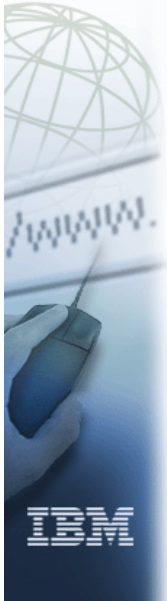


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SDSF z/OS V1R9



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APPN	Enterprise System 3090	MQSeries	Sysplex Timer
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SDSF Support Enhancements



- REXX support
- Simpler customization, without exits
- Better display of valid action characters
- New way to specify which JES SDSF should process
- More data for health checks
- Simplified display of zAAP and zIIP data
- Change to software requirement:
 - SDSF must be at same release level as JES (any BCP)



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z/OS V1R9 SDSF Support



- Adds support for the REXX programming language
- Use REXX to quickly develop scripts to perform complex and repetitive tasks
- Little or no training needed if you already know SDSF
- Simpler and more powerful alternative to SDSF batch
 - Lets you include logic, exploit REXX functions
- Answers or partially answers 14 customer requirements



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Today and SDSF Batch



- ❑ SDSF batch supports only simple programs that issue action characters and (with the ISFAFD flavor of batch) modify values
- ❑ With REXX you can include logic that does things like examine values and make decisions based on the values
 - You can access almost all of SDSF's function and you can do things that are impossible to do with SDSF interactively

SDSF and REXX



- ❑ SDSF REXX allows REXX execs to be written that can directly access SDSF data and function
- ❑ The SDSF REXX support is provided by:
 - A dynamic REXX host command environment
 - SDSF REXX environment commands
 - Special SDSF REXX variables
- ❑ SDSF REXX support is available using System REXX

SDSF REXX Overview



- ❑ Using SDSF REXX, you can perform SDSF functions through REXX:
 - Display and modify jobs
 - Display and modify devices
 - Browse sysout data sets
 - Print sysout data sets
- ❑ Most SDSF interactive tasks can be done through REXX
- ❑ Quickly develop scripts to perform one-time tasks



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Using REXX with SDSF



- ❑ You must be authorized to use SDSF from REXX
- ❑ You must be authorized to the SDSF functions that you invoke from REXX
 - Users not authorized to the function will cause the exec to fail and the invocation of SDSF to end
- ❑ Use the same SAF resources and ISFPARMS parameters for security as before
 - Control with GROUP in ISFPARMS a user is assigned to
 - Can be a different group than when using SDSF
 - SDSF checks the SAF resource
 - GROUP.group-name.server-name in the SDSF class



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Using REXX with SDSF Security



- ❑ GROUP.group-name.server-name in the SDSF class
 - RDEFINE SDSF GROUP.group-name.server-name UACC(NONE)
 - PERMIT GROUP.group-name.server-name CLASS(SDSF) ID(userid or groupid) ACCESS(READ)



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REXX Support and SDSF Panels



- ❑ REXX support includes all of the SDSF panels that are supported interactively:
 - With the exception of SYSLOG and output descriptors
 - Which is displayed with the Q action character from job and output panels
- ❑ Use the same panel commands, action characters and column overtypes as with interactive SDSF



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SDSF Host Command Environment



- ❑ Accessing the SDSF function with REXX, you use:
 - The ISFCALLS command - to add and delete the SDSF host command environment
 - The ISFEXEC command, for SDSF commands such as the commands that access SDSF panels
 - The ISFACT command, for action characters and overtyping columns
 - Special REXX variables, provides function equivalent to other SDSF commands, and for messages and table data
 - REXX variables contain the values for SDSF panels, and allow you to control results



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Host Command Environment



- ❑ To set up the SDSF host command environment
 - Use the isfcalls command:
 - rc = isfcalls('ON')
- ❑ Once the SDSF host command environment is set up
 - Use address SDSF to issue the SDSF environment commands under REXX
- ❑ To delete the SDSF host command environment
 - Use isfcalls as follows:
 - rc = isfcalls('OFF')
- ❑ A return code of 0 indicates that the isfcalls command completed successfully



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Issuing Commands with ISFEXEC



- ❑ Issue SDSF commands using the ISFEXEC host environment command, as follows:
 - Address SDSF "ISFEXEC sdsf-command (options)"
 - sdsf-command - is a supported SDSF command, including any parameters
 - If the command contains special characters or blanks, enclose it in single quotation marks
- ❑ Supported commands are:
 - The commands that access SDSF panels (for example, DA and ST) - not LOG and ULOG
 - The slash (/) command - allows system commands
 - The WHO and QUERY commands



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Stem Variables



- ❑ SDSF builds stem variables that correspond to rows and columns
 - Variable name is same as FLD name
 - Stem suffix is row number
- ❑ The value for a stem variable number 0 is a count of the number of variables returned by ISFEXEC
 - This count is the same for all columns
 - It is also in special variable ISFROWS
- ❑ Data is returned in stem variables
 - Use special variables to control results which correspond to SDSF commands such as PREFIX and OWNER



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ISFEXEC Command and Stem Variables



- For columns with related values, a substem is added to the row number to indicate the number of the related value, as follows:
 - column-name.row-number.value-number

```
Say "Number of rows returned:" isfrows
      /*****/
      /* Process all rows */
      /*****/
do ix=1 to isfrows
```



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Issuing ISFEXEC ST Command



Stem variables returned

```
Address SDSF "ISFEXEC ST"
JNAME.0=2
JNAME.1=KENA
JNAME.2=BOBB
OWNERID.0=2
OWNERID.1=KEN
OWNERID.2=BOB
```

.....



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COLSHELP Command



- ❑ Use the COLSHELP command in SDSF under ISPF to see a list of all columns in all SDSF panels and their respective FLD names

Display Filter View Print Options Help

```
Columns on SDSF Panels Row 761 to 764 of 804
Command ==> _____
Sort with F5 (panel), F6 (column), F10 (title), F11 (description).
/ Include the descriptions
Panel Column Title Delayed? Overtime?
Description
SR QUEUE Queue
Queue the message is on
ST JNAME JOBNAME
Job name, fixed field
ST JTYPE Type
Type of address space
ST JNUM JNum
JES2 job number
F1=Help F5=SortPnl F6=SortFld F7=Backward F8=Forward
F10=SortTitle F11=SortDesc F12=Cancel
```



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Variables that Support SDSF Command



- ❑ The special REXX variables provide support that is equivalent to SDSF commands and the variables are grouped by command type, as follows:
 - SDSF command
 - Filter commands
 - Options commands
 - Trace commands
- ❑ For example, where the variable is associated with an SDSF command, the parameters for the variable are the same as for the command, as follows:
 - SDSF command: PREFIX RJONES*
 - Variable: isfprefix="RJONES*"



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Special REXX Variables



- ❑ **SDSF command** - Use the following special variables for function that is equivalent to the parameters on the SDSF command
 - ISFSERVER names the SDSF server and ISFJESNAME names the JES2 subsystem to process
- ❑ **Filter commands** - Use the following special variables for function that is equivalent to the filter commands, such as FILTER and PREFIX.
 - ISFDEST, ISFFILTER, ISFINPUT, ISFOWNER, ISFPREFIX, and ISFSYSNAME
- ❑ **Options commands** - Use the following special variables for function that is equivalent to the options commands, such as the SET commands.
 - ISFACTIONS, ISFCONS, ISFDELAY, ISFDISPLAY, ISFINPUT, ISFSCHARS, and ISFTIMEOUT
- ❑ **Trace commands**
 - ISFTRACE and ISFTRMASK



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Issuing SDSF Commands



- ❑ **To issue SDSF commands under REXX**
 - Use the ISFEXEC command
- ❑ **ISFEXEC allows you to issue SDSF panel commands**
 - Such as: ST, DA, and the slash (/) command
- ❑ **Special REXX variables provide functionality equivalent to many other SDSF commands such as:**
 - PREFIX, FILTER, and SORT
- ❑ **Place execs in a CLIST data set which is in the SYSPROC/SYSEXEC concatenation**



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ISFEXEC Options



- ALTERNATE** - Requests the panel's alternate field list
- DELAYED** - Specifies that delayed-access columns be included in the command's output
- NOMODIFY** - Specifies that row tokens for use in modifying rows should not be returned and improves performance if you do not intend to modify any values
- PREFIX** - Value specifies a prefix for column name and token variables that are created; use this to ensure that variable names do not conflict between different ISFEXEC commands
- VERBOSE** - Adds diagnostic messages to the isfmsg2 stem variable that describes each row variable created by SDSF



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SDSF Status (ST) Command



Display Filter View Print Options Help

SDSF STATUS DISPLAY ALL CLASSES

LINE 1-14 (14)

COMMAND INPUT ==>

SCROLL ==> HALF

NP	JOBNAME	JobID	Owner	Prtty	Queue	C	Pos	SAff	ASys	Status
	ZFSJOB	JOB06647	HERING	1	PRINT	A	197			
	ZFSJOB	JOB06650	HERING	1	PRINT	A	198			
	ZFSJOB	JOB06653	HERING	1	PRINT	A	199			
	ZFSJOB	JOB06655	HERING	1	PRINT	A	200			
	ZFSJOB	JOB06656	HERING	1	PRINT	A	201			
	ZFSJOB	JOB06657	HERING	1	PRINT	A	202			
	ZFSJOB	JOB06658	HERING	1	PRINT	A	203			
	ZFSJOB	JOB06664	HERING	1	PRINT	A	210			
	ZFSJOB	JOB07426	HERING	1	PRINT	A	672			
	ZFSJOB	JOB07490	HERING	1	PRINT	A	688			
	ZFSJOB	JOB08031	ROGERS	1	PRINT	A	973			
	ZFSJOB	JOB08032	ROGERS	1	PRINT	A	974			
	ZFSJOB	JOB08034	ROGERS	1	PRINT	A	976			
	ZFSJOB	JOB08036	ROGERS	1	PRINT	A	977			



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REXX Exec to Cancel a Job



- ❑ SDSF host command environment dynamically defined
 - Necessary to invoke isfcalls prior to first SDSF command
- ❑ Use ISFEXEC to access a SDSF panel
- ❑ SDSF builds stem variables - correspond to rows/columns
 - Variable is same as FLD name - (TOKEN.row-number)
 - Stem suffix is row number - format of each stem variable is column-name.row-number (JNAME.0, JNAME.1 ...)

```
rc=isfcalls("ON")          add host command environment
Address SDSF "ISFEXEC ST"  access the ST panel
do ix=1 to JNAME.0        (variable names same as FLD names)
  if pos("ZFSJOB",JNAME.ix) = 1 then find the job
  Address SDSF "ISFACT ST TOKEN('"TOKEN.ix"') PARM(NP P)"
  end                          Take an action on the job
rc=isfcalls("OFF")       remove the host environment
```



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REXX Exec - ST Command



```
/* REXX */
x = isfcalls('ON')
isfprefix = 'PELEG*'
isfsort   = 'JOBID D'
isfcols = 'JNAME JOBID OWNERID QUEUE RETCODE DATEE TIMEE'
address SDSF "ISFEXEC ST (ALTERNATE DELAYED NOMODIFY"
say isfdisplay
say ' '
do i = 1 to isfrows
  say left(JNAME.i, 8),
      left(JOBID.i, 8),
      left(OWNERID.i, 8),
      left(QUEUE.i, 9),
      left(RETCODE.i, 10),
      left(DATEE.i, 8),
      left(TIMEE.i, 8)
end
x = isfcalls('OFF')
```



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REXX Exec - ST Command Results



❑ ISFDISPLAY options command

- Contains the filtering and sorting criteria, for example,
- PREFIX=* DEST=(ALL) OWNER=* SYSNAME=

```
PREFIX=PELEG*  DEST=(ALL)  OWNER=*  SORT=JOBID/D  SYSNAME=
```

PELEG	TSU29877	PELEG	EXECUTION			2007.122	09:35:55
PELEG	TSU29751	PELEG	PRINT	CC	0000	2007.121	09:24:36
PELEGIDC	JOB29825	PELEG	PRINT	CC	0000	2007.121	18:01:01
PELEGBR5	JOB29771	PELEG	PRINT	CC	0000	2007.121	11:30:55
PELEGBR4	JOB29770	PELEG	PRINT	CC	0000	2007.121	11:30:55
PELEGBR3	JOB29769	PELEG	PRINT	CC	0000	2007.121	11:30:55
PELEGBR2	JOB29768	PELEG	PRINT	CC	0000	2007.121	11:30:55
PELEGBR1	JOB29767	PELEG	PRINT	CC	0000	2007.121	11:30:55
PELEGBR1	JOB29766	PELEG	PRINT	CC	0000	2007.121	11:30:16



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REXX Exec - ST Command



```
x = isfcalls('ON')
isfprefix = 'PELEG*'
isfsort   = 'DATEE D TIMEE D'
address SDSF "ISFEXEC ST (ALTERNATE DELAYED NOMODIFY"
say rc
say isfdisplay
say ' '
say 'Job name Job ID  Owner   Queue   RC           Date    Time'
say '===== ===== ===== ===== ===== ===== ====='
do i = 1 to isfrows
  say left(JNAME.i, 8),
      left(JOBID.i, 8),
      left(OWNERID.i, 8),
      left(QUEUE.i, 9),
      left(RETCODE.i, 10),
      left(DATEE.i, 8),
      left(TIMEE.i, 8)
end
say isfmsg
do i = 1 to isfmsg2.0
  say isfmsg2.i
end
x = isfcalls('OFF')
```



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REXX Exec - ST Command



```
PREFIX=PELEG*  DEST=(ALL)  OWNER=*  SORT=DATEE//D  TIMEE//D  SYSNAME=
```

Job name	Job ID	Owner	Queue	RC	Date	Time
PELEGTSO	JOB03669	PELEG	PRINT	CC 0000	2007.135	10:37:38
PELEG	TSU03653	PELEG	PRINT	CC 0000	2007.135	09:55:52
PELEGTSO	JOB03510	PELEG	PRINT	CANCELED	2007.134	15:16:08
PELEGTSO	JOB03509	PELEG	PRINT	CANCELED	2007.134	15:15:43
PELEGTSO	JOB03508	PELEG	PRINT	CANCELED	2007.134	15:15:00
PELEGTSO	JOB03507	PELEG	PRINT	CANCELED	2007.134	15:11:37
PELEGAMB	JOB02935	PELEG	PRINT	CC 0000	2007.129	10:37:36
PELEGAMB	JOB02934	PELEG	PRINT	CC 0000	2007.129	10:36:38
PELEGVER	JOB02766	PELEG	PRINT	CC 0000	2007.128	16:20:41
PELEGHLA	JOB02739	PELEG	PRINT	CC 0008	2007.128	14:20:05
PELEGHLA	JOB02738	PELEG	PRINT	CC 0008	2007.128	14:18:40
PELEG	TSU01847	PELEG	PRINT	CC 0000	2007.123	09:12:04
PELEGIDC	JOB29825	PELEG	PRINT	CC 0000	2007.121	18:01:01

```
ISF754I Command 'PREFIX PELEG*' generated from associated variable ISFPREFIX.
```

```
ISF754I Command 'SORT DATEE D TIMEE D' generated from associated variable ISFSORT.
```



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Message Variables



- Message variables describe request completion
 - isfmsg corresponds to SDSF short message
 - isfmsg2. stem contains numbered messages
- Check after each SDSF request

```
if isfmsg<>"" then
  Say "isfmsg is:" isfmsg
do ix=1 to isfmsg2.0
  Say "isfmsg2."ix "is:" isfmsg2.ix
end
```



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SDSF REXX Example



ISFEXEC

```
/* REXX */
x = isfcalls('ON')
address SDSF "ISFEXEC WHO"
do i = 1 to isfresp.0
  say isfresp.i
end
x = isfcalls('OFF')
```

Output

```
USERID=PELEG
PROC=IKJACCNT
TERMINAL=SC38TCA9
GRPINDEX=1
GRPNAME=ISFSPROG
MVS=z/OS 01.09.00
JES2=z/OS 1.9
SDSF=HQX7740
ISPF=N/A
RMF/DA=NOTACC
SERVER=YES
SERVERNAME=SDSF
JESNAME=JES2
MEMBER=SC70
SYSNAME=SC70
SYSPLEX=SANDBOX
COMM=NOTAVAIL
```



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Limiting Results in REXX Exec



- ❑ Limiting variables created
 - SDSF will create one variable per column per row
 - Can get high number of variables
 - Use isfcols special variable to limit the columns returned
- ❑ isfcols="JNAME JOBID OWNERID ACTSYS"
 - isfcols set to the list of columns (variables) returned
 - Can loop through to process all columns

```
do ix=1 to words(isfcols)
  Say "Column is" word(isfcols,ix)
end
```



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Executing REXX Execs for SDSF



- ❑ Line mode TSO/E
 - Enter a command after the READY message
 - EX 'PELEG.SRC(SDSFQ)'
- ❑ Enter from ISPF Option 6 command line
 - Specify name of the member to be found in a procedure library such as SYSEXEC or SYSPROC
 - EX 'PELEG.SRC(SDSFQ)'
- ❑ Batch jobs
 - //A PGM=IRXJCL,PARM='@SYSCMD CMD(DA)'
 - //SYSEXEC DD DSN=REXX.EXECS,DISP=SHR



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SDSF Migration Considerations



- ❑ Although modifying SDSF source modules or macros is not supported, some installations might have made such modifications
 - Normal method is to implement a user exit routine
- ❑ Beginning with z/OS V1R9, many SDSF source modules and macros that were distributed previously are no longer distributed
 - Review any user modifications you have and assess alternatives



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SDSF Migration Considerations



- ❑ Before z/OS V1R9, it was necessary to use the latest level of SDSF with your currently-installed JES2
 - For example, when migrating to z/OS V1R8, needed to migrate to the z/OS V1R8 level of SDSF
 - Even if you postponed migrating to the z/OS V1R8 level of JES2
- ❑ Starting with z/OS V1R9, SDSF and JES2 are "coupled", the release level of your SDSF and JES2 must be the same
 - When you migrate to the z/OS V1R9 level of JES2, you must migrate to the z/OS V1R9 level of SDSF



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SDSF Migration Considerations



- ❑ When you migrate to the z/OS V1R9 level of JES2, you must migrate to the z/OS V1R9 level of SDSF
- ❑ The possible migration scenarios because of SDSF and JES2 being "coupled" are as follows:
 - If you are running the z/OS V1R8 level of JES2 with z/OS V1R9, you must run the z/OS V1R8 level of SDSF
 - If you are running the z/OS V1R7 level of JES2 with z/OS V1R9, you can run either the z/OS V1R8 or z/OS V1R7 level of SDSF



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SDSF REXX and System REXX



- ❑ If you invoke SDSF's REXX using System REXX, you need to be aware of the following:
 - You must set up the ISFJESNAME variable to identify the JES2 subsystem
 - You must be authorized to invoke SDSF functions from REXX



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SDSF and REXX Documentation



- ❑ [REXXHELP command from any SDSF interactive panel](#)
 - Use the REXXHELP command to access SDSF's online help regarding SDSF REXX support
 - REXXHELP includes links to descriptions of commands, action characters and overtypable columns not included in any other manuals
- ❑ [SDSF Operation and Customization, SA22-7670](#)
- ❑ [An IBM Redbook](#)
 - [Implementing REXX Support in SDSF, SG24-7419](#)



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