



SHARE SESSION REPORT

61	B324	Interactive Access to Batch Jobs Under TSO 450	
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JES2		Roger Fajman	NIH
<u>PROJECT</u>		<u>SESSION CHAIRMAN</u>	<u>INST. CODE</u>
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Four speakers presented overviews of different enhancements to the TSO facilities for accessing batch jobs:

Jim Walker (TUC) spoke on the Interactive Output Facility

Glenn Harper (ANG) spoke on the QUEUE command

John Klinkner (ARI) spoke on the SPOOL Display and Search Facility. The presentation material has been published as Washington Systems Center Technical Bulletin GG22-9280-00.

Roger Fajman (NIH) spoke on NIH Extended WYLBUR's facilities for access to batch jobs.

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JES2 TSO Output Interface Techniques

The Interactive Output Facility (IOF)

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The Interactive Output Facility is a powerful productivity aid for JES2 TSO users which allows them to quickly and conveniently control all aspects of their submitted batch jobs. In addition to increasing the productivity of all users, IOF also reduces the system overhead associated with reviewing batch output.

IOF Allows the JES2 Installation to:

- * Increase Personnel Productivity
- * Significantly Reduce Print Load
- * Easily Manage Large Production Jobs
- * Reduce Spool Contention
- * Define Job Access Rules
- * Provide Spool Data Security

IOF Allows TSO Users to:

- * Easily tell if their Batch Jobs Ran Successfully or Failed
- * Selectively Browse Sysout Data Sets
- * Control the Disposition of Sysout Data Sets
- * Easily Manage All of their Batch Jobs

Slide 1

IOF will increase the productivity of all users in the installation who work under TSO. This includes applications programmers, systems programmers, production control clerks, and many other types of users.

IOF reduces the total print load for the installation by allowing users to easily review and cancel unwanted output. This feature makes managing output from large production jobs quite fast and convenient.

IOF reduces spool contention by reading only the data that the TSO user really wants to browse, and it doesn't read the JES2 checkpoint

data set at all. This feature is very significant because in most installations the JES2 spool and checkpoint data sets are among the most active in the complex.

The installation can completely control the authorization rules for job and data set access for all jobs and all TSO users in the system, via the Job and Data Set Access Exits provided by IOF.

By using only the subsystem interface to access spool data, and by allowing interfaces to the installation's security system, confidential data stored on spool is as well protected from unauthorized access as data stored in other online data sets.

IOF allows the TSO user to easily tell if a batch job worked, selectively browse sysout data, and then completely control the disposition of all sysout data for the job. As you will see from the presentation, it provides the functions needed by TSO users to manage all aspects of their batch jobs.

MAJOR IOF FEATURES

- * Full Screen, menu-oriented operation
- * Simple return code display
- * Menu selection of sysout data for browse
- * Excellent response time
- * SPF-compatible browse
- * Holding sysout data sets not required
- * Comprehensive sysout data set attribute display
- * Modify attributes of held data sets
- * Held data sets easily cancelled or released
- * Sysout data sets easily copied to either-
OS data sets or spun sysout data sets
- * Menu-oriented STATUS, CANCEL, and ROUTE
- * Integrated HELP facility
- * Supports all TSO terminal types including ASCII
- * Supports all versions of JES2
- * No modifications required to JES2

Slide 2

IOF is a full screen, menu-oriented product that supports most functions with menu selection and program function keys. This includes split-screen operation when running under IBM's System Productivity Facility (SPF).

The simple return code display for each job makes it very easy to tell instantly if a job worked or failed. One line on the display for each step displays the return code and completion code.

Sysout data sets may be selected for browse from a menu that includes the step and DD names for the data sets. Therefore the user knows exactly what data set is being browsed, and does not reference unwanted data.

The excellent response time provided by IOF is a direct result of its design. We will discuss this in some detail later in the presentation.

The browse function in IOF is compatible with SPF, so users are not forced to learn a new set of browse functions.

Users are not required to hold sysout data sets in order to review output with IOF. This can prevent the operational problem of fragmented job printouts.

The user can display and modify all of the attributes of a sysout data set that can be specified to JES2, including 3800 printer attributes. (There are 23 total attributes). In addition individual held data sets may be released or cancelled from the same menu.

Sysout data sets in whole or in part can be copied easily to either OS data sets or spun sysout from the users TSO session.

The structured HELP facility makes IOF easy to learn and use.

IOF supports ASCII (TTY) terminals as well as 3270 type terminals. Simple commands of one or two characters are used in place of PF keys, but all IOF functions are available to both CRT and hard copy ASCII terminals.

IOF supports all released versions of JES2, including JES2 for SP 1.3. No modifications are required to any JES2 versions.

SAMPLE IOF SESSIONS

- * SPF Applications Programmer
- * Production Control Clerk
- * TTY User

Slide 3

We will present three sample sessions to illustrate many different ways that IOF can be used to increase the productivity of your computing staff. Each session is designed to demonstrate certain features of the product, although all features are available to each type user.

The first session will be an SPF applications programmer who will analyze the results of an assembly job.

The second session will be a production control clerk who will review two production runs.

The third session will be a TTY user who will review the same job that was reviewed by the SPF programmer above.

SPF APPLICATIONS PROGRAMMER

- * Invoke IOF from SPF Primary Option Menu
- * Review return codes from compile job
- * Browse SYSTERM data set
- * Exit from IOF and cancel the job

Slide 4

The SPF applications programmer will invoke IOF from the SPF Primary Option Menu to review the results of a compile job. The assembly errors will then be displayed by selecting the SYSTERM data set for browse. After entering split screen mode to correct the source program the user will exit from IOF and cancel the job.

```

----- SPF-MVS PRIMARY OPTION MENU -----
SELECT OPTION ==>

0  SPF PARMS  -   SPECIFY TERMINAL AND SPF PARAMETERS
1  BROWSE    -   DISPLAY SOURCE DATA OR OUTPUT LISTINGS
2  EDIT      -   CREATE OR CHANGE SOURCE DATA
3  UTILITIES -   PERFORM SPF UTILITY FUNCTIONS
4  FOREGROUND - COMPILE, ASSEMBLE, LINK EDIT, OR DEBUG
5  BACKGROUND - COMPILE, ASSEMBLE, OR LINK EDIT
6  COMMAND   -   ENTER TSO COMMAND OR CLIST
7  SUPPORT   -   TEST DIALOG OR CONVERT MENU/MSG FORMATS
I  IOF       -   INTERACTIVE OUTPUT FACILITY
T  TUTORIAL  -   DISPLAY INFORMATION ABOUT SPF
X  EXIT      -   EXIT SPF USING LIST/LOG DEFAULTS

```

Slide 5

Slide 5 is an abbreviated display of the SPF user's Primary Option Menu that includes the option "I" for invoking IOF. If the user enters "I" the IOF Job Selection Menu will be invoked to show the status of all jobs owned by the user. The user could enter "I.jobname" to skip the Selection Menu and to go directly to the Job Summary Display for the specified job. We will assume that the user simply enters "I". This will produce the display shown in Slide 6.

```

-----IOF JOB SELECTION MENU-----
SELECT JOB ==>                                SCROLL ==> SCREEN
-----JOBNAME-----JOBID--STATUS---QUALIFIER--MISC-----
-   1  ASMPAY   J0376  OUTPUT   TSO
-   2  EDITACCT J0436  RUNNING  ON IPO1  PREPARE.SORT
-   3  PAYTEST  J3482  INPUT    (T 13)
-   4  REPORT2  J6112  OUTPUT   LOCAL    HAS HELD OUTPUT

```

Slide 6

The IOF Job Selection Menu provides a menu status display of the user's jobs. Two of the jobs have already completed execution, one is still running, and one has not yet begun execution.

You will notice that the job names do not begin with the TSO user's userid. This is an IOF feature that we will discuss later in some detail.

Although this particular display does not demonstrate all the status information that may be displayed for a job, it does show several important features, including class and position in queue for input jobs, step and procstep name for jobs in execution, and print routing for output jobs.

There are several functions that can be performed on this menu, but for now we will just review the output of the job ASMPAY. To select ASMPAY for output review we can either place an "S" in the action area at the left margin or enter a "1" (its menu number) in the command area. Either action will produce Slide 7.

```

--- ASMPAY   JOB00376-----RAN 15:18   3/19/82 (YESTERDAY)-----PRINT: TSO
COMMAND INPUT ==>                                SCROLL ==> SCREEN
--RC--STEP-----PROC-----PROCSTEP--COMMENTS-----
8  ASM      ASMFCL  PROG1
*  LKED     ASMFCL  PROG1      NOT EXECUTED
-----DDNAME---STEP-----CLASS-RECORDS-HELD--DEST-----FORMS--UCS--FCB-COPIES--
-   1  LOG      *          A          7    NO
-   2  JCL      *          A          28   NO
-   3  MESSAGES *          A          14   NO
-   4  SYSPRINT C          A          638  NO
-   5  SYSTERM C          A          15   NO

```

Slide 7

Slide 7 is the Job Summary Display for the job ASMPAY. From the first line we can see that the job ran yesterday afternoon and that the print destination for the job is TSO. This is a dummy destination

added by the JES2 systems programmer and is not associated with a real JES2 remote station.

IOF does not require that sysout data be held in order to be reviewed. Instead of holding the sysout data sets for the job the user added a /*ROUTE statement to the job to route its printed output to the dummy destination "TSO". This prevents the job from being selected by a JES2 printer before its output can be reviewed with IOF, in effect "holding" the job for IOF.

We will see later that from the Job Selection Menu the user can easily cause the job to be printed by routing it to his own default print destination. This will allow the job to be printed with all of its sysout data sets together instead of with separate banner and trailer pages for each sysout data set.

Of course IOF supports standard held data sets as well as non-held data sets. Each user can decide which combination of held and non-held sysout data sets are best for each specific application. IOF provides a simple mechanism for releasing both types of data sets for print.

188 It is immediately apparent from the return code summary that the assembly step produced errors. It is important to point out that we have not yet browsed any sysout data, and yet we already know when the job ran, that it did not complete successfully, and that the link edit step did not run at all. The whole IOF session up to this point has required just a few seconds to accomplish, and very little I/O has been initiated to the spool system.

For jobs that complete normally the user often needs only the information provided by this display. For those jobs the user would normally just return to the Job Selection Menu and either cancel the job or release it for print.

However, in our example the assembly step had errors so we will need to look further. For this job, the SYSTEMR data set should contain sufficient information to correct the problem. SYSTEMR contains only 15 output records and can be retrieved with one read of the spool. To display the first screen of data for the SYSTEMR data set the user can select it for browse by placing an "S" in its action area at the left margin or by entering "5" (its menu number) in the command area. This produces the display shown in Slide 8.

```

BROWSE - SYSTEMR  PROGI  ASM  --  PAGE  1-- LINE  1-- COLS 1  80
COMMAND INPUT ==>
ASSEMBLER (XF) DONE
                26000   39          LA  R115,SCALE          POINT TO SCALE TABLE
IF0188 R115 IS AN UNDEFINED SYMBOL
                28000   109         MVC  PRTRDUCT,RECDUCT    RECORD COUNT TO PRINT
BUFFER
IF0188 RECDUCT IS AN UNDEFINED SYMBOL
                30000   173         STJ  R2,RECSIZE          SAVE RECORD SIZE
IF0078 UNDEFINED OP CODE
                32000   191         LA   R1,RATES            ADDR OF RATE TABLE
IF0236 ILLEGAL CHARACTER IN EXPRESSION NEAR OPERAND COLUMN 3
NUMBER OF STATEMENTS FLAGGED IN THIS ASSEMBLY = 4
HIGHEST SEVERITY WAS 8
OPTIONS FOR THIS ASSEMBLY
ALIGN, ALOGIC, BUFSIZE(STD), DECK, ESD, FLAG(0), LINECOUNT(55), LIST,
NOMCALL,
NOMLOGIC, NUMBER, NOOBJECT, NORENT, RLD, STMT, NOLIBMAC, TERMINAL, NOTEST,
XRE
SYSPARM()
***** BOTTOM OF DATA SET *****

```

Slide 8

This is the IOF Browse Display for the first screen of the SYSTEMR data set. The top line on the display indicates the DD name, step name, procedure step name, current page and line number, and the current display columns for the data.

The current page number will always be displayed on the top line of the display and can be very useful during the browse process. The UP, DOWN, LEFT, RIGHT and FIND facilities are compatible with SPF, so the user does not have to learn a new set of browse functions.

IOF supports carriage control characters (if present) to provide visual fidelity with the data as it would appear on a printed page. This feature greatly enhances the readability of most sysout data sets. This particular data set does not demonstrate this feature since it contains no extra carriage spacing.

You will notice that the default SCROLL amount is set to SCREEN instead of PAGE. This has the same meaning that PAGE has in SPF browse. If the SCROLL amount is set to PAGE then UP and DOWN will skip up or down one printed page in the data set. In many cases scrolling by a page at a time is more useful than scrolling a single screen at a time.

At this point the user could enter split screen mode to invoke SPF EDIT and correct the assembly errors in the source program. Although

the user would normally then terminate IOF and cancel the job, we will have him stay in browse just a little longer to demonstrate the very powerful FIND ALL feature of IOF.

If the user now enters FIND ALL IFO in the command area and presses ENTER, Slide 9 will be produced.

```

----- IOF FIND ALL MENU -----
COMMAND INPUT ==>                                SCROLL ==> SCREEN
-----# 1 --- PAGE      1 --- LINE      3-----
IFO188 RI15 IS AN UNDEFINED SYMBOL
-----# 2 --- PAGE      1 --- LINE      5-----
IFO188 RECDUCT IS AN UNDEFINED SYMBOL
-----# 3 --- PAGE      1 --- LINE      7-----
IFO078 UNDEFINED OP CODE
-----# 4 --- PAGE      1 --- LINE      9-----
IFO236 ILLEGAL CHARACTER IN EXPRESSION NEAR OPERAND COLUMN 3
***** BOTTOM OF DATA SET *****

```

Slide 9

189 This is the IOF Find All menu. The entry displayed for each occurrence of the specified character string (IFO) includes the record text, page number, and line number of the record containing the string. By entering the menu number for an occurrence the user can re-enter the Browse Display directly at that particular record in the data set.

The user can then redisplay the current Find All Menu from Browse by pressing the FIND program function key. On the Find All Menu the user can then select another occurrence for Browse or scroll to the next screen full of occurrences.

By pressing the END key from the FIND ALL panel, Slide 8, the original browse panel would be re-displayed. Pressing END again would return to the panel shown in Slide 7.

There are several methods of exiting directly from anywhere within IOF without having to re-display all the intermediate screens.

The RETURN key (and RET command) will always return you to the Job Summary Panel so that another job can be selected for review. The EXIT command (or EX) terminates IOF, and returns to the SPF Primary Option Menu.

Both RETURN and EXIT have parameter options to allow the current job to be either Cancelled or Released for print. For example, placing CANCEL (or just C) in the command area and pressing the RETURN key would cancel this job and return to the IOF Job Selection Menu. Placing PRINT (or P) in the command area and pressing RETURN would

release the job for print and route its output to the users default print destination.

Of course the standard SPF option of placing an equal sign (=) in the command area, followed by an option for the SPF Primary Option Menu, and then pressing RETURN would terminate IOF and select the specified option.

In our example, we will simply press RETURN to return to the Job Selection Menu originally shown in Slide 6. Slide 10 shows how jobs can be easily released or cancelled by menu directly from this panel.

```

----- IOF JOB SELECTION MENU -----
SELECT JOB ==>                                SCROLL ==> SCREEN
-----JOBNAME-----JOBID--STATUS---QUALIFIER--MISC-----
C  1  ASMPAY   J0376  OUTPUT   TSO
-  2  EDITACT  J0436  RUNNING ON IPO1  PREPARE.SORT
-  3  PAYTEST  J3482  INPUT   (T 13)
R  4  REPORT2  J6112  OUTPUT  LOCAL   HAS HELD OUTPUT

```

Slide 10

we originally demonstrated selecting a job from this panel by entering an "S" in the action area to the left, or by entering the desired job's menu number. Several additional options exist.

Entering "C" in the action area (or entering the menu number followed by "C" in the command area) causes the job(s) to be cancelled.

Placing a "R" in the action area (or entering the menu number followed by "RE" in the command area) will cause the held data sets for a job to be released for print. Specifying "P" instead of "R" releases all held data sets and routes the jobs output to the TSO users own default destination.

Multiple jobs can be cancelled or released at the same time by entering the desired action command on the appropriate line. In Slide 10, the user has elected to cancel job ASMPAY and release job REPORT2. By entering the "C" and "R" as shown on the slide and pressing ENTER, IOF will cancel the job ASMPAY and release the job REPORT2. Pressing END will then return you to the SPF Primary Option Menu.

This concludes the sample session for the SPF applications programmer.

PRODUCTION CONTROL CLERK

- * Invoke IOF from TSO READY level
- * Review return codes for a production job
- * Browse the console log for the job
- * Modify FORMS and COPIES for a sysout data set
- * Cancel a sysout data set
- * Review return codes for a second production job
- * Browse the summary report for the job
- * Release both jobs for print

Slide 11

In the sample session for the production control clerk IOF will be invoked as a command from the TSO READY level. The clerk will review the return codes for a production job, browse the console log for the job, and then cancel one sysout data set and modify the attributes of another.

190 The clerk will then review the results of a second job and release both jobs for print.

READY

\$HASPL65 JOB 2492 SALESRUN ENDED CN(00)
iof

Slide 12

Slide 12 shows IOF being invoked by the clerk from the TSO READY level. A job name could have been specified as a parameter on the IOF command to avoid the Job Selection Menu and go directly to the Job Summary Display for the specified job.

```

-----IOF JOB SELECTION MENU-----
SELECT JOB ==>                                SCROLL ==> SCREEN
-----JOBNAME----JOBID--STATUS---QUALIFIER--MISC-----
- 1  SALESRUN  J2492  OUTPUT   TSO      HAS HELD OUTPUT
- 2  T342B784  J2460  OUTPUT   LOCAL
- 3  PAYTEST   J4835  XMIT     DENVER
- 4  PAYROLL   J3933  RUNNING  ON 3081  CHECKS.EDIT

```

Slide 13

You will note that the Job Selection Menu displayed in Slide 13 as a result of entering the "IOF" command is identical to the SPF menu. The menu shown shows that there are two jobs that have completed execution. Assume the clerk enters "1" in the command area to select the SALESRUN job for review.

```

--- SALESRUN JOB02492-----RAN 15:18  3/18/82 (THURSDAY )-----PRINT: TSO
COMMAND INPUT ==>                                SCROLL ==> SCREEN
--RC--STEP----PROC-----PROCSTEP--COMMENTS-----
 0  EDIT    SA01A  PREPARE
 0  SORT    SA01A  PREPARE
ABND WEEKLY SA02A  PRINT      ABEND SYSTEM=D37 USER=0000
 * MONTHLY SA02A  PRINT      NOT EXECUTED
-----DDNAME---STEP-----CLASS-RECORDS-HELD--DEST----FORMS--UCS--FCB-COPIES--
- 1  LOG      *      A      9      NO
- 2  JCL      *      A     93     NO
- 3  MESSAGES *      A    155    NO
- 4  SYSPRINT EDIT  A    3282   NO
- 5  SYSPRINT SORT  A      5     NO
- 6  REGIONS  WEEKLY A   15232  YES      W427      8
- 7  SALESMEN WEEKLY A    4167  YES      W428      8
- 8  SUMMARY  MONTHLY A         NO

```

Slide 14

The Job Summary Display for SALESRUN is shown in Slide 14. You can see that the WEEKLY step terminated with a D37 abend. To determine which output data set caused the abend and must be expanded the clerk needs to scan the console log for the job.

To find the D37 error message in the console log the clerk enters the menu number (1) for the log. To find the specific error message (D37) immediately, the data set menu number could be followed by a period (IOF logical line delimiter) followed by a FIND command for the desired string: 1.F D37

The period can be used throughout IOF as a logical line delimiter and is very useful for nested menu selection. For example, entering 2.4 on the Job Selection Menu would select the job whose menu number is 2 and then select the sysout data set whose menu number is 4.

```

BROWSE - LOG * PAGE 1-- LINE 6 COLS 1 80
COMMAND INPUT ==> SCROLL ==> SCREEN
15.18.08 JOB 2492 IEC031I D37-04,IFG0554T,SALESRUN,WEEKLY,NEWMASSTR
15.18.08 JOB 2492 IEC031I PA3296.SALES.NEW.MASTER
15.18.08 JOB 2492 IEC450I SALESRUN WEEKLY SA02A - ABEND SD37 U000
15.18.12 JOB 2492 $ SALESRUN ENDED

```

Slide 15

Slide 15 is the Browse Display for the job's console log, positioned to the first record that contains the string D37. The clerk makes a note of the data set name and then presses END to return to the Job Summary Display.

```

--- SALESRUN JOB02492-----RAN 15:18 3/18/82 (THURSDAY)-----PRINT: TSO
COMMAND INPUT ==> SCROLL ==> SCREEN
--RC--STEP-----PROC-----PROCSTEP--COMMENTS-----
0 EDIT SA01A PREPARE
0 SORT SA01A PREPARE
ABND WEEKLY SA02A PRINT ABEND SYSTEM=D37 USER=0000
* MONTHLY SA02A PRINT NOT EXECUTED
-----DDNAME---STEP-----CLASS-RECORDS-HELD--DEST-----FORMS--UCS--FCB--COPIES--
1 LOG * A 9 NO
2 JCL * A 93 NO
3 MESSAGES * A 155 NO
4 SYSPRINT EDIT A 3282 NO
5 SYSPRINT SORT A 5 NO
C 6 REGIONS WEEKLY A 15232 YES W427 8
M 7 SALESMEN WEEKLY A 4167 YES ....
8 SUMMARY MONTHLY A NO

```

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Slide 16

The clerk is now back to the Job Summary Display for the job.

The clerk decides that based upon the abend condition the REGIONS data set from the WEEKLY step is really of no use, so he places a "C" in the action area for the data set to cause this data set to be cancelled.

For diagnostic purposes the clerk wants to print the SALESMEN data set from the WEEKLY step, but he wants just one copy on standard forms. The clerk places an "M" (for Modify) in the action area for the data set, and overtypes the FORMS and COPIES areas with blanks.

Slide 16 shows the Job Summary Display for SALESRUN with the specified changes made. Pressing ENTER at this point directs IOF to take the actions indicated.

Several additional actions could have been specified at the data set level from this panel. Placing a "P" in the action area for a data set will spin off a copy of the data set.

Placing an "R" in the action area for a held data set will cause the data set to be released. Any of the data set attributes can be modified by simply overtyping them when the data set is released.

Placing an "N" in the action area for a data set will cause the data set to be "snapped" into a disk or tape data set. The "snap" facility is also available from the browse panel to allow copying of parts of sysout data sets to disk or tape data sets allocated by the user. This facility makes it easy to produce archive copies of selected portions of important production jobs.

Placing a "D" in the action area for a data set will invoke the Sysout Data Set Attribute Display, a full screen display of all 23 of the sysout attributes for the data set. For held data sets any of the attributes may then be modified by simply overtyping them on the screen. This allows the production control clerk to easily change data set forms, copies, class, print destination, UCS, FCB, or any of the 3800 printer attributes.

We will assume that the clerk now presses END to cause the two actions indicated in Slide 16 to be taken and to return to the Job Selection Menu.

```

-----IOF JOB SELECTION MENU-----
SELECT JOB ==> SCROLL ==> SCREEN
-----JOBNAME---JOBID--STATUS---QUALIFIER--MISC-----
- 1 SALESRUN J2492 OUTPUT TSO HAS HELD OUTPUT
- 2 T342B784 J2460 OUTPUT LOCAL
- 3 PAYTEST J4835 XMIT DENVER
- 4 PAYROLL J3933 RUNNING ON 3081 CHECKS.EDIT

```

Slide 17

Slide 17 is a re-display of the Job Selection Menu for the clerk. Job T342B784 will now be reviewed by entering a "2" in the command input area to select it. Of course, as under SPF, the job could have been selected by entering "S" in the action area beside the job.

```

--- T342B784 JOB02460-----RAN 10:36 3/18/82 (THURSDAY )-----PRINT: TSO
COMMAND INPUT ==> SCROLL ==> SCREEN
--RC--STEP-----PROC-----PROCSTEP--COMMENTS-----
0 ARO1A1 ARO1A PREPARE
0 ARO1A2 ARO1A PREPARE
0 ARO1A3 ARO1A PREPARE
0 ARO1A4 ARO1A PREPARE
0 ARO2A1 ARO2A VALIDATE
0 ARO2A2 ARO2A VALIDATE
0 ARO2A3 ARO2A VALIDATE
0 ARO2A4 ARO2A VALIDATE
0 ARO2B1 ARO2B AUTHRIZE
0 ARO2B2 ARO2B AUTHRIZE
0 ARO2B3 ARO2B AUTHRIZE
0 ARO3A1 ARO3A LOG
0 ARO3A2 ARO3A LOG
0 ARO3A3 ARO3A LOG
0 ARO3B1 ARO3B CHECK
0 ARO3B2 ARO3B CHECK
0 ARO3B3 ARO3B CHECK
0 ARO4A1 ARO4A UPDATE
0 ARO4A2 ARO4A UPDATE
0 ARO4A3 ARO4A UPDATE
0 ARO9C1 ARO9C PRINT

```

Slide 18

Slide 18 is the first screen of the Job Summary Display for job T342B784. The primary purpose of this example is to demonstrate the power of IOF for reviewing large production jobs. You can tell from a glance that all of the steps on this screen completed successfully.

Note that this job has more steps than will fit on one screen. In this case the clerk will be required to scroll through the Job Summary Panel just as is normally done in browse. To see the next screen full of summary information, the clerk must enter the DOWN command or press the DOWN key.

In our example, the clerk will press DOWN to scroll to the next screen.

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```

--- T342B784 JOB02460-----RAN 10:36 3/18/82 (THURSDAY )-----PRINT: TSO
COMMAND INPUT ==> SCROLL ==> SCREEN
--RC--STEP-----PROC-----PROCSTEP--COMMENTS-----
0 ARO9C2 ARO9C PRINT
0 ARO9C3 ARO9C PRINT
0 ARO9C4 ARO9C PRINT
0 ARO9C5 ARO9C PRINT
0 ARO9C6 ARO9C PRINT
0 ARO9C7 ARO9C PRINT
0 AR10A1 AR10A SUMMARIZ
-----DDNAME---STEP-----CLASS-RECORDS-HELD--DEST-----FORMS--UCS--FCB-COPIES--
- 1 LOG * A 86 NO
- 2 JCL * A 1137 NO
- 3 MESSAGES * A 3249 NO
- 4 SYSPRINT ARO1A1 A 126 NO
- 5 SYSPRINT ARO1A2 A 38 NO
- 6 SYSPRINT ARO1A3 A 294 NO
- 7 EXCEPTION ARO1A4 A 1531 NO
- 8 SYSPRINT ARO2A1 A 739 NO
- 9 EXCEPTION ARO2A2 A 2481 NO
- 10 SYSPRINT ARO2A3 A 29 NO
- 11 SYSPRINT ARO2A4 A 111 NO
- 12 SYSPRINT ARO2B1 A 1027 NO
- 13 ERRORS ARO2B2 A 703 NO

```

Slide 19

Slide 19 is the second screen of the Job Summary Display for the job. All of the steps on this screen also completed normally as can be easily determined. Note that the sysout data set summary display begins immediately after all steps have been displayed.

To continue the summary for this job, the clerk presses DOWN again to scroll to the next screen.

Slide 20 is the third screen of the Job Summary Display for the job. Note that all of the sysout data sets containing large reports have been held to allow them to be easily cancelled or modified by the clerk.

In a real production job, it might be desirable to browse the last sysout summary data set for additional assurance that the job produced the desired results. To browse the SUMMARY data set the clerk would just enter 32 (its menu number) in the command area or place an "S" in its action area.


```

--- T342B784 JOB02460-----RAN 10:36 3/18/82 (THURSDAY )-----PRINT: TSO
COMMAND INPUT ==> SCROLL ==> SCREEN
-----DDNAME-----STEP-----CLASS-RECORDS-HELD--DEST-----FORMS--UCS--FCB-COPIES--
- 14 REPORT AR02B3 A 7529 NO
- 15 SYSPRINT AR03A1 A 502 NO
- 16 LOGPRINT AR03A2 A 17528 NO
- 17 SYSPRINT AR03A3 A 163 NO
- 18 SYSPRINT AR03B1 A 3128 NO
- 19 EXCPTION AR03B2 A 1794 NO
- 20 SYSPRINT AR03B3 A 72 NO
- 21 SYSPRINT AR04A1 A 389 NO
- 22 SYSPRINT AR04A2 A 1740 NO
- 23 SYSPRINT AR04A3 A 230 NO
- 24 REPORT AR09C1 A 394662 YES F778
- 25 SYSPRINT AR09C1 A 94126 YES F892
- 26 SYSPRINT AR09C1 A 201539 YES F893
- 27 REPORT AR09C1 A 74219 YES F894
- 28 SYSPRINT AR09C1 A 134672 YES F782
- 29 REPORT AR09C1 A 34204 YES F779
- 30 SYSPRINT AR09C1 A 23235 YES F780
- 31 SYSPRINT AR09C1 A 45693 YES F781
- 32 SUMMARY AR10A1 A 142 NO

```

Slide 20

Rather than actually browse the SUMMARY data set, we will assume that the clerk presses END to return to the Job Selection Menu.

```

-----IOF JOB SELECTION MENU-----
SELECT JOB ==> SCROLL ==> SCREEN
-----JOBNAME-----JOBID--STATUS---QUALIFIER--MISC-----
P 1 SALESRUN J2492 OUTPUT TSO HAS HELD OUTPUT
P 2 T342B784 J2460 OUTPUT LOCAL
- 3 PAYTEST J4835 XMIT DENVER
- 4 PAYROLL J3933 RUNNING ON 3081 CHECKS.EDIT

```

Slide 21

The clerk is now back to the Job Selection Menu. To release both jobs for print the clerk places a "P" in the action areas for the jobs and presses ENTER. This will route the jobs to the clerk's default print station and release all of the held data sets for the job. Slide 21 shows the Job Selection Menu with these actions specified. The clerk then presses END to terminate IOF and return to the TSO READY level.

This concludes the production control clerk sample session.

```

T T Y U S E R
* TTY Terminal
* Review job output
* Cancel the job

```

Slide 22

The TTY user will review the same job that was previously analyzed by the SPF applications programmer and then cancel the job. TTY users have all the same IOF features available to them as do full-screen 3270 users. The only real functional difference is that they have no PF key capability, and must enter the short, simple IOF commands to specify desired actions.

As we have seen, 3270 users may also enter the commands instead of using the full screen capability. This compatibility allows users to easily switch between full screen and TTY type devices. This feature is very important because many programmers utilize 3270 type devices during the day, and portable TTY type devices or personal computers on dial up from home.

The TTY the user enters the IOF command at the TSO READY level.

```

-----JOBNAME-----JOBID--STATUS---QUALIFIER--MISC-----
1 ASMPAY J0376 OUTPUT TSO
2 EDITACCT J0436 RUNNING ON IP01 HAS OUTPUT
3 PAYTEST J3482 INPUT (T 13)
4 REPORT2 J6112 OUTPUT LOCAL HAS HELD OUTPUT
==>

```

Slide 23

This is the Job Selection Menu for a TTY user. Although the same basic information is presented, you will notice that this display does not contain nearly as many characters as the 3270 version. Remember that most TTY users access the system at 30 or 120 characters per second (300 or 1200 baud), and small considerations such as this make the product much more usable at such speeds.

From this display and others it should be clear that TTY support was designed into IOF from the beginning and was not just something that was added to a 3270 product. Even the HELP provided is different for TTY and 3270 terminals, so the TTY user does not have to ignore information about program function keys and other 3270-specific features.

For our example, the TTY user enters "1" in the command input area to select the job ASMPAY for review.

```

--- ASMPAY   JOB00376-----RAN 15:18   3/19/82 (YESTERDAY)-----PRINT: TSO
--RC--STEP-----PROC-----PROCSTEP--COMMENTS
  8 ASM      ASMFLC  PROGL
  * LKED     ASMFLC  PROGL      NOT EXECUTED
-----DDNAME---STEP-----CLASS-RECORDS-HELD--DEST-----FORMS--UCS--FCB-COPIES--
  1 LOG      *        A          7      NO
  2 JCL      *        A         28     NO
  3 MESSAGES *        A         14     NO
  4 SYSPRINT C        A        638    NO
  5 SYSTEM  C        A         15     NO
==>

```

Slide 24

Slide 24 is the TTY Job Summary Display for the job ASMPAY. Since this screen is very dense the format of this display is much closer to the format of the 3270 version. The TTY user can immediately see that the ASM step had a return code of 8, and that the SYSTEM data set probably contains all the information required to fix the problem.

To select SYSTEM for browse, the user enters "5".

```

BROWSE - SYSTEM  PROGL  ASM
ASSEMBLER (XF) DONE
 26000      39          LA   R115,SCALE      POINT TO SCALE TABLE
IFO188 R115 IS AN UNDEFINED SYMBOL
 28000     109          MVC  PRTDUCT,REDUCT  RECORD COUNT TO PRINT
BUFFER
IFO188 REDUCT IS AN UNDEFINED SYMBOL
 30000     173          STJ  R2,RECSIZE     SAVE RECORD SIZE
IFO078 UNDEFINED OP CODE
 32000     191          LA   R1,RATES       ADDR OF RATE TABLE
IFO236 ILLEGAL CHARACTER IN EXPRESSION NEAR OPERAND COLUMN 3
NUMBER OF STATEMENTS FLAGGED IN THIS ASSEMBLY = 4
HIGHEST SEVERITY WAS 8
OPTIONS FOR THIS ASSEMBLY
  ALIGN, ALOGIC, BUFSIZE(STD), DECK, ESD, FLAG(0), LINECOUNT(55), LIST,
  NOMCALL,
  NOMLOGIC, NUMBER, NOOBJECT, NORENT, RLD, STMT, NOLIBMAC, TERMINAL, NOTEST,
  XRE
  SYSPARM()
++++ BOTTOM OF DATA SET ++++
==>

```

Slide 25

Slide 25 is the ASCII browse display for the SYSTEM data set. Notice that the top line and bottom of data set indication are abbreviated from their 3270 versions.

Since the TTY user cannot use program function keys all browse functions are also supported as commands. Most commands can be accomplished by typing one character followed by RETURN. For example, to scroll up or down the user enters UP or DOWN (U or D).

Of course the BREAK key is honored to interrupt the output process on any IOF panel. After a BREAK, the IOF status is the same as it would have been had the output been completed without the interruption. This is especially useful to avoid having to wait for a screen full of unwanted data on a slow output device.

The TTY FIND command has the same syntax as the 3270 version. Because the devices are slower and a full browse takes longer, these users may make more use of FIND than 3270 users however.

TTY users have one command not available to 3270 users. The LIST command allows the user to produce a listing of all or part of the data set without pausing at each screen boundary. This feature is especially useful on hard-copy terminals and on personal computers retrieving output back to the local memory or disk.

The COMPRESS option is probably used more often by TTY users than by full-screen users. This option allows data to be displayed with multiple contiguous blanks compressed. It can save a great deal of time on slow terminals.

To establish a default print destination a separate command, IOFDFLT, is provided. Parameters set via IOFDFLT remain in effect for the duration of the TSO session or until reset. This command is useful for both TTY users and 3270 users who are not operating under SPF.

TTY users probably make more use of concatenated commands as described above than do 3270 users, again because of the device speed. Additional shorthand commands such as "NEXT" (or "N") are also available to enable users to skip directly to the next data set for browse.

In our example, the user decides to cancel the job. To cancel the job and return to the TSO READY level the user simply enters EXIT CANCEL (or EX C).

This concludes the TTY user sample session.

I O F S U M M A R Y

- * Function
 - Easily review results of batch jobs
 - Control disposition of sysout data
 - Control attributes of sysout data
 - Manage all aspects of user's batch jobs
- * Performance
 - Excellent response due to design
 - No system degradation
 - Minimum I/O
- * Security
 - No unauthorized access to spool or checkpoint
- * Environments
 - All versions of JES2
 - All TSO terminal types
 - All versions of SPF

Slide 28

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IOF provides the function that TSO users need to completely manage all aspects of their batch jobs. Users can easily review the results of their jobs and then control the attributes and disposition of all sysout data.

The excellent response time provided by IOF is a direct result of its design. And of course good response time is only achieved by minimizing the hardware resources required to perform each function. IOF reads data only when it is required, and not because it might be required in the future. This means that IOF will actually reduce the total hardware resources consumed by the average TSO user.

IOF does not compromise the security of spool data since it requires no unauthorized access to the spool or checkpoint data sets.

IOF supports all versions of JES2, TSO terminal types, and all versions of SPF.



SHARE SESSION REPORT

61	B401	MVS Under VM Through Conversion & Beyond	200
SHARE NO.	SESSION NO.	SESSION TITLE	ATTENDANCE
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SESSION CHAIRMAN'S COMPANY, ADDRESS, AND PHONE NUMBER			

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SHARE 61 - Session B401
 MVS Under VM Through Conversion and Beyond
 Wednesday, August 24, 1983

