The IOF presentation on June 29, 2021 was a live demo of the IOF product.

The following are some very useful IOF Information.

Some useful links on the IOF web site:

The main IOF web site is here:
https://www.triangle-systems.com/

Online Doc: Install and User Guides:
https://www.triangle-systems.com/iofdoc.shtml

The IOF newsletters have a lot of info on using IOF features.
This is a table of contents for them:
https://www.triangle-systems.com/newsltr.shtml

The "Virtual Help Desk" has a lot of info about common problems:
https://www.triangle-systems.com/IOFDIAG.shtml

A link to the IOF training information on the Fischer website (they do the IOF marketing).
https://www.fisc.com/products/iof/

Some more links on the Fischer site that are particularly useful:
Follow the IOF Functionality link to:
https://www.fisc.com/support/ioffunctionality/

The quick reference card link:
https://www.fisc.com/support/docs/2016-IOF@8FQR.pdf

A sample of IOF documentation follows:

IOF Guide for Managing Batch Jobs

The Interactive Output Facility (IOF) is a comprehensive JES2 management tool. But its most popular feature is its unique approach to reviewing and managing batch jobs. This is an introductory guide to understanding and making productive use of those job management features.

Invoking IOF under ISPF

There will be an option on your ISPF Primary Option Menu to invoke IOF. It is normally "I", but your company may have chosen a different name. This document assumes that the option to invoke IOF is "I".

Your company has specified how IOF should process the "I" option:

"I" displays your personal jobs.
The "I" option will take you directly to the IOF Job List for your personal jobs. For information about other jobs or JES2 resources you can enter "I." to display the IOF Option Menu.

"I" displays the IOF Option Menu.
The IOF Option Menu allows you to manage other jobs and control other JES2 resources. To display your own personal jobs enter "I." on the ISPF Primary Option Menu, or press ENTER on the IOF Option Menu without specifying a command or overtyping any parm fields.

Enter the QRF (Quick Reference) command anywhere in IOF and then choose topic 2 to see more detailed information about invoking IOF under ISPF at your site. The QRF information is dynamically customized for your site and your personal options.

<u>The IOF Option Menu</u>

This menu is useful only when you are looking for jobs that you didn't submit or you need to
control other JES2 resources. The previous section describes how you can completely bypass
this menu if you just want to display the IOF Job List for your own jobs. Also, Topic 2 under the
QRF command shows exactly how to do that at your site.

```
------------------------------ IOF Option Menu ------------------------------
COMMAND ===>

Follow an option with "?" to display its detailed interface panel.

blank - Your jobs        LOG  - Sys Log    ENC  - Enclaves     PUN  - Punches
  I   - Input jobs       SR   - Sys Req    CN   - Console      RDR  - Readers
  R   - Running jobs     DEV  - Devices    MAS  - MAS Systems  QRF  - Quik Ref
  O   - Output jobs      PR   - Printers   PS   - Processes    OPER - Operlog
  J   - Jobs menu        LINE - Lines      WLM  - WLM Support  ZDS  - z/OS Data
  G   - Output Groups    INIT - Inits      CHK  - Health Cks   ZF   - Scan PDS
  H   - Held Groups      OFF  - Offload    JM   - JES2 info    ARC  - Archive
  M   - System Monitor   SPV  - Spools     JBC  - Job Classes  MORE - More Cmds
  P   - IOF Profile      NOD  - Nodes      APPC - APPC menu


JOBNAMES ===>
                              Enter 1 to 8 generic jobnames above


SCOPE    ===>                 ALL, ME or another user's USERID
DEST     ===>
```

Your IOF Option Menu may not look exactly like this because you will only see the commands
that you are authorized to use. You can see that IOF can control many different types of JES2
resources, but this guide will focus on controlling jobs.

You can choose to control your own jobs from this menu much like you may have done in SDSF
by using the OWNER command to select your jobs and then specifying the ST, I, DA, O, etc.
commands to review and control them.

But IOF makes it much simpler to display and manage your own jobs because IOF displays those
by default if you bypass this menu completely. You can still display your own jobs from this menu
by pressing ENTER without specifying anything. You don't need to specify your userid as the
owner because that's the default if you press ENTER here with no command or overtypes. And
you don't need to enter any commands to request input, running, or output jobs. By default IOF
shows you all of those on a single full function display.

Bypassing this IOF Option Menu will display all of the jobs that you submitted whether they are
still on the input queue, currently running, or already completed.

If you are authorized to see another user's jobs, you can enter their userid in the SCOPE field.
That SCOPE filter will apply only to the resulting Job List of that user's jobs. When you return
from that Job List to the IOF Option Menu the SCOPE field will be reset to blank. If you always
want to select another user's jobs by default you can use the OWNER command to set a profile
value for the SCOPE field.

The JOBNAMES and DEST filter fields are also reset each time that you return to the Option
Menu. You can use the PREFIX and DEST commands to set profile values for those fields. If no

SCOPE is specified, IOF will restrict the job list to your own jobs unless you overtype the JOBNAMES or DEST field. Overtyping the JOBNAMES (or DEST) field will temporarily suspend your userid as the default owner filter and display all jobs in the system that match that jobname (or destination).

In practice this works well because many users can run most of the time with no profile OWNER, PREFIX, or DEST. Then, if you are authorized, to display jobs owned by other users you can overtype the SCOPE, JOBNAMES, or DEST fields to access those jobs without having to set any OWNER, PREFIX or DEST profile values (which would then need to be reset to get back to your own jobs).

IOF users who normally manage their own jobs and only occasionally want to see other jobs typically have no need for the PREFIX, OWNER, or DEST commands.

The IOF Job List

```
------------------------------ IOF Job List Menu -------------( 7 )------------
COMMAND ===>                                             SCROLL ===> CURSOR
------------------------------- Running Jobs ---------------------------------
-------JOBNAME--JOBID---ACT-STAT-SYID-------CPU-------I/O-STEP-----PROCSTEP-SWP
_    1 BLDMASTR J914874          S0W1       :03      1796 FILTER   SCAN
------------------------------- Output Jobs ----------------------------------
-------JOBNAME--JOBID---ACT-STAT-OWNER----DEST/DEVICE-------RECS-HELD-DAY--TIME
_    2 COMPARE  J914238          MYUSID    TRIANGLE         1016       110 14:58
_    3 LINK     J909406          MYUSID    TRIANGLE          233   150 040 16:00
_    4 SWXMOD   J909404          MYUSID    TRIANGLE               2733 040 15:45
_    5 COMPFIX  J907528          MYUSID    TRIANGLE          195       015 11:57
_    6 M32COPY  J902992          MYUSID    TRIANGLE         3599       317 17:14
_    7 M13GEN   J902991       12 MYUSID    TRIANGLE          72K       317 17:13
```

The IOF Job List display is unique to IOF because it shows you detailed information for all of your jobs. The BLDMASTR job is still running, and you can see its current CPU and I/O usage along with the job step that's currently executing. You can press ENTER to watch the job as it executes. You can also cancel the running job with the "C" line command or review its output while it's running with the 'S' line command.

For your output jobs, you can see that it displays the date and time the job ran along with a summary of the total output produced by the job. And you can cancel the job ("C line command) or review its results ("S" line command) directly from this screen. As with all IOF list panels, you can see more detail by scrolling this panel to the right.

For controlling your own jobs the IOF Job List is the only list panel you will ever need.

```
------------------------------ IOF Job List Menu -------------( 7 )------------
COMMAND ===>                                             SCROLL ===> CURSOR
------------------------------- Output Jobs ----------------------------------
-------JOBNAME--JOBID---ACT-STAT-OWNER----DEST/DEVICE-------RECS-HELD-DAY--TIME
_    1 BLDMASTR J914874 MOV      MYUSID    TRIANGLE          351       119 16:12
S    2 COMPARE  J914238          MYUSID    TRIANGLE         1016       110 14:58
_    3 LINK     J909406          MYUSID    TRIANGLE          233   150 040 16:00
_    4 SWXMOD   J909404          MYUSID    TRIANGLE               2733 040 15:45
```

```
_       5 COMPFIX  J907528            MYUSID   TRIANGLE              195        015 11:57
_       6 M32COPY  J902992            MYUSID   TRIANGLE             3599        317 17:14
_       7 M13GEN   J902991         12 MYUSID   TRIANGLE              72K        317 17:13
```

This is what the Job List looks like after the BLDMASTR job completes. You can see that the
Running Jobs section has disappeared. And the ACT field for the BLDMASTR job has been set
to "MOV" to make it easier to spot the job that just completed. Of course in most cases there will
be no Running Jobs section when you invoke IOF, so you will normally only see your output jobs.

In many cases you might want to review the BLDMASTER job that just completed, but the
COMPARE job provides a simple example of IOF's approach to reviewing output jobs.

This is where the SDSF user would probably enter the "S" line command to browse the
COMPARE job's entire output, and you can still do that using the "B" line command.

But IOF users prefer to use the "S" line command to select the job for the IOF Job Summary. The
sections below help to explain why they do that.

The IOF Job Summary

```
------------------------------ IOF Job Summary --------------------------------
COMMAND ===>                                              SCROLL ===> CURSOR
--JOBNAME--JOBID----STATUS---RAN/RECEIVED------DAY-------DEST-----------------
  COMPARE  J914238  OUTPUT   14:58  4/20/2021 TUESDAY   TRIANGLE
--RC--PGM--------STEP-----PRSTEP---PROC-----COMMENTS--------------------------
   0  ISRSUPC    COMPARE
--------DDNAME---STEP-----PRSTEP---STAT-ACT-C-GRP-D-SIZE-U-DEST---------------
_    1  LOG       *                        A   1 W   21 L TRIANGLE
_    2  JCL       *                        A   1 W   11 L TRIANGLE
_    3  MESSAGES *                         A   1 W   40 L TRIANGLE
S_   4  OUTDD     COMPARE                   A   1 W  944 L TRIANGLE
```

The IOF Job Summary is probably IOF's most popular feature. On this single display you can
see a detailed summary of the job's results followed by a menu of the sysout data sets created by
the job. The power of this display is much more obvious when reviewing larger jobs with multiple
steps, but this simple example makes it easier to understand how IOF users review output as
opposed to just browsing the entire job.

On the single step return code row you can see that the ISRSUPC program running in the
COMPARE step ended with a return code of zero. For larger jobs this section can contain many
rows, one for each step.

For this COMPARE job we would normally want to see the results of the comparison. A quick
glance at the sysout data sets makes it easy to see that the results are in the OUTDD data set.
Even for more complicated jobs, IOF users quickly learn which sysouts they want to see. You can
drill down to that sysout by selecting it with the "S" line command.

IOF Browse

```
BROWSE - OUTDD                COMPARE  - Page  1      Line  1        Cols 1-80
 COMMAND ===>                                               SCROLL ===> CURSOR
******************************** Top of Data ********************************
  ISRSUPC   -   MVS/PDF FILE/LINE/WORD/BYTE/SFOR COMPARE UTILITY- ISPF FOR z/OS
NEW: MYUSRID.CLIST(IOFMAIL2)                        OLD: MSTR.CLIST(IOFMAIL2)

                    LISTING OUTPUT SECTION (LINE COMPARE)

ID        NEW FILE LINES                              ID         OLD FI
   ----+----1----+----2----+----3----+----4----+----5----+     ----+----1----+-

   /*----------------------------------------------------- |    /*--------------
   |                                                        |    |
   |   This is an interface exec for sending IOF mail       |    |   This is an in
   |                                                        |    |
   |   May be invoked by IOFSEND or IOFMAIL (must be under  |    |   May be invoke
   |                                                        |    |
I -|   Max error number: 286                               | D -|   Max error num
   \----------------------------------------------------- |    \--------------
                                                           |
   address IOF                                             |    address IOF
                                                           |
   call check_IOF_environment          /* Make sure we ar  |    call check_IOF_e
```

This is the first IOF browse screen of the ISRSUPC comparison results. Here's a brief review of how you got here:

I (or I.) on ISPF Option Menu to bypass the IOF Option Menu and display your jobs
"S" beside the COMPARE job
"S" beside the OUTDD sysout

 You can see that IOF browse displays the DD name (OUTDD) and step name (COMPARE) for the current sysout. It's very similar to ISPF browse and you can use your normal ISPF browse commands to scroll and search in the data set.

By default IOF displays sysout data sets using the carriage spacing in the data, so it should appear on your screen exactly as it would on a printed page.   It you don't like that feature you can enter the COMPRESS command to turn it off (COMPRESS OFF to revert to the default).

IOF also displays the current page number and line number (on that page) based on the carriage control in the data. And there are special commands that support page numbers:

DOWN 20 PAGES
PAGE 35
SNAP 10 PAGES

You can press HELP to see many more features of IOF browse. .

Now we will back up to the IOF Job Summary for the COMPARE job to describe some additional features on that panel.

```
----------------------------- IOF Job Summary -------------------------------
COMMAND ===> SS/SD/SU (before N line commands)
SCROLL ===> CURSOR
--JOBNAME--JOBID----STATUS---RAN/RECEIVED------DAY-------DEST-----------------
  COMPARE  J914238  OUTPUT   14:58  4/20/2021 TUESDAY    TRIANGLE
--RC--PGM--------STEP-----PRSTEP---PROC-----COMMENTS--------------------------
   0  ISRSUPC    COMPARE
--------DDNAME---STEP-----PRSTEP---STAT-ACT-C-GRP-D-SIZE-U-DEST---------------
_    1  LOG      *                       A   1 W   21 L TRIANGLE
_    2  JCL      *                       A   1 W   11 L TRIANGLE
_    3  MESSAGES *                       A   1 W   40 L TRIANGLE
N    4  OUTDD    COMPARE            SEL  A   1 W  944 L TRIANGLE
```

Use the IOF SNAP feature to copy sysout data to a target sysout dataset, disk data set, or HFS file. Specify a target data set for the output to be snapped using these primary commands:

SS   (snap to a sysout data set)
SD   (snap to disk data set)
SU   (snap to an HFS file)

Each of these commands displays an interface panel for specifying the target data set. After pressing ENTER on those panels use the "N" line command to snap specific sysouts. The snap target data set will be closed when you exit the Job Summary display or when you issue another SS, SD, or SU command. You can also manually close it with the SNAPCLOS command.

For more information about snap target data sets enter the QRF command, press DOWN to see the second QRF menu panel, then select the SS/SD/SU topic (Snap to target data sets).

You can also use the HELP key to see many other features of the IOF Job Summary display.

Now we will back up to the IOF Job List and select a more complex job for review.

```
----------------------------- IOF Job List Menu -------------( 7 )-----------
COMMAND ===>                                                SCROLL ===> CURSOR
------------------------------- Output Jobs ---------------------------------
-------JOBNAME--JOBID---ACT-STAT-OWNER----DEST/DEVICE-------RECS-HELD-DAY--TIME
_     1 BLDMASTR J914874        MYUSID   TRIANGLE          351      119 16:12
_     2 COMPARE  J914238        MYUSID   TRIANGLE         1016      110 14:58
_     3 LINK     J909406        MYUSID   TRIANGLE          233  150 040 16:00
_     4 SWXMOD   J909404        MYUSID   TRIANGLE              2733 040 15:45
_     5 COMPFIX  J907528        MYUSID   TRIANGLE          195      015 11:57
_     6 M32COPY  J902992        MYUSID   TRIANGLE         3599      317 17:14
S     7 M13GEN   J902991     12 MYUSID   TRIANGLE          72K      317 17:13
```

You can see that one of the steps in the M13GEN job had a return code of 12. To diagnose that
situation use the "S" line command to select the M13GEN job for the Job Summary.

```
----------------------------- IOF Job Summary ------------------------------
COMMAND ===> 11                                             SCROLL ===> CURSOR
--JOBNAME--JOBID----STATUS---RAN/RECEIVED------DAY-------DEST-----------------
  M13GEN   J902991  OUTPUT   16:13  11/12/2020 THURSDAY  TRIANGLE
--RC--PGM--------STEP-----PRSTEP---PROC-----COMMENTS------------------------
   0  IEBCOPY    COMPRESS
   0  ASMA90     LINKCTRL
   0  ASMA90     CONTROL
  12  ASMA90     JESCTL
   *  IEWL       R10CM                        NOT EXECUTED
   *  IEWL       R11AX                        NOT EXECUTED
--------DDNAME---STEP-----PRSTEP---STAT-ACT-C-GRP-D-SIZE-U-DEST--------------
_     1 LOG      *                         A   1 W   33 L TRIANGLE
_     2 JCL      *                         A   1 W  335 L TRIANGLE
_     3 MESSAGES *                         A   1 W  545 L TRIANGLE
_     5 SYSPRINT COMPRESS                  A   1 W   17 L TRIANGLE
_     6 SYSPRINT GENJGBL                   A   1 W  352 L TRIANGLE
_     7 SYSTERM  GENJGBL                   A   1 W    1 L TRIANGLE
_     8 SYSPRINT CONTROL                   A   1 W  17K L TRIANGLE
_     9 SYSTERM  CONTROL                   A   1 W    5 L TRIANGLE
_    10 SYSPRINT JESCTL                    A   1 W  35K L TRIANGLE
_    11 SYSTERM  JESCTL                    A   1 W    9 L TRIANGLE
_    12 SYSPRINT R10CM                     A   1 W 2880 L TRIANGLE
_    13 SYSPRINT R11AX                     A   1 W  201 L TRIANGLE
```

This job has many steps but you can see immediately that the JESCTL step failed with a return
code of 12. The SYSTERM sysout for an assembler step contains the detailed error messages
from an assembly, so you can browse the SYSTERM sysout for the JESCTL step to see the
problems that caused the nonzero return code. You could tab down and use the "S" line
command, but since there are lots of sysouts it's easier to just enter that data set's menu number
of 11.   That feature works on all IOF list panels.

```
******************************* Top of Data ********************************
000148                        25878+PPPFLAG1 DS    X                    PRINT
0001F8                        26010+PPPENCWK DS    0D,XL(ENCELEN)       Compr
                                  +                                        work
ASMA068S Length error - L(ENCELEN)
ASMA435I Record 339 in TSIMVS.ZOS24.D191007.SYS1.SHASMAC($PPPWORK) on volume: SP
000000 D1D5E340               49840+JNTID    DC    CL4'JNT'             JNT I
0000BC 0000                   50026+JMPDDB1  DC    AL2(CCTPDDB1-HCCT)   IN $
ASMA044E Undefined symbol - CCTPDDB1
Assembler Done JESCTL      2 Statements Flagged /  12 was Highest Severity Code
 ***************************** Bottom of Data ******************************
```

Here you can see the assembler diagnostic messages for the JESCTL step. To briefly summarize how you would normally get here:

I (or I.) on ISPF Option Menu to bypass the IOF Option Menu and display your jobs
"S" beside the M13GEN job
"11" primary command to select the SYSTERM sysout for the JESCTL step

Summary

This has been a very brief summary of the IOF features for controlling batch jobs. There are many more features that can be explored using the HELP key on any of these IOF panels. And the QRF command can be entered on any IOF panel to display quick reference information for many IOF features.