ibm.com
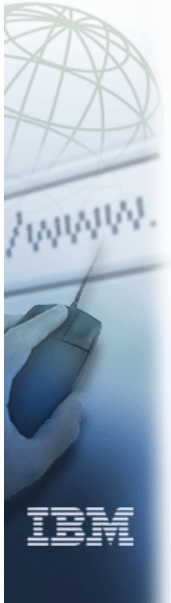
e-business

IBM

SAPI and Extended Status Call Enhancements

Redbooks

International Technical Support Organization

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z/OS V1R7 Changes to SAPI and SSI

❑ SYSOUT Application Programming Interface (SAPI), SSI function code 79

➤ Allow read-only access to SYSOUT data sets

− Return ABEND and Return codes if update attempted

❑ Extended status function call, SSI function code 80

➤ Return additional job-related information to caller

➤ Two new status call types:

− Job verbose call

− Output verbose call

Redbooks

JES SSI Functions

1	SYSOUT	24	COMMON ALLOCATION
2	CANCEL	25	COMMON UNALLOCATION
3	JOB STATUS	26	CHANGE DDNAME
4	EOT	27	CHANGE ENQ USE ATTRIBUTE
5	JOB SELECTION	28	DDR CANDIDATE SELECT
6	ALLOCATION	29	DDR CANDIDATE VERIFY
7	UNALLOCATION	30	DDR SWAP NOTIFICATION
8	EOM	31	DDR SWAP COMPLETE
9	WTO/WTOR	32	SVC34 COMMAND FAIL
10	CMD PROCESSING (SVC34)	34	WRITE TO LOG
11	REMOT DEST VALIDITY CK	40	EARLY VOLUME RELEASE
12	JOB DELETION	53	FSS/FSA CONNECT/DISCON
13	JOB RE-ENQUEUE	54	SUBSYSTEM VERSION
16	OPEN	56	SMS TO JES3 COMMUNICATION
17	CLOSE	62	BDT SUBSYSTEM
18	CHECKPOINT	64	TRANSACTION PROCESSING
19	RESTART	72	VARY PATH CALL
20	REQUEST JOB ID	75	NOTIFY-USER MSG ROUTER
21	RETURN JOB ID	77	PERSISTENT JCL
22	STEP INITIATION	79	SYSOUT API
23	DYNAMIC ALLOCATION	80	ENHANCED STATUS

Extended Status

❏ Extended status is more than just an extension to the original STATUS SSI

➢ It is intended as a programming interface into both JES2 and JES3 to obtain

– For status information and general information about jobs and SYSOUT

❏ Can be used to obtain information to present on a front end such as SDSF or to check the status of jobs It can be also used as a screener for

➢ A SAPI print application can select work to process next

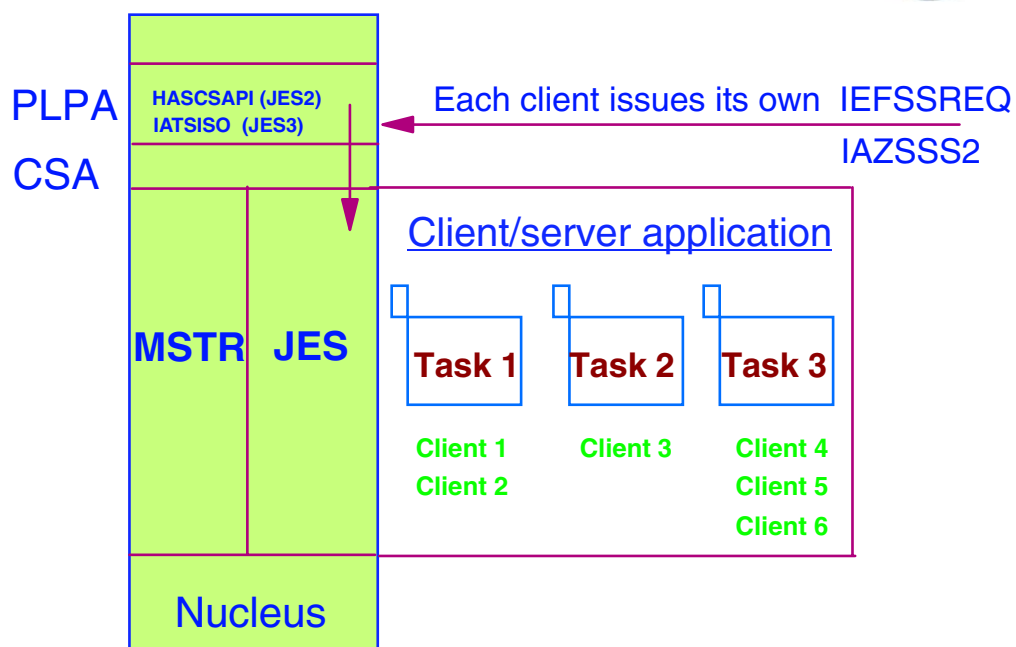➢ New version 4 IAZSSST is passed on the interface

z/OS V1R7 SAPI Enhancements

❑ Problems that are addressed:
  ➤ FTP requires reading JES spool data without requiring SAF (RACF) UPDATE authority
  ➤ Additional job related data needs to be returned
  ➤ Additional data set disposition options
❑ Solution:
  ➤ The SAPI interface is updated to allow the caller to specify that it will only read spool files and never change or delete spool files
  ➤ Job level ABEND and condition codes returned
  ➤ Overriding of priority and ability to reset forms code to system standard
❑ Benefit:
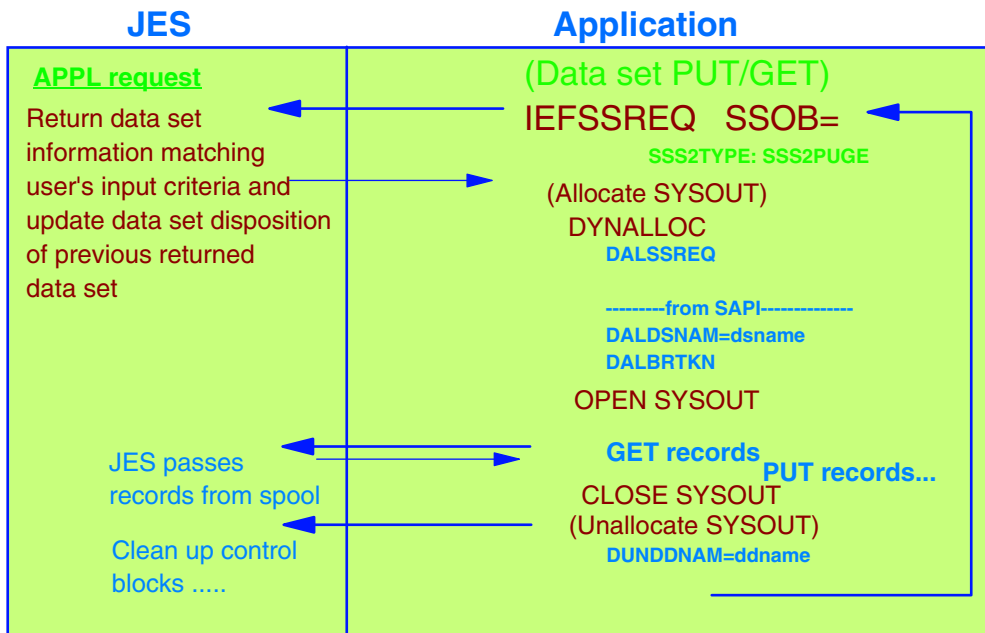 ➤ Applications do not need high authority to read spool files

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SYSOUT Application Programming Interface (SAPI)

PLPA

CSA

HASCSAPI (JES2)
IATSISO (JES3)

Each client issues its own IEFSSREQ

IAZSSS2

Client/server application

MSTR | **JES**

Task 1 | **Task 2** | **Task 3**

Client 1 | Client 3 | Client 4
Client 2 | | Client 5
| | Client 6

Nucleus

Application Requesting a Data Set

JES	Application
APPL request	**(Data set PUT/GET)**

JES column:

APPL request

Return data set information matching user's input criteria and update data set disposition of previous returned data set

JES passes records from spool

Clean up control blocks .....

Application column:

(Data set PUT/GET)

IEFSSREQ   SSOB=

SSS2TYPE: SSS2PUGE

(Allocate SYSOUT)

DYNALLOC

DALSSREQ

---------from SAPI-------------

DALDSNAM=dsname

DALBRTKN

OPEN SYSOUT

GET records **PUT records...**

CLOSE SYSOUT

(Unallocate SYSOUT)

DUNDDNAM=ddname

Requesting read-only Access

❑ Requesting READ-only access is specified by setting flag SSS2SRON in field SSS2SEL5

➤ Application must have SAF authority of READ (UPDATE was required before)

❑ Support to modify SYSOUT priority on PUT request

➤ Set SSS2RPRI bit in field SSS2DSP2

➤ SSS2DPRI field to specify a new priority

❑ Support to set forms code to the installation default

➤ Set SSS2DNFO bit in SSS2DSP2

❑ Return max return code/last ABEND code for job (if available)

➤ SSS2MXRC and SSS2LSAB

Extended Status Calls with z/OS V1R7

❏ Reason for change:
  ➢ Infoprint Server needs additional data set information when using extended status and SAPI
  ➢ Applications and ISVs can also benefit
  ➢ Data to be returned is typically "hard" for JES2 and JES3 to get
❏ New implementation:
  ➢ Two new types of status calls created:
    – "job verbose" and "output verbose"
❏ Benefit:
  ➢ Applications can get additional data for specific jobs

Verbose Job Related Information

❏ Set STATVRBO flag in STATTYPE field in IAZSSST
❏ Terse requests return less data but have lower overhead because no I/O is required
❏ Verbose requests return more detailed data, but involve multiple I/O requests and for this reason, verbose requests are limited in how much data can be obtained in a single SSI invocation
❏ Specify the following for the request:
  ➢ Must select by a range of one job
  ➢ A client token
  ➢ Request to expand terse element (JES2 only)

Verbose Output Related Information

❏ Set STATOUTV flag in STATTYPE field in IAZSSST

❏ Terse requests return less data but have lower overhead because no I/O is required

❏ Verbose requests return more detailed data, but involve multiple I/O requests and for this reason, verbose requests are limited in how much data can be obtained in a single SSI invocation

❏ Specify the following for the request:

➢ Must select by a range of one job

➢ A client token

➢ Request to expand terse element (JES2 only)

Job Verbose Status Call

❏ Using verbose status, an application can:

➢ Obtain additional job level information; for example: programmer name, message class, etc

➢ In JES2 only, expand an existing terse element with a corresponding verbose element

➢ Obtain additional output level information; for example: lines, pages, procedure, step, DDname

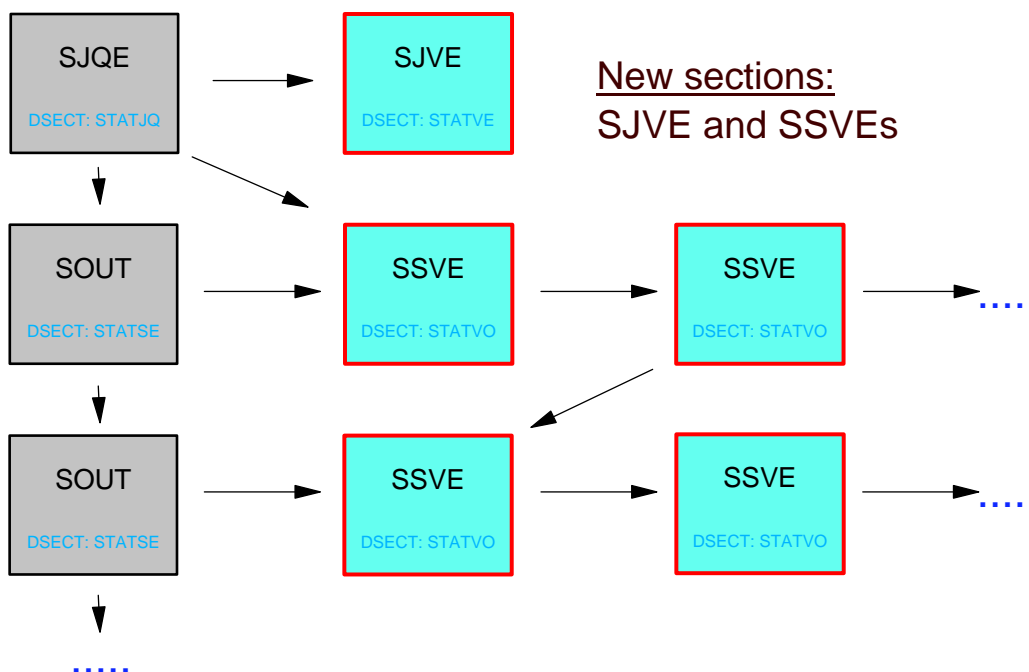# New Processing of Status Requests

❏ New and changed external output:

➤ For STATVRBO requests, a new section SJVE is returned chained to the SJQE

➤ For STATOUTV requests, a new section SSVE is returned chained to the SOUT and the SJQE

– An SJVE is also returned chained to the SJQE

– Several SSVEs can be returned for one SOUT

SG24-6755 has a coding example of a job verbose request

Status Control Blocks

New sections:
SJVE and SSVEs

Job Verbose Fields Returned

```
STVBJCPY Job Copy count          STVBXTSD Execution start date
STVBLNCT Job Line count          STVBXTE  Execution end Time/Date
STVBIDEV Input device name       STVBXTET Execution end time
STVBISID Input system/member     STVBXTED Execution end date
STVBJCIN Job input count         STVBJUSR JMRUSEID field
STVBJLIN Job line count          STVBMCLS Message class (Job card)
STVBJPAG Job page count          STVBNOTN Notify Node
STVBJPUN Job card (output) count STVBNOTU Notify Userid
STVBRTST Input start time        STVBPNAM Programmer's name (Job card)
STVBRTSD Input start date        STVBACCT Account number (Job card)
STVBRTET Input end time          STVBDEPT NJE department
STVBRTED Input end date          STVBBLDG NJE building
STVBSYS Execution MVS system name STVBROOM Job card room number
STVBMBR Execution JES2 member name STVBJDVT JDVT name for job
STVBXTST Execution start time    STVBSUBU Submitting userid
Security section containing SAF token
Accounting section containing accounting strings
```

Verbose SYSOUT Fields Returned

```
STVSRECF    Record format
STVSPRCD    Procname for the step
STVSSTPD    Stepname for the step
STVSDDND    DDNAME for the data set
STVSTJN     APPC Transaction jobname
STVSTJID    APPC Transaction jobid
STVSTOD     Date/time data set available
STVSSEGM    Segment id (JES2 only)
STVSDSKY    Data set number (key)
STVSMLRL    Maximum LRECL
STVSLNCT    Line count
STVSPGCT    Page count
STVSBYCT    Byte count after truncation
STVSRCCT    Record count (JES3 only)
STVSDSN     SYSOUT data set name
STVSCTKN    SYSOUT data set token
Security section containing SAF token
```

SAPI - 15-16

SAPI Enhancements

❏ Modify SYSOUT priority on PUT request

➤ SSS2PRI and SSS2DPRI bits

❏ Set forms code to installation default

➤ SSS2DNFO bit

❏ Return codes made available

➤ Max return code and last ABEND code for jobs

– SSS2MXRC and SSS2LSAB

❏ Return record format of data set (RECFM)

➤ SSS2RFOR

New Filters Available

❏ Additional extended status function filters available in z/OS V1R7 by:

➤ FORMS

➤ PROCESS MODE

➤ SUBMITTER ID (JES3 only)

❏ Additional changed output in JES3 dependent terse extension

➤ Spool token (JCT address) from APAR OA06535

➤ Copy of reason codes why job is not running, and corresponding system name list

JES2 Differences

- ❏ JES2 grouping is done under an externally named group

- ❏ JES2 copy counts is always filled in as 1

- ❏ JES2 provides SYSOUT information for active jobs

JES3 Differences

- ❏ JES3 grouping is by like output characteristics and residence within the same spool buffer
- ❏ JES3 fills in zero or a reasonable default for copy count
- ❏ Complex member names are same as system name
- ❏ JES3 provides SYSOUT information for active jobs only when the output in question is spun off and closed
- ❏ JES3 is also expanding the JES3-dependent terse job extension which APAR OA06535 started by filling in the spool token (JCT spool address)
- ❏ JES3 fills in a list of system names and reason codes indicating why a job is not running on the given system

Implementation Requirements

❏ Requires z/OS V1R7 JES2 or JES3

❏ Requires z/OS V1R7 BCP

❏ For JES3 - both the application system and the JES3 global must be z/OS V1R7 JES3