save your database libraries and save your OnDemand Integrated File System directories on the same schedule to keep them synchronized. Perform the backups **at least** as frequently as you run the disk storage management (STRDSMOND) or archive storage management (STRASMOND) commands. (Possibly even more frequently if you often manually delete reports that are stored in OnDemand.)

The following objects need to be saved by the appropriate i5/OS commands:

- The OnDemand licensed program (**5761-RD1**)
- User profiles QRDARS400, QRDARS4001, QRDARS4002, QRDARS4003, QRDARS4004, QRDARS4005, QONDADM, and QRDARSADM, and one for each instance that exists (which has the same name as the instance)
- Authorization lists QRDARS400, QONDADM, QRDARSADM, and one for each instance that exists (which has the same name as the instance)
- All objects in QUSRRDARS library
- All objects in any other libraries that contain data for your OnDemand instances. For example, the QUSROND library if you are using the default QUSROND instance, or any other library by the name of any other instance on your system.
- Output queues that are being monitored and any output queues that are being used as processed queues or error queues for your monitors.
These output queues can contain OnDemand processed spooled files.
- Integrated File System directories

Each instance that is created in OnDemand has an Integrated File System directory that is named the same as the instance. To back up only the OnDemand data on disk, you could back up all items found in the Integrated File System directory /QIBM/UserData/OnDemand/<instance>, where *instance* is the name of your OnDemand instance. Remember that the name of the default instance is QUSROND.

OnDemand Common Server migration policies allow you to specify a disk pool as one of the possible storage levels (as an alternative to optical or tape media, for example). If you use disk pools in any of your migration policy storage levels,

the simplest approach to make sure that the data in the disk pool is saved and restored properly for an instance is to do the following:

To perform the save:

1. Unmount the file system `CALL QRDARS/QLCASMUFS PARM('QUSROND')`
2. Save the directory structure `/dev/QASP01/ONDEMAND_QUSROND*`
3. Save the directory structure `/QIBM/UserData/OnDemand/QUSROND`

To perform the restore, if necessary:

1. Unmount the file system `CALL QRDARS/QLCASMUFS PARM('QUSROND')`
2. Restore the directory structure `/dev/QASP01/ONDEMAND_QUSROND*`
3. Restore the directory structure `/QIBM/UserData/OnDemand/QUSROND`

Note that the instance name (such as the default QUSROND instance in the example) and Auxiliary Storage Pool name (such as ASP01 in the example) must be changed to match your actual environment.

- **Integrated File System directories for OnDemand Web Enablement Kit (ODWEK)**

If you have implemented ODWEK you should also back up all items that are found in the Integrated File System directory `/QIBM/UserData/OnDemand/WWW`.

- **Symbolic links** in IFS directory `/usr/bin` that start with **ARS**
- **Configuration files**

See Chapters 8 and 9 of the *IBM Content Manager OnDemand for i5/OS Common Server Planning and Installation Guide* for more information and a list of configuration files.

Recovery considerations

Contact your OnDemand support provider for instructions on recovering your OnDemand archives in the event of a disaster. Many factors can influence the recovery plan, depending on the frequency and extent of the backups you have available.

Reports

OnDemand can store copies of reports and resources on disk storage and archive storage:

- The primary purpose of disk storage is short-term, high-speed storage and retrieval of reports.
- The primary purpose of archive storage is long-term storage and retrieval of reports. The reports in archive storage can also be used as backup copies in the event that disk storage becomes corrupted or unavailable. Archive storage consists of optical or tape storage volumes.

Most customers configure the system to copy reports to disk storage and archive media at the same time, when they load a report into the system.

OnDemand can retrieve a copy of a report from archive storage after the report has been deleted from disk storage or if the copy on disk storage is unavailable. However, you must configure the system to maintain multiple copies of reports. You configure OnDemand to use archive storage by defining migration policies and storage sets that identify archive storage, assigning application groups to the storage sets, and configuring other storage management parameters in application groups.

Note: If you do not plan to copy reports to archive storage, then we recommend that you take regular backups of the data on disk. However, if a media failure occurs or disk storage becomes corrupted, users cannot retrieve reports until the backups are restored.

Part 3. Using System i Navigator for OnDemand administration

This part contains information about using System i™ Navigator to define and maintain objects on the system. For example, you can use System i Navigator to define reports to OnDemand and maintain OnDemand users, groups, printers, storage sets and migration policies.

This part describes a typical system, including requirements about users of the system and data to be loaded on the system, and contains examples and ideas about how to implement the requirements. This part is organized in roughly the order that you define your first report to OnDemand. This part starts with adding users and groups to the system, shows how to define a printer, and then moves into procedures for adding a migration policy and storage set. Later chapters provide detailed instructions about defining a report: adding an application group, an application, and a folder.

Chapter 7. Installation

This section describes the hardware, software, memory, and disk space requirements for installing and using the administrative client.

Hardware

The administrative client requires the following hardware:

- Pentium® or Pentium compatible 800 MHz or faster processor
 - A super-VGA display and adapter with a minimum resolution of 1024x768
 - Physical connection to the network, such as a Token Ring or Ethernet network adapter
 - A CD-ROM drive for installation (optional, if you plan to install the administrative client from a network file server)
-

Software

To install or use the administrative client, you must be running Windows XP SP2 or later, or Windows Vista on your computer. To install the administrative client from a CD-ROM, the CD-ROM drivers must be installed on your computer. To install the administrative client from a network file server, the appropriate network software must be running on your computer. To connect to an OnDemand server, the standard TCP/IP support for the Windows operating system must be running on your computer.

To use the System i Navigator interface to the OnDemand Administrator and for additional OnDemand administrative functions, you must install the System i Navigator OnDemand Administrative Functions component within System i5 Access Express. IBM recommends that you apply the most current service pack for System i5 Access Express, if one is available.

Memory

The administrative client requires a PC with at least 256 MB of memory (RAM). Your PC may need more memory if you run more than one application at the same time.

Disk space

To install OnDemand clients, disk space requirements depend on the features that you select.

You need at least 100 MB of free disk space to install all of the OnDemand features. To install only the software required for the administrative client in a single language, you need at least 50 MB of available disk space.

For more information on disk space requirements for each OnDemand feature, follow these steps:

1. Run the Setup program for the OnDemand client software.
2. Read and accept the license agreement.
3. Select the Custom setup type.
4. The summary information lists the disk space requirements for the features that you selected.

Installing the System i Navigator interface to OnDemand

To use the OnDemand Archive component (also known as plug-in) of System i Navigator, you must install System i5 Access Express Version 6 Release 1 on your Windows workstation. Refer to the System i5 Access Express installation documentation for detailed information on installing System i5 Access Express and System i Navigator.

The OnDemand Archive component of System i Navigator is required to work with:

- Migration Policies
- Monitor Definitions
- Optical Storage Groups
- Optical Volumes
- Tape Devices
- Tape Volumes
- Disk Pool Storage Groups (ASPs)

The Install Plug-in option of System i Navigator can be used to install the OnDemand Archive function. Follow the instructions below to perform the installation:

- Open System i Navigator using Start, Programs, System i5 Access Express, and System i Navigator or use the System i Navigator icon that may appear on your Windows desktop.
- Select Install Plug-ins.
- Select the Server from which you want to install the OnDemand for System i5 Archive plug-in.
- Log on to the server.
- A list of the available System i5 plug-ins will be gathered and displayed.
- Select the OnDemand for System i5 Administrative Functions.
- Select Next twice to continue.
- Select Finished to complete installation.

Installing the administrative client

The Setup program installs the OnDemand client software on the PC. **Note:** If you receive a CD-ROM that contains Client software at a level below 7.1.0.4, you must update the Administrator Client software from the Internet to the 7.1.0.4 level or higher. To download the OnDemand Clients, go to the internet FTP web site at <ftp://service.software.ibm.com/software/ondemand/fixes/>.

You can install all of the OnDemand features at once, or individual features as you need them.

Running Setup

When you run the Setup program, the Setup screens show the names of the OnDemand directories so you know where the files are being placed.

Information about network installations is available in the *IBM Content Manager OnDemand: Windows Client Customization Guide*.

To install on a PC

To install from the CD-ROM or to install from a network file server, follow these instructions:

1. Insert the CD-ROM in the appropriate drive or obtain the drive letter of the network drive on which the OnDemand software is located on the network file server.
2. From the Windows taskbar, click Start, and then choose Run.
3. Type `x:\client\win32\setup` (where x is the letter of your CD-ROM drive or the network drive).
4. Click OK.
5. After the Setup program starts, click Next to continue.
6. Read and accept the license agreement, and then click Next to continue.
7. Click Next to accept the destination drive and directory, or specify a destination and then click Next.
8. Select the Custom setup type and then click Next to continue.
9. Select OnDemand Administrator and select your language. (You can also select other components that you want to install on the PC at this time.)
10. Click Next to continue. Follow the instructions on the screen to complete the installation.

To install on a network file server

Information about network installations is available in the *IBM Content Manager OnDemand: Windows Client Customization Guide*.

To use automated install

Automated install allows administrators to standardize the OnDemand installation for all users in an organization. It also allows administrators to install OnDemand clients without the presence of users at their PCs. To read more about automated install, see the *IBM Content Manager OnDemand: Windows Client Customization Guide*.

To uninstall

You can use Add/Remove Programs in Control Panel to remove the OnDemand client from your PC. Add/Remove Programs removes the directories for OnDemand and any references to OnDemand in system files.

To run the uninstall

1. From the Windows taskbar, click Start. Choose Settings, and then choose Control Panel.
2. Double-click Add/Remove Programs.
3. From the list, select OnDemand32.
4. Click Add/Remove.
5. Click OK.

Chapter 8. Introduction

The administrative functions in OnDemand are set up using System i Navigator and the OnDemand Administrator, and include:

- Defining reports to the system
- Adding and maintaining OnDemand users and groups
- Adding and maintaining server printers
- Maintaining storage sets and migration policies
- Creating summaries about users, groups, applications, application groups, storage sets, folders, and printers
- Adding and maintaining servers
- Setting system parameters for OnDemand servers and client programs
- Copying items from one OnDemand server to another
- Tracking changes made to the system. When you use the System i Navigator to add or update the database, OnDemand places a document in the system log which shows the changes that you made.

The following is a list of the administrative items that are maintained directly through System i Navigator:

- Tape devices
- Tape volumes
- Optical storage groups
- Optical volumes
- Disk pool storage groups
- Monitor definitions
- Migration policies

The items that are maintained through the OnDemand Administrator are:

- Users
- Groups
- Applications
- Application groups
- Storage sets
- Folders
- Printers

The OnDemand Administrator is launched by right-clicking on Common Server Administration within the OnDemand Archive section of System i Navigator. From the resulting pop-up menu, click Client Administrative Functions to launch the OnDemand Administrator.

Getting started

- You can collapse and expand areas in the navigator pane (on the left) to make it easier to see. A plus sign next to an area means there are items inside.
- When you click on an area in the navigator pane, the items appear in the list pane (on the right).

- To make the panes narrower or wider, point to the vertical bar between the two panes of the window until the pointer turns into a two-headed arrow. Then click and hold the left mouse button and drag it in either direction.
- Use buttons on the toolbar to switch between the different ways to look at items: large or small icons, a list, or details.
- To query the server for a new list of items, press the F5 key or select Refresh List from the View menu.
- After you log on to a server, the status bar shows the OnDemand user ID and the name and version number of the OnDemand server.

Using online help

Online help provides information to assist you with completing tasks. The administrative client online help contains information about the options, fields, and commands on the windows, dialog boxes, and property sheets that you see when using the program.

To display the online help, press the F1 key any time that the administrative client is active in Windows. Help is available for dialog box commands and options. The main help topic for each dialog box usually contains information about the kinds of tasks you can perform. For example, the online help about Logical Views lets you learn how to create public and private logical views. The online help provides brief procedures rather than lengthy descriptions.

Adding a server

You can use the New Server command to add a server.

1. In the OnDemand section of System i Navigator, right click Common Server Administration. In the resulting context menu, click Client Administrative Functions, then logon.
2. Click once on OnDemand Servers at the top of the list of servers in the left panel of the OnDemand Administrator.
3. From the File menu, select New Server to open the Add a Server dialog box.
4. Type the name of the server in the Server field. The server name identifies the server in the navigator pane of the administrator window. You can use an alias, the actual computer or network name of the server, or any other identifier you choose. By default, the administrative client copies what you type to the Host Name field.
5. Verify the value of the Host Name field. (By default, the Host Name field contains the same value as the Server field.) The host name can be a host name alias, fully-qualified host name, or IP address of the server.
6. Verify the Protocol. Choose from TCP/IP or Local:
 - TCP/IP. Use TCP/IP (Transmission Control Protocol/Internet Protocol) as the network protocol. To use TCP/IP, the server and the client must include TCP/IP in the protocol stack.
 - Local. Use the local file system manager to communicate with the server. This is most often used when your archived data is on a CD-ROM.
7. For TCP/IP, verify the Port Number that the server monitors for client program requests.

The default value, 0 (zero), means that the server monitors the port number of the OnDemand TCP/IP service. By default, the server monitors port number 1445. If you plan to use a port number other than 1445, then you must enter a valid port number. If you have more than one instance defined to OnDemand, then you would have separate server definitions for every instance with unique

port numbers for each instance. The value range is from 0 to 65535. To see what ports are currently in use on your system, enter the Work with TCP/IP Network Status (WRKTCPSTS) command with OPTION(*CNN).

8. If your logon panel includes the Attempt Unified Logon checkbox, confirm that it is not checked. (Unified Logon is used only for Windows servers.)
9. If you are adding a Local server, specify a Directory and select an Operating System and a Database. See the online help for assistance.
10. Click OK to add the server.

Logging on a server

1. Point to the server and double click the left mouse button to open the Logon dialog box.
2. Enter your OnDemand user ID and password in the spaces provided and click OK. **Note:** For a Local server, the built-in user ID is admin; no password is assigned to the admin user ID.

Changing passwords

Note: This section applies only if you are using OnDemand user IDs and passwords rather than i5/OS user IDs and passwords. See the *IBM Content Manager OnDemand for i5/OS Common Server Planning and Installation Guide* section titled *OnDemand user relationship to i5/OS user profiles* for important information about passwords.

Changing a password

To change a user's password:

1. Select and expand the library server.
2. Select Users.
3. In the User ID list, point to the user ID and click the right mouse button.
4. From the pop-up menu, select Update to open the Update a User dialog box.
5. Type the new password in the Password field.

Note: When creating a password, the value that you specify can be a maximum of 20 characters. However, the password authentication that is built into OnDemand verifies only the first eight characters that are entered by the user. The additional characters are provided for customers that choose to implement their own password security by using the logon user exit.

6. Verify the new password by retyping it into the Verify Password field.
7. Click OK. OnDemand updates the database and returns to the main window.

Changing an expired password

OnDemand provides password expiration processing to help you manage security on the system. You can set a value that represents the time in days that passwords assigned to users remain valid. After a user's password reaches the value that you specify, the user must change the password. See "System parameters" on page 44 for information about how OnDemand expires passwords.

After a password reaches the expiration value, the next time the user ID is used to log on to a server, OnDemand prompts the user to enter a new password.

The user must enter the current password for the user ID, a new password, and verify the new password by retyping the new password

System parameters

OnDemand system parameters allow you to establish the following operational settings for client programs and servers.

Maximum Password Age

Sets a time limit for passwords and determines when OnDemand prompts users to change passwords. The default setting is *Password Never Expires*, meaning that passwords do not expire and OnDemand never prompts users to change passwords. If you select *Password Always Expires*, then users must change to new passwords each time that they log on to a server. To set a specific time limit for passwords, select *Expires In __ Days* and enter the number of days that passwords are valid in the space provided. The value can be from 1 (one) to 365.

If you are linking your OnDemand user IDs to i5/OS user profiles, then *Maximum Password Age* should be set to *Password Never Expires*. If you specify a value for *Maximum Password Age*, then OnDemand may force a user to change their password before it is required by i5/OS.

Minimum Password Length

Determines whether passwords are required. If passwords are required, also determines the fewest number of characters that passwords can contain. The default value is *At Least 8 Characters*.

If you select *Permit Blank Password*, meaning that passwords are not required, then the valid password length is 0 (zero) to 20 characters.

If you are linking your OnDemand user IDs to i5/OS user profiles, then *Minimum Password Length* should be set to *Allow Blank Password*. This prevents OnDemand from trying to impose its own rules on the length of a password and allows i5/OS to use its own rules.

To set a specific minimum password length, select *At Least __ Characters* and enter a number in the space provided. The value can be from 1 (one) to 20 characters.

Note: When creating a password, the value that you specify can be a maximum of 20 characters. However, the password authentication that is built into OnDemand verifies only the first eight characters that are entered by the user. The additional characters are provided for customers that choose to implement their own password security by using the logon user exit. Contact the IBM support center for more information about the logon user exit.

Inactivity Time Out

Determines when OnDemand terminates sessions between inactive clients and the server. The default setting is *Time Out in 60 Minutes*. The value can be from 1 (one) to 1440 (24 hours).

The period of inactivity is measured between requests to a server. For example, when a user enters a query, OnDemand searches the database and builds the document list. This completes a request to the server. If the user does not work with

the items in the document list, open another folder, or invoke another query before the inactivity time out occurs, OnDemand automatically terminates the session with the client.

Use caution when you set the inactivity time out. For example, assume that you set the inactivity time out to 10 (ten). You log on to OnDemand to add an application group. Creating the application group takes you 15 minutes to complete. After entering all of the information about the application group, you click OK to create the application group. OnDemand issues a message that shows a time out has occurred. You must logoff the server, and you cannot save the information you entered about the application group.

System Logging

Determines the messages that OnDemand saves in the system log. OnDemand provides the system log to help you track activity and monitor the system. OnDemand saves messages that are generated by the various commands, such as the ADDRPTOND command. OnDemand can save a message in the system log when the following events occur:

- A user logs on to the system
- A user logs off the system
- A user logon fails
- Application group data is queried, retrieved, loaded, updated, deleted, or maintained

User Exit Logging

OnDemand provides a user exit at each of the four system log event points. These exits allow you to filter the messages that OnDemand saves in the system log and take action when a particular event occurs. For example, you can provide a user exit program that sends a message to a security administrator when someone attempts and fails to log on to the system. You can also use a user exit to determine what information appears in the system log.

If you plan to migrate index data to archive storage, then we recommend that you configure the system to save application group messages in the system log and send them to a system log user exit program. You should design a system log user exit program to notify an administrator when a query for migrated data occurs. Before a query for migrated data can be completed, an administrator must import a copy of the table or tables that are required from archive storage to the database.

See the *IBM Content Manager OnDemand for i5/OS Common Server: Planning and Installation Guide* for help with configuring the system log user exit.

Login Processing

The login processing system parameters allow you to specify whether user IDs and passwords are case sensitive.

Before continuing with this section, please refer to the OnDemand user ID relationship to i5/OS user profiles section in the *IBM Content Manager OnDemand for i5/OS for System i5 Common Server: Planning and Installation Guide* for a detailed explanation of the significance of choosing to relate your OnDemand users to existing i5/OS user profiles. It is important that you understand that concept before you make your choices for Login processing.

Now that you understand the relationship between OnDemand users and your i5/OS users, you should note the following:

- If your OnDemand user IDs **are** linked to your i5/OS user profiles (which is the default when OnDemand is installed), and if your i5/OS security level is set to 0 or 1, you **SHOULD NOT** check the Password Case Sensitive checkbox.
- If your OnDemand user IDs **are** linked to your i5/OS user profiles (which is the default), and if your i5/OS security level is set to 2 or 3, you **SHOULD** check the Password Case Sensitive checkbox.
- Regardless of your system security level, you should **NEVER** check the user ID Case Sensitive checkbox if your OnDemand users are linked to your i5/OS user profiles.
- If you are using OnDemand user IDs and passwords that are **not** linked to i5/OS user profiles (which is not the default), then you can set the two Login processing checkboxes as you choose.

By default, user IDs and passwords are case insensitive. When you add a user, OnDemand converts lowercase letters in the user ID to uppercase. A person can type letters in a user ID in uppercase, lowercase, or mixed case letters. For example, if you add the user ID LaGuarde, a person can enter LAGUARDE, laguarde, or LaGuarde to log on to the server.

If you select UserID Case Sensitive, then a user must type the user ID exactly as it was entered when the user was added. For example, if you add the user ID LaGuarde, then the user must enter LaGuarde to log on to the server.

If you select Password Case Sensitive, then a user must type the password exactly as it was entered when the user was added. For example, if you set the password to Spring2Far, then the user must enter Spring2Far to log on to the system.

We strongly encourage you to decide whether you want user IDs and passwords to be case sensitive when you install the system, change the defaults if necessary, and do not change the settings again. Otherwise:

- If user IDs are initially case insensitive and you later choose UserID Case Sensitive, then user IDs that were added before you changed the parameter must be entered in uppercase. The same is true for passwords.
- If user IDs are initially case sensitive and you later clear UserID Case Sensitive, then the user IDs that were added before you changed the parameter that contain mixed or lowercase letters will no longer be valid. The same is true for passwords.

Setting system parameters

To set the system parameters for an OnDemand server:

1. Log on to the server.
2. Point to the server and click the right mouse button.
3. From the pop-up menu, select System Parameters to open the System Parameters dialog box. Figure 1 on page 47 shows an example of the System Parameters dialog box.

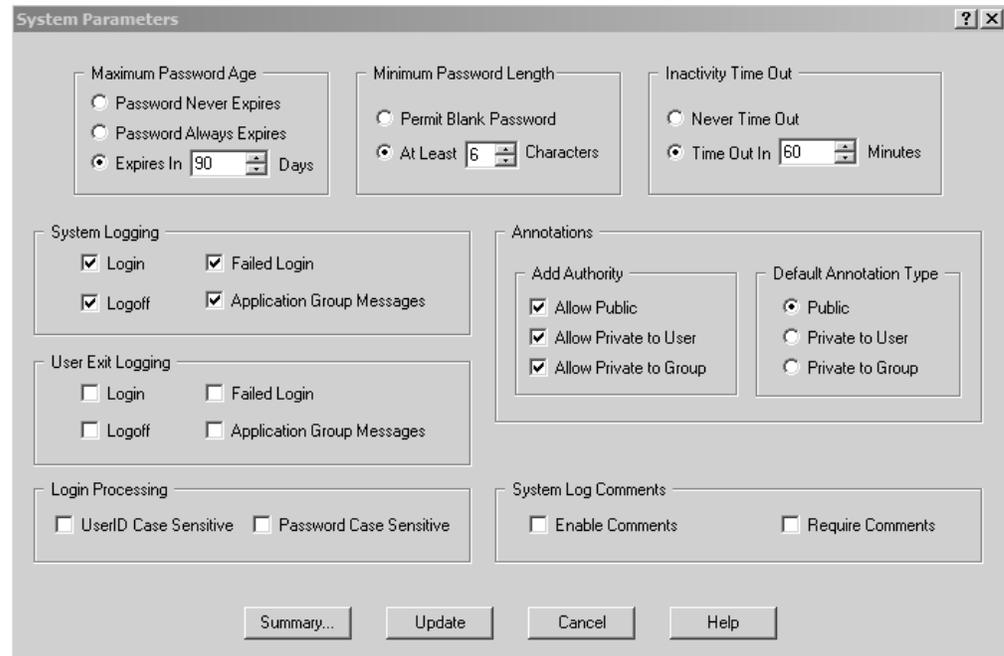


Figure 1. System Parameters

4. To change the Minimum Password Age, select the appropriate option. If you select Expires In, enter the number of days in the space provided.
5. To change the Minimum Password Length, select the appropriate option. If you select At Least, enter the number of characters in the space provided.
6. To change the Inactivity Time Out, select the appropriate option. If you select Time Out In, enter the number of minutes in the space provided.
7. To choose a System Logging, User Exit Logging, or Login Processing option, select the check box next to the item.
8. Specify which types of annotations can be used by a user. This section applies to all users with authority to add annotations to the system. There are three types of annotations available:

Allow Public

Allows the user to add public annotations. Public annotations to a document can be viewed by anyone who opens that document.

Allow Private to User

Allows the user to add private annotations to a document, and those annotations can be viewed only by the user who created the note, application group administrators, and system administrators.

Allow Private to Group

Allows the user to add annotations to a document, and those annotations can be viewed only by a specific group of users.

In the Default Annotation Type section, specify the annotation that is selected as the default type.

9. Specify whether the administrative client displays the System Log Comments window when you perform an add, update, or delete operation.
10. To generate a summary of the system parameters and display the information in a window where it can be viewed and printed, click Summary.

11. When you have finished making changes to the system parameters, click Update. OnDemand stores the changes in the database and returns to the administrator window. (Click Cancel to close the System Parameters dialog box without saving your changes.)

Setting trace parameters

The levels of trace reporting are defined as:

- **Error:** Returns error messages
- **Warning:** Returns warning messages
- **Information:** Returns informational messages
- **Flow:** Documents entering and exiting of functions

To set the trace parameters on an OnDemand server:

1. From the OnDemand Administrator client, log onto the OnDemand server for which you want to set trace parameters.
2. In the left panel, right-click the name of the server to which you just logged on.
3. Select **Trace Parameters**.
4. In the System Trace Settings dialog box select the Activate System Trace checkbox.
5. Select the Trace Level Reporting options you want. (You can select multiple options.) Refer to the online help for more information on each of the options.

Important: You must select the Active System Trace, at least one component, and one option for tracing information to actually be logged.

6. Click **Update** to save your selections.

You can set different trace levels for each component. For example, you can set your database to return informational messages, and your server to return error messages.

Adding items to a server

This section explains how to add items to a server. You can use commands or a drag-and-drop operation to add items to a server.

Note: When you use the administrative client to add or update the database, OnDemand adds a record to the system log that shows the changes you made.

New command

After logging on to a server, select the area, for example, Users. From the File menu, select the New command to open the Add dialog box.

Copy command

After logging on to a server, select the area. In the list pane, point to the item that you want to copy and click the right mouse button. From the pop-up menu, select Copy to open the Add dialog box. The fields in the Add dialog box contain information copied from the item you selected. Before you can add the item, you must change the item name. Depending on the item you want to add, you may need to change other fields.

Export command

The Export command is like the Copy command, except OnDemand adds the item to a different server. You can use the Export command to export items from the source server, and add (Import) them to the destination server.

After logging on to the server that contains the item you want to export, select the area. In the list pane, point to the item that you want to export and click the right mouse button. From the pop-up menu, select Export to open the Export dialog box. Verify the destination server. Then click Export to add the item to the server.

If the item already exists on the destination server, the export fails.

When exporting or importing an OnDemand application definition from one hardware platform to another (for example, from OnDemand for System i5 to OnDemand for Multiplatforms or the reverse), you must update the OnDemand application definition after the export, to ensure that the correct indexer is named. An application definition being exported from a System i5 server might have "OS/400" selected for the Indexer value on the Indexer Information tab, which is not valid for any platform other than System i5. Similarly, an application definition being imported to a System i5 server from Content Manager OnDemand for Multiplatforms might have "ACIF" selected as the indexer, which is not valid on System i5.

Drag and drop operation

You can copy and export items using a drag-and-drop operation. For example, to export items from one server and add them to another, select one or more items from the list pane and, while holding the left mouse button down, point to the destination server. Then release the mouse button. If you are logged on to the destination server, then OnDemand opens the Export dialog box. If you are not logged on to the destination server, then OnDemand opens the Logon dialog box. After verifying options in the Export dialog box, click Export to copy the items to the server.

Note: If the item exists on the destination server, the export fails.

You can also use a drag-and-drop operation to copy an item. For example, to copy a user, select the user ID from the User ID list and, while holding the left mouse button down, point to the same server on which the user is listed. Then release the mouse button to open the Add dialog box.

Report Wizard

OnDemand provides user assistance and easy-to-use tools to help you administer OnDemand. The Report Wizard helps you add a report to OnDemand by asking questions, which allows you to progress in an organized manner toward completing an application group, application, and folder. Here are a few things to remember about the Report Wizard:

- You move through the Report Wizard by answering questions that appear on the screen.
- You can return to the previous screen at any time by clicking Previous.
- You can advance to the next screen at any time by clicking Next.
- You can advance to the final screen by clicking Finish. By choosing Finish, you permit the Report Wizard to make all remaining decisions for you.
- You can obtain online help for a screen at any time by clicking Help or pressing F1.

Important: The Report Wizard processes your own input files. You must select a sample input file to proceed. Then, the graphical indexer is invoked to allow you to mark the data to define your indexing parameters. The graphical indexer that is invoked through the Report Wizard is the same graphical tool that is invoked directly by selecting Sample Data and then clicking on the Modify button from the indexer information tab of an OnDemand application definition.

You can use the Report Wizard to add an application group, application, and folder for a selected report. These actions include defining indexing information, defining database and folder fields, configuring data and storage management, specifying whether the application group can contain more than one application, and naming the application group, application, and folder.

You can also use the Report Wizard to add an application to an existing application group. This action includes defining indexing information, specifying storage information, and identifying the application within the application group. To add an application to an application group, the application group must have a database field to hold the values that uniquely identify an application within the application group. The field must contain at least one unassigned application identifier. See the Field Information page in application groups for detailed information about application identifiers.

Starting the Report Wizard

From the administrative client, log on to the server to which you want to add the report.

- To define a new application group, application, and folder, click the Report Wizard icon on the toolbar.
- To add an application to an existing application group:
 - Under the server, select Application Groups
 - Select the name of the application group to which you want to add the application
 - Click the Report Wizard icon on the toolbar

Follow the on-screen instructions to add the report.

Using the Report Wizard

The screens in the Report Wizard are described below. On most screens, standard options will already be selected for you. Unless you have a clear reason not to, accept the defaults.

Note: Depending on how you use the Report Wizard, you may not see all of the screens described below.

Introduction screen

Provides a brief explanation of the Report Wizard (see Figure 2 on page 51). First choose the data type of the report you are defining. Click Select Sample Data button to select a file that contains a sample of the actual report data. The Wizard lets you select a spooled file on the server (search by user profile or by output queue) and copies that sample data to your workstation for you to use for indexing.

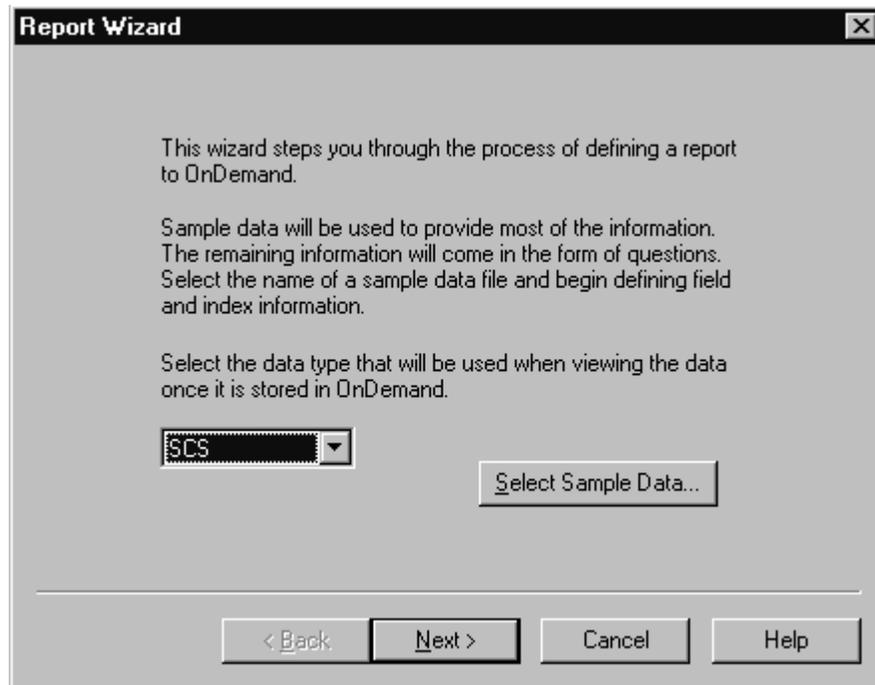


Figure 2. Report Wizard

When you click OK, the Report Wizard reads the data into the Report window.

Report window

Displays the sample data file and provides easy-to-use tools to help you define indexing information, database fields, and folder fields. Press F1 to display the online help for options and commands available from the Report window. Use the online help to learn how to define triggers, fields, and indexes, database fields, and folder fields.

Important: When you have finished defining the indexing, database, and folder information, be sure to save your changes when prompted.

Managing data screen

When you load a report into the system, you can specify that you want report data to be stored in Large Objects. You also need to specify how you want OnDemand to manage annotations that users attach to pages of the report.

Application identifier screen

When you use the Report Wizard to add an application to an existing application group, you must specify the name of the application and select a value that uniquely identifies the application within the application group.

Storage management screen

Determines where the storage manager maintains copies of reports, and how and when OnDemand deletes report data from the system.

Applications in the application group screen

If the report that you are defining is one of several that will be stored in the same application group, you can use the Report Wizard to define an *application ID field*. An application ID field is a database field that contains values that identify an application within the application group. IBM recommends that you always define an

application ID field. See Figure 23 on page 99 for an example. You may not think that you need an application ID field at the time that you create your application group, if you are adding an application group that will hold only one application **at the current time**. However, if you decide later to add other applications to the application group (or if you want to maintain multiple versions of your application definitions) and you then need to define an application ID field for the application group, you will not be able to do so because an application ID field **cannot be added after the application group is created**. (**All fields** must be added during the original application group definition.) Also note that the application ID field can be hidden from users that do not require it to search for documents. See the online help for more information about the application ID field.

Name screen

Specify the names of the application group, application, and folder. After you enter the names, OnDemand queries the server to make sure that the names are valid and unique.

Wizard complete screen

Confirms the selections you made for the report. Click Display to view details about the application group, application, and folder. From the detail report window, choose the Print icon from the toolbar to print a copy of the detail report.

Note: When you are satisfied with the selections you made for the report, click Finish to complete defining the report. OnDemand adds the application group, application, and folder to the library server, closes the Report Wizard, and returns to the administrator window.

Chapter 9. Concepts

You can use System i Navigator to setup and maintain OnDemand tape devices, tape volumes, optical storage groups, optical volumes, disk pool storage groups, output queue monitors, and migration policies.

You can use the OnDemand Administrator within System i Navigator to maintain OnDemand users, groups, printers, storage groups, application groups, applications, and folders. To use this tool, right click on Common Server Administration within the OnDemand Archive section of System i Navigator. Select Client Administrative Functions from the resulting menu. This will launch the OnDemand Administrator.

Migration Policies

Migration policies contain migration and storage media characteristics for data archived using OnDemand. The information is used by the archive storage management process (ASM), also referred to as the migration process, to determine if and when archived data should be moved as it ages through a hierarchy of storage media having different performance and capacity characteristics. Examples of these media types include disk, optical, and tape storage. Each step in the movement of data through this storage hierarchy is referred to as a migration policy storage level, or simply, a storage level. Each policy must contain at least one storage level. Additional levels can be defined to meet your storage and retrieval requirements. The STRASMOND command is the command used to force the data to move to the next storage level in the migration policy. A report is produced when ASM is run and has a spooled file name of QPRLCASM1. The report provides a list of actions that the ASM process performed. This report should be checked each time ASM is run to ensure that processing of the data completed successfully. If you find a failure, you should check the job log for the STRASMOND job to determine the cause of the failure.

The migration policy also specifies:

- If separate archived files are to be aggregated, or combined, with other archived files having similar retention and migration characteristics. Enabling aggregation is usually recommended because it can improve performance by allowing OnDemand to manage a smaller number of larger objects rather than a large number of small objects. However, it is important to understand that an aggregate must reach its maximum size or exceed its time period before the aggregated object can flow to the first level of the Migration Policy. Because of this, you should be cautious of large aggregate sizes. If you are aggregating many small objects, it is possible for the aggregate not to be migrated to the first level of the Migration Policy for many months. For this reason, you may prefer to aggregate after a specified time period rather than by size.
- If two copies of archived data are to be kept at some or all levels in the migration sequence.
- If a one-time backup is performed.

The migration policy name can be up to 60 characters long and must not be a duplicate of another policy within the same instance. If the Enable aggregation is selected, the archive storage management process combines individual archived objects on disk into larger objects to provide efficient processing. This process occurs prior to migration of the object from disk to the first storage level. The aggregation process appends to the same file (aggregate) until the aggregate is 'closed.' The aggregate is closed when it either reaches a specified maximum size

or a specified number of days. Storage levels can be added before or after a pre-existing storage level. Existing storage levels within a migration policy can also be changed or removed, however these changes will not affect migrated data already residing at this level. If you need to change the dates for migrated data already residing at a particular level, use the Change Policy Level Data (CHGPLDOND) command. If a one-time tape backup is requested, a tape media type must be specified.

Monitor Definitions

Monitor definitions are used to specify what output queue will be monitored for spooled files to be processed. If defining more than one monitor job, specify a unique job name for each monitor. OnDemand will only process spooled files that are in a ready (RDY) state. When the monitor job selects a spooled file from the selected output queue for archiving (also known as loading), it needs to determine which application group and application to associate with the spooled file so that the file can be archived correctly. Since the only data available to the monitor are the attributes of the selected spooled file, the application group name and application name must be derived from the contents of one of these attributes. Not all attributes are suitable for this purpose. OnDemand will examine the contents of up to three of the following nine attributes, in the order specified in the Check first, Check next, Check last selections:

- Spooled file name
- Form type
- User data
- Job name
- User-defined options 1 through 4
- User-defined data

The attribute selected from the 'Check first' pulldown list is examined first. If the value of this attribute does not match the name of an existing application group, OnDemand examines the attribute selected from the 'Check next' pulldown list, if specified. If the value of this attribute does not match an application group name, the attribute selected from the 'Check last' pulldown list, if specified, is checked. If a valid application group is not determined using the above method, the spooled file is moved to another output queue designated as an 'error' queue which is defined in this monitor definition. If the spooled file is successfully archived, it can be moved to a 'processed' queue or deleted according to the specifications in the monitor definition. The same process is followed to find a valid application name, unless you specify that the application name is the same as the application group name.

The monitor can be started manually, by a job scheduler, or started when the subsystem starts. The monitor can be ended manually, after a specified time period, after all queue entries are processed, or it can be specified when the monitor is started.

The first time you start a monitor for a particular output queue, it is best to do it when there are no spooled files in the output queue. When a monitor is started for the first time, an empty data queue with the same name as the output queue is created, which will receive entries for all spooled files that appear in the output queue in Ready status. Once the output queue monitor has been started (and therefore the data queue has been created), you can then begin moving the spooled files that you wish to capture into the output queue. The data queue entries that get created will trigger the monitor to process each spooled file.

Tape devices

When a tape backup is requested, or if you will use tape as an archive media, you must define a tape device to OnDemand. The tape device name you specify must match the name of an existing i5/OS tape device description. A media type must be specified from the list of supported media types for either read or write operations. If the tape device being defined has an automatic cartridge loader (ACL), the number of cartridges can be specified. A value of zero specifies that this device does not have an ACL. OnDemand can be used with an automated tape library; if a tape library will be used, the name must be specified. If a tape manager other than OnDemand (such as BRMS) is used, a media library does not need to be specified.

Tape volumes

Tape volumes that can be used by OnDemand must be defined. The name of the volume specified must match the name that was used when the tape volume was initialized. The instance to which the tape volume belongs must be specified, along with the capacity and media type of the volume. The media type tells OnDemand which tape device to use. A media device library can be specified if an automated tape library is used. Leave this field blank if a tape manager other than OnDemand (such as BRMS) is used. A tape volume can be marked full, preventing OnDemand from writing any additional data to the volume. OnDemand will automatically mark the volume full when it detects that the tape is full.

Optical storage groups

Optical storage groups are used by OnDemand to group sets of optical volumes together to store related data. A storage group lets you group together reports that have similar storage requirements such as days on disk or expiration days. By referring to a specific storage group in your migration policy, you can control which reports are stored on a particular set of optical volumes. If optical volumes are defined as rewritable, the space can be reused on the volume by defining a free space threshold percent and volume full reset. If the volume full reset is not defined, once the volume is marked full it remains full unless manually changed. The optical storage group can also be defined as the primary or backup storage group.

Optical volumes

Optical volumes that can be used by OnDemand must be defined. The name of the volume specified must match the name that was used when the optical volume was initialized. The OnDemand instance and optical storage group to which the volume belongs must be specified. The capacity and volume type (primary or backup) of the volume is also required. An optical volume can be marked full, preventing OnDemand from writing any additional data to the volume. OnDemand will automatically mark the volume full when it detects that it is full.

Disk pool storage groups

The disk pool storage group is used to identify an i5/OS auxiliary storage pool (ASP) that the archive storage management process may use as storage media when migrating archived data. You must specify a pool number ranging from 1 to 32 which corresponds to an existing ASP. The type of data, primary or backup, that will be stored to the defined ASP must also be specified.

Users

When you define an OnDemand user, you create a user ID with which a person in your organization logs on to the OnDemand server. You can optionally add the user ID to folders and application groups permissions, which is one way to let the user open folders and access data.

Each person in your organization logs on to the server using an OnDemand user ID. OnDemand authenticates the user ID and determines the usage and administrative authority available to that person, based on the user ID. It is important that you understand the details in the OnDemand user ID relationship to i5/OS user profiles topic in the *IBM Content Manager OnDemand for i5/OS Common Server Planning and Installation Guide (SC27–1158)* before you continue with this section.

An OnDemand user ID does not necessarily have to identify an individual by name. However, for accounting purposes, most customers assign an OnDemand user ID to each person that will use the system. When you initialize the system, OnDemand automatically creates the QONDADM user ID. The QONDADM user ID has system administrator authority. A system administrator can perform the basic user functions, such as logging on to the system and opening folders, and administrative functions, such as defining users and groups to OnDemand, and creating, updating, and deleting application groups, applications, folders, migration policies and storage sets, and printers.

Note: The QONDADM user ID has an initial password of QONDADM1. Because the QONDADM user ID has system authority, we force you to change the password the first time you sign on.

When naming OnDemand users, the name that you specify:

- Can contain one to 10 or 128 characters (bytes) depending on whether you are linking i5/OS user profiles to your OnDemand users. If you are linking the two, then the user names should match your i5/OS user profile names.
- Cannot include the ' (apostrophe), * (asterisk), % (percent), + (plus), _ (underscore), [(left bracket),] (right bracket), " (double quote), or blank character
- Must be unique to the server

You can specify a user ID in mixed case. By default, OnDemand ignores the case (for example, LaGuarde is the same as lAguarde). OnDemand converts lowercase letters in a user name to uppercase (LaGuarde is stored as LAGUARDE). However, depending on how you configure the Login Processing system parameters, user ID processing on your system may be different (the case may be significant). See “System parameters” on page 44 for more information.

User types

When you add a user to OnDemand, you specify the *User Type*. The User Type and the Authority determines the types of tasks that the user can do when logged on to the system. You can choose from the following User Types:

User Users can log on to OnDemand, open folders that they are authorized to access, and search for and retrieve data from application groups that they are authorized to access. Users can be given authority to do other things on the system.

User Administrator

A user that can also add, update, and delete users and user administrators. A user administrator can be given authority to do other things on the system.

Application Group/Folder Administrator

A user that can also add, update, and delete application groups, applications, and folders. An application group/folder administrator is automatically given Logical Views permission to all application groups. An application group/folder administrator can be given authority to do other things on the system.

System Administrator

A user that can also add, update, and delete any user, group, application group, application, or folder on the system. A system administrator is automatically given Logical Views permission to all application groups. A system administrator is also the only user that can maintain storage sets and printers.

Note: When adding or updating a user, you are not permitted to set the User Type or Authority to a level that exceeds your own. For example, a user with Create Users and Create Groups authority cannot create a user with Create Folders authority.

By default, only the user, the user that created the user, user administrators, and system administrators can view or maintain the user. See the User Permissions page for more information.

Only a system administrator, an application group/folder administrator, a user with administrator authority for an application group, or a user with add document permission can store data in an application group.

Only a system administrator, an application group/folder administrator, or a user with delete document permission can delete data from an application group.

Users who need to run server commands such as those listed in Appendix A, "Command reference," on page 169 or server APIs from QSHELL such as those listed in Appendix E, "API and user exit reference," on page 211 need to have QRDARSADM as the group profile (or a supplemental group) in their i5/OS user profile.

Authority

The Authority options allow the user to do other things in OnDemand. For example, A User Type of User can be permitted to create users. The authority options that you can select depend on the User Type. For example, if the User Type is Application Group/Folder Administrator, then by definition, the user can create application groups and folders. Therefore, the only additional authorities that the user can be given are Create Users and Create Groups. Choose from the following:

Create Users

An optional authority for users and application group/folder administrators:

- If the User Type is User, lets the user create users with a User Type of User.

- If the User Type is Application Group/Folder Administrator, lets the user create users with a User Type of User or a User Type of Application Group/Folder Administrator.

Note: Users with Create Users authority can maintain the users that they create, so long as they remain an administrator of the user.

Create Groups

An optional authority for users, user administrators, and application group/folder administrators. Lets the user create groups. Users with Create Groups authority can maintain the groups they create, so long as they remain a group owner.

Note: These group definitions are not the same as i5/OS group profiles, although the names may match if you find that easier to maintain.

Create Application Groups

An optional authority for users and user administrators. Lets the user create application groups. Users with Create Application Groups authority can maintain the application groups that they create, so long as they remain an application group administrator.

Create Folders

An optional authority for users and user administrators. Lets the user create folders. Users with Create Folders authority can maintain the folders that they create, so long as they remain a folder administrator.

Note: When adding or updating a user, you are not permitted to set the User Type or Authority to a level that exceeds your own. For example, a user with Create Users and Create Groups authority cannot create a user with Create Folders authority.

Groups

OnDemand groups are a means to organize users of the system by function, authorization, or any other purpose that you might require. You do not have to assign a user to a group, however doing so can simplify administration of users with similar requirements and capabilities.

When you define a group, you can add users to the group and specify folder and application group permissions that are common to all of the users that belong to the group. The permissions determine the types of actions users assigned to the group can perform on the system.

When naming groups, the name that you specify:

- Can contain one to 128 characters (bytes)
- Cannot include the ' (apostrophe), * (asterisk), % (percent), + (plus), _ (underscore), [(left bracket),] (right bracket), " (double quote), or blank character
- Can be mixed case. However, the case does not create a unique name (LaGuarde is the same as lAguarde)
- Must be unique to the server

You can assign a group owner. The group owner can add users to and remove users from the group. To maintain a group's application group and folder permissions, the group owner must have administrator authority for the application

groups and folders or be an application group/folder administrator or a system administrator. If you do not assign a group owner, only a system administrator user can maintain the group.

Note: These group definitions are not the same as i5/OS group profiles, although the names may match if you find that easier to maintain.

Printers

OnDemand supports two types of server print devices: a fax machine and a physical printer. A server print device always has an output queue on the server and is defined using the System i Navigator administrative client.

PSF/400 is required for formatting Advanced Function Presentation™ (AFP™) print output from OnDemand. (PSF/400 may also be required by some fax software as well.) PSF/400 allows you to use electronic forms, images, graphics, and typographical fonts in the documents that you print. PSF/400 accepts input data streams, such as AFP and line data and prepares the data for the destination print device.

When a user selects an item and chooses server print, OnDemand retrieves a copy of the item and places it on the output queue associated with the server printer.

Storage sets

Storage sets are defined for application groups with similar storage management characteristics, such as the length of time that files are maintained in the application group and the type of media on which the files are stored. A storage set is created automatically when you create a migration policy, and the names are identical. You do not have to manually create a storage set.

If you plan to maintain application group data in archive storage, then you must specify a storage set name in the application group definition that matches the migration policy to be used. Also, the sum of the Duration values for all migration policy storage levels plus the value for the Days in Cache should equal the Life of Data and Indexes value in the application group.

Application groups

An application group represents the data that you store in OnDemand and the documents that users query, view, print, and fax using OnDemand client programs. For example, the data can be reports generated by an application program, index data, and annotations created by users.

When you define an application group, you specify properties of the application group, such as the organization of the database and the storage characteristics for the files that are to be stored in the application group. You also define the database fields that will hold index data extracted from the reports that you store in the application group.

OnDemand extracts index data from the reports that you load into an application group and places the data in the database fields that you define. OnDemand uses the index values to identify the documents that meet the search criteria entered by a user.

When you define an application group, you can also select the types of application group messages that OnDemand saves in the system log.

When you define an application group, you specify permissions that let users access and maintain the application group and application group data. You can identify the groups and users that can access data stored in the application group with OnDemand client programs. You can specify the types of functions that users can perform, such as viewing, printing, and annotating reports. You can assign administrator authority to a user or a group. Administrator authority allows a user to update the application group, for example, to authorize other users to access data stored in the application group.

OnDemand organizes information about an application group into tabs: General, Message Logging, Storage Management, Permissions, Field Definition, and Field Information. Each tab contains options, fields for you to enter information about the application group, and command buttons.

Applications

You typically define an application for each different type of report or source of data that you plan to store in OnDemand.

When you define an application, you assign the application to an application group and specify the physical and logical characteristics of the report. The physical characteristics of a report include the code page, the type of data found in the input file, and information about carriage control characters. The logical characteristics of a report include the different ways that you want to present the information contained in the report to your users.

The OnDemand data indexing, loading, and viewing programs use the information that you provide to process the report. For example, you can specify the parameters that the OnDemand indexing program uses to locate and extract index data from the report. You can create logical views for the application. Logical views represent different ways to display pages of the report. You can set up printing options, such as defining a default printer for users and printing options for AFP and line data documents.

OnDemand organizes information about an application into tabs: General, View Information, Indexer Information, Load Information, Logical View Fields, Logical Views, and Print Options. Each tab contains options, fields for you to enter information about the application, and command buttons.

Folders

A folder provides users the means to access the reports that you store in OnDemand. A user opens a folder, constructs a query, and retrieves documents from the application groups that can be searched from the folder. The user can use the folder to view, print, annotate, fax, and email documents.

When you define a folder, you specify the properties of the folder, such as the name and description of the folder, create the search and display fields that appear when the user opens the folder, and map the folder fields to application group database fields.

You can also specify the groups and users that can open the folder with OnDemand client programs and other folder permissions. For example, you can authorize a

user to be the folder administrator. The folder administrator can authorize other users to open the folder and make changes to the folder fields.

OnDemand organizes information about a folder into tabs: General, Permissions, Field Definition, Field Information, and Field Mapping. Each tab contains options, fields for you to enter information about the folder, and command buttons.

About application groups, applications, and folders

Before you can store a report into OnDemand, you must create an application group and an application. Before users can search for and retrieve data, you must create a folder.

- Users open a folder to search for reports that you load into OnDemand. You define one or more search fields for the folder. A folder search field is mapped to an application group database field.
- Each database field that you define represents a category of information in the report, such as a customer name, invoice number, or balance. When you add an application group, OnDemand creates a database table. The database fields that you define are columns in the table.
- You define an application for each report that you plan to store in OnDemand. When you add an application to the system, you define information that the OnDemand viewing, indexing, and loading programs use. When you define indexing information, you identify the name, location, and length of each category of index information that you want to extract from the report. When you define loading information, you map index fields in the report to application group database fields.
- When you load a report into the system, OnDemand stores the index values extracted from the report into database fields in records that are added to an application group table.
- OnDemand uses the index values to identify the documents that meet the search criteria that the user entered into the folder search fields.

When you want to define a report to OnDemand, your first task is to identify the application group from which OnDemand obtains information about the index fields and how documents are to be maintained on the system. When you define an application group, you specify how you want OnDemand to structure information in the database and define the database fields. When you define an application group, you also specify how you want OnDemand to maintain data on the system. For example, you might specify that report data should be maintained on disk storage for 60 days and in archive storage for five years. OnDemand maintains all of the data stored in the application group the same way. OnDemand maintains each report that you store in the application group for the same length of time.

- You can store the report in an existing application group. However, you must be able to index the report by using the database fields that are already defined in the application group. The storage management information for the application group must support the length of time that you want OnDemand to maintain the report on the system and how and where that you want OnDemand to store and maintain the report data.

You can verify information about an existing application group with the Properties command. The General tab shows the database organization for the application group. The Storage Management tab shows the data migration information. The Field Definition tab shows the application group database fields.

- If there are no application groups defined to OnDemand or there are no application groups that support the database and storage management requirements of the report, then you must add an application group to the system.

After you add an application group, you must define an application for the report. Most customers create an OnDemand application for each different type of report or source of data that they plan to store in OnDemand. When you create an application, you must assign it to an application group. The application group determines where OnDemand will store the report data. When you create an application, you also specify information that the OnDemand client programs use to view and print pages of the report and you specify instructions for the data indexing and loading programs.

The last step in the process of adding a report to OnDemand is to create a folder. Users open the folder to search for, display, and print reports. When you define a folder, you select the application group that contains the data that you want users to search when they open the folder. By creating folders that can search specific application groups, you can determine the reports that are available to users when they open a folder.

When you define a folder, you define search and display fields. You specify characteristics of the folder fields, such as default search operators and whether OnDemand displays default search values for the fields when a user opens the folder. You also map the folder fields to application group database fields.

OnDemand permissions

Permissions are the means by which OnDemand determines who can open folders and search for documents stored in application groups. OnDemand also uses permissions to determine who can maintain folders and application groups with the administrative client.

By default, only an application group/folder administrator, a system administrator, or the person who adds the folder can open and maintain the folder. By default, only an application group/folder administrator, a system administrator or the person who adds the application group can access data stored in the application group or maintain the application group.

OnDemand provides several ways for you to specify permissions. You can specify permissions when you add or update a folder or an application group. You can also add, remove, or update a user's or group's folder or application group permissions when you add or update the user or group.

As both a convenience and security measure, you can assign a user to a group. OnDemand groups allow you to organize users by function, authorization, or any other logical grouping that you might require. When you assign a user to a group, the user obtains the permissions that are in effect for the group. For example, suppose that you create a group and authorize the group to open the Student Information folder. Any user that you assign to the group automatically obtains permission to open the Student Information folder. If you assign a user to more than one group, the user normally obtains the permissions of all of the groups. However, there are exceptions. See "Specifying permissions" on page 63 for details.

Note: These group definitions are not the same as i5/OS group profiles, although the names may match if you find that easier to maintain.

You can specify a default set of permissions for folders and application groups. OnDemand uses the default permissions when users and groups do not have specific permissions for the folder or application group. If you specify permissions for a group, then the group permissions take precedence over the default permissions. If you specify permissions for a user, then the user permissions take precedence, regardless of any group that the user may belong to or the default permissions that you specified.

Folder permissions

You can specify default (*PUBLIC) folder permissions and folder permissions for specific groups and users. The default permissions provide every user and group defined to the server with the permissions that you specify. Permissions for a group provide the users that you add to the group with the permissions that you specify for the group. Permissions for a user provide the user with the permissions that you specify. By default, only an application group/folder administrator, a system administrator or the person who adds the folder can open and maintain the folder.

Refer to online help for details about setting folder permissions.

Application group permissions

You can specify default (*PUBLIC) application group permissions and application group permissions for specific groups and users. The default permissions provide every user and group defined to the server with the permissions that you specify. Permissions for a group provide the users that you add to the group with the permissions that you specify for the group. Permissions for a user provide the user with the permissions that you specify. By default, only an application group/folder administrator, a system administrator or the person who adds the application group can access data stored in the application group and maintain the application group.

Refer to online help for details about setting application group permissions.

Specifying permissions

To ease the administration of OnDemand, most customers organize their users into groups, add the groups to folders and application groups, and specify permissions for the groups. You should plan your groups before you begin creating them. After you start using the system, you may find it difficult to change the organization of your groups.

Note: These group definitions are not the same as i5/OS group profiles, although the names may match if you find that easier to maintain.

When you add a user to a group, the user automatically obtains the permissions that were specified for the group. When you add a user to more than one group, the user normally obtains the permissions of all of the groups. For example, using the group properties listed in Table 3, a user that belongs to both groups can open the Student Bills and Student Transcripts folders.

Table 3. Group permissions

Group	GID	Folders	Permission
Admissions	80100	Student Transcripts	Access
Accounting	80101	Student Bills	Access

Most situations involve adding a group to a folder, specifying permissions for the group, and then adding users to the group. However, there may be situations when you need to deny a group of users access to a folder. When you use groups to deny access to a folder, you must understand how OnDemand determines folder permissions for a group (and users assigned to the group). For example, consider the group properties listed in Table 4.

Table 4. Group permissions

Group	GID	Folders	Permission
Admissions	80100	Student Bills	None
Admissions	80100	Student Transcripts	Access
Accounting	80101	Student Bills	Access
Accounting	80101	Student Transcripts	Access

A user that belongs to both groups can not open the Student Bills folder.

When a user belongs to more than one group, OnDemand uses the group identifier (GID) to determine the user's permissions. When two (or more) groups provide permissions for the same folder, the user obtains the permissions of the group with the lowest GID.

It is important to note that you cannot change a GID after a group has been created. You can, however, modify the value that is presented as the suggested GID when the group is created.

In the example depicted in Table 4, both groups have been added to the Student Bills folder. Since the Admissions group has a lower GID than the Accounting group, OnDemand uses the permissions specified for the Admissions group to determine the permissions of a user that is assigned to both groups. Consequently, users assigned to both groups cannot access the Student Bills folder.

You're probably asking yourself, "Why would I assign a user to more than one group" or "Why would I create a group with no access to a folder?" Perhaps some examples will help answer these questions (and clarify the OnDemand permission hierarchy). As you review the examples, please remember the following rules:

- By default, only an application group/folder administrator, a system administrator, or the person who created the folder can access the folder
- You can use the *PUBLIC name to specify default permissions for all other users
- You can specify permissions for specific groups and users:
 - All of the users that belong to a group that you add to a folder will obtain the permissions that you specify for the group
 - A user that belongs to two (or more) groups that have been added to the same folder will obtain the permissions of the group that has the lowest GID
 - The permissions that you specify for a user override all other permissions, including any default permissions (*PUBLIC) and any groups to which the user belongs and that are added to the folder

Examples

The examples that follow show how to add groups to folders and specify folder permissions. The same considerations hold true for adding groups to application groups and specifying application group permissions.

Providing a group of users access to a folder: Let's say that you want to provide a single group of users access to a folder. Complete the following steps:

1. With *PUBLIC selected, clear all of the permissions check boxes (this is the default).
2. Add the group to the folder.
3. Select the Access check box.

Users assigned to the group automatically obtain permission to open the folder.

Denying a group of users access to a folder: Let's say that you want to prohibit a single group of users from accessing a folder, while allowing all other users defined to the server to open the folder. Complete the following steps:

1. With *PUBLIC selected, select the Access check box (this lets all users open the folder).
2. Add the group to the folder.
3. Clear all the permissions check boxes.

Users assigned to the group cannot open the folder.

Providing one group of users access and denying another group of users access to the same folder: Let's say that you want to allow a group of users to access a folder. However, you need to prohibit certain users in the group from accessing the folder. You could exclude the users from the group that can access the folder. However, there may be other folders that you want the users to access as part of the group. To solve this, create two groups, one without access to the folder and the other with access to the folder, and assign the users to the respective groups. For example:

1. Create the "no access" group. This group must have a lower GID than the "access" group. Add users to the group.
2. Create the "access" group. Add users to the group.
3. With *PUBLIC selected, clear all of the permissions check boxes (this is the default).
4. Add the "access" group to the folder.
5. Select the Access check box.
6. Add the "no access" group to the folder.
7. Clear all of the permissions check boxes.

If you later need to deny other users access to the folder, simply add the users to the "no access" group. You can also move users from one group to the other.

Denying one user in a group access to a folder: Let's say that you want to prohibit one user in a group from accessing a folder. After adding the group to the folder and specifying the access permission, all users assigned to the group can open the folder. To override the group permissions, we can add an individual user to the folder and set permissions at the user level. Complete the following steps.

1. With *PUBLIC selected, clear all of the permissions check boxes (this is the default).
2. Add the group to the folder.
3. Select the Access check box.
4. Add the user to the folder.
5. Clear all the permissions check boxes.

Even though the user belongs to the group, the user cannot open the folder.

Providing one user in a group administrator authority: Let's say that you want to provide one user in a group the ability to administer the folder. Complete the following steps.

1. With *PUBLIC selected, clear all of the permissions check boxes (this is the default).
2. Add the group to the folder.
3. Select the Access check box.
4. Add the user to the folder.
5. Select the Administrator check box.

Only the user that you added can administer the folder; the other users in the group can open the folder.

Specifying default permissions: The default (*PUBLIC) permissions that you specify for an application group or a folder will apply to every user or group defined to the server who is not provided with specific permissions.

For example, suppose that you specify Access as the default permission for an application group. Every user and group that is not provided with specific permissions can access the data that is stored in the application group. Then, you specify Access as the default permission for a folder. Every user and group that is not provided with specific permissions can open the folder. Later, you add a user, without specifying application group or folder permissions. The user can open the folder and access the data stored in the application group.

While default permissions do provide flexibility to maintain your system, you must make sure that using the default permissions does not circumvent your security strategy. Rather than specifying default permissions for application groups and folders, you may want to use groups as a means to implement your security strategy. For example, you can clear all of the permissions under *PUBLIC and then add groups to a folder and specify the appropriate permissions for each group. When you add a user to the system, you can assign the user to a group. The user automatically obtains the permissions of the group. If the group does not have access to a particular application group or folder, then neither does the user. With this strategy, until you assign the user to a group, or provide the user with specific permissions, the user cannot access the folder.

Hints and tips

1. To simplify the task of providing access to application groups and folders, give access to a group rather than a user. When a new user needs access, add the user to the group.
2. To allow an Application Group/Folder Administrator to see groups in the permissions list, add the Application Group/Folder Administrator to the groups that require access to application groups and folders.
3. To allow multiple users to administer the same groups, create a group of users and make that group the group owner for any groups that need to be administered by multiple users.
4. The Create Groups authority is most effectively used if it is combined with the Create Users authority or added to a User Administrator. Because the purpose of a group is to give a set of users permissions to another object, it is not very useful if the user that creates the group does not have access to any users. Otherwise, the user that creates a group must be given access to each user that needs to be added to the group.

5. If you need to reset the OnDemand information related to your optical volumes, issue the following program call (with no parameters):

```
CALL PGM(QRDARS/QRLCASMROV)
```

Running this program updates the Optical Volume Capacity, recalculates the Optical Bytes Used, and sets the Optical Volume Full Flag to Y if it is currently set to N and the optical volume has less than 1 MB of space available. This program can only be run by a user profile with QONDADM group or supplemental group profile in their user profile.

You should not run this program while the Archive Storage Manager (ASM) or the Disk Storage Manager (DSM) with ASM(*YES) are running. The program may cause some or all optical volumes that are known to OnDemand to be mounted to check for space.

Chapter 10. Examples

The examples that follow demonstrate how to use the OnDemand System i Navigator component to:

- Create tape devices that are available for use by OnDemand if tape archival is selected.
- Add tape volumes which are available for use by OnDemand
- Create optical storage groups which are used to group sets of optical volumes together to store related data.
- Add optical volumes which are available for use by OnDemand.
- Create a disk pool storage group definition to identify an i5/OS® Auxiliary Storage Pool (ASP) that the archive storage management (ASM) process may use as storage media when migrating archived data.
- Create monitor definitions which contain information about the output queue to be monitored, the handling of the spooled files being archived, and information about starting and ending the monitor job.
- Create migration policies which provide migration and storage media characteristics for data archived using OnDemand.

The examples that follow also demonstrate how to use the OnDemand Administrator to:

- Add users and groups to the system. Users on the system obtain permission to open folders and access application group data from a group.
- Define a server printer that can be used as the default printer for an application.
- Define a migration policy and storage set.
- Add a report to the system. To add a report, create an application group, an application, and a folder.

System configuration

The example assumes that an external customer (Customer XYZ) accesses the system by using the OnDemand Web Enablement Kit (ODWEK) feature. However, for purposes of demonstrating how the system works and how to use the administrative client to implement the requirements, these users could easily represent another department within the company.

Here are the assumptions about the system:

- Two groups of users: the customer service department and users at Customer XYZ.
- A sample telephone bill report. The telephone report is generated by an application program running on an System i5™ system with OnDemand installed.
- Disk storage. When a report is loaded into the system, OnDemand stores a copy on disk and maintains the report on disk for 60 days.
- Archive storage. When a report is loaded into the system, OnDemand stores a copy of the report in archive storage. The archive storage manager maintains the report on optical storage for five years.

Adding tape devices

1. To add a tape device to OnDemand, left click on the plus sign in front of Common Server Administration from the OnDemand Archive plug-in of System i Navigator, right click on Tape Devices and select New Tape Device.
2. First, the name of the tape device you want to add to OnDemand must be specified. The name must match the name of an existing i5/OS tape device description. In this example, the name of the tape device is TAP01. You may also provide a brief description for your tape device.
3. From the list of supported media types, select the media type for this tape device. In this example, the media type is 8MM.
4. Once you select the media type, the Add button for the Read and Write operations is no longer grayed out. Click on the add button to add the 8MM media type to the Read and Write operations. If the device you are using has an automatic cartridge loader, you can specify the number of cartridges the loader holds. In the example, leave this at 0. Leave the media library blank. If you are using a media library such as the IBM 3494 tape library with OnDemand, specify the library name here.
5. Click on OK to create the tape device. See Figure 3.

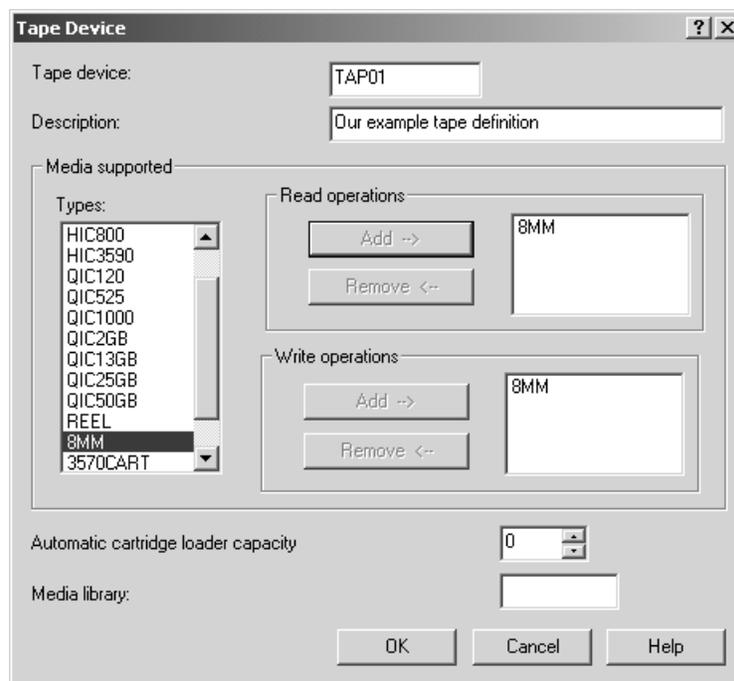


Figure 3. Tape device

Adding tape volumes

1. To add tape volumes to OnDemand, left click on the plus sign in front of Common Server Administration from the OnDemand Archive plug-in of System i Navigator, right click on Tape Volumes and select New Tape Volume.
2. First, specify the name of the tape volume that you want to make available to OnDemand. The volume name must match the name you used when you initialized the tape volume on your System i5 server. For the example, the name of the volume is OND001.

3. Next, specify the total capacity of the tape volume in megabytes. For the example, specify a capacity of 2300 MB.
4. For media type, use the pull down to select the correct type. For the example, select 8MM.
5. For this example, leave media device library blank. Also, make sure Tape is full is not checked.
6. The migration policy, which will be created later, will request a tape backup. So, for this example, make the volume type Backup. If, instead, the plan was to use this tape volume for the primary archive media for some of the OnDemand data, you would leave the volume type set to Primary as shown in Figure 4. For this example, however, set the volume type to Backup.
7. Then click OK to create the volume. See Figure 4.

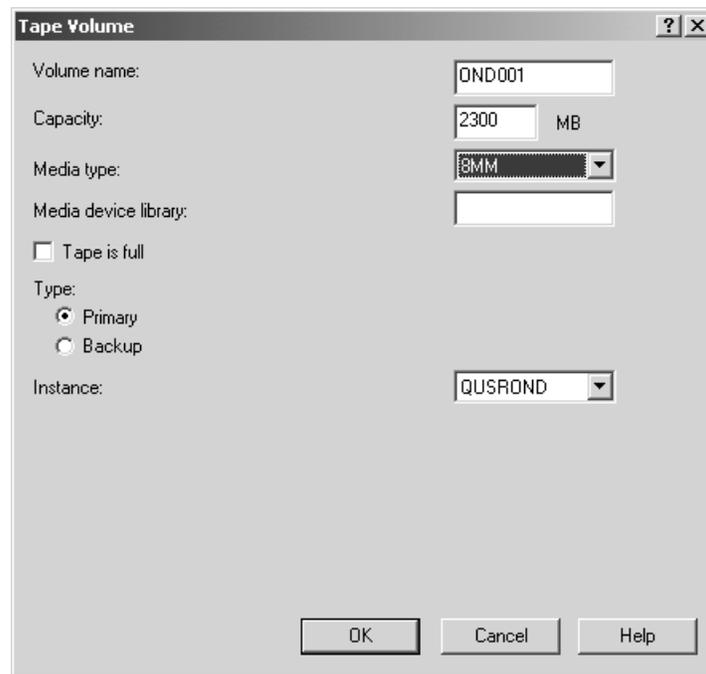


Figure 4. Tape volume

Creating optical storage groups

1. To create an optical storage group, left click on the plus sign in front of Common Server Administration from the OnDemand Archive plug-in of System i Navigator, right click on Optical Storage Groups and select New Storage Group.
2. The optical storage group is used to group sets of optical volumes together for use by OnDemand. For the example, call the optical storage group OPTSTG. You may also provide a brief description.
3. The optical volumes are rewritable and support the dynamic reuse of space without re-initializing the entire volume. So for this example, check the Volume full reset box and set the Free space threshold percent at 40 by clicking on the up arrow. This indicates when the volume full flag is reset. In the example, when there is 40 percent free space available on the volume, the full flag is reset and the volume can again be used for newly migrated data.

4. This optical storage group will contain primary volumes; mark the type as Primary.
5. Leave the instance as the default QUSROND and click OK to create the optical storage group. See Figure 5.

Figure 5. Optical storage group

Adding optical volumes

1. To add optical volumes to OnDemand, left click on the plus sign in front of Common Server Administration from the OnDemand Archive plug-in of System i Navigator, right click on Optical Volumes and select New Common Server Optical Volume.
2. The volume name specified must match the name used when the volume was initialized in the optical library. A single disk has two sides which are considered volumes. As you will see in a later step, the opposite side volume name must be specified. The name for this volume is OND00001.
3. Remember that the optical storage group was Primary, which means that all the volumes assigned to that storage group must also be of type Primary. Therefore, mark this volume as Primary.
4. Leave the instance as the default of QUSROND.
5. For this example, use a 2.6 GB optical disk. The capacity is for one side of the disk (one volume), so for the example, specify 1300 MB.
6. The volume being defined is a rewritable volume. To select the Optical media family, use the pull down and select REWT. You can also use the pull down for the Optical storage group and select the storage group that was created earlier, OPTSTG. The volume is defined as REWT, so it is not necessary to specify the Optical library. (See the online help for more information.) You may specify the library for documentation purposes if you like. In the example, this field will be left blank.

7. Leave the volume marked as not full. This flag will automatically be set to full when the optical volume has reached its capacity. Remember when the storage group was created, the free space threshold was set to 40%. When this volume has 40% free space available, the full flag will be unchecked and OnDemand can again write to this volume.
8. Specify the name of the opposite side of this volume as OND00002. Click OK to create the volumes. See Figure 6.

The screenshot shows a dialog box titled "Common Server Optical Volume". It contains several configuration fields:

- Volume name: OND00001
- Volume type: Primary, Backup
- Instance: QUSROND (dropdown)
- Capacity, in megabytes: 1300
- Optical media family: REWT (dropdown)
- Optical storage group: OPTSTG (dropdown)
- Optical library: (empty text box)
- Volume is full
- Opposite side volume name: OND00002
- System where located: *LOCAL

At the bottom, there are three buttons: OK, Cancel, and Help.

Figure 6. Optical volume

Creating disk pool storage groups

1. To create a Disk pool storage group, left click on the plus sign in front of Common Server Administration from the OnDemand Archive plug-in of System i Navigator, right click on Disk Pool Storage Groups and select New OnDemand Disk Pool.
2. Identify an i5/OS Auxiliary Storage Pool (ASP) that the archive storage management (ASM) process may use as storage media when migrating archived data. For the example, specify the ASP as 3. You may also provide a brief description for the disk pool storage group.
3. The type for the disk pool is Primary and the instance is the default QUSROND. Click OK to create the disk pool storage group. See Figure 7 on page 74

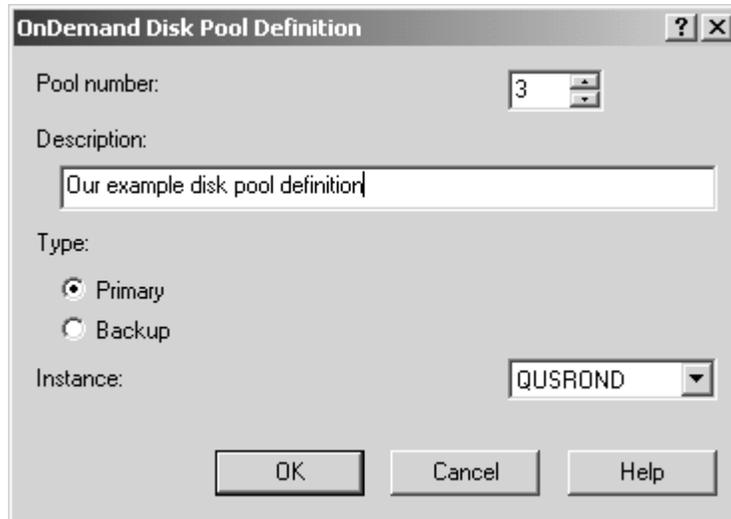


Figure 7. Disk Pool

Creating monitor definitions

1. To create a monitor definition, left click on the plus sign in front of Common Server Administration from the OnDemand Archive plug-in of System i Navigator, right click on Monitor Definitions and select New Monitor.
2. When the New Monitor window opens up, the general page will be displayed. Specify the name and library of the output queue to monitor. For this example, specify the output queue as MONITORQ in library QRDARS. (However, your monitored output queues should not be placed in QRDARS library, since that library can be replaced during a software upgrade.) The job name is automatically filled in with the same name as the monitored output queue you specified. This can be changed, but for the example leave it as MONITORQ. You may also provide a brief description for the monitor definition.
3. When the monitor job selects a spooled file from the specified output queue for processing, it needs to determine which application group to associate with the spooled file so that the file can be archived correctly. The only data available to the monitor are the attributes of the selected spooled file. The application group name must be derived from the contents of one of these attributes. Use the pull down to select the attribute that the monitor should use for comparing to find the application group with the matching name. For the example, use Spooled file name. You can also specify what the monitor should check next and last if it does not find a match on check first. In this example, leave check next and last blank.
4. You can check the box to have the monitor job determine the application name used or you can specify what the monitor should check for comparing to find the application name. In this example, check the box and let the monitor job determine the application name.
5. You may also specify the job description, library and instance to be used for this monitor job. Leave these values as the default for this example.
6. Once the general page has been completed you can click on the Start and End Methods tab. There are several options for starting and ending the monitor job. Accept the defaults for this example which are to start and end the monitor manually. However you can specify whether the monitor will be started from a

job scheduler or when a subsystem starts. You can also specify to have the monitor job end at a specific time of day, after a certain period of time, after all entries have been processed from the output queue, or you can specify the end time as a parameter when the monitor is started.

Note: The first time you start a monitor for a particular output queue, it is best to do it when there are no spooled files in the output queue. When a monitor is started for the first time, an empty data queue with the same name as the output queue is created, which will receive entries for all spooled files that appear in the output queue in Ready status. Once the output queue monitor has been started (and therefore the data queue has been created), you can then begin moving the spooled files that you wish to capture into the output queue. The data queue entries that get created will trigger the monitor to process each spooled file.

7. Next click on the Actions Taken on Spooled Files tab. This specifies what OnDemand should do with a spooled file once it has been successfully processed. The options are to have it deleted from the system or moved to an output queue you specify. In the example, the spooled file will be moved to a processed output queue called PROCESSED in library QUSRRDARS. You must also specify where you want the spooled files to be sent should they fail to process. In the example, specify ERROR in library QUSRRDARS as the error queue.
8. Click on OK to create the monitor definition. See Figure 8 on page 76, Figure 9 on page 77 and Figure 10 on page 78

New Monitor - Rdr400h.charlotte.ibm.com

General | Start and End Methods | Actions Taken on Spooled Files

Monitored output queue: MONITORQ Browse...

Library: QRDARS

Job name: MONITORQ

Descriptive text: Our example monitor definition

Find application group name in:

Check first: Spooled file name

Check next: (none)

Check last: (none)

Application name determined by monitor job

Find application name in:

Check first: (none)

Check next: (none)

Check last: (none)

Job description: QOND400 Browse...

Library: QRDARS

Instance: QUSROND

OK Cancel Apply

Figure 8. Monitor — General tab

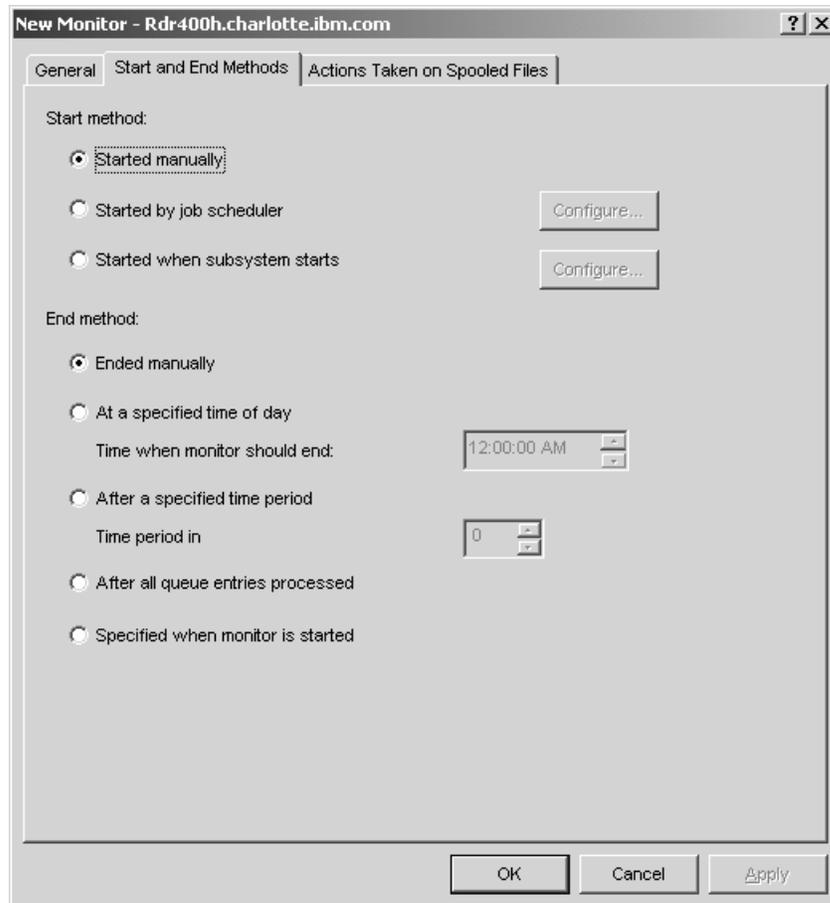


Figure 9. Monitor — Start and End Methods tab

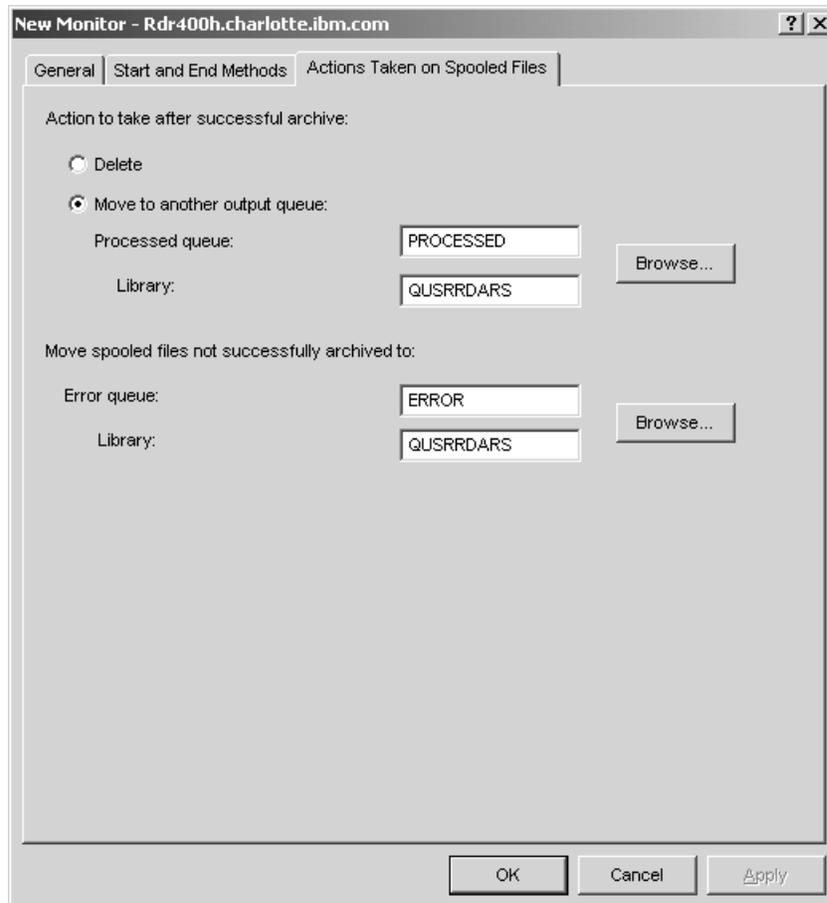


Figure 10. Monitor — Actions Taken on Spooled Files tab

Creating migration policies

1. To create a new migration policy, left click on the plus sign in front of Common Server Administration from the OnDemand Archive plug-in of System i Navigator, right click on Migration Policies and select New policy.
2. First you must specify the name of your migration policy. The name can be up to 60 characters long, but must not duplicate the name of another policy within the same instance. For this example, choose POLICY1 as the new policy name. You may also provide a brief description of the migration policy you are creating.
3. You can choose whether or not you want to enable aggregation. If aggregation is enabled, you must select whether you want to close the aggregate only when the maximum size is reached or after a specified time period is reached. Accept the default to enable aggregation and close the aggregate after the maximum size if reached. However, change the maximum size, by clicking on the up arrow, to 10,000 kilobytes. (See “Migration Policies” on page 53 for more information on migration policies and aggregation.)
4. You may also specify if a tape backup is requested. Request a tape backup and select the Media type by clicking on the pull down and selecting 8MM.
5. The Instance is the logical server environment that will contain the archive data to which this migration policy will relate. For this example, leave the Instance as the default of QUSROND.

6. In this example, when a report is archived into OnDemand, a copy is stored on disk for 60 days. A copy is also maintained in optical storage for 5 years. This information will be used to set up the storage levels within the migration policy. For the first level, click on Add After, this opens the New Policy Level window. Assign a level identifier and this identifier must be unique within this policy. For this example use 0010 as the level identifier. You may also provide a brief description of this level. For the media, select Disk pool and the duration at this level should be 60 days. For the primary storage group, click on the pull down to see a list of available disk pool storage groups. Select the one created earlier called ASP01, then click OK. This will add the storage level in the storage levels window within the policy. To add the next level, select the level that was just added and then click on Add After. Specify the level identifier as 0020 with a brief description. The media is Optical and the number of days is 1825 (5 years). Choose the optical storage group that was created earlier, OPTSTG, as the primary storage group. Click OK, and you should now see both storage levels listed for the migration policy. In both storage levels, the Create backup copy option was not selected. However, you can select this option and specify a backup storage group causing the migration process to create a duplicate copy of the archived data when it is moved to this level.
7. Click on OK to create the migration policy. Clicking OK will also create an OnDemand storage set of the exact same name. When you define an application group to OnDemand, you can select the storage set name that matches this migration policy, which will cause OnDemand to archive that application group data as defined here. See Figure 11.

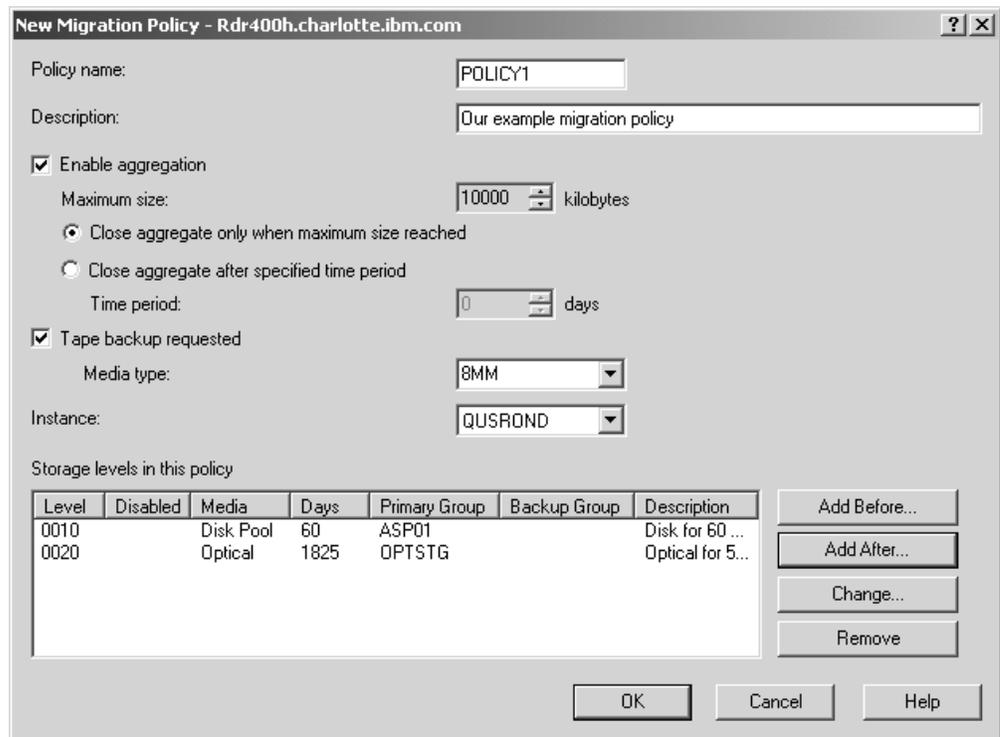


Figure 11. Migration policy

Adding users

The basics

In general, here is how you work in the administrative client to add a user:

1. In the OnDemand Archive section of System i Navigator, right click Common Server Administration. In the resulting context menu, click Client Administrative Functions, then logon.
2. Choose a server and select Users.
3. Pick one of two ways to add a user.
4. Define the properties of the user by completing fields in the Add a User dialog box.
5. Optionally add the user to groups. See the online help for more details.
6. Optionally add the user to application groups and set application group permissions.
7. Optionally add the group to folders and set folder permissions.
8. When finished, add the user by clicking OK in the Add a User dialog box.

Notes:

1. To add a user, the logon user ID must be a user with create users authority, a user administrator, or a system administrator.
2. To make problem determination easier, IBM recommends that each user profile that will be used to load reports (ADDRPTOND, STRMONOND, arslod, arsdod add) have a home directory in IFS on the System i5 server. If a home directory exists for a user profile running one of the load commands, any output files and temporary files will be placed in that user profile's home directory rather than "lost" within the entire root directory on the System i5 system. To create a home directory for a user profile, issue the following command:

```
MD '/home/usrprf/'
```

where `usrprf` is the name of the user profile that will be used to load reports.

Table 5 shows the minimum authority requirements are needed to perform the specified actions.

Note: For starting the monitors and loading documents, it is assumed that the user performing these functions has proper authority to the output queue being monitored or the document being loaded using the Add Report to OnDemand (ADDRPTOND) command. Providing proper authority to the output queue can be done by granting specific authority to the output queue or giving *SPLCTL to the user profile. Be aware that *SPLCTL means that the user will be able to view any spooled file in any output queue on the system.

Table 5. Authority Requirements

Action	Minimum authority requirements
Creating an instance	The user profile used to create an instance must have all the special authorities of a *SECOFR User Class.

Table 5. Authority Requirements (continued)

Action	Minimum authority requirements
Starting the servers	<p>To start the servers using the Start TCP/IP Server (STRTCPSVR) command and specifying *ONDMD for the SERVER parameter, you must have QONDADM user profile specified as a group or supplemental group profile in your user profile and you must have *USE authority to the STRTCPSVR command (and End TCP/IP Server (ENDTCPSVR) command to end the servers).</p> <p>To start the servers using the QRDARS/QRLMCTL program, you must have QONDADM user profile specified as a group or supplemental group profile in your user profile.</p>
Using the OnDemand Archive plug-in of System i Navigator for administrative functions	<p>To use the OnDemand Archive plug-in of the System i Navigator (part of System i5 Access) to perform all administrative functions except Migration Policies, you must have QONDADM user profile specified as a group or supplemental group profile in your user profile. To work with Migration Policies, you must also have your OnDemand user ID defined as an Application Group/Folder Administrator in the OnDemand Administrator Client.</p>
Starting the monitors to archive spooled files	<p>To start the OnDemand monitor(s) for a specific output queue using the Start Monitor for OnDemand (STRMONOND) command, you must have QONDADM user profile specified as a group or supplemental group profile in your user profile. The user issuing the STRMONOND command must also be defined as an Administrator on the Permissions tab for every Application Group to which a spooled file in the monitored output queue might be archived to, or have your OnDemand user ID defined as an Application Group/Folder Administrator in the OnDemand Administrator Client. If you would like to add the STRMONOND command to the i5/OS job scheduler, the profile specified in the USER parameter of the Add Job Schedule Entry (ADDJOBSCDE) command should have QONDADM user profile specified as a group or supplemental group profile and must also be defined as an Administrator on the Permissions tab for every Application Group to which a spooled file in the monitored output queue might be archived to, or have your OnDemand user ID defined as an Application Group/Folder Administrator in the OnDemand Administrator Client.</p>
Storing spooled files manually	<p>Using the Add Report to OnDemand (ADDRPTOND) command to store spooled files manually requires the same minimum authority as the user profile used to run the OnDemand monitors (as described above).</p>
Manually removing a document from OnDemand	<p>To manually remove a document from OnDemand using the Remove Report from OnDemand (RMVRPTOND) command, you must have QONDADM user profile specified as a group or supplemental group profile in your user profile. The user issuing the RMVRPTOND command must also be defined as an Application Group/Folder Administrator, or have Delete authority on the Permissions tab for the Application Group (in the OnDemand Administrator Client) from which the document is being removed.</p>

Table 5. Authority Requirements (continued)

Action	Minimum authority requirements
Using the Start Disk Storage Management (STRDSMOND) and the Start Archived Storage Management (STRASMOND) commands	To run the Start Disk Storage Management (STRDSMOND) and the Start Archived Storage Management (STRASMOND) commands, you must have QONDADM user profile specified as a group or supplemental group profile in your user profile. If you want to add these commands to the i5/OS job scheduler, the profile specified in the USER parameter of the Add Job Schedule Entry (ADDJOBSCDE) command must have QONDADM user profile specified as a group or supplemental group profile. Alternately, you might use the instance user profile (the user profile with a name that matches the instance name) for the USER parameter.
Printing on the server	To print a document from the OnDemand end user client to a server printer, you must have Access permission for the Folder and Access permission for the Application Group that the document is archived to. To use the Print Report from OnDemand (PRTRPTOND) command to reprint a document using a 5250 session, you must have Access permission for the Folder and Access permission for the Application Group that the document is archived to and you must have QONDADM user profile specified as a group or supplemental group profile in your user profile.

Choose a server

1. On the left side of the administrator window, click the name of the server to which you want to add the user.
2. Expand the areas of the server. Double click the server name or click the + (plus) to the left of the server name.
3. Select Users.

Two ways to add a user

This section explains how to add a user by using the New User command. You can also add a user by copying an existing user definition.

New User command: From the File menu, select New User to open the Add a User dialog box.

Copy command: You can use the copy command to add a user. In the User ID list, point to the user that you want to copy and click the right mouse button. Select Copy from the pop-up menu to open the Add a User dialog box. The fields in the dialog box contain information copied from the user you selected. At a minimum, you need to change the User ID (user IDs must be unique to the server).

Adding the user

In the Add a User dialog box, click OK. The administrative client adds the user to the database and returns to the main window.

Examples

First, review the requirements of the users that need to access the telephone bill reports.

- One set of user IDs for the customer service department. Identify one user as a user administrator. The user administrator can add other users.

I

- One user ID for Customer XYZ.

On the example system, users obtain permissions from groups. This means that the users are not added to application groups and folders. When groups are defined, users are added to the groups.

Note: The steps that follow do not show how to add all of the sample users to the system. Two users will be added; you can repeat the steps to add the others.

Adding the customer service users

Use the New User command to add a user.

1. First, point to Users and click the right mouse button. From the pop-up menu, select New User to open the Add a User Dialog box.
2. In the User ID field, enter the name of the user: *CSR1* If your OnDemand user IDs are linked to your i5/OS user profiles, then this user ID must also exist as an i5/OS user profile.
3. Accept the UID generated by OnDemand.
4. Set the user's initial password to the user ID. In the Password field, enter: *CSR1* If your OnDemand user IDs are linked to your i5/OS user profiles, then this password will be ignored.
5. In Verify Password, enter: *CSR1*
6. In the Description field, enter: *Customer Service Representative*
7. Under User Type, select User Administrator. The user will be able to maintain user IDs on the system.
8. Click the User Information tab.
9. Complete the fields on the User Information page, such as the Name, Department, and Phone Number.
10. Click the General tab.

The user will obtain application group and folder permissions from a group. Add the user to the group when the group is added to the system. Therefore, do not add the user to application groups, folders, or groups at this time.

Figure 12 on page 84 shows the Add a User dialog box with the basic information completed.

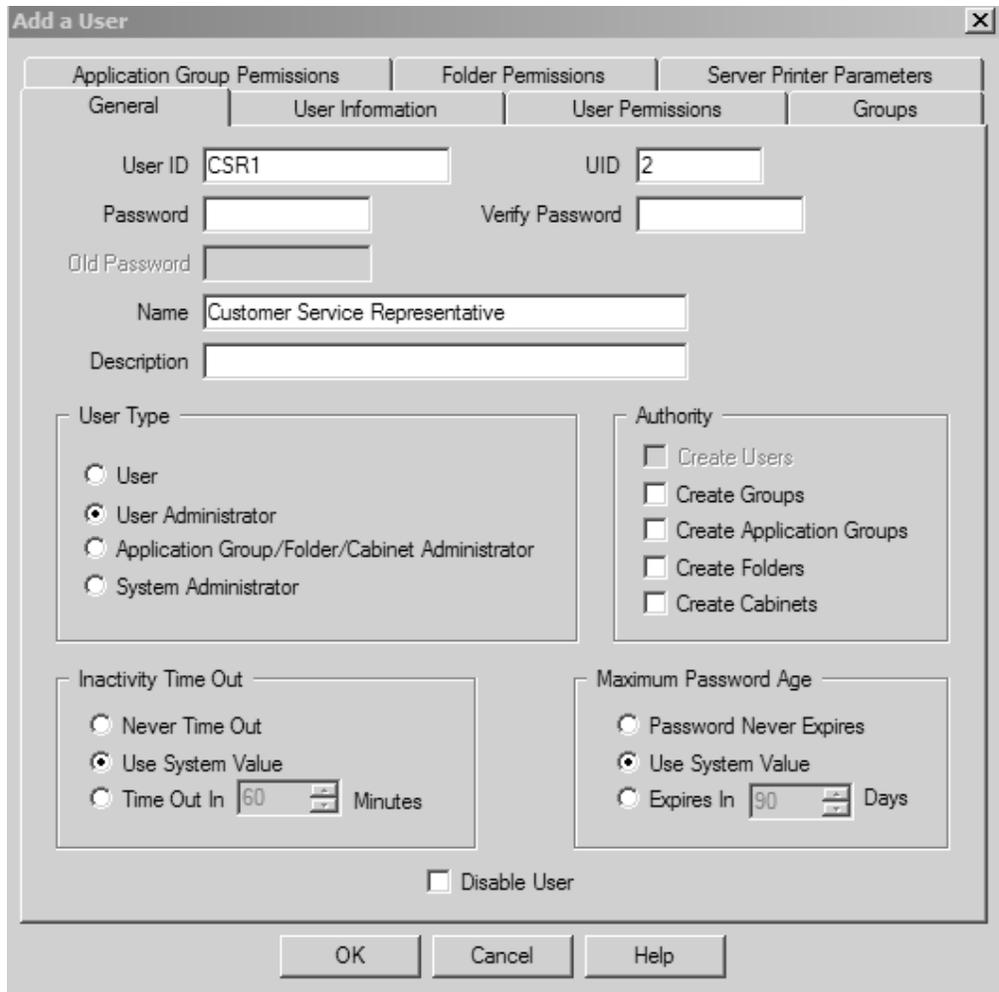


Figure 12. Add a User dialog box - basic information

- At this point, the properties of the user meet the requirements. Click OK to add the user.

Use the Copy command to add another user.

- Point to CSR1 and click the right mouse button. From the pop-up menu, select Copy to open the Add a User Dialog box.
- In the User ID field, replace CSR1 with CSR2 If your OnDemand user IDs are linked to your i5/OS user profiles, then this user ID must also exist as an i5/OS user profile.
- Accept the UID generated by OnDemand.
- Set the user's initial password to the user ID. In the Password field, enter: CSR2 If your OnDemand user IDs are linked to your i5/OS user profiles, then this password will be ignored.
- In the Verify Password, enter: CSR2
- Under User Type, select User.
- Click the User Information tab.
- Replace the information in the fields on the User Information page.
- Click the General tab.

Figure 13 shows the Add a User dialog box with the basic information completed.

The screenshot shows the 'Add a User' dialog box with the following fields and options filled out:

- User ID:** CSR2
- UID:** 3
- Password:** (empty)
- Verify Password:** (empty)
- Old Password:** (empty)
- Name:** Customer Service Representative
- Description:** (empty)
- User Type:** User Administrator
- Authority:** Create Users, Create Groups, Create Application Groups, Create Folders, Create Cabinets
- Inactivity Time Out:** Use System Value
- Maximum Password Age:** Use System Value
- Disable User:** (unchecked)

Buttons at the bottom: OK, Cancel, Help.

Figure 13. Add a User dialog box - basic information

10. At this point, the properties of the user meet the requirements. Click OK to add the user.

Adding groups

In general, here is how you work in the administrative client to add a group:

1. Choose a server and select Groups.
2. Pick one of two ways to add a group.
3. Define the properties of the group by completing fields in the Add a Group dialog box.
4. Optionally assign a group owner.
5. Optionally add users to the group.
6. Optionally add the group to application groups and set application group permissions.
7. Optionally add the group to folders and set folder permissions.
8. When finished, add the group by clicking OK in the Add a Group dialog box.

Important: To add a group, the logon user ID must be a user with create groups authority or a system administrator.

Choose a server

1. On the left side of the window, click the name of the server to which you want to add the group.
2. Expand the areas of the server. Double click the server name or click the + (plus) to the left of the server name.
3. Select Groups.

Two ways to add a group

This section explains how to add a group by using the New Group command. You can also add a group by copying an existing group definition.

New Group command

From the File menu, select New Group to open the Add a Group dialog box.

Copy command

You can use the copy command to add a group. In the Name list, point to the group that you want to copy and click the right mouse button. Select Copy from the pop-up menu to open the Add a Group dialog box. The fields in the dialog box contain information copied from the group you selected. At a minimum, you need to change the group name (group names must be unique to the server).

Note: These are not the same as group profiles in i5/OS. However, the names may match if you find that easier to maintain.

Adding users

You can add one or more users to the group. Complete the following steps to add a user to a group.

1. From the List of Users list, select the user.
2. Click Add. The administrative client moves the user to the Users in the Group list.
To remove a user from the group, select the user in the Users in the Group list and click Remove.

Adding the group

In the Add a Group dialog box, click OK. The administrative client adds the group to the database and returns to the main window.

Examples

Review the requirements of the groups that need to access the sample telephone bill reports.

- Customer service group. Users that belong to the group can open the telephone bill report folder and query documents stored in the telephone bill report application group. When the report is added to the system, the group will be added to the application group and the folder. Identify a group owner. The group owner can add new customer service users to the group and remove users from the group.
- Customer XYZ group. Users that belong to the group can also open the telephone bill report folder and query documents stored in the telephone bill report application group. However, you can limit access to documents that

contain a specific customer name and account number. When the report is added to the system, add the group to the application group and the folder and specify the necessary restrictions.

- Users. Add the users that were defined in “Adding users” on page 80 to the groups.

Adding the customer service group

Use the New Group command to add the group.

1. First, point to Groups and click the right mouse button. From the pop-up menu, select New Group to open the Add a Group Dialog box.
2. In the Name field, enter the name of the group: *CustomerService*
3. Accept the GID generated by OnDemand.
4. From the Group Owner list, select the user that can add users to and remove users from the group: CSR1

Note: The user that you select does not obtain permissions from the group unless you add the user to the group (see step 6). However, a group owner can add their user ID to the group at any time.

5. In the Description field, enter: *Access to Telephone Bill Reports; call Leonard Little, x90565, for more information*
6. From the List of Users list, select and add users to the group: CSR1, CSR2, CSR3, CSR4, and CSR5

Figure 14 on page 88 shows the Add a Group dialog box with the basic information completed.

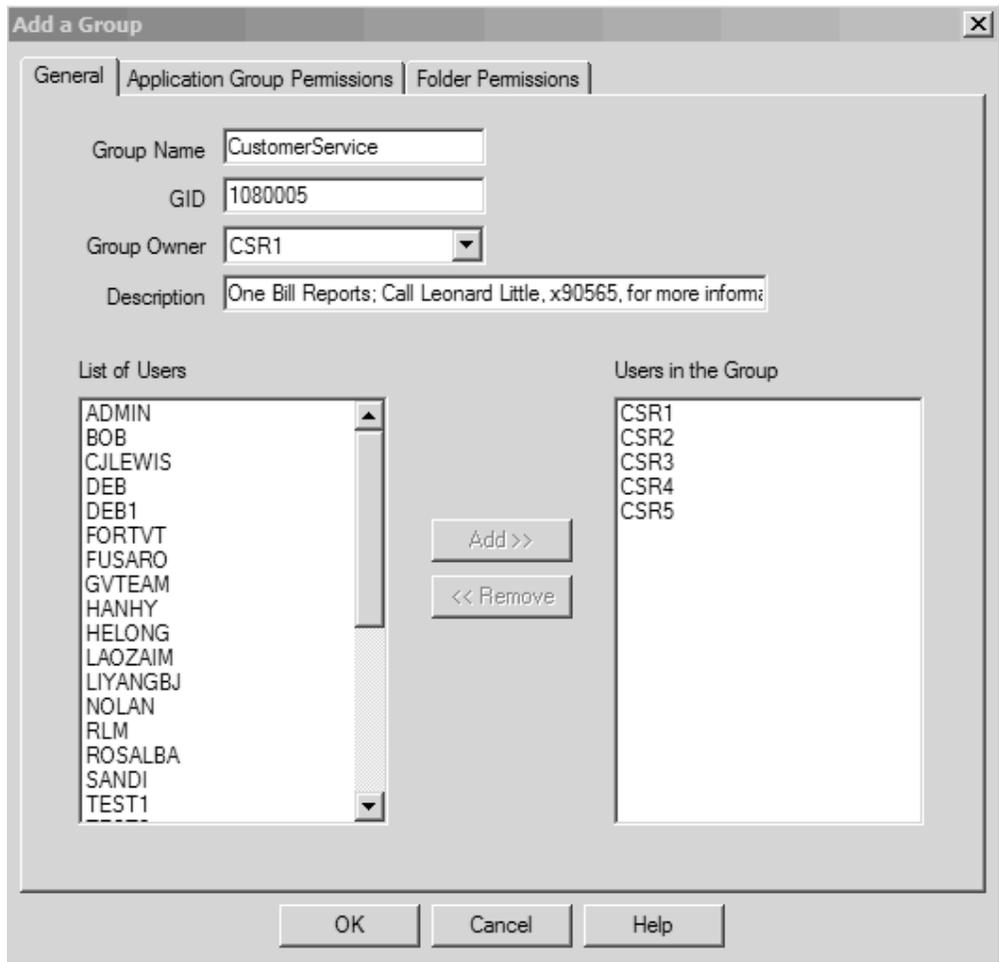


Figure 14. Add a Group dialog box

7. At this point, the properties of the group meet the requirements. Click OK to add the group.

Adding the Customer XYZ group

Use the Copy command to add the group.

1. Point to Customer Service and click the right mouse button. From the pop-up menu, select Copy to open the Add a Group Dialog box.
2. In the Name field, replace *CustomerService* with *CustomerXYZ*
3. Accept the GID generated by OnDemand.
4. Use a system administrator to maintain the group. Therefore, do not assign a group owner. In the Group Owner list, replace CSR1 with *NONE.
5. Replace the contents of the Description field with: *Access to Telephone Bill Reports by Customer XYZ*
6. From the Users in the Group list, remove CSR1, CSR2, CSR3, CSR4, and CSR5.
7. From the List of Users list, add XYZ1.

Figure 15 on page 89 shows the Add a Group dialog box with the basic information completed.

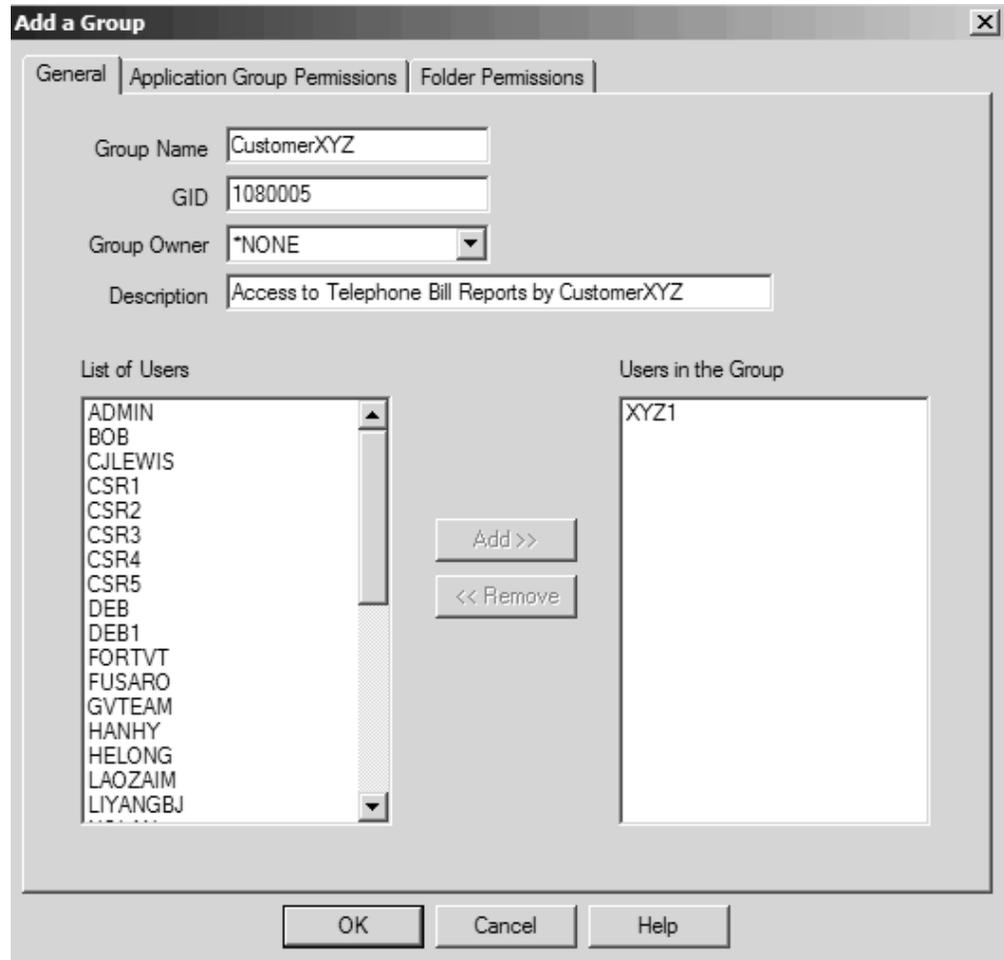


Figure 15. Add a Group dialog box

8. Click OK to add the group.

Adding server printers

In general, here is how you work in the administrative client to add a server printer:

1. Choose a server and select Printers.
2. Pick one of two ways to add a server printer.
3. Define the properties of the server printer by completing fields in the Add a Printer dialog box. Search for *printer,adding* in the online help for more details.
4. When finished, add the server printer by clicking OK in the Add a Printer dialog box.

Notes:

1. To add a server printer, the logon user ID must be a system administrator.
2. Server print is supported for spooled file data types of SCS, SCS-extended, AFPDS, and LINE.

Choose a server

1. On the left side of the main window, click the name of the server to which you want to add the server printer.

2. Expand the areas of the server. Double click the server name or click the + (plus) to the left of the server name.
3. Select Printers.

Two ways to add a server printer

This section explains how to add a server printer by using the New Printer command. You can also add a server printer by copying an existing server printer definition.

New Printer command

From the File menu, select New Printer to open the Add a Printer dialog box. Figure 16 on page 91 shows an example of the Add a Printer dialog box.

Copy command

You can use the copy command to add a server printer. In the Name list, point to the server printer that you want to copy and click the right mouse button. Select Copy from the pop-up menu to open the Add a Printer dialog box. The fields in the dialog box contain information copied from the server printer you selected. At a minimum, you need to change the name (printer names must be unique to the server).

Adding the server printer

In the Add a Printer dialog box, click OK. The administrative client adds the server printer to the database and returns to the main window.

Examples

Add a server printer that can be selected as the default server printer for the application (added in “Adding a report” on page 91). The physical printer resides in the customer service department. By default, when users of the telephone bill report application select a document and choose the server printer command, OnDemand sends the document to this print device.

Adding the server printer

Use the New Printer command to add the server printer.

1. First, point to Printers and click the right mouse button. From the pop-up menu, select New Printer to open the Add a Printer dialog box.
2. In the Name field, type the name of the server printer: *Customer Service printer*
3. In the Description field, type: *Customer Service printer for the telephone bill report application*
4. In the Server Queue Name, type: *ip60cs* If no library name is entered (as in the example), OnDemand assumes *LIBL; otherwise, enter a value such as QUSRSYS/PRT04 to identify both the library name and the output queue name.
5. Accept the default Printer Type of *Printer*

Figure 16 on page 91 shows the completed Add a Printer dialog box.

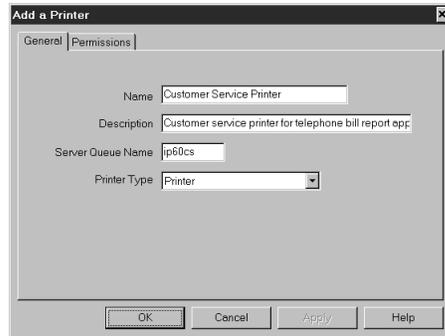


Figure 16. Add a Printer dialog box

6. At this point, the properties of the server printer meet the requirements. Click OK to add the server printer.

Adding storage sets

A storage set is automatically added each time you create a migration policy. The name of the storage set that is created is an exact match of the name of the migration policy. See “Creating migration policies” on page 78 for details on migration policies.

Adding a report

In general, here is how you work in the administrative client to define a report to the system:

1. Choose a server. On the left side of the main window, click the name of the server on which you want to define the report.
2. Select the area. First expand the areas of the server. Double click the server name or click the + (plus) to the left of the server name. Then select the area.
When you define a report to the system, you typically add an application group, an application, and a folder.
 - The application group identifies database and storage management information.
 - The application identifies viewing, indexing, loading, and printing information.
 - The folder provides users the ability to search for, retrieve, view, and print report data.
3. Pick one of two ways to add an application group, an application, and a folder. For example, use one of the following methods to add an application group:
 - Add a new application group. From the File menu, select New Application Group to open the Add an Application Group dialog box.
 - Copy an existing application group. In the Name list, point to the application group that you want to copy and click the right mouse button. Select Copy from the pop-up menu to open the Add an Application Group dialog box. The fields in the dialog box contain information copied from the application group you selected. At a minimum, you need to change the Name (application group names must be unique to the server).
4. Define the properties of the application group, application, and folder.
5. When finished, add the application group, application, and folder by clicking OK in the add dialog box.

Note: To add an application group, the logon user ID must be a system administrator, an application group/folder administrator, or a user with create application groups authority.

To add an application, the logon user ID must be a system administrator, an application group/folder administrator, or a user with create application groups authority.

To add a folder, the logon user ID must be a system administrator, an application group/folder administrator, or a user with create folders authority.

An example

This section describes how to define a sample telephone bill report to the system.

About the report

A telephone bill report typically contains hundreds of pages of line data. The report is logically segmented into statements. Users search for statements using a date and any combination of account number and customer name.

Most queries about a statement occur in the first 60 days after it is mailed to the customer. Little or no activity occurs a year after a statement is generated. For legal reasons, a statement must be maintained on the system for five years. The system should maintain index information in the most efficient way possible.

Two groups of users need to access the telephone bill reports. The customer service department is responsible for handling queries from customers. They answer questions about the statements, attach annotations to statements, and reprint and fax a replica of original statements. As part of a customer service initiative, Customer XYZ is permitted to access the system and retrieve and view their statements.

About the application group

Before adding the application group, review the database and storage management requirements.

Database requirements: Database requirements can be grouped in two categories: database tables and the database fields.

Database tables:

- A database table contains index data from one or more reports
- An annotation field is not required in the database
- The date field is the segment field for the application group

Database fields:

- Three database fields: account number, customer name, and report date
- Account number is the index, data type string, 16 bytes. However, only 13 bytes should be stored in the database, removing the - (dash) characters from the account number string.
- Customer name is a filter, data type string, 30 bytes
- Report date is a filter, data type date

Storage management requirements: The storage management requirements determine where, how, and how long OnDemand maintains the report and index data.

- Maintain a report for five years
- Copy documents to disk and maintain them for 60 days
- Copy documents to archive storage when the report is loaded into the system
- Delete a table of index data at a time

Adding the application group

Use the New Application Group command to add the application group.

1. First, point to Application Groups and click the right mouse button. From the pop-up menu, select New Application Group. The administrative client opens the Add an Application Group dialog box.

The pages of the Add an Application Group dialog box organize information about the application group into sections. The tabs show which page you are on: General, Message Logging, Storage Management, Permissions, Field Definition, and Field Information.

2. Start by completing the General page. In the Name field, type the name of the application group.
3. In the Description field, type up to 120 characters of descriptive information about the application group.
4. Based on the database requirements, accept the recommended defaults for the rest of the fields on the General page. (You can click Advanced to see the default options.)

Figure 17 on page 94 shows the completed General page.



Figure 17. General page

5. Select the Message Logging tab to specify the types of application group messages that OnDemand should save in the system log.
6. Select Retrieval, Database Queries, and Server Printing. Clear all of the other check boxes.

Figure 18 on page 95 shows the completed Message Logging page.

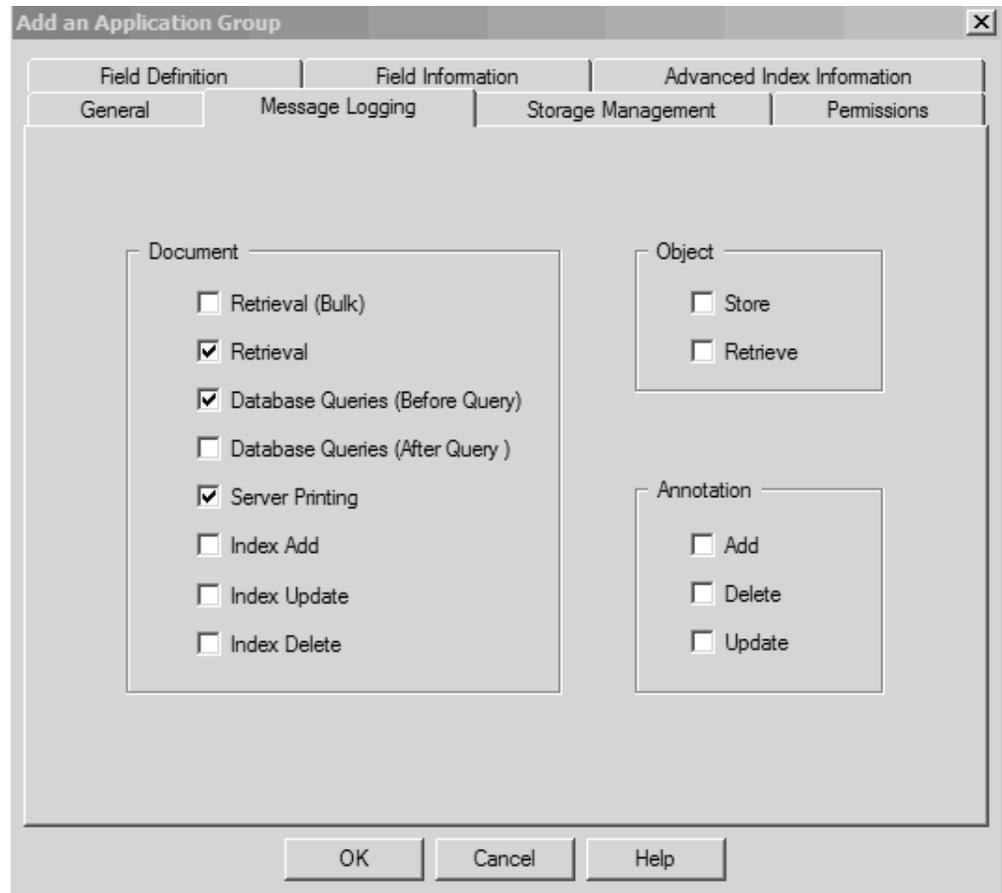


Figure 18. Message Logging page

7. Select the Storage Management tab to provide information that OnDemand uses to manage data stored in the application group.
8. From the Storage Set Name list, select the name of the storage set that OnDemand will use to maintain the report on disk storage and in archive storage. Select the storage set and migration policy that was defined in “Adding storage sets” on page 91.
9. Under Cache Data, select Cache Data for __ Days and enter 60 in the space provided. OnDemand should maintain the report on disk storage for 60 days. After that time, when a user views or prints the report, OnDemand retrieves the report from archive storage.
10. Under Life of Data and Indexes, select Expire in ___ Days and enter 1825 in the space provided. This is the number of days (1825, or five years) that OnDemand should maintain index data, documents, and resources related to the report. After that number of days, OnDemand can delete the report from the system. Note that the value for Life of Data and Indexes can be changed even after you have loaded data into OnDemand for this application group. If you change this value after you have already loaded data, the change will affect the existing data that is already loaded (if the Expiration Type is set to Load in the application group definition), as well as any new data you load after the change is made.
11. Because OnDemand should delete a table of index data at a time, from the Expiration Type list, select Segment.

Figure 19 shows the completed Storage Management page. Although the example shows the selection of an Expiration Type of Segment, the recommended selection for this field is Load. (You can click Advanced to see other, default options.)

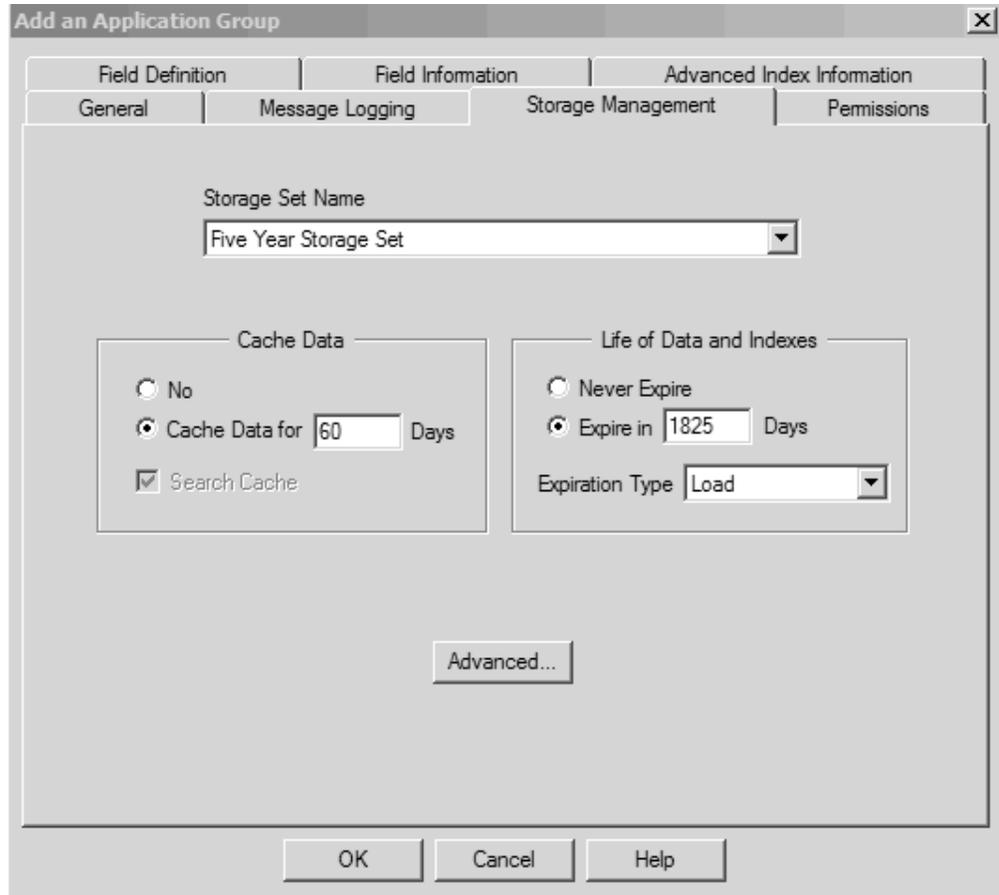


Figure 19. Storage Management page

12. Select the Permissions tab to specify the types of report and application group functions that users can perform. For example, you can let users query report data, create logical views, print and fax pages of the report, and maintain the application group. You can specify default permissions and permissions for specific groups and users. Unless you specify otherwise, the person that creates the application group is given all application group permissions; no other users can access report data or maintain the application group. For the example system, other users obtain permissions from a group. The groups were added in “Adding the customer service group” on page 87 and “Adding the Customer XYZ group” on page 88.
13. First, add the customer service group. From the User/Groups list, select +CustomerService.
14. Select the Access check box.
15. Click Add.
16. Next, add the Customer XYZ group. From the User/Groups list, select +CustomerXYZ.

17. In the Annotation area, clear the View check box. OnDemand also clears the Add check box. Customer XYZ users can view, print, fax, and copy documents but do not have permission to use the annotation tools provided by OnDemand.
18. Click Add.
Figure 20 shows the completed Permissions page.

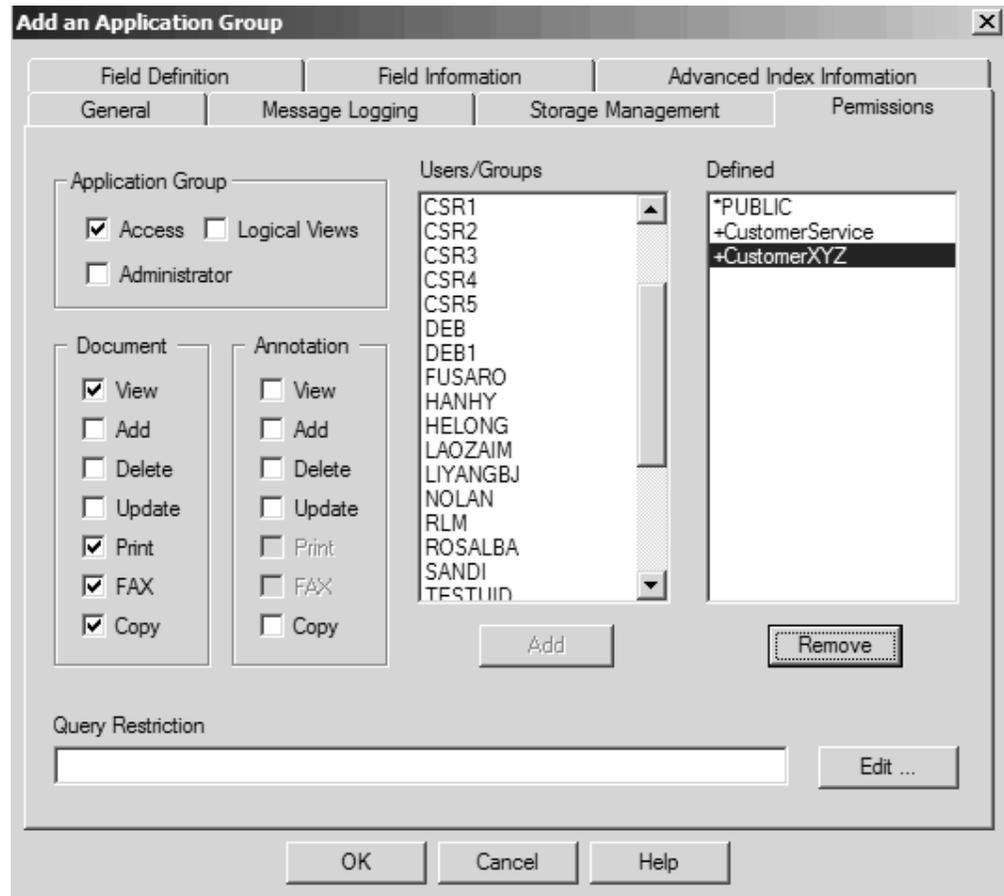


Figure 20. Permissions page

19. Select the Field Definition tab to define the database fields. Define three database fields for the telephone bill report:
 - Account number
 - Customer name
 - Report date

To define a database field, type the name of the field in the Database Field Name field and click Add.

Figure 21 on page 98 shows the completed Field Definition page.

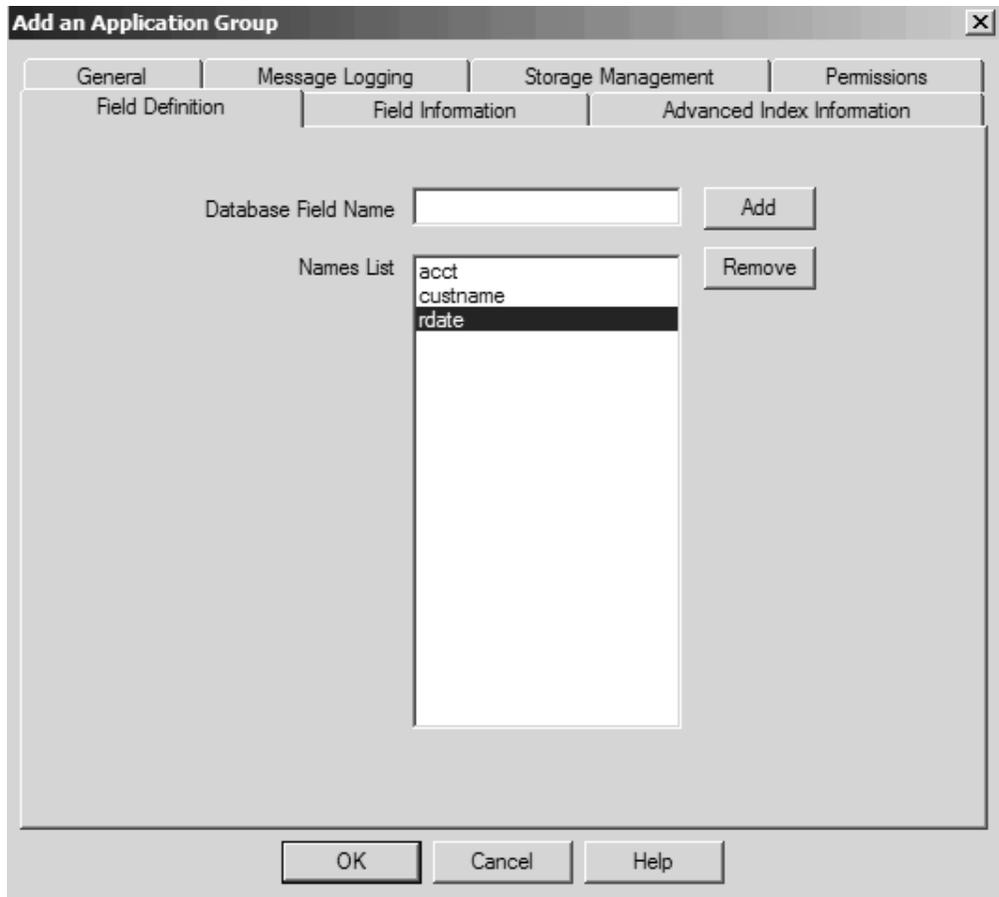


Figure 21. Field Definition page

20. Select the Field Information tab to define the attributes of the database fields.
21. First, define field information for the account number field.
 - From the Type list, select Index
 - Type the string length (13)

Figure 22 on page 99 shows the Field Information page for the account number field.

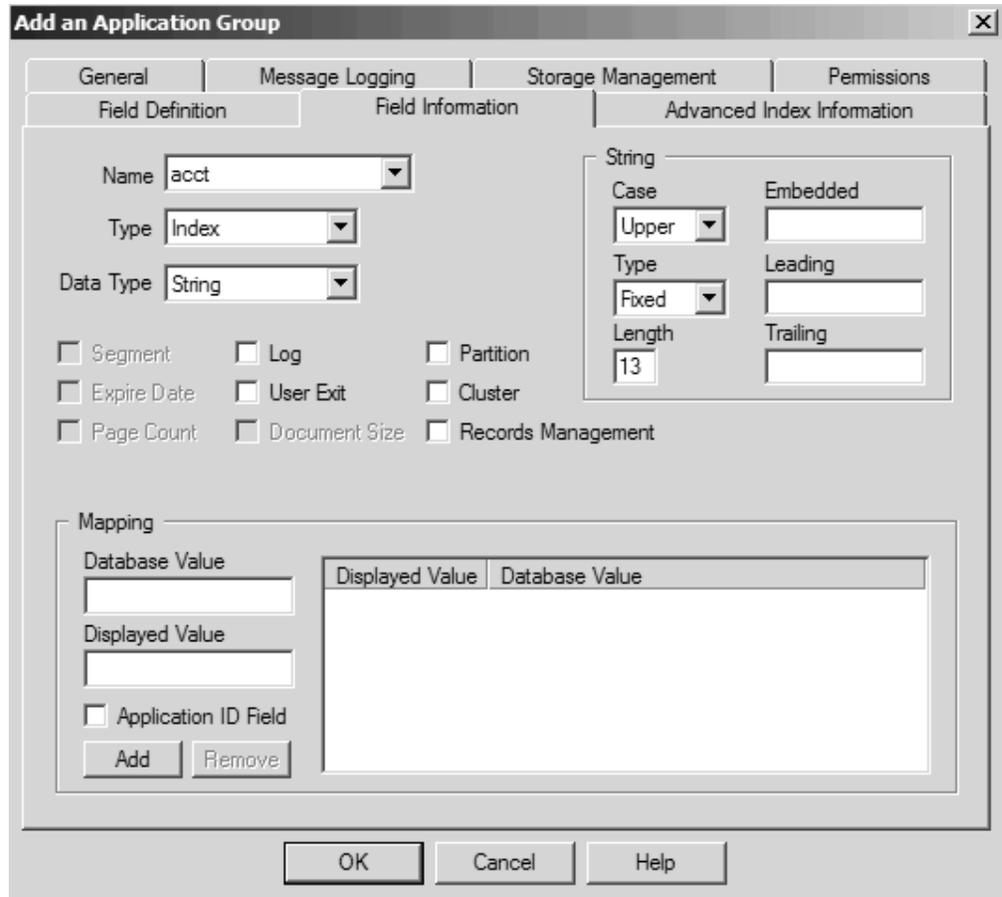


Figure 22. Field Information page

Note: IBM recommends that you always define an application ID field for the application group. An application ID field is a database field that contains values that identify an application within the application group. Figure 23 shows an example of an application ID field.

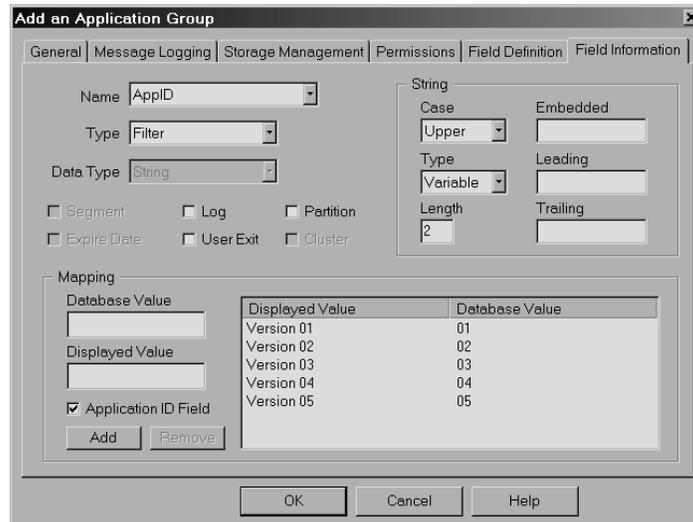


Figure 23. Field Information page for application ID field

You may not think that you need an application ID field at the time that you create your application group, if you are adding an application group that will hold only one application **at the current time**. However, if you decide later to add other applications to the application group (or if you want to maintain multiple versions of your application definitions) and you then need to define an application ID field for the application group, you will not be able to do so because an application ID field **cannot be added after the application group is created**. (All fields must be added during the original application group definition.) Also note that the application ID field can be “hidden” from users that do not require it to search for documents. See the online help for more information about the application ID field.

22. Next, define field information for the customer name field.
 - From the Name list, select custname
 - From the Type list, select Variable
 - In the Length field, type 30

Figure 24 shows the Field Information page for the customer name field.

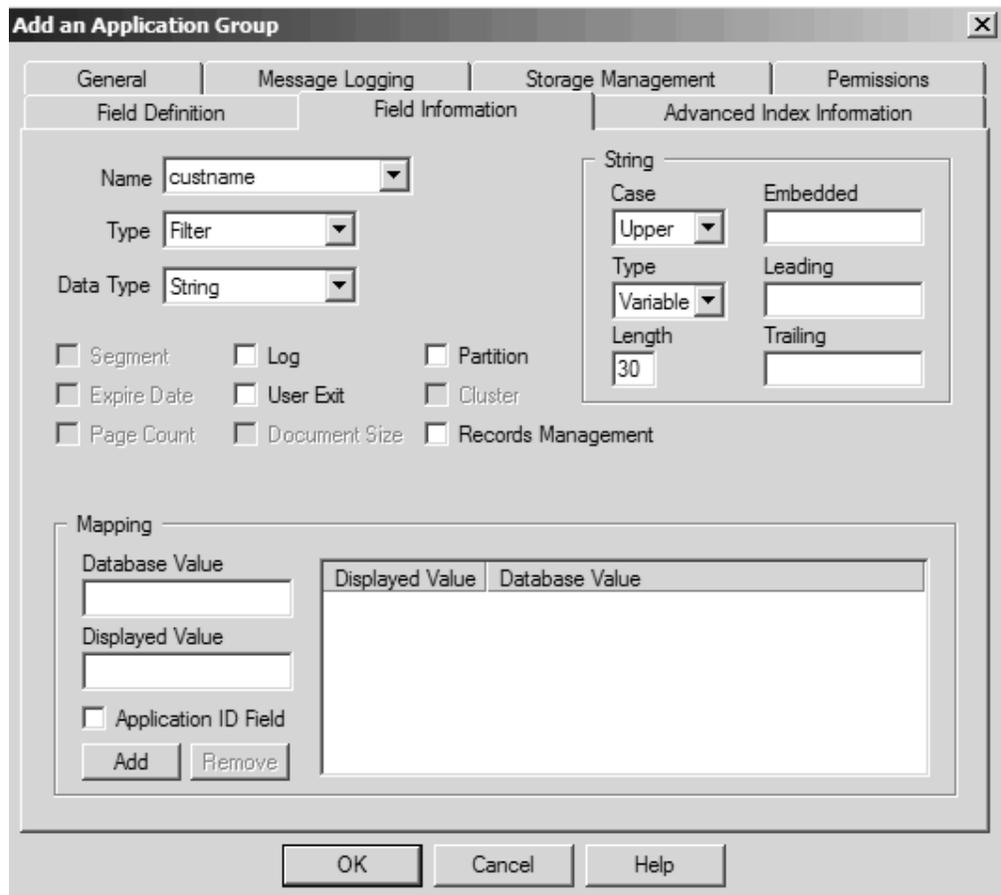


Figure 24. Field Information page

23. Next, define field information for the report date field.
 - From the Name list, select rdate
 - From the Data Type list, select Date
 - Select the Segment check box

Figure 25 shows the Field Information page for the report date field.

The screenshot shows a dialog box titled "Add an Application Group" with a close button (X) in the top right corner. The dialog has four tabs: "General", "Message Logging", "Storage Management", and "Permissions". The "Field Information" tab is selected. Below the tabs, there are three sub-tabs: "Field Definition", "Field Information", and "Advanced Index Information". The "Field Information" sub-tab is active. The main area contains the following fields and options:

- Name:
- Type:
- Data Type:
- Options (checkboxes):
 - Segment
 - Log
 - Partition
 - Expire Date
 - User Exit
 - Cluster
 - Page Count
 - Document Size
 - Records Management
- Mapping section:
 - Database Value:
 - Displayed Value:
 - Application ID Field
 - Buttons: Add, Remove
 - Table:

Displayed Value	Database Value
-----------------	----------------

At the bottom of the dialog are three buttons: "OK", "Cancel", and "Help".

Figure 25. Field Information page

24. At this point, the properties of the application group meet the requirements. Click OK in the Add an Application Group window. The administrative client adds the application group to the database and returns to the main window.

About the application

Before adding the application, review the viewing, indexing, and loading requirements.

Viewing requirements:

- Source data stored in OnDemand as AFP data
- Format data into pages and enhance the appearance with images and fonts
- Retrieve statements of one or more pages
- Define a default printer for the application. The default printer is where OnDemand sends documents when users select the server print command.

Indexing requirements:

- Source data is EBCDIC, code page 500
- Segment report into groups of pages, one statement in each group
- Identify the beginning of a statement using:
 - Skip-to-channel one (X'F1')

PAGE 1 (X'D7C1C7C54040F1')

- Generate three indexes for each statement: statement date, account number, and customer name
- Collect resources

Loading requirements:

- Compress and store data in the most efficient method possible
- Application group database field names and index names match
- Date format is Mth d, yyyy
- Remove embedded - (dash) character from account number before storing value in the database

Adding the application

Use the New Application command to add the application.

1. First, point to Applications and click the right mouse button. From the pop-up menu, select New Application to open the Add an Application dialog box.

The pages of the Add an Application dialog box organize information about the application into sections. The tabs show which page you are on: General, View Information, Indexer Information, Load Information, Logical View Fields, Logical Views, and Miscellaneous Options.

2. Start by completing the General page. In the Name field, type the name of the application.
3. In the Description field, type information about the application.
4. Click Select to open the Application Groups dialog box.
5. From the Names list, select Telephone Bill Reports.
6. Click OK.

Figure 26 shows the completed General page.

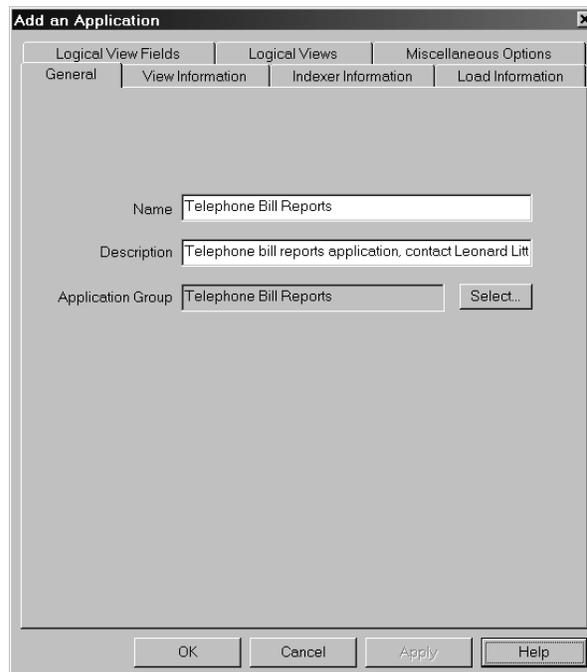


Figure 26. General page

7. Select the View Information tab to specify information needed by OnDemand client programs to display the telephone bill report. This information is also used by the indexing program.
8. From the Data Type list, select Line. Note that although this example shows Line data type, most i5/OS spooled files will be either SCS or AFP.
9. Enter the correct Code Page. For Line, SCS, and SCS-Extended data types, this field determines the code page used by the OnDemand client to display the data. For Line, the default value is 500. For SCS and SCS-Extended, the default value is the code page of the server.
10. In the RECFM area, select Fixed. The report contains fixed length records, 133 bytes in length.

Figure 27 shows the View Information page.

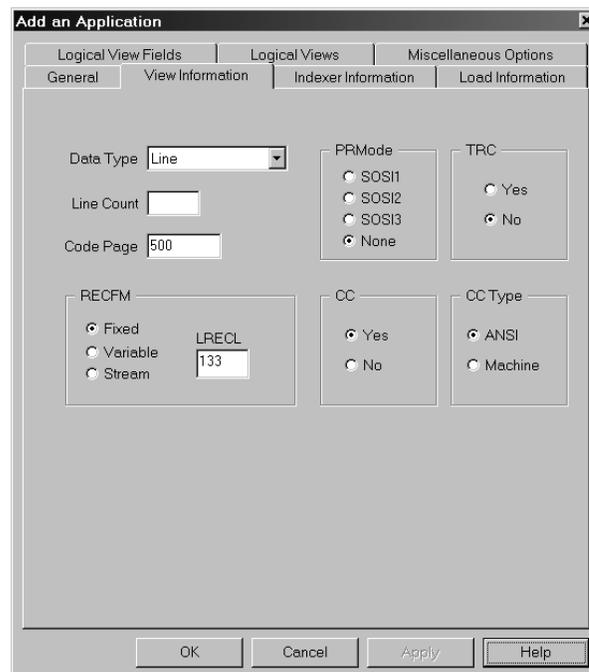


Figure 27. View Information page

11. Select the Indexer Information tab.
12. From the indexer list, select OS/400 Indexer.
13. Process a sample report using the graphical indexer. In the Parameters Source area, select Sample Data.
14. Click Modify to open the Open dialog box to select a file that contains a sample of the actual report data.
15. Select OS/400 Spooled File to work with spooled files on the server. Identify how to find your spooled file by entering a user profile or output queue name, and then click Retrieve List to generate a list of spooled files to choose from. Once you select a specific spooled file, OnDemand copies that sample data to your workstation for you to use for indexing.

Figure 28 on page 104 shows the report window.

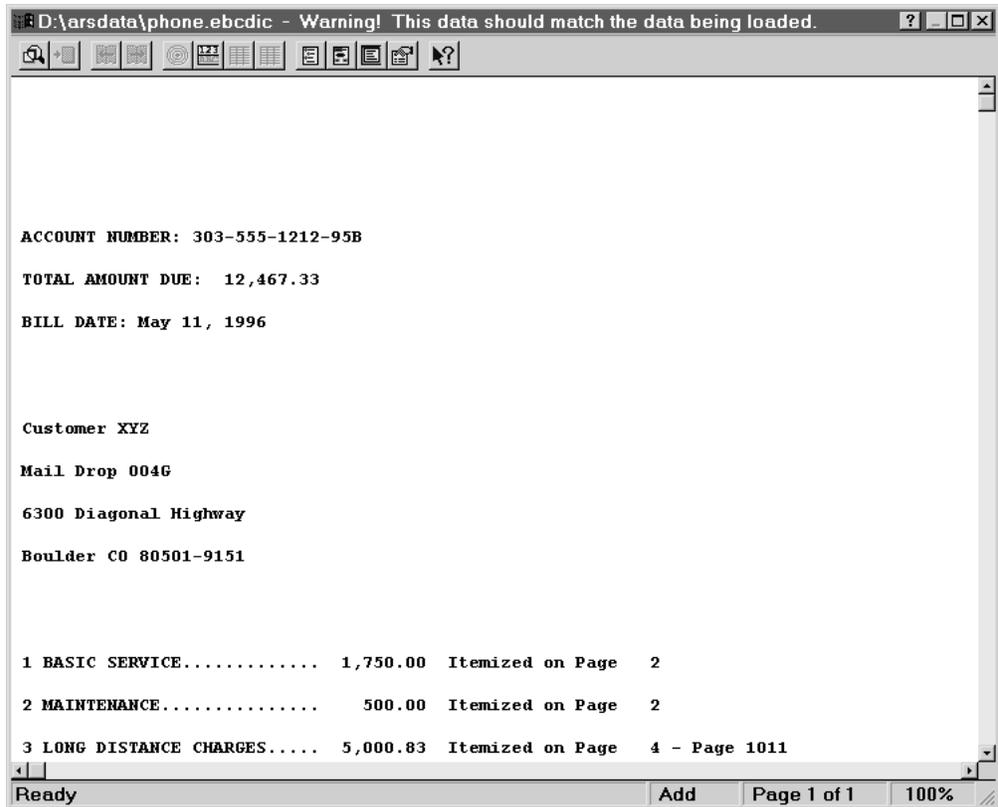


Figure 28. Report window

16. Define trigger number one. First, select any blank column in the first record. Click the Add a Trigger icon to open the Add a Trigger dialog box. (See online help for a description of trigger fields.)
17. In the Columns to Search area, select Carriage Control. Figure 29 shows the completed Add a Trigger dialog box for Trigger1.

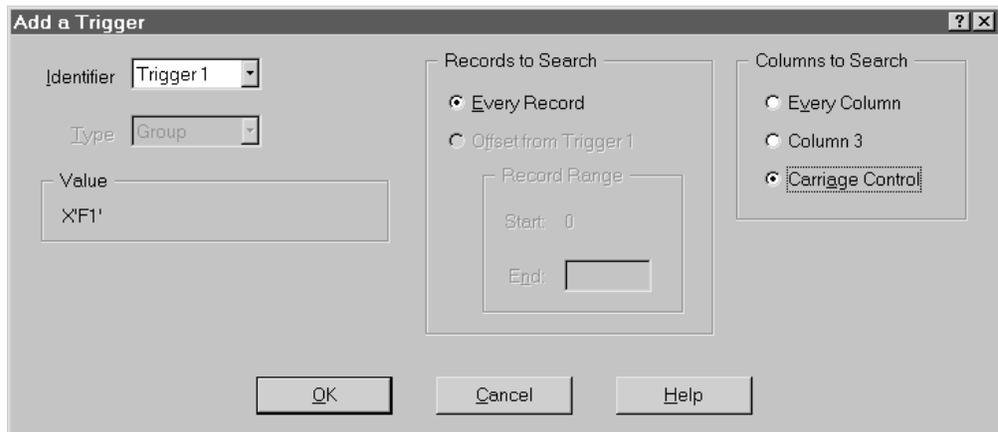


Figure 29. Add a Trigger dialog box

18. Click OK to add the trigger.
19. Define trigger number two. First, select the string PAGE 1. Click the right mouse button. From the pop-up menu, select Trigger to open the Add a Trigger dialog box.

20. Click OK to add the trigger.
21. Define field number one. First, select the string Customer XYZ and enough blank characters to the right of the string to reserve enough space to hold the largest index value (30 characters) the field can contain. (The selected string length guide, which appears above the field, displays the number of selected characters.) Then click the right mouse button. From the pop-up menu, select Field to open the Add a Field dialog box.
22. From the Trigger list, select Trigger2.

Figure 30 shows the completed Add a Field dialog box for Field1.

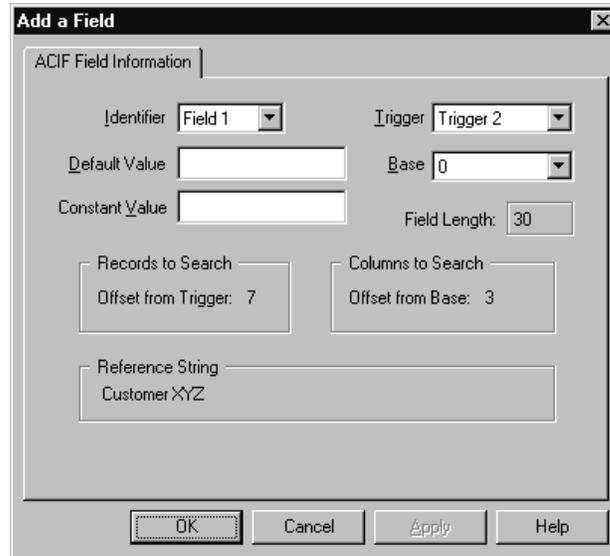


Figure 30. Add a Field dialog box

23. Click OK to add the field.
24. Define field number two. First, select the string May 11, 1996. Then click the right mouse button. From the pop-up menu, select Field to open the Add a Field dialog box.
25. From the Trigger list, select Trigger2.
26. Click OK to add the field.
27. Define field number three. First, select the string 303-555-1212-95B. Then click the right mouse button. From the pop-up menu, select Field to open the Add a Field dialog box.
28. From the Trigger list, select Trigger2.
29. Click **OK** to add the field.
30. Define the indexes. First, clear any selected areas of the report. To define the first index, click the "Add an Index" icon to open the Add an Index dialog box.
31. From the Attribute list, select custname.
32. In the Break area, select No.
33. In the Fields list, double-click Field1.

Figure 31 on page 106 shows the Add an Index dialog box for Index1.

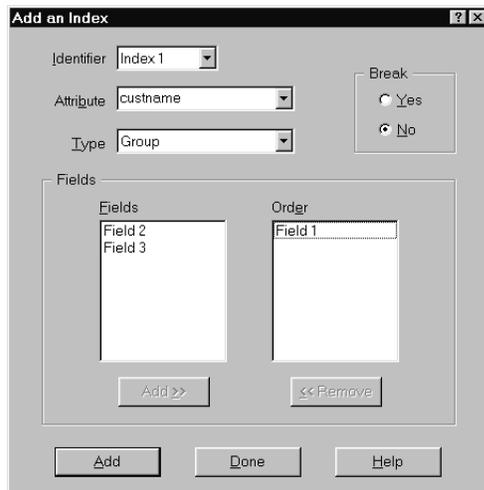


Figure 31. Add an Index dialog box

34. Now define the second index. From the Attribute list, select rdate
35. In the Break area, select No.
36. In the Fields list, double-click Field2.
37. Now define the third index. From the Attribute list, select acct.
38. In the Fields list, double-click Field3. Leave the Break setting set to Yes for this index. This will cause OnDemand to watch for a change in the value of the acct index by using the change to indicate an end to one document and the beginning of the next when breaking up the input file into separate documents. For more information about this Break setting, see the *Content Manager OnDemand for i5/OS Common Server Indexing Reference*.
39. Click Done to close the Add an Index dialog box.
40. Close the report window, saving the changes.
41. Select the Load Information tab to specify information that OnDemand uses to process the index data before storing it in the database.
42. In the Application Group DB Name list, select rdate. From the format list, select %b %e, %Y.

If you need to specify a default value for rdate, you can specify it here in the Default Value field, or you can specify it using the DEFAULT keyword in the indexer parameters for this application. See the *Content Manager OnDemand for i5/OS Common Server Indexing Reference* for important information about setting default values.

Figure 32 on page 107 shows the Load Information for the report date field.

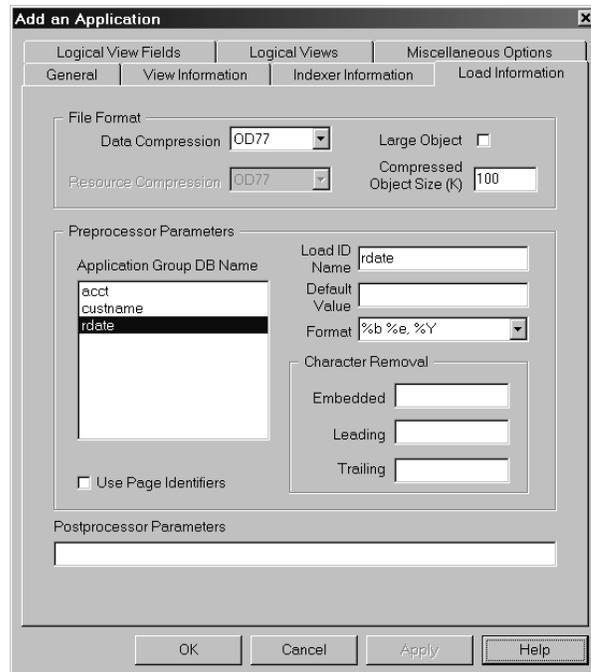


Figure 32. Load Information page

43. In the Application Group DB Name list, select acct. To conserve space in the database, OnDemand should remove the - (dash) character from index values before storing the values in the database. Also, it is best to define your numeric index fields (including date fields) so that leading, trailing, and embedded blanks, dashes, currency symbols, thousands separators, etc. are removed by OnDemand prior to being stored. Edits on these fields are sometimes strict and can cause a load to fail if non-numeric characters are found within the fields being defined.
44. In the Embedded field, type the - (dash) character.
Figure 33 on page 108 shows the Load Information for the account number field.

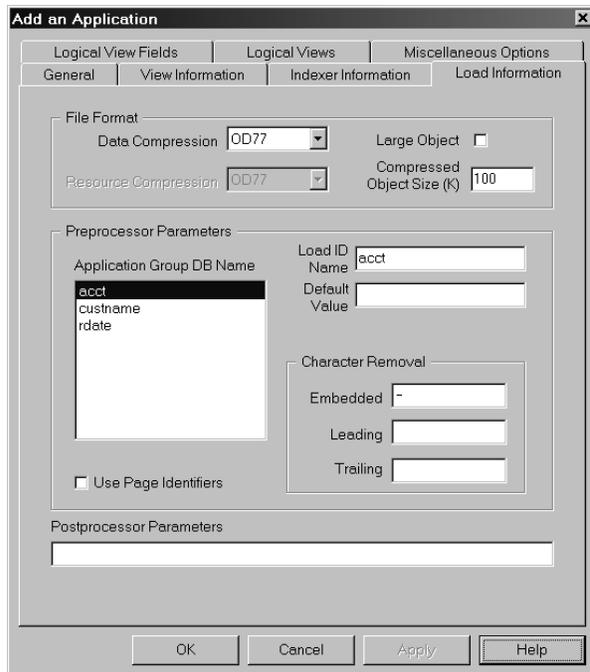


Figure 33. Load Information page

45. If you require a postprocessor program to further process the index data that is extracted from the print page, enter the name of the symbolic link that points to your custom-written postprocessor in the **Postprocessor Parameters** field. For more information about writing a postprocessor program, see the *Content Manager OnDemand for i5/OS Common Server Indexing Reference*.
46. Select the Miscellaneous Options tab to provide information that OnDemand uses to print the report.
47. From the Default Server Printer list, select Customer Service printer. This is the printer that was added in “Adding server printers” on page 89. Figure 34 on page 109 shows the completed Miscellaneous Options page.

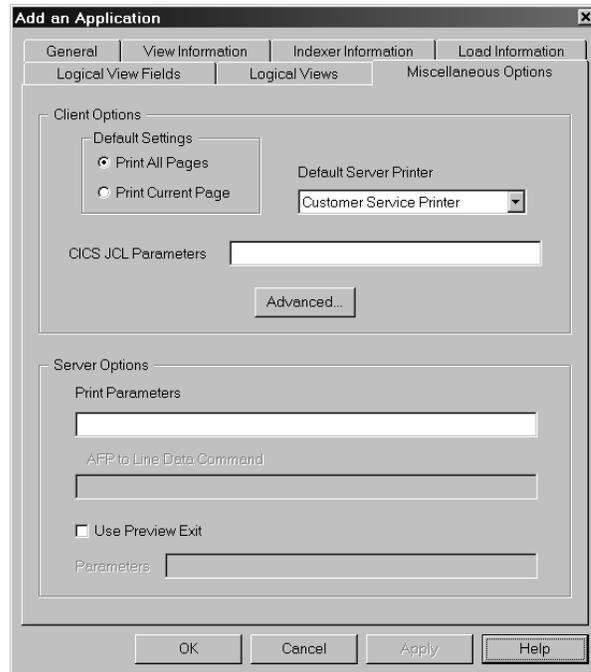


Figure 34. Miscellaneous Options page

48. At this point, the properties of the application meet the requirements. If, however, you need to use an i5/OS printer file to further define some of the server print parameters, see Appendix D, “Server printing and faxing,” on page 207 for details. Click OK in the Add an Application window. The OnDemand Administrator adds the application to the database and returns to the main window.

About the folder

Before adding the folder, review the data access requirements, the types of permissions to specify, and the search and display fields to define.

Data access requirements: The folder allows users to access the telephone bill report application group and the telephone bill report application.

Permissions: Who needs access to the folder and what types of permissions do the users need?

- Users in the customer service department can open the folder to search for and retrieve statements.
- Users at Customer XYZ can open the folder to search for and retrieve statements that contain their account number and customer name.
- Define a set of folder fields for the Customer XYZ users. The folder fields will limit access to specific statements.

Search and display fields: Define two sets of folder fields:

- One set at the folder level. These folder fields allow users in the customer service department to access any statement in the database.
- One set for the CustomerXYZ group. These folder fields allow users at Customer XYZ to access specific statements.

Adding the folder

Use the New Folder command to add the folder.

1. First, point to Folders and click the right mouse button. From the pop-up menu, select New Folder to open the Add a Folder dialog box.
The pages of the Add a Folder dialog box organize information about the folder into sections. The tabs show which page you are on: General, Permissions, Field Definition, Field Information, and Field Mapping.
2. Start by completing the General page. In the Name field, type the name of the folder.
3. In the Description field, type up to 120 characters of descriptive information about the folder.
4. Select the Display Document Location check box. This provides users with a visual clue about the type of media on which a statement is stored.
5. In the Application Groups list, select Telephone Bill Reports.

Figure 35 shows the completed General page.

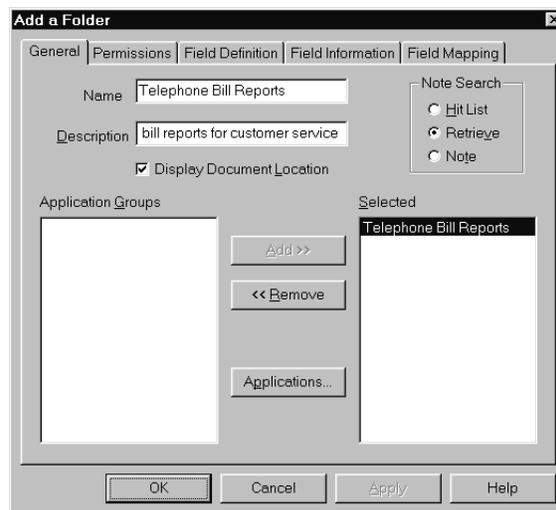


Figure 35. General page

6. Select the Permissions tab to specify the types of folder functions that users can perform. For example, you can let users open the folder, create private named queries, and maintain folder fields. You can specify default permissions and permissions for specific groups and users. Unless you specify otherwise, the person that creates the folder is given all folder permissions; no other users can open or maintain the folder. On the example system, other users obtain permissions from a group. Add two groups to the folder. The groups were added in “Adding the customer service group” on page 87 and “Adding the Customer XYZ group” on page 88.
7. From the Users and Group list, select +CustomerService.
8. Select the Access check box.
9. Click Add, to add the Customer Service group to the folder.
10. From the Users and Group list, select +CustomerXYZ.
11. Click Add, to add the CustomerXYZ group to the folder.

Figure 36 on page 111 shows the Permissions page.

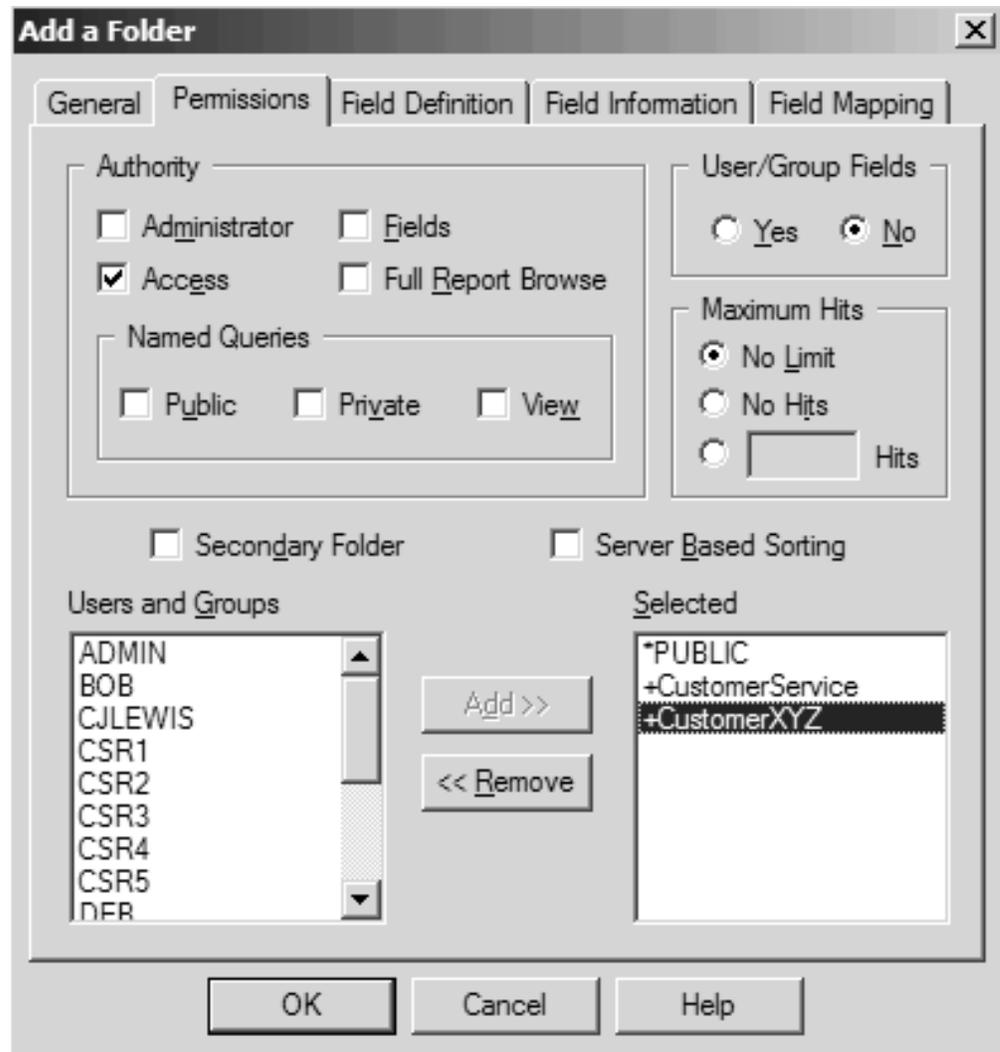


Figure 36. Permissions page

12. Select the Field Definition tab to define the folder fields. Define four folder fields to allow users to search for statements:
 - Account Number, a string field
 - Customer Name, a string field
 - Report Date, a date field
 - Other Information, a text search field
13. Complete the following steps to define a folder field:
 - In the Name field, type the name of the folder field.
 - In the Description field, type up to 120 characters of descriptive information about the folder field.
 - From the Field Type list, select the data type of the field. For the other Information field, select a data type of text search.
 - Select the Mapping Type. All of the fields in this example use the Single mapping type.
 - Click Add.

Figure 37 on page 112 shows the completed Field Definition page.

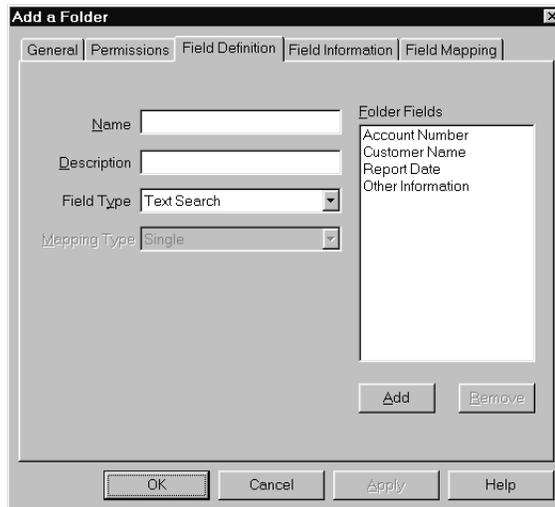


Figure 37. Field Definition page

14. Select the Field Information tab to specify the properties of the folder fields. Using the *PUBLIC identifier, you can specify field information that is used by all users that can open the folder. You can also specify field information for specific users and groups. The public field information will be used unless it is overridden by field information for a specific user or group. For the example folder, do the following:
 - Specify public field information. For the Account Number, Customer Name, and Other Information fields, accept the default values. For the Report Date field, specify field information.
 - Specify field information for the CustomerXYZ group. For the Other Information and Report Date fields, accept the default values. For the Account Number and Customer Name fields, specify field information.
15. First, specify the public field information for the Report Date field. See online help for *date format* or *time format* values for the Display Fmt and Defaults Fmt fields.
 - From the Name list, select Report Date
 - From the ID list, select *PUBLIC
 - Select the Default check box
 - From the Display Fmt list, select %b %e, %Y
 - From the Defaults Fmt list, select %b %e, %Y
 - In the Interval area, select Last, type a 3 (three) in the entry field and select Months

Figure 38 on page 113 shows the Field Information page for the Report Date field.

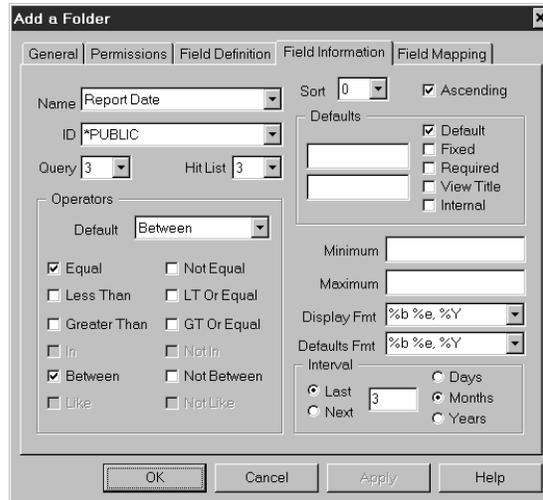


Figure 38. Field Information page

16. Next, specify the field information for the CustomerXYZ group. First, make a copy of the folder fields. Click the Permissions tab.
17. From the Selected List, select +CustomerXYZ.
18. In the User/Group Fields area, click Yes.

Figure 39 on page 114 shows the completed Permissions page.

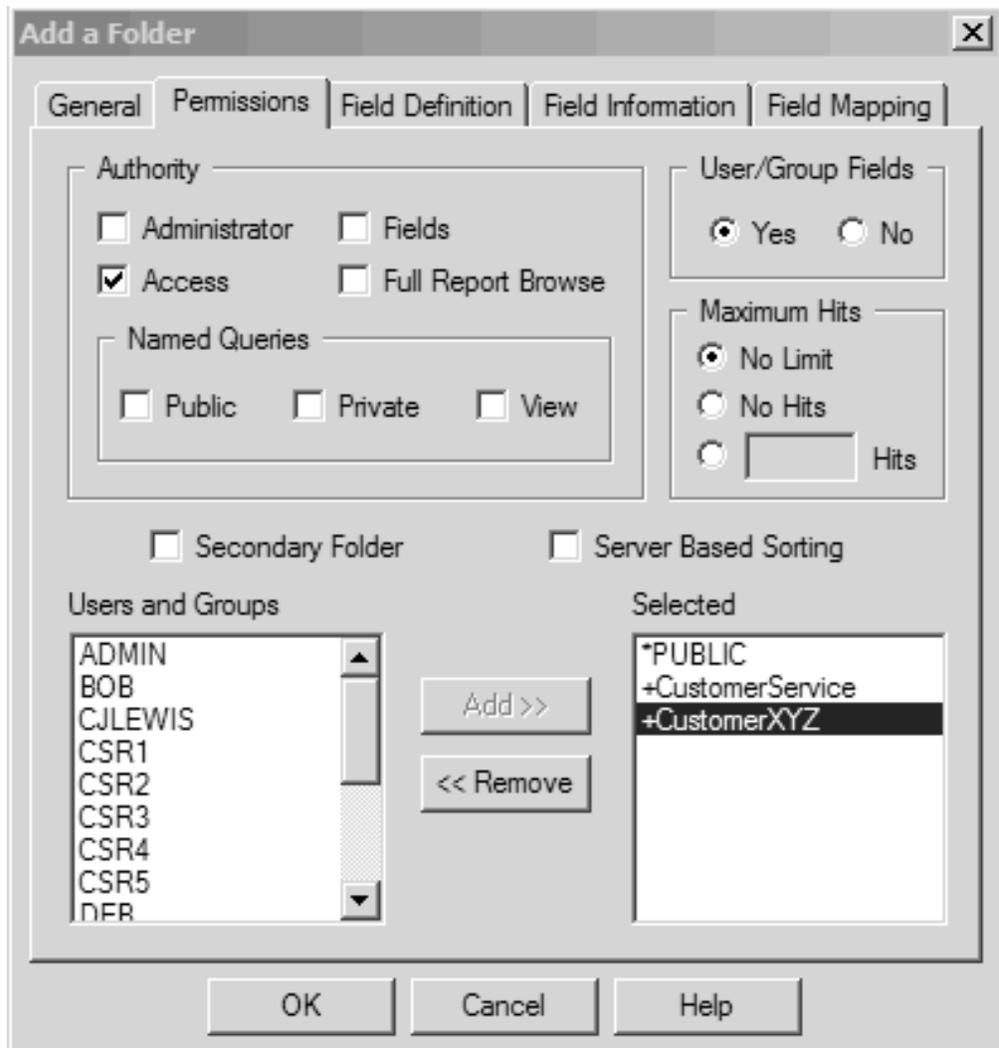


Figure 39. Permissions page

19. Click the Field Information Tab.
20. Specify the Customer XYZ field information for the Account Number field.
 - From the Name list, select Account Number
 - From the ID list, select +CustomerXYZ
 - From the Default list, select Equal
 - Clear the Like check box
 - Select the Default check box
 - Select the Fixed check box
 - In the first Defaults entry field, type 1234567890123
 - Clear the Append check box

Figure 40 on page 115 shows the Field Information page for the Account Number field.

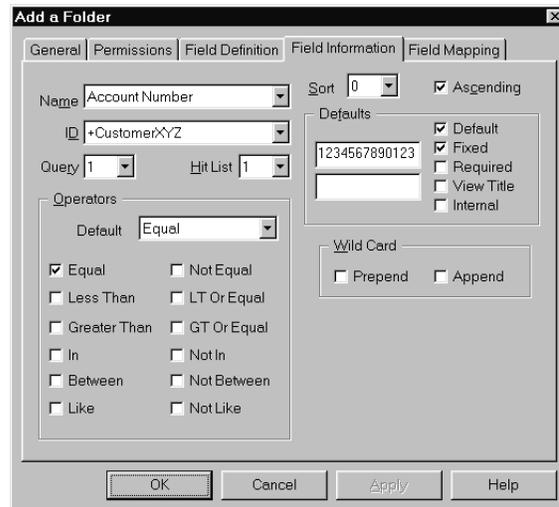


Figure 40. Field Information page

21. Next, specify the Customer XYZ field information for the Customer Name field.

- From the Name list, select Customer Name
- From the Default list, select Equal
- Clear the Like check box
- Select the Default check box
- Select the Fixed check box
- In the first Defaults entry field, type Customer XYZ
- Clear the Append check box

Figure 41 shows the Field Information page for the Customer Name field.

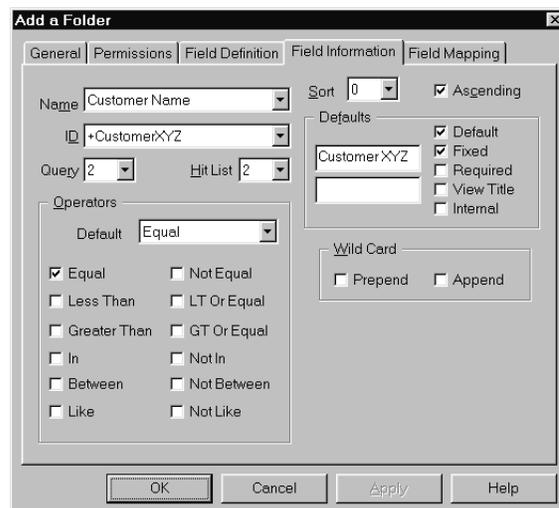


Figure 41. Field Information page

22. Select the Field Mapping tab to map the folder fields to application group database fields. OnDemand uses the values that users type in folder fields to construct SQL queries. An SQL query uses the database field name.
23. Map the following folder fields to their corresponding application group fields:
 - Account Number to acct

- Customer Name to custname
- Report Date to rdate

Figure 42 shows the completed Field Mapping page.

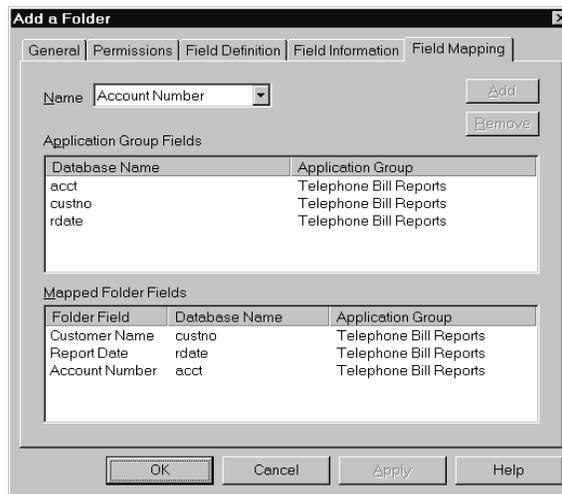


Figure 42. Field Mapping page

24. At this point, the properties of the folder meet the requirements. Click OK in the Add a Folder window. The administrative client adds the folder to the database and returns to the main window.

Summary

The example shows the basic requirements for adding a report to the system. Hopefully the scenario that was described and developed is similar to how you plan to use OnDemand at your company. The example should have enough variations to show the flexibility of OnDemand to meet a range of business and operational requirements. Of course, there are several tasks that were not shown. For example, logical views of the report were not created. The system log user exit was not explored. And all of the ways to complete a given task or implement a specific requirement were not shown. As with most administrative software, there is more than one way to accomplish a task. Hopefully, the example showed you the most straightforward way to get things done with the administrative client.

You can use reference information provided with the product and the online help to find out more about how to use OnDemand. If you have questions and cannot find the answers, contact the IBM support center. IBM also offers classes that further explore how to administer the system. Finally, you can let IBM know how well the information in this book was presented and if you found the book helpful. The section titled How to Send Your Comments explains how to let IBM know.

Adding a new field to an existing application group/application/folder

To consume the least amount of disk space for index data, OnDemand creates a unique index database file for each OnDemand application group, based on the index fields that are defined in the application group. The index database file is created the first time that data is stored for that application group. Because of this, it is not possible to simply add another index field later, because the database file was already created. However, if you need to add an additional index field after some of your data is already stored, here is one technique you can use to accomplish that same result:

1. Rename the application group, application, and folder. You might just add an X (for example) to the end of the name.
2. Copy the application group to a new application group, giving it the original name (so the output queue monitor can still look for this name). In the copy process, you can add a new database field.
3. Copy the application to a new application, giving it the original name, adding the field and index by using the graphical indexer.
4. Copy the folder to a **new** folder with the original name. In the copy process, add a new folder field and add the **new** application group to the folder. Map the folder fields to the **new** application group fields. Now, you have a single folder that points to two application groups, one with the old set of index fields and one with the new field added.

The new index field will only be searchable for the new application group. But the folder will also show all the old data, just without the new index field.

Local server setup for offline administration

OnDemand supports two types of servers. The first type of server uses TCP/IP to communicate between the client programs and the server programs. The server programs can run on operating systems, such as AIX[®], HP-UX, i5/OS, OS/400, Sun Solaris, Windows, z/OS[®] and OS/390[®]. Depending on the server operating system, the databases supported by the server can be DB2[®], Oracle (AIX, HP-UX, Sun Solaris, Windows platforms only), and Microsoft[®] SQL server (Windows platform only). Definitions of users, groups, applications, for example, are stored in the database as well as the index values for the report data that is loaded into the system.

The second type of server is a *local server*. The local server is self-contained (no TCP/IP communication) and is defined using files contained in a directory located on a PC rather than in a server database. The files represent the system tables that define the various objects such as users, groups, and applications.

One of the uses of a local server is to enable OnDemand administrators to work offline on administrative tasks. Another is to provide the ability to export definitions from a non-local server to a local server so the definitions can then be imported to a different non-local server. This is especially beneficial when a TCP/IP connection does not exist between two non-local servers. In either case, one of the limitations of exporting definitions from a non-local server to a local server is that the local server does not support any of the operating system-specific or database-specific parameters that are defined when using the administrative client.

When an OnDemand administrator logs on to a server, the OnDemand Administrator client determines whether the user has logged on to a local server or a non-local server. If the server is a non-local server, the operating system and the database types are determined. Based on the type of server, the operating system, and the database, default settings are established, entry fields are hidden or displayed, and values are added to or removed from selection lists. For definitions that have been exported from a non-local server to a local server, updating or viewing the definitions may not have the desired results because of the operating system differences between local and non-local servers. For example, when an application group and application are exported from an i5/OS server to a local server, the OS/400 Indexer that is specified in the application is not supported on a

local server. When the application is viewed on the local server, the indexer field on the Indexer Information page will not have a value and the OS/400 Indexer will not be listed as a choice of indexers.

To correctly display the operating system- and database-specific parameters on a local server from parameters that have been exported from a non-local server, support has been added to the OnDemand Administrator client at version 7.1.0.8 and higher. Pulldowns for Operating System and Database appear on the Add a Server dialog box when you create a server with the Protocol parameter set to Local. Then, in the case of the application group and application that were exported from the i5/OS server, the OS/400 Indexer will now be selected when the application is updated or viewed from the local server.

Note: Although a local server can resemble a non-local server, the following are system limitations for a local server:

- The user ID of a user that is defined on a local server cannot be updated.
- User and group permissions for users are not supported from the User Permissions page on Users dialog box.
- The Find function is not supported.
- Server Printers are not supported.
- Data Distribution Files and Groups are not supported.

Note: For a local server, the default administrative user ID is admin. There is no initial password set for the admin user ID on a local server.

Part 4. Loading data

This part describes how to store data in OnDemand. The OnDemand data indexing and loading programs can process many types of input data, including AFP data, line data, unformatted ASCII data, Adobe PDF files, and other types of user-defined data. You can also load compressed and uncompressed, single and multi-page TIFF images into the system. OnDemand can also process input files that contain graphics data, such as BMP, GIF, JFIF, and PCX. When you store data in OnDemand, the data indexing and loading programs extract index data from or generate index data about the input data. The index data is loaded into the OnDemand database. The input data is divided into indexed groups of pages (documents), compressed into storage objects, and copied to storage volumes. The OnDemand database is updated with the index information that allows users to search for and retrieve documents using OnDemand client programs. You can store copies of documents on disk and archive storage.

Chapter 11. Loading spooled file data

This section provides an overview of the data loading process - the process of adding the index data to the database and loading the report data and resources into OnDemand. When a load process completes, you can view the messages that were saved in the system log. To complete the data loading process, you should backup the OnDemand data on a regular basis.

Overview

You can archive the print output of your existing application programs in OnDemand without changing the print data stream or writing programs to process the data. In OnDemand, the print output of an application program is called a report. OnDemand provides programs that can index the reports, add the index data to the database, divide the input data into indexed groups of pages (documents), compress the documents, and copy the compressed documents into OnDemand. After you archive a report in OnDemand, your users can query, retrieve, and view or print pages of the report using the OnDemand client program.

The OnDemand data indexing and loading programs process input files that reside on the OnDemand server. If you generate your reports on another system, then you would typically transfer the reports to the OnDemand server and use the data indexing and loading programs to process them. When you index a report that contains AFP data, you must make sure that the data indexing program can access the resources required by the report. Resources include page segments and fonts. If the resources are not already on the OnDemand server, you must transfer them before loading the report.

You can create up to 32 index fields for each type of report that you define to OnDemand, providing many ways for users to query information contained in a report. The number of index fields that you define depends on the organization of the data in the report. For example, when you index a report that contains logical items, such as policies and statements, you might define index fields for the date, customer name, customer number, balance due, transaction number, and amount. When you index a report that contains transaction data, such as a general ledger, you might define index fields for the date and transaction number. After you determine what index fields you need and define them to the system, OnDemand extracts the index values from a report during the load process and stores them in records that are added to the database.

OnDemand compresses report data into storage objects, using information that you specify in the application. Depending on how you configure storage management for your application groups, OnDemand can automatically copy the report to disk and archive storage.

The load process saves messages in the system log each time that you load an input file into the system. You can open the System Log folder and view the messages for information such as the name of the input file, the indexing information, and the number of rows that were added to the database.

Preparing to load reports

There are a number of things to consider when preparing to load reports.

Storage space

When you initially configure an OnDemand system, you calculate the total amount of disk, optical, and tape storage required to hold the OnDemand database, database log files and reports. You also need to plan for the temporary space needed by OnDemand programs. The amount of storage space that you need on your system is usually a factor of how much data that you plan to store in OnDemand, how long you need OnDemand to maintain the data, the compression ratio that you can expect to achieve on the report data, and the number of copies of reports that you need the system to maintain. If you plan to index your reports on the OnDemand server, then you must allocate temporary space for the data indexing program. Temporary space is also required for the data loading program.

The *IBM Content Manager OnDemand for i5/OS Common Server: Planning and Installation Guide* provides information, formulas, and worksheets that can help you calculate your storage requirements.

Defining the application group

When you archive reports in OnDemand, the ADDRPTOND command adds index data to the database and compresses report data into storage objects and copies the storage objects into OnDemand. The index data and the storage objects are associated with an application group. As part of defining a report to OnDemand, you must specify the application group that OnDemand uses to maintain the data. The application group specifies the database fields that hold the index data and the storage management information that determines where OnDemand maintains the report data and how long it maintains the index data and the report data. You can use the OnDemand administrative client to define an application group. See the online help for the administrative client for more information about defining database fields and specifying storage management information for application groups.

If you plan to maintain a copy of your reports in archive storage, then the application group must specify a migration policy and storage set that identify your storage management requirements.

Defining the application

Most customers define an application for each different report (or source of data) that they plan to archive in OnDemand. When you create an application, you specify information about the report, such as:

- The application group in which you want to store the report
- Physical information about the report, including the type of data found in the report
- The indexing parameters
- The processing that OnDemand should do to the index data before adding it to the database

You can use the OnDemand administrative client to define an application. See the online help for the administrative client for more information about defining applications.

Loading reports

You can load reports into OnDemand in a number of different ways, depending on your application requirements.

Running the ADDRPTOND command

The ADDRPTOND command is the primary OnDemand data indexing and loading command. The ADDRPTOND command determines if the input data needs to be indexed, and if it does, calls the indexing program. The ADDRPTOND command then processes the index data, adding it to the database, optionally compresses the report data into storage objects, and copies the storage objects to storage volumes.

You run the ADDRPTOND command each time that you want to load a report or set of reports into the system. You can either run the command from the command line or use the OnDemand output queue monitor to periodically check for input data to process. See “Using an output queue monitor” below for more detail.

Note: The OnDemand server job must be running, otherwise the ADDRPTOND command will fail.

Using an output queue monitor

You can use the Start Monitor for OnDemand (STRMONOND) command to start a monitor program for any output queue to receive spooled files for processing. The monitor continuously checks an output queue for spooled files, and allows OnDemand to capture the spooled files as they arrive.

IBM recommends using the monitors in a batch environment only.

You generally define and then manually store reports with the ADDRPTOND command during testing. Then, when the report is ready for production, you can automate storage with the OnDemand monitor—if you use the *SPLFNAME, *FORMTYPE, *USERDATA, *JOBNAME, or *USRDFNxxxx spooled file attribute of the report to match the application group and application names you defined to OnDemand.

The spooled files must be in ready status (RDY) on the output queue that you are monitoring. The first time a Monitor is started for an output queue, OnDemand will create a data queue and attach it to the output queue being monitored. If there are spooled files already in that queue, the monitor will not detect them. If this happens, place these spooled files on hold, then release them. The Monitor should then detect and process them. This should only be necessary the first time a Monitor job is started for a particular output queue.

To begin capturing reports automatically when a spooled file arrives in a particular output queue, you can issue the STRMONOND command. The monitor runs continuously until the End time or Number of hours occurs. You can also use the End Monitor for OnDemand (ENDMONOND) command to stop processing.

The default job name for the monitor job is MONOUTQ. After the job has ended, the job log can be found with the User data (USRDTA) spooled file attribute set to MONOUTQ. For every spooled file that the monitor has processed, there will either be a successful load (message number 87) or a failure (message number 88) indicated in the System Log.

The monitor processes any spooled files that arrive in the named output queue in RDY (Ready) status. Spooled files with any other status are not affected by the monitor, and remain in the output queue until they are deleted or moved.

When a Common Server monitor job is active, the job status displayed by the Work with Active Jobs (WRKACTJOB) command changes a number of times during

processing. The monitor job has a status of RUN when it is preparing to process a document (such as determining parameter values or running an exit program). It then spawns several jobs and goes to a status of TIMW while those jobs do the actual archiving. When the processing is complete, the status changes back to RUN while the monitor checks what needs to be done next. If there are no additional documents that are ready to be archived the monitor job goes into a DEQW status until the next document is ready to be archived or a request to end the monitor job is received.

You may wish to add the STRMONOND command to your system startup program so the monitor(s) start each time you IPL the system.

When starting an OnDemand output queue monitor (using the STRMONOND command) from a job scheduler, you may be unsure of what job description to use. In most cases, STRMONOND will work best using the QOND400 job description. You may have special system needs that require the use of your own job description, but these two IBM-supplied job descriptions will work successfully for many customers.

See the online help for more information about these commands and their parameters.

Important: The OnDemand server job must be running, otherwise the spooled files will fail to load.

Indexing reports

You must generate index data for a report before you load the report into OnDemand. If the report contains AFP data, then you need to store the AFP resources in OnDemand. The resources are required to display and reprint pages of a report that contains AFP data. There are several programs provided with OnDemand to help you generate index data for your reports:

- OnDemand OS/400 Indexer - You can use the OS/400 Indexer to specify indexing parameters for SCS, SCS-Extended, Advanced Function Presentation (AFP), and Line spooled files.
- OnDemand PDF Indexer - You can use the PDF Indexer to specify indexing parameters for Adobe PDF input files.
- OnDemand Generic Indexer - You can use the Generic Indexer to specify index data for a wide variety other types of input files.

For details about indexing data, including how to use other indexers, see the *IBM Content Manager OnDemand for i5/OS Common Server: Indexing Reference*.

Processing the input data

After a report has been indexed, the ADDRPTOND command can process the index file to prepare the index data for loading into the database and prepare the report data and resource group files for the storage managers to load on storage volumes.

Processing index data

The index data is processed by the ADDRPTOND command before the index data is added to the database. The ADDRPTOND command extracts information from the application group and the application and performs the following processing:

- Determines the database field information from the application group.

- Determines the preprocessing information from the application, if needed.
- After preprocessing the index file, the ADDRPTOND command creates the database rows:
 - One row for every group of indexed pages in a report that contains a sorted transaction value
 - One row for every indexed item in a report that contains logical items, such as policies and statements
- Determines the postprocessing information from the Postprocessor Parameters specified on the Load Information tab of the application. For example, the ADDRPTOND command may need to drop duplicate index records. You specify exactly what processing you want the command to do when you define the application.
- Passes the index rows to the database manager. The rows consist of fields that contain the index values that the indexing program extracted from the report and other fields generated by OnDemand. An index row contains:
 - One column for each field defined in the application group
 - One or more columns of OnDemand control information

Processing reports and resources

The ADDRPTOND command divides the input data into indexed groups of pages (documents) and compresses the documents into storage objects. Dividing a report into groups of pages improves the efficiency of queries and can improve the time required to retrieve and display the report. Compression improves the efficiency of the storage manager. In this step, the ADDRPTOND command:

- Determines the compression information from the application.
- Determines the storage management information from the application group. The storage management information determines the storage locations, such as disk storage and archive storage.
- Locates the AFP resources called for in the input data. If the resources are not available, the load will fail and the System Log will be updated with message number 88, indicating the failure. An ADDRPT job log will contain error messages.
- Compresses the documents into storage objects. OnDemand compresses report data into approximately 100 KB blocks (a default value) and places the blocks into a storage object. OnDemand uses a 10 MB storage object (a default value) to improve storage efficiency and performance. Compressed data does not span storage objects. OnDemand assigns unique file names to the storage objects and sequentially numbers them within an application group.

Loading index data

The ADDRPTOND command works with the database manager to add the index data to the database. Depending on the database organization that you specified when you defined the application group, OnDemand either creates a new table each time that you load a report or adds the index data to an existing database table.

OnDemand uses a *segment table* as a high level index to the index data for an application group. Each row in the segment table identifies a specific table of application group index data. The fields in the segment table identify the application group and the dates found in a table. The dates represent the earliest and latest

dates that can be found in that segment of application group index data. OnDemand can use the segment table to limit a query to a specific table of application group index data.

The database manager updates the segment table if the beginning date in the report is earlier than a date already stored in the table.

OnDemand limits the size of a table to improve performance and storage management. The number of rows in a table can be specified when you define the application group. The default size of a table is ten million rows. The database manager automatically closes a table and opens a new table when this threshold is reached. When closing a table, the database manager updates the segment table with the latest ending date found in the table.

Loading storage objects

The ADDRPTOND command calls the storage manager to copy storage objects to disk and archive storage. The storage manager extracts information from the application group to determine where and when to copy the storage objects.

OnDemand uses an object called a storage set to determine the locations that can hold report data. A storage set and its associated migration policy (of the exact same name) point to one or more storage locations. A storage set can write data to one and only one storage location at a time (the *active* storage level).

Disk storage

The primary purpose of disk storage is for short-term, high-speed retrieval of report data.

If you configure your application groups to copy data to disk storage, then the disk storage manager copies the storage object to disk. The Cache Data for xx Days setting on the Storage Management page determines whether OnDemand copies documents to disk storage.

Archive storage

A storage set can identify an archive storage media such as optical or tape. OnDemand uses its archive storage manager to maintain storage objects in archive storage for long-term storage and for backup copies of reports.

The storage manager can copy the storage object to archive storage when the report is initially loaded into the system or at a later time, depending on how you configure your application groups. Most customers configure the system to copy report data to disk and archive storage at the same time.

Resources

OnDemand always stores resources (such as AFP overlays or page segments) on disk, to provide fast retrieval when a user selects an item for viewing. OnDemand saves only one copy of a resource on the system, even if several reports use the same resource. When processing a resource group file, the ADDRPTOND command checks the resource identifier to determine if the resource is already present on the system.

Verifying processing

When you add a report into the system, the ADDRPTOND command saves a copy of the messages generated during the load process in the system log. After a load process completes, you can open the System Log folder and view the messages. Message number 87 indicates a successful load; message number 88 indicates a failure, and should produce an ADDRPT job log that contains additional error messages. The System Log message reference the load program named ARSLOAD and include the date and time that the load process started and completed, the name of the input file, and the number of rows that were added to the database. For example:

```
arsload: Processing file >br1010a<
arsload: Fri Mar 29 12:37:23 MST 1996 Indexing started,
        394419060 bytes to process
arsload: Fri Mar 29 12:41:33 MST 1996 Indexing completed
arsload: Fri Mar 29 12:41:35 MST 1996 Load Started,
        394419060 bytes to load
        Resource br1010a.res matches the resource 2
        OnDemand Load ID = >6850-25-0-15FAA-9577-9577<
        Loaded 130000 rows into the database
arsload: Fri Mar 29 13:05:14 MST 1996 Load Completed
arsload: Processing successful for file >br1010a<
```

You can verify the number of rows that OnDemand added to the database:

- For a report that contains transaction data that you have divided into indexed groups of pages, the number of pages in the report divided by the number of pages in an indexed group of pages should equal the number of rows added to the database. For example, if a report contains 150,010 pages and there are 100 pages in an indexed group of pages, then OnDemand should have added 1,501 rows to the database.
- For a report that contains logical items, such as statements and policies, the number of rows added to the database should equal the number of indexed items in the report. For example, if a report contains 1,000 statements, OnDemand should have added 1,000 rows to the database.

The OnDemand Load ID represents the data that the ADDRPTOND command stored in the system during a load process. The Load ID can be used to identify a specific load process. For example, you can run the RMRPTOND command and specify the Load ID to delete the index data and documents that were created when the ADDRPTOND command processed an input file. Table 6 lists the fields in a Load ID.

Table 6. OnDemand Load ID

Load ID Field	Meaning
6850	Application group identifier
25	Primary node identifier
0	Secondary node identifier
15FAA	The load identifier within the application group
9577	The earliest date in the report (relative to 1/1/1970)
9577	The latest date in the report (relative to 1/1/1970)

Backing up databases

After you load reports into OnDemand, we recommend that you create a backup copy of the OnDemand data.

- When you backup the OnDemand database, you protect control information and index data that OnDemand and the database manager need to support the system.
- When you backup the OnDemand data in IFS, you protect your data that resides on disk that may not have been copied to archive media yet.

| IBM recommends that you backup the data at least once a week, and more often if
| you load reports every day.

See Chapter 6, “Backup and recovery,” on page 31 for details about OnDemand backup and recovery.

Chapter 12. Loading image files

Overview

OnDemand provides support for storing and retrieving letters and other types of correspondence. The most straight forward way to store this type of information is to transform a printed copy of a letter into an image file using a scanner and image capture software. In addition to scanning the letter and saving it as an image file, you must create index data for the letter. You can then use the ARSLOAD program to load the index data into the database and store the letter file on the system. Your users can then query, retrieve, and view, print or send copies of the letter using one of the OnDemand client programs.

OnDemand provides the Generic Indexer so that you can index input files that contain data other than AFP data, line data, and PDF. You specify the index data for the input files that you want to index with the Generic Indexer in a parameter file. The parameter file contains the index field names and values and identifies the input files that you want to process. You can create up to 32 index fields for each input file that you want to load into the system, providing many ways for users to query and retrieve the letters. The number of index fields that you define usually depends on how your users retrieve documents from the system. In the example that follows, index fields were defined for the date on the letter, the name of the person that sent the letter, the company name, and the subject of the letter.

This section describes how to use a scanner and image capture software to create the image files. Before you can load the image files into the system, you must define an application group to manage the storage of the letters, an application to specify the physical and logical properties of the letters, and a folder to let users search for and retrieve the letters.

Defining the application group

When you load an input file into the system, OnDemand updates the database with the index data that you provide and stores the indexed groups of pages as documents in cache storage and archive storage. The application group contains the information that OnDemand uses to store and maintain the index data and the documents on the system. This section provides information about some of the key properties of the application group. You can use the OnDemand administrative client to define an application group.

Database Organization

The Database Organization determines how OnDemand organizes the index data that is stored in the application group.

Accept the default Database Organization of Multiple Loads per Database Table and Table Size of its maximum number of rows. Each time that a letter (input file) is loaded into the system, OnDemand adds one row to a database table. When a table reaches its maximum number of rows, OnDemand closes the table and creates a new table (unless you select Single table for all loads). OnDemand always adds index records to the open table; the closed tables can be queried.

Expiration Type

The Expiration Type determines how OnDemand deletes index data and documents from the application group.

Accept the default Expiration Type of Load. This means that OnDemand deletes the index data and documents from one load process (one or more input files) at a time from the application group. Depending on the number of input files processed during a load process, one or more letters (input files) may be deleted at a time. For example, if you create a parameter file for the Generic Indexer that contains index data for several input files, then OnDemand will delete all of the index data and documents from the application group at the same time.

Permissions

Application group permissions determine the users that can access information stored in the application group and determine the users that can do other types of tasks related to the application group.

Under the *PUBLIC identifier, specify the Access permission so that all of the users defined to the server can access data stored in the application group.

Field Definition

The Field Definition page is where you define the database fields for the application group. When you load an input file into the system, OnDemand stores the index data that is specified in the parameter file into fields in records that are added to the database. When a user searches for letters, OnDemand compares the search criteria entered by the user with index data in the application group.

Define the following database fields. The fields allow users to locate letters based on different criteria, such as the date of the letter, the name of the person that sent the letter, and the subject of the letter.

ldate	The date on the letter. Defined as a date field.
name	The person that sent the letter. Defined as a string field that contains variable length data.
company	The person's company. Defined as a string field that contains variable length data.
subject	The subject of the letter. Defined as a string field that contains variable length data.

Defining the application

Most customers define an application for each different source of input data that they plan to load into OnDemand. This section provides information about some of the key properties of the application. You can use the OnDemand administrative client to define an application.

Application Group

You must assign an application to an application group. Assign the application to the application group that was created in "Defining the application group" on page 129.

Data Format

The Data Format determines the kind of data that is found in the documents that are stored on the system. If the type of the data that is found in the original input file is different than the type of the data that is found in the documents that are stored on the system, then you should specify the type of the data that will be

stored in OnDemand. (In this example, the type of the data is the same, a TIFF image.) Selected TIFF as the Data Type. When saving the scanned image of a letter, save the data as a TIFF image.

Indexer

The indexer determines the indexing program that OnDemand uses to index and convert input data. Select Generic as the indexer. To store TIFF images in the system, you must index them with the Generic Indexer program that is provided with OnDemand.

Data Compression

The Data Compression determines whether OnDemand compresses the input files.

Selected Disable, so that OnDemand does not attempt to compress the input files. In this example, the scanned image files are created as compressed TIFF images. Therefore, it is not necessary for the system to compress them. If you need to create scanned image files as uncompressed TIFF images, you should select one of the compression methods so that the system can compress the input files to improve storage efficiency and retrieval performance.

Defining the folder

You must define a folder so that users can search for and retrieve the input files that you load into OnDemand. This section provides information about some of the key properties of the folder. You can use the OnDemand administrative client to define a folder.

Application Group

A folder can be used to search one or more application groups. Select the application group that was created in “Defining the application group” on page 129. When users open the folder, they can search for and retrieve the input files that were loaded into the application group.

Permissions

Folder permissions determine the users that can open the folder and determine the users that can do other types of tasks related to the folder.

Under the *PUBLIC identifier, specify the Access permission so that all users defined to the library server can open the folder.

Field Definition

The Field Definition page is where you define the search fields for the folder. The search fields contain the search criteria entered by the user. For most folders, you probably want to define a search field for each field that you defined for the application group.

Define the following fields. The fields allow users to locate letters based on different criteria, such as the date of the letter, the name of the person that sent the letter, and the subject of the letter.

- | | |
|--------------------|----------------------------------|
| Letter Date | The date on the letter. |
| From | The person that sent the letter. |
| Company | The person’s company. |

Subject The subject of the letter.

Field Mapping

The Field Mapping page is where you *map*, or associate, the folder fields to the application group fields. This is how you specify that the search criteria that a user enters in a particular folder field should be used to search a specific application group field. Map each of the folder fields to their corresponding application group fields. For example, map the folder field named Letter Date to the application group field named Ldate.

Accessing the image files

The ARSLOAD program runs on the OnDemand server and is the primary OnDemand program for loading images and other user-defined data. The files that you want to load into the system by using the ARSLOAD program must be stored on the server or you must provide network access to the files.

In the example, the files were copied from a PC to the server as binary files with a file type of TIF.

Store the input files on the server in the location from which you plan to run the ARSLOAD program. Otherwise, you must specify the full path name of the input files in the Generic index file.

Creating index data

You must create index data for your input files before you can load them into OnDemand. If the input data is other than AFP, line, or PDF, then you must use the Generic Indexer to load it into the system. You specify index data for the Generic Indexer using a parameter file. You should use a standard text editor to create the parameter file. Figure 43 on page 133 shows an example of a parameter file that can be used by the Generic Indexer to process image files. See the *IBM Content Manager OnDemand for i5/OS Common Server: Indexing Reference* for more information about the Generic Indexer and the parameter file.

```

CODEPAGE:819
COMMENT:      input file number 1
GROUP_FIELD_NAME:1date
GROUP_FIELD_VALUE:09/01/95
GROUP_FIELD_NAME:name
GROUP_FIELD_VALUE:Mr. Earl Hawkins
GROUP_FIELD_NAME:company
GROUP_FIELD_VALUE:Soft Products
GROUP_FIELD_NAME:subject
GROUP_FIELD_VALUE:optical storage devices
GROUP_OFFSET:0
GROUP_LENGTH:0
GROUP_FILENAME:letter1.tif
COMMENT:      input file number 2
GROUP_FIELD_NAME:1date
GROUP_FIELD_VALUE:09/01/95
GROUP_FIELD_NAME:name
GROUP_FIELD_VALUE:Hans G. Piker
GROUP_FIELD_NAME:company
GROUP_FIELD_VALUE:MBI Company
GROUP_FIELD_NAME:subject
GROUP_FIELD_VALUE:optical storage devices
GROUP_OFFSET:0
GROUP_LENGTH:0
GROUP_FILENAME:letter2.tif
COMMENT:      input file number 3
GROUP_FIELD_NAME:1date
GROUP_FIELD_VALUE:09/16/95
GROUP_FIELD_NAME:name
GROUP_FIELD_VALUE:Laurie Unicolás
GROUP_FIELD_NAME:company
GROUP_FIELD_VALUE:Dove Properties
GROUP_FIELD_NAME:subject
GROUP_FIELD_VALUE:account balance due
GROUP_OFFSET:0
GROUP_LENGTH:0
GROUP_FILENAME:letter3.tif
COMMENT:      input file number 4
GROUP_FIELD_NAME:1date
GROUP_FIELD_VALUE:10/01/95
GROUP_FIELD_NAME:name
GROUP_FIELD_VALUE:George VanLocal
GROUP_FIELD_NAME:company
GROUP_FIELD_VALUE:Express American
GROUP_FIELD_NAME:subject
GROUP_FIELD_VALUE:airline fares
GROUP_OFFSET:0
GROUP_LENGTH:0
GROUP_FILENAME:letter4.tif

```

Figure 43. Example of a Generic Indexer parameter file

Save the parameter file as LETTERS.IND on the server in the directory from which you plan to run the ARSLOAD program.

Configuring the ARSLOAD program

Note: The OnDemand server job must be running, otherwise the ARSLOAD program will fail.

The ARSLOAD program is the primary OnDemand data indexing and loading program for image files. The ARSLOAD program determines if the input data needs to be indexed, and if so, it calls the indexing program. The ARSLOAD program then processes the index data, loading it into the database, optionally compresses the

input data into storage objects, and copies the storage objects to storage volumes. See “ARSLOAD” on page 240 for more information about running the ARSLOAD program within QSHHELL, including the parameters that you can specify to process input files.

You typically run the ARSLOAD program each time that you want to load a file or set of files into the system. You can either run the ARSLOAD program from the command line or configure it to run periodically to check for input data to process. To support a low volume scanning operation, most customers run the ARSLOAD program from the command line using QSHHELL. For example:

```
arsload -n -g Letters letters
```

Specify the following parameters to the ARSLOAD program:

- | | |
|-------------------|--|
| -n | Do not delete the input files. |
| -g Letters | The name of the application group to load. |
| letters | The name of the input file to process. |

In the example, the ARSLOAD program must locate the input file LETTERS.IND in the current directory. The input file contains the index information that was created in “Creating index data” on page 132 (which is a parameter file for the Generic Indexer). The image files must be in the same directory.

Processing the input data

The ARSLOAD program processes the parameter file, loads the index data into the database, and loads the image files into OnDemand.

Processing index data

The ARSLOAD program processes the parameters that were specified on the command line and the indexing parameter file before loading the index data into the database. The ARSLOAD program extracts information from the application group and the application and performs the following processing:

- Determines the database field information from the application group
- Determines the data type and other information from the application
- Creates one database row for each group that was specified in the parameter file. One group was specified for each image file.
- Passes the index rows to the database manager. The rows contain the index values and other fields generated by OnDemand. An index row contains:
 - One column for each field that was defined for the application group
 - One or more columns of OnDemand control information

Processing the image files

The ARSLOAD program processes each image file that was specified in the parameter file. The ARSLOAD program extracts information from the application group and the application and performs the following processing:

- Determines the compression information from the application
- Determines the storage management information from the application group. The storage management information determines the storage locations, such as disk and archive storage.
- Stores the image files in storage objects. OnDemand uses a 10 MB storage object (the default value) to improve storage efficiency and performance.

OnDemand assigns unique names to the storage objects and sequentially numbers them within an application group.

Verifying processing

The ARSLOAD program saves a copy of the messages that were generated during a load process in the system log. (In the System Log folder, search for message number 87 for a successful load or 88 for an unsuccessful load.) After a load process completes, you can open the System Log folder and review the messages. The information in the messages includes the date and time that the load process started and completed, the name of the input file(s), and the number of rows that were added to the database. For example:

```
arsload: Processing file >letters<
arsload: Mon Dec 18 13:04:37 MST 1995 Indexing started,
        116017 bytes to process
        OnDemand Load ID = >6927-0-0-1FAA-0-0<
        Loaded 4 rows into the database
arsload: Mon Dec 18 13:05:14 MST 1995 Loading Completed
arsload: Processing successful for file >letters<
```

You can verify the number of rows that OnDemand added to the database. In the example, the number of rows added to the database should equal the number of groups (and image files) that was specified in the parameter file.

The OnDemand Load ID represents the data that the ARSLOAD program stored into the system during a load process. The Load ID can be used to identify a specific load process. For example, you can run the RMVRPTOND command and specify the Load ID to delete the index data and documents that were created when the ARSLOAD program processed a Generic Indexer parameter file.

Chapter 13. Loading user-defined data

OnDemand provides support for storing and retrieving almost any type of data. For example, OnDemand provides support for AFP, Line, PDF, GIF, JFIF (JPEG), PCX, and TIFF data. However, OnDemand is not limited to maintaining these types of data. OnDemand provides the User-Defined data type to support almost any other type of data that you want to store in the system. For example, you can configure the system to process Lotus® WordPro documents, so that when a user retrieves one of the files from the system, OnDemand automatically starts Lotus WordPro to open the document.

To store user-defined data on the system, you must create index data for the input files and you must register the file type of the input file with OnDemand. The file type determines the program that is started to open a file when a user retrieves one of the files from the system. The file type must also be registered with the client operating system. If your OnDemand system supports client programs that run under different operating systems, then you must register the specified file type on all of the client operating systems.

OnDemand provides the Generic Indexer so that you can index user-defined data. You specify the index data for the input files that you want to index with the Generic Indexer in a parameter file. The parameter file contains the index field names and values and identifies the input files that you want to process. You can create up to 32 index fields for each input file that you want to load into the system, providing many ways for users to query and retrieve documents. The number of index fields that you define usually depends on how your users retrieve documents from the system. For example, you might want to define index fields for the date, author, and subject or purpose of the user-defined data.

Before you can load user-defined data into the system, you must define an application group to manage the storage of the files, an application to specify the physical and logical attributes of the input files, and a folder to let users search for and retrieve the files. This section contains an example that shows how to define Lotus WordPro files to OnDemand. It provides an overview of defining the application group, application, and folder. For details and a comprehensive example of defining input data to OnDemand, see Part 3, “Using System i Navigator for OnDemand administration,” on page 35.

Defining the application group

When you load an input file into the system, OnDemand updates the database with the index data that you provide and stores the indexed groups of pages as documents in cache storage and archive storage. The application group contains the information that OnDemand uses to store and maintain the index data and the documents on the system. This section provides information about some of the key properties of the application group. You can use the OnDemand administrative client to define an application group.

Database organization

The Database Organization determines how OnDemand organizes the index data that is stored in the application group.

Accept the default Database Organization of Multiple Loads per Database Table and Table Size of its maximum number of rows. Each time that a Lotus WordPro file

is loaded into the system, OnDemand adds one row to a database table. When a table reaches its maximum number of rows, OnDemand closes the table and creates a new table. OnDemand always adds index records to the open table; closed tables can be queried.

Expiration type

The Expiration Type determines how OnDemand deletes index data and documents from the application group.

Accept the default Expiration Type of Load. This means that OnDemand deletes the index data and documents from one load process (one or more input files) at a time from the application group. Depending on the number of input files processed during a load process, one or more Lotus WordPro files may be deleted at a time. For example, if you create a parameter file for the Generic Indexer that contains index data for several input files, OnDemand will delete all of the index data and documents from the application group at the same time.

Permissions

Application group permissions determine the users that can access information stored in the application group and determine the users that can do other types of tasks related to the application group.

Under the *PUBLIC identifier, specify the Access permission so that all of the users defined to the server can access data stored in the application group.

Field definition

The Field Definition page is where you define the database fields for the application group. When you load an input file into the system, OnDemand stores the index data that is specified in the parameter file into fields in records that are added to the database. When a user queries the system, OnDemand compares the search criteria entered by the user with index data in the application group.

Define the following database fields. The fields allow users to locate files based on different criteria, such as the date, author, and subject of the file.

fdate	The date associated with the file. For example, the date the file was created or the date the file was published. Defined as a date field.
author	The author of the file. Defined as a string field that contains variable length data.
subject	The subject or purpose of the file. Defined as a string field that contains variable length data.

Defining the application

Most customers define an application for each different source of input data that they plan to load into OnDemand. This section provides information about some of the key properties of the application. You can use the OnDemand administrative client to define an application.

Application Group

You must assign the application to an application group. Assign the application to the application group that was created in "Defining the application group" on page 137.

Data Format

The Data Format determines the kind of data that is found in the documents that are stored on the system. If the type of the data that is found in the original input file is different than the type of the data that is found in the documents that are stored on the system, then you should specify the type of the data that will be stored in OnDemand.

Because there is not a supplied Data Format for Lotus WordPro files, you must select User Defined from the Data Type list.

File Extension

When you select User Defined from the Data Type list, you must also enter a value in the File Extension. The File Extension determines the program that is started to open a user-defined file when it is retrieved from the system. In the example, type the characters LWP, for Lotus WordPro.

The File Extension that you specify must also be registered on the client operating system. See your operating system information for help with registering file extensions.

Indexer

The indexer determines the indexing program that OnDemand uses to index and convert input data. Select Generic as the indexer. To store user-defined files on the system, you must index them with the Generic Indexer program provided with OnDemand.

Data Compression

The Data Compression determines whether OnDemand compresses the input files.

On the Load Information page, accept the default Data Compression of 0D77 so that OnDemand will compress input files before storing them on the server. Resources are not supported with user-defined input data.

Defining the folder

You must define a folder so that users can search for and retrieve the input files that you load into OnDemand. This section provides information about some of the key properties of the folder. You can use the OnDemand administrative client to define a folder.

Application Group

A folder can be used to search one or more application groups. Select the application group that was created in “Defining the application group” on page 137. When users open the folder, they can search for and retrieve the Lotus WordPro files that were loaded into the application group.

Permissions

Folder permissions determine the users that can open the folder and determine the users that can do other types of tasks related to the folder.

Under the *PUBLIC identifier, specify the Access permission so that all users defined to the server can open the folder.

Folder fields

The Field Definition page is where you define the search fields for the folder. The search fields contain the search criteria entered by the user. For most folders, you probably want to define a search field for each field that you defined for the application group.

Define the following folder fields. The fields allow users to locate files based on different criteria, such as the date, the author, and the subject.

File Date The date associated with the file. For example, the date the file was created or the date that the file was published.

Author The person that created the file.

Subject The subject or purpose of the file.

Field Mapping

The Field Mapping page is where you *map*, or associate, the folder fields to the application group fields. This is how you specify that the search criteria that a user enters in a particular folder field should be used to search a specific application group field. Map each of the folder fields to their corresponding application group fields. For example, map the folder field named `File Date` to the application group field named `fdate`.

Accessing the input files

The ARSLOAD program runs on the OnDemand server and is the primary data loading program for user-defined data. The files that you want to load into the system by using the ARSLOAD program must be stored on the server or you must provide network access to the files.

In the example, the files were copied from a PC to the server as binary files with a file type of LWP.

Store the input files on the server in the location from which you plan to run the ARSLOAD program. Otherwise, you must specify the full path name of the input files in the Generic index file.

Creating the index data

You must create index data for your input files before you can load them into the system. If the input data is other than AFP, line, or PDF, then you must use the Generic Indexer to load it into the system. You must specify index data for the Generic Indexer using a parameter file. You should use a standard text editor to create the parameter file. Figure 44 on page 141 shows an example of a parameter file that can be used by the Generic Indexer to process the Lotus WordPro files. See the *IBM Content Manager OnDemand for i5/OS Common Server: Indexing Reference* for more information about the Generic Indexer and the parameter file.

```

CODEPAGE:819
COMMENT:      input file number 1
GROUP_FIELD_NAME:fdate
GROUP_FIELD_VALUE:12/18/95
GROUP_FIELD_NAME:author
GROUP_FIELD_VALUE:Jessica Hawkins
GROUP_FIELD_NAME:subject
GROUP_FIELD_VALUE:optical storage devices
GROUP_OFFSET:0
GROUP_LENGTH:0
GROUP_FILENAME:letter1.lwp
COMMENT:      input file number 2
GROUP_FIELD_NAME:fdate
GROUP_FIELD_VALUE:12/18/95
GROUP_FIELD_NAME:author
GROUP_FIELD_VALUE:Paul Garveys
GROUP_FIELD_NAME:subject
GROUP_FIELD_VALUE:optical storage devices
GROUP_OFFSET:0
GROUP_LENGTH:0
GROUP_FILENAME:letter2.lwp
COMMENT:      input file number 3
GROUP_FIELD_NAME:fdate
GROUP_FIELD_VALUE:12/18/95
GROUP_FIELD_NAME:author
GROUP_FIELD_VALUE:Randy Perkinsen
GROUP_FIELD_NAME:subject
GROUP_FIELD_VALUE:account balance due
GROUP_OFFSET:0
GROUP_LENGTH:0
GROUP_FILENAME:letter3.lwp
COMMENT:      input file number 4
GROUP_FIELD_NAME:fdate
GROUP_FIELD_VALUE:12/18/95
GROUP_FIELD_NAME:author
GROUP_FIELD_VALUE:Georgia July
GROUP_FIELD_NAME:subject
GROUP_FIELD_VALUE:airline fairs
GROUP_OFFSET:0
GROUP_LENGTH:0
GROUP_FILENAME:letter4.lwp

```

Figure 44. Example of a Generic Indexer parameter file

Save the parameter file as LWP.IND on the server in the directory from which you plan to run the ARSLOAD program.

Configuring the ARSLOAD program

Note: The OnDemand server job must be running, otherwise the ARSLOAD program will fail.

The ARSLOAD program is the primary OnDemand data indexing and loading program for user-defined data. The ARSLOAD program determines if the input data needs to be indexed, and if so, it calls the indexing program. The ARSLOAD program then processes the index data, loading it into the database, optionally compresses the input data into storage objects, and copies the storage objects to storage volumes. See “ARSLOAD” on page 240 for more information about running the ARSLOAD program within QSHHELL, including the parameters that you can specify to process input data.

You typically run the ARSLOAD program each time that you want to load a file or set of files into the system. You can either run the ARSLOAD program from the

command line or configure it to run as a daemon (UNIX® servers) or service (Windows servers) to periodically check for input data to process. To store a few WordPro files at a time, most customers run the ARSLOAD program from the command line using QSHELL. For example:

```
arsload -n -g 'Lotus WordPro Documents' lwp
```

Specify the following parameters to the ARSLOAD program:

- n** Do not delete the input files.
- g 'Lotus WordPro Documents'**
The name of the application group to load.
- lwp** The name of the input file to process.

In the example, the ARSLOAD program must locate the input file LWP.IND in the current directory. The input file contains the index information that was created in “Creating the index data” on page 140 (which is a parameter file for the Generic Indexer). Because the full path name of the input file was not specified, they must reside in the same directory.

Processing the input data

The ARSLOAD program processes the parameter file, loads the index data into the database, and loads the Lotus WordPro files into OnDemand.

Processing index data

The ARSLOAD program processes the parameters that were specified on the command line and the indexing parameter file before loading the index data into the database. The ARSLOAD program extracts information from the application group and the application and performs the following processing:

- Determines the database field information from the application group
- Determines the data type and other information from the application
- Creates one database row for each group that was specified in the parameter file. One group was specified for each Lotus WordPro file.
- Passes the index rows to the database manager. The rows contain the index values and other fields generated by OnDemand. An index row contains:
 - One column for each field that was defined for the application group
 - One or more columns of OnDemand control information

Processing the Lotus WordPro files

The ARSLOAD program processes each Lotus WordPro file that was specified in the parameter file. The ARSLOAD program extracts information from the application group and the application and performs the following processing:

- Determines the compression information from the application
- Determines the storage management information from the application group. The storage management information determines the storage locations, such as disk and archive storage.
- Stores the Lotus WordPro files in storage objects. OnDemand uses a 10 MB storage object (the default value) to improve storage efficiency and performance. OnDemand assigns unique names to the storage objects and sequentially numbers them within an application group.

Verifying processing

The ARSLOAD program saves a copy of the messages that were generated during a load process in the system log. After a load process completes, you can open the System Log folder and review the messages. Search for message number 87 for a successful load or 88 for an unsuccessful load. The information in the messages includes the date and time that the load process started and completed, the name of the input file, and the number of rows that were added to the database. For example:

```
arsload: Processing file >lwp<
arsload: Mon Dec 18 14:14:47 MST 1995 Indexing started,
        5116017 bytes to process
        OnDemand Load ID = >6927-0-0-4FAA-0-0<
        Loaded 4 rows into the database
arsload: Mon Dec 18 14:25:11 MST 1995 Loading Completed
arsload: Processing successful for file >lwp<
```

You can verify the number of rows that OnDemand added to the database. In the example, the number of rows added to the database should equal the number of groups (and Lotus WordPro files) that were specified in the parameter file.

The OnDemand Load ID represents the data that the ARSLOAD program stored into the system during a load process. The Load ID can be used to identify a specific load process. For example, you can run the RMVRPTOND command and specify the Load ID to delete the index data and documents that were created when the ARSLOAD program processed a Generic Indexer parameter file.

Chapter 14. Restarting a load process

The ADDRPTOND command will terminate if an unrecoverable error occurs during index, database, or storage manager processing. Termination processing includes setting a return code and saving error messages in the system log.

To start problem determination, open the System Log folder and view the messages that the command generated during the load process. The message log will contain normal processing messages, return codes, and error messages, such as message number 87 for a successful load or 88 for an unsuccessful load. See Appendix B, "System log messages," on page 175 or *IBM Content Manager OnDemand: Messages and Codes*, SC27-1379 for other possible messages.

If the command failed during indexing, correct the problem and then restart the load process from the beginning. Common causes of problems during indexing include invalid input files or indexing parameter files and insufficient temporary space. **Note:** The messages in the system log will actually refer to a program named ARSLOAD.

If the command failed during database processing or storage manager processing:

- Determine and correct the problem.
- If a Load ID is listed in the message log that the ADDRPTOND command saved in the system log, then you can use the RMVRPTOND command to unload the data. See Chapter 16, "Deleting a report," on page 159 for information about unloading data from OnDemand.
- Restart the load process from the beginning.

Chapter 15. Importing and exporting OnDemand objects through batch administration

Overview

You can use an XML interface to import and export administrative objects into and out of an OnDemand system. The administrative objects that can be imported and exported include:

- users
- groups
- applications
- application groups
- storage sets
- folders
- printers
- cabinets

This XML interface expands the functionality and enables you to export all administrative objects into a single XML file, and later import them into the same OnDemand system or another system.

Also, you can create an XML file from scratch through a user application or Web interface according to the defined specifications, and import it into the system.

Prerequisite: For all platforms, you should have an appropriate Java Runtime Environment (JRE). For i5/OS systems, install the licensed program product 5761-JV1 - IBM Developer Kit for Java.

Installing batch system administration

You can install and setup the prerequisites for OnDemand batch system administration. Information presented here explains how to do this, and describes a short installation verification process.

Prerequisites

The OnDemand Batch System Administration code requires the following software:

- Java Runtime Environment Version 1.4.1 or later. For i5/OS systems, install the licensed program product 5761-JV1 - IBM Developer Kit for Java.
- XML Parser Xerces2 Java Parser Version 2.6.2 or later. See “Configuring Xerces2 Java Parser” on page 148 for details.

The following files are included with the OnDemand batch system administration:

- /QIBM/ProdData/OnDemand/bin/arsxml
- /QIBM/ProData/OnDemand/bin/xml/ODAdmin.jar
- /QIBM/ProdData/OnDemand/bin/xml/ondemand.xsd - (OnDemand XML Schema file)
- /QIBM/ProdData/OnDemand/bin/xml/samples/addgroups.xml
- /QIBM/ProdData/OnDemand/bin/xml/samples/addusers.xml
- /QIBM/ProdData/OnDemand/bin/xml/samples/deletegroups.xml
- /QIBM/ProdData/OnDemand/bin/xml/samples/deleteusers.xml

- /QIBM/ProdData/OnDemand/bin/xml/samples/exportgroups.xml
- /QIBM/ProdData/OnDemand/bin/xml/samples/exportusers.xml
- /QIBM/ProdData/OnDemand/bin/xml/samples/updategroups.xml
- /QIBM/ProdData/OnDemand/bin/xml/samples/updateusers.xml

Configuring Xerces2 Java Parser

The OnDemand batch system administration process uses the Xerces2 Java Parser Version 2. You must download the parser code before you can use batch system administration. Download the Xerces2 Java Parser at:

<http://xml.apache.org/xerces2-j/download.cgi>

Follow the instructions on the Web site, and download and unzip the parser code. After the code is successfully unzipped, copy the following two files to an IFS directory of your choice:

- xercesImpl.jar
- xml-apis.jar

In the OnDemand config directory, create a file named arsxml.cfg. This file is used to specify the directory of the jar files listed above. The file should contain only one line:

```
ODXMLDIR=dir
```

where *dir* is the full path of the directory containing the Xerces2 Java Parser jar files. For example, ODXMLDIR=/usr/xerces-2_9_0.

Installation verification

Perform the following steps:

1. Log onto your i5/OS system with a user profile that is defined to OnDemand as an Administrator, and that has sufficient authority to create user profiles.
2. Create five user profiles, to be used for installation verification, called SAMPLEUSR0, SAMPLEUSR1, SAMPLEUSR2, SAMPLEUSR3, and SAMPLEUSR4 on your i5/OS system. (These user profiles will be deleted when you have completed the installation verification.)

You should not add these five user profiles to OnDemand at this point. You will do this later, using the batch administration function.

To run the ARSXML program, first start QSHELL. You do this by using the Start QSH (STRQSH) command.

Run this command:

```
arsxml add -h QUSROND -i /qibm/proddata/ondemand/bin/xml/samples/addusers.xml -v
```

where **QUSROND** is the name of the OnDemand instance into which you want to add new users.

Important: Omitting the -u and -p parameters causes OnDemand to use the user profile with which you are currently logged on.

The XML file contains user passwords that are six to eight characters. If the OnDemand system where these users are created has different password restrictions, these passwords might need to be changed before you run the command.

After you run the command, you should receive several messages stating that a printer and five users were added successfully.

If the command is properly run, you should be able to use the OnDemand Administrator client to view the newly added users and printer.

To remove the newly added objects, run this command:

```
arsxml delete -h <hostname> -u <user> -p <password> -i deleteusers.xml -v
```

where **QUSROND** is the instance to which you previously added users. Then, delete the five user profiles called SAMPLEUSR0, SAMPLEUSR1, SAMPLEUSR2, SAMPLEUSR3, and SAMPLEUSR4 from your i5/OS system.

You can use several other sample XML files. However, these files depend on the users that are created by the addusers.xml file.

Common problems during installation verification

This section discusses some common errors that you might encounter during installation verification.

The input file ../xerces-2_6_2/xml-apis.jar was not found

This error indicates that the required Xerces2 Java Parser code file xml-apis.jar was not found. Make sure that the Xerces2 Java Parser directory was correctly entered into the XML configuration file. For more information, see “Configuring Xerces2 Java Parser” on page 148.

The input file ../xerces-2_6_2/xercesImpl.jar was not found

This error indicates that the required Xerces2 Java Parser code file xml-apis.jar was not found. make sure that Xerces2 Java Parser directory was correctly entered into the XML configuration file. For more information, see “Configuring Xerces2 Java Parser” on page 148.

Exception in thread main java.lang.NoClassDefFoundError: org/w3c/dom/Node

This error usually indicates that the required Xerces2 Java Parser code file xercesImpl.jar was not found or is not valid. See “Configuring Xerces2 Java Parser” on page 148 and make sure that Xerces2 Java Parser code was downloaded properly and that the directory was correctly entered into the XML configuration file.

Exception in thread main java.lang.NoClassDefFoundError: org/apache/xerces/parsers/AbstractDOMParser

This error usually indicates that the required Xerces2 Java Parser code file xercesImpl.jar was not found or is not valid. See “Configuring Xerces2 Java Parser” on page 148 and make sure that Xerces2 Java Parser code was downloaded properly, and that the directory was correctly entered into the XML configuration file.

A parsing error occurred in file xxxx/samples/addusers.xml, Line 3, Column 62: cvc-elt.1: Cannot find the declaration of element onDemand.

This error usually indicates that the OnDemand schema file, ondemand.xsd, was not found. See “Installation verification” on page 148 and make sure that the ARSXML command is run from correct directory.

The sample files require that the OnDemand schema file be located in the directory "above" where the ARSXML command is run. If changes are made to the sample files, it might be necessary to update the location of the schema file within the sample files to the full path name of the ondemand.xsd file.

Importing an XML file into an OnDemand system

Importing an XML file that contains administrative objects into an OnDemand system is a two-step process:

1. Preparing an XML file for the import process
2. Importing the XML file by using the ARSXML API

Preparing an XML file for the import process

Before importing data into an OnDemand system, you need to have an XML file that contains all the data that needs to be imported. The XML file can be either created during a previous XML export process or created manually. If you decide to develop an XML file manually, you must follow the format of the OnDemand XML schema file.

The OnDemand XML schema file defines the syntactic format for all OnDemand XML files, and is used during the import process to validate the contents of the import XML file. For different objects, the schema file specifies which fields are required and which fields are optional. Also, the schema file can establish a list of valid values for certain fields.

The following sample is a portion of the OnDemand schema file for the object user:

```
<xs:element name="user">
  <xs:complexType>
    <xs:choice maxOccurs="unbounded">
      <xs:element name="userPermission" minOccurs="0" maxOccurs="unbounded">
        <xs:complexType>
          <xs:attribute name="task" type="taskString" use="optional"/>
          <xs:attribute name="user" type="nameString" use="optional"/>
          <xs:attribute name="group" type="nameString" use="optional"/>
          <xs:attribute name="userAuthority" type="authString" use="optional"
            default="Access"/>
        </xs:complexType>
      </xs:element>
    </xs:choice>

    <xs:attribute name="name" type="nameString" use="required"/>
    <xs:attribute name="uid" type="xs:integer" use="optional"/>
    <xs:attribute name="description" type="descString" use="optional"/>
    <xs:attribute name="password" type="passwordString" use="optional"/>

    <xs:attribute name="fullName" type="userMiscString" use="optional"/>
    <xs:attribute name="acctInfo" type="userMiscString" use="optional"/>
    <xs:attribute name="company" type="userMiscString" use="optional"/>
    <xs:attribute name="title" type="userMiscString" use="optional"/>
    <xs:attribute name="addr1" type="userMiscString" use="optional"/>
    <xs:attribute name="addr2" type="userMiscString" use="optional"/>
    <xs:attribute name="addr3" type="userMiscString" use="optional"/>
    <xs:attribute name="addr4" type="userMiscString" use="optional"/>
    <xs:attribute name="dept" type="userMiscString" use="optional"/>
    <xs:attribute name="building" type="userMiscString" use="optional"/>
    <xs:attribute name="room" type="userMiscString" use="optional"/>
    <xs:attribute name="phone" type="phoneString" use="optional"/>
    <xs:attribute name="fax" type="phoneString" use="optional"/>
    <xs:attribute name="coverPage" type="userMiscString" use="optional"/>
    <xs:attribute name="printer" type="xs:string" use="optional"/>
  </xs:complexType>
</xs:element>
```

```

<xs:attribute name="timeOut"      type="xs:string"      use="optional"/>
<xs:attribute name="email"       type="emailString"   use="optional"/>

<xs:attribute name="userType"    type="userTypeString"
              use="optional" default="User"/>
<xs:attribute name="createFoldersAuth" type="yesnoString"
              use="optional" default="No"/>
<xs:attribute name="createUsersAuth" type="yesnoString"
              use="optional" default="No"/>
<xs:attribute name="createGroupsAuth" type="yesnoString"
              use="optional" default="No"/>
<xs:attribute name="createAppGroupsAuth" type="yesnoString"
              use="optional" default="No"/>

  </xs:complexType>
</xs:element>

```

The following sample is a portion of the OnDemand schema file for the object group:

```

<xs:element name="group">
  <xs:complexType>
    <xs:choice maxOccurs="unbounded">
      <xs:element name="user" maxOccurs="unbounded">
        <xs:complexType>
          <xs:attribute name="task" type="taskString" use="optional"/>
          <xs:attribute name="name" type="nameString" use="required"/>
        </xs:complexType>
      </xs:element>
    </xs:choice>

    <xs:attribute name="name"          type="nameString" use="required"/>
    <xs:attribute name="gid"          type="xs:integer" use="optional"/>
    <xs:attribute name="description"  type="descString" use="optional"/>
    <xs:attribute name="ownerUser"   type="nameString" use="optional"/>
    <xs:attribute name="ownerGroup"  type="nameString" use="optional"/>
  </xs:complexType>
</xs:element>

```

The following example is a portion of the OnDemand XML file, which contains an OnDemand administrative user named `bill` and a user group named `SpecialGroup`. `SpecialGroup` is owned by the user `admin`, and contains a single user `bill`.

```

<user name="bill"
      password=""
      description="This is an Admin user."
      email="Sample@us.ibm.com"
      userType="User Admin">
</user>

<group name="SpecialGroup"
       description="A Special Group for special users"
       ownerUser="admin">
  <user name="bill"/>
</group>

```

Creating an XML file

Occasionally, you need to manually create an OnDemand XML file. To do this you need to understand the syntax of XML and the structure of the XML objects. These objects are used by OnDemand.

Overall file structure

An OnDemand XML file is an unformatted text file that can be created by the user.

Every OnDemand XML file contains the following elements:

- An XML identifier tag
- An OnDemand identifier tag
- One or more OnDemand objects
- An OnDemand ending tag

XML identifier tag

The XML identifier tag specifies the version of XML that is used and the encoding that is used. The standard XML identifier is:

```
<?xml version="1.0" encoding="UTF-8"?>
```

OnDemand identifier tag

The OnDemand identifier tag specifies what the XML file is used for and what schema file to use. The standard OnDemand identifier is:

```
<onDemand xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="../ondemand.xsd">
```

The name of the ondemand.xsd file, shown here as ondemand.xsd, should be changed if you have changed the name of your OnDemand XML schema file. The ondemand.xsd file must be located one directory level above the directory containing your XML files.

OnDemand objects

See *Content Manager OnDemand for Multiplatforms Administration Guide* for objects and data model used in the XML file.

OnDemand ending tag

The OnDemand ending tag indicates the end of the OnDemand XML file. The ending tag is:

```
</onDemand>
```

Every standard OnDemand XML file looks like this:

```
<?xml version="1.0" encoding="UTF-8"?>
<onDemand xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="ondemand.xsd">
  ... OnDemand Objects ...
</onDemand>
```

OnDemand objects

The basic building blocks for the XML file are referred to as objects.

The following objects can be included in the OnDemand XML file:

- user
- group
- application
- applicationGroup
- storageSet
- folder
- printer
- cabinet

These eight objects and all child objects are shown in detail in the XML data tables in the *Content Manager OnDemand for Multiplatforms Administration Guide*. The OnDemand objects can occur in any order within the XML file, but cannot be imbedded within each other.

Each object that is added to the XML file contains the following information:

- A Start of Object tag
- A list of object attributes
- An optional list of child objects
- An End of Object tag

Start of Object: An object is specified in the XML file by placing the object name after a < symbol. For example,

```
<user
```

starts a user object.

Important: The capitalization of the object names is important and should be used exactly as shown in the data tables in *Content Manager OnDemand for Multiplatforms Administration Guide*.

Object attributes: All of the information about the object is contained within the object attributes. To add an attribute, specify the attribute name followed by an equal symbol followed by the value of the attribute in quotation marks. (All attribute values need to be enclosed in a set of double quotes even if the value is a numeric value or a single character.) Following the attribute values, the greater-than symbol is used to indicate the end of the object tag. For example:

```
<user name="SAMPLEUSER" phone="(212) 555-1212" timeOut="4" >
```

This tag indicates a user with the name SAMPLEUSER, the phone number (212) 555-1212, and the time out value 4 minutes. All the attributes that can be specified for each object, as well as the possible values and default values, are shown in the XML data tables.

Important:

1. The capitalization of the object names is important and should be used exactly as shown in the data tables in *Content Manager OnDemand for Multiplatforms Administration Guide*.
2. When you add a user OnDemand converts lowercase letters in the user ID to uppercase. You can type the user ID in uppercase, lowercase, or mixed case letters. In the above example, whether you enter the user ID as SAMPLEUSER, sampleuser, or SampleUser, OnDemand automatically converts it to SAMPLEUSER.

Child objects: Child objects are constructed the same way as the eight main OnDemand objects. All child objects must occur after the object to which they are associated, and before the end of the object tag. In this example, there are two user permission children for the SampleUser user:

```
<user name="SampleUser" phone="(212) 555-1212" timeOut="4" >  
<permission user="APP1" adminAuthority="Yes" />  
<permission user="APP2" adminAuthority="Yes" />
```

Important: If an object cannot contain any children, such as the permission objects shown above, it must be ended with a slash / and the > symbol.

See *Content Manager OnDemand for Multiplatforms Administration Guide* for detailed information about the types of child objects that each object can have and, in some cases, the maximum number of child objects that can be created.

Some of the child objects themselves can have children. These are defined in the same way as above. See the second example in the Examples section.

End of object: The last item the user object needs is the end of object tag. This is indicated by placing the name of the object between </ and >. For example, </user>

indicates the end of the user object.

As with any object if the object does not contain child objects, the object can be ended by placing a /> at the end of the object definition. So the following,

```
<group name="Sample" gid="84000">
</group>
```

is equivalent to:

```
<group name="Sample" gid="84000"/>
```

Examples: The following example shows a complete OnDemand XML file that contains two users and a user group:

```
<?xml version="1.0" encoding="UTF-8"?>
<onDemand xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="ondemand.xsd">

  <user
    name="SampleUser1" email="Sample@us.ibm.com" printer="Sample"
    userType="User Admin"
    createFoldersAuth="Yes">
    <permission user="SampleUser2" adminAuthority="Yes" />
    <permission user="SampleUser3" adminAuthority="No" />
    <permission group="SampleGroup1"/>
  </user>

  <user
    name="SampleUser2" password="xxxxxxx" timeOut="No Limit"
    description="This is a description of Sample User Two">
  </user>

  <group
    name="SampleGroup1"
    description="A Sample Group Number One"
    ownerUser="Admin">
    <user name="SampleUser2"/>
    <user name="SampleUser3"/>
  </group>

</onDemand>
```

The following example shows a folder with a field child, and the field child has a fieldInfo child.

```
<?xml version="1.0" encoding="UTF-8"?>
<onDemand xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="ondemand.xsd">
  <folder name="FolderOne" searchType="Hit List">
    <field name="cost" fieldType="Decimal" >
      <fieldInfo user="SampleUser" sortOrder="2" greaterThan="Default" lessThan="Yes"/>
    </field>
  </folder>
</onDemand>
```

Creating OnDemand XML files for update: When you create an XML file to be used for updating information, you should use the same syntax and layout as discussed in the previous section. However, there are two major differences.

- You only need to specify those fields that you intend to be updated.

- Child objects might contain the additional attribute `task`. The `task` attribute indicates the task that is performed by the child object.

Each object that you update must contain the name of the object. Any other attributes that are specified are updated to the specified value. If an object that is updated requires a change to another object, that object must be included in the XML file before the object that references it. For example, to change the user `SampleUser` to timeout after 10 minutes, you need to put the following XML code into an XML file.

```
<user name="SampleUser" timeOut="10"/>
```

For all of the main objects, the `name` field can be specified as `_ALL` to update all of the objects of that type. For example, to remove the authority to create folders from all of the defined users, you can use the following XML code:

```
<user name="_ALL" createFoldersAuth="No"/>
```

To rename some objects, you should use the `newName` attribute. For example, to change the name of a printer from `Boston` to `New York`, use the following XML code during an update:

```
<printer name="Boston" newName="NewYork"/>
```

Most objects might contain a set of similar child objects. To update these objects, you should use the `task` attribute. The `task` attribute can have three values:

add Indicates that the child object will be added to the parent object. The default value for the `task` attribute is `add`. However, some child objects do not contain a `task` attribute. For those objects without a `task` attribute, the action taken for the object is the same action as the parent object.

update

This indicates that the child object already exists and should be updated with the attributes provided.

delete This indicates that the child object already exists and should be removed from the parent object.

The `task` attribute is examined only during an update process. To add, update or delete a child object, the parent object must be specified, and must contain the child object to be updated.

The default value for the `task` attribute is `add`. However, some child objects do not contain a `task` attribute. For those objects without a `task` attribute, the action taken for the object will be the same action as the parent object.

When you update or delete child permission objects, you might specify the value of `_ALL` for the user or the group, to indicate that the update or removal should pertain to all of the users or groups that are already defined for the parent object.

Examples: To add a permission for the user `SampleUser` to the folder `FolderOne`, the following code can be used during an update:

```
<folder name="FolderOne">  
<permission user="SampleUser" adminAuthority="Yes" maxHits="No Limit" />  
</folder>
```

To remove the administration authority permission from `SampleUser` on the folder `FolderOne`, you need to update the permission child. The following code is an example:

```
| <folder name="FolderOne">
| <permission task="update" user="SampleUser" adminAuthority="No" />
| </folder>
```

To remove the SampleUser permission from the folder, you need to delete the permission child.

```
| <folder name="FolderOne">
| <permission task="delete" user="SampleUser"/>
| </folder>
```

To remove all user permissions that are currently defined for the folder FolderOne, the following XML code can be used during an update:

```
| <folder name="FolderOne">
| <permission task="delete" user="_ALL"/>
| </folder>
```

Creating OnDemand XML files for delete and export: When you create an OnDemand XML file to use for exporting or deleting objects, you should use the same syntax and layout as described in previous sections. However, there are two major differences:

- The only attribute field that is examined is the name field.
- All child objects are ignored.

When you export or delete objects, the only information that is required is the name of the objects. All other attributes might be present in the XML file, but are ignored. It is possible to delete only child objects through the update process. During a delete process all child objects are ignored.

When you specify an application for delete or export, you must also specify the name of the application group in which the application is contained.

The name of _ALL can be used during export and delete to indicate that all objects of that type should be exported or deleted.

To export the users SampleOne, SampleTwo, and SampleThree, you can use the following OnDemand XML file:

```
| <?xml version="1.0" encoding="UTF-8"?>
| <onDemand xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
|   xsi:noNamespaceSchemaLocation="ondemand.xsd">
|
|   <user name="SampleOne"/>
|   <user name="SampleTwo"/>
|   <user name="SampleThree"/>
| </onDemand>
```

To delete the printer, OldPrinter, and the folder, MyFolder, use the following XML code:

```
| <printer name="OldPrinter"/>
| <folder name="MyFolder"/>
```

To delete all defined printers, the following XML code could be used during a delete process.

```
| <printer name="_ALL"/>
```

Application Index Parameter Object: The indexParm child object of the application object has a slightly different syntax than all other objects. Owing to the type of the data associated with the Index Parameters, you cannot use an object attribute to specify this information. Thus, for this object (and only this object), the

data associated with the object is simply the character data that appears between the <indexParm> and the </indexParm> flags.

For example, the following code can be used to set the index parameters associated with the SampleApp application:

```
<application name="SampleApp" .... >
<indexParm>
*dummy index parameters
parm1=value;
parm2=value;
parm3=value;
</indexParm>
</application>
```

Importing the XML file by using the ARSXML command

Use the ARSXML command to import the XML file into the OnDemand system. For syntax, description, and parameters of this command, see “ARSXML” on page 248.

Exporting OnDemand administrative objects to an XML file

You can use the ARSXML command to export objects from OnDemand into an XML file in several ways:

- You can export a single object, such as a single user.
- You can export all the defined objects of a particular type, for example, all user groups
- You can export any combination of objects, for example, a user group and all users in that group

This feature can be used to back up part of an OnDemand system, copy objects from one system to another, or store objects into an XML file so that they can be processed by another application.

Use the ARSXML command to export administrative objects into an XML file. For syntax, description, and parameters of this command, see “ARSXML” on page 248.

If you are exporting objects that have dependencies on other objects: Some objects in OnDemand might have dependencies on other objects. For example, a group object has a dependency on all of the users that are defined within the group. When you export these objects, you can use the `-r` parameter with a value of `d` to include in the XML file all of the dependent objects that the exported objects might have.

See “ARSXML” on page 248 for more example XML files that are generated in different export scenarios.

Chapter 16. Deleting a report

| You can use the RMVRPTOND command to delete the index data and documents
| that the ADDRPTOND command stored in the system during a load process. To use
| the delete command, you must specify the application group name and Load ID that
| the ADDRPTOND command generated during the load process. The Load ID
| represents the index data that was added to the database and the storage objects
| that were copied to disk and archive storage. The Load ID can be found in the
| message that the ADDRPTOND command saved in the system log.

| See the online help for RMVRPTOND for more information about the command and
| parameters.

| When the RMVRPTOND command completes, you should open the system log
| folder to view the messages that were generated during the delete process. The
| messages will reference a program named ARSADMIN.

| **Note:** The OnDemand server job must be running. Otherwise, the RMVRPTOND
| command fails.

Part 5. Server administration

This part describes errors and alerts, system logging, how to find the server job and its attributes, and how to restart journaling.

Chapter 17. Managing the server

This chapter provides information for a number of topics related to the OnDemand server.

Errors and alerts

During normal processing, OnDemand programs, including the client programs, generate messages. OnDemand saves the messages in the OnDemand System Log and sends a copy of each message to the System Log user exit program. OnDemand assigns a severity to each message. Messages that are assigned a severity of alert or error are also sent to the i5/OS QSYSOPR message queue and logged in the server job log. Additionally, when a user runs a query that requires a table of index data that has been migrated to archive storage, OnDemand sends a message to QSYSOPR and the job log.

OnDemand provides the System Logging facility to help you identify and resolve any alerts and errors that you may receive. You can open the System Log folder to display the messages that are saved in the System Log. See “System logging facility” for more information; see Appendix B, “System log messages,” on page 175 or *IBM Content Manager OnDemand: Messages and Codes*, SC27-1379 for a listing of message numbers and text.

System logging facility

OnDemand provides a logging facility to help administrators track OnDemand activity and monitor the system. When you enable logging for system events, user events, and application group events, OnDemand stores the messages that are generated by the various OnDemand programs in the System Log. You can use the OnDemand client program to search for and filter messages by time stamp, severity, message number, and user name.

Searching for and viewing messages

To search for and view the messages that are stored in the System Logging facility, log on to OnDemand with an OnDemand client program and open the System Log folder. Enter search criteria in one or more of the search fields. When you choose the **Search** command, OnDemand retrieves the messages from the database that match the search criteria that you specified.

You can specify a date and time value to search for and retrieve messages. You can also specify other search criteria, such as:

Userid	The OnDemand user ID
Account	Accounting information; the information specified in the Account field for the user.
Log Id	Each time that a client logs on to the server, OnDemand assigns a number to that session. All messages that are generated during that session include the same Log Id.
Severity	OnDemand assigns a severity to each message: Alert, Error, Warning, Info, and Debug

View	<p>Depending on the type of message in the System Log, you may be able to view other information that is related to or associated with the message. For example:</p> <ul style="list-style-type: none"> You can display the message log that was generated during a load process by selecting an ARSLOAD message and then choosing the View all Selected command. You might see ARSLOAD messages after issuing the ADDRPTOND command. <p>While most processes do not generate other information that can be stored in the System Log, you could write a user exit program to process the messages and generate your own information about the events. For example, you could write a user exit program to generate a report that lists the number of users that are logged on to the system in 30 minute increments. OnDemand provides a System Log user exit so that you can process any message that is stored in the System Log and take the action that you require. See below for more information about the System Log user exit.</p> <ul style="list-style-type: none"> Other messages in the System Log do not provide additional records or other data associated with an event. For example, the Logon and Logoff events each generate a single message, with no additional information that you can view.
Msg Num	The message number that is assigned by OnDemand
Message	The text of the message that OnDemand uses to restrict a search. For example, if you type Login , OnDemand searches for and displays the messages issued by the Logon to a Server command.

System Log user exit

When you enable logging for system, user, and application group events, OnDemand sends a copy of each message that is generated by the system to the System Log user exit program. The System Log user exit program is named `arslog` and resides in the OnDemand library named QRDARS.

The System Log user exit program that is provided by IBM does not perform any functions. However, you can replace the program that is provided by IBM with your own program that does user-defined processing. For example, you could create a program that checks for certain message numbers or severity and takes whatever action you deem appropriate.

You configure OnDemand to send messages to the System Log user exit by selecting User Exit Logging options with the System Parameters command. See the online help for the administrative client for more information about the User Exit Logging options and the System Parameters command.

See the *IBM Content Manager OnDemand for i5/OS Common Server Planning and Installation Guide* for more information about the System Log user exit.

Monitoring users

The OnDemand server generates System Log messages to help you track the number of users that are logged on to the server:

- OnDemand stores message number 201 in the System Log approximately every 30 minutes if at least one activity is detected. This message contains the current number of users that are logged on to the server.

- OnDemand stores message number 202 in the System Log every time that the number of concurrent users exceeds the previous maximum number of concurrent users. The number of concurrent users is reset each time that you restart the OnDemand server processes.

Generating usage statistics

OnDemand administrators can run queries against the System Log database file to gather usage statistics about OnDemand, provided they have checked the appropriate logging options in the OnDemand Application Group definitions for the information they want to capture.

The initial System Log file name is **SL2**. This System Log file is found in the library whose name matches the instance name. For example, the initial System Log file for the QUSROND instance is named SL2 in library QUSROND on the i5/OS server. When the initial System Log file becomes full, a new file is created, and its name is incremented by one; the name thus becomes SL3.

For example, on the Message Logging tab of an Application Group definition, the OnDemand administrator can select the Retrieval checkbox, which provides messages in the System Log for every retrieval from the particular Application Group.

As another example, the OnDemand administrator can set up Application Group fields such that when the end user searches on that particular field, the information is provided in the message placed in the System Log. To do this, select the Log checkbox on the Field Information tab of the Application Group for the field for which you want to capture information.

Two of the most common message numbers that can be queried from the System Log file are:

- Number 65 (the actual search)
- Number 66 (the retrieval with field information and OnDemand Application name)

How to find or change the server job and its attributes for a particular instance

The name of the server job for a particular server matches the name of the OnDemand instance for which it is running. For example, the server job name is QUSROND for the default OnDemand instance named QUSROND. You can use the command `WRKACTJOB JOB(QUSROND)` to find this default server job.

In addition, Common Server spawns many QSQSRVR jobs during its processes. To determine which specific QSQSRVR job to view if you encountered a problem with an OnDemand process, look at the instance job log (for example, the job log for the QUSROND job) and compare the time stamps of the error messages to the time stamps of the QSQSRVR job logs to determine which spawned QSQSRVR job or jobs are related to the particular process you are investigating.

Server jobs are started using a job description by the name of the instance (which must be found in the QUSRRDARS library). If a job description by that name is not found in QUSRRDARS, then job description QOND400 in library QRDARS is used (and can be changed if necessary).

The job description controls the following attributes of the server job:

- JOBQ
- JOBPTY
- OUTPTY
- PRTDEV
- OUTQ
- INLLIBL
- LOG
- LOGCLPGM
- INQMSGRPY
- HOLD
- DATE
- SWS
- JOBMSGQMX
- JOBMSGQFL

For example, if you wanted to change the job queue that instance TEST used, you would create a job description called TEST in library QUSRRDARS that specified the job queue you wanted to use. This alternate job queue could be used to send the server jobs to a different subsystem than the default.

Controlling the run priority of instance server jobs

The run priority of Common Server instance server jobs is by default set by the *ANY routing entry in the QSYSWRK subsystem description. Normally this defaults to priority 50. (It depends on the class that is specified for the *ANY routing entry in subsystem QSYSWRK.) If you wish to change this for all instance server jobs, you may add a routing entry to the QSYSWRK subsystem description using the Add Routing Entry (ADDRTGE) command as follows:

```
ADDRTGE SBSDB(QSYS/QSYSWRK) SEQNBR(nnnn) CMPVAL('QRLMSERVER') +
      PGM(QSYS/QCMD) CLS(class)
```

Where:

nnnn is an unused routing sequence number in the QSYSWRK subsystem, which is lower than the *ANY routing entry sequence number.

class is the name of a i5/OS class object (OBJTYPE(*CLS)) that contains the attributes you want to use.

For example:

```
ADDRTGE SBSDB(QSYS/QSYSWRK) SEQNBR(1000) CMPVAL('QRLMSERVER') +
      PGM(QSYS/QCMD) CLS(QSYS/QSYSCLS35)
```

The system ships with the following classes that you might consider using:

QSYS/QSYSCLS25 (Run priority of 25)

QSYS/QSYSCLS35 (Run priority of 35)

If you want to specify a different run priority, for example 45, then you need to create your own class. An example command that does this is:

```
CRTCLS CLS(QGPL/ONDSVR45) RUNPTY(45) TIMESLICE(2000) +
      PURGE(*YES) DFTWAIT(30) CPUTIME(*NOMAX) +
      MAXTMPSTG(*NOMAX) +
      TEXT('OnDemand Common Server run priority 45 class')
```

After creating the class, specify it as the class name in the routing entry for QRLMSERVER in subsystem QSYSWRK.

Restarting journaling

If you receive a message on the server indicating that journaling needs to be started for your OnDemand database files, issue the following command from a command line while signed on with sufficient authority:

CALL QRLCSTRJ PARM(RLC)

The parameter value (RLC) must be entered in *uppercase*.

Appendix A. Command reference

This part contains reference information about the OnDemand server commands. The commands are presented in alphabetical order. Each command contains a description of its purpose. See the online help text for details about the command parameters.

OnDemand server commands

These commands require that you be signed on to the server with a user profile that is also defined as a user in OnDemand. For commands that specify an application or application group name, if the value to be entered contains lower case letters, blanks, or special characters, it must be enclosed in apostrophes.

ADDRPTOND

The Add Report to OnDemand (ADDRPTOND) command allows you to load reports in OnDemand. During this process the report is broken into segments, indexed, compressed, and stored on disk for retrieval and later migration to optical or tape media if desired. Input can be in the form of a spooled file (*SPLF), a database file (*FILE), or a stream file (*STMF). **Important:** Set the proper locale before issuing this command. See the chapter entitled “Defining a locale” in the *IBM Content Manager OnDemand for i5/OS Common Server: Planning and Installation Guide* for important details.

After the ADDRPTOND command has run, message number 87 will appear in the System Log if the loading of data was successful; message 88 will appear if the data loading failed.

CHGPLDOND

The Change Policy Level Date (CHGPLDOND) command changes the next level date to the new date for objects that are at the named level in the named migration policy. Only objects in the specified date range are changed.

ENDMONOND

The End Monitor for OnDemand (ENDMONOND) command allows you to end a currently active monitor for an output queue.

FNDKEYOND

The Find Key for the OnDemand (FNDKEYOND) command allows you to search for a particular document that is available through the folder specified in the FOLDER parameter, and starts the OnDemand client to display the results of the search. The key fields entered must exist in the folder. This is intended as an API to start the OnDemand client from an application running in a 5250 emulation session. See Appendix C, “5250 host connection to client viewer,” on page 203 for more details.

MGRMEDRDAR

The Migrate Media (MGRMEDRDAR) command provides a tool to move Spool File Archive data from one media type to another in an easy, recoverable way that can be stopped and restarted as needed. When the MGRMEDRDAR command runs, it updates all the necessary Spool File Archive files to point to the new location. The

source media for the command can be an optical volume, a tape volume, or an individual report name. The target media can be disk for all sources or optical for optical sources.

A long running MGRMEDRDAR job can be ended if necessary. However, it must be ended in a controlled manner to prevent unexpected results. You can use the End Job (ENDJOB) command, specifying JOB(job-number/user-name/job-name) OPTION(*CNTRLD) DELAY(500) where job-number/user-name/job-name identifies the MGRMEDRDAR job.

Important: The MGRMEDRDAR command is included in this Common Server publication because the Spool File Archive data can be migrated to Common Server, yet the physical data is still preserved in the Spool File Archive format. For this reason, users of Common Server implementations might still be interested in using the MGRMEDRDAR command to move data that was originally stored in Spool File Archive from one medium to another. For detailed information on this media migration facility, refer to the OnDemand for i5/OS support Web page at <http://www.ibm.com/software/data/ondemand/400/support.html> and search for MMF.

PRTRPTOND

The Print Report from OnDemand (PRTRPTOND) command prints the specified report in its entirety.

If a printer name is specified for the PRINTER parameter, OnDemand uses the first record found in the ARSPRT file (in your instance library) with a printer name that contains the string you entered anywhere in the name.

For example, if you enter PRINTER1 for the PRINTER parameter and your ARSPRT file has these three records (in this order), OnDemand sends your output to the first one in the following list:

- XPRINTER11
- PRINTER11
- PRINTER1

If *OUTQ is specified for the PRINTER parameter, you must also enter an output queue name and library name. (*LIBL can be used for the library name.) OnDemand uses the printer associated with the first record found in the ARSPRT file (in your instance library) with an output queue name that contains the library name/output queue name you entered. An output queue name without a library qualifier will never be used when PRINTER(*OUTQ) is specified. The library on the OUTQ parameter defaults to *LIBL and no match is made. If you have entered printers without a library qualifier, you must refer to them by name; for example, PRINTER(PRINTER1). The PRTRPT job library is then used to locate the output queue.

For example, if you enter QUSROND/MYOUTQ for the OUTQ parameter and your ARSPRT file has these four records (in this order), OnDemand sends your output to the printer name associated with the first output queue in the following list:

- QUSROND/MYOUTQ
- MYOUTQ
- AMYOUTQ
- TEST/MYOUTQ

| **Restriction:** The COPIES and PAGERANGE parameters were removed from the
| PRTRPTOND command in Version 6 Release 1, and should be
| removed from any CL programs or job scheduler entries that might
| currently specify them.

PRTTXTOND

The Print Text for OnDemand (PRTTXTOND) command allows you to print all or part of a spooled file in a text-only format. This allows the report administrator to see what the report looks like to ADDRPTOND when it is indexed. Using this output (spooled file name QPRLMTXT), the administrator can determine how to index the report.

RMVRPTOND

The Remove Report from OnDemand (RMVRPTOND) command removes the specified report from OnDemand.

STRASMOND

The Start Archived Storage Mgmt (STRASMOND) command starts the Archived Storage Management (ASM) process which manages the movement of data within the ASM defined levels. This function can be canceled with a controlled cancel option if enough time is allowed to end what it is currently processing.

Notes:

1. This command must only be run in batch (SBMJOB parameter set to *YES). Running this command interactively (with SBMJOB(*NO)) may cause SQL errors.
2. By default, the QUSROND default instance is used, and will produce the desired results for most systems. If you need to run the STRASMOND command for multiple instances, you must issue the command separately for each instance. Note that if you initiate the archive storage manager by running the STRDSMOND command with RUNASM(*YES), then the instance name is passed from the disk storage manager and no further specifications are needed.
3. The report that is produced when ASM is run has a spooled file name of QPRLCASM1. The report provides a list of actions that the ASM process performed. This report should be checked each time ASM is run to ensure that processing of the data completed successfully. If a failed condition is found, it is important to check the job log for the STRASMOND job to determine the cause of the failure. The STRASMOND command actually runs three sub-functions: one to process all previously unprocessed objects, one to process all aggregates with next level date less than or equal to today's date, and one to process all objects not in an aggregate with next level date less than or equal to today's date. You might see message RDR2798 one or more times in your STRASMOND job log if any of these three sub-functions had no objects to process.
4. See "Hints and tips" on page 66 for information about resetting optical volume statistics such as bytes used and the volume full flag if you feel any of your optical volumes may have incorrect values set.
5. The LOGSTS and SNDFAILMSG parameters have been removed from the STRASMOND command at Version 6 Release 1 and should be removed from any CL programs or job scheduler entries that may currently specify them.

STRDSMOND

The Start Disk Storage Management (STRDSMOND) command starts the Disk Storage Management (DSM) task which manages the movement of OnDemand data on disk and between disk and the Archived Storage Manager (ASM). DSM also controls the expiration of data in OnDemand. This function can be canceled with a controlled cancel option if enough time is allowed to end what it is currently processing. Although you can run multiple STRDSMOND commands for different application groups within the same instance or different instances, it is not recommended.

Important: If you run STRDSMOND for a specific application group (rather than the default of *ALL) and you set the Run ASM (RUNASM) parameter to *YES, be aware that ASM will run for ALL application groups, even though you have named a specific application group for DSM to use. You can, however, name a specific Policy for ASM to process, if desired. Also note that when you specify RUNASM(*YES), OnDemand will initiate a separate batch job for ASM.

Restriction: The VALIDATE parameter was removed from the STRDSMOND command in Version 6 Release 1, and should be removed from any CL programs or job scheduler entries that might currently specify it.

STRIMPOND

The Start Import into OnDemand (STRIMPOND) command allows you to import data into OnDemand. This command is used only if you have migrated your index data to an alternate media (such as optical or tape), which is not recommended, but may be necessary in some cases.

STRMONOND

The Start Monitor for OnDemand (STRMONOND) command allows you to specify the name of an output queue or IFS directory to monitor. When a spooled file is added to the output queue or a file is added to an IFS directory, the spooled file is automatically processed by ADDRPTOND. **Important:** Set the proper locale before issuing this command. See the chapter entitled “Defining a locale” in the *IBM Content Manager OnDemand for i5/OS Common Server: Planning and Installation Guide* for important details.

The application and application group names for spooled files are determined using spooled file attributes such as spooled file name or user data (or a number of others). You can alter these values that OnDemand uses for application and application group by using the output queue monitor user exit program as described in Appendix E, “API and user exit reference,” on page 211.

The application and application group names for PC files are determined by the PC file name itself. The monitor can use any one of the first four parts of the file name. For example, a file name of CHECKSTMTS.BIGSTMTS.data might be used to archive an application named CHECKSTMTS into an application group named BIGSTMTS.

After the STRMONOND command has processed an input file, message number 87 will appear in the System Log if the loading of data was successful; message 88 will appear if the data loading failed.

You can end the monitor by:

- Specifying a method for the monitor to end automatically.

- Running the ENDMONOND command
- Ending the monitor job using the ENDJOB command. Specify OPTION(*CNTRLD) and DELAY(999999). The job will end as soon as the monitor finishes processing the current file.

Appendix B. System log messages

Overview

This section contains many of the most common messages found in the System Log, which is searchable by using the OnDemand client. For a complete list of System Log messages, see *IBM Content Manager OnDemand Messages and Codes*, SC27-1379.

You should always keep the system logs. (See the application group and folder titled System Log.) The System Log is the only place where the Load Identifier for archived data is maintained. Every time data is loaded into OnDemand, message number 87 is placed in the system log and the Load Identifier is recorded as part of the message. The Load Identifier is also called the Report ID and is a required parameter (RPTID) for the Remove Report from OnDemand (RMVRPTOND) and Print Report from OnDemand (PRTRPTOND) commands. When installed, the System Log application group is defined to never expire and IBM recommends that you do not change that setting. If you do change the setting, you should only expire the System Log data after all other application groups have expired their data. In other words, the value in the Expire in *x* Days field under Life of Data and Indexes on the Storage Management tab of the System Log application group should always be larger than the same value in any other application group. If any other application group is using the Never Expire setting, you should not change the System Log application group setting from the default. If you do, you will be unable to use the RMVRPTOND or the PRTRPTOND commands for some of the data stored in those other application groups.

Message reference

The format of the message identifier is ARSnnnt, where:

ARS	The message prefix for OnDemand messages.
<i>nnnn</i>	Represents the message number.
<i>t</i>	Represents the type of message and indicates the severity of the message. Can be one of the following letters: <ul style="list-style-type: none">A An alert message is a warning for an administrator to take action to avoid performance and reliability problems.D A debug message contains information that an administrator can use to help service and development resolve problems.E Error message when an OnDemand server program fails.I Informational message that the OnDemand server issues when a program completes successfully. These messages can assist in providing an audit trail.W Warning message that the OnDemand server issues when the results of a program might be in question.

The messages that are written to the OnDemand System Log do not contain the ARS prefix and the type suffix. For example, the message that is associated with the failure of a load process would be written as 88 to the system log, while it is listed as ARS0088E in this publication. However, 88 and ARS0088E are one and the same message.

ARS0013E • ARS0020E

In this publication, the messages and explanations are listed according to the four-digit message numbers (for example, 0088).

ARS0013E DB Error: *db_text* -- SQLSTATE=*sqlstate*, SQLCODE=*sqlcode*, File=*file*, Line=*line*

Explanation: The database failed and provided the given information. The messages and codes publication for the database manager product that you are using might provide additional information, including information about database errors and SQL return codes.

Examples:

DB Error: Column PATIENT# not in specified tables. -- SQLSTATE=42703, SQLCODE=-206, File=arsdoc.c, Line=624

DB Error: Row not found for UPDATE. -- SQLSTATE=02000, SQLCODE=100, File=arsdoc.c, Line=1682

DB Error: Warning: Unexpected SQL_NO_DATA -- SQLSTATE=Not Defined, SQLCODE=100, File=arsdoc.c, Line=1718

User response: See the messages and codes publication of the database manager product that you are using with OnDemand.

ARS0014I DB Info: *text*

Explanation: The *text* information is provided by the database manager. The messages and codes publication for the database manager product that you are using might provide additional information, including information about database errors and SQL return codes.

User response: See the messages and codes publication of the database manager product that you are using with OnDemand.

ARS0015E Unable to find SMS tablespace filesystems. Either the defined SMS filesystems are full or there are no SMS filesystems defined.

Explanation: No storage management subsystem (SMS) filesystems have been defined in *ars.dbfs*, or the SMS filesystems are full or have the wrong permissions. SMS filesystems need to have read-write-execute permissions for the database owner.

User response: Verify the configuration of the SMS filesystem. Either define SMS filesystems or extend the existing SMS filesystems. Verify that the permissions are correct. Then restart the server and resubmit the command.

ARS0016E Unable to allocate enough DMS filesystem space for table. Need(*needed_extents*), Available(*available_extents*), Extent(*extent_size*)

Explanation: There is not enough document management system (DMS) filesystem space available to complete the command.

User response: Define more DMS filesystems. Then restart the server and resubmit the command.

ARS0020E SM Error: *text*, RC=*rc*, Reason=*reason*, File=*file*, Line=*line*

Explanation: The storage manager failed. The SM Error portion of this message contains the error message provided to OnDemand by the storage manager in use. The messages and codes publication of the storage manager might provide additional information.

Example:

SM Error: ASM FAILED TO RETRIEVE OBJECT, RC=2, Reason=0, File=arssms.C, Line=789
Srvr->rdr400m.raleigh.ibm.com 10.37.63.53<-

User response: See the messages and codes publication of the storage manager product that you are using with OnDemand for information about the SM Error, RC, and Reason.

ARS0021E Unable to store data to cache because there is no cache defined

Explanation: There are no cache storage filesystems defined on the system. See your *Planning and Installing* book for information about defining cache storage filesystems.

User response: Define and configure one or more cache storage filesystems. Then restart the server and resubmit the command.

ARS0023E Object >object_name< in Application Group >appl_grp_name< not found in cache, no other storage defined

Explanation: The object no longer exists in the OnDemand cache and no other storage manager was defined to store the data. The data was expired. Depending on how the application group index expiration was configured, the index information will also expire in the future.

Example:

```
Object >1FAAA< in Application Group >LOANS< not found in cache, no other storage defined
Srvr->rdr400m.raleigh.ibm.com 10.37.63.53<-
```

User response: Verify the storage management configuration on the system and verify the storage management settings for the specified application group.

ARS0024E Object >object_name< in Application Group >appl_grp_name< not found in node >node_name<

Explanation: The object cannot be found in the specified storage node. The data has expired from the storage node.

Example:

```
Object >2FAA< in Application Group >JIF< not found in node >PriForever< Srvr->everest.ibm.com<-
```

User response: Verify the storage management settings for the specified application group.

ARS0025E Unable to store data because the cache is full

Explanation: The cache storage filesystems are full.

User response: Add or extend the cache storage filesystems. Then restart the server and resubmit the command.

ARS0026E Unable to perform action because this server is cache only and does not support the Storage Management Subsystem

Explanation: The system is configured for cache only. However, the storage node definitions are pointing to a storage manager that is not configured.

User response: Either define and configure the storage manager or change the storage node to be cache only. Then restart the server and resubmit the command.

ARS0027E Unable to load the TSM dynamic load library

Explanation: The command failed when attempting to load the Tivoli Storage Manager dynamic load library.

User response: Verify that Tivoli Storage Manager is correctly installed and configured. Then restart the server and resubmit the command.

ARS0030I Login: hostname

Explanation: A client successfully logged on to the server. This message is for your information only.

Example:

```
Login: dyna.raleigh.ibm.com 9.34.172.252
```

User response: No action is required.

ARS0031W Failed login: *hostname*

Explanation: A client failed when attempting to log on to the server.

Example:

Failed login: st1ed32.st1.ibm.com 9.112.32.132

User response: Verify the user ID, password, and server selection. Passwords might be case sensitive. Then resubmit the command.

ARS0032I Logoff

Explanation: A client logged off from the server. This message is for your information only.

User response: No action is required.

ARS0033I Logoff Timeout

Explanation: The server forced a client to log off from the server because the client did not perform an action on the server within the interval of time that is specified by the Inactivity Time Out value.

User response: Log off from the server and log back on to the server. Then resubmit the command. A system administrator can increase the inactivity time out value for this or any other server in the OnDemand administrative client. See the online help in the OnDemand administrative client for more information.

ARS0034I User Add: Userid(*user_name*) Id(*uid*)

Explanation: The specified user was added to the system. This message is for your information only.

Example:

User Add: Userid(TBROWN) Id(3)

User response: No action is required.

ARS0035I User Delete: Userid(*user_name*) Id(*uid*)

Explanation: The specified user was deleted from the system. This message is for your information only.

Example:

User Delete: Userid(SBOWMAN) Id(5)

User response: No action is required.

ARS0036I User Update: Userid(*user_name*) Id(*uid*)

Explanation: The specified user was updated. This message is for your information only.

Example:

User Update: Userid(TBROWN) Id(3)

User response: No action is required.

ARS0037I User Update with new Password: Userid(*user_name*) Id(*uid*)

Explanation: The specified user's password was successfully updated. This message is for your information only.

Example:

User Update with new Password: Userid(QONDADM) Id(1)

User response: No action is required.

ARS0038W User Failed Update with new Password: Userid(*user_name*) Id(*uid*)

Explanation: An attempt to update the specified user's password failed.

Example:

User Failed Update with new Password: Userid(QONDADM) Id(1)

User response: Verify the user ID and the new password and then resubmit the command.

ARS0039I Group Add: Group(*group_name*) Id(*gid*)

Explanation: The specified group was added to the system. This message is for your information only.

Example:

Group Add: Group(SUPPORT) Id(80102)

User response: No action is required.

ARS0040I Group Delete: Group(*group_name*) Id(*gid*)

Explanation: The specified group was deleted from the system. This message is for your information only.

Example:

Group Delete: Group(Accounting) Id(80021)

User response: No action is required.

ARS0041I Group Update: Group(*group_name*) Id(*gid*)

Explanation: The specified group was updated. This message is for your information only.

Example:

Group Update: Group(ACCOUNTING) Id(80001)

User response: No action is required.

ARS0042I User to Group Add: User(*user_name*) Id(*uid*), Group(*group_name*) Id(*gid*)

Explanation: The specified user was added to the specified group. This message is for your information only.

Examples:

User to Group Add: User(Accounting) Id(80021), Group(D:\7107\arc\admin\Arsadmin.cpp) Id(3047)

User to Group Add: User(CALLEN) Id(4), Group(Accounting) Id(80021)

User response: No action is required.

ARS0043I User to Group Delete: User(*user_name*) Id(*uid*), Group(*group_name*) Id(*gid*)

Explanation: The specified user was deleted from the specified group. This message is for your information only.

Example:

User to Group Delete: User(CALLEN) Id(4), Group(Accounting) Id(80021)

User response: No action is required.

ARS0044I Folder Add: Name(*folder_name*) Fid(*fid*)

Explanation: The specified folder was added to the system. This message is for your information only.

Example:

Folder Add: Name(CHKSTMTS1R) Fid(5015)

User response: No action is required.

ARS0045I • ARS0051I

ARS0045I Folder Delete: Fid(*fid*)

Explanation: The specified folder was deleted from the system. This message is for your information only.

Examples:

Folder Delete: Fid(TENANT)

Folder Delete: Fid(5487)

User response: No action is required.

ARS0046I Folder Update: Name(*folder_name*) Fid(*fid*)

Explanation: The specified folder was updated. This message is for your information only.

Example:

Folder Update: Name(Check Statements Folder) Fid(5064)

User response: No action is required.

ARS0047I ApplGroup to Folder Add: Agid(*agid*) Aid(*aid*) Fid(*fid*)

Explanation: The specified application group was added to the specified folder. This message is for your information only.

Example:

ApplGroup to Folder Add: Agid(5028) Aid(0) Fid(5030)

User response: No action is required.

ARS0048I ApplGroup to Folder Delete: Agid(*agid*) Aid(*aid*) Fid(*fid*)

Explanation: The specified application group was deleted from the specified folder. This message is for your information only.

User response: No action is required.

ARS0049I ApplGroup to Folder Update: Agid(*agid*) Fid(*fid*)

Explanation: The specified application group was updated in the specified folder. This message is for your information only.

User response: No action is required.

ARS0050I Id to Folder Add: Id(*id*) Fid(*fid*)

Explanation: Permissions were added to the specified folder for the user or group with the specified ID. This message is for your information only.

Example:

Id to Folder Add: Id(2) Fid(5015)

User response: No action is required.

ARS0051I Id to Folder Delete: Id(*id*) Fid(*fid*)

Explanation: Permissions were deleted from the specified folder for the user or group with the specified ID. This message is for your information only.

User response: No action is required.

ARS0052I Id to Folder Update: Id(*id*) Fid(*fid*)

Explanation: Permissions were updated in the specified folder for the user or group with the specified ID. This message is for your information only.

Example:

Id to Folder Update: Id(MERCH20) Fid(5065)

User response: No action is required.

ARS0053I ApplGroup Add: Name(*appl_grp_name*) Agid(*agid*)

Explanation: The specified application group was added to the system. This message is for your information only.

Example:

ApplGroup Add: Name(PatChecks) Agid(5174)

User response: No action is required.

ARS0054I ApplGroup Delete: Name(*appl_grp_name*) Agid(*agid*)

Explanation: The specified application group was deleted from the system. This message is for your information only.

Example:

ApplGroup Delete: Name(RD4575) Agid(5061)

User response: No action is required.

ARS0055I ApplGroup Update: Name(*appl_grp_name*) Agid(*agid*)

Explanation: The specified application group was updated. This message is for your information only.

Example:

ApplGroup Update: Name(LUMBER) Agid(5016)

User response: No action is required.

ARS0056I Id to ApplGroup Add: Id(*id*) Agid(*agid*)

Explanation: Permissions were added to the specified application group for the user or group with the specified ID. This message is for your information only.

Example:

Id to ApplGroup Add: Id(29) Agid(15224)

User response: No action is required.

ARS0057I Id to ApplGroup Delete: Id(*id*) Agid(*agid*)

Explanation: Permissions were deleted from the specified application group for the user or group with the specified ID. This message is for your information only.

User response: No action is required.

ARS0058I Id to ApplGroup Update: Id(*id*) Agid(*agid*)

Explanation: Permissions were updated in the specified application group for the user or group with the specified ID. This message is for your information only.

User response: No action is required.

ARS0059I Appl to ApplGroup Add: Name(*appl_name*) Aid(*aid*) Agid(*agid*)

Explanation: The specified application was added to the specified application group. This message is for your information only.

Example:

Appl to ApplGroup Add: Name(CHECKSTMTS) Aid(5514) Agid(5512)

User response: No action is required.

ARS0060I Appl to ApplGroup Delete: Aid(*aid*) Agid(*agid*)

Explanation: The specified application was deleted from the specified application group. This message is for your information only.

Example:

Appl to ApplGroup Delete: Aid(PATBILLS) Agid(5044)

User response: No action is required.

ARS0061I Appl to ApplGroup Update: Name(*appl_name*) Aid(*aid*) Agid(*agid*)

Explanation: The specified application was updated in the specified application group. This message is for your information only.

Example:

Appl to ApplGroup Update: Name(CHECKSTMTS) Aid(5063) Agid(5062)

User response: No action is required.

ARS0062I Id to Appl Add: Id(*id*) Aid(*aid*) Agid(*agid*)

Explanation: Logical views were added to the specified application for the user with the specified ID. This message is for your information only.

Example:

Id to Appl Add: Id(17) Aid(5057) Agid(5056)

User response: No action is required.

ARS0063I Id to Appl Delete: Id(*id*) Aid(*aid*) Agid(*agid*)

Explanation: Logical views were deleted from the specified application for the user with the specified ID. This message is for your information only.

User response: No action is required.

ARS0064I Id to Appl Update: Id(*id*) Aid(*aid*) Agid(*agid*)

Explanation: Logical views were updated in the specified application for the user with the specified ID. This message is for your information only.

Example:

Id to Appl Update: Id(10) Aid(5027) Agid(5024)

User response: No action is required.

ARS0065I ApplGroup Query: Name(*appl_grp_name*) Agid(*agid*) Sql(*sql*) SqIR(*sql_restrict*) TextSearch(*text_search_str*) AnnColor(*ann_color*) AnnText(*ann_text*)

Explanation: A query was run against the specified application group. This message is for your information only.

Example:

ApplGroup Query: Name(QPJOBLOG) Agid(5081) Sql(WHERE jobdate BETWEEN 11470 AND 11654) SqlR()
TextSearch() AnnColor(-1) AnnText()

User response: No action is required.

**ARS0066I ApplGroup DocGet: Name(*appl_grp_name*) Agid(*agid*) ApplName(*appl_name*) Aid(*aid*)
NodeName(*node_name*) Nid(*nid*) Server(*server*) Time(*time*) Flds(*fields*)**

Explanation: A document was retrieved from the specified application group. This message is for your information only.

Example:

ApplGroup DocGet: Name(QPJOBLOG) Agid(5081) ApplName(QPJOBLOG) Aid(5082) NodeName(-CACHE-) Nid(1)
Server(-LOCAL-) Time(0.322) Flds()

User response: No action is required.

**ARS0067I ApplGroup ResGet: Name(*appl_grp_name*) Agid(*agid*) NodeName(*node_name*) Nid(*nid*)
Server(*server*) Time(*time*)**

Explanation: A resource was retrieved from the specified application group. This message is for your information only.

Example:

ApplGroup ResGet: Name(INS) Agid(6843) NodeName(-CACHE-) Nid(25) Server(-LOCAL-) Time(0.069)

User response: No action is required.

ARS0068I Annotation Add: Name(*appl_grp_name*) Agid(*agid*)

Explanation: An annotation to a document was added to the specified application group. This message is for your information only.

Example:

Annotation Add: Name(CHECKSTMTS) Agid(5081)

User response: No action is required.

ARS0069I Annotation Id Add: Id(*id*) Name(*appl_grp_name*) Agid(*agid*)

Explanation: An annotation to a document was added to the specified application group for the user or group with the specified ID. This message is for your information only.

Example:

Annotation Id Add: Id(3) Name(FLASHSALES) Agid(5015)

User response: No action is required.

ARS0070I Annotation Delete: Name(*appl_grp_name*) Agid(*agid*)

Explanation: An annotation to a document was deleted from the specified application group. This message is for your information only.

User response: No action is required.

ARS0071I Annotation Id Delete: Id(*id*) Name(*appl_grp_name*) Agid(*agid*)

Explanation: An annotation to a document was deleted from the specified application group for the user or group with the specified ID. This message is for your information only.

User response: No action is required.

ARS0072I Named Query Add: Name(*named_query*) Fid(*fid*)

Explanation: The specified named query was added to the system. This message is for your information only.

User response: No action is required.

ARS0073I Id Named Query Add: Id(*id*) Name(*named_query*) Fid(*fid*)

Explanation: The specified named query was added to the system for the user or group with the specified ID. This message is for your information only.

User response: No action is required.

ARS0074I Named Query Delete: Name(*named_query*) Fid(*fid*)

Explanation: The specified named query was deleted from the system. This message is for your information only.

User response: No action is required.

ARS0075I Id Named Query Delete: Id(*id*) Name(*named_query*) Fid(*fid*)

Explanation: The specified named query was deleted from the system for the user or group with the specified ID. This message is for your information only.

User response: No action is required.

ARS0076I Named Query Update: Name(*named_query*) Fid(*fid*)

Explanation: The specified named query was updated. This message is for your information only.

User response: No action is required.

ARS0077I Id Named Query Update: Id(*id*) Name(*named_query*) Fid(*fid*)

Explanation: The specified named query was updated for the user or group with the specified ID. This message is for your information only.

User response: No action is required.

ARS0078I System Update

Explanation: This message is for your information only.

User response: No action is required.

ARS0079I ApplGroup DocDelete: Name(*appl_grp_name*) Agid(*agid*) Flds(*fields*)

Explanation: A document was deleted from the specified application group. This message is for your information only.

User response: No action is required.

ARS0080I ApplGroup DocUpdate: Name(*appl_grp_name*) Agid(*agid*) OrigFlds(*original_fields*)
UpdFlds(*updated_fields*)

Explanation: A document was updated in the specified application group. This message is for your information only.

Example:

ApplGroup DocUpdate: Name(INVOICES) Agid(5056) OrigFlds(951807600,'RED','') UpdFlds(951807600,'GREEN','')

User response: No action is required.

**ARS0081I ApplGroup ObjRetrieve: Name(*appl_grp_name*) Agid(*agid*) ObjName(*object_name*)
NodeName(*node_name*) Nid(*nid*) Server(*server*) Off(*offset*) Len(*length*) Time(*time*)**

Explanation: The specified storage object was retrieved from the specified application group. This message is for your information only.

Example:

ApplGroup ObjRetrieve: Name(APM00280) Agid(5016) ObjName(2FAAA) NodeName(-CACHE-) Nid(1)
Server(-LOCAL-) Off(0) Len(33778) Time(0.013)

User response: No action is required.

**ARS0082I ApplGroup ObjStore: Name(*appl_grp_name*) Agid(*agid*) NodeName(*node_name*) Nid(*nid*)
Server(*server*) ObjName(*object_name*) Time(*time*)**

Explanation: The specified storage object was stored in the specified application group. This message is for your information only.

Example:

ApplGroup ObjStore: Name(CHECKS2) Agid(5028) NodeName(-CACHE-) Nid(1) Server(-LOCAL-) ObjName(2)
Time(0.852) ApplGroup ObjStore: Name(CHKSTMTS1R) Agid(5017) NodeName(TESTMP) Nid(2) Server(-LOCAL-)
ObjName(1494FAAA) Time(1.230)

User response: No action is required.

**ARS0083I ApplGroup ObjStore Append: Name(*appl_grp_name*) Agid(*agid*) NodeName(*node_name*) Nid(*nid*)
Server(*server*) ObjName(*object_name*) CompOff(*compress_offset*) CompLen(*compress_length*)**

Explanation: The specified storage object was updated. This message is for your information only.

User response: No action is required.

**ARS0084I ApplGroup Unload DB: Name(*appl_grp_name*) Agid(*agid*) LoadId(*load_id-start_date-stop_date*) Rows
Deleted(*rows_deleted*)**

Explanation: A report was deleted from the database. The message identifies the load ID, which represents the report in the system, the application group, and the number of rows that were deleted from the database. This message is for your information only.

Example:

ApplGroup Unload DB: Name(CHKSTMTS1R) Agid(5017) LoadId(756FAA-11311-11311) Rows Deleted(25)

User response: No action is required.

**ARS0085I ApplGroup Unload SM: Name(*appl_grp_name*) Agid(*agid*) NodeName(*node_name*) Nid(*nid*)
Server(*server*) LoadId(*load_id*) Objects Deleted(*objects_deleted*)**

Explanation: A report was deleted by the storage manager. The message identifies the load ID, which represents the report in the system, the application group, storage node, and number of objects that were deleted. This message is for your information only.

Example:

ApplGroup Unload SM: Name(CHKSTMTS1R) Agid(5017) NodeName(-CACHE-) Nid(0) Server(-LOCAL-) LoadId(756FAA)
Objects Deleted(1)

User response: No action is required.

ARS0086I ApplGroup Load DB: Name(*appl_grp_name*) Agid(*agid*) Rows(*rows*)

Explanation: A report was loaded into the database. The message identifies the application group and the number of rows that were loaded into the database. This message is for your information only.

Example:

ApplGroup Load DB: Name(CHECKS2) Agid(5028) Rows(100)

ARS0087I • ARS0092I

User response: No action is required.

**ARS0087I ApplGroup Load: Name(*appl_grp_name*) LoadId(*load_id*) File(*file*) InputSize(*input_size*)
 OutputSize(*output_size*)**

Explanation: A report was loaded into the system. The message identifies the application group, the input file, and the load ID. This message is for your information only.

Example:

```
ApplGroup Load: Name(MOSUNPO) LoadId(5535-2-0-1FAA-12349-12349) File(/QIBM/USERDATA/ONDEMAND/QUSROND/
TMP/SP_MOSUNPO_WTH7HTWCXA_DBRYANT_064315_000009_RDR400M_1031023_210136) InputSize(225789)
OutputSize(16380)
```

User response: No action is required.

ARS0088E ApplGroup Failed Load: Name(*appl_grp_name*) LoadId(*load_id*) File(*file*)

Explanation: The load process failed.

Example:

```
ApplGroup Failed Load: Name(LATECHARGE) LoadId() File(/QIBM/USERDATA/ONDEMAND/QUSROND/TMP/
SP_QPRLR133_QPRTJOB_DBRYANT_001467_000022_RDR400M_1021226_132052)
```

User response: See the other messages that were generated by the ARSLOAD program and see messages in the OnDemand System Log to correct the problem and then resubmit the command. If the problem persists, contact your IBM Service Representative.

ARS0089I CD-ROM Creation Manifest: Volume(*volume*)

Explanation: A CD-ROM manifest was created with the specified volume label. This message is for your information only.

User response: No action is required.

ARS0090I BulkProcess: Time(*time*)

Explanation: This message is for your information only.

Example:

```
BulkProcess: Time(1.798)  Srvr->RDR400M.RALEIGH.IBM.COM 9.37.176.228<-
```

User response: No action is required.

ARS0091I BulkPrint: Time(*time*)

Explanation: This message is for your information only.

Example:

```
BulkPrint: Time(1.766)  Srvr->rdr400m.raleigh.ibm.com 9.37.176.228<-
```

```
BULK DOCUMENT RETRIEVAL
```

```
Application Group    Agid FlDs->Handle -----
PATINF001            5014 ->7FAAA,3852,968,0,3272,0x4E,0x4F,0,1,0
```

User response: No action is required.

ARS0092I StorageNode Add: Name(*node_name*) Server(*server*) Nid(*nid*) Sid(*sid*)

Explanation: The specified storage node was added to the system. This message is for your information only.

User response: No action is required.

ARS0093I StorageNode Delete: Name(*node_name*) Server(*server*) Nid(*nid*) Sid(*sid*)

Explanation: The specified storage node was deleted from the system. This message is for your information only.

User response: No action is required.

ARS0094I StorageNode Update: Name(*node_name*) Server(*server*) Nid(*nid*) Sid(*sid*)

Explanation: The specified storage node was updated. This message is for your information only.

User response: No action is required.

ARS0095I StorageSet Add: Name(*set_name*) Sid(*sid*)

Explanation: The specified storage set was added to the system. This message is for your information only.

User response: No action is required.

ARS0096I StorageSet Delete: Name(*set_name*) Sid(*sid*)

Explanation: The specified storage set was deleted from the system. This message is for your information only.

User response: No action is required.

ARS0097I StorageSet Update: Name(*set_name*) Sid(*sid*)

Explanation: The specified storage set was updated. This message is for your information only.

User response: No action is required.

ARS0100I Printer Add: Name(*printer_name*) Queue(*queue*) Pid(*pid*)

Explanation: The specified server printer was added to the system. This message is for your information only.

Example:

Printer Add: Name(QPRINT2) Queue(QGPL/QPRINT2) Pid(5098)

User response: No action is required.

ARS0101I Printer Delete: Name(*printer_name*) Queue(*queue*) Pid(*pid*)

Explanation: The specified server printer was deleted from the system. This message is for your information only.

Example:

Printer Delete: Name(QPRINT2) Queue(QGPL/QPRINT2) Pid(5098)

User response: No action is required.

ARS0102I Printer Update: Name(*printer_name*) Queue(*queue*) Pid(*pid*)

Explanation: The specified server printer was updated. This message is for your information only.

Example:

Printer Update: Name(QPRINT2) Queue(QGPL/QPRINT2) Pid(5098)

User response: No action is required.

ARS0103I ApplGroup DocAdd: Name(*appl_grp_name*) Agid(*agid*) Flds(*fields*)

Explanation: A document was added to the specified application group. This message is for your information only.

Example:

ApplGroup DocAdd: Name(dkw-CommonStore) Agid(15796) Flds(955512000,'DEB','doc_add_test')

User response: No action is required.

ARS0104E • ARS0110I

ARS0104E popen failed for command >command<. errno=errno

Explanation: The server was unable to handle the request. The *errno* value is provided in /usr/include/sys/errno.h on UNIX systems and might provide additional information.

User response: If the problem persists, contact your IBM Service Representative.

ARS0105E pclose failed for command >command<. errno=errno

Explanation: An unexpected error occurred during the execution of this program. The *errno* value is provided in /usr/include/sys/errno.h on UNIX systems and might provide additional information.

User response: If the problem persists, contact your IBM Service Representative.

ARS0106E Unlink failed for file >file<. errno=errno

Explanation: The specified file does not exist or the OnDemand instance owner does not have permission to access it. The *errno* value is provided in /usr/include/sys/errno.h on UNIX systems and might provide additional information.

Example:

```
Unlink failed for file >/QIBM/USERDATA/ONDEMAND/QUSROND/CACHE/retr/KCA/RES/1FAA1<.  errno=3025
Srvr->rdr400m.raleigh.ibm.com 10.37.63.53<-
```

User response: Verify that the file exists, and that the OnDemand instance owner has permission to access it. If the problem persists, contact your IBM Service Representative.

ARS0107E Unknown file or directory in cache >path_name<

Explanation: An unexpected error occurred during the execution of this program.

Example:

```
Unknown file/dir in cache >/arscache1/everest<  Srvr->rdr400m.raleigh.ibm.com 10.37.63.53<-
```

User response: If the problem persists, contact your IBM Service Representative.

ARS0108E Unable to validate library server

Explanation: The library and object servers failed to validate that they belong to the same OnDemand instance.

Example:

```
Unable to validate library server  Srvr->RDR400M.RALEIGH.IBM.COM<-
```

User response: Verify that the OnDemand instance is properly configured. Restart the servers. If the problem persists, contact your IBM Service Representative.

ARS0109I Cache Expiration: Internal Date(*internal_date*) MinPct(*minimum_percentage*)
MaxPct(*maximum_percentage*) Server(*server*)

Explanation: The ARSMANT program has started to expire data from cache storage. This message is for your information only.

Example:

```
Cache Expiration: Internal Date(11850) MinPct(0) MaxPct(0) Server(RDR400M.RALEIGH.IBM.COM)
```

User response: No action is required.

ARS0110I Cache Migration: Internal Date(*internal_date*) Server(*server*)

Explanation: The ARSMANT program has started to migrate data to archive storage. This message is for your information only.

User response: No action is required.

ARS0111E Unable to determine the link for the file >file_name<. **errno=errno**

Explanation: The OnDemand server was unable to access the specified file. The *errno* value is provided in /usr/include/sys/errno.h on UNIX systems and might provide additional information.

User response: Refer to errno.h for additional information. If the problem persists, contact your IBM Service Representative.

ARS0112E Unable to change permissions on the file >file_name<. **errno=errno**

Explanation: The OnDemand server was unable to access the specified file. The *errno* value is provided in /usr/include/sys/errno.h on UNIX systems and might provide additional information.

User response: Refer to errno.h for additional information. If the problem persists, contact your IBM Service Representative.

ARS0113E Cache Migration Failed: **AppGroup**(*appl_grp_name*) **Agid**(*agid*) **ObjName**(*object_name*) **Date**(*date*) **Server**(*server*)

Explanation: The ARSMANT program failed when attempting to migrate data to archive storage.

User response: See the OnDemand System Log for other messages that are associated with the migration. If the problem persists, contact your IBM Service Representative.

ARS0114E Unable to open file >file_name<. **errno=errno**

Explanation: The command failed when attempting to open the specified file. The *errno* value is provided in /usr/include/sys/errno.h on UNIX systems and might provide additional information.

User response: Verify that the file exists and that the file permissions are correct. Then resubmit the command. If the problem persists, contact your IBM Service Representative.

ARS0115E Unable to seek within file >file_name< from *offset* to *length*. **errno=errno**

Explanation: An unexpected error occurred during the execution of this program. The *errno* value is provided in /usr/include/sys/errno.h on UNIX systems and might provide additional information.

User response: If the problem persists, contact your IBM Service Representative.

ARS0116E Unable to stat file >file_name<. **errno=errno**

Explanation: An unexpected error occurred during the execution of this program. The *errno* value is provided in /usr/include/sys/errno.h on UNIX systems and might provide additional information.

User response: If the problem persists, contact your IBM Service Representative.

ARS0117E Offset *off* and length *len* is larger than the size of the file >file_name< of size bytes

Explanation: An unexpected error occurred during the execution of this program.

Example:

Offset **UNK** and length **UNK** is larger than the size of the file >**UNK**< of **UNK** bytes
Srvr->rdr400m.raleigh.ibm.com 10.37.63.53<-

User response: If the problem persists, contact your IBM Service Representative.

ARS0118E Unable to read from file >file_name<. **errno=errno**

Explanation: An unexpected error occurred during the execution of this program. The *errno* value is provided in /usr/include/sys/errno.h on UNIX systems and might provide additional information.

User response: If the problem persists, contact your IBM Service Representative.

ARS0119E • ARS0126I

ARS0119E Unable to write to file >*file_name*<. **errno=errno**

Explanation: An unexpected error occurred during the execution of this program. The *errno* value is provided in /usr/include/sys/errno.h on UNIX systems and might provide additional information.

Example:

Unable to write to file >/arscache1/13585/SL/DOC/1502FAA<. errno=28 Srvr->everest.ibm.com<-

User response: If the problem persists, contact your IBM Service Representative.

ARS0120E Unable to lock the file >*file_name*<. **errno=errno**

Explanation: An unexpected error occurred during the execution of this program. The *errno* value is provided in /usr/include/sys/errno.h on UNIX systems and might provide additional information.

User response: If the problem persists, contact your IBM Service Representative.

ARS0122E Unable to close the file >*file_name*<. **errno=errno**

Explanation: An unexpected error occurred during the execution of this program. The *errno* value is provided in /usr/include/sys/errno.h on UNIX systems and might provide additional information.

User response: If the problem persists, contact your IBM Service Representative.

ARS0123E Unable to stat filesystem >*filesystem_name*<. **errno=errno**

Explanation: The ARSMANT program failed when attempting to run statistics on the specified filesystem. The *errno* value is provided in /usr/include/sys/errno.h on UNIX systems and might provide additional information.

User response: Verify that the filesystem exists and verify the filesystem permissions. Then resubmit the command. If the problem persists, contact your IBM Service Representative.

ARS0124I Filesystem Stats Name(*filesystem_name*) Data(*percent_full*%) Inodes(*inode_percent_full*%)

Explanation: The ARSMANT program has started to run statistics on the specified filesystem. This message is for your information only.

Example:

Filesystem Stats Name(/arscache1) Data(84%) Inodes(1%) Srvr->everest.ibm.com 9.99.999.999<-

User response: No action is required.

ARS0125E Unable to create symbolic link from file >*symbolic_name*< to >*file_name*<. **errno=errno**

Explanation: An unexpected error occurred during the execution of this program. The *errno* value is provided in /usr/include/sys/errno.h on UNIX systems and might provide additional information.

Example:

Unable to create symbolic link from file >/QIBM/USERDATA/ONDEMAND/ONDPERFORM/CACHE/ONDPERFORM/retr/SL/APPEND< to >/QIBM/USERDATA/ONDEMAND/ONDPERFORM/CACHE/ONDPERFORM/21667/SL/DOC/9FAA<. errno=3457 Srvr->RDR400M.RALEIGH.IBM.COM<-

User response: If the problem persists, contact your IBM Service Representative.

ARS0126I ApplGroup Document Expire: Name(*appl_grp_name*) Agid(*agid*) Cnt(*documents_expired*)

Explanation: The ARSMANT program is using the document expiration method to delete items from an application group. This message is for your information only.

Example:

ApplGroup Document Expire: Name(sp-00021) Agid(15197) Cnt(14)

User response: No action is required.

ARS0127I ApplGroup Load Expire: Name(*appl_grp_name*) LoadId(*agid-pri_nid-sec_nid-name-start_date-stop_date*)

Explanation: The ARSMANT program is using the load expiration method to delete items from an application group. This message is for your information only.

Example:

ApplGroup Load Expire: Name(CHKSTMTS1R) LoadId(5017-2-0-756FAA-11311-11311)

User response: No action is required.

ARS0128I ApplGroup Segment Expire: Name(*appl_grp_name*) Agid(*agid*) Seg(*segment_name*)

Explanation: The ARSMANT program is using the segment expiration method to delete items from an application group. This message is for your information only.

Example:

ApplGroup Segment Expire: Name(test-ebcdic-cc-trc) Agid(15757) Seg(YJF1)

User response: No action is required.

ARS0129A Filesystem Full Name(*filesystem_name*) Data(*percent_full%%*) Inodes(*inode_percent_full%%*)

Explanation: The cache storage filesystem is almost full.

User response: Either extend the existing cache storage filesystem or add new cache storage filesystems. Then restart the server.

ARS0130E No logical place to store object >*object_name*<

Explanation: The command failed when attempting to store the object because there are no cache storage filesystems defined to the system or the archive storage manager is not properly configured.

User response: To use cache storage, define and configure OnDemand cache storage filesystems. To use archive storage, install and configure the archive storage manager. Then restart the server and resubmit the command.

ARS0131E No logical place to retrieve object >*object_name*<

Explanation: The command failed when attempting to retrieve the object because there are no cache storage filesystems defined to the system or the archive storage manager is not properly configured.

User response: To use cache storage, define and configure OnDemand cache storage filesystems. To use archive storage, install and configure the archive storage manager. Then restart the server and resubmit the command.

ARS0132I Printer Options Add: Name(*printer_opts_name*)

Explanation: Printer options have been added. This message is for your information only.

User response: No action is required.

ARS0133I Id Printer Options Add: Id(*id*) Name(*printer_opts_name*)

Explanation: Printer options have been added for the user with the specified ID. This message is for your information only.

Example:

Id Prt Options Add: Id(12) Name(rosa)

User response: No action is required.

ARS0134I • ARS0142E

ARS0134I Printer Options Delete: Name(*printer_opts_name*)

Explanation: Printer options have been deleted. This message is for your information only.

User response: No action is required.

ARS0135I Id Printer Options Delete: Id(*id*) Name(*printer_opts_name*)

Explanation: This message is for your information only.

User response: No action is required.

ARS0136I Printer Options Update: Name(*printer_opts_name*)

Explanation: This message is for your information only.

User response: No action is required.

ARS0137I Id Printer Options Update: Id(*id*) Name(*printer_opts_name*)

Explanation: This message is for your information only.

User response: No action is required.

ARS0138E BulkPrint Failed

Explanation: The server print function failed.

Example:

```
BulkPrint Failed Srvr->everest.ibm.com 9.99.999.999<-
```

User response: See the OnDemand System Log for other messages that are associated with the server print function. If the problem persists, contact your IBM Service Representative.

ARS0139E Unable to exec program >*command*<. errno=*errno*

Explanation: An unexpected error occurred during the execution of this program. The *errno* value is provided in `/usr/include/sys/errno.h` on UNIX systems and might provide additional information.

User response: If the problem persists, contact your IBM Service Representative.

ARS0140E Unable to fork. errno=*errno*, File=*file*, Line=*line*

Explanation: An unexpected error occurred during the execution of this program. The *errno* value is provided in `/usr/include/sys/errno.h` on UNIX systems and might provide additional information.

User response: If the problem persists, contact your IBM Service Representative.

ARS0141E Ran out of load-id naming conventions. Increase the size of the Application Group Object Size.

Explanation: The system was unable to create new object names because it exceeded the number of available object names for this application group. The object size controls how much space is allotted for objects in an application group.

User response: Increase the object size on the application group's Advanced Storage Management page in the OnDemand administrative client. Then resubmit the command.

ARS0142E Connection cannot be established for the >*hostname*< server

Explanation: The client was unable to connect to the specified server.

Example:

```
Connection cannot be established for the >PRODUCTION< server. Srvr->everest.ibm.com<-
```

User response: Verify that the server is available, that it is properly configured, and that the required programs are running. Then resubmit the command.

ARS0143E Unable to create stream communications. errno=errno

Explanation: An unexpected error occurred during the execution of this program. The *errno* value is provided in `/usr/include/sys/errno.h` on UNIX systems and might provide additional information.

User response: If the problem persists, contact your IBM Service Representative.

ARS0144E Unable to create socket communications. errno=errno

Explanation: An unexpected error occurred during the execution of this program. The *errno* value is provided in `/usr/include/sys/errno.h` on UNIX systems and might provide additional information.

User response: If the problem persists, contact your IBM Service Representative.

ARS0145E The communication layer was unable to send data. errno=errno

Explanation: An unexpected error occurred during the execution of this program. The *errno* value is provided in `/usr/include/sys/errno.h` on UNIX systems and might provide additional information.

User response: If the problem persists, contact your IBM Service Representative.

ARS0146E The communication layer was unable to receive data. errno=errno

Explanation: An unexpected error occurred during the execution of this program. The *errno* value is provided in `/usr/include/sys/errno.h` on UNIX systems and might provide additional information.

User response: If the problem persists, contact your IBM Service Representative.

ARS0147E Unable to initialize server environment. rc=rc

Explanation: An unexpected error occurred during the execution of this program.

User response: Check the configuration files `ars.ini` and `ars.cfg` to make sure filesystem paths and parameters are correct. If the problem persists, contact your IBM Service Representative.

ARS0149E Unable to initialize server communications. rc=rc

Explanation: A communication error has occurred. Either the OnDemand server was already started, TCP/IP was not started, or there is a configuration problem. The `ARSSOCK= debug` parameter in `ars.cfg` can help you troubleshoot TCP/IP errors.

User response: Check to see that the server is running and that TCP/IP is started. Use the `ARSSOCK= debug` parameter to help you identify possible TCP/IP errors. If the problem persists, contact your IBM Service Representative.

ARS0150E Unable to allocate enough memory. File=file, Line=line

Explanation: The system was unable to allocate enough memory.

User response: If the problem persists, contact your IBM Service Representative.

ARS0151E Unable to initialize server database system parameters. Contact your system administrator.

Explanation: The command failed when attempting to initialize the database.

User response: Verify that the OnDemand instance and the database are properly configured. Then resubmit the command.

ARS0152E • ARS0160E

ARS0152E The command `>command<` can only be run by the owner of the command

Explanation: The command failed when attempting to run the specified command.

User response: Log on to the system as the owner of the command and resubmit the command.

ARS0153E Unable to change directory to `>directory_name<`. `errno=errno`

Explanation: The system failed when attempting to change to the specified directory. The `errno` value is provided in `/usr/include/sys/errno.h` on UNIX systems and might provide additional information.

User response: Verify that the directory exists and verify the directory permissions. Then resubmit the command.

ARS0154E Unable to establish server communications with network. `rc=rc`

Explanation: A communication error has occurred. Either the OnDemand server was already started, TCP/IP was not started, or there is a configuration problem. The `ARSSOCK= debug` parameter in `ars.cfg` can help you troubleshoot TCP/IP errors.

User response: If the problem persists, contact your IBM Service Representative.

ARS0155E Server is unable to communicate to receive client requests. `rc=rc`

Explanation: A TCP/IP failure has occurred.

User response: Check to see if TCP/IP is running. Stop and restart the OnDemand Server. If the problem persists, contact your IBM Service Representative.

ARS0156E Server is unable to communicate request with SubSrvr

Explanation: A TCP/IP failure has occurred.

User response: Check to see if TCP/IP is running. Stop and restart the OnDemand Server. If the problem persists, contact your IBM Service Representative.

ARS0157E SubSrvr is unable to communicate request with Server

Explanation: A TCP/IP failure has occurred.

User response: Check to see if TCP/IP is running. Stop and restart the OnDemand Server. If the problem persists, contact your IBM Service Representative.

ARS0158E Server is unable to initialize database connection. `rc=rc`

Explanation: The server failed when attempting to initialize the database.

User response: Verify that the database is running and that you can connect to it. See the OnDemand System Log for other messages that are associated with database initialization. If the problem persists, contact your IBM Service Representative.

ARS0159E Server is unable to terminate database connection properly. `rc=rc`

Explanation: The server failed when attempting to terminate the database connection.

User response: Verify that the database is running and that you can connect to it. See the OnDemand System Log for other messages that are associated with database initialization. If the problem persists, contact your IBM Service Representative.

ARS0160E Unable to load module `>function_name<`. `rc=rc`

Explanation: The system failed when attempting to load the specified dynamic load library. Permissions on the dynamic load library need to be at least read and execute. On a UNIX system, the load module must also exist in the server exits directory (`/usr/lpp/ars/bin/exits`). On a Windows system, the load module must also exist in the server bin directory (usually `C:\Program Files\IBM\OnDemand for WinNT\bin`).

Example:

Unable to load module /usr/lpp/ars/exits/arsusxct. rc=2 Srvr->everest.ibm.com 9.99.999.999<-

User response: Verify that the dynamic load library exists and verify the file permissions. Then resubmit the command.

ARS0161E The userexit >userexit_name< failed. rc=rc

Explanation: The specified user exit program failed. Permissions on the user exit program need to be at least read and execute. On a UNIX system, the exit module must also exist in the server exits directory (/usr/lpp/ars/bin/exits). On a Windows system, the exit module must also exist in the server bin directory (usually C:\Program Files\IBM\OnDemand for WinNT\bin).

Example:

The userexit >QRDARS/ARSUSEC< failed. rc=3 Srvr->RDR400M.RALEIGH.IBM.COM<-

User response: Verify that the user exit program functions properly outside of the OnDemand environment. Then resubmit the command.

ARS0162E Unable to determine codepage. Check configuration file ars.cfg for ARS_CODEPAGE variable

Explanation: The command failed when attempting to determine the code page.

User response: Verify that the OnDemand instance is configured correctly and then resubmit the command.

ARS0163E Unable to initialize converter from (codepage,codeset) input_codepage,input_codeset to (codepage,codeset) output_codepage,output_codeset. rc=rc

Explanation: The system was unable to initialize the converter. The required iconv conversion tables are not available.

User response: Check the server's locale directory to make sure the specified conversion tables exist.

ARS0164I ApplGroup Segment Maintenance: Name(appl_grp_name) Agid(agrid) SegName(segment_name) Action(action) Time(time)

Explanation: The ARSMAINT program collected statistics on the specified table. This message is for your information only.

Example:

ApplGroup Segment Maintenance: Name(ERN-TEST001) Agid(15912) SegName(WLF1) Action(15) Time(0.195)

User response: No action is required.

ARS0165I ApplGroup Segment Expire Maintenance: Name(appl_grp_name) Agid(agrid) SegName(segment_name)

Explanation: The ARSMAINT program expired the specified segment from the specified application group. This message is for your information only.

Example:

ApplGroup Segment Expire Maintenance: Name(!UDB-index-expire) Agid(15404) SegName(MFF1)

User response: No action is required.

ARS0166I ApplGroup Segment Export: Name(appl_grp_name) Agid(agrid) SegName(segment_name) Time(time)

Explanation: The ARSMAINT program migrated the specified segment from the database to archive storage. This message is for your information only.

Example:

ApplGroup Segment Export: Name(test-testdocs-lwp) Agid(15673) SegName(VIF1FAA) Time(2.364)

User response: No action is required.

ARS0167I • ARS0174I

ARS0167I ApplGroup Segment Import: Name(*appl_grp_name*) Agid(*agid*) SegName(*segment_name*) Time(*time*)

Explanation: The ARSADMIN program imported the specified segment from archive storage to the database. This message is for your information only.

Example:

ApplGroup Segment Export: Name(test-testdocs-1wp) Agid(15673) SegName(VIF1FAA) Time(2.364)

User response: No action is required.

ARS0168E ApplGroup Segment Not Available: Name(*appl_grp_name*) Agid(*agid*) SegName(*segment_name*)

Explanation: The specified segment was required to perform a query, however, the segment was not found in the database.

Example:

ApplGroup Segment Not Available: Name(!UDB-index-migration) Agid(15365) SegName(WEF2)

User response: Ask an administrator to import the specified segment from the archive storage to the database. Then resubmit the command.

ARS0169E ApplGroup Segment Migration Failed: Name(*appl_grp_name*) Agid(*agid*) SegName(*segment_name*). rc=*rc*

Explanation: The command failed when attempting to migrate a segment.

User response: See the OnDemand System Log for other messages that are associated with the migration. If the problem persists, contact your IBM Service Representative.

ARS0171E ApplGroup Segment Exists: Name(*appl_grp_name*) Agid(*agid*) SegName(*segment_name*). rc=*rc*

Explanation: The command did not import the segment because the segment already exists in the database.

User response: Verify the name of the segment and the name and ID of the application group. Then resubmit the command.

ARS0172E Filesystem >*filesystem_name*< is not unique. It is common with filesystem >*common_filesystem_name*<

Explanation: Duplicate filesystem names were used in the ars.dbfs configuration file. Filesystem names must be unique.

User response: Change the filesystem configuration so that it contains only unique filesystem names. Then restart the server and resubmit the command.

ARS0173I Annotation Update: Name(*appl_grp_name*) Agid(*agid*)

Explanation: An annotation was updated. This message is for your information only.

Example:

Annotation Update: Name(CHECKSDB) Agid(5025)

User response: No action is required.

ARS0174I Annotation Id Update: Id(*id*) Name(*appl_grp_name*) Agid(*agid*)

Explanation: This message is for your information only.

User response: No action is required.

ARS0175E User >*user_name*< does not have permission to perform the specified action. File=*file*, Line=*line*

Explanation: The specified user does not have the permissions that are required to perform the action.

User response: Update the user to provide the user with permission to perform the action and then resubmit the command. Otherwise, resubmit the command with a different user ID.

ARS0176E BulkTextSearch Failed

Explanation: The command failed when attempting a text search.

User response: See the OnDemand System Log for other messages that are associated with the text search. If the problem persists, contact your IBM Service Representative.

ARS0178E System call failed for command >*command*<. *errno=errno*

Explanation: The OnDemand server failed trying to execute the command. The *errno* value is provided in */usr/include/sys/errno.h* on UNIX systems and might provide additional information.

User response: Refer to *errno.h* for additional information. If the problem persists, contact your IBM Service Representative.

ARS0179E License Server Failed. *rc=rc*

Explanation: A licensing problem has occurred.

User response: If the problem persists, contact your IBM Service Representative.

ARS0180E License Server was unable to initialize the license management system. *rc=rc*

Explanation: An unexpected error occurred during the execution of this program.

User response: If the problem persists, contact your IBM Service Representative.

ARS0181E License Server failed during termination of the license management system. *rc=rc*

Explanation: An unexpected error occurred during the execution of this program.

User response: If the problem persists, contact your IBM Service Representative.

ARS0182E License Server was unable to acquire a license from the license management system. *cnt=count*,
rc=rc

Explanation: An unexpected error occurred during the execution of this program.

User response: If the problem persists, contact your IBM Service Representative.

ARS0183E License Server was unable to release a license from the license management system. *rc=rc*

Explanation: An unexpected error occurred during the execution of this program.

User response: If the problem persists, contact your IBM Service Representative.

ARS0184E License Server was unable to reactivate a license from the license management system. *rc=rc*

Explanation: An unexpected error occurred during the execution of this program.

User response: If the problem persists, contact your IBM Service Representative.

ARS0185E OnDemand license limit has been exceeded, currently *current_licenses* running only *entitled_licenses* are entitled. Please contact an IBM Service Representative.

Explanation: The number of concurrent users exceeds the number of entitled licenses for concurrent users.

User response: Verify the number of client licenses that your organization is authorized to use. Verify the configuration of the client licenses for concurrent users. If the problem persists, contact your IBM Service Representative.

ARS0186I OnDemand started with a license limit of *entitled_licenses*

Explanation: The number of configured entitled licenses for concurrent users is displayed when the OnDemand Library Server starts.

Example:

OnDemand started with a license limit of 50

User response: No action is required.

ARS0187I Unable to establish thread server connection. *rc=rc*

Explanation: An unexpected error occurred during the execution of this program.

User response: If the problem persists, contact your IBM Service Representative.

ARS0188I Unable to create thread. *rc=rc*

Explanation: An unexpected error occurred during the execution of this program.

User response: If the problem persists, contact your IBM Service Representative.

ARS0189E Unable to create pipe communications. *errno=errno*

Explanation: An unexpected error occurred during the execution of this program. The *errno* value is provided in */usr/include/sys/errno.h* on UNIX systems and might provide additional information.

User response: If the problem persists, contact your IBM Service Representative.

ARS0190E System command failed *>command<*. *errno=errno*

Explanation: An unexpected error occurred during the execution of this program. The *errno* value is provided in */usr/include/sys/errno.h* on UNIX systems and might provide additional information.

User response: If the problem persists, contact your IBM Service Representative.

ARS0191I Segment *>segment_name<* unknown in System Migration

Explanation: The command failed when attempting to find the specified segment in the OnDemand System Migration application group.

User response: Verify the migration parameters, including the name of the segment and the name of the application group. Then resubmit the command. If the problem persists, contact your IBM Service Representative.

ARS0192E Unable to create file *>file_name<*. *errno=errno*

Explanation: An unexpected error occurred during the execution of this program. The *errno* value is provided in */usr/include/sys/errno.h* on UNIX systems and might provide additional information.

User response: If the problem persists, contact your IBM Service Representative.

ARS0193E Unable to query System Migration Application Group. rc=rc

Explanation: An unexpected error occurred during the execution of this program.

User response: If the problem persists, contact your IBM Service Representative.

ARS0194E Unable to open directory >directory_name<. errno=errno

Explanation: An unexpected error occurred during the execution of this program. The *errno* value is provided in `/usr/include/sys/errno.h` on UNIX systems and might provide additional information.

User response: If the problem persists, contact your IBM Service Representative.

ARS0195E Unable to close directory >directory_name<. errno=errno

Explanation: An unexpected error occurred during the execution of this program. The *errno* value is provided in `/usr/include/sys/errno.h` on UNIX systems and might provide additional information.

Example:

Unable to close directory >***UNK***<. err=(**UNK**) Srvr->everest.ibm.com 9.99.999.999<-

User response: If the problem persists, contact your IBM Service Representative.

ARS0196I Cache Expiration: ApplGroup(appl_grp_name) Agid(agrid) ObjName(object_name) Date(date) Server(server)

Explanation: The ARSMAINT program expired the specified storage object from the specified application group. This message is for your information only.

Example:

Cache Expiration: ApplGroup(CHKSTMTS1R) Agid(5013) ObjName(95FAAA) Date(11401)
Server(RDR400M.RALEIGH.IBM.COM) Srvr->rdr400m.raleigh.ibm.com 10.36.173.225<-

User response: No action is required.

ARS0197I Cache Migration: ApplGroup(appl_grp_name) Agid(agrid) ObjName(object_name) Date(date) Server(server)

Explanation: The ARSMAINT program migrated the specified storage object from cache storage to archive storage. This message is for your information only.

Example:

Cache Migration: ApplGroup(System Log) Agid(9263) ObjName(1534FAA) Date(11073) Server(libraryserver)
Srvr->everest.ibm.com 9.99.999.999<-

User response: No action is required.

ARS0198E Invalid ownership and/or permissions on cache file/directory >path_name<

Explanation: The ownership or permissions for the specified cache storage file or directory are not correct. Cache filesystems have specific permissions for directories, which are described in discussed in your *Planning and Installing*.

Example:

Invalid ownership and/or permissions on cache file/dir >/arscache1< Srvr ->everest.ibm.com<-

User response: Verify the ownership and permissions for the cache storage filesystems and then resubmit the command. If the problem persists, contact your IBM Service Representative.

ARS0199E Unexpected empty directory in cache >directory_name<

Explanation: The cache directory is empty.

User response: Verify the configuration of the cache storage filesystems and resubmit the command. If the problem persists, contact your IBM Service Representative.

ARS0200E CD-ROM Creation Failed: Volume(*volume*)

Explanation: The command failed when attempting to create the specified CD-ROM.

Example:

CD-ROM Creation Failed: Volume(1290)

User response: See the OnDemand System Log for other messages that are associated with the CD-ROM creation process. If the problem persists, contact your IBM Service Representative.

ARS0201I Concurrent Licenses: Current(*current_licenses*), Maximum Allowed(*entitled_licenses*)

Explanation: The server generates this message approximately every 30 minutes to display the number of concurrent users on the system (at the time that the message was generated). This message also displays the maximum number of concurrent users that are allowed on the system.

Example:

Concurrent Licenses: Current(8), Maximum Allowed(50)

User response: No action is required.

ARS0202I Concurrent Licenses: Maximum Achieved(*maximum_licenses*), Maximum Allowed(*entitled_licenses*)

Explanation: The server generates this message each time that the number of concurrent users on the system exceeds the last reported maximum number of concurrent users on the system. This message also displays the maximum number of concurrent users that are allowed on the system. The counter for the maximum number of concurrent users is reset to zero each time that the OnDemand library server is restarted.

Example:

Concurrent Licenses: Maximum Achieved(12), Maximum Allowed(50)

User response: No action is required.

ARS0203I ApplGroup Load: Name(*appl_grp_name*) LoadId(*load_id*) File(*file*) InputSize(*input_size*) OutputSize(*output_size*)

Explanation: ARSLOAD has finished loading. This message is for your information only.

Example:

ApplGroup Load: Name () LoadId () File () Inputsize () OutputSize ()

User response: No action is required.

ARS0204I Printer Add: Name(*printer_name*) Queue(*queue*) Pid(*pid*)

Explanation: The specified printer was added to the specified queue. This message is for your information only.

Example:

Printer Add: Name(QPRINT2) Queue(QGPL/QPRINT2) Pid(5098)

User response: No action is required.

ARS0205I Printer Delete: Name(*printer_name*) Queue(*queue*) Pid(*pid*) IdName(*id_name*) Id(*id*)

Explanation: The specified printer was deleted from OnDemand. This message is for your information only.

Example:

Printer Delete: Name(QPRINT) Queue(QGPL/QPRINT) Pid(5193) IdName() Id(0)

User response: No action is required.

ARS0206I User Id Add: User(name) Id(id), User(owner_name) Id(owner_id), Perms(permissions)

Explanation: The specified user ID was added with the specified permissions. This message is for your information only.

User response: No action is required.

ARS0207I User Id Delete: User(name) Id(id), User(owner_name) Id(owner_id)

Explanation: The specified user ID was deleted. This message is for your information only.

Example:

User Id Delete: User(HOMER) Id(998), User(Ulysses) Id(74)

User response: No action is required.

ARS0208I User Id Update: User(name) Id(id), User(owner_name) Id(owner_id), Perms(permissions)

Explanation: The specified user ID was updated as shown. This message is for your information only.

User response: No action is required.

ARS0209I User Id Add: User(name) Id(id), Group(owner_name) Id(owner_id), Perms(permissions)

Explanation: The specified user ID was added to the specified group with the specified permissions. This message is for your information only.

Example:

User Id Add: User(BUZZ) Id(20), Group(noaccess) Id(80041), Perms(3)

User response: No action is required.

ARS0210I User Id Delete: User(name) Id(id), Group(owner_name) Id(owner_id)

Explanation: The specified user was deleted from OnDemand. This message is for your information only.

User response: No action is required.

ARS0211I User Id Update: User(name) Id(id), Group(owner_name) Id(owner_id), Perms(permissions)

Explanation: The specified user was added to the specified group. This message is for your information only.

User response: No action is required.

ARS0212I BulkTextSearch: Time(time)

Explanation: The search was completed in the length of time indicated. This message is for your information only.

Example:

BulkTextSearch: Time(2.752) Srvr->RDR400M.RALEIGH.IBM.COM<-

BULK DOCUMENT RETRIEVAL

Application Group Agid FlDs->Handle

 PATINF001 5014 ->7FAAA,3852,968,0,3272,0x4E,0x4F,0,1,0

User response: No action is required.

Appendix C. 5250 host connection to client viewer

This section describes the OnDemand 5250 Host Connection, which allows an i5/OS application to send information to the OnDemand client workstation viewer program (the viewer). The intent is to provide a mechanism by which a 5250 line-of-business application can use the viewer to display documents from the OnDemand database. This is done with little or no interaction between the user and the viewer.

This function is comprised of two parts:

- The FNDKEYOND or FNDKEYRDAR command, which the line-of-business application will invoke. The FNDKEYOND command is a part of Option 10 (Common Server) of OnDemand for System i5, and is used to retrieve documents archived using the OnDemand Common Server feature. The output of the FNDKEYOND command MUST be displayed using the workstation viewer. FNDKEYRDAR is a part of Option 1 (Spool File Archive) of OnDemand for System i5, and it is used to retrieve documents archived using the OnDemand Spool File Archive feature. The output of the FNDKEYRDAR command may be displayed using the workstation viewer, or may be displayed on a non-programmable terminal or in a terminal emulation session. The references to FNDKEYRDAR which follow assume that its output is being directed to the workstation viewer. One or both of these commands may be used, depending on which options of OnDemand (Spool File Archive or Common Server) are installed. In the following paragraphs, FNDKEYxxxx means either FNDKEYOND or FNDKEYRDAR.
- A companion program that resides on the workstation, which is the interface between the FNDKEYxxxx command and the viewer.

Operational and environmental considerations

For this function to operate correctly, you must address several operational and environmental considerations. This section will describe these considerations.

Workstation installation tasks

For the FNDKEYxxxx command to operate correctly, the workstation companion program, QRLROCD.EXE, must be running on the workstation when the FNDKEYxxxx command is run on the server. This program is found in the OnDemand install directory, usually C:\Program Files\IBM\OnDemand32. The following paragraphs describe a suggested approach for simplifying the startup of this program.

After the OnDemand client software is installed on your workstation, you should establish a shortcut which points to the QRLROCD.EXE program. This shortcut can be placed on the workstation desktop, in the startup folder or in any other place which meets your needs. Placing the shortcut in your startup folder will start the program automatically when you start your workstation. This is appropriate if you use this interface frequently. If you end the program and need to restart it, or if you have no need for the program to be started automatically, you may want to place a shortcut on the desktop.

In most cases, you will only need to start the companion program once. If, however, the workstation is attached to multiple OnDemand server systems, or if both FNDKEYOND and FNDKEYRDAR output will be displayed by the viewer, you may need to start the program multiple times. In this case, you should create a shortcut

for each one, for reasons explained below in the section labeled Multiple OnDemand servers in the network. Follow the directions in the sections below, depending on your configuration. The term "multiple OnDemand server systems" refers to a network where either of the following is true:

- there are two or more OnDemand server systems from which you need to view FNDKEYxxxx output concurrently using the viewer
- there is one OnDemand server, but the results of both FNDKEYOND and FNDKEYRDAR commands will be displayed concurrently by the viewer

One OnDemand server in the network

If you will be using either FNDKEYOND or FNDKEYRDAR (but not both), and there is only one OnDemand server where the command will be used, you may allow the command and the companion program to use the default port number (3005). In this case, it is not necessary to modify the shortcut to specify a different port. Please skip to the section titled Other workstation considerations. If the above does not describe your configuration, please continue with the next section.

Multiple OnDemand servers in the network

If you intend to display the results of both the FNDKEYOND and FNDKEYRDAR commands with the viewer, or if there are multiple OnDemand servers where either of these commands may be run, a separate workstation companion program must be started on the workstation for each different combination of system and command. For example, if FNDKEYRDAR and FNDKEYOND will be run on a single system, two of the companion programs should be started. The same applies when FNDKEYOND is run from two systems.

Each instance of the companion program must be configured to use a different port. After you have created the shortcuts you need, you should alter the properties of the shortcuts to specify a port number and, optionally, a system name. The system name, if specified, will appear as the window title for the viewer which the shortcut will start.

To specify a port and system for a shortcut, right-click the shortcut. From the pop-up menu, select Properties. On the Shortcut tab, you will see an entry box labeled Target. This should contain the path for the QRLROCD.EXE program. At the end of the path, after QRLROCD.EXE, add at least one space, followed by:

```
/p=nnnn /s=systemName
```

where nnnn is the port number and systemName is the name of the OnDemand server.

Example:

```
.../qr\rocd.exe /p=3006 /s=ACCOUNTING
```

You may also use uppercase P and S (...qr\rocd.exe /P=3007 /S=BILLING).

After adding the port and system parameters, press OK to save the new properties of the shortcut. You also should change the title which displays beneath the shortcut to something meaningful, such as "OnDemand Viewer for ACCOUNTING reports".

Make a note of the port numbers and system names you have specified for the shortcuts. It will be necessary to configure the server systems so that FNDKEYxxxx will use the matching port numbers instead of the default. This is discussed in the section "Server Configuration" below.

Other workstation considerations

For FNDKEYxxxx output to be displayed correctly using the OnDemand viewer, the FNDKEYxxxx program on the server system must be able to determine the TCP/IP address of the workstation. You should access your line-of-business applications which invoke FNDKEYxxxx through a terminal emulation session. The connection method for the session should be TCP/IP. If the FNDKEYxxxx command is run in a job attached to this session, the address of the workstation can be determined by the FNDKEYxxxx command, and nothing further needs to be done.

If the emulation session does not use TCP/IP, the FNDKEYxxxx command searches for the presence of a data area, located in QUSRRDARS library, which has the same name as the device name associated with the emulation session. If the data area exists, the command looks for a non-blank value in positions 1-15 of the data area and uses this value as the workstation IP (Internet Protocol) address. It is the responsibility of the user to ensure that this data area exists and contains the IP address. You can use the CRTDTAARA and CHGDTAARA commands for this purpose.

If the FNDKEYOND command detects errors when sending the search request to the workstation companion program, it will assign a three-digit error code and will display this information in message RDR2882. If the FNDKEYRDAR command detects errors, see the *IBM Content Manager OnDemand for i5/OS Common Server Administration Guide* for an explanation of the errors.

Table 7 lists the error codes and their meanings for exception RDR2882.

Table 7. Exception RDR2882 error codes

Error code	Error description
002	Environment error. A connection could not be established with the workstation companion program because the workstation IP address could not be determined.
091	The TCP/IP socket could not be created.
092	Connect failed for TCP/IP socket. The most likely cause is that the workstation companion program is not running, or there is a port number mismatch between the FNDKEYxxxx command and the companion program.
093	Socket Close operation failed.

Server Configuration

The information in this section is pertinent only if you created more than one shortcut. If you created only one shortcut, the FNDKEYxxxx commands will function correctly using the default port number, and nothing further needs to be done.

If you created more than one shortcut, you should also have specified different port numbers for the shortcuts. Since the FNDKEYxxxx commands must use the same port numbers which you specified on the shortcuts, it is necessary to configure these commands on the server systems to use the specified ports.

The FNDKEYxxxx commands check for the existence of a data area named QRLMFKPORT, in library QUSRRDARS. If this data area does not exist, the commands will use the default port number (3005). If the data area exists, the FNDKEYxxxx commands will use the port number found in the data area contents. The first five characters of the data area contents represent the port number which

the FNDKEYOND command should use. The next five characters represent the port number for the FNDKEYRDAR command. To create this data area, enter the following:

```
CRTDTAARA QUSRRDARS/QRLMFKPORT TYPE(*CHAR) LEN(10) VALUE( 'AAAAABBBBB' )
```

where AAAAA is the FNDKEYOND port number and BBBBB is the FNDKEYRDAR port number.

For example, to specify that FNDKEYOND, on this system, should use port 3007 and that FNDKEYRDAR should use 3008, specify VALUE('0300703008'). It is important that each five-position number be right-justified, with leading zeros if necessary. If you will not use both commands from the same system, enter 00000 for the port number corresponding to the command you will not use.

If there are multiple OnDemand servers in your network (or you will use FNDKEYOND and FNDKEYRDAR commands on one or more systems), and there are workstations which will display FNDKEYxxxx output from these systems, you must configure the FNDKEYxxxx commands on these systems to use a different port number. Some examples are shown below:

- If you have one OnDemand server, but both FNDKEYOND and FNDKEYRDAR commands will be used on this system, you need to create the data area. In this case, you can allow one of the commands to use the default port, and the other command should use a different port. For example, if you specify VALUE('0300503006'), FNDKEYOND will use port 3005 , and FNDKEYRDAR will use 3006. Make sure that your shortcuts are modified to specify these port numbers.
- If FNDKEYxxxx will be run from multiple servers in your network, create the data area on the systems where it is necessary to change the port assignments for the FNDKEYxxxx commands. For example, on SYSTEMA, specify VALUE('0300503006'), and on SYSTEMB specify VALUE('0300703008'). It is imperative that these commands on multiple systems in the network use different port numbers.

Appendix D. Server printing and faxing

Using an i5/OS printer file to define server print parameters

You can use an i5/OS printer file to define some of the server print parameters in your Common Server application definition by specifying the following in the Print Parameters field on the Print Options tab of your application:

PRTF=LIBRARY/PRINTERFILENAME

where LIBRARY is the name of the library that contains your printer file and PRINTERFILENAME is the name of the printer file.

Notes:

1. The entire line must be entered in uppercase.
2. The printer file cannot be an externally-described printer file. If necessary, you will need to create a printer file that has the same characteristics (LPI, CPI, page size, overlays, and so on), but that does not specify a source file (keyword SRCFILE) on the CRTPRTF command.

This printer file specification is also used when faxing from the server to produce the temporary i5/OS spooled file which is then faxed.

The following parameters, even though specified in the printer file identified in the PRTF parameter, are overridden as shown in Table 8.

Table 8. Parameter Overrides

Printer file parameter	Changed to	Where specified	When specified
DEVTYPE	*AFPDS if AFP data. *SCS if SCS or SCS-extended data. *LINE if Line data and an EBCDIC code page is used; otherwise it is set to *SCS and the data is converted from ASCII to EBCDIC.	Application definition - View Information tab - Data Type field	When defining the application
OUTQ	Server Queue Name	Printer definition	When printing the document, you select the Server Printer definition to use
COPIES	Number of Copies	Client Print window	When printing the document
USRDTA	The first 10 characters of your OnDemand user ID	When you logon to OnDemand	When you logon to OnDemand
USRDFNDDTA	Application name	Application definition - General tab - Name field	When defining or updating the application
PAGERANGE	Pages value	Client Print window, but only if already viewing the document	When printing the document

If no PRTF parameter is specified, printer file QSYSPRT is used and in addition to the printer file parameters specified above, the parameters in Table 9 are also set.

Table 9. QSYSPRT Parameters

Printer file parameter	Changed to	Where specified	When specified
CTLCHAR	*FCFC for Line data; otherwise use QSYSPRT (default) Note: If the View Information tab in the Application definition specifies CC - No, the data is printed using an ANSI carriage control character of blank for each line (single spaced).	Application definition - View Information tab - Data Type field	When defining or updating the application
PAGRRT	Orientation (for AFP)	Application definition - View Information - Orientation field	When defining or updating the application
TBLREFCHR	TRC (for Line data)	Application definition - View Information - TRC field	When defining or updating the application

Server fax setup

When defining a printer for use with server fax functions, a Server Queue Name is required in the printer definition within the OnDemand Administrator. You can either specify the name of a library/output queue or *NONE. If *NONE is specified, the output is temporarily spooled to QUSRRDARS/QRDARS400 output queue before it is sent to fax using the QRLMSFAX program. If you enter a library/output queue name, then OnDemand will use that output queue to temporarily spool the data.

If you use the SNDFAX command in the QRLMSFAX program (which is the default as shipped), the restrictions in Table 10 apply to the fax information. If you use a different server fax product, see “Facsimile user exit program” on page 258.

Table 10. SNDFAX command fax information restrictions

Administrator Client Prompt Field	SNDFAX maximum length	SNDFAX keywords used	Length passed to QRLMSFAX
Recipient Attention	40	TO position 2	100
Recipient Company	40	TO position 3	100
Recipient Fax Number	32	TO position 1, TO position 4	100
Sender Name	40	FROM position 1	100
Sender Company	40	FROM position 2	100
Sender Tel Number	40	FROM position 3	100
Sender Fax Number	–	(not used)	100
Sender Cover Page	10	CRTCVRP - can be blank, *NO or *YES; default is *YES	10

Table 10. SNDFAX command fax information restrictions (continued)

Administrator Client Prompt Field	SNDFAX maximum length	SNDFAX keywords used	Length passed to QRLMSFAX
Subject	40	TITLE	100
Notes	40	COMMENT	100

Appendix E. API and user exit reference

API reference

This section contains reference information about the OnDemand server Application Programming Interfaces (APIs).

The APIs contained in this reference include APIs for various OnDemand functions beyond the standard command set described in Appendix A, "Command reference," on page 169. The APIs are presented in alphabetical order. Each API contains a description of its purpose and syntax (including descriptions of the parameters that can be used). Examples and general information about using the APIs have also been included.

Note: These APIs require that you be signed on to the server with a user profile that is also defined as a user in OnDemand.

Using quotes when executing the APIs

When you execute an OnDemand program from the i5/OS command line interactively, in batch using the SBMJOB command or the QSHELL environment and you specify parameter values that contain a null (blank) character or some other special character (such as the parenthesis), you must delimit the parameter value with double quote characters. For example, when executing the ARSDOC GET program from the i5/OS command line and you specify the **-o** parameter to specify one or more application group field names, each field name is enclosed with parenthesis and the entire string must be surrounded by double quote characters, for example: `-o "(sdate)(student)".` Please see the operating system documentation for more information about the use of quotes when executing the APIs. Note that if the same string is included in a parameter file using the **-F** parameter on the ARSDOC GET command, it would be enclosed in brackets and the double quotes are not required, for example: `[-o (sdate)(student)]`.

Using the QSHELL environment

All **ARSxxxxxx** API programs must be executed using the QSHELL environment. QSHELL is a command interpreter that allows i5/OS to execute AIX commands on i5/OS. These commands can also be run from a script file. More information about QSHELL can be found at <http://www.as400.ibm.com/developer/qshell/>. Currently, option 30 for 5722-SS1 (i5/OS) installs the QSHELL interpreter. The QSHELL environment is started by the **QSH** or **STRQSH** i5/OS command.

Multiple **ARSxxxxxx** programs may be issued in one QSHELL session. After the completion of a QSHELL command, a \$ is displayed. This notifies the user that the QSHELL command has completed. This does not mean that the command actually ran successfully and performed the desired function.

All command examples assume that the QSHELL environment has been started and the **ARSxxxxxx** programs are in a directory specified in the PATH variable. OnDemand places a symbolic link to the commands in the /usr/bin directory during installation. To exit the QSHELL environment, press the F3 key.

The **-v** parameter will provide detailed program logging information. The **-u** parameter specifies a valid OnDemand user that exists with the proper authority to perform the functions requested. The **-p** parameter specifies the OnDemand password for the OnDemand user specified in the -u parameter. The user ID and

password are not normally needed when running these programs in i5/OS. By default, the current i5/OS user profile and password are used as the OnDemand user ID. If your i5/OS user profile does not exist in OnDemand, you must specify a valid OnDemand user ID and password to use these programs.

The **-h** is the OnDemand instance name where the program is to execute. For the purposes of this document, the administrative user name will be testadmin, the password will be ondemand and the host name is QUSROND. User testadmin must have the appropriate authority to perform the function being requested by the **ARSxxxxxx** command.

Calling QSHELL commands from an i5/OS command line

When executing the **ARSxxxxxx** programs from an i5/OS command line, the i5/OS QSH command is used. When embedded single quotes exist within the program parameter, they must be doubled. For example:

```
QSH CMD('arsdoc get ..... "-i WHERE Account#='1234567' "....-u testadmin
-p ondemand')
```

Since the QSHELL environment will log messages to the terminal, you will want to control this by setting environment variable QIBM_QSH_CMD_OUTPUT. This variable will control where the messages are logged. This does not interfere with the messages that get logged to the OnDemand System Log. The QSHELL environment logging can be sent to the terminal session, to a file in the IFS directory structure, or you can choose not to log the messages. The ADDENVVAR, CHGENVVAR, RMVENVVAR and WRKENVVAR commands can be used to manipulate the QSHELL environment. The environment parameters can be set for the entire system and for the job. In most cases, you will not want to change the environment parameter at the system level, because it will affect all users of QSHELL on the system.

- Set the job environment to log messages to the terminal
ADDENVVAR ENVVAR(QIBM_QSH_CMD_OUTPUT) VALUE(STDOUT) LEVEL(*JOB)
- Set the system environment to not log messages.
ADDENVVAR ENVVAR(QIBM_QSH_CMD_OUTPUT) VALUE(NONE) LEVEL(*SYS)
- Set the job environment to log messages to the a file in the IFS. mydirectory must exist in the IFS.
ADDENVVAR ENVVAR(QIBM_QSH_CMD_OUTPUT)VALUE('FILE=/mydirectory/QSHELL_output') LEVEL(*JOB)

The following is an example of the messages that might be displayed to the terminal or logged in the output file.

```
OnDemand Load Id = >5013-1-0-85FAA-11359-11359<
Loaded 4 rows into the database
Document compression type used - 0D77. Bytes Stored = >10240<
```

Message QSH0005 will be issued in the job log when running the QSH command. The message text is "Command ended normally with exit status &1". The possible statuses returned are shown in Table 11:

Table 11. Message QSH0005 status codes

Status	Description
0	Completed Successfully
1	Command Failure

Table 11. Message QSH0005 status codes (continued)

Status	Description
2	Folder does not exist or do not have authority to folder
3	User ID or Password is not valid. Cannot establish communication to server
127	Command Not Found
254	No Hits Match Query

How to read a syntax diagram

A syntax diagram shows you how to specify an API program so that the operating system can correctly interpret what you type.

Read a syntax diagram from left to right and from top to bottom, following the horizontal line (the main path). If the line ends with an arrowhead, the API syntax is continued and the next line starts with an arrowhead. Facing arrowheads mark the end of the API syntax.

When you type an API from the syntax, be sure to include punctuation, such as commas and equal signs.

Parameters are classified as keywords or variables:

- Keywords represent constants and are shown (in syntax) in uppercase letters; however, you can enter keywords in either uppercase or lowercase.
- Variables represent names or values you supply and are shown (in syntax) in lowercase letters; however, you can enter variables in either uppercase or lowercase unless the syntax directions explicitly state the case restrictions. An example of a variable is a file name.

A parameter can be a combination of a keyword and a variable.

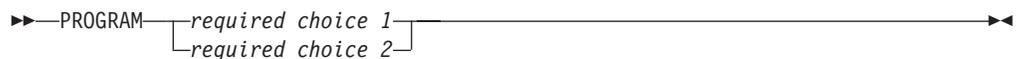
Required parameters are displayed on the main path.



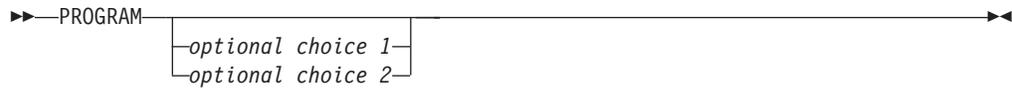
Optional parameters are displayed below the main path.



A stack of parameters, with the first parameter displayed on the main path, shows that you must choose one of the parameters.



A stack of parameters, with the first parameter displayed below the main path, shows that you can choose one of the parameters.



An arrow returning to the left, above the path, shows that items can be repeated following these conventions:

- If the repeat arrow contains a break, the item can be repeated in a list with the items separated by blank spaces.

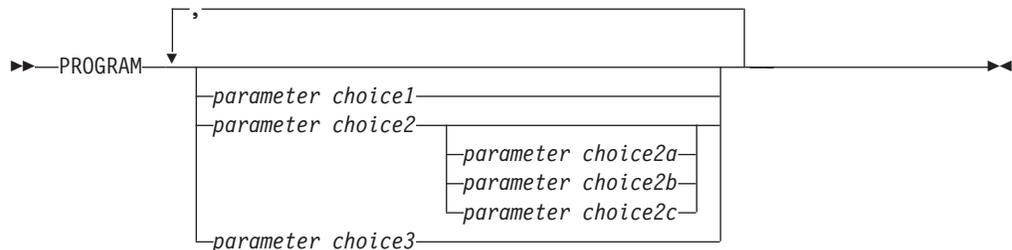


- If the repeat arrow contains a comma, the item can be repeated in a list with the items separated by commas.



You can repeat items from parameter stacks following the stack conventions for required and optional parameters described previously.

Some syntax diagrams contain parameter stacks within other parameter stacks. You can only repeat items from stacks according to the conventions described previously. That is, if an inner stack does not have a repeat arrow above it but an outer stack does, you can choose only one parameter from the inner stack and combine it with any parameter from the outer stack, and that combination can be repeated. For example, the following diagram shows that you could combine parameter choice2a with parameter choice2 and then you can repeat that combination again (choice2 plus choice2a).



Some APIs are preceded by an optional path parameter.



If you do not supply the path parameter, the system searches the current directory for the API. If the API is not in the current directory, the system continues to search for the API using the directories defined in the PATH environment variable.

Some APIs in this section have several formats that accomplish the same task. These APIs appear (in syntax) similar to the following:



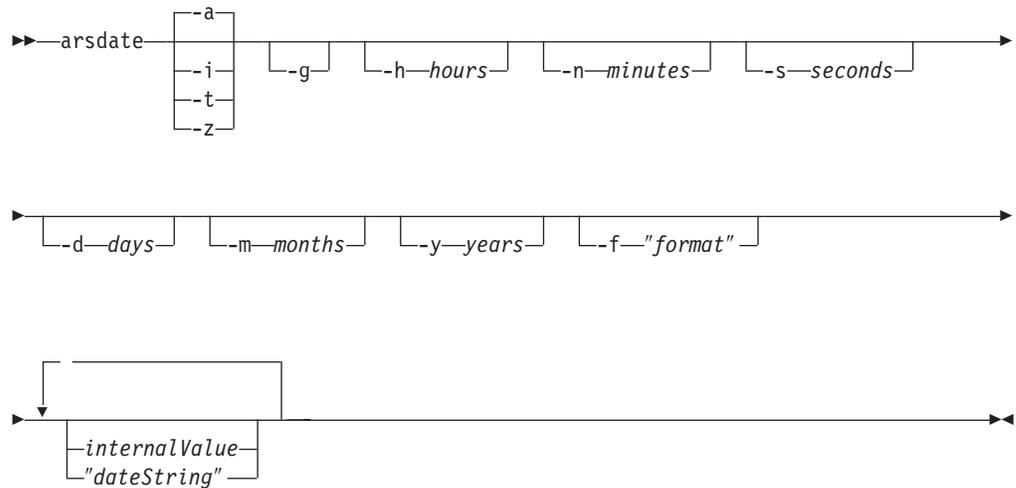
The description of the API directs you to the correct format to use.

ARSDATE

Purpose

The ARSDATE program allows you to display the OnDemand internal database value for a given date and time string or display the date and time string for a given OnDemand internal database value.

Syntax



Description

The ARSDATE program can be used to display the OnDemand internal database value for a given date and time string or display the date and time string for a given OnDemand internal database value.

Values whose data types are Date, Time, Date/Time, or Date/Time (TZ) are represented in an internal form that is transparent to the casual user of OnDemand. Casual users enter date and time values the same way that they appear in a report. However, to search the database with an SQL string, a user must enter the internal form of the value. The ARSDATE program lists the internal value of a date or time string.

Parameters

-a Use to display database values and date strings for Date fields. For example, to display the database value for the date 9/1/99, enter:

```
arsdate -a 9/1/99
```

The ARSDATE program returns:

```
9/1/99 -> 10836
```

To display the date string for the database value 10836 in the default date format, enter:

```
arsdate -a 10836
```

The ARSDATE program returns:

```
10836 -> 9/1/99
```

-i Use to display database values and date and time strings for Date/Time fields. The time part of a Date/Time field is not adjusted for the local time zone. You typically use the **-i** parameter to find out one of two things:

- Given a date and time printed on a report, what value did OnDemand store in a Date/Time database field? You can use the result to search a Date/Time field with an SQL string.
- Given a value stored in a Date/Time database field, what would be the date and time printed on a report?

-t Use to display database values and time strings for Time fields. The time is not adjusted for the local time zone. For example, to display the database value for the time 04:00:00, enter:

```
arsdate -t 04:00:00
```

The ARSDATE program returns:

```
04:00:00 -> 4800
```

To display the time string for the database value 4800, enter:

```
arsdate -t 4800
```

The ARSDATE program returns:

```
4800 -> 04:00:00
```

-z Use to display database values and date and time strings for Date/Time (TZ) fields. The time part of a Date/Time (TZ) field is adjusted for the local time zone. If you run the ARSDATE program with the **-z** parameter on systems in different time zones and you specify the same date and time value, the result will be different. For example, if you need to determine the value stored in a Date/Time (TZ) field for "09/01/99 04:00:00", use the API:

```
arsdate -z "09/01/00 04:00:00"
```

When run on a server in the Eastern time zone the result is:

```
09/01/00 04:00:00 -> 967795200
```

If you run the same API on a server in the Mountain time zone, the result is:

```
09/01/00 04:00:00 -> 936180000
```

A typical use of the **-z** parameter is to determine a database value with which to search the system log. You can use the result to search the Date/Time (TZ) field of the system log with an SQL string. For example, suppose a user in New York logs on to a server in Denver. To retrieve the log on messages with an SQL string, you must specify the date and time part of the query using the local time of the client that is running the query. If the user logged on to the server at 4 a.m. Eastern time, then a query that is run in Denver must specify 2 a.m. to retrieve the message.

-g Display the current system date.

-d days Add the specified number of days to the specified internal value.

- h hours** Add the specified number of hours to the specified internal value.
- m months** Add the specified number of months to the specified internal value.
- n minutes** Add the specified number of minutes to the specified internal value.
- s seconds** Add the specified number of seconds to the specified internal value.
- y years** Add the specified number of years to the specified internal value.
- f "format"** Determines the format of the date and time string that OnDemand displays.

Table 12 lists the standard date and time formats that are supported by OnDemand. If the input data contains a date or time format that is not listed in the table, you can specify the format to OnDemand. However, when specifying a format, you can only use values and separators from the standard formats that are listed in the table. Date and time formats may also be specified on the Load Information page in the application and the Field Information page in the folder.

The format consists of a set of values (for example, **%m**) and separators (such as the blank character). Some of these formats may require the removal of leading or imbedded blanks, or other characters.

Table 12. Date and time format specifications

Date Format Specifier	Date Format	Example
%m/%d/%y	mm/dd/yy	01/31/95
%d/%m/%y	dd/mm/yy	31/01/95
%f/%e/%y	m/d/yy	1/31/95
%e/%f/%y	d/m/yy	31/1/95
%m-%d-%y	mm-dd-yy	01-31-95
%d-%m-%y	dd-mm-yy	31-01-95
%m%d%y	mmddyy	013195
%m%d%Y	mmddyyyy	01311995
%y%m%d	yymmdd	950131
%Y%m%d	yyyymmdd	19950131
%b %e, %Y	Mth d, yyyy	Jan 31, 1995
%B %e, %Y	Month d, yyyy	January 31, 1995
%m/%d/%y %H:%M	mm/dd/yy hh:mm	01/31/95 10:50
%H:%M	hh:mm	10:50
%T	hh:mm:ss	10:50:59

internalValue The internal date and time value from the OnDemand database. Enter one or more internal values when you want to display formatted date strings.

"dateString" The date and time string. Enter one or more strings when you want to display internal date values.

Examples

1. The following example shows how to determine the database value for the specified date and time string. The data type of the database field is Date/Time.

```
arsdate -i "09/01/99 04:00:00"
09/01/99 04:00:00 -> 936158400
```

In the example, you could use the database value to search a Date/Time field in the database with an SQL string. For example:

```
arsdoc get -i "WHERE somedate=936158400" ...
```

2. The following example shows how to determine the date and time string for the specified database value. The data type of the database field is Date/Time. The result is shown using the default display format.

```
arsdate -i 936158400
936158400 -> 09/01/99 04:00:00
```

3. The following example shows how to determine the database value for the specified date and time string. The data type of the database field is Date/Time (TZ). The ARSDATE program adjusts the time part of the result for the local time zone. For Mountain time zone:

```
arsdate -z "09/01/99 04:00:00"
09/01/99 04:00:00 -> 936180000
```

If you were to run the same API on a server in the Eastern time zone, the result would be:

```
arsdate -z "09/01/99 04:00:00"
09/01/99 04:00:00 -> 936172800
```

Notes

1. When displaying the date string for a given internal value, by default, the ARSDATE program displays the date string using the mm/dd/yy format. If you want the ARSDATE program to display the date string using a different format, then you must specify the date format with the **-f** parameter. For example:

```
arsdate 10907
10907 -> 11/11/99
arsdate -f "%m/%d/%Y" 10907
10907 -> 11/11/1999
```

2. When displaying the internal value for a given date string, by default, the ARSDATE program expects you to specify the date string using the mm/dd/yy format. If you want to specify the date string using a different format, then you must specify the date format with the **-f** parameter. For example:

```
arsdate 11/12/99
11/12/99 -> 10908
arsdate 11/12/1999
11/12/1999 -> -1 (Error)
arsdate -f "%m/%d/%Y" 11/12/1999
11/12/1999 -> 10908
```

3. The upper limit of the date is 17 September 2059. To format output for a date, specify the **-f** parameter:

```
arsdate -f %m/%d/%Y 32767
```

```
32767 -> 09/17/2059
```

IFS location

`/usr/bin/arsdate`

The executable program.

ARSDOC

Purpose

The ARSDOC program is a multipurpose document processing program. You can use the ARSDOC program to query the server and generate a list of items that match a query, retrieve documents from the system, add, delete, and update documents, and send documents to a server printer.

Description and syntax

The ARSDOC program provides the following functions:

- ADD
- DELETE
- GET
- PRINT
- QUERY
- UPDATE

For each function, you can specify all of the required options on the command line or you can specify the name of a parameter file that contains the options. The syntax of each function is listed twice: first, when you specify the options on the command line; second, when you specify a parameter file.

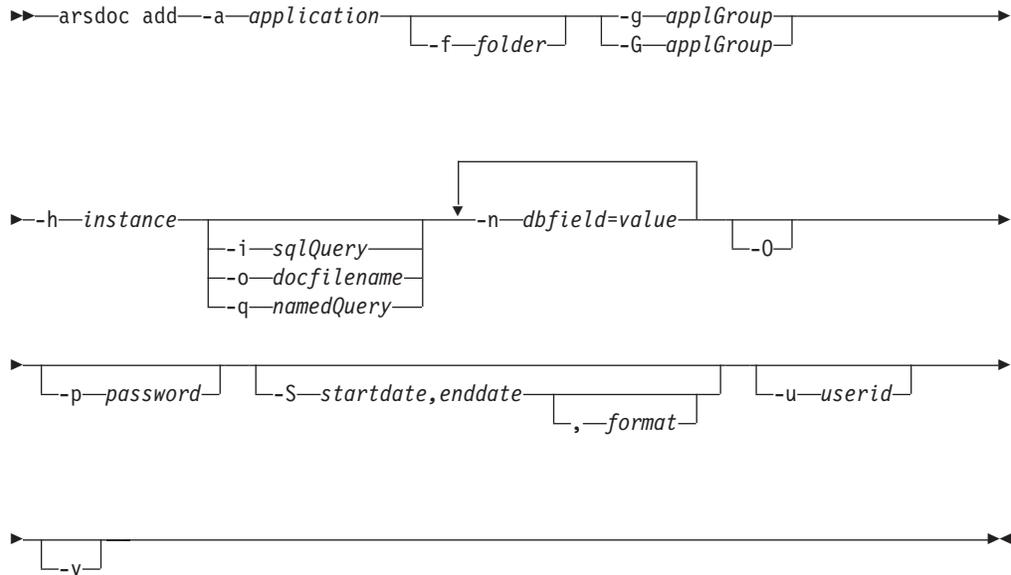
ADD function: Use to store data in OnDemand by specifying the folder, application group, application, and database fields and values. **Important:** Set the proper locale before issuing the ARSDOC ADD API. See the chapter entitled “Defining a locale” in the *IBM Content Manager OnDemand for i5/OS Common Server: Planning and Installation Guide* for important details. If you specify the **-O** parameter, then you do not have to specify all of the database fields (however, you must always specify date and time fields). When you specify the **-O** parameter, the ARSDOC program stores a default value in any database field that you omit. The default value for string fields is an empty string. The default value for numeric fields is 0 (zero). Numeric fields include integer and decimal (floating point) fields. When adding a document, you can specify the document data in one of three ways:

- A document file
- An SQL query that contains clauses, database field names, index values, and operators
- A public named query

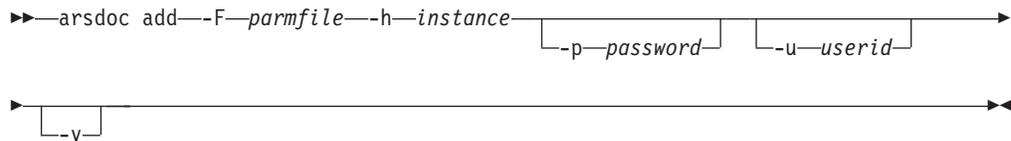
When you specify an SQL query or public named query, you are creating a database row that points to an existing document that has been identified by the query.

When you use the ADD function to add a row for an existing document, the row must be added to the application group that contains the document. The application group must be specified with the **-g** parameter and must be one of the application groups referenced by the folder named with the **-f** parameter.

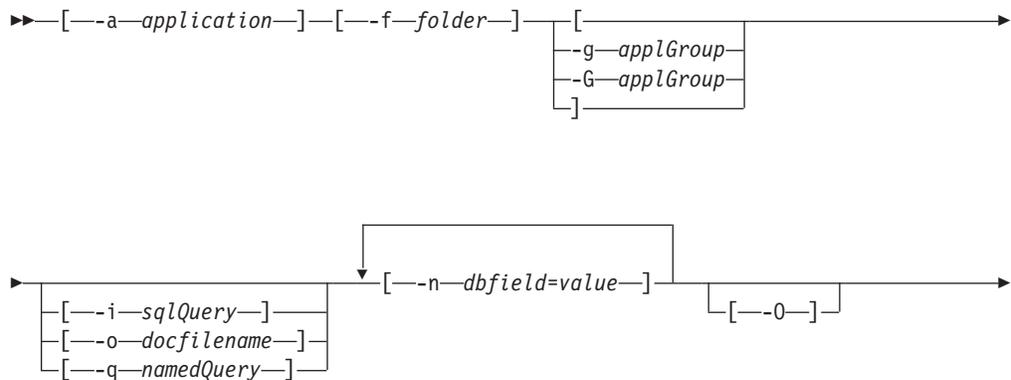
Important: The ADD function will fail unless the Database Organization for the application group named with the **-g** parameter is Multiple Loads per Database Table and the Expiration Type is Segment or Document.



When you use the parameter file option, you must specify the **-F**, **-h**, **-p**, **-u**, and **-v** parameters on the command line. All other parameters must be specified in the parameter file. The following diagram shows the syntax of the ADD function when you use the parameter file option:



The syntax of the parameter file for the ADD function is:



▶ [*--S* *startdate,enddate* [*,--format*]]

DELETE function: Use to delete index records that point to individual documents in OnDemand. The data will still exist on disk or archive media, because the documents being deleted might represent only a few pages of an entire input file. However, the data will no longer be retrievable after the index records are deleted.

To identify the documents for which you want to delete index records, you must enter an SQL query or specify the name of a public, named query. The SQL query must contain clauses, database field names, index values, and operators. The DELETE function deletes index records for all documents that match the query.

If you want to delete an entire input file (load) of documents (such as an entire spooled file) from OnDemand, use the Remove Report from OnDemand (RMVRPTOND) command instead of ARSDOC DELETE.

▶ *arsdoc delete* [*-f* *folder*] [*-G* *applGroup*] *-h* *instance*

[*-i* *sqlQuery*] [*-q* *namedQuery*] [*-p* *password*]

[*--S* *startdate,enddate* [*,--format*]] [*-u* *userid*] [*-v*]

When you use the parameter file option, you must specify the **-F**, **-h**, **-p**, **-u**, and **-v** parameters on the command line. All other parameters must be specified in the parameter file. The following diagram shows the syntax of the DELETE function when you use the parameter file option:

▶ *arsdoc delete* *--F* *parmfile* *-h* *instance* [*-p* *password*]

[*-u* *userid*] [*-v*]

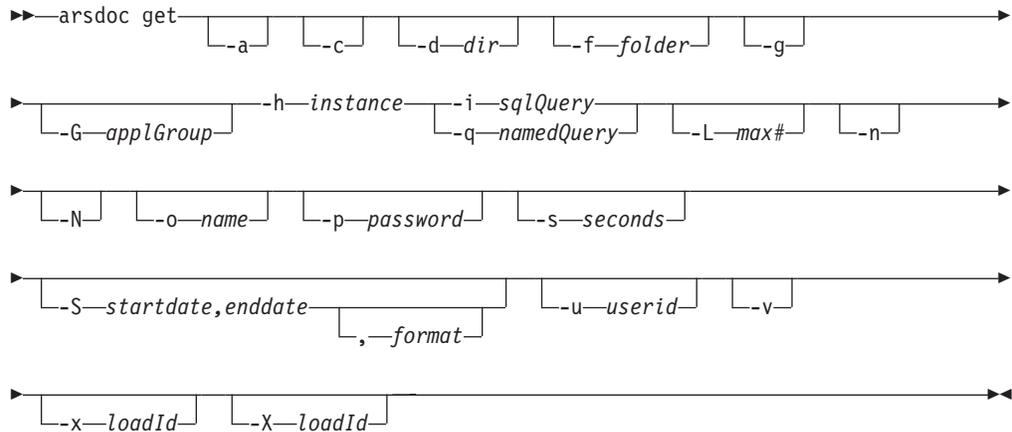
The syntax of the parameter file for the DELETE function is:

▶ [*--f* *folder*] [*--G* *applGroup*] [*--i* *sqlQuery*] [*--q* *namedQuery*]

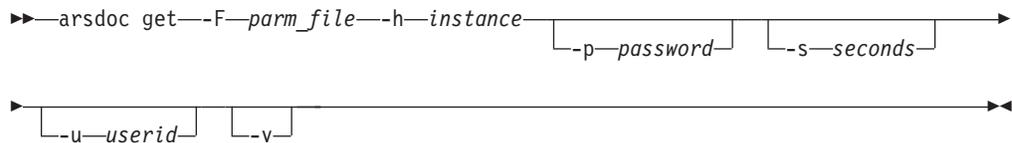
[*--S* *startdate,enddate* [*,--format*]]

GET function: Use to retrieve documents and resources from the system. The GET function can also generate and save generic index data for the documents that match the query. You must identify the name of the OnDemand library server. You must specify the application group or folder that you want to search. To query the database, you can enter an SQL query or specify the name of a public named

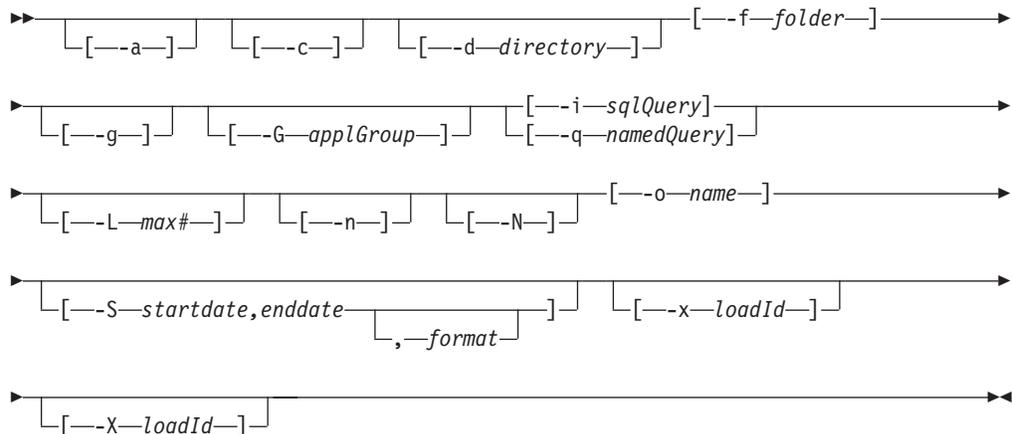
query. The SQL query must contain clauses, database field names, index values, and operators. By default, the ARSDOC program sends a copy of the documents that match the query to the display (interactive) or the job log (batch). You can also choose to write the output to a file. To retrieve documents in a sorted order, you must specify the **-n** parameter.



When you use the parameter file option, you must specify the **-F**, **-h**, **-p**, **-s**, **-u**, and **-v** parameters on the command line. All other parameters must be specified in the parameter file. The following diagram shows the syntax of the GET function when you use the parameter file option:

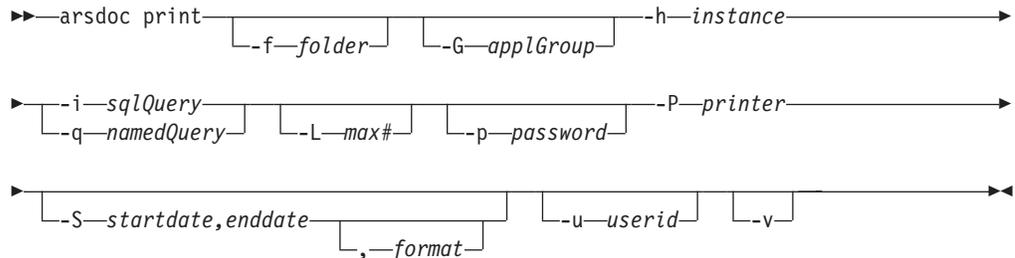


The syntax of the parameter file for the GET function is:

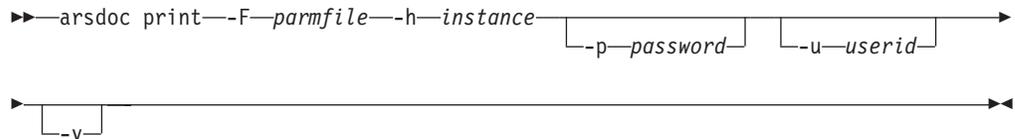


PRINT function: Use to send documents to an OnDemand server printer. You must name the OnDemand library server and the folder that you want to search and specify the query to run. The items that match the query are sent to the server printer named with the **-P** parameter. The server printer must be defined to OnDemand using the administrative client. To query the database, you can enter an SQL query or specify the name of a public named query. The SQL query must

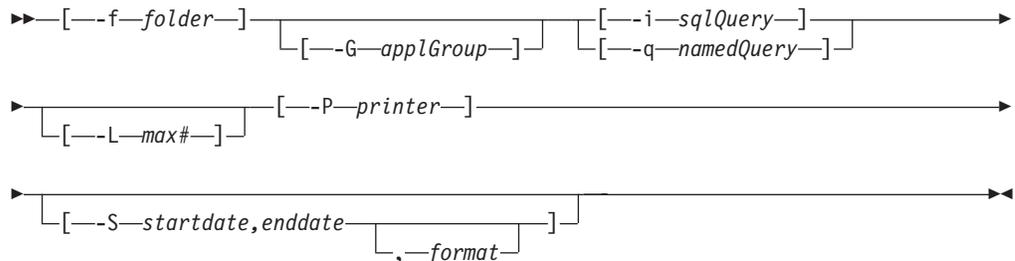
contain clauses, database field names, index values, and operators. You can limit the number of documents sent to the printer by using the **-L** parameter and specifying the maximum number of documents that should be retrieved, regardless of the number of documents that match the query. You can limit the number of database tables searched, and possibly increase the performance of a query, by specifying the **-S** parameter and specifying a start date and an end date. The PRINT function does not currently support server fax.



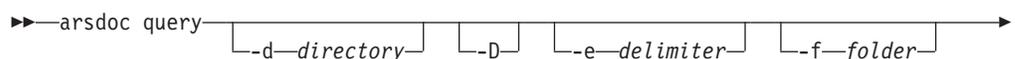
When you use the parameter file option, you must specify the **-F**, **-h**, **-p**, **-u**, and **-v** parameters on the command line. All other parameters must be specified in the parameter file. The following diagram shows the syntax of the PRINT function when you use the parameter file option:

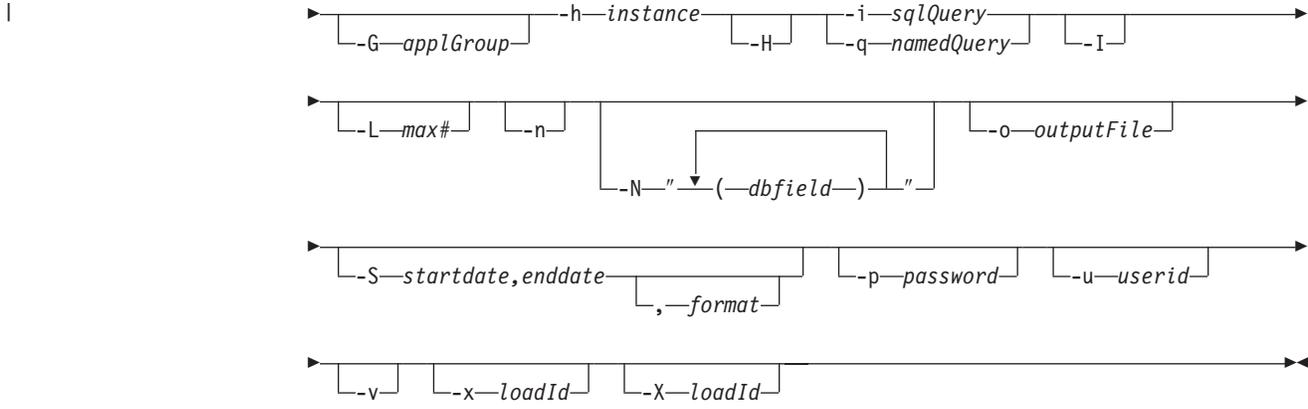


The syntax of the parameter file for the PRINT function is:

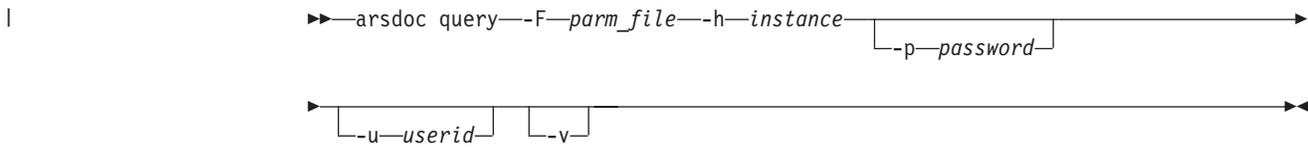


QUERY function: Use to generate a list of items that match a query. You must specify the name of the OnDemand library server. You must also specify the application group or folder you want to search. To query the database, you can enter an SQL query or specify the name of a public named query. The SQL query must contain clauses, database field names, index values, and operators. The data that is retrieved from the server is sorted by using the Sort field from the Field Information page for the folder. By default, the ARSDOC program sends the list of items that match the SQL query to the display (interactive) or the job log (batch). You can choose to write the output to a file.

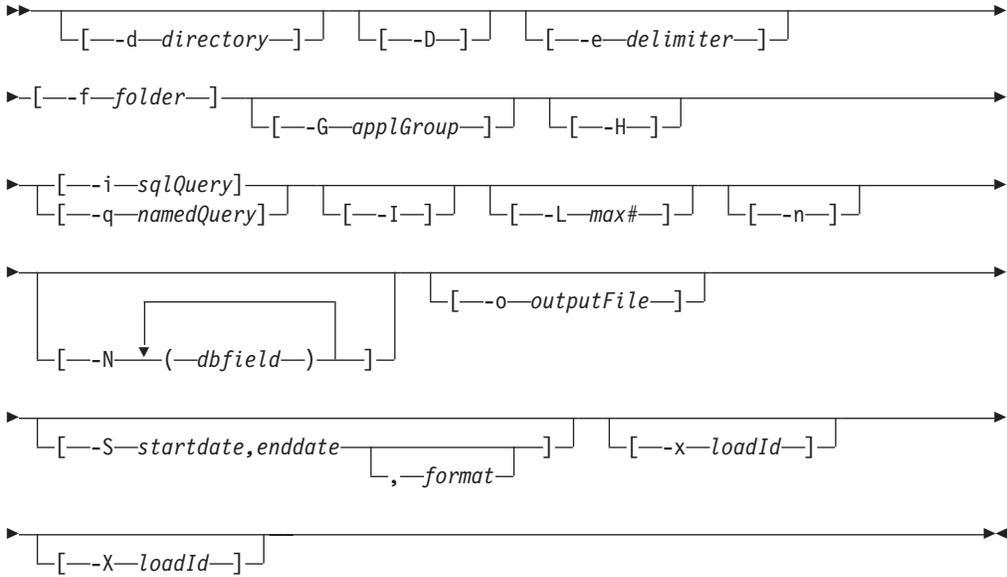




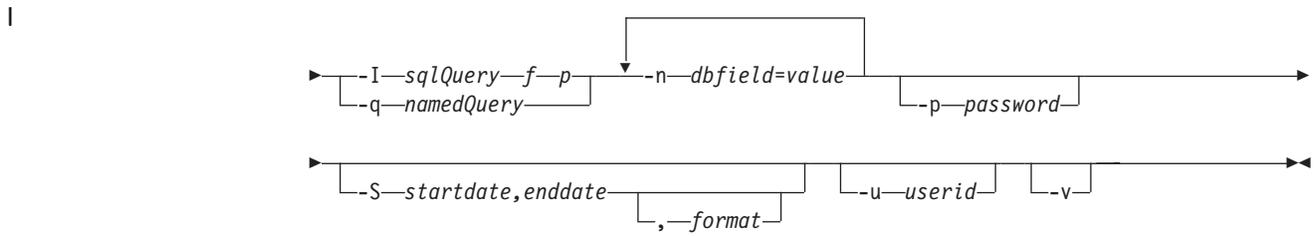
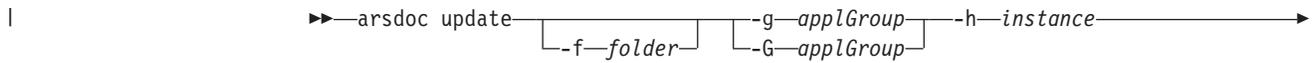
When you use the parameter file option, you must specify the **-F**, **-h**, **-p**, **-u**, and **-v** parameters on the command line. All other parameters must be specified in the parameter file. The following shows the syntax of the QUERY function when you use the parameter file option:



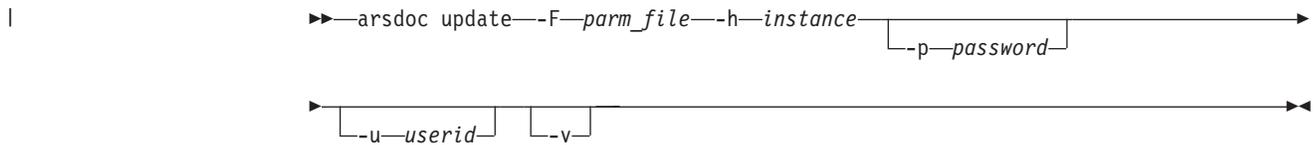
The syntax of the parameter file for the QUERY function is:



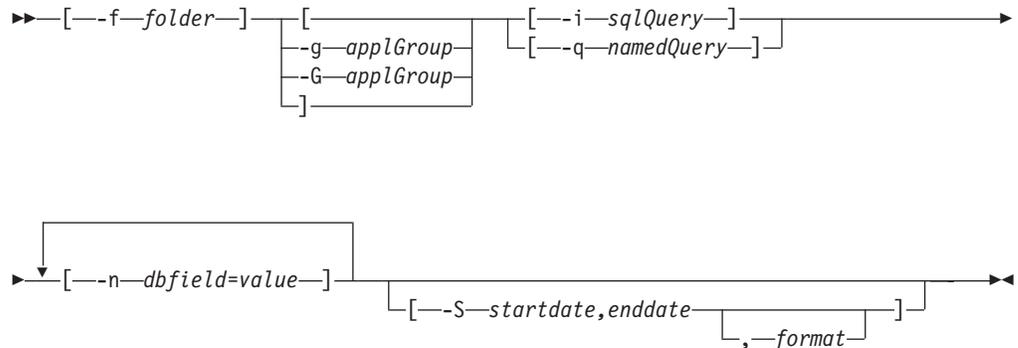
UPDATE function: Use to update documents. You must name the application group to update and specify one or more application group fields and their values. To identify the documents that you want to update, you must enter an SQL query or specify the name of a public named query. The SQL query must contain clauses, database field names, index values, and operators. The UPDATE function updates all of the rows that match the query. It does not change the actual document data.



When you use the parameter file option, you must specify the **-F**, **-h**, **-p**, **-u**, and **-v** parameters on the command line. All other parameters must be specified in the parameter file. The following shows the syntax of the UPDATE function when you use the parameter file option:



The syntax of the parameter file for the UPDATE function is:



Parameters

- a** For the GET function, when retrieving AFP documents, specify this parameter to include resources with the documents that are retrieved. If documents from the same application have different resource groups, then the ARSDOC program creates separate output files for each resource group.

For the ADD function, you must specify the name of the OnDemand application. The application must belong to the application group named with the **-g** (or **-G**) parameter.
- c** For the GET function, use to concatenate all of the documents that match the query into one output file. Name the output file with the

-o parameter. However, even if you do specify the **-c** parameter, the ARSDOC program creates separate output files when any of the following conditions occur:

- If more than one application group is referenced by the folder. The ARSDOC program creates one output file for each application group that contains items that match the query.
- If more than one application is contained in an application group. The ARSDOC program creates one output file for each application that contains items that match the query.
- If documents from the same application have different resource groups, the ARSDOC program creates separate output files for each resource group.

For example, if a folder references two application groups, then the following specification:

```
-o student -c
```

Can result in file names such as:

```
student.516  
student.517
```

Where 516 and 517 are application group identifiers. One file is created for each application group. Each file contains all of the items that match the query for that particular application group.

-d directory

The name of the directory where the ARSDOC program writes the output files. The directory must exist before the ARSDOC program attempts to save the output files.

-D

For the QUERY function, appends the document handle information to the end of each output record. The document handle information consists of the following ten values, in the order listed:

```
Document name  
Offset  
Length  
Compressed object offset  
Compressed object length  
Annotation type  
Compression type  
Resource ID  
Primary node ID  
Secondary node ID
```

The values are separated by a delimiter. The default delimiter is the comma character. You can specify a different delimiter with the **-e** parameter.

You cannot specify the **-H**, **-n**, or **-N** parameters when you specify the **-D** parameter.

-e delimiter

For the QUERY function, determines the character that separates the database field values in the output. By default, OnDemand separates values in the output with a comma.

-f folder

The name of the OnDemand folder. The folder name must be

specified exactly as it appears in OnDemand. The case of the folder name is significant. For example, to query the OnDemand System Log folder, you must enter:

```
-f "System Log"
```

If you are using a parameter file, then you must specify the **-f** parameter in the parameter file. If you are not using a parameter file and you do not specify the **-f** parameter, then the ARSDOC program prompts you for the folder name when you run the program.

For the GET and QUERY functions, you can omit the **-f** parameter and specify the **-G** parameter to search a specific application group.

For the UPDATE function, if the folder that is specified with the **-f** parameter contains only one application group, then you can omit the **-g** or **-G** parameter (you do not have to specify the name of the application group).

When you specify the **-X** parameter, you cannot specify the **-f** parameter.

Note: The following information applies only when an application group name is not provided.

A folder can be used to search one or more application groups. Because the ARSDOC program generates a single SQL query to search all of the application groups, the properties of the database fields must be the same for each application group. The properties include the field name, type, and length. For example, suppose that you define the following application groups and fields:

Application Group	Field Names
Student Bills	name, account, billDate
Student Grades	name, account, gradeDate
Student Transcripts	name, account, transcriptDate

You cannot query the application groups using the ARSDOC program because the name of the date field is not the same for each application group. However, if you were to define the application groups and fields as follows:

Application Group	Field Names
Student Bills	name, account, studentDate
Student Grades	name, account, studentDate
Student Transcripts	name, account, studentDate

Then you could query the application groups using the ARSDOC program because the names of the database fields are the same for each application group.

-F parmFile

Specifies the name of the file that contains the actions to run and other parameters, values, and options. You typically specify this option when you want to perform more than one action.

Parameters and values specified in the parameter file must be enclosed by the left and right bracket characters.

An action (one or more input lines) can contain a maximum of 32767 characters (bytes).

You can use the \ (backslash) character to continue the parameters of an action to two or more lines.

A parameter file can contain blank lines and comment lines. A comment line contains the # character in the first column.

-g

For the GET function, use to generate Generic Indexer data for the items that match the query. See the *IBM Content Manager OnDemand for i5/OS Common Server: Indexing Reference* for details about the Generic Indexer.

When you specify the **-g** parameter, you must specify the **-c**, **-N**, and **-o** parameters. However, you cannot specify database field names with the **-o** parameter.

The ARSDOC program uses the following convention to name the output files that are generated with the **-g** parameter:

-o.res_id.appl_group.appl.type

Where:

-o is the value specified with the **-o** parameter

res_id is the resource group identifier.

appl_group is the name of the application group

appl is the name of the application

type is the file type:

- **out** identifies a document file
- **ind** identifies a generic index file
- **res** identifies a resource file

In general, the number of files generated is dependent on the number of application groups in a folder, the number of applications in an application group, and the number of versions of resource groups in an application.

For the ADD and UPDATE functions, specifies the name of the OnDemand application group. The application group that you specify will be searched from the folder named with the **-f** parameter. For the UPDATE function, if the folder that is specified with the **-f** parameter contains only one application group, then you can omit the **-g** parameter (you do not have to specify the name of the application group).

-G applGroup Use to specify the name of the application group.

Note: For the UPDATE function, if the folder that is specified with the **-f** parameter contains only one application group, then you can omit the **-G** parameter (you do not have to specify the name of the application group).

For ADD: When the database query is run to retrieve the document that contains the data that is to be used in the add function, the search is limited to the specified application group, even if the folder named with the **-f** parameter can be used to search more than one application group. This ensures that only documents in the

specified application group can be used for the add function. You can specify the name of the application group with the **-g** parameter or the **-G** parameter.

For DELETE: The **-G** parameter is an optional parameter. If specified, then the database query that is run to determine the document(s) to delete is limited to the specified application group. The addition of the **-G** parameter allows you to delete documents from a specific application group in folders that can search more than one application group. If you do not specify the **-G** parameter, then the query runs against all of the application groups that can be searched from the folder.

For GET: Specifies the application group to query and retrieve documents from. The **-G** parameter lets you retrieve documents from a specific application group from a folder that can search more than one application group. If you do not specify the **-G** parameter, then the query runs against all of the application groups that can be searched from the folder. You can omit the **-f** parameter and specify the **-G** parameter to search a specific application group. The **-G** parameter is required if you specify the **-X** parameter.

For PRINT: The **-G** parameter is an optional parameter. If specified, then the database query that is run to determine the document(s) to print is limited to the specified application group. The addition of the **-G** parameter allows you to print documents from a specific application group in folders that can search more than one application group. If you do not specify the **-G** parameter, then the query runs against all of the application groups that can be searched from the folder.

For QUERY: Specifies the application group to search. The **-G** parameter lets you search a specific application group from folders that can search more than one application group. If you do not specify the **-G** parameter, then the query runs against all of the application groups that can be searched from the folder. You can omit the **-f** parameter and specify the **-G** parameter to search a specific application group. The **-G** parameter is required if you specify the **-X** parameter.

For UPDATE: When the database query is run to determine the document(s) to update, the search is limited to the specified application group, even if the folder named with the **-f** parameter can search more than one application group. This guarantees that only documents in the specified application group can be updated. You can specify the name of the application group with the **-g** parameter or the **-G** parameter.

You can use the **-G** parameter with the **-i** parameter to query folders that can search more than one application group. For example, a folder contains three application groups; you want to query only one of the application groups. Use the **-G** parameter to specify the name of the application group that you want to query. Use the **-i** parameter to specify the application group's database field names. You can also use the **-G** and **-i** parameters when the application groups have different database field names. The following example shows how to search a folder and three application groups that have different database field names:

```

arsdoc get -f "Student Information" -G loans
-i "WHERE number LIKE '123456' AND loanDate = 10593"
arsdoc get -f "Student Information" -G grades
-i "WHERE number LIKE '123456' AND gradeDate = 10593"
arsdoc get -f "Student Information" -G transcripts
-i "WHERE number LIKE '123456' AND transDate = 10593"

```

You can use the **-G** parameter with the **-q** parameter to query folders that can search more than one application group. When you specify the **-G** parameter and you specify a public named query with the **-q** parameter, the ARSDOC program queries the application group named with the **-G** parameter instead of the application group specified in the named query. (If you do not specify the **-G** parameter, then the query runs against the application group specified in the named query. If the named query does not identify an application group, then the query runs against all of the application groups that can be searched from the folder.)

-h instance The name of the OnDemand instance to process. This is a required parameter.

Important: If you are running multiple instances of OnDemand, always specify the **-h** parameter to identify the name of the instance you want to process. Verify that the system is configured with the correct information for all instances of OnDemand. See *IBM Content Manager OnDemand for i5/OS: Planning and Installation Guide* for information on configuring instances.

-H For the QUERY function, specify this parameter to generate a header record in the output. The default header record contains the application group field names. By default, the field names are delimited with the comma character. You can specify a delimiter of your choice with the **-e** parameter.

You can use the **-H** parameter to generate output that contains only the application group database field names. To do so, specify the **-H** parameter without specifying the **-i** or **-q** parameters. (You also must not specify the **-L**, **-n** or **-N** parameters.) The ARSDOC program writes the database field names to the specified output file, or to the display (interactive) or the job log (batch).

-i sqlQuery A valid SQL query, that includes the names of one or more application group database fields, index values, and operators. OnDemand does not validate the string that you enter. Please see the *DB2 Universal Database™ for System i5: SQL Reference* for an overview of SQL concepts and details about how to construct a query.

Note: If you specify the **-q** or the **-X** parameters, then you cannot specify the **-i** parameter.

For the DELETE or UPDATE functions, if more than one document meets the search criteria, then multiple documents will be deleted or updated. For an update, all of the documents will be updated with the same values.

To construct a query with a database field of type date, you must use the OnDemand internal format of the date. That is, the number of days since January 1, 1970. You can use the ARSDATE program

to list the internal format for a given date string. For example, the following shows how to use the ARSDATE program to obtain the internal date for July 21, 1995:

```
arsdate -a 7/21/95
```

The ARSDATE program displays:

```
7/21/95 -> 9333
```

You would then enter 9333 as the index value for the date field.

-I For the QUERY function, appends the Load ID to the end of each output record. The Load ID is separated from the database field values by a delimiter. The default delimiter is the comma character. You can specify a different delimiter with the **-e** parameter. You cannot specify the **-H**, **-n**, or **-N** parameters when you specify the **-I** parameter.

When you specify the **-I** parameter, you must also use either the **-f** or **-p** value:

- Using the **-f** value specifies that the system log is searched for a message containing the load ID for each document in the list. If the load ID is found, the load ID is added to the line containing the other requested information for the document. If the load ID is not found, "LoadID could not be found" is appended to the line. Use the **-f** value if you need the exact load ID. Be aware that using this option can take a long time, as it requires searching the system log.
- Using the **-p** value specifies that the system log will not be searched. Instead, a load ID is built based on the information for the document contained in the database. This load ID might not match the exact value of the actual load ID, because the last two fields in the load ID are internal date representations for the first and last dates in the documents that are loaded. Using the **-p** value is faster than using the **-f** value, but does not provide exact load IDs.

To use the **-I** parameter with the **-f** parameter, the user running the query must have permission to access the System Log application group and folder.

If you use the **-f** parameter and the Load ID is not found in the system log, then the string Load ID could not be found is appended to the end of the output record.

-L max# For the GET and PRINT functions, determines the maximum number of items retrieved from OnDemand, regardless of the number of items that match the query.

For the QUERY function, determines the number of items included in the hit list, regardless of the number of items that match the query.

-n For the GET function, specify to retrieve items one at a time from the server. By default, the ARSDOC program uses a bulk retrieval method for high-speed retrieval of items from the server.

Note: Specify the **-n** parameter if a sort order has been defined in the folder and it is a requirement that the documents be retrieved in

the order specified by the sort order. For more information about the sort order, see the online help on the Field Information page for the folder.

For the QUERY function, use to number the items in the output file. If you specify this option, the ARSDOC program will sequentially number each line in the output file, beginning with 1 (one).

For the ADD and UPDATE functions, use to specify the application group database field names and their values using the form **-n dbfield=value**.**Note:**

- Specify a null (blank) field value by using single quotes within double quotes. For example: `-n middle=""`
- Specify a string field value that contains a null (blank) or other special character by enclosing the field value in single quotes within double quotes. For example: `-n name="'Sally Smith'"`

You can specify one or more field names and their values (by specifying the **-n** parameter one time for each database field name and its value). When adding a document, you must specify all of the application group fields unless you specify the **-O** parameter. When updating a document, you can specify one or more fields and their values. For a date field, you must specify the value using the Display Format from the Field Information page under folders.

-N

For the GET function, when querying a folder that searches more than one application group or a folder that searches an application group that contains more than one application, specify this parameter to add the resource identifier, application group name, and application name to the output file name. When you specify the **-N** parameter, you must specify the **-c** parameter. If you specify the **-g** parameter to generate generic index data, you must specify the **-N** parameter.

If the folder searches more than one application group or an application group contains more than one application and you do not specify the **-N** parameter, then the ARSDOC program adds the application group or application identifier to the output file name. For example, the following specification:

```
-o student -c
```

Can result in output file names such as:

```
student.516  
student.517
```

Where 516 and 517 are application group identifiers. However, when you specify the **-N** parameter, the ARSDOC program uses the resource identifier, application group name, and application name to name the output file. For example, the following specification:

```
-o student -c -N
```

Can result in output file names such as:

```
student.1.BILLS.1995  
student.1.BILLS.1996
```

Where 1 is the resource identifier, BILLS is the application group name, and 1995 and 1996 are application names.

The number of index files created is dependent on the number of application groups in a folder, the number of applications in an application group, and the number of resource groups in an application.

For the QUERY function, determines the application group fields that the ARSDOC program writes to the output file and the field names that appear in the header record. By default, the ARSDOC program writes all fields to the output file. You can specify one or more application group field names using the form **-N(dbfield)...(dbfield)**. Each field name that you specify must be delimited with parenthesis. When you run a query from the command line, you must delimit the entire string in double quote characters. For example, **-N"(dbfield1)(dbfield2)"**.

-o name

For the GET function, use to write documents to one or more files and identify a user-defined string used to generate file names. For example, the following specification:

```
-o student -c
```

Can result in the following output file name:

```
student
```

You can concatenate one or more of the database field names that you specify with the **-i** parameter to generate a file name. For example, the following specification:

```
-o "(sdate)(student_id)"  
-i "WHERE sdate='971025' AND student_id='001200340056'"
```

Can result in the file name:

```
971025.001200340056
```

When you use database field names to generate a file name:

- OnDemand verifies that the field names that you specify are valid for the application groups that can be searched by the folder specified with the **-f** parameter.
- If the field name that you specify is a date field, the output format of the date is determined by the Format on the Load Information page under applications.
- The field names must be delimited with parentheses.
- You can specify the fields in any order. The order that you specify determines the file name that the ARSDOC program generates.
- You cannot use a field name to represent a directory name. For example:

```
-o "(field_1)/(field_2)"
```

Is not valid.

- You cannot specify the **-c** parameter to concatenate items in one output file. Each item that matches the query is stored in a separate output file.
- If one or more documents have the same values for the specified database fields, only one file will be created and the contents of the file will contain the last document retrieved. Therefore, it is

important to specify an appropriate number of database field names that will uniquely identify each document being retrieved.

If more than one item matches a query and you do not generate a file name by using database field names, concatenate items in a single file with the **-c** parameter, or specify the **-g** parameter. Then, the ARSDOC program generates a different file name for each item that matches the query by adding a *.n* extension to the file name. Where *n* is the number of the item that matched the query. For example, if you specify:

```
-o statements
```

And two items match the query, the ARSDOC program creates the following files:

```
statements.1
statements.2
```

You must specify the **-o** parameter when you specify the **-c** parameter.

For the QUERY function, determines the file name of the output file in which the ARSDOC program writes the list of items that match the query.

For the ADD function, determines the name of the input file that contains the document to be added. The value that you specify is not checked for valid characters. You can specify a full path name, including the forward slash characters as part of a directory path. When adding a document, you can provide the input data by specifying the name of the input file that contains the data with the **-o** parameter, an SQL query with the **-i** parameter, or a public named query with the **-q** parameter. Only one document can be added at a time.

-O For the ADD function, you must specify this parameter if you intend to omit one or more database fields. However, you can never omit date or time fields. When you specify the **-O** parameter, the ARSDOC program stores a default value in any other database field that you omit. The default value for string fields is an empty (null) string. The default value for numeric fields is 0 (zero). Numeric fields include integer and decimal fields.

-p password The password of the OnDemand user that you named with the **-u** parameter. If there is no password assigned to the user that you specify, use double quotes to show a null password. That is, specify **-p ""**. If you omit the **-p** parameter and do specify a userid with the **-u** parameter, then the ARSDOC program prompts you to enter the password when you run the program. If there is no password assigned to the user that you specify, press the Enter key when prompted. If you omit **-u** and **-p** parameters, OnDemand will use the i5/OS user profile of the user issuing ARSDOC as the OnDemand userid.

-P printer For the PRINT function, identifies the OnDemand server printer to which you want to send the documents that match the query.

-q namedQuery The name of a public named query for the folder named with the **-f**

parameter. A named query is a set of search criteria previously saved on the server that can be recalled by name to search a folder. A named query is typically defined to search a folder for a specific document or set of documents.

Note: If you specify the **-i** or the **-X** parameters, then you cannot specify the **-q** parameter.

-s seconds For the GET function, determines the number of seconds that the ARSDOC program waits between query requests when you specify more than one query with the **-F** parameter. If you do not specify this option, then the ARSDOC program does not wait between query requests. That is, the default is 0 (zero) seconds.

-S startdate,enddate[,format]

Provides a date range that the ARSDOC program uses to limit a search to specific tables. When you specify this parameter, the ARSDOC program searches only tables that contain a segment within the specified date range.

You can optionally specify a date format. See "ARSDATE" on page 215 for a list of the standard date formats. An example of a date range with a date format is:

```
-S "01011990,12311990,%m%d%Y"
```

If you do not specify a date format, then the date values must be specified by using the Display Format that is set on the Field Information page in the folder. An example of a date range without a date format is:

```
-S "01011990,12311990"
```

Notes:

1. For most queries, you should **always** specify the **-S** parameter and specify a date range. Doing so limits the range of a query and can significantly improve the performance of a query.
2. For the ADD function, if you specify the **-o** parameter, you cannot specify the **-S** parameter.
3. For the GET and QUERY functions, if you specify the **-X** parameter, you cannot specify the **-S** parameter.
4. For all functions, if you specify the **-q** parameter, you cannot specify the **-S** parameter.

-u userid

The OnDemand user that is permitted to perform the specified function. The ARSDOC program verifies that the userid that you specify is a valid OnDemand user for the server that you name with the **-h** parameter, that the userid is permitted to open the folder that you name with the **-f** parameter, and that the userid has permission in application groups to perform the specified function. If you omit the **-u** parameter, the current user profile of the job running ARSDOC is used as the OnDemand userid. If that user profile does not match an OnDemand userid, then ARSDOC prompts you to enter the userid.

-v

Enables verbose mode, which displays all messages (informational and error). By default, the ARSDOC program displays error messages.

-x loadld For the GET function, specify to limit the documents that can be retrieved to the set of documents that were loaded into the system under the specified *loadld*.

For the QUERY function, specify to limit the query to the set of documents that were loaded into the system under the specified *loadld*.

When you specify the **-x** parameter, use the **-f** and **-G** parameters as follows:

- Specify the **-f** parameter to search all application groups. You can specify the search using the **-i** parameter or the **-q** parameter.
- Specify the **-G** parameter to search a specific application group. You must specify the search using the **-i** parameter.
- Specify both the **-f** parameter and the **-G** parameter. The ARSDOC program will verify that the application group can be searched from the folder.

When you specify the **-x** parameter, you cannot specify the **-X** parameter.

-X loadld For the GET function, specify the **-X** parameter to retrieve documents by using the index file that was generated for the specified *loadld*.

For the QUERY function, specify the **-X** parameter to build a hit list from the index file that was generated for the specified *loadld*.

When you specify the **-X** parameter, you must specify the **-G** parameter and name the application group.

When you specify the **-X** parameter, you cannot specify the **-x** parameter, or the **-i**, **-q**, **-S**, and **-f** parameters.

Examples

1. The following shows how to use the GET function to retrieve documents and save them in a file in the current directory.

```
arsdoc get -h rockies -f "Student Information" -o student  
-c -S 1/1/97,12/31/97 -i "WHERE student='001200340056'" -v
```

The ARSDOC program saves all of the documents that match the query in the following output file:

```
student
```

2. The following shows how to use the GET function and a parameter file to run more than one query at a time. The parameter file is in the current directory. The output files are saved in the current directory.

```
arsdoc get -h rockies -F parmfile -v
```

The parameter file contains two queries:

```
[-f "Student Information"] [-S 1/1/97,12/31/97] [-o (student)(type)] \  
[-i "WHERE student='123420010056' AND type='B' OR type='G' OR type='T'"]
```

```
[-f "Student Information"] [-S 1/1/97,12/31/97] [-o (student)(type)] \  
[-i "WHERE student='123450011917' AND type='B' OR type='G' OR type='T'"]
```

Assuming that documents exist for all of the specified types, the ARSDOC program creates the following output files:

```

123420010056.Bills
123420010056.Grades
123420010056.Transcripts
123450011917.Bills
123450011917.Grades
123450011917.Transcripts

```

- The following shows how to use the GET function to retrieve documents, write the documents to a file, and generate and save generic index data for the documents that match the query. The example shows how to specify the name of a public named query that is valid for the specified folder.

```

arsdoc get -h rockies -f "Student Information"
-a -c -g -o student -q "3rd yr students GPA>3.5" -N -v

```

The number of output files that the ARSDOC program generates is a factor of the number of application groups queried, the applications contained in the application groups, whether the data is AFP, and if so, the versions of resource groups in each application. At a minimum, for AFP data with one version of the resource group and one application group, the ARSDOC program generates three output files. For example:

```

student.1.Student Information.TRANSSCRIPTS.ind
student.1.Student Information.TRANSSCRIPTS.out
student.1.Student Information.TRANSSCRIPTS.res

```

For AFP data, if there is more than one version of the resource group per application, then the ARSDOC program can generate additional output files. For example:

```

student.1.Student Information.TRANSSCRIPTS.ind
student.1.Student Information.TRANSSCRIPTS.out
student.1.Student Information.TRANSSCRIPTS.res
student.2.Student Information.TRANSSCRIPTS.out
student.2.Student Information.TRANSSCRIPTS.ind
student.2.Student Information.TRANSSCRIPTS.res

```

If the application group contains more than one application, then the ARSDOC program can generate additional output files. For example:

```

student.1.Student Information.BILLS.ind
student.1.Student Information.BILLS.out
student.1.Student Information.BILLS.res
student.1.Student Information.GRADES.ind
student.1.Student Information.GRADES.out
student.1.Student Information.GRADES.res

```

- The following shows how to use the QUERY function to generate a list of items and save the list in a file in the current directory.

```

arsdoc query -h rockies -f "Student Information"
-o query1.out -H -S 1/1/97,12/31/97
-i "WHERE student='0012-0034-0056' AND
type='B' OR type='G' OR type='T'" -v

```

- The following shows how to use the QUERY function and a parameter file to run more than one query at a time. The parameter file is in the current directory. The output files are saved in the current directory.

```

arsdoc query -h rockies -F parmfile -v

```

The parameter file contains three queries:

```

[-f "Student Information"] [-i "WHERE type='B'"] [-o "query2.out"] \
[-S 1/1/97,12/31/97] [-H] [-N (student)(id)(p_date)]

[-f "Student Information"] [-i "WHERE type='G'"] [-o "query3.out"] \
[-S 1/1/97,12/31/97] [-H] [-N (student)(id)(p_date)]

```

```
[-f "Student Information"] [-i "WHERE type='T'"] [-o "query4.out"] \
[-S 1/1/97,12/31/97] [-H] [-N (student)(id)(p_date)]
```

6. The following example shows how to use the QUERY function to search a specific application group:

```
arsdoc query -h rockies -i "where Date_Taken BETWEEN 9863 AND 11531"
-G load-scanned-images-jpeg -o jpeg -v
```

7. The following example shows how to use the ADD function to add a document to the Credit Card Statements folder:

```
arsdoc add -h rockies -o/newdata/crd.dat
-n "crd_date=01/21/98" -n "account='000-000-000'"
-n balance=123.45 -n "name='John Watpole'"
-f "Credit Card Statements" -g CRD -a CRD -v
```

8. The following example shows how to use the UPDATE function to update a document in the Credit Card Statements folder, changing the balance from 123.45 to 0.00:

```
arsdoc update -h rockies
-i "where account='000-000-000' and name='John Watpole'"
-n "balance=0.00" -S 1/1/97,12/31/97
-f "Credit Card Statements" -g CRD -v
```

9. The following example shows how to use the DELETE function to delete a document from the Credit Card Statements folder:

```
arsdoc delete -h rockies
-i "where account='000-000-000' and name='John Watpole'"
-f "Credit Card Statements" -S 1/1/97,12/31/97 -v
```

10. The following example shows how to use the PRINT function to send the documents that match a query to a server printer:

```
arsdoc print -h rockies -P svrprt1
-i "where account='000-000-000' and name='John Watpole'"
-f "Credit Card Statements" -S 1/1/97,12/31/97 -v
```

11. You can use the ADD function of the ARSDOC program to add an index that points to an existing document. For example, assume that you loaded a bank statement for account number 000-000-000, date 5/23/97, and account name Joe Smith. You want to add a new index, but point to the existing statement. The new index uses the same account number and date, but contains a different account name (for example, Sally Smith). After adding the index, if a query is run with account name Joe Smith or Sally Smith, the same bank statement will be retrieved. To add an index for an existing document:

```
arsdoc add -h rockies
-i "where sdate=10005 and account='000-000-000' and name='Joe Smith'"
-n "sdate=5/23/97" -n "account=000-000-000" -n "name='Sally Smith'"
-f "Credit Card Statements" -S 1/1/97,6/31/97 -v
```

12. The following example shows how to use the QUERY function to limit a search to the documents that were loaded into the system under a specific load ID. For example, assume that the specified folder could be used to search several application groups; each application group contains more than one application; there are 500,000 documents in the application groups. By using the -x parameter, the query will be limited to the set of documents that was loaded into the system under the specified load ID. Without the -x parameter, the query is run against all 500,000 documents.

```
arsdoc query -h rockies -x 19867-025-0-3FAA-10136-10136
-f load-scanned-images -q query -o out -v
```

13. The following example shows how to use the QUERY function to limit a search to the documents that were loaded into the system under a specific load ID. In the example, the load ID, application group name, and query string are

provided. The search is limited to the application group and only those documents that were loaded into the system under the specified load ID.

```
arsdoc query -h rockies -x 19867-025-0-3FAA-10136-10136
-i "where Date_Taken BETWEEN 9863 AND 11531" -G load-scanned-images-jpeg
-o jpeg -v
```

14. The following example shows how to use the QUERY function to limit a search to the documents that were loaded into the system under a specific load ID. In the example, the load ID, folder name, application group name, and named query are provided. The search is limited to the application group and only those documents that were loaded into the system under the specified load ID. Because a folder was specified, a named query can be used. (If an application group name is specified and a folder name is not specified, a named query cannot be used, because a named query is associated with a folder.)

```
arsdoc query -h rockies -x 19867-025-0-3FAA-10136-10136
-f load_scanned-images -q query -G load-scanned-images-jpeg -o jpeg -v
```

15. The following example shows how to use the GET function and an index file to retrieve documents from the system. The index file was generated for the set of documents that was loaded into the system under the specified load ID. When using the **-X** parameter, the database is not queried; rather, documents are retrieved based on the information in the index file.

```
arsdoc get -h rockies -X 19867-025-0-3FAA-10136-10136
-G load-scanned-images-jpeg -o jpeg -v
```

Notes

The ADD function will fail unless the Database Organization for the application group named with the **-g** parameter is Multiple Loads per Database Table and the Expiration Type is Segment or Document.

The ADD function can be run without providing an input document from a file or by retrieving an existing document from the system. This means that you can add database field values without adding a document. To add database field values without adding a document, do not specify the **-o**, **-i**, or **-q** parameters; specify the database field names and their values using one or more **-n** parameters.

The ARSDOC program can print the PTF version number and the ARSDOC GET function can print the number of documents that were queried and retrieved and print a status message for each document that is retrieved. To enable the messages, you must specify the **-v** parameter. The following shows an example of the new messages:

```
12/08/02 10:33:36: Starting arsdoc. Version: 7.1.0.12
12/08/02 10:33:36: arsdoc get -u admin -h instance -q 000-000-000 -f CC Stmts -o test -v -c
12/08/02 10:33:36: Attempting login for userid 'admin' on server 'instance' ...
12/08/02 10:33:37: Login successful
12/08/02 10:33:37: Searching for folder 'CC Stmts' ...
12/08/02 10:33:38: Search successful
12/08/02 10:33:38: Searching for documents in 'CC Stmts' ...
12/08/02 10:33:40: Search successful
12/08/02 10:33:40: 2 document(s) have been queried. Retrieving 2 document(s).
```

```

12/08/02 10:33:41: (1): Retrieving document for userid 'admin' ...
12/08/02 10:33:41: Document successfully retrieved and stored in file 'test'
12/08/02 10:33:42: (2): Retrieving document for userid 'admin' ...
12/08/02 10:33:42: Document successfully retrieved and stored in file 'test'
12/08/02 10:33:45: arsdoc completed.

```

IFS location

/usr/bin/arsdoc The executable program.

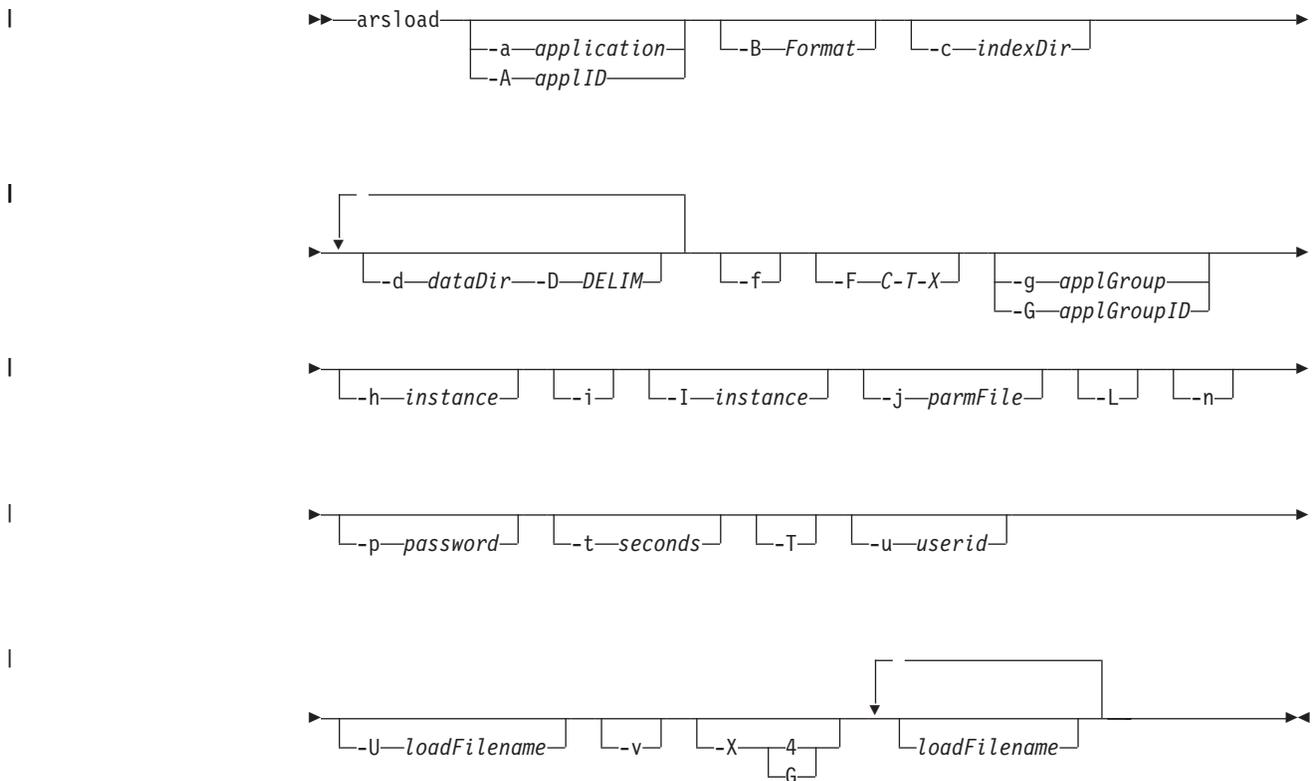
ARSLOAD

Purpose

The ARSLOAD program can be used to process the input files (not spooled files) that you want to load into the system. The ARSLOAD program determines if the input data needs to be indexed, and if so, calls the appropriate indexing program. The ARSLOAD program calls the storage manager programs to load report data on storage volumes and the database manager to update the OnDemand database with the index information that was extracted from or specified for the input file.

Important: Set the proper locale before issuing the ARSLOAD API. See the chapter entitled “Defining a locale” in the *IBM Content Manager OnDemand for i5/OS Common Server: Planning and Installation Guide* for important details.

Syntax



Description

The ARSLOAD program is the main OnDemand data indexing and loading program. The ARSLOAD program calls the indexing program if the input data needs to be indexed, creates input files for the storage manager, and updates the OnDemand database. The ARSLOAD program saves processing messages in the system log. You can open the System Log folder and list the messages that were generated when an input file was processed.

You typically configure the ARSLOAD program to run as a monitor to periodically check specified IFS directories for input files to process.

The ARSLOAD program can use the following sources for input files to process:

- one or more file systems specified with one or more **-d** parameters,
- one or more load file names.

If you omit the load file name, the ARSLOAD program will run in monitor mode and attempt to load input data from the directories that are specified by the **-d** parameter. If you omit the load file name and do not specify the monitor mode parameter (**-d**), the ARSLOAD program will issue a usage note and exit. **Note:** When running the ARSLOAD program in monitor mode, the **.ARD** and **.PDF** file name extensions are required to initiate a load process.

When you run the ARSLOAD program, you must provide the userid and password of an OnDemand user with administrator authority for the application group into which the input data will be loaded. There are several ways that you can provide the userid and password:

- Do not specify the **-u** and **-p** parameters. In this case, the current user profile of the job that is running ARSLOAD is used as the OnDemand userid. This is the recommended method.
- Specify the **-u** and **-p** parameters each time that you run the ARSLOAD program.
- Specify the **-U** parameter each time that you run the ARSLOAD program to name a file that contains the userid and password of a user with administrator authority for the application group.

Parameters

-a application The name of the application to load. If the application group contains more than one application, then you must identify the application to load. Otherwise, the load will fail. If you plan to automate the loading of files into different application groups and applications, then use the **-A** parameter to specify the part of the file name that identifies the name of the application.

-A applID Determines the part of the file name that identifies the application to load. If the application group contains more than one application, then you must identify the application to load; otherwise, the load will fail.

You typically use this parameter when you run the ARSLOAD program as a monitor to automate the loading of files into different application groups and applications. For example, a file transmitted from an OS/390 or z/OS system might use the following file naming convention:

```
MVS.JOBNAME.DATASET.FORM.YYYYDDD.HHMMSS.ARD
```

Important: The **.ARD** file name extension is required to initiate a load process.

- Unless you specify otherwise, the ARSLOAD program uses the FORM part of the file name to identify the application group to load. You can use the **-G** parameter to specify a different part of the file name that identifies the application group (MVS™, JOBNAME, or DATASET). For example, `arsload -G JOBNAME`.
- If the application group to load contains more than one application (source of data), then you must identify the application to load; otherwise, the load will fail. When you run the ARSLOAD program, you can use the **-A** parameter to specify the part of the file name that identifies the application (MVS, JOBNAME, DATASET, or FORM). For example, to use the DATASET part of the file name to identify the application, run the ARSLOAD program with the `-A DATASET` parameter.

-B Format

This parameter defines file name formats for MVS download files, and files that are processed by the ARSLOAD daemon. Use the following to create the file name format:

- WRIter
- MVS
- JOBname
- DATaset
- FORms
- YYddd
- HHmmm
- AG (Application group name)
- APP (Application name)
- IDX (Indicates which part of the file name to use as index)
- IGN (Ignore)
- .EXT (Extension)

The letters in lowercase are optional. For example:

```
ARSLOAD -G FORMS -D "-" -B "WRIter-MVS-IGN-IGN-FORms"
ARSLOAD -G JOBNAME -B "WRITER.IGN.JOB.IGN.DAT.IGN.EXT"
ARSLOAD -D "-" -B "IGN-IGN-AG-APP-IGN.EXT"
ARSLOAD -B "APP.IGN.AG.IGN.IGN"
```

Here are two examples of the IDX identifier:

- Simple index input format:

```
arsload -b "account_num" -B "AG.APP.IDX"
```

where the system uses the IDX part of the file name as an index parameter for the `account_num` field.

- Dual purpose index format:

```
arsload -b "report_name" -B "AG.IDXAPP"
```

where the system uses the APP part of the file name as an index parameter for the `report_name` field.

-c indexDir

The directory in which OnDemand temporarily stores data created by the indexing program. The default location is the directory from which the ARSLOAD program was invoked.

-d dataDir

The directory that contains input files to process.

Any file with a file type extension of ARD or PDF will be processed (ARD files are typically transmitted to the server by an OS/390 or z/OS download utility; PDF files are created by Acrobat Distiller). The case of the file type extension is not significant.

You can specify this parameter one or more times. The ARSLOAD program will search for input files to load in each of the directories that you specify. **Note:** To specify more than one directory, specify the **-d** parameter multiple times. In the following example:

```
arsload ... -d dir1 -d dir2 -d dir3 ...
```

The ARSLOAD program will search for input files in the dir1, dir2, and dir3 directories.

-D DELIM

This parameter defines file name formats for MVS download files, and files that are processed by the ARSLOAD daemon. By default, this parameter is ".".

-f

Use to unload the data if the load process fails. If the database manager step fails, then OnDemand should remove any index data that was added to the database. If the storage manager step fails, then OnDemand should remove any storage objects that were copied to storage volumes.

Note: If an input file fails to load, you should review the message log that was created during the load process. You can retrieve a message log from the system log. If the message log contains a Load ID, then it means that for some reason, OnDemand stored at least some of the input data in the application group. Before you attempt to reload the input data, you must remove the data that was created during the failed load process by using the RMVRPTOND command. See Chapter 16, "Deleting a report," on page 159 for help with removing the data that is created when a file is loaded into the system.

-F trace output format

Optional parameter when **-T** is specified. The default output is text format. Valid values are C, T, and X:

C or CSV

The CSV format is a comma-separated file that is useful spreadsheets.

T or TEXT

Default output format.

X or XML

The XML format outputs XML structured data. Using the XML output requires that a header and trailer be added to the trace file to complete the XML syntax, and create valid XML. After the XML structured data is combined with XSL and DTD files, it can be viewed in a web browser or XML editor.

-g applGroup

The name of the application group to load. This parameter is required if you specify the **loadFilename** parameter. This parameter is optional if you specify the **-d** parameter. If you specify the **-d** parameter, then by default, the ARSLOAD program uses the FORMS part of the file name to determine the name of the application group to load. If you plan to automate the loading of files into different

application groups and applications, then you should use the **-G** parameter to specify the part of the file name that identifies the application group to load.

-G applGroupID

Determines the part of the file name used to identify the name of the application group to load.

You typically use this parameter when you run the ARSLOAD program as a monitor to automate the loading of input files into different application groups and applications. For example, a file transmitted by an OS/390 or z/OS download utility might use the following naming convention:

```
MVS.JOBNAME.DATASET.FORM.YYYYDDD.HHMMSS.ARD
```

Important: The .ARD file name extension is required to initiate a load process.

- Unless you specify otherwise, the ARSLOAD program uses the FORM part of the file name to identify the application group to load. You can use the **-G** parameter to specify a different part of the file name that identifies the application group (MVS, JOBNAME, or DATASET). For example, `arsload -G JOBNAME`.
- If the application group to load contains more than one application (source of data), then you must identify the application to load; otherwise, the load will fail. When you run the ARSLOAD program, you can use the **-A** parameter to specify the part of the file name that identifies the application (MVS, JOBNAME, DATASET, or FORM). For example, to use the DATASET part of the file name to identify the application, run the ARSLOAD program with the `-A DATASET` parameter.

-h instance The TCP/IP address, fully-qualified host name, or host name alias of the System i5 system on which the OnDemand server is running.

-i Use to run the data indexing program only; do not copy report data to storage volumes or add the index data to the database.

-l instance The name of the OnDemand instance that you want to process. The name of the default instance on the System i5 is QUSROND. You must specify the **-l** parameter and name the instance, if you are running more than one instance on the same System i5 system and you want to process an instance other than the default instance (QUSROND).

-j parmFile Use to specify the name of a parameter file that contains additional indexing parameters.

When you specify the **-j** parameter and name a parameter file, the ARSLOAD program adds the indexing parameters from the specified parameter file to the indexing parameters that it extracts from the application. (Indexing parameters are typically specified on the Indexing Information page in the application definition.) If an indexing parameter appears in both the application and the parameter file that you specify, unexpected results may occur.

-L trace level number

Optional parameter when **-T** is specified. Valid trace levels are:

- 1 Errors

| 2 Warnings

| 4 Info

| Provides informational trace messages for debugging problems.

| **Important:** Use only under the supervision of technical
| support, because this trace level can affect
| performance.

| 8 Flow

| Provides function entry and exit information.

| **Important:** Use only under the supervision of technical
| support, because this trace level can affect
| performance.

| Trace levels are added up, and the default level is 3, which is used
| to report errors and warnings that occur during loading.

| **-n**

Determines whether OnDemand deletes the input files when the ARSLOAD program ends.

- If you specify the **-n** parameter, then OnDemand does not delete the input files when the ARSLOAD program ends.
- If you do not specify the **-n** parameter, then OnDemand deletes the input files when the ARSLOAD program ends.

In either case, if the ARSLOAD program fails in the load step because of a device or system problem, then you can restart the load step after you correct the problem by using the intermediate files that were created by the ARSLOAD program. The ARSLOAD program stores the intermediate files in the directory named with the **-c** parameter (or the current directory, if you did not specify the **-c** parameter). The intermediate files have the same file name as the original input file.

| **-p password**

The password for the user specified with the **-u** parameter. If the user is not assigned a password, enter a null password (that is, specify **-p ""**).

| **-t seconds**

Determines the polling time in seconds. This is the interval of time in which the ARSLOAD program checks the input directories for input files to process. The default value is 600 seconds, which means that the ARSLOAD program checks the input directories every ten minutes.

| **-T fully qualified trace file name**

| When a file is specified, trace is activated for ARSLOAD. If the file
| already exists, it is renamed with the current date and time, and a
| new file is created.

| **-u userid**

The userid of an OnDemand user with administrator authority for the application group. The user must have permission to add documents to the application group.

If you omit the **-u** and **-p** parameters, then the current user profile for the job is used for the OnDemand userid. If that user profile does not match an OnDemand userid, then OnDemand attempts to obtain the userid and password from the value of the **-U** parameter. If the ARSLOAD program cannot locate or use the file named with

the **-U** parameter, then it attempts to log on to OnDemand and access the application group with a userid of QONDADM and no password.

-U loadFilename

See **-u** for information.

Important: After you configure the file named with the **-U** parameter, remember to change the password anytime you change the user's password in OnDemand. Otherwise, the load fails. The ARSLOAD program can accept expired passwords, but fails if you specify an incorrect password.

-v

Enables verbose mode, which displays all messages (informational and error). By default, the ARSLOAD program displays error messages.

-X indexer

Allows you to override the indexing program that was specified on the Indexer Information page for the application. The possible values are 4 and G. Specify **-X 4** to use the OS/400 Indexer. Specify **-X G** to use the OnDemand Generic Indexer.

You must specify an indexing program if the input contains index data in a format other than the one supported by the indexing program that was specified for the application. For example, assume that you defined an application and specified the OS/400 Indexer as the indexing program. Later, you used the ARSDOC program to extract documents from an application group. The ARSDOC program generates index data that is in the Generic Indexer format. To load the index data into the application, you must specify:

```
arsload -X G . . .
```

loadFilename Specifies an input file to process.

You may specify the names of one or more input files to process. If you specify more than one input file, separate the file names with a blank character.

The ARSLOAD program concatenates the following file type extensions to the file name that you specify: IND, OUT, and RES

- The IND file contains the index data
- The OUT file contains the report data
- The RES file contains the resource data

For example, if you specify `arsload -g BILLS po3510`, then the ARSLOAD program looks for the following files:

- po3510.ind
- po3510.out
- po3510.res

If the ARSLOAD program does not find a file with the IND file type extension, it automatically calls the indexer specified in the application to index the input file.

If you omit an input file name, the ARSLOAD program will run in daemon mode and attempt to load input data from the directories that are specified by the **-d** parameter. Any files with a file type

extension of ARD or PDF will be processed. If you omit an input file name and do not specify the monitor mode parameter (-d), the ARSLOAD program will issue a usage note and exit.

Examples

1. The following shows how to run the ARSLOAD program to check the specified directory for input files to process. The input files must have a file type extension of ARD or PDF. The ARSLOAD program stores temporary work files in the location specified by the -c parameter. In this example, the ARSLOAD program uses the FORM part of the file name to determine the application group to load, and the application group contains only one application. The ARSLOAD program logs on to OnDemand and accesses the application group with the current user profile.

```
arsload -c /arsdir/dir1 -d /arsdir/dir2
```

2. The following shows how to run the ARSLOAD program to check the specified directory for input files to process. The input files must have a file type extension of ARD or PDF. The ARSLOAD program stores temporary work files in the location specified by the -c parameter. In this example, the ARSLOAD program uses the JOBNAME part of the file name to determine the application group to load and the DATASET part of the file name to determine the application to load. The ARSLOAD program logs on to OnDemand and accesses the application group with the current user profile.

```
arsload -c /arsdir/dir1 -d /arsdir/dir2 -A DATASET -G JOBNAME
```

3. The following shows how to run the ARSLOAD program to load the specified file into the specified application group. The ARSLOAD program logs on to OnDemand and accesses the application group with the userid and password provided with the -u and -p parameters.

```
arsload -g BILLS -u bob -p secret P03510
```

4. The following shows how to run the ARSLOAD program to load several input files into the specified application group. The application group name contains an embedded blank character, and must be quoted. The ARSLOAD program logs on to OnDemand and accesses the application group with the userid and password provided with the -u and -p parameters.

```
arsload -g "ABC Credit" -u bob -p secret RW7505 RW8505
```

5. The following shows how to run the ARSLOAD program to load the specified file into the specified application group. The TCP/IP address of the OnDemand library server is specified. This format of the command can be used to load input files from an object server and store the index data on the library server. The ARSLOAD program logs on to OnDemand and accesses the application group with the userid and password from the file named with the -U parameter.

```
arsload -g "BILLS" -h "9.99.111.222" -U userpw.cfg ARSP0MST
```

Notes

An input file cannot exceed 4 GB in size.

The OnDemand server job must be running, otherwise the ARSLOAD program will fail.

IFS location

/usr/bin/arsload

The executable program.

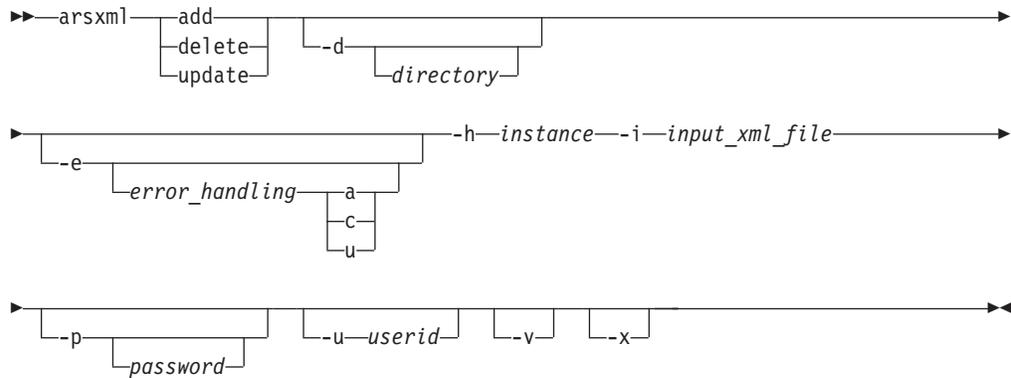
ARSXML

Purpose

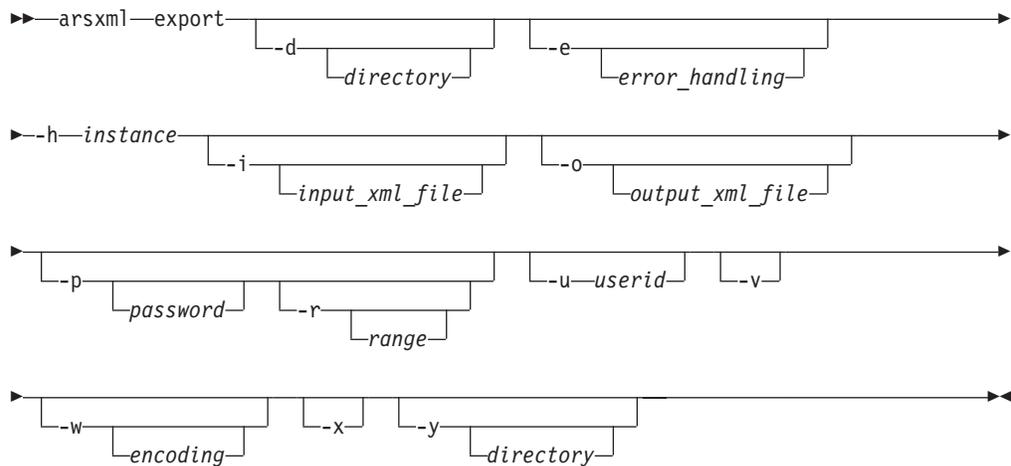
The ARSXML program imports objects within an existing OnDemand XML file into an OnDemand system, and exports existing OnDemand objects into an OnDemand XML file.

Syntax

The syntax for adding, updating, and deleting administrative objects in an OnDemand system:



The syntax for exporting existing OnDemand objects into an OnDemand XML file:



Description

OnDemand includes an XML interface that imports and exports administrative objects in OnDemand. In this model, all administrative objects are exported into an XML file, and can be imported into the same system or another system later. You can also create an XML file through a user application or Web interface according to the defined specifications, and import a single object or multiple objects into the system by importing the XML file.

The data import feature allows you to import a single object, a set of defined objects, or even an entire OnDemand system. This feature enables you to complete the following tasks:

- Update a system with newly defined objects

- Back up a complete system
- Copy a set of objects from one system to another system

The XML import file can be one of the following types:

- A file that was previously created during an OnDemand export process
- A user-created XML file that conforms to the OnDemand XML schema

Important:

- The syntax of each OnDemand object supported by the import process is specified in the OnDemand XML schema file. Each object within the XML file must conform to the exact syntax as specified in the OnDemand XML schema file shipped with the product. However, objects might appear in any order within the body of the XML file.
- To use the XML import function, an appropriate Java Runtime Environment (JRE) is required. For i5/OS systems, install the licensed program product 5761-JV1 - IBM Developer Kit for Java.
- The import XML file references the `ondemand.xsd` file, which is provided with OnDemand. The `ondemand.xsd` file must reside in the same directory where the input XML file is located. Otherwise the reference in the input XML file must contain a full path name for the `ondemand.xsd` file.
- The capitalization of the object names is important, and should be used exactly as shown in the data tables in the *Content Manager OnDemand for Multiplatforms Administration Guide*.

Parameters for ARSXML [add | update | delete]

add This is the default action. It adds all of the objects in the input XML file into the specified OnDemand system. For objects containing child objects, such as a list of users or a set of permissions, each child object found in the XML file is added to the current list of objects.

update

All the fields specified in the input XML file are updated for the object. For example, if the XML file contains a user with the name `harry` and the description `The New Description`, only the description field of the user `harry` is updated. All other fields remain unchanged.

Important: Not all fields of all objects can be updated. For objects containing child objects, such as a list of users or a set of permissions, each child object found in the XML file is added to the list of objects. A special attribute on each child object can be set to `delete` for cases where a member of a list needs to be removed. For example, if you want to add the user `newUser` to a group, and delete the user `oldUser` from the group, you could use the following XML code during an update:

```
...
<group name="MyGroup">
<user name="newUser" />
</group>
...
```

If you specify the `_ALL` with the delete task, all child objects are also removed.

delete

All of the objects specified in the input XML file are deleted from the system. The only attribute examined in the XML file is the name attribute. Although all other fields might be present in the XML file, they are ignored. If an object is specified with the name of `_ALL`, all existing objects of that type on a system are deleted.

Child objects such as permissions and user lists cannot be removed with the delete action. Use the update action described above to remove them. You are prompted for confirmation before each object is deleted.

-d Specifies the directory that contains the XML file. If you do not use this parameter, `arsxml` looks for the input XML file specified by the `-i` flag in the current working directory where the command is run.

-e error_handling

Controls how the import process handles any OnDemand errors.

Important: XML file syntax errors and other XML-specific errors are detected by the parsing code, and no objects are processed.

The `error_handling` parameter can take three values:

- a** Abort. This is the default value.
- c** Continue. If an error occurs because of problems in the objects or the OnDemand system (for example, you attempt to add an object but that object already exists, or you attempt to delete an object that does not exist), the object containing the error is skipped, and the process continues. However, if an XML parsing error occurs, ARSXML stops regardless of whether or not this option is specified.
- u** Update. This value should only be used during an add action.

During an add action:

Abort If an error occurs during an add (for example, an invalid parameter, or the object already exists), the error is logged, the entire import process is stopped, and no further objects are added.

Continue

If an error occurs during an add action, the object containing the error is skipped and an error message is logged. However, the import process continues.

Update

If an object already exists, perform an update action instead of an add action.

During a delete action:

Abort If an error occurs during a delete (for example, there is an

invalid object or the object does not exist), the error is logged, the entire delete process is stopped, and no further objects are deleted.

Continue

If an error occurs during a delete action, the object containing the error is skipped and an error message is logged. However, the delete process continues.

During an update action:

Abort If an error occurs during an update (for example, there is an invalid parameter or the object does not exist) the error is logged, the entire update process is stopped, and no further items are updated.

Continue

If an error occurs during an update, the object containing the error is skipped and an error message is logged. However, the update process continues.

- h instance** Specifies the host name of the OnDemand system.
- i** Specifies the input XML file.
- p password** The password is optional. If you omit the **-p** parameter but you do specify a user ID with the **-u** parameter, the ARSDOC program prompts you to enter the password when you run ARSXML. If there is no password assigned to the user you specify, press Enter when prompted. If you omit both the **-p** and **-u** parameters, OnDemand uses the i5/OS user profile of the user executing ARSXML as the OnDemand user ID.
- u userid** The user ID is optional. If you omit it, OnDemand uses the current user profile of the job running ARSXML as the OnDemand user ID. If that user profile does not match an OnDemand user ID, ARSXML prompts you to enter a user ID.
- v** Enables verbose mode, which displays all messages (informational and error). By default, the ARSXML program displays error messages.
- x** Used to prevent prompting from occurring. If you do not use this option during a delete operation, you are asked whether you really want to complete the operation. For example:

*The printer object named 'LabPrinter' is about to be deleted.
Do you want to delete this object? (Y/N)*

You need to respond with a y or Y to confirm the process. Any other response terminates the process. If you use this option, you do not get the prompt during an operation.

Important: When you import objects, if an object references another object in its definition, but the referenced object cannot be found, and the import command uses the **-e c** parameter, an error message is issued, and the default value is used. For example, if a user is defined with a default printer and the default printer cannot be found, the user is added with a default printer of *NONE. If the **-e c** parameter is not used, this action does not occur.

Parameters for ARSXML export

- d** Use this option to specify the directory for the input XML file. If you do not use this parameter, the `arsxml` command looks for the input XML file that is specified by the `-i` flag in the current working directory where the command is run.
- e error_handling** Specifies what to do if an error occurs during the export process. The `error_handling` parameter can take two values:
- a** Abort. This is the default value. The export process stops when an error occurs.
 - c** Continue. If an error occurs due to problems in the objects or the OnDemand system (for example, you attempt to export an object that does not exist), the object containing the error is skipped, and the process continues. However, if an XML parsing error occurs, ARSXML stops regardless of whether this option is specified.
- h instance** The name of the OnDemand instance you want to process. The name of the default instance in System i5 is QUSROND. You must specify the `-h` parameter and name the instance if you are running more than one instance on the same System i5 system, and you want to process an instance other than the default instance (QUSROND).
- i** Use to specify the input XML file. All the objects specified in the XML file are exported from the system into the output XML file. In this case, the only attribute in the XML file that is examined is the name attribute. If other attributes are present in the XML file, they are ignored. If an object is specified with the name `_ALL`, all the objects of that type defined on the system are exported. If the `-i` parameter is not present, all the objects in the specified system are exported. However, you are prompted to confirm whether this is what you intend, because the export process could take a long time. You can use the `-x` option to disable prompting.
- o** Used to specify the name of the output XML file. If this parameter is not specified, the output is directed back to your display if you are running interactively, or to a spooled file if you are running in batch mode.
- p password** The password is optional. If you omit the `-p` parameter but you do specify a user ID with the `-u` parameter, ARSDOC prompts you to enter the password when you run ARSXML. If there is no password assigned to the user ID you specify, press Enter when prompted. If you omit both the `-p` and `-u` parameters, OnDemand uses the i5/OS user profile of the user executing ARSXML as the OnDemand user ID.
- r range** Use this option to specify how much data to export. The range parameter can take any of four values:
- a** When an application group is exported, all applications contained in the application group are exported.
 - d** Export the specified objects and all dependent objects. If you use this parameter, each object is examined for any dependent objects, and those objects are exported as well.

For example, if only user groups are exported and the `d` option is used for the extent, any users the groups refer to are exported as well.

l Export the objects and any logical views associated with them.

p Export the objects and a list of permissions for each object.

More than one range option can be specified in the command line; options can be combined. For example:

```
-r p1
```

If no range option is specified, only the specified object or objects are exported.

-u userid The user ID is optional. If it is omitted, OnDemand uses the current user profile of the job running ARSXML as the user ID. If that user profile does not match an OnDemand user ID, ARSXML prompts you to enter a user ID.

-v Enables verbose mode, which displays all messages (informational and error). By default, the ARSXML program displays error messages.

-w Specifies the encoding in which the resulting output XML file will be created. The default is UTF-8. The encodings that are supported are those supported by the Xerces2 Java Parser. See the following Web site for more information:

```
http://xml.apache.org/xerces-j/faq-general.html
```

-x Used to suppress prompting. If you do not use this option during an export operation, you are prompted whether you want to complete the operation. For example:

```
No input file was specified.  
Do you want to export all of the objects on the system? (Y/N)
```

You need to respond with a `y` or `Y` to confirm the process. Any other response terminates the process. If you use this option, you do not get the prompt during an operation.

-y Use this option to specify the directory for the output XML file. If this option is not used, the output file specified by the `-o` parameter is written to the current working directory from which the command is run.

Examples

Example 1: Adding users: A user wants to add several users to an OnDemand system. That user has created an XML file called `newusers.xml`.

To complete this task, the following QSHHELL command-line function is called:

```
arsxml add -h neptune.ny.ibm.com -u admin -i newusers.xml
```

The file `newusers.xml` might look like this:

```
<?xml version="1.0" encoding="UTF-8"?>  
<onDemand xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"  
  xsi:noNamespaceSchemaLocation="ondemand.xsd">
```

```
| <user name="Bill" password="xxxxx" userType="User Admin"/>
| <user name="Erin" password="xxxxx" userType="User"/>
| <user name="Brie" password="xxxxx" userType="User"/>
| </onDemand>
```

| **Example 2: Updating users:** A user wants to update the telephone numbers of the users in the system. This user created an XML file `phone.xml`, which contains the data for the users and their phone numbers.

| To complete this task, the following QSHHELL command-line function is called:

```
| arxml update -h neptune.ny.ibm.com -u admin -i phone.xml
```

| The file `phone.xml` might look like this:

```
| <?xml version="1.0" encoding="UTF-8"?>
| <onDemand xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
|     xsi:noNamespaceSchemaLocation="ondemand.xsd">
|   <user name="Bill" phone="(212) 555-0919"/>
|   <user name="Erin" phone="(212) 555-4295"/>
|   <user name="Brie" phone="(212) 555-0301"/>
| </onDemand>
```

| **Example 3: Deleting printers:** A user needs to delete all of the defined printers, and that user created an XML file `printers.xml`.

| To complete this task, the following QSHHELL command line function is called:

```
| arxml delete -h neptune.ny.ibm.com -u admin -i printers.xml
```

| The file `printers.xml` might look like this:

```
| <?xml version="1.0" encoding="UTF-8"?>
| <onDemand xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
|     xsi:noNamespaceSchemaLocation="ondemand.xsd">
|   <printer name="_ALL"/>
| </onDemand>
```

| **Example 4: Exporting multiple objects:** A user wants to export the printer objects named `Prz1` and `Prz2`. This user also wants to export the storage set named `FavoriteSS`. An XML file `exportlist.xml` was created, and contains the information on these objects.

| To complete this task, the following QSHHELL command line function is called:

```
| >arxml export -h jupiter.ibm.com -i exportlist.xml -o output.xml
```

| The file `exportlist.xml` might look like this:

```
| <?xml version="1.0" encoding="UTF-8"?>
| <onDemand xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
|     xsi:noNamespaceSchemaLocation="ondemand.xsd">
|   <printer name="Prz1"/>
|   <printer name="Prz2"/>
|   <storageSet name="FavoriteSS"/>
| </onDemand>
```

| After the user runs the command, an output file named `output.xml` is created, and contains the information for the two printers and the storage set.

| **Example 5: Exporting a group:** A user wants to export a group named `BigGroup` and any users and user groups that are referenced by it. A file named `exportbiggroup.xml` was created and looks like this:

```

| <?xml version="1.0" encoding="UTF-8"?>
| <onDemand xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
|     xsi:noNamespaceSchemaLocation="ondemand.xsd">
|     <group name="BigGroup"/>
| </onDemand>

```

To complete the task, the following QSHELL command should be used:

```
>arsxml export -h jupiter.ibm.com -i exportbiggroup.xml -r d -o output.xml
```

This command creates an XML file that contains the BigGroup object and all the users and groups that are referenced by it. Also, any users within the referenced groups are exported.

Example 6: Exporting all of the users: A system administrator wants to export all of the users in an OnDemand system. A file named exportallusers.xml is created, and looks like this:

```

| <?xml version="1.0" encoding="UTF-8"?>
| <onDemand xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
|     xsi:noNamespaceSchemaLocation="ondemand.xsd">
|     <user name="_ALL"/>
| </onDemand>

```

To complete the task, the following QSHELL command should be used:

```
arsxml export -h jupiter.ibm.com -i exportallusers.xml -o users.xml
```

This command creates an XML file users.xml that contains the information on all of the users that are defined on the specified system.

Tips for using ARSXML

This section includes tips for using ARSXML to import and export administrative objects.

Tip 1: Child objects must be created under parent objects: Child objects can appear only under parent objects, but not vice versa. For example, the following XML file example is valid:

```

| <group name="MyGroup">
|     <user name="tom" />
|     <user name="chuck" />
| </group>

```

However, this example is not valid:

```

| <user name="tom">
|     <group name="MyGroup">
|     </group>
| </user>

```

The same is true for permissions for users and groups. They are child objects under the application group and folder objects. For example, to add a folder that contains permission for the user Bill, the XML file might look like this:

```

| <folder name="MyFolder"...>
|     <permission user="Bill" accessAuthority="Yes"
|         viewNQAuthority="Yes" maxHits="No Limit" />
|     ...
| </folder>

```

| **Tip 2: Application group and folder authorities and permissions are not linked:** If you specify `adminAuthority="Yes"`, you do not get the view, add, print, fax, and copy document permissions, or the view, add, and copy annotations permissions. You need to specify each item individually.

| **Tip 3: Parsing error while running ARSXML:** You might receive this error message while running ARSXML:

| A parsing error occurred in file *fileName*, Line *nnn*, Column *nnn* :
| cvc-elt.1: Cannot find the declaration of element 'onDemand'.

| It usually indicates that the OnDemand schema file (`ondemand.xsd`) cannot be found. The OnDemand schema file should be placed in the directory where the OnDemand XML file resides. Otherwise, the fully qualified path name should be placed in the `noNamespaceSchemaLocation` element of the OnDemand XML file.

User exit reference

Output queue monitor user exit program

| You can design an output queue monitor user exit program to alter the application group name or application name the monitor finds as it processes the spooled files in an output queue.

Overview of the output queue monitor function

| The output queue monitor function (started by the Start Monitor for OnDemand (STRMONOND) command or by using a monitor definition in System i Navigator) automatically processes spooled files from the specified output queue.

| When you start the monitor, two parameters are used to determine which application group and application to use to archive the spooled files in the output queue.

| The Value for application name (APPSRC) parameter is used to determine the application name. Up to three sources can be specified. If a valid application name is not found that uses the first source, the second source is used. If a valid application name is not found that uses the second source, the third source is used.

| The Value for application group (APPGRPSRC) parameter is used to determine the application group name. Up to three sources can be specified. If a valid application group name is not found that uses the first source, the second source is used. If a valid application group name is not found that uses the second source, the third source is used.

| The same source or different sources can be specified for APPSRC and APPGRPSRC. Valid sources for spooled files are:

- | • *SPLFNAME
- | • *FORMTYPE
- | • *USERDATA
- | • *JOBNAME
- | • *USRDFNOPT1
- | • *USRDFNOPT2
- | • *USRDFNOPT3
- | • *USRDFNOPT4

- *USRDFNDTA

How the output queue monitor exit works

Application name - first pass: When a spooled file is selected from an output queue to be processed, OnDemand checks for a user exit program in the monitor job's library list with a name that matches the first spooled file attribute specified in the APPSRC parameter of the STRMONOND command.

If a program is found it is called, allowing the application name to be changed as needed. OnDemand then uses the new application name to verify that an application definition by that name exists.

If a user exit program is not found, OnDemand looks for an application name that matches the first spooled file attribute.

Application name - second pass: If an application is still not found, OnDemand now checks for a user exit program in the monitor job's library list with a name that matches the second spooled file attribute specified in the APPSRC parameter of the STRMONOND command.

If a program is found it is called, allowing the application name to be changed as needed. OnDemand then uses the new application name to verify that an application definition by that name exists.

If a user exit program is not found, OnDemand looks for an application name that matches the second spooled file attribute.

Application name - third pass: If an application is still not found, OnDemand now checks for a user exit program in the monitor job's library list with a name that matches the third spooled file attribute specified on the APPSRC parameter of the STRMONOND command.

If a program is found it is called, allowing the application name to be changed as needed. OnDemand then uses the new application name to verify that an application definition by that name exists.

If a matching application name is still not found, error messages are placed in the monitor job log, and the spooled file is moved, in Ready (RDY) status, to the error output queue (ERROUTQ) specified in the STRMONOND command.

Application group name - first pass: Next, OnDemand checks for a user exit program in the monitor job's library list with a name that matches the first spooled file attribute specified in the APPGRPSRC parameter of the STRMONOND command.

If a program is found it is called, allowing both the application group and application names to be changed as needed. OnDemand then uses the new application group name to verify that an application group definition by that name exists.

If a user exit program is not found, OnDemand looks for an application group name that matches the first spooled file attribute.

Application group name - second pass: If an application group is still not found, OnDemand now checks for a user exit program in the monitor job's library list with a

name that matches the second spooled file attribute specified in the APPGRPSRC parameter of the STRMONOND command.

If a program is found it is called, allowing both the application group and application names to be changed as needed. OnDemand then uses the new application group name to verify that an application group definition by that name exists.

If a user exit program is not found, OnDemand looks for an application group name that matches the second spooled file attribute.

Application group name - third pass: If an application is still not found, OnDemand now checks for a user exit program in the monitor job's library list with a name that matches the third spooled file attribute in the APPGRPSRC parameter of the STRMONOND command.

If a program is found it is called, allowing both the application group and application names to be changed as needed. OnDemand then uses the new application group name to verify that an application group definition by that name exists.

If a user exit program is not found, OnDemand looks for an application group name that matches the third spooled file attribute.

If a matching application group name is still not found, error messages are placed in the monitor job log and the spooled file is moved, in Ready (RDY) status, to the error output queue (ERROUTQ) specified in the STRMONOND command.

Special case – APPSRC(*APPGRP): If the value of the APPSRC parameter is *APPGRP, the monitor exit is called only for the APPGRPSRC parameter. The application name can still be changed by the exit program.

Exit program details

When OnDemand calls the user exit, it passes several parameters, only two of which can be changed.

These two changeable fields are:

- Application group – 60 bytes
- Application – 60 bytes

For example, if the monitor finds PGM123 in the User Data spooled file attribute of the spooled file, but you want OnDemand to use the application name INVOICES, you can write your user exit program as follows:

```
CHGVAR      VAR(&APP) VALUE('INVOICES')
```

There is a sample monitor output queue user exit program in the source file QSAMPLES2 in the library QUSRRDARS, with member name PGM123.

Facsimile user exit program

The facsimile user exit program is designed to enable OnDemand server fax functions to work with System i5 facsimile (fax) software other than Facsimile Support from IBM. To accomplish this, modify and recompile the QRLMSFAX program source code to change the command that is issued when an end user requests a server fax during report retrieval. Simply change the line in the program that issues the SNDFAX command to use the command for the fax software you have installed on your system. (You could also call a program if no command is available.)

An end-user requesting a server fax causes the QRLMSFAX program to be called. If you do not change and recompile it, the standard program will run (which issues the Facsimile Support command). If you do change and recompile the QRLMSFAX program, then the changed program will run (which will issue **your** facsimile command).

The sample CL source code for this program (member name QRLMSFAX) can be found in source file QSAMPLES2 in libraries QRDARS and QUSRRDARS. (Any program source code that you modify should not be placed in QRDARS because that library is replaced during software upgrades. However, QUSRRDARS library is not replaced and can be used for your modified source.) IBM recommends that you copy this source code into a backup member in case you need to go back to the original function as shipped from IBM. When you recompile your program, be sure to preserve the QRLMSFAX program name and place the compiled program back in QRDARS library to replace the program that is shipped by IBM.

Appendix F. Automating ARSLOAD data loading

This section provides information to help you configure the ARSLOAD data loading API.

ARSLOAD

The ARSLOAD program is the main OnDemand data loading and indexing API. You can configure the ARSLOAD API to monitor specific IFS directories for report data. If the data needs to be indexed, then the ARSLOAD program calls the indexing program that is specified in the OnDemand application. The ARSLOAD program then works with the database manager to load the index data into the database and works with the storage manager to load the report data and resources on to storage volumes.

Note: The OnDemand server job must be running, otherwise the ARSLOAD program will fail.

Automating ARSLOAD

The following shows an example of the ARSLOAD API.

```
arsload -v -c /arsdir/dir4 -d /arsdir/dir1 -d /arsdir/dir2 -d /arsdir/dir3
```

In the example, the ARSLOAD program checks for data in the specified directories every ten minutes (the default polling time). If data needs to be indexed, then the ARSLOAD program stores the index data in the specified index directory.

You must verify the names of the directories. Replace the strings `/arsdir/r1`, `/arsdir/dir2`, `/arsdir/dir3`, and `/arsdir/dir4` with the names of directories that are valid on the server that you are configuring.

Important: The ARSLOAD program uses a particular part of the input file name to determine the application group to load. You can use the `-G` parameter to specify a different part of the file name to identify the application group to load. If the application group contains more than one application, then you must identify the application to load. Otherwise, the load will fail. You can use the `-A` parameter to specify the part of the file name that identifies the application.

If a user ID and password are not specified on the ARSLOAD program, the current i5/OS userid is used. See Appendix E, “API and user exit reference,” on page 211 for more information about the ARSLOAD program and its userid and password parameters.

After indexing the data, the ARSLOAD program deletes the input files, unless you specify otherwise. Any output or error messages that are generated by the ARSLOAD program are written to the System Log. You can open the System Log folder and retrieve any messages that were generated by the ARSLOAD program. For example, you may see message number 87 for a successful load or message 88 for a failed load.

Appendix G. Alternative to starting the administrative client

Starting the Administrator

If you do not need to work with the OnDemand administrative functions that are supported directly thru the OnDemand System i Navigator component (such as tape volumes, tape devices, optical volumes, optical storage groups, disk pool storage groups, monitor definitions, or migration policies), you can go directly to the OnDemand Administrator by following the instructions below:

1. Click Start.
2. Select Programs, then choose IBM OnDemand32.
3. Click OnDemand32 Administrator.
4. When you start the Administrator, OnDemand opens the administrator window that contains a menu bar, toolbar, navigator pane, list pane, and status bar. Figure 45 shows the administrator window.

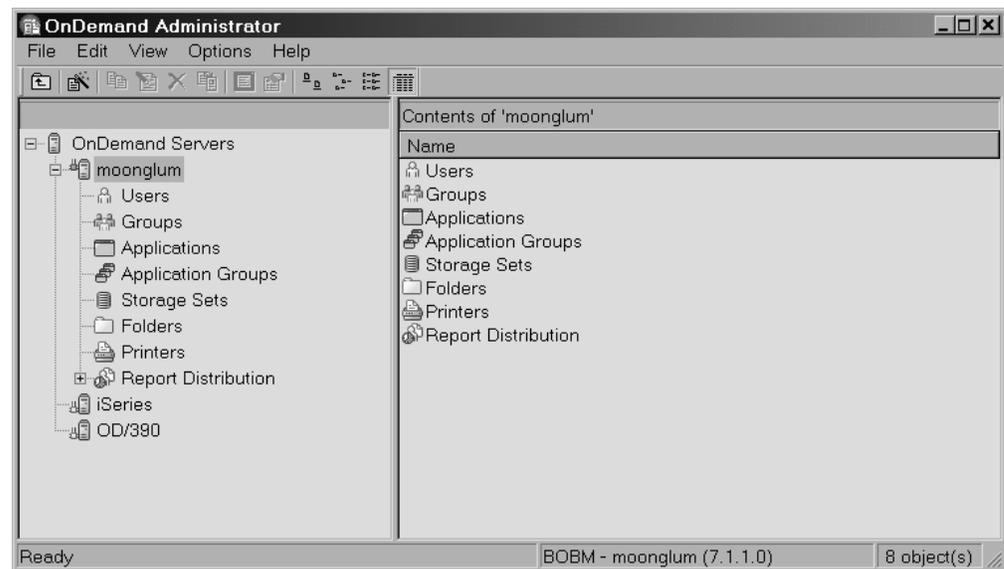


Figure 45. Administrator main window

Administrator start up parameters

OnDemand provides parameters that you can specify as properties that the operating system uses when you start the Administrator program. The parameters can be used, for example, to automate the logon process and to select the areas that appear in the navigator pane. Table 13 lists the start up parameters for the Administrator.

Table 13. Administrator start up parameters

Parameter	Purpose	Example
<i>/I location</i>	Identifies the drive and full path name of the national language environment program file directory.	/I D:\Program Files\IBM\OnDemand32\Locale\Enu
<i>/B</i>	Include Applications in the navigator pane.	/B
<i>/D</i>	Include Folders in the navigator pane.	/D

Table 13. Administrator start up parameters (continued)

Parameter	Purpose	Example
/D 2	Include Folders in the navigator pane, but display only the Permissions and Field Information pages.	/D 2
/E	Include Storage Sets in the navigator pane.	/E
/I	Include Users in the navigator pane.	/I
/O	Include Groups in the navigator pane.	/O
/P password	The password for the OnDemand user identified with the /U parameter. Use with the /S and /U parameters to log on to a specific server, without displaying the Logon dialog box. If the logon is not successful, then OnDemand opens the Logon dialog box to allow the user to log on to the system.	/P password
/Q	Include Application Groups in the navigator pane.	/Q
/R	Include Printers in the navigator pane.	/R
/S server	Identifies the logon server. Use with the /U and /P parameters to log on to a specific server, without displaying the Logon dialog box. If the logon is not successful, the OnDemand opens the Logon dialog box to allow the user to log on to the system.	/S broncos
/T	Determines the name that appears on the title bar of the administrator window. The default name is OnDemand Administrator.	/T Customer Service
/U userid	Identifies the OnDemand user. Use with the /S and /P parameters to log on to a specific server, without displaying the Logon dialog box. If the logon is not successful, OnDemand opens the Logon dialog box to allow the user to log on to the system.	/U admin

Changing start up parameters

To change start up parameters:

1. Click Start.
2. From the pop-up menu, select Explore.
3. Under Start Menu, expand Programs.
4. Select IBM OnDemand32.
5. In the list pane, point to OnDemand32 Administrator and click the right mouse button.
6. From the pop-up menu, select Properties.
7. Click the Shortcut tab.
8. In the Target field, enter the startup parameters. Make sure that you enter any startup parameters after the string:


```
"D:\Program Files\IBM\OnDemand32\ARSADM32.EXE"  
/I D:\Program Files\IBM\OnDemand32\LOCALE\ENU
```
9. Click OK.

The next time that you start the administrative client, Windows uses the start up parameters and values that you specified.

Examples

The following program properties could be used to set up the Administrator so that when a person starts the program, the name Customer Service is displayed in the title bar of the administrator window.

```
"D:\Program Files\IBM\OnDemand32\ARSADM32.EXE"  
/1 D:\Program Files\IBM\OnDemand32\LOCALE\ENU /T "Customer Service"
```

The following program properties could be used to set up the Administrator so that when a person starts the program, OnDemand displays only users and folders in the navigator pane. When the user selects folders, OnDemand displays only the Permissions and Field Information pages.

```
"D:\Program Files\IBM\OnDemand32\ARSADM32.EXE"  
/1 D:\Program Files\IBM\OnDemand32\LOCALE\ENU /I /D 2
```

The following program properties could be used to set up the Administrator so that when a person starts the program, OnDemand attempts to log on to the specified server, without displaying the Logon dialog box. If the logon attempt is not successful, then OnDemand opens the Logon dialog box to allow the user to log on to the system.

```
"D:\Program Files\IBM\OnDemand32\ARSADM32.EXE"  
/1 D:\Program Files\IBM\OnDemand32\LOCALE\ENU /S peak /U admin /P pw
```

Appendix H. Accessibility features

The OnDemand product includes a number of features that make the product more accessible for people with disabilities. These features include:

- Features that facilitate keyboard input and navigation
- Features that enhance display properties
- Options for audio and visual alert cues
- Compatibility with assistive technologies
- Compatibility with accessibility features of the operating system
- Accessible documentation formats

Keyboard input and navigation

Keyboard input

The OnDemand clients can be operated using only the keyboard. Menu items and controls provide access keys that allow users to activate a control or select a menu item directly from the keyboard. These keys are self-documenting, in that the access keys are underlined on the control or menu where they appear.

Keyboard focus

In Windows-based systems, the position of the keyboard focus is highlighted, indicating which area of the window is active and where the user's keystrokes will have an effect.

Features for accessible display

The OnDemand clients have a number of features that enhance the user interface and improve accessibility for users with low vision. These accessibility enhancements include support for high-contrast settings and customizable font properties.

High-contrast mode

The OnDemand clients support the high-contrast-mode option that is provided by the operating system. This feature assists users who require a higher degree of contrast between background and foreground colors.

Font settings

In Windows-based systems, the user can specify display settings that determine the color, size, and font for the text in menus and dialog windows. The OnDemand client allows the user to select the font for the document list.

Non-dependence on color

Users do not need to distinguish between colors in order to use any of the functions in this product.

Alternative alert cues

In Windows-based systems, the SoundSentry feature can be used to provide visual feedback for general application and system alerts such as warning beeps.

Compatibility with assistive technologies

The OnDemand clients are compatible with screen reader applications such as Narrator and Via Voice. The OnDemand clients have the properties required for these accessibility applications to make on-screen information available to blind users.

Accessible documentation

| Documentation for the OnDemand product is available in HTML format at
| <http://publib.boulder.ibm.com/infocenter/cmod/v8r4m0/index.jsp>. This enables you to
| view documentation according to the display preferences set in your browser. It also
| allows the use of screen readers and other assistive technologies.

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