IOF Job Archival Made Simple (IOF/JAMS)

Introduction

The IOF Job Archival Made Simple (IOF/JAMS) package provides the ability to save JES2 jobs into z/OS data sets in a way that they can easily be retrieved for browsing or printing. Browsing an archived job looks very much like browsing a job in IOF, including a Job Summary display that lets you browse or print individual sysout data sets.

Users can quickly and easily archive individual jobs directly from their IOF menus and systems staff can set up bulk archive runs to offload multiple jobs based on very flexible selection criteria.

As part of the archival process you can specify a disposition for each job that is archived. Archived jobs can be cancelled or left on the spool after being marked to prevent them from being archived again.

This is all accomplished without a complex data base system to keep track of the jobs. The simplicity of the archival system is achieved by archiving each JES2 job (or output group) into a separate z/OS data set with a name that makes it easy to go back and find the job. These archival data sets can also be tersed to reduce the disk storage required.

The IOF/JAMS system is very simple because it requires no complex data base, proprietary data format, or specialized security protocols. A user is allowed to review or delete an archived job if they have the appropriate security system access to the archive data set for that job. The archive data sets can also be browsed directly with ISPF browse (after being untersed, if necessary).

Archiving Jobs

Jobs can be manually archived directly from IOF displays or through an automated bulk archival process that runs in batch. You review archived jobs in exactly the same way in both cases. You just supply the same archival data set name structure that was specified at the time of archival.

Archive Data Set Names

You specify PREFIX, CATEGORY, and SUFFIX values to control the names of the archive data sets to be created. The archival system controls 17 data set name characters, so the PREFIX, CATEGORY, and SUFFIX strings must have a total

length of no more than 24 characters (the data set name can require up to 3 additional "." level separators). The data set names have the general format:

```
prefix.category.jobname.datetime.suffix
```

The jobname and datetime fields are automatically supplied by the archival system. The specifications for PREFIX, CATEGORY, and SUFFIX are completely up to the person requesting the archival.

For bulk archive runs, some installations may wish to have a centralized archival process and always use the same PREFIX and SUFFIX for all archival runs. However, it is very simple to create separate groups of archived jobs by using different categories when archiving those jobs.

For manual archival you may wish to use the simple default values which use your profile prefix (or userid) as the prefix and IOFJOB as the suffix. But you can also use the CATEGORY parm to create separate groups of your own archived jobs.

The most important thing to remember is that you have complete flexibility in specifying PREFIX, CATEGORY, and SUFFIX, with the single exception that a PREFIX string is required. While the CATEGORY and SUFFIX strings are both optional, a SUFFIX string is highly recommended to help identify archive data sets.

To display archived jobs you must specify the same PREFIX, CATEGORY, and SUFFIX that were used to archive them.

Manual Archival from IOF Displays

You can use the ARCHIVE (ARC) line command on the IOF Job List or Output Group List to manually archive a job (or output group).

```
----------------------------- IOF Job List Menu -------------( 7 )-------------
 COMMAND ===>                                              SCROLL ===> CURSOR
 -------------------------------- Output Jobs ---------------------------------
 -------JOBNAME--JOBID---ACT-STAT-OWNER----DEST/DEVICE-------RECS-HELD-DAY--TIME
 _     1 GEN      J816641     JCL  ISIJFW   TRIANGLE          21      029  9:28
arch  2 IOFWTR   J816108          ISIJFW   TRISYS           163   14 023 11:18
 _     3 BULKNEW  J813856          ISIJFW   TRISYS          8823      366 10:09
 _     4 BULKCT   J812578          ISIJFW   TRISYS           218      347 11:50
 _     5 BULK     J811004          ISIJFW   TRISYS           230      325 16:34
 _     6 GEN      J808834     JCL  ISIJFW   TRIANGLE          21      305 10:44
 _     7 SASSTAT  J801403          ISIJFW   TRIANGLE         118      343 11:25
```

You can also use the ARCHIVE (ARC) primary command on the IOF Job Summary display to archive the currently selected job.

Each will result in the following display:

```
--------------- Archive Job "IOFWTR" to a z/OS Data Set ----------------
 COMMAND ===>

    HELP - Display information about IOF archival

 Prefix  ===> USMITHJ         Prefix for archive data set name
 Catg.   ===>                 Category for this job (prefix extension)
 Suffix  ===> IOFJOB          Suffix for archive data set name
                              (prefix,suffix,catg <= 24 characters)

 Disp    ===>         Disposition after OK archive (CANCEL/RELEASE,...)
 Sysouts ===> ALL     Include these sysouts        (ALL/JESDS)
 Terse   ===> NO      Yes -> Create compressed data set with IBM TERSE
 Done    ===> NO      Yes -> Try and include sysouts marked as "DONE"
 CC      ===> ASA     Carriage control        (ASA/MACHINE/NONE)

Allocation attributes for archive data set:

 UNIT     ===>          VOLUME   ===>
 STORCLAS ===>          MGMTCLAS ===>            DATACLAS ===>
```

Use this panel to specify the structure for the archive data set name and other parms that control the content and format of the archived job. You can also specify a disposition for the job after it is archived (see more information on that below).

The Bulk Archiver

The bulk archive application allows you to archive multiple jobs to z/OS data sets in a single batch run. The jobs to be archived can be selected using very flexible selection criteria. And, you can even specify which sysout data sets should be archived for the jobs.

You can optionally specify a disposition for the jobs after they are archived. The jobs can be cancelled or left on the spool after being marked as not being eligible for subsequent archive runs. This is completely controlled by the parms that are specified to the bulk archiver.

Here is a sample cataloged procedure for running a bulk archive:

```
//IOFBLKAR  PROC
//   EXEC PGM=IKJEFT1B,REGION=4096K,PARM='IOFBLKAR'
//SYSTSPRT  DD   SYSOUT=A
//SYSPRINT  DD   SYSOUT=A
//REPORT    DD   SYSOUT=A
//SYSPROC   DD   DISP=SHR,DSN=your.iof.clist.library
//SYSTSIN   DD   DUMMY
```

The REPORT data set will contain a detailed description of the action taken.

The SYSTSPRT data set will contain diagnostic information if the TEST statement is specified.

The SYSPRINT data set will contain a log of any terse activity.

A sample job would look something like this:

```
//BULKARCH  JOB  …
//ARCHIVE   EXEC  IOFBLKAR
//SYSIN     DD  *
```

…statements controlling the bulk archive processing are specified here

Jobs versus Groups for Bulk Archiver

You can choose to archive either jobs (JES2 JQEs) or output groups (JES2 JOEs). The default assumption is that jobs are to be archived, but you can specify the JOBS or GROUPS statement to explicitly choose one or the other. It is important to note that different selection parms are available depending upon whether you are archiving jobs or groups.

Disposition of Archived Jobs for Bulk Archiver

Before describing the detailed control parms for the bulk archiver, it is important to point out that if you run the same bulk archiver parms a second time it will attempt to re-archive the same jobs. That means that you should normally cancel or modify each job after it is archived to prevent re-archival.

You can choose to cancel the jobs after archival or just modify them in some way to make them ineligible for re-archival. The ARCHOK and ARCHERR control parms allow you to specify what you want to do to each job after it is archived.

```
ARCHOK     job-list-line-command
ARCHERR    job-list-line-command
```

The line command specified in the ARCHOK parm will be executed against each job (or output group) after it has been successfully archived. The line command specified in the ARCHERR parm will be executed against each job (or output group) whose archive attempt failed for some reason.

The SETOFF line command on the IOF Job List Menu (and Output Group Display) provides a simple mechanism for marking jobs to prevent re-archival. This approach can be used if you have at least one JES2 offloader that is never used (consult your JES2 systems programmer). For example, if JES2 offloader 8 is never used you can specify:

```
ARCHOK SETOFF 8
```

This command will mark the job as though it has been offloaded by JES2 offloader 8. This should have no effect on the job other than providing a convenient way to determine that it has already been archived. Note that in order to use the SETOFF line command the job performing the archival run must be authorized to issue JES2 commands under IOF.

You can then add the following statement to the selection parms for each archival run to prevent re-archival of any jobs:

```
EXCLUDE OFFLOADS CT 8
```

The examples below will describe more information on this topic.

Control Statements for the Bulk Archiver

General Format of Control Statements

Each control statement must begin in column one unless it is a continuation of a previous statement.

Place an asterisk ("*") in column 1 to insert a comment record into the bulk archiver input parms.

Global Control Statements for the Bulk Archiver

You can request multiple archival runs in a single SYSIN data set by specifying a new JOBS or GROUPS statement to start the definition of each run. The parms below will remain in effect for all archive runs in the current SYSIN data set, unless they are re-specified later in the data set.

TRIALRUN	Produce a report of the jobs that would have been archived but do not archive anything or perform any disposition processing. This statement is HIGHLY RECOMMENDED as a way to learn how the selection parms work without accidentally creating unintended consequences.
PREFIX a.b	Prefix for archive data set names
CATEGORY c	Optional category for archive data set names (prefix extension).
SUFFIX d	Suffix for archive data set names (prefix + category + suffix must not be more than 24 characters)
ARCHOK xxx	Disposition for job/group after successful archive (any valid line command on Job/Group List)
ARCHERR xxx	Disposition for job/group if archive failed (any valid line command on Job/Group List)
RETAIN JOBNAMES n	After each job is archived, delete all but the "n" youngest copies of the archived job.
RETAIN AGE nnn	After each job is archived, delete all archived copies of the job that are more than "nnn" days old.
TERSE	Use IBM TERSE to reduce required disk space (archival and review will be somewhat slower)
TEST	Display diagnostic information in SYSTSPRT data set

SELECT and EXCLUDE Statements for the Bulk Archiver

This section describes the general format and function of the SELECT and EXCLUDE statements. Note that jobs and output groups have different sets of field names that can be referenced in SELECT and EXCLUDE statements.

Use the SELECT statement to choose the jobs or groups to be archived. Any jobs or groups not matching the SELECT criteria will be excluded from the archival run. The SELECT statement has two formats:

```
SELECT  field  comparison-value   (SELECT  JOBNAME   PAY*)
```

This format allows you to limit the jobs/groups to be archived to those whose "field" value on the Job/Group List matches the comparison value. Note that a single trailing generic is allowed for most fields but some specific fields also allow single character (+) generics. Note also that to specify a null comparison value you must specify two single quotes:

```
SELECT  field  ''
```

The second format for the SELECT statement:

```
SELECT  special_attribute   (SELECT  HELD)
```

This format allows you the limit the jobs/groups to be archived to those which have the specified attribute.

Note that the special attributes are different for jobs and groups and are described in detail below. Note also that some of the SELECT field names have specific generic character usage limitations.

You can also use the EXCLUDE statement to prevent certain jobs or groups from being archived. The EXCLUDE command also has two formats. This simple format will handle the majority of exclude requirements:

```
EXCLUDE  field  comparison_value   (EXCLUDE  FORMS  XXX*)
```

The "field" can be any valid field name on the IOF Job List (or Output Group List). This will prevent any jobs or groups with a matching field value from being archived. Note that a single trailing generic is allowed.

 For more sophisticated requirements, the EXCLUDE command can also specify a comparison operator, but no generics are allowed:

```
EXCLUDE  field  comparison_oper  comparison_value
(EXCLUDE OFFLOADS CT 8)
```

The comparison operator can be any operator supported by the EXCLUDE command on the IOF list panels:

```
EQ/NE/GT/LT/GE/LE
CT         Containing
NC         Not containing
BG         Beginning
NB         Not beginning
```

Bulk Archiver Parms Specifically for Archiving Jobs

The bulk archiver can archive either jobs or output groups. Specify a "JOBS" statement to define the beginning of an archive run for archiving jobs:

JOBS

SELECT and EXCLUDE statements can be specified for any fields on the *IOF Job List Menu*.

In addition to the general SELECT statements described above, here are the special SELECT statements available for selecting jobs to be archived:

JOBNAME job1 job2 … Specifies up to 8 generic job name masks, each of which can include both single character (+) generics and a trailing generic(*).

OWNER owner   Specifies a single job owner userid mask, which can include single character (+) generics and a trailing generic(*).

CURRENT   Archive only the currently running job

AGE nnn   Archive only jobs older than the number of days specified.

SIZE nnn   Archive only jobs with at least the number of JES2 track groups specified.

JOB/TSU/STC   Archive only jobs, TSO users, or started tasks

Bulk Archiver Parms Specifically for Archiving Output Groups

Specify a "GROUPS" statement to define the beginning of an archive run for archiving output groups:

GROUPS

SELECT and EXCLUDE statements can be specified for any fields on the IOF Output Group Display.

In addition to the general SELECT statements described above, here are the special SELECT statements available for selecting output groups to be archived:

JOBNAME job1 job2 … Specifies up to 8 generic job name masks, each of which can include single character (+) generics and a trailing generic(*).

OWNER owner   Specifies a single job owning userid mask, which can include single character (+) generics and a trailing generic(*).

CURRENT   Archive only groups for the currently running job

AGE nnn   Archive only groups older than the number of days specified.

RECORDS nnn Archive only groups with at least the number of records specified.

PAGES nnn Archive only groups with at least the number of pages specified.

(Note that if you specify both RECORDS and PAGES in the same archival run it will result in only the groups that have BOTH the number of records and the number of pages. Two archival runs would be necessary to handle both cases independently.)

DEST dest1 dest2 …   Up to 16 JES2 destinations.

FORMS form1 form2 … Archive only groups matching one of the FORMS specified. If a list is specified then no generics are allowed. If a single value is specified then a single trailing generic is allowed.

UCS ucs1 ucs2 … Archive only groups matching one of the UCS values specified. If a list is specified then no generics are allowed. If a single value is specified then a single trailing generic is allowed.

FCB fcb1 fcb2 … Archive only groups matching one of the FCB values specified. If a list is specified then no generics are allowed. If a single value is specified then a single trailing generic is allowed.

FLASH fls1 fls2 … Archive only groups matching one of the FLASH values specified. If a list is specified then no generics are allowed. If a single value is specified then a single trailing generic is allowed.

WTRID wtr1 wtr2 …   Archive only groups matching one of the WTRID values specified. If a list is specified then no generics are allowed. If a single value is specified then a single trailing generic is allowed.

HARDCOPY   Archive only hard copy groups.

HELD   Archive only groups with OUTDISP of HOLD.

NONHELD   Archive only groups that do not have an OUTDISP of HOLD.

UNIX   Archive only groups generated by UNIX processes.

APPC/NOAPPC   Archive only groups created/not created by APPC applications.

JOB/TSU/STC   Archive only groups for jobs, TSO users, or started tasks

Selecting Specific Sysouts for Bulk Archival

Once you have selected the jobs or groups for bulk archival, you can optionally choose to refine the types of sysout data sets that should be included in the archived copy of each job (or output group). Note that nothing specified in this section will

affect the jobs or output groups to be selected for archival. Using these parms you can choose to limit the sysout data sets to be archived for a job AFTER it has been selected for archival. To activate the parms for controlling the sysouts to be included for each job being archived you must first specify:

SYSOUTS

This statement indicates that any following SELECT or EXCLUDE statements apply to the sysouts within each selected job or group.

Once the SYSOUTS statement has been specified, any SELECT and EXCLUDE statements will apply to the sysout data sets on the IOF Job Summary for each archived job or group.   These SELECT and EXCLUDE statements can reference any field found in the sysout display section of the IOF Job Summary. To avoid archiving any sysout data sets of class x:

        EXCLUDE   CLASS   X

In addition there are some special SELECT statements for sysout data sets:

JESDS	Archive only the system data sets for each job/group.
NODATA	Don't archive any sysout data sets. Include only the IOF Job Summary.
DONE	Attempt to archive sysout data sets even if they are marked "DONE" on the IOF Job Summary.

It is important to point out that each SELECT and EXCLUDE statement (for jobs, groups, or sysouts) continues to apply the latest filter to further refine the list. So, if you specify two SELECT statements the resulting list will include only the job/groups/sysouts that satisfy BOTH SELECT statements.

However, for sysouts only, the INCLUDE statement allows you to start from scratch and add back the specific sysouts you would like included. To start from scratch you must specify:

     SELECT NODATA

Then, each INCLUDE statement will add more sysouts to be archived:

     INCLUDE DDNAME(dd) STEP(step) PRSTEP(prstep) DSKEY(dskey)

An example is the simplest way to illustrate the INCLUDE statement. After completing the job (or group) selection statements:

        SYSOUTS
        SELECT   NODATA
        INCLUDE   DDNAME(SYSPRINT)   STEP(AUDIT)
        INCLUDE   DDNAME(MASTER)   STEP(REPORT)
        INCLUDE   DSKEY(117)

The archived jobs would contain only the following data sets:

    The SYSPRINT data set for the AUDIT step.

    The MASTER sysout for the REPORT step.

The sysout whose JES2 data set key is 117.

Automatically Rerunning Bulk Archiver at a Certain Time Interval

To repeat an archive run after waiting 60 seconds:

```
REPEAT  60
```

This statement can be placed anywhere in the parm data set and the archival job step will pause for 60 seconds after the completion each run and then repeat the same archival process. Note that it is important in this case to either cancel the archived jobs or use something like SETOFF to prevent re-archival of the same jobs.

You can also use the z/OS operator STOP command to stop an archival address space in an orderly fashion. The job step will terminate after the completion of the next job archival.

Media Placement for Bulk Archive Data Sets

You can use the following control statements to manage the media placement for bulk archive data sets:

UNIT	unit-name
VOLUME	volume-serial
STORCLAS	storage-class
MGMTCLAS	management-class
DATACLAS	data-class

Carriage Control for Bulk Archive Data Sets

By default, the archive data sets will be created with ASA carriage control. All sysout data sets will be converted to ASA carriage control as they are written to the data set. However, you can specify:

```
PDSCC   MACHINE/NONE
```

NONE will cause all carriage control to be removed from all archived sysout data sets.

MACHINE will cause all sysout data sets to be converted to machine carriage control.

Purging Archive Data Sets

Use the PURGE parm to define a special data set maintenance run that performs no archival. You can purge archived jobs based on job age or number of versions to be kept. Note that the RETAIN parm is different from PURGE in that it is activated only

when a specific job name is archived. The PURGE parm will affect all archive data sets that match the specified prefix, category, suffix, and generic job name.

> **PURGE JOBNAMES 3**   Keep only 3 versions of each job matching the selection criteria.

> **PURGE AGE 365**   Keep only archive data sets for jobs over 365 days old.

Note that no job archival will take place and the REPEAT parm is not honored. Also, it is important to remember that job name is the only job attribute criteria available for PURGE operations.

It is HIGHLY recommended that you use the TRIALRUN parm to preview any major purge runs that you are considering.

Sample Bulk Archiver Runs

Archive all jobs whose names begin with "PAY" that are older than 90 days. Keep only 3 archive copies of each job that is archived during this run. Prevent re-archival of jobs by using the SETOFF line command to mark each job as "archived".

```
PREFIX   ADMIN.PAYROLL    (or PREFIX ADMIN, CATEGORY PAYROLL)
SUFFIX   IOFJOB
ARCHOK   SETOFF 8
RETAIN JOBNAMES 3
JOBS
SELECT   JOBNAME  PAY*
SELECT AGE 90
EXCLUDE OFFLOADS CT 8
```

Archive all jobs whose names begin with "PAY" or PROD" that are owned by any user whose userid begins with "TECH". Also, archive only jobs that are larger than 10 JES2 track groups. After a successful archival, cancel each job. For each job that is archived, keep only archive copies that are less than a year old.

```
PREFIX   ADMIN
CATEGORY PAYROLL
SUFFIX   IOFJOB
ARCHOK CANCEL
RETAIN AGE 365
JOBS
SELECT   JOBNAME  PAY*     PROD*
SELECT   OWNER   TECH*
SELECT SIZE 10
```

To run either of the above samples and prevent the archival of any class X sysout data sets, add the following after the job selection statements:

```
SYSOUTS
EXCLUDE   CLASS   X
```

Similarly, to include only class Y sysouts:

```
SYSOUTS
SELECT CLASS Y
```

And, to include only the JES2 system data sets:

```
SYSOUTS
SELECT JESDS
```

Use the same selection criteria as above, but leave the archived jobs on the spool and prevent them from being re-archived by the same criteria. Also, terse the z/OS archive data sets to reduce disk space consumption. Finally, repeat this archival process after waiting two minutes:

```
PREFIX   ADMIN
CATEGORY PAYROLL
SUFFIX   IOFJOB
ARCHOK   SETOFF 8
TERSE
REPEAT 120
JOBS
SELECT  JOBNAME  PAY*    PROD*
SELECT  OWNER   TECH*
SELECT SIZE 10
EXCLUDE  OFFLOADS CT 8
```

Make a trial run to see which archive data sets would be deleted by the purge selection parms below. Keep only 3 versions of all jobs with names beginning "PAY" or "PROD" whose archive data set names have a prefix of ADMIN, a category of PAYROLL, and a suffix of IOFJOB.

```
TRIALRUN
PREFIX   ADMIN
CATEGORY PAYROLL
SUFFIX   IOFJOB
PURGE    JOBNAMES  3
JOBS
SELECT  JOBNAME  PAY*    PROD*
```

Reviewing archived jobs

Once jobs have been archived you can enter the ARCHIVE (ARC) command on any IOF panel to review archived jobs:

```
-------------------- Select Archived Jobs to be Reviewed --------------------
 COMMAND ===>

          HELP - Display info about this panel

  The Prefix, Category, and Suffix fields must match those specified when
  the jobs were archived.

 Jobname ===>                             Generic job name (limits initial list)
                                          (Refine list further on list panel)

 Prefix  ===> USMITHJ                     Prefix for archive data set names

 Catg    ===>                             Job category (prefix extension)
                                          (blank => No category level in dsnames)

 Suffix  ===> IOFJOB                      Suffix for archive data set names
                                          (blank => No suffix level in dsnames)
```

To review archived jobs you must specify the same prefix, category, and suffix that were specified when the jobs were archived. You can optionally specify a generic job name filter to reduce the size of the initial archived job list.

Pressing ENTER on this panel will produce this display:

```
--------------------- Archived Jobs (Prefix: USMITHJ) ----------- Row 1 of 43
 COMMAND ===>                                              Scroll ===> CSR

        SORT - Toggle sort (jobname/date)    HELP - Info about display

   Scope  row below - Displays maximum scope for each display column
   Filter row below - Overtype fields to refine the current list

 ---Act--Jobname----Year--Mo-Day--Time run--Weekday---Category-Suffix--
Scope -> *            *     *   *     *         *                 IOFJOB
Filter-> *            *     *   *     *         *                 IOFJOB
 _        $AT        2011  09  07   12:06:00  Wednesday          IOFJOB
 _        ARCHISI    2012  11  09   08:22:00  Friday             IOFJOB
 _        ARCHISI    2012  11  08   11:54:00  Thursday           IOFJOB
 _        BATCHTSO   2012  09  27   11:21:00  Thursday           IOFJOB
 _        BULK       2012  11  20   16:34:00  Tuesday            IOFJOB
 _        BULKCT     2012  12  12   11:50:00  Wednesday          IOFJOB
 _        BULKGEN    2013  01  08   13:25:00  Tuesday            IOFJOB
 _        BULKIOF    2012  12  31   15:31:00  Monday             IOFJOB
 _        BULKIOF    2012  12  31   13:46:00  Monday             IOFJOB
 _        BULKNEW    2012  12  31   10:09:00  Monday             IOFJOB
 _        BULKSPIN   2013  01  02   09:10:00  Wednesday          IOFJOB
 _        BULKTST1   2013  01  09   09:03:00  Wednesday          IOFJOB
```

From this display you can delete archived jobs or select one of them for review:

```
---------------------------Archived Job Summary---------------------------------
 COMMAND ===>                                              SCROLL===> CSR
 ------------------------------ IOF Job Summary --------------------------------
 --JOBNAME--JOBID----STATUS---RAN/RECEIVED------DAY-------DEST--------------OWNER--
   $AT      J808040  OUTPUT   12:06   9/07/2011 WEDNESDAY TRISYS         USMITHJ
 --RC--PGM--------STEP-----PRSTEP---PROC-----COMMENTS----------------------------
  940  IKJEFT1A  TSO       SPF      BATCHSPF
 --------DDNAME---STEP-----PRSTEP---STAT-ACT-C-GRP-D-SIZE-U-DEST------------------
 _    1  LOG       *                        A   1 K   18 L TRISYS
 _    2  JCL       *                        A   1 K   44 L TRISYS
 _    3  MESSAGES  *                        A   1 K   68 L TRISYS
 _    4  ISPLOG    TSO      SPF             A   1 K    4 L TRISYS
 _    5  SYSTSPRT  TSO      SPF             A   1 K    4 L TRISYS
```

From this display you can browse or print individual sysout data sets in the archived job. You can also use the EDIT primary command to edit a copy of the original job.

Summary

The IOF/JAMS system is very simple because it requires no complex data base, proprietary data format, or specialized security protocols. A user is allowed to review or delete an archived job if they have the appropriate security system access to the archive data set for that job. The archive data sets can also be browsed directly with ISPF browse (after being untersed, if necessary).

Using IOF/JAMS, it is now easy for:

- Technical staff to set up bulk archival runs
- Technical staff to automatically manage the number of archived versions
- Individual users to archive their own jobs
- Users to review archived jobs