An IBM representative will walk the attendees through using SDSF at an introductory level. New users will learn how SDSF can help them monitor and control jobs, output, devices and system resources throughout the MAS. The session will also include hints and tips for more experienced SDSF users.
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Objectives

• Explain SDSF to the new or intermediate user:
  • Familiar with SDSF but not expert
  • Might include:
    • End users
    • Operators
    • System programmers
  • Along the way, include tips for everyone
System Display and Search Facility

SDSF provides an easy & efficient way to:

- Control job processing
- Control output and browse jobs, without printing
- Control devices such as printers, lines, and initiators
- Manage system resources
- Work with checks for IBM Health Checker for z/OS
SDSF Organizes Data

- Data is presented in tabular format on 20+ different panels
- Panels are customizable by the system programmer and the user
- SDSF security controls the panels users see and the functions they can use
SDSF Main Panel

<table>
<thead>
<tr>
<th>COMMAND</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>HQX7770----</td>
<td>SDSF PRIMARY OPTION MENU -----------</td>
</tr>
<tr>
<td>COMMAND INPUT ===&gt;</td>
<td>SCROLL ===&gt; PAGE</td>
</tr>
<tr>
<td><strong>DA</strong></td>
<td>Active users</td>
</tr>
<tr>
<td><strong>I</strong></td>
<td>Input queue</td>
</tr>
<tr>
<td><strong>O</strong></td>
<td>Output queue</td>
</tr>
<tr>
<td><strong>H</strong></td>
<td>Held output queue</td>
</tr>
<tr>
<td><strong>ST</strong></td>
<td>Status of jobs</td>
</tr>
<tr>
<td><strong>LOG</strong></td>
<td>System log</td>
</tr>
<tr>
<td><strong>SR</strong></td>
<td>System requests</td>
</tr>
<tr>
<td><strong>MAS</strong></td>
<td>Members in the MAS</td>
</tr>
<tr>
<td><strong>JC</strong></td>
<td>Job classes</td>
</tr>
<tr>
<td><strong>SE</strong></td>
<td>Scheduling environments</td>
</tr>
<tr>
<td><strong>RES</strong></td>
<td>WLM resources</td>
</tr>
<tr>
<td><strong>ENC</strong></td>
<td>Enclaves</td>
</tr>
<tr>
<td><strong>PS</strong></td>
<td>Processes</td>
</tr>
<tr>
<td><strong>INIT</strong></td>
<td>Initiators</td>
</tr>
<tr>
<td><strong>PR</strong></td>
<td>Printers</td>
</tr>
<tr>
<td><strong>PUN</strong></td>
<td>Punches</td>
</tr>
<tr>
<td><strong>RDR</strong></td>
<td>Readers</td>
</tr>
<tr>
<td><strong>LINE</strong></td>
<td>Lines</td>
</tr>
<tr>
<td><strong>SO</strong></td>
<td>Spool offload</td>
</tr>
<tr>
<td><strong>SP</strong></td>
<td>Spool volumes</td>
</tr>
<tr>
<td><strong>RM</strong></td>
<td>Resource monitor</td>
</tr>
<tr>
<td><strong>CK</strong></td>
<td>Health checker</td>
</tr>
<tr>
<td><strong>ULOG</strong></td>
<td>User session log</td>
</tr>
</tbody>
</table>

Here is the main panel in SDSF with all of the options enabled.

**Lab Task:**

Log on, enter ISPF, and access SDSF. You should see a panel that looks something like this.
Manage Jobs

<table>
<thead>
<tr>
<th>Display</th>
<th>Filter</th>
<th>View</th>
<th>Print</th>
<th>Options</th>
<th>Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>HQX7770</td>
<td>------</td>
<td>----</td>
<td>-----</td>
<td>-------</td>
<td>----</td>
</tr>
</tbody>
</table>

SDSF PRIMARY OPTION MENU ------
COMMAND INPUT ==> 

DA  Active users
I   Input queue
O   Output queue
H   Held output queue
ST  Status of jobs

This is what the typical “End User” sees on the menu.

Most of this session is devoted to these panels. However, many of the concepts discussed apply to all panels.

SDSF can be tailored either through SAF or through its own parameters (ISFPARM) so that various panels and functions within those panels are only available to select users or groups. So, for an average user who should have access to only his jobs and nothing else, the panel could be tailored to look like this.
SDSF Panels - Layout

<table>
<thead>
<tr>
<th>Command Input:</th>
<th>NP</th>
<th>JOBNAME</th>
<th>SysName</th>
<th>Real Paging</th>
<th>SIO</th>
<th>CPU%</th>
<th>SrvClass</th>
</tr>
</thead>
<tbody>
<tr>
<td>NP JOBNAME</td>
<td></td>
<td>SysName</td>
<td>Real</td>
<td>Paging</td>
<td>SIO</td>
<td>CPU%</td>
<td>SrvClass</td>
</tr>
<tr>
<td>MASTER* AQFT</td>
<td>10T</td>
<td>0.00</td>
<td>7.06</td>
<td>0.15</td>
<td>SYSTEM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MASTER* AQTS</td>
<td>3594</td>
<td>0.00</td>
<td>0.12</td>
<td>0.04</td>
<td>SYSTEM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABOVEN AQTS</td>
<td>742</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>TSOPRIME</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADAM AQTS</td>
<td>1310</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>TSOPRIME</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADANPL AQTS</td>
<td>1128</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>TSOPRIME</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADINELL AQTS</td>
<td>564</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>TSOPRIME</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADOOLEY AQFT</td>
<td>1472</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>TSOPRIME</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All SDSF panels have the same basic layout. For now, we'll look at DA just to see what this looks like.

**Lab Task:**
Access the DA panel, you should see something that looks like this.

The top row consists of pulldowns where you can access additional SDSF functions. Below that is a title line indicating what display you are on (in this case DA), and for some panels additional summary data may be displayed too. Next is the command line where SDSF or TSO commands can be issued. Finally, there is a columnar display of, in this case, all active jobs in the system. The NP column allows you to issue specific commands against row objects; also the values in some columns can be modified by overtypeing them. You can page up and down to see additional rows, and left and right to see additional columns.

There may be some differences in what you see on your system because a prior user has modified some settings. You'll see how, and how to deal with it, on the next page.
Tips – Other settings

Display settings: set display

SDSF STATUS DISPLAY ALL CLASSES LINE 1-20 (24651)
COMMAND INPUT ===> SCROLL ===> PAGE
PREFIX=BKELLER* DEST=(ALL) OWNER=* FILTERS=2
NP   JOBNAME  JobID  Owner  Prty  Queue  C
     BKELLER  TSU23637  BKELLER  15  EXECUTION

Display action characters: set action (long|short)

SDSF HELD OUTPUT DISPLAY ALL CLASSES LINES 452,893 LINE 429-449 (449)
COMMAND INPUT ===> SCROLL ===> CSR
ACTION=/-Block,=-Repeat,+‐Extend,?-JDS,A-Release,C-Cancel,H-Hold,L-List
ACTION=O-Release,P-Purge,Q-Outdesc,S-Browse,X-Print
NP   JOBNAME  JOBID  OWNER  PRTY  C ODISP  DEST  TOT-REC
    DB2LU32  JOB09111  DB2JOB  7  HOLD  LOCAL  730

Lab Task:

Issue SET DISPLAY ON and SET DISPLAY OFF to toggle the display line. If data is not being displayed, this can indicate why.

The PREFIX command can be used to limit what job names are displayed. PREFIX with no operands is the same as PREFIX *.

The OWNER command limits the display based on the owner of the row object (in this case, a job). Again, OWNER with no operands is the same as OWNER *.

Other filters can be set up using the FILTER command but it’s easier from the FILTER pulldown. FILTERS= on the display line displays how many are in effect. Go to the pulldown or issue FILTER ? to see what filters are in effect for this panel.

Issue SET ACTION LONG, SET ACTION SHORT, and SET ACTION OFF and notice the difference in the display. These lines are there to remind you what you can type in the NP column for this panel.
Customizing Panels

Use commands to show just your own jobs
• ISFPARMS can also limit jobs

SDSF STATUS DISPLAY ALL CLASSES
COMMAND INPUT ===>
NP   JOBNAME  JobID   Owner  Status  Prty  Queue
BKE...
Manage Jobs – Active (DA)

- DA shows only active jobs (address spaces)
- MVS and performance info such as CPU use
- Includes address spaces not running under JES
- Data comes from RMF

CPU use for the system

CPU use for each address space – useful for sorting

Values in the SysName column indicate that this is a sysplex-wide view.

If RMF isn’t installed, this display shows a subset of the columns.
Manage Jobs – CPU Values

MVS, LPAR and zAAP views of CPU use on the title line:

CPU/L/Z 26/26/0

**Many CPU-related columns**
- **GCP-Time**: Accumulated general processor service time, in seconds
- **zAAP-Time**: Accumulated zAAP service time, in seconds
- **zACP-Time**: Accumulated general processor service time that was eligible for a zAAP, in seconds
- **GCP-Use%**: Percent of the total general processor time used by the address space in the most recent interval (not normalized)
- **zAAP-Use%**: Percent of the total zAAP time used by the address space in the most recent interval (not normalized)
- **SzAAP%**: zAAP view of CPU use *for the system*, in the most recent interval
- **SzIIP%**: zIIP view of CPU use *for the system*, in the most recent interval

Values for the system columns (SzAAP% and SzIIP%) are the same for all rows for a given system. This information is shown in columns because there is no room on the title line. The title line reflects just the system you are logged on to.
Tip: Help

Detailed help on each of the CPU fields is available
1. Press F1 from DA, then select “Fields on the DA panel”

2. Tab to any highlighted phrase and press F1...

From any panel, F1 will put you int a general help for that panel. There are options that you can then follow which will get you closer to the specific help you're looking for. You can also get there from the Help pulldown.

Within the help, you may also find highlighted phrases that you can tab to and hit F1 to find relevant to that specific phrase. This help function requires ISPF. It exploits what ISPF calls “reference phrase” help. Anytime you see a highlighted phrase in the help that you can tab to, it is probably a reference phrase “link” that you can follow by pressing F1.

Lab Task:
Access the help for DA, and find specific help on the zIIP and zAAP related columns.
Tip: Help for CPU Values

Further help on that topic is displayed (7 panels on CPU)

HELP: Display Active Users Panel -- CPU Fields  Panel 1 of 7
COMMAND INPUT ==>

Title line: You may see one, two or three values depending on your configuration. If three values are shown, the label preceding the values indicates the order. All three values are obtained from RMF.

MVS view: is the first value, or the only value if just one is present. It is the best indicator of a CPU bottleneck. It is
CPU-time
----------- * 100
online-time

LPAR view: is the second value, if present. It takes into account several states related to PR/SM. A value of *** indicates RMF Monitor I CPU Report is not active.
Manage Jobs – Status (ST) Panel

<table>
<thead>
<tr>
<th>Display</th>
<th>Filter</th>
<th>View</th>
<th>Print</th>
<th>Options</th>
<th>Help</th>
</tr>
</thead>
</table>

SDSF STATUS DISPLAY ALL CLASSES LINE 1-20 (24651)
COMMAND INPUT ===> SCROLL ===> PAGE

<table>
<thead>
<tr>
<th>NP</th>
<th>JOBNAME</th>
<th>JobID</th>
<th>Owner</th>
<th>Prty</th>
<th>Queue</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BKELLER</td>
<td>TSU23637</td>
<td>BKELLER</td>
<td>15</td>
<td>EXECUTION</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BKELLERA</td>
<td>JOB23991</td>
<td>BKELLER15</td>
<td>INPUT</td>
<td>J</td>
<td></td>
</tr>
</tbody>
</table>

- **ST** - basic panel for managing jobs and output
  - Jobs on any queue
    - Including started tasks that are executing
  - Held and non-held output
  - Overtypes for job cols like service class, priority
  - I panel shows jobs on the input queue or executing
    - Columns and actions nearly identical to ST

This example shows a typical setup with jobs being limited to just the user’s jobs. This could be done through either PREFIX (job name) or OWNER commands.

**Lab Task:**
Issue the ST command to check out the ST panel.

Submit the job in `CLWOOD.S2343.JCL(IEFBR14)`. Tailor the display so that it only displays your jobs using the PREFIX and OWNER commands.

Go to the I panel. Note that the PREFIX and OWNER settings are still in effect. Now release your job. If you don’t remember how, SET ACTION LONG to see a list of actions to remind you how to do it.

Finally, go back to ST to see the status of the job. Don’t worry, we’ll do more with it later.
Tip – Canceling Active Jobs

- Five different forms of “cancel”
  - Note Y (MVS Stop) for started tasks
    - New with z/OS V1R5
- SET ACTION (LONG|SHORT) shows valid actions

SET ACTION is enhanced as of z/OS 1.9: SET ACTION LONG used to show just the base form of each action, meaning, for example, it would include C but not CD (cancel and take a dump) or CDA (cancel a job defined to ARM and take a dump). With R9, all forms of each action character are included with SET ACTION LONG.
**Tip: Scaling and Arrange**

- SDSF scales numbers to make them fit the column width

<table>
<thead>
<tr>
<th>NP</th>
<th>JOBNAME</th>
<th>SysName</th>
<th>Real Paging</th>
<th>SIO</th>
<th>CPU%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><em>MASTER</em></td>
<td>AQFT</td>
<td>12T</td>
<td>0.00</td>
<td>7.06</td>
</tr>
<tr>
<td></td>
<td><em>MASTER</em></td>
<td>AQTS</td>
<td>3594</td>
<td>0.00</td>
<td>0.12</td>
</tr>
<tr>
<td></td>
<td>ABOwen</td>
<td>AQTS</td>
<td>742</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>ADAM</td>
<td>AQTS</td>
<td>1310</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>ADANPL</td>
<td>AQTS</td>
<td>1128</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>ADINELL</td>
<td>AQTS</td>
<td>564</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>ADOOLEY</td>
<td>AQFT</td>
<td>1472</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

T=thousands, M=millions, B=billions, plus KB, MB, GB, TB, PB (bytes)

You can resize columns with the ARRANGE command, as shown on the next page.
**Tip: Scaling and Arrange**

- To see the actual number, use Arrange to increase the column width.

<table>
<thead>
<tr>
<th>Display</th>
<th>Filter</th>
<th>View</th>
<th>Print</th>
<th>Options</th>
<th>Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDSF DA AQTS SYS1 PAG 10</td>
<td>CPU/L/Z 26/26/0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**COMMAND INPUT ==> arr real 8**

<table>
<thead>
<tr>
<th>NP</th>
<th>JOBNAME</th>
<th>SysName</th>
<th>Real</th>
<th>Paging</th>
<th>SIO</th>
<th>CPU%</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>MASTER</em></td>
<td>AQFT</td>
<td>12T</td>
<td>0.00</td>
<td>7.06</td>
<td>0.15</td>
<td></td>
</tr>
<tr>
<td><em>MASTER</em></td>
<td>AQTS</td>
<td>3594</td>
<td>0.00</td>
<td>0.12</td>
<td>0.04</td>
<td></td>
</tr>
</tbody>
</table>

You can also do this through the Arrange pop-up, which you access with this command: ARR ? (requires ISPF). There is also an Arrange option on the View pulldown which shows the same information.
Customizing Panels

Arrange and resize columns

<table>
<thead>
<tr>
<th>Column</th>
<th>Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>_ SysName</td>
<td>8</td>
</tr>
<tr>
<td>_ Real</td>
<td>4</td>
</tr>
<tr>
<td>_ Paging</td>
<td>6</td>
</tr>
<tr>
<td>_ SIO</td>
<td>6</td>
</tr>
<tr>
<td>_ CPU%</td>
<td>6</td>
</tr>
<tr>
<td>_ SrvClass</td>
<td>8</td>
</tr>
<tr>
<td>a_ StepName</td>
<td>8</td>
</tr>
<tr>
<td>a_ ProcStep</td>
<td>8</td>
</tr>
<tr>
<td>a_ Owner</td>
<td>8</td>
</tr>
<tr>
<td>__ Status</td>
<td>6</td>
</tr>
<tr>
<td>__ C</td>
<td>1</td>
</tr>
</tbody>
</table>

Move Real after Stepname

Change widths

Lab Task:
Use the arrange commands and popup to reorder and resize columns on the DA panel.

When you're done issue ARR ? to access the popup and hit PF6 to restore the columns to their default size and order.
Tip: Alternate Field Lists

- Every panel has two sets of columns, a primary and a secondary, or alternate
  - Defined in ISFPARMS
- Secondary includes things like output descriptors (Programmer name, Room number, Account number, etc.) that may take longer to obtain
- Different sets of ARRANGE criteria can be used for each
- Access the alternate set with ?

The alternate set of fields, by default, contains all of the primary fields plus the alternate fields.

Both sets of fields can be customized for the installation through SDSF’s customization module, ISFPARMS.

Note that for many displays, the primary and alternate lists are the same by default and include all possible columns.

**Lab Task:**
Issue a ? from the command line to see the alternate columns. Note that both list are the same for DA.

Now use arrange to rearrange the columns and toggle back and forth between primary and secondary.

When you’re done set the order for both the primary and secondary back to the default (ARR ? and PF6)
Manage Output – Output (O) Panel

- Output (O) panel displays information about output that is ready to be printed.
  - Overtypes for output characteristics
  - Output panel can be filtered by output class by issuing Ox to see output class x. Up to 7 output classes can be listed.

**Lab Task:**
Issue the O command to check out the output panel.

Issue the OABC command and note the differences.
Manage Output - O Panel

O shows a row for each output group, so a job can have multiple rows:

<table>
<thead>
<tr>
<th>JOBNAME</th>
<th>JobID</th>
<th>Owner</th>
<th>O-Grp-N</th>
<th>OGID1</th>
<th>OGID2</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABCGR2XX</td>
<td>JOB01736</td>
<td>ABCARSO</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>ABCGR2XX</td>
<td>JOB01736</td>
<td>ABCARSO</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>ABCGR3XX</td>
<td>JOB01738</td>
<td>ABCARSO</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>ABCGR3XX</td>
<td>JOB01738</td>
<td>ABCARSO</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>ABCGR4XX</td>
<td>JOB01740</td>
<td>ABCARSO</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>ABCGR4XX</td>
<td>JOB01740</td>
<td>ABCARSO</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6</td>
</tr>
</tbody>
</table>

Output groups have identical characteristics, such as forms, class, destination, address and building.
Tip: Held Output (H) Panel

H panel shows *held* output.
- O and H have nearly identical columns and actions
- H has a built-in filter that limits it to your own jobs.
- To display output for all jobs on the H panel:
  - `prefix **` then `h`
  - or `h all`

Note that PREFIX works differently on the H display from how it works on the other displays. This is because historically, JES2 used to have to do spool I/O to determine what held datasets were associated with a job, and this was to limit the amount of I/O to be done. This changed many years ago but the behavior has remained for compatibility.

PREFIX ** or H ALL can be used to override the default filtering.

**Lab Task:**
Issue H to get to the held panel.
Tip: Time/Date Columns

- O and H panels have a CRDate column:
  - Default width shows just a date
  - Expand with `arr crdate 20` to see the time

<table>
<thead>
<tr>
<th>JOBNAME</th>
<th>CrDate</th>
<th>JOBNAME</th>
<th>CrDate</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRVLIB</td>
<td>01/12/2011</td>
<td>SRVLIB</td>
<td>01/12/2011</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SRVLIB</td>
<td>01/12/2011</td>
<td>SRVLIB</td>
<td>01/12/2011 16:39:39</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SRVLIB 01/12/2011 16:39:49</td>
</tr>
</tbody>
</table>

- When filtering on any date/time field, use `<` or `>`, not =
  - Time will never match precisely
Browse

- Output as it is being created, consisting of:
  - Data written to SPOOL
  - In-memory buffers (most recent data) if:
    - Job is running on the local system or
    - You have SDSF's sysplex support
  - See earlier slide…
- Input data sets for jobs being processed or waiting to be processed

<table>
<thead>
<tr>
<th>NP</th>
<th>JOBNAME</th>
<th>JOBID</th>
<th>OWNER</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>BKELLERZ</td>
<td>JOB32343</td>
<td>BKELLER</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>WLMBKP#</td>
<td>JOB30138</td>
<td>KJONAS</td>
<td>D</td>
</tr>
</tbody>
</table>
Browse

Data sets are concatenated

```
SDSF OUTPUT DISPLAY BKELLERZ JOB32343 DSID 2
COMMAND INPUT ===> 
09.25.05 JOB32343 IRR010I USERID BKELLER IS ASSIGNED
09.25.06 JOB32343 ICH70001I BKELLER LAST ACCESS AT 09:25:06
09.25.06 JOB32343 $HASP373 BKELLERZ STARTED - INIT 1
09.25.07 JOB32343 IEF403I BKELLERZ - STARTED - TIME=09:25:07
                                                                         -----------
1 //BKELLERZ JOB '141691,B001D49A', 'WR KELLER'
   // MSGCLASS=H, NOTIFY=BKELLER, CLASS= 
2 //OUT OUTPUT FORMDEF=010111,PAGEDEF=V0648 
                                                                         -----------
16 IECF001I PROCEDURE COMPARE WAS EXPANDED USING 
ICH70001I BKELLER LAST ACCESS AT 09:25:06 ON MONDAY, 
```

• Use NEXT and PREV to move between data sets

Lab Task:
Use the S action character from the ST panel to browse a job’s output.

Use PF7/PF8 to page up and down

Use the NEXT and PREV commands to jump forward backward to the next or prior data set.
Tip: ISPF Edit or Browse

Instead of S (SDSF browse), you can use
- SE to browse using ISPF Edit
- SB to browse using ISPF Browse

- Then you can use any ISPF Edit or Browse commands or macros
- SDSF NEXT and PREV actions cannot be used.

Lab Task:
Look at the same job’s output using the SB action character to get ISPF Browse

Look at the same job’s output using the SE action character to get ISPF Edit.
Tip: Default Browse Action

- Default browse action
  - Browse a job by pressing Enter next to it
  - No action character required

  ==> SET BROWSE S

<table>
<thead>
<tr>
<th>SDSF Status Display All Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command Input ==&gt;</td>
</tr>
<tr>
<td>NP  JOBNAME JobID</td>
</tr>
<tr>
<td>BKELLER TSU09331 BKELLER</td>
</tr>
<tr>
<td>BKELLER TSU26790 BKELLER</td>
</tr>
</tbody>
</table>

**SDSF Output Display BKELLER JOB07810**

<table>
<thead>
<tr>
<th>COMMAND INPUT ==&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>********************* TOP OF DATA ******</td>
</tr>
<tr>
<td>\INMR01 S390VM BKELLER</td>
</tr>
<tr>
<td>12113 \INMR07 BKELLER R17JSHP2 2</td>
</tr>
</tbody>
</table>

SET BROWSE with no arguments turns this off.
Browse JCL and Resubmit

Use SJ action to browse just the JCL
• Make changes and resubmit

• Uses ISPF Edit
• Changes you make are not saved

Lab Task:
Use SJ to browse the input JCL for a job.

Modify the JCL and re-submit the job.
Tip: Save Changes

To save changes, use ISPF’s CREATE or REPLACE commands

- Displays a panel that lets you specify where to save
Work with Job Data Sets (JDS)

The ? action lists the data sets for a job:

<table>
<thead>
<tr>
<th>NP</th>
<th>JOBNAME</th>
<th>JOBID</th>
<th>OWNER</th>
<th>PRTY</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>?</td>
<td>BKELLERZ</td>
<td>JOB32343</td>
<td>BKELLER</td>
<td>7</td>
<td>D</td>
</tr>
</tbody>
</table>

SDSF JOB DATA SET DISPLAY - JOB BERKEA5 (JOB00042)

<table>
<thead>
<tr>
<th>COMMAND INPUT ===&gt;</th>
<th>SCROLL ===&gt; PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DDNAME</td>
<td>StepName</td>
</tr>
<tr>
<td>JESJCLIN</td>
<td>JES2</td>
</tr>
<tr>
<td>JESMSGLG</td>
<td>JES2</td>
</tr>
<tr>
<td>JESJCL</td>
<td>JES2</td>
</tr>
<tr>
<td>JESYSMSG</td>
<td>JES2</td>
</tr>
<tr>
<td>S</td>
<td>ISFOUT</td>
</tr>
</tbody>
</table>

Browse, print, purge release

Change class, dest, output descriptors

Lab Task:

Use the ? Action character to display the list of data sets associated with the job.

Now use the S, SB, or SE commands to look at individual data sets.
Tip: Working with Data Sets

Overtyping long columns:
- Entire column must be visible
- Use LOC column-name

SDSF JOB DATA SET DISPLAY - JOB BERKEA5 (JOB00042)
COMMAND INPUT ===> loc userlib SCROLL ===> PAGE
NP DDNAME StepName ProcStep DSID Owner C Dest
JESJCLIN 1 BEVK R LOCAL

Scrolls to that column

SDSF JOB DATA SET DISPLAY - JOB BERKEA5 (JOB00042)
COMMAND INPUT ===> SCROLL ===> PAGE
NP DDNAME UserLib
JESJCLIN

Note that LOC can be used on any display, not just JDS
Tip: Working with Data Sets

Overtyping related fields:

Many columns have sets of related values. For example, you can specify multiple selection forms and selection destinations for printers. SDSF typically handles these “related fields” by providing a single overtypable column; to work with the full set of values, you use “overtype extension.” The Overtype Extension pop-up always shows as many input fields as are valid for that column. If there are no “related” columns, the pop-up has only one field. If you are unsure if a column has related values, type the + by itself to find out.
Printing

You can print:
- Output data
- Data from the log panels
- Screen images of SDSF panels

The print output can be sent to:
- SYSOUT
- Data set
- Print file (specified with a ddname).
Print with the X action:
D – Data Set, S – SYSOUT, F – File, C - Close

XDC prints to a data set and closes the print file when the printing is done.

The PRINT command entered from within browse prints the output that you are browsing. In the example, it would print to SYSOUT.
Printing - Control

PRINT command and pop-ups provide more control:

You can use options on the X action character and print command to display panels that let you define the destination. XS or PRINT S display the pop-up for SYSOUT, shown here.
Tip – Printing As Is

SDSF's print function inserts ANSI carriage control, or converts machine carriage control, if present, to ANSI, unless:

• You use the PRINT FILE command or the XF or XFC action character
• The data is page-mode. SYSOUT files containing both page-mode data and machine character data are not defined as page-mode in JES2.
Manage Other (non-JES) Workload

- WLM enclaves

<table>
<thead>
<tr>
<th>NP</th>
<th>TOKEN</th>
<th>SSType</th>
<th>Status</th>
<th>SrvClass</th>
<th>CPU-Time</th>
<th>zIIP-Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>240000149E</td>
<td>DDF</td>
<td>INACTIVE</td>
<td>SYSOTHER</td>
<td>34.51</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>640000145B</td>
<td>DDF</td>
<td>INACTIVE</td>
<td>SYSOTHER</td>
<td>63.24</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>2C0000004</td>
<td>DDF</td>
<td>INACTIVE</td>
<td>SYSOTHER</td>
<td>7.64</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>300000020</td>
<td>DDF</td>
<td>INACTIVE</td>
<td>SYSOTHER</td>
<td>0.15</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>380000033</td>
<td>DDF</td>
<td>INACTIVE</td>
<td>SYSOTHER</td>
<td>0.31</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>400000021</td>
<td>DDF</td>
<td>INACTIVE</td>
<td>SYSOTHER</td>
<td>0.15</td>
<td>0.00</td>
<td></td>
</tr>
</tbody>
</table>

- zIIP and zAAP use columns
- Actions to resume, quiesce

The token (the fixed field) is generated by z/OS.
Manage Other (non-JES) Workload

- Unix System Services processes

| NP | JOBNAME     | Status                  | Owner | State | CPU-
|----|-------------|-------------------------|-------|-------|------
|    | BPX0INIT    | SWAPPED, RUNNING        | SYSTASK | MRI  | 1    |
|    | MQS1CHIN    | RUNNING                 | MQS   | 1R    | 11   |
|    | MQS1CHIN    | RUNNING                 | MQS   | 1R    | 12   |
|    | MQS1CHIN    | FILE SYS KERNEL WAIT    | MQS   | 1F    | 20   |
|    | KDMQDKJ     | RUNNING                 | SYSTASK | HR  |      |

- Actions for Cancel (address space) and Unix Kill
Customizing Panels

- Filter by any column or combination of columns, including boolean operators
  - Set for a single panel
  - FILTER ?

- Sort using 1 or 2 columns
  - SORT ?

- Set screen colors and other attributes
  - SET SCREEN

FILTER ?, SORT ? and SET SCREEN display pop-ups that require ISPF.
Tips – Other settings

- Require confirmation of destructive actions
  - **Set confirm** displays a confirmation pop-up for cancel & purge on job and output panels

- Control cursor placement
  - **Set cursor on** keeps the cursor on the row you are working with
  - **Set cursor top** returns cursor to the command line (V1R7)

Lab Task:
Issue **SET CONFIRM ON**. Now go to the ST panel and purge the job that you submitted earlier with the P action character.
The remainder of the presentation is geared toward operator and system programmer type actions. Many of the hints and tips you’ve seen so far apply equally well to those tasks, such as ARRANGE, FILTER, and so on.
Operators and System Programmers

Monitor and control:
• Initiators
• Printers, punches
• Readers
• Lines, nodes
• Job classes
• Spool volumes
• Spool offloaders
• Members in the MAS
• WLM scheduling environment, resources
• IBM Health Checker for z/OS
• JES2 resources
• SYSLOG
View the System Log

• View the system log online
• View a merged sysplex log (LOG O)

COMMAND INPUT=====> FIND HASP395
N 4000000 AQFT 01303 16:37:20.94 JOB23185 0000001
NC0000000 AQFT 01303 16:37:21.33 INTERNAL 0000022
N 0000000 AQFT 01303 16:37:21.37 TSU21704 00000081 IEF126I RIMFIRE - LOGG
N 4000000 AQFT 01303 16:37:21.37 TSU21704 00000091 $HASP395 RIMFIRE ENDED
N 0000000 AQFT 01303 16:37:26.65 00000291 IEA989I SLIP TRAP ID=X33
N 0200000 AQFT 01303 16:37:29.08 JOB23211 00000081 $HASP100 D75CEM1C ON I
8000000 AQFT 01.10.09 STC17351 *60 DSI802A CNM03 REPLY WITH VALID NCCE SY
8000000 AQFT 01.04.42 *57 DSI802A M03AO REPLY WITH
0002000 AQFT 01.49.45 STC15235 *12 DENQ002D ENQ Mon
******************************** BOTTOM OF DATA ********************************

WTORs listed below the log data

Search log data

Lab Task:
Issue LOG command to browse SYSLOG.
Tip – Auto-refresh the Log

- New log data is added to the bottom
- & command repeats a command at an interval

```
COMMAND INPUT===> BOT &15
N 4000000 AQFT 01303 16:37:20.94 JOB23185 000000091 $HAS
N 0000000 AQFT 01303 16:37:21.33 INTERNAL 00000281 SE
N 0000000 AQFT 01303 16:37:21.37 TSU21704 000000081 IEF
N 4000000 AQFT 01303 16:37:21.37 TSU21704 000000091 $HAS
N 0000000 AQFT 01303 16:37:26.65 00000291 IEA9991 SLIP
N 0200000 AQFT 01303 16:37:29.08 J0823201 000000081 $HAS
N 8000000 AQFT 01.10.09 STC17351 *60 DS1802A CNM03 REPLY WITH VALID NCCF SY
N 8000000 AQFT 01.04.42 *57 DS1802A M03AO REPLY WITH VALID NCCF SY
N 0002000 AQFT 01.49.45 STC15235 *12 DENQ002D ENQ Monitor - Reply 'ENQ' or 'E

******************************************************************************* BOTTOM OF DATA ****************************
```
Tip: Emulator

Wide 3270 emulator session shows more data:

SDSF SYSLOG 12.101 SY1 SY1 01/18/2007 0W 3021 COLUMNS 1 80
COMMAND INPUT ===> SCROLL ===> CSR
N 4040000 SY1 2011018 09:01:16.49 00000000 CEA0107I COMMON EVENT
M 4040000 SY1 2011018 09:02:07.76 50000014 00000000 HZS0001I CHECK(IBMSV,
E 310 00000000 CSVH0957E Problem(s) w
M 4040000 SY1 2011018 09:02:16.61 50000014 00000000 *HZS0003E CHECK(IBMRACF
D 311 00000000 IRRH204E The RACF_SENS

SDSF SYSLOG 12.101 SY1 SY1 01/18/2007 0W 3032 COLUMNS 1 132
COMMAND INPUT ===> SCROLL ===> CSR
N 4040000 SY1 2011018 09:01:16.49 00000000 CEA0107I COMMON EVENT ADAPTER IS RUNNING IN FULL FUNCTION MODE.
M 4040000 SY1 2011018 09:02:07.76 50000014 00000000 HZS0001I CHECK(IBMSV,CSV_APF_EXISTS): 310
E 310 00000000 CSVH0957E Problem(s) were found with data sets in the APF list.
M 4040000 SY1 2011018 09:02:16.61 50000014 00000000 *HZS0003E CHECK(IBMRACF,RACF_SENSITIVE_RESOURCES): 311
D 311 00000000 IRRH204E The RACF_SENSITIVE_RESOURCES check has found one or
Work with Action Messages

SR panel shows system requests

<table>
<thead>
<tr>
<th>NP</th>
<th>REPLYID</th>
<th>SysName</th>
<th>JobName</th>
<th>Message-Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>r</td>
<td>43</td>
<td>AQTS</td>
<td>AUTONET</td>
<td>*43 DSI802A M05A0 REPLY WITH</td>
</tr>
<tr>
<td></td>
<td>52</td>
<td>AQTS</td>
<td>WHOSP2</td>
<td>*52 DENQ002D ENQ Monitor – R</td>
</tr>
<tr>
<td></td>
<td>53</td>
<td>AQTS</td>
<td>NETVNET</td>
<td>*53 DSI802A CNM05 REPLY WITH</td>
</tr>
</tbody>
</table>

R action displays a pop-up for replying to the message

Lab Task:
Issue SR to get to the system request panel. There probably are not any WTORs to reply to. If there are, **please do not reply to them!**
Control Devices

Information displayed about devices includes:
- Status and characteristics (such as selection criteria)
- The job currently being processed

Control with action characters and overtypes

<table>
<thead>
<tr>
<th>SDSF PRINTER DISPLAY</th>
<th>LINE 33-54 (102)</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMMAND INPUT ===&gt;</td>
<td>SCROLL ===&gt; PAGE</td>
</tr>
<tr>
<td>NP</td>
<td>PRINTER</td>
</tr>
<tr>
<td>PRT33</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>PRT34</td>
<td>ACTIVE</td>
</tr>
</tbody>
</table>

Start, stop, forward space, etc.

Overtyped to change attributes

Complete your sessions evaluation online at SHARE.org/SFEval
Sysplex-wide Data

- With the addition of WebSphere MQ, users can work with devices anywhere in the sysplex.

```
SDSF LINE DISPLAY SY1 LINE 1-5 (5)
COMMAND INPUT ===>                     SCROLL ===> CSR
NP DEVICE Status  SysName  Unit  Node  Jobname
LINE1  ACTIVE  SY1     SNA
LINE2  ACTIVE  SY1     F00C
LINE3  ACTIVE  SY1     F012  POKVMXA1
LINE10 DRAINED SY2     0406
LINE11 DRAINED SY2     0407
```
System Commands - /

Enter system commands from within SDSF

COMMAND INPUT ===> /setprog apf,add,ddname=isf +

Type /, then cmd. Trailing + displays the pop-up

System Command Extension

Type or complete typing a system command, then press Enter.

==> setprog apf,add,ddname=isf.isfload,vol=us1

Place the cursor on a command and press Enter to retrieve it.

More: +

Previous commands

Complete your sessions evaluation online at SHARE.org/SFEval
Tip: Long System Commands

Two input lines -- can be a problem with Insert

System Command Extension
Type or complete typing a system command, then press Enter.

==> SETPROG APF,ADD,DSNAME=isftest.hqx7730.bkeller.data,volume=******

Press F5 for a full-screen version with a single input line:

SDSF - System Command Extension
Type or complete typing a system command, then press Enter.

==> setprog apf,add,dsname=isftest.hqx7730.bkeller.data,volume=******__
**View a Log for Your Session**

ULOG captures commands and msgs. for a user.

---

**Lab Task:**

Go to the ST panel and issue a D action character to get a JES display of the job.

Issue the ULOG command and see the command that was issued, plus the response.
Customizing SDSF

System programmers use SDSF’s internal parameters, ISFPARMS, to customize SDSF:

- Global initialization values (data set names, etc.)
- Columns on SDSF panels
- Action bar on or off, confirmation on or off, etc.
- Systems to include
ISFPARMS example (excerpt)

GROUP TSOAUTH(JCL,OPER,ACCT),
      XUID(XLIST),
      AUTH(LOG, I, O, H, DA, INIT, PR, NO, DEST),
      IFIELDSD(DFLD)
NTBL NAME(XLIST)
      NTBLENT STRING($S), OFFSET(1)
      NTBLENT STRING(OPER), OFFSET(3)

FLD NAME(DFLD) TYPE(IN)
      FLDENT COLUMN(JNUM), TITLE('JOB NUM'), WIDTH(7)
      FLDENT COLUMN(JPRIO), TITLE(PRTY), WIDTH(4)

Columns definition
Name list used in group definition
Group definition
Processing ISFPARMS

- Processed by an SDSF server (address space) at initialization
- Server reads from PARMLIB member ISFPRMxx or from a PDS defined in the server JCL.
  - Can specify the xx suffix when starting the server, for example s sdsf,m=01

Note: ISFPARMS can also be coded with ASSEMBLER macros if JES2 is being used, but is not recommended.
Controlling the SDSF Server

- **START** *proc-name* to start the server
  - Example: `s sdsf`

- **MODIFY** *server-name* to refresh the statements or check syntax without activating
  - Example: `f sdsf,refresh,test`

- **STOP** *server-name* to stop the server
  - Example: `p sdsf`
Tip: Starting the SDSF Server

- After starting a server, be sure ISFPRMxx read okay
- Check the console for error messages
- Or, in SDSF, browse the job log for the server

```
SDSF JOB DATA SET DISPLAY - JOB SDSF (COMMAND INPUT ==>
NP DDNAME StepName ProcStep DSID Owner
JESJCLIN 1 SDSF
S JESMSGLG JES2 2 SDSF

SDSF OUTPUT DISPLAY SDSF S0000007 DSID 2 LINE 0
COMMAND INPUT ==>
********************************* TOP OF DATA *************
J E S 2 J O B L O G -- S Y S T E M
09.39.27 S0000007 ---- MONDAY, 29 JAN 2007 ----
09.39.27 S0000007 IEF695I START SDSF WITH JOBNAME SDSF
09.39.27 S0000007 $HASP373 SDSF STARTED
09.39.28 S0000007 ISF7241 SDSF level HQX7740 initialization
```
Providing Security

- **ISFPARMS**
  - Combination of group definitions and auth lists

- **SAF**
  - Recommended! **Required** for JES3!
  - Dynamic
  - Granular
  - Better audit trail
  - Falls back to ISFPARMS when there is no decision in JES2 only
**REXX!**

- Available since z/OS V1R9 SDSF
- Access SDSF data and function with REXX execs
  - Invoke SDSF with ISFEXEC and ISFACT commands
  - Data is returned in REXX stem variables with variable name corresponding to column name and subscript corresponding to row.
- Type REXXHELP in SDSF for information and examples
- Also described in the SDSF book

There is also a presentation that has been given at SHARE several times which describes the SDSF REXX functionality. You can find it in the 2009 SHARE in Denver proceedings:

**2344: SDSF Rexx API Usage Tutorial**

**Lab Task:**
Check out the REXX EXEC in `CLWOOD.S2343.CLIST(TOPTEN)`. This will display the top ten users of spool space in the system.
Where to Learn More

- Online interactive tutorial demonstrates the most common tasks. ➔ TUTOR command

- Help panels describe SDSF panels, commands, and messages. ➔ PF1 or Help command
  - Over 1,800 help and tutorial panels

- *SDSF Operation and Customization* provides detailed information for the system programmer