z/OS® V1R10

JES3 ease of use, application enablement, spool browse

*e*business on demand software

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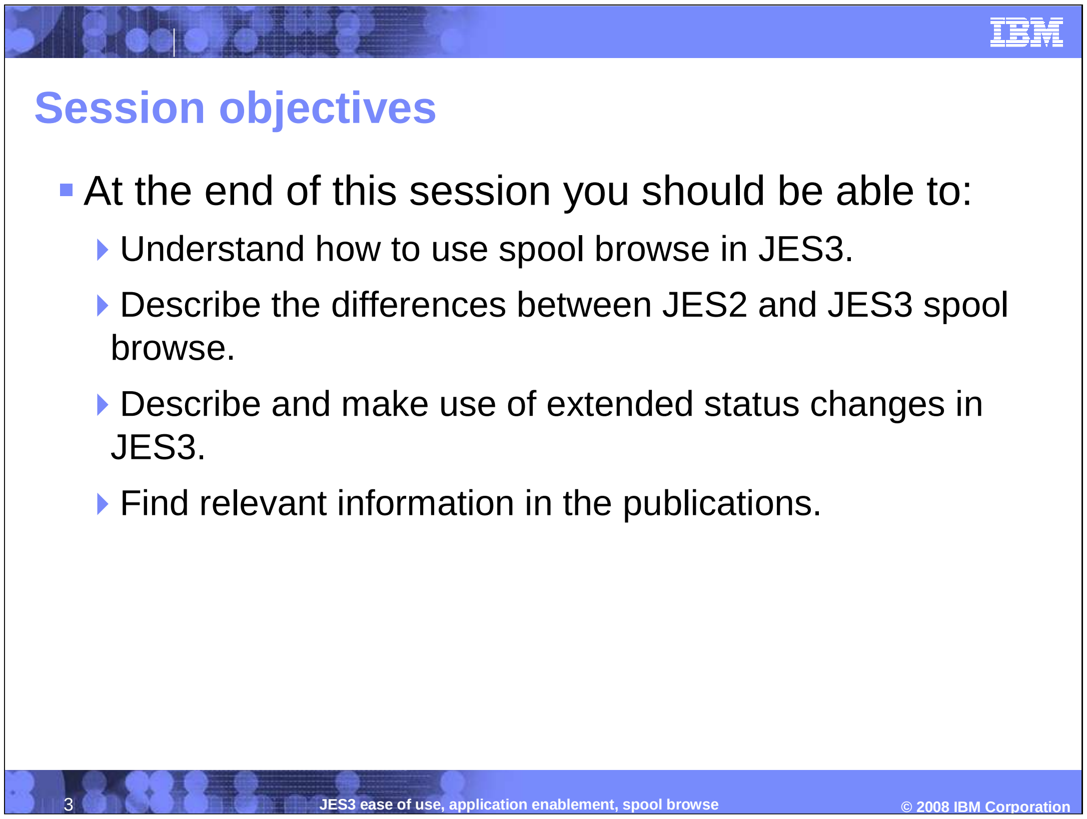

Session objectives

- At the end of this session you should be able to:
  - Understand how to use spool browse in JES3.
  - Describe the differences between JES2 and JES3 spool browse.
  - Describe and make use of extended status changes in JES3.
  - Find relevant information in the publications.

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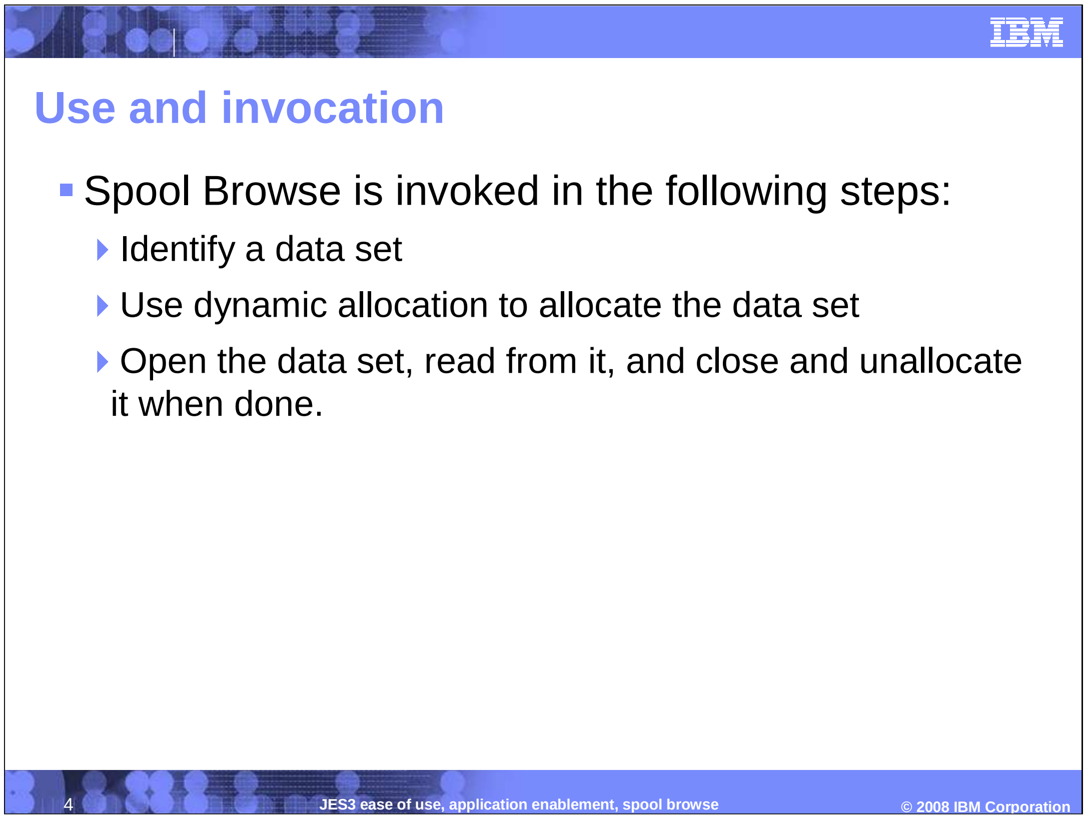
This session covers how to make a spool browse request in JES3. If you are familiar with using the spool browse interface in JES2, the interface works largely the same way in JES3 with a few differences. This presentation describes what these differences are. It will also cover extended status changes in JES3 and show how information returned by extended status ties into spool browse requests.

There is a new publication where spool browse is documented. This new book is not tied to either JES.



Use and invocation

- Spool Browse is invoked in the following steps:
  - Identify a data set
  - Use dynamic allocation to allocate the data set
  - Open the data set, read from it, and close and unallocate it when done.

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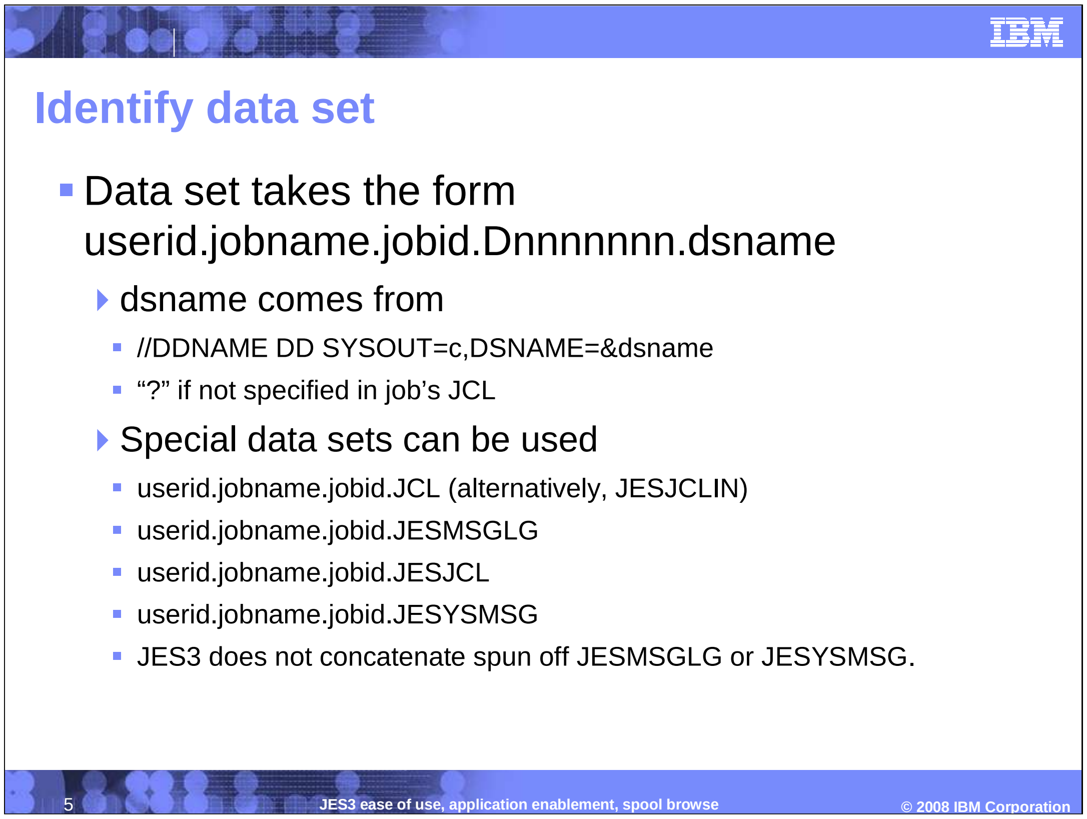
Spool Browse is invoked in the following steps:

Identify a data set (such as by using extended status or by specifying a predetermined name).

Use dynamic allocation to build a request block and text units containing the data set name determine in the first step, and allocate the data set.

Open the data set, read records from it. When done reading records, close the data set and unallocate the DD associated with the data set.



Identify data set

- Data set takes the form userid.jobname.jobid.Dnnnnnnn.dsname
  - dsname comes from
    - //DDNAME DD SYSOUT=c,DSNAME=&dsname
    - “?” if not specified in job’s JCL
  - Special data sets can be used
    - userid.jobname.jobid.JCL (alternatively, JESJCLIN)
    - userid.jobname.jobid.JESMSGLG
    - userid.jobname.jobid.JESJCL
    - userid.jobname.jobid.JESYSMSG
    - JES3 does not concatenate spun off JESMSGLG or JESYSMSG.

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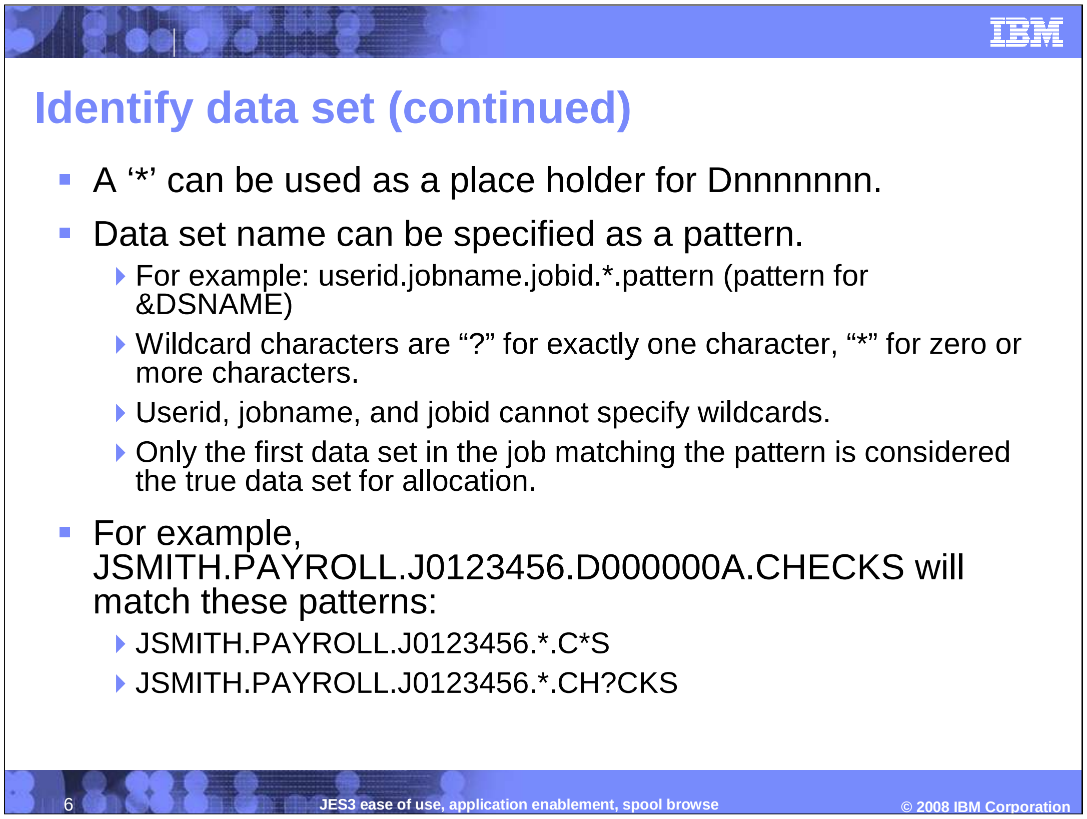
In order to browse a spool data set you need to know enough information about its name to specify it to dynamic allocation. If you know the full five part data set name you can use that. If the data set is one of the JES logging data sets JESMSGLG, JESJCL, or JESYSMSG data set you can take a short cut and leave out the data set number qualifier. (At this time JES3 does not concatenate previously spun off instances of the JESMSGLG or JESYSMSG data sets into a single logical data set.) You can also specify the special name JCL or its synonym JESJCLIN, which puts instream (SYSIN) data together with the JESJCL data set to retrieve the complete original JCL stream.



Identify data set (continued)

- A ‘*’ can be used as a place holder for Dnnnnnnn.
- Data set name can be specified as a pattern.
  - For example: userid.jobname.jobid.*.pattern (pattern for &DSNAME)
  - Wildcard characters are “?” for exactly one character, “*” for zero or more characters.
  - Userid, jobname, and jobid cannot specify wildcards.
  - Only the first data set in the job matching the pattern is considered the true data set for allocation.
- For example, JSMITH.PAYROLL.J0123456.D000000A.CHECKS will match these patterns:
  - JSMITH.PAYROLL.J0123456.*.C*S
  - JSMITH.PAYROLL.J0123456.*.CH?CKS

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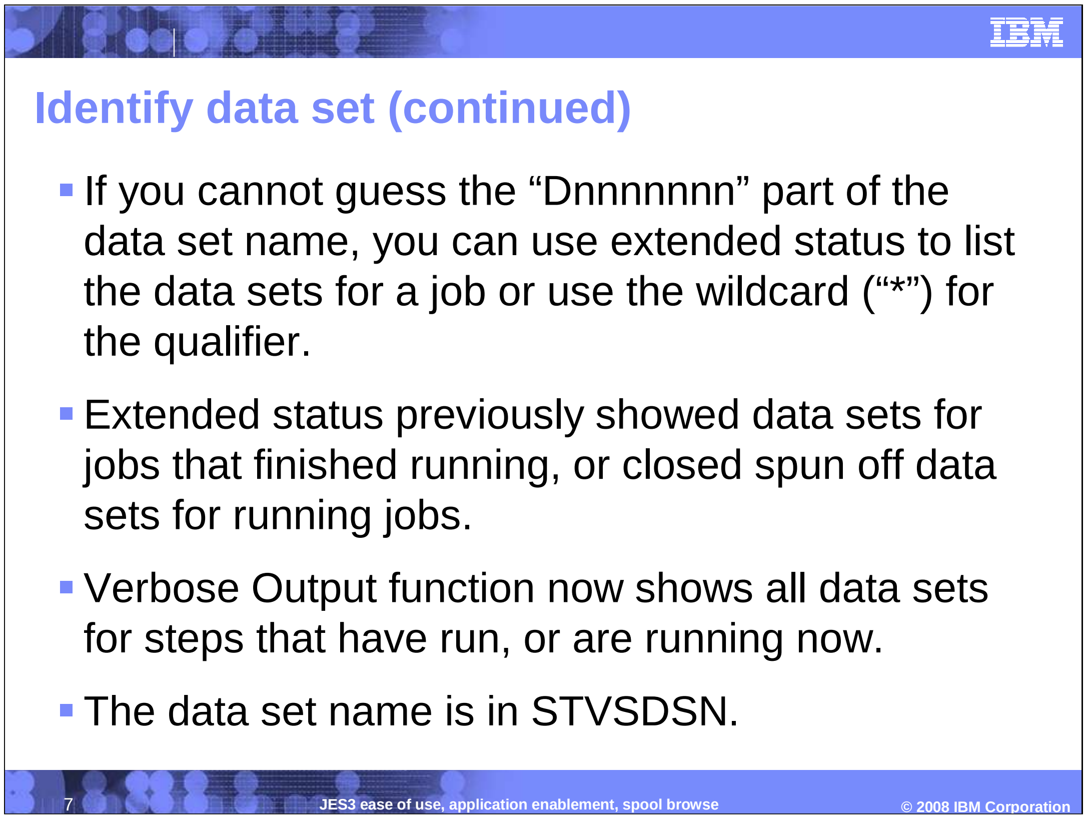
If you do not know the entire data set but you know some information about it you can use wild cards. For the data set number you can substitute a single asterisk as a place holder. For the data set name you can substitute a pattern consisting of an asterisk to signify zero or more characters in the given position, or a question mark to signify exactly one character in the given position. You cannot use a pattern for userid, jobname, and jobid.

When you use a pattern for a data set name, the first data set in the job that matches the pattern is always used.



Identify data set (continued)

- If you cannot guess the “Dnnnnnnn” part of the data set name, you can use extended status to list the data sets for a job or use the wildcard (“*”) for the qualifier.
- Extended status previously showed data sets for jobs that finished running, or closed spun off data sets for running jobs.
- Verbose Output function now shows all data sets for steps that have run, or are running now.
- The data set name is in STVSDSN.

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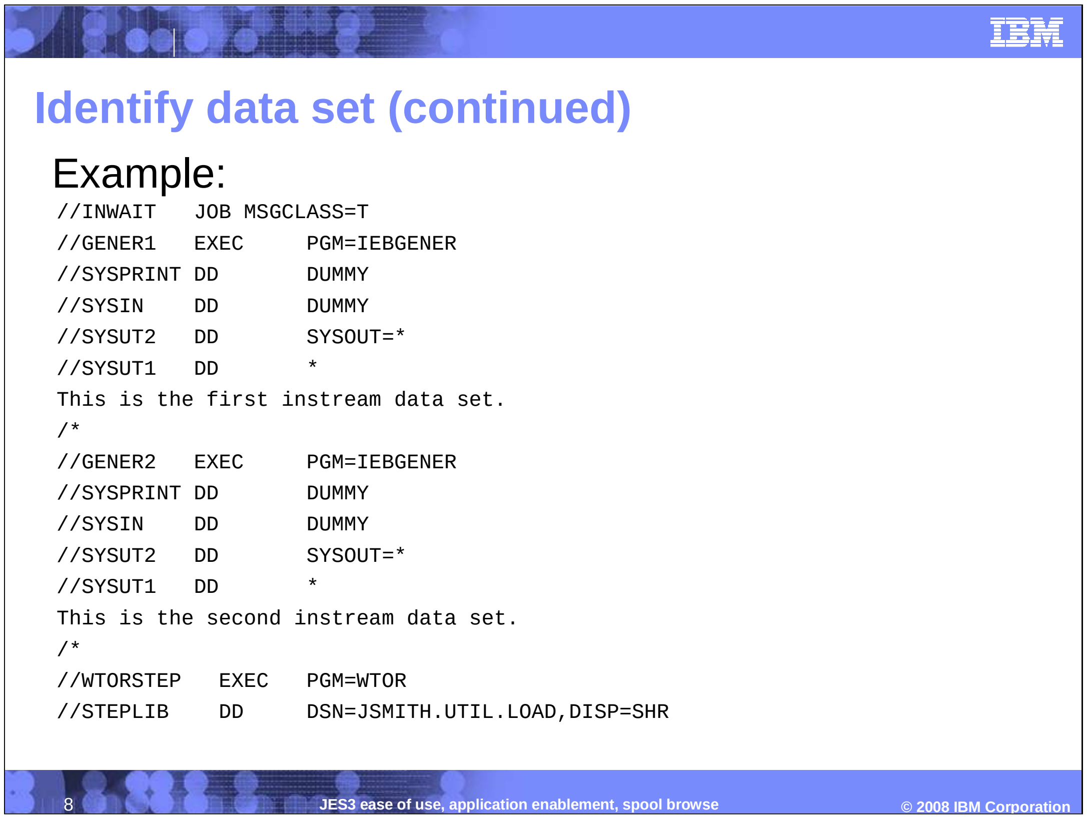
You can use extended status to ask JES3 to provide a list of data sets from which you can select the one you want. Before z/OS V1R10 the JES3 extended status function showed only data sets for jobs that had ended, or closed spun off data sets written by active jobs. Starting in z/OS V1R10 extended status shows data sets that are currently open, or that were created in steps that have previously ended, even if the data sets were not spun off. Limited information on these data sets is provided; for example information such as FORMS and CHARS that comes from combinations and overrides of SYSOUT, OUTPUT, //*FORMAT, and initialization statements does not get built until the job ends or spins off the data set.

The data set name you can supply to the dynamic allocation is available in the extended status verbose output field STVSDSN.

In addition to verbose output there is a new function code STATDLST (data set list). This function lists internal and input data sets in addition to output data sets. You will see examples of these internal data sets later.



Identify data set (continued)

Example:

```
//INWAIT   JOB MSGCLASS=T
//GENER1   EXEC     PGM=IEBGENER
//SYSPRINT DD       DUMMY
//SYSIN    DD       DUMMY
//SYSUT2   DD       SYSOUT=*
//SYSUT1   DD       *
This is the first instream data set.
/*
//GENER2   EXEC     PGM=IEBGENER
//SYSPRINT DD       DUMMY
//SYSIN    DD       DUMMY
//SYSUT2   DD       SYSOUT=*
//SYSUT1   DD       *
This is the second instream data set.
/*
//WTORSTEP   EXEC   PGM=WTOR
//STEPLIB    DD     DSN=JSMITH.UTIL.LOAD,DISP=SHR
```

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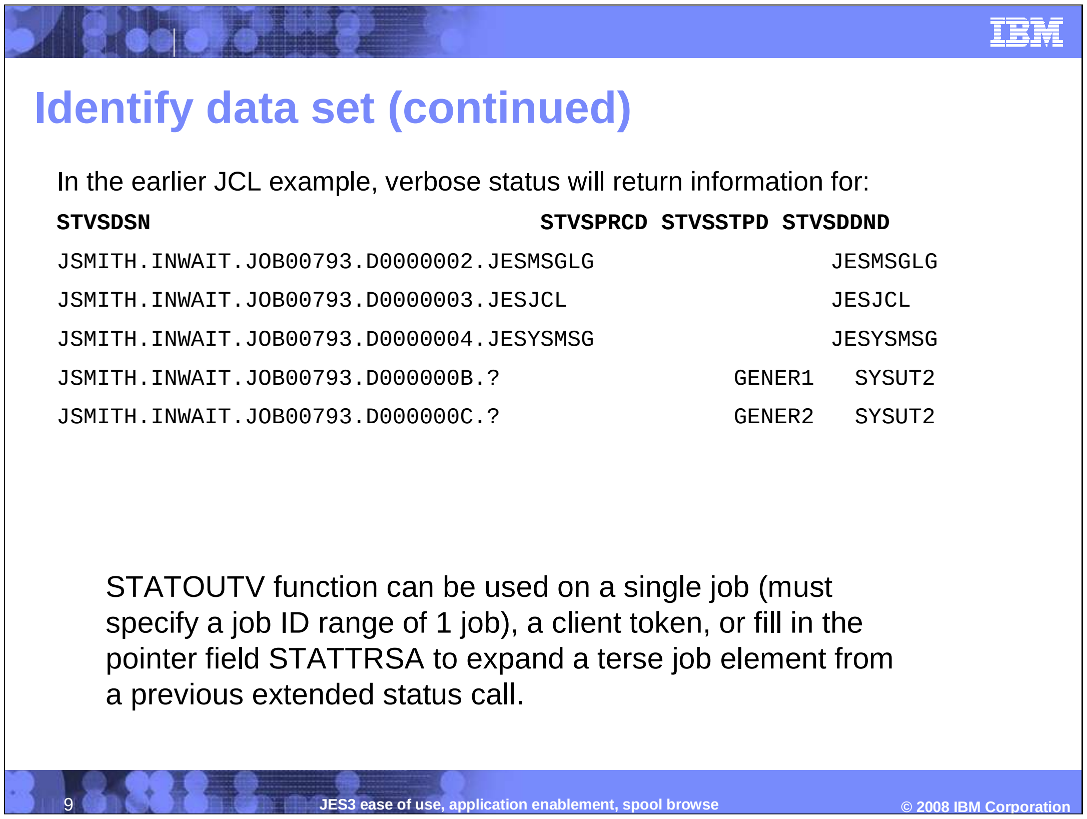
The examples that follow show how extended status returns data for this job, which runs two steps that produces output and then waits in the third step for an operator action.



Identify data set (continued)

In the earlier JCL example, verbose status will return information for:

```
STVSDSN                                     STVSPRCD STVSSTPD STVSDDND
JSMITH.INWAIT.JOB00793.D0000002.JESMSGLG                     JESMSGLG
JSMITH.INWAIT.JOB00793.D0000003.JESJCL                       JESJCL
JSMITH.INWAIT.JOB00793.D0000004.JESYSMSG                     JESYSMSG
JSMITH.INWAIT.JOB00793.D000000B.?                   GENER1   SYSUT2
JSMITH.INWAIT.JOB00793.D000000C.?                   GENER2   SYSUT2
```

STATOUTV function can be used on a single job (must specify a job ID range of 1 job), a client token, or fill in the pointer field STATTRSA to expand a terse job element from a previous extended status call.

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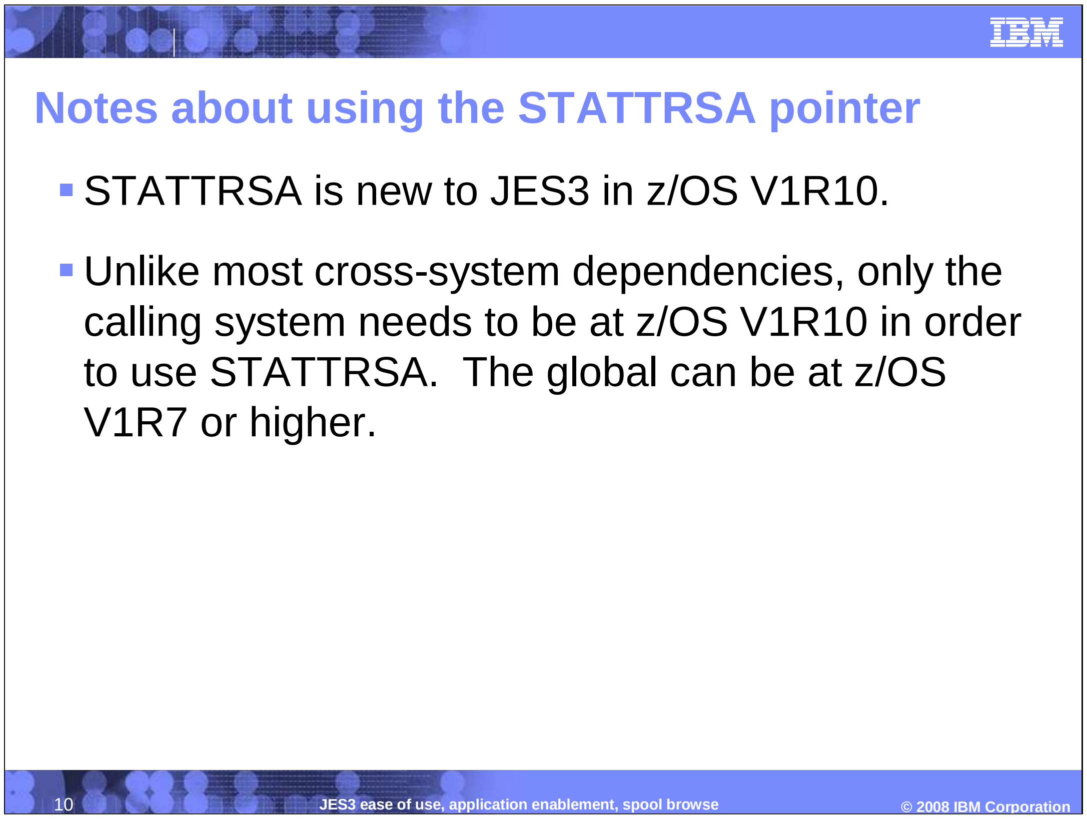
The data sets returned by the STATOUTV function are the three standard message data sets and the two SYSUT2 data sets from the IEBGENER steps. Recall that STATOUTV must limit the selection to a single job; however starting in z/OS V1R10 JES3 supports using the STATTRSA pointer field to expand a terse job or output element returned by a previous extended status terse call into verbose sections.



Notes about using the STATTRSA pointer

- STATTRSA is new to JES3 in z/OS V1R10.
- Unlike most cross-system dependencies, only the calling system needs to be at z/OS V1R10 in order to use STATTRSA. The global can be at z/OS V1R7 or higher.

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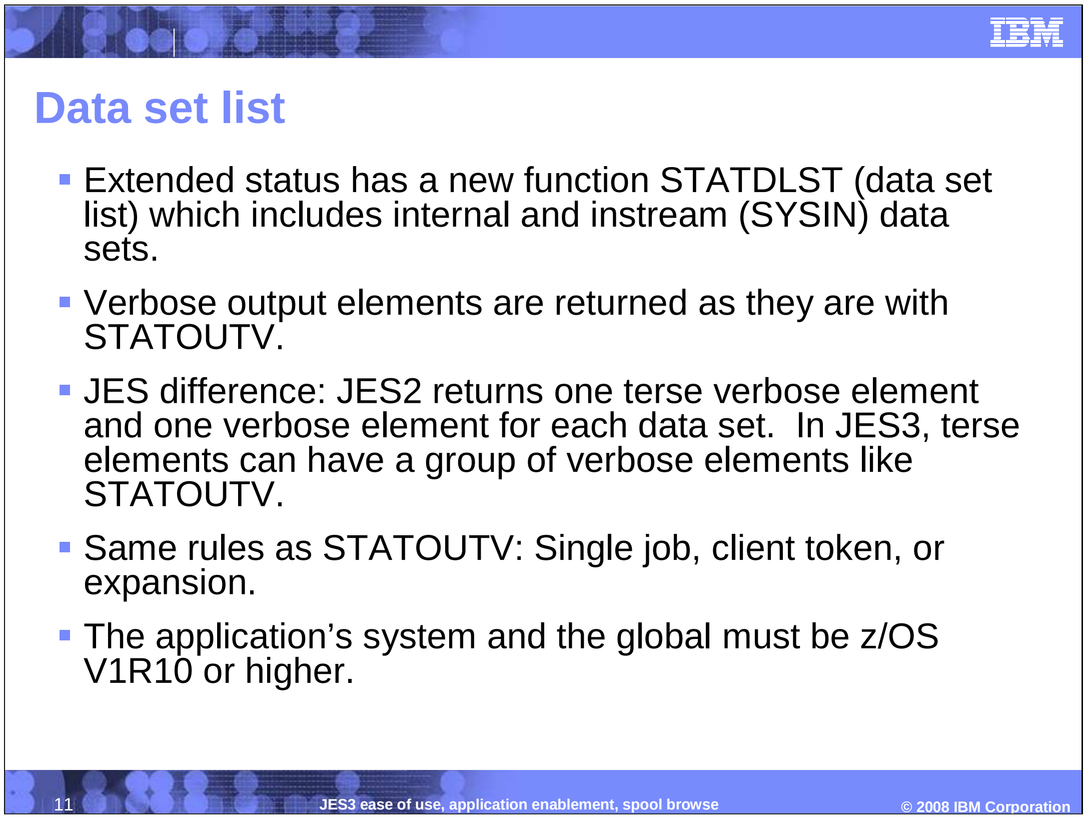
In order to expand a terse job or output element and build verbose data off it, the system that the application is running on must be at z/OS V1R10 JES3 or higher. Unlike most subsystem interface functions in JES3, the global can be z/OS V1R7, V1R8, or V1R9, and does not need to be at z/OS V1R10.



Data set list

- Extended status has a new function STATDLST (data set list) which includes internal and instream (SYSIN) data sets.
- Verbose output elements are returned as they are with STATOUTV.
- JES difference: JES2 returns one terse verbose element and one verbose element for each data set. In JES3, terse elements can have a group of verbose elements like STATOUTV.
- Same rules as STATOUTV: Single job, client token, or expansion.
- The application’s system and the global must be z/OS V1R10 or higher.

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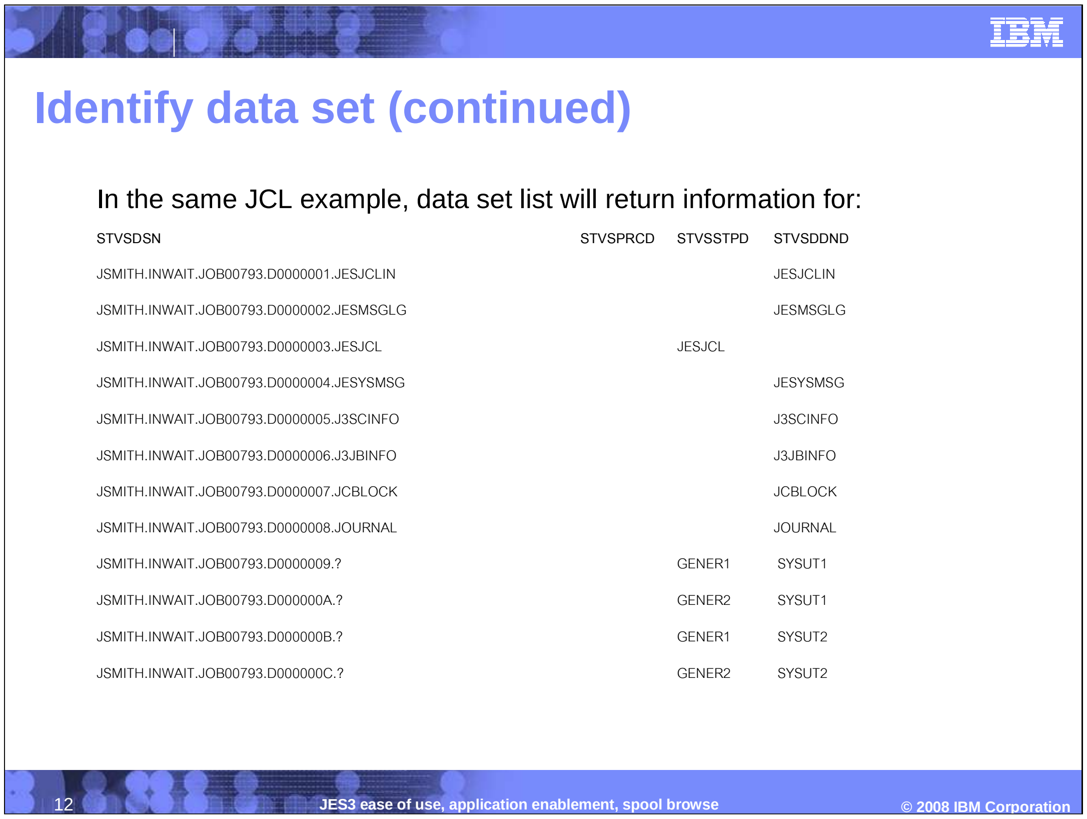
The new extended status function is STATDLST. This function builds a data set list. It is similar to STATOUTV and returns similar information except that it also builds information for internal and instream (SYSIN) data sets.

A difference between JES2 and JES3 is that in JES2, one terse verbose element and one verbose element is returned for each data set. In JES3, terse elements can have a group of verbose elements (same as STATOUTV).

The rules on using STATDLST are the same as for STATOUTV. The request must be limited to a single job. This can be specified as a job range of 1 job, a client token, or a STATTRSA expansion.

In order to use STATDLST, the global and the system on which the application is running must be z/OS V1R10 or higher.



Identify data set (continued)

In the same JCL example, data set list will return information for:

STVSDSN	STVSPRCD	STVSSTPD	STVSDDND
JSMITH.INWAIT.JOB00793.D0000001.JESJCLIN			JESJCLIN
JSMITH.INWAIT.JOB00793.D0000002.JESMSGLG			JESMSGLG
JSMITH.INWAIT.JOB00793.D0000003.JESJCL		JESJCL	
JSMITH.INWAIT.JOB00793.D0000004.JESYSMSG			JESYSMSG
JSMITH.INWAIT.JOB00793.D0000005.J3SCINFO			J3SCINFO
JSMITH.INWAIT.JOB00793.D0000006.J3JBINFO			J3JBINFO
JSMITH.INWAIT.JOB00793.D0000007.JCBLOCK			JCBLOCK
JSMITH.INWAIT.JOB00793.D0000008.JOURNAL			JOURNAL
JSMITH.INWAIT.JOB00793.D0000009.?		GENER1	SYSUT1
JSMITH.INWAIT.JOB00793.D000000A.?		GENER2	SYSUT1
JSMITH.INWAIT.JOB00793.D000000B.?		GENER1	SYSUT2
JSMITH.INWAIT.JOB00793.D000000C.?		GENER2	SYSUT2

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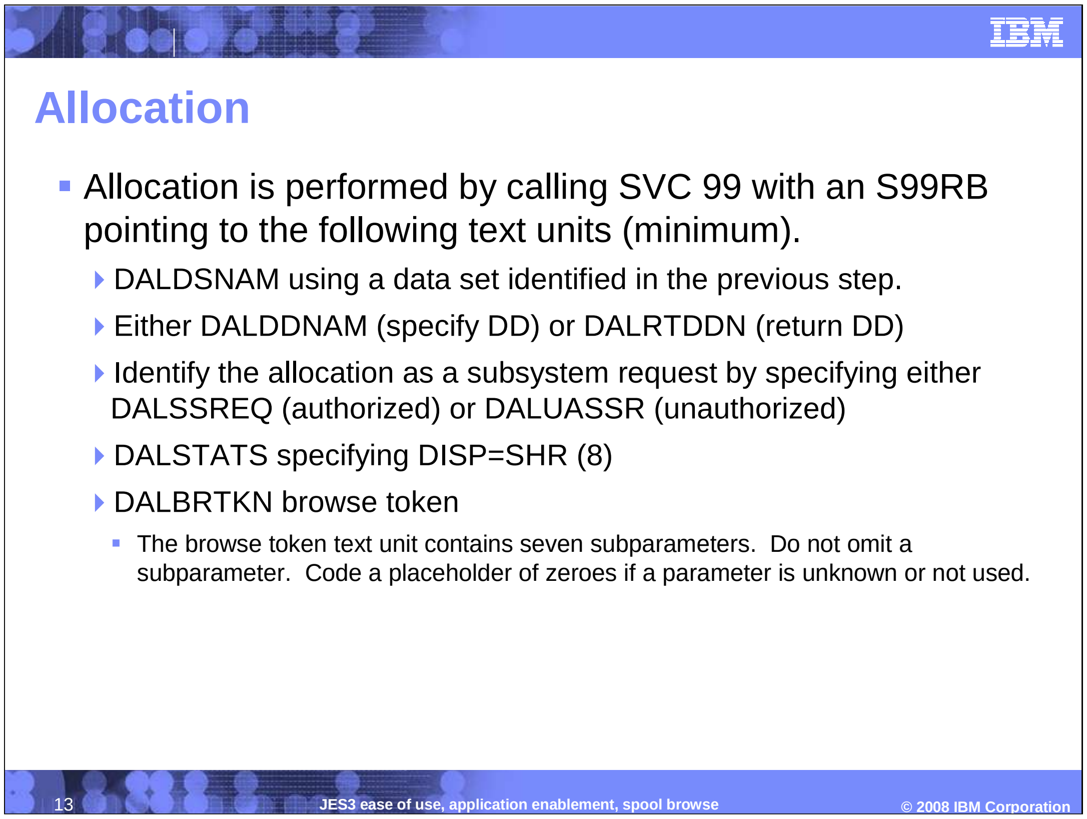
Using the same JCL as in the earlier STATOUTV example, here is what STATDLST would return. The internal data sets created when the job is submitted are returned, and the input SYSUT1 data sets for the two steps are returned.



Allocation

- Allocation is performed by calling SVC 99 with an S99RB pointing to the following text units (minimum).
  - DALDSNAM using a data set identified in the previous step.
  - Either DALDDNAM (specify DD) or DALRTDDN (return DD)
  - Identify the allocation as a subsystem request by specifying either DALSSREQ (authorized) or DALUASSR (unauthorized)
  - DALSTATS specifying DISP=SHR (8)
  - DALBRTKN browse token
    - The browse token text unit contains seven subparameters. Do not omit a subparameter. Code a placeholder of zeroes if a parameter is unknown or not used.

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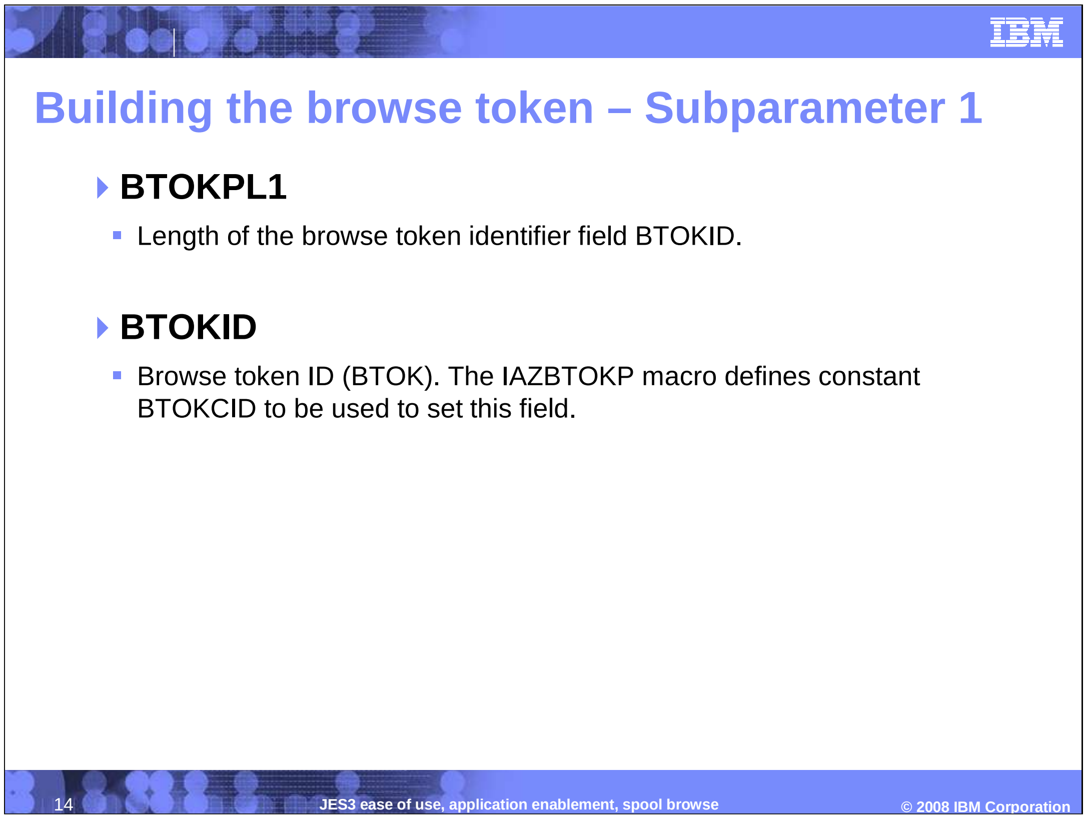
Having identified the data set the next step is to allocate it using SVC 99. As with any other dynamic allocation you do this by building an S99RB request block and a text unit list.

The required text units consist of:

DALDSNAM (data set name) containing the data set name or pattern
A choice of DALDDNAM (to specify your own DD name) or DALRTDDN (to ask dynamic allocation to return a unique system generated DD name)
The subsystem request text unit. For requests that are running with APF authorization use the text unit DALSSREQ. For requests running in an unauthorized state use DALUASSR.
Specify DALSTATS of SHR, which is x'08'.

You must construct a browse token consisting of seven subparameters each of which contains a distinct length and value. All seven subparameters must be specified or allocation will reject the call and not pass it to JES. If a subparameter is not known or not used, code a placeholder of zeroes and an appropriate keyword length.



Building the browse token – Subparameter 1

- **BTOKPL1**
  - Length of the browse token identifier field BTOKID.
- **BTOKID**
  - Browse token ID (BTOK). The IAZBTOKP macro defines constant BTOKCID to be used to set this field.

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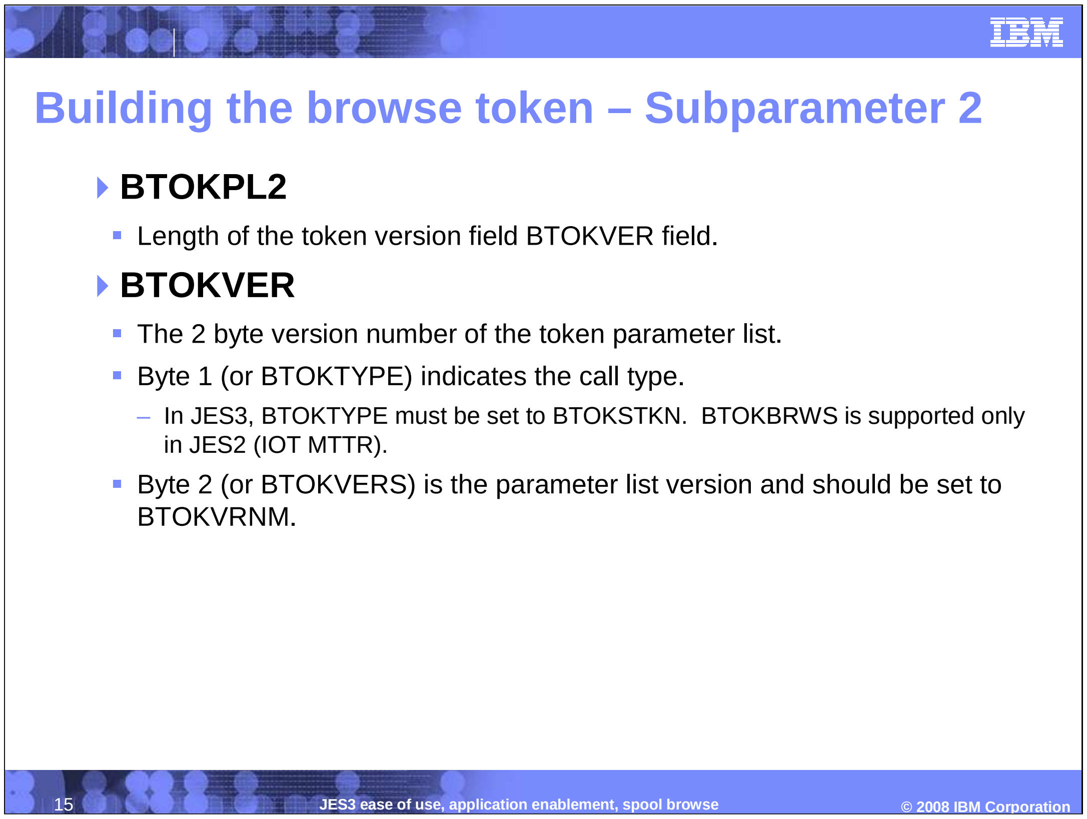
The first subparameter is a browse token identifier. It is the field BTOKID. The constant BTOKCID contains the identifier to be placed into BTOKID. It consists of the characters ‘BTOK’. The identifier is defined in the macro IAZBTOKP and the constant is called BTOKCID.



Building the browse token – Subparameter 2

- **BTOKPL2**
  - Length of the token version field BTOKVER field.
- **BTOKVER**
  - The 2 byte version number of the token parameter list.
  - Byte 1 (or BTOKTYPE) indicates the call type.
    - In JES3, BTOKTYPE must be set to BTOKSTKN. BTOKBRWS is supported only in JES2 (IOT MTTR).
  - Byte 2 (or BTOKVERS) is the parameter list version and should be set to BTOKVRNM.

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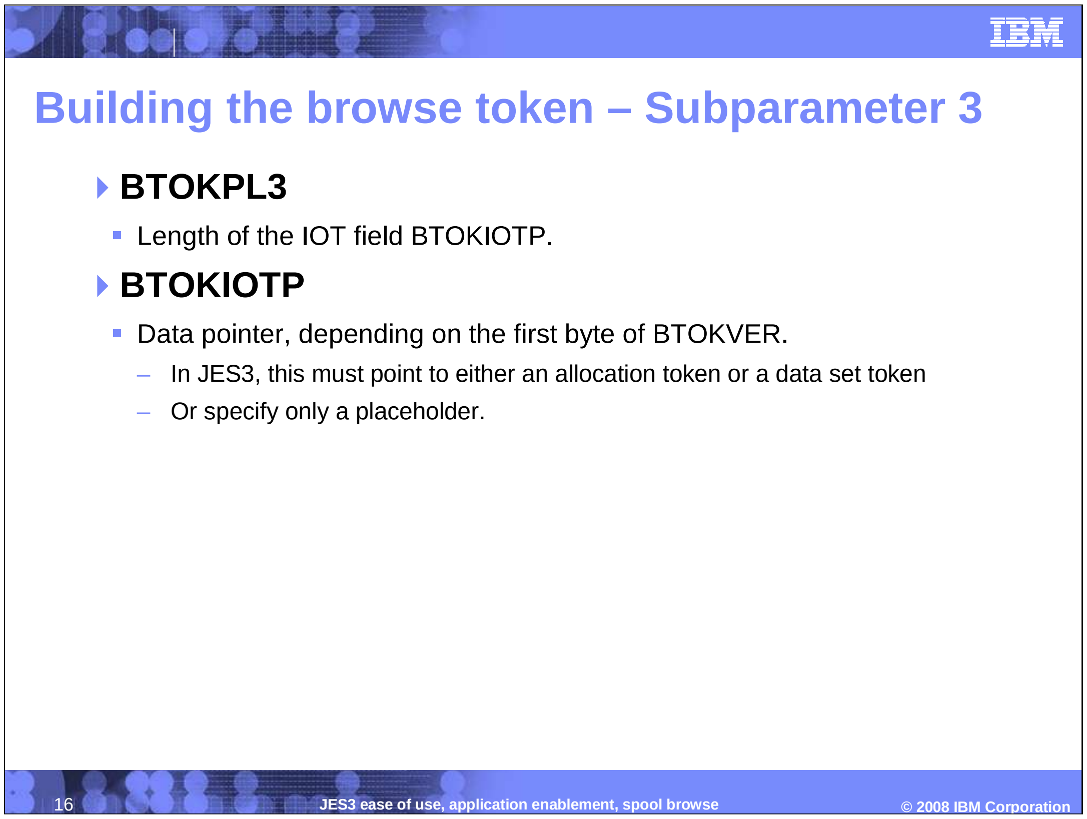
The second subparameter is a two byte structure containing a call type and a version number. JES2 supports two forms of BTOKTYPE. In JES3 you must specify BTOKSTKN to indicate that subparameter 3 is a client token. The version number should be set to the value BTOKVRNM that is defined by the macro IAZBTOKP.



Building the browse token – Subparameter 3

- **BTOKPL3**
  - Length of the IOT field BTOKIOTP.
- **BTOKIOTP**
  - Data pointer, depending on the first byte of BTOKVER.
    - In JES3, this must point to either an allocation token or a data set token
    - Or specify only a placeholder.

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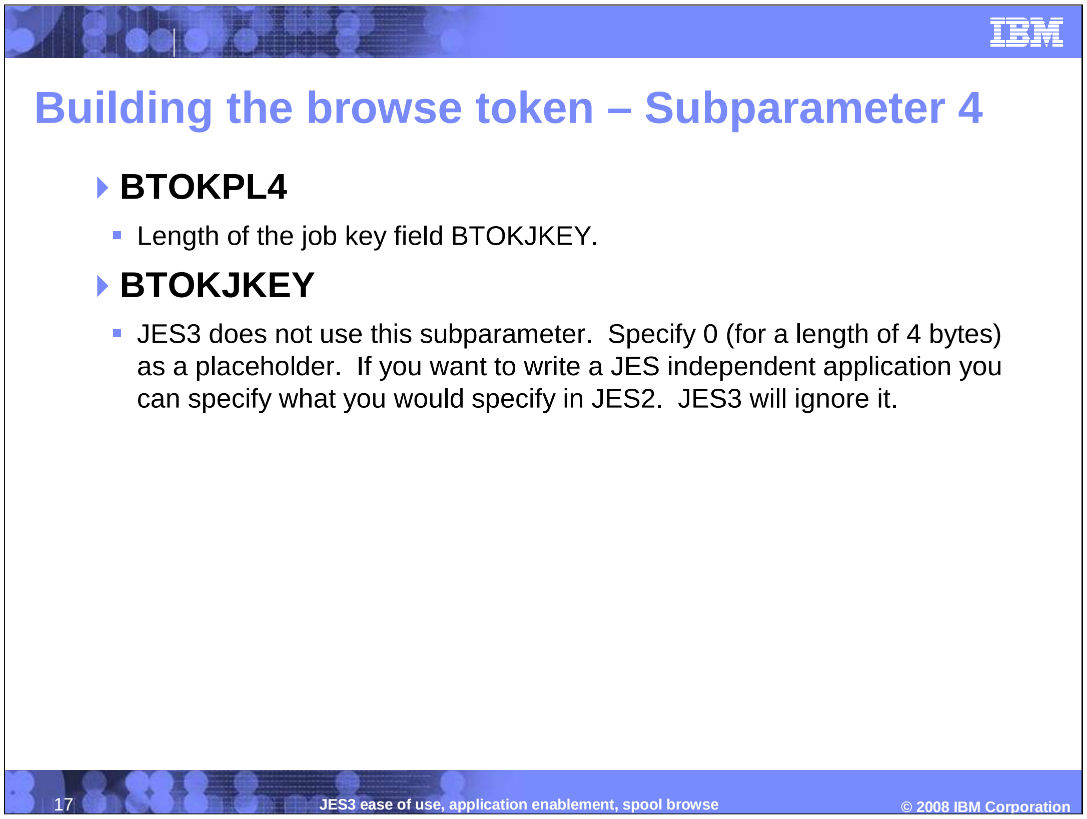
The third subparameter is information that JES uses to find the data set quickly.

In JES3 the only form that is allowed is a client token. (This is a difference from JES2, which allows another form of the parameter that gives JES2 a direct spool location of the data set.) The value BTOKIOTP is a pointer to user data containing a client token. The client token can be one that the application requested by using the DALRTCTK text unit while creating the data set, or it can be the token returned in the field STVSCTKN in a previous extended status STATOUTV or STATDLST call. It can also be left out completely with a full word of 0 as a place holder instead of a pointer. The length should still be specified as 4.

STVSCTKN is equivalent to the token SAPI returns, SSS2DSTR and you could also use SSS2DSTR. But this is not advisable because SSS2DSTR would require that the application to determine it by making a SAPI PUT/GET call. Doing this would lock the data set from being accessible by other applications. This defeats the purpose of using spool browse. If you need to access a data set using SAPI you might as well just use the browse token that SAPI returns (SSS2BTOK) instead of building a browse token.



Building the browse token – Subparameter 4

- **BTOKPL4**
  - Length of the job key field BTOKJKEY.
- **BTOKJKEY**
  - JES3 does not use this subparameter. Specify 0 (for a length of 4 bytes) as a placeholder. If you want to write a JES independent application you can specify what you would specify in JES2. JES3 will ignore it.

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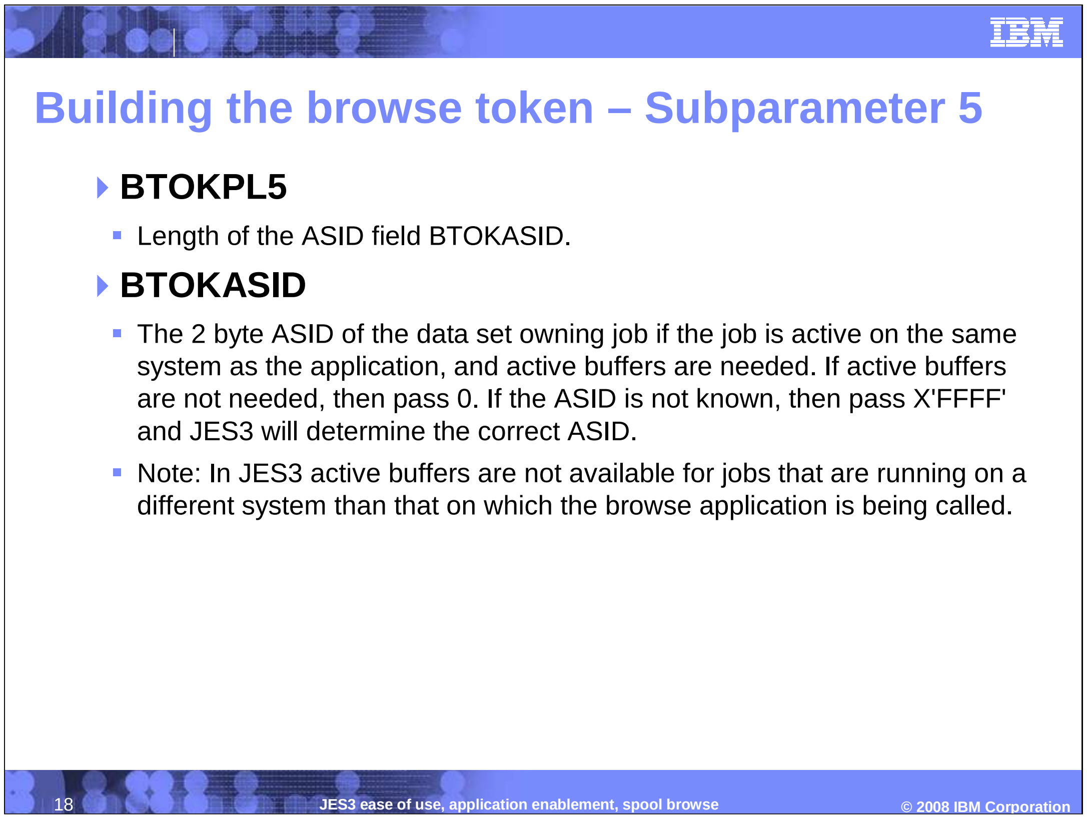
Subparameter 4 is not supported by JES3. It can be left as a zero or any other value as a placeholder. If you are writing an application that needs to work on either JES2 or JES3, code whatever you would for JES2 and JES3 will ignore it. If you use a zero placeholder you still need to code the correct length (4).



Building the browse token – Subparameter 5

- **BTOKPL5**
  - Length of the ASID field BTOKASID.
- **BTOKASID**
  - The 2 byte ASID of the data set owning job if the job is active on the same system as the application, and active buffers are needed. If active buffers are not needed, then pass 0. If the ASID is not known, then pass X'FFFF' and JES3 will determine the correct ASID.
  - Note: In JES3 active buffers are not available for jobs that are running on a different system than that on which the browse application is being called.

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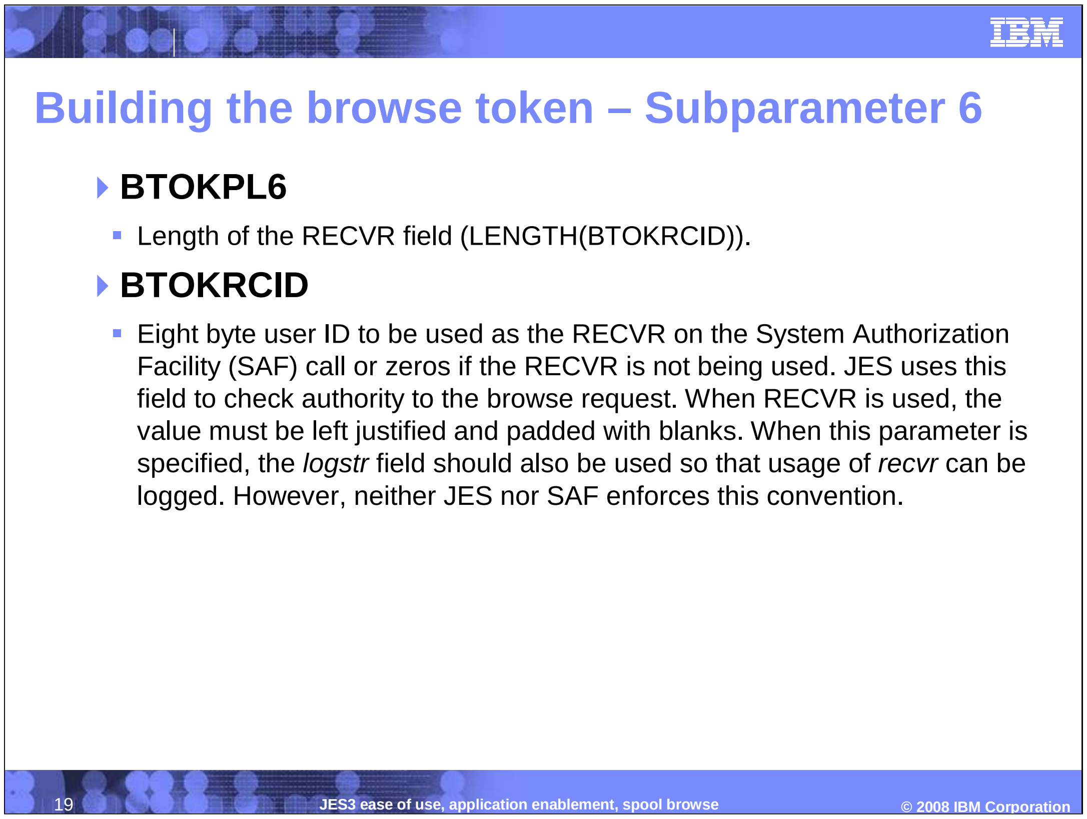
Subparameter 5 specifies the address space identifier of the job that you are looking at, if it is active and you need to look at records that have not yet been written to spool. If you specify 0 it means you are not asking for active buffers. You can specify X’FFFF’ to indicate that you don’t know the ASID and want JES to figure it out.

Active buffers are available only when the browse application is running on the same system as the job that is creating the output. This is a difference between JES2 and JES3.



Building the browse token – Subparameter 6

- **BTOKPL6**
  - Length of the RECVR field (LENGTH(BTOKRCID)).
- **BTOKRCID**
  - Eight byte user ID to be used as the RECVR on the System Authorization Facility (SAF) call or zeros if the RECVR is not being used. JES uses this field to check authority to the browse request. When RECVR is used, the value must be left justified and padded with blanks. When this parameter is specified, the *logstr* field should also be used so that usage of *recvr* can be logged. However, neither JES nor SAF enforces this convention.

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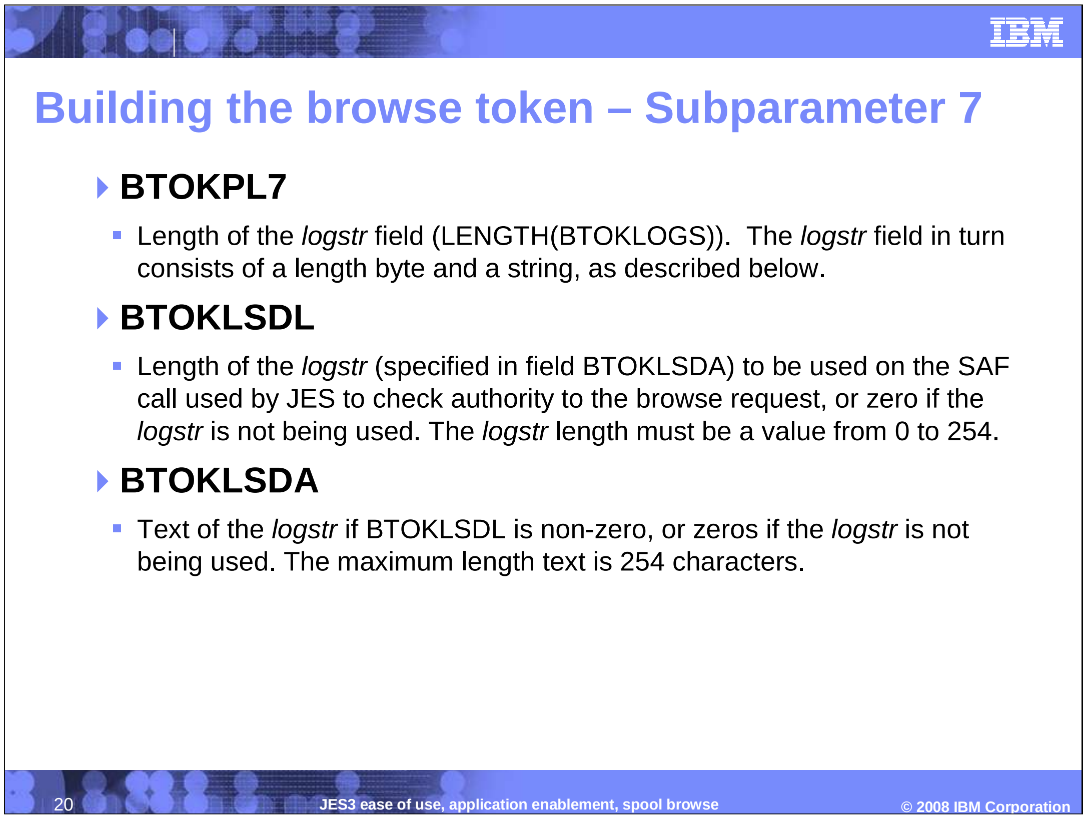
Subparameter 6 specifies the receiver id for logging the System Authorization Facility (SAF) call. If this receiver id is not being used, code zeros. This subparameter and subparameter 7 (the log string) go together.



Building the browse token – Subparameter 7

- **BTOKPL7**
  - Length of the *logstr* field (LENGTH(BTOKLOGS)). The *logstr* field in turn consists of a length byte and a string, as described below.
- **BTOKLSDL**
  - Length of the *logstr* (specified in field BTOKLSDA) to be used on the SAF call used by JES to check authority to the browse request, or zero if the *logstr* is not being used. The *logstr* length must be a value from 0 to 254.
- **BTOKLSDA**
  - Text of the *logstr* if BTOKLSDL is non-zero, or zeros if the *logstr* is not being used. The maximum length text is 254 characters.

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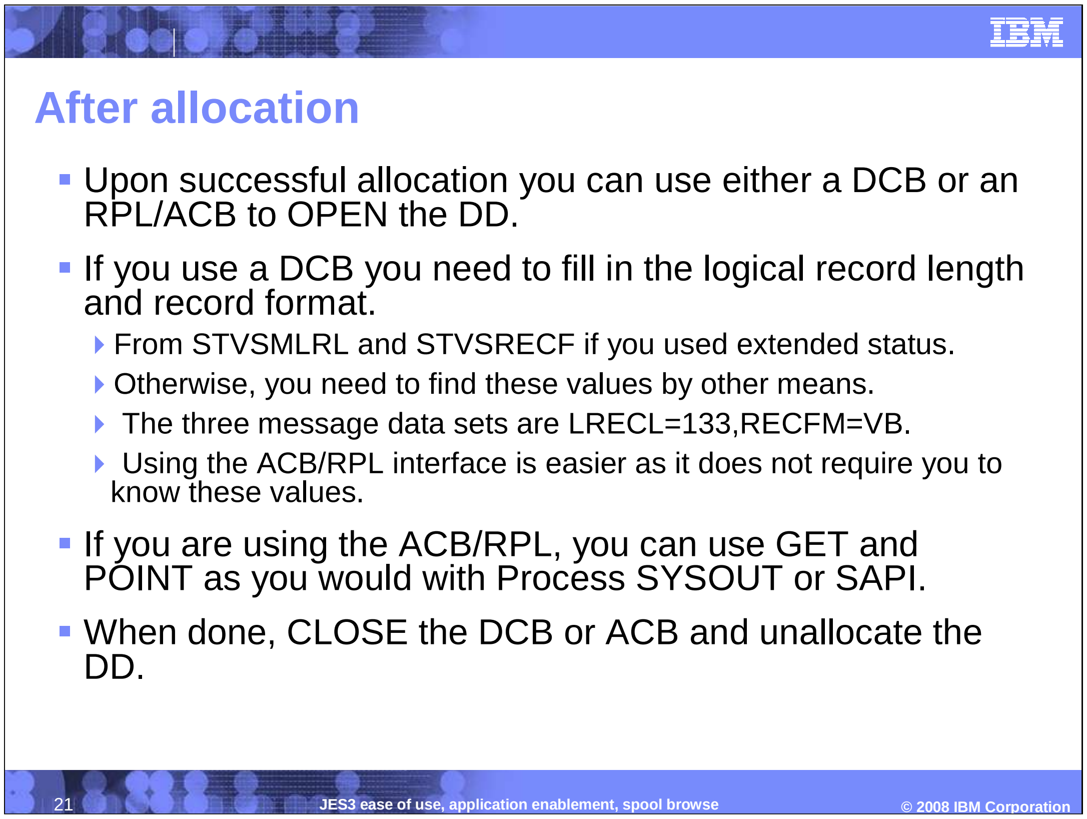
Subparameter 7 contains a length of a log string field, which in turn consists of a length byte and a string. The string is a log string to be used on the SAF call used by JES3 to check authority to the browse request, or 0 if the log string is not being used. The log string length must be a value from 0 to 254.

Subparameters 6 and 7 go together when logging is to be performed.



After allocation

- Upon successful allocation you can use either a DCB or an RPL/ACB to OPEN the DD.
- If you use a DCB you need to fill in the logical record length and record format.
  - From STVSMLRL and STVSRECF if you used extended status.
  - Otherwise, you need to find these values by other means.
  - The three message data sets are LRECL=133,RECFM=VB.
  - Using the ACB/RPL interface is easier as it does not require you to know these values.
- If you are using the ACB/RPL, you can use GET and POINT as you would with Process SYSOUT or SAPI.
- When done, CLOSE the DCB or ACB and unallocate the DD.

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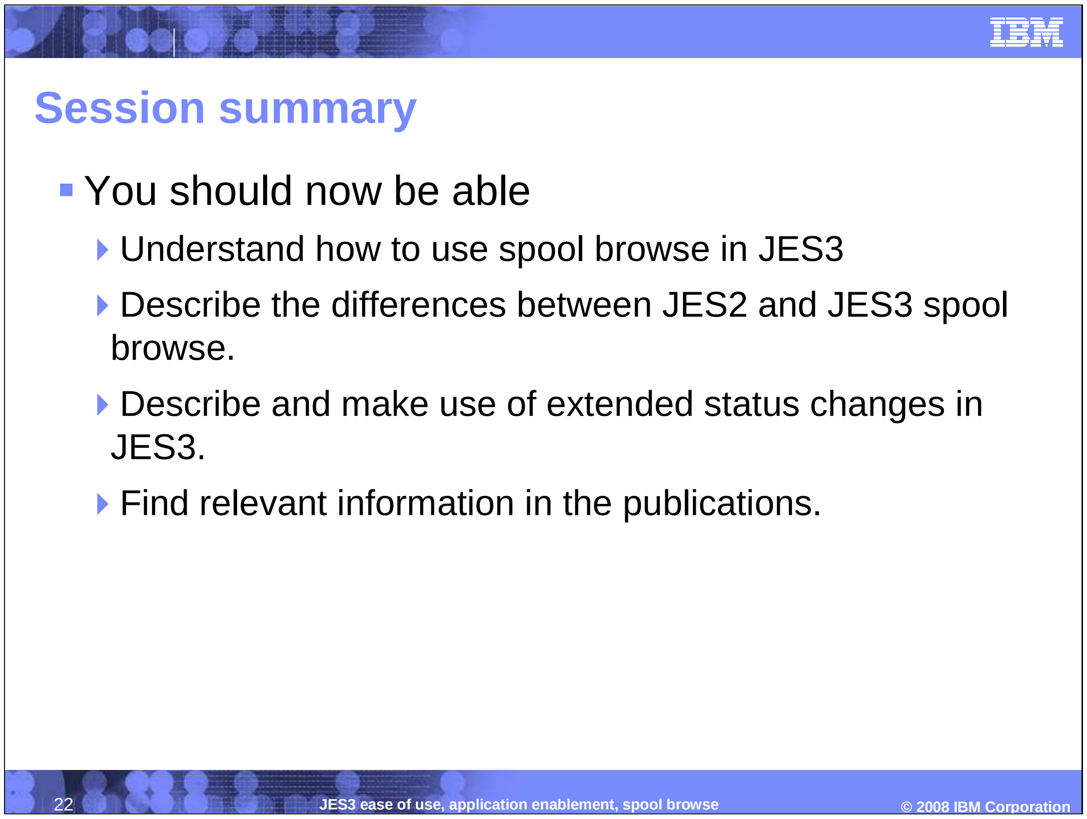
After you allocate the data set, the rest of the processing is the same as you would do with SAPI. You can use either the compatibility interface (using a DCB) or the RPL/ACB interface to OPEN the DD.

If you use the compatibility interface you need to fill in the DCB with the logical record length and record format of the data set. You can get these from extended status fields STVSMLRL and STVSRECF respectively. If you are browsing a data set that you did not identify through extended status you must determine these values yourself. For this reason it is often easier to use the ACB/RPL interface than it is to use the compatibility interface as you are not required to know these values.

After you do the OPEN you can GET records as you would with Process SYSOUT or SAPI.

When you are done, you can CLOSE the DD and call SVC 99 again to free (unallocate) the DD.



Session summary

- You should now be able
  - Understand how to use spool browse in JES3
  - Describe the differences between JES2 and JES3 spool browse.
  - Describe and make use of extended status changes in JES3.
  - Find relevant information in the publications.

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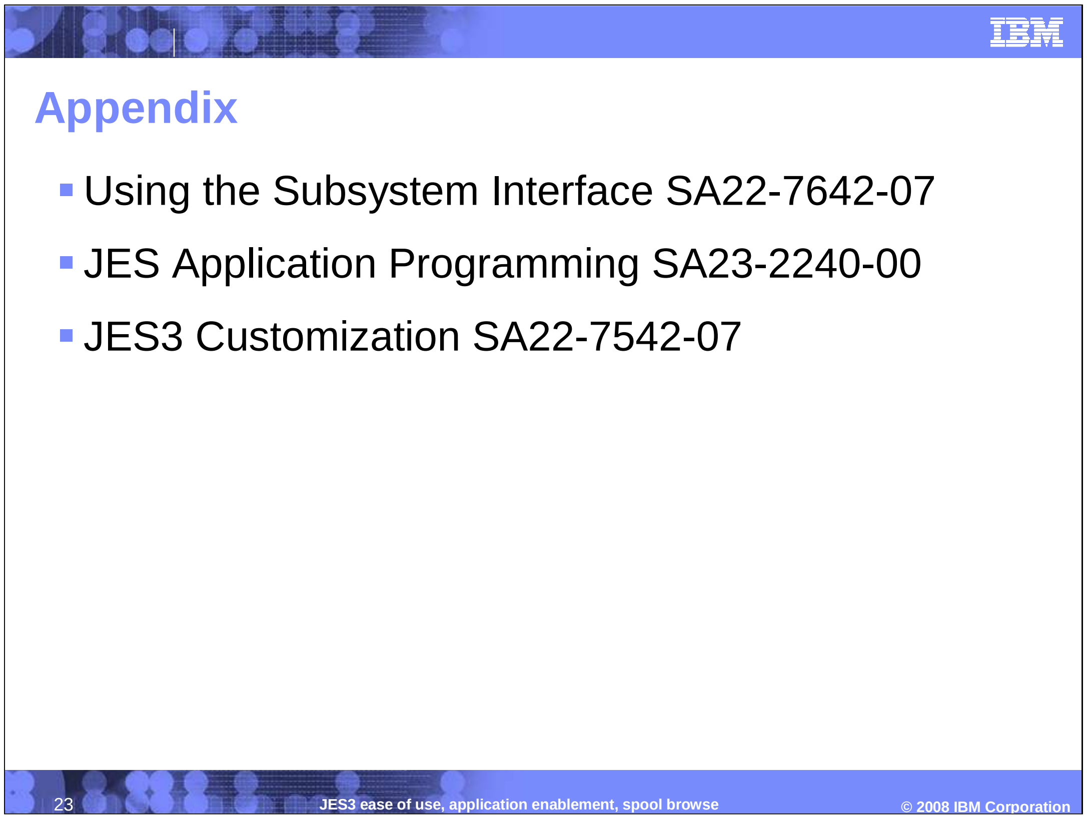

Appendix

- Using the Subsystem Interface SA22-7642-07
- JES Application Programming SA23-2240-00
- JES3 Customization SA22-7542-07

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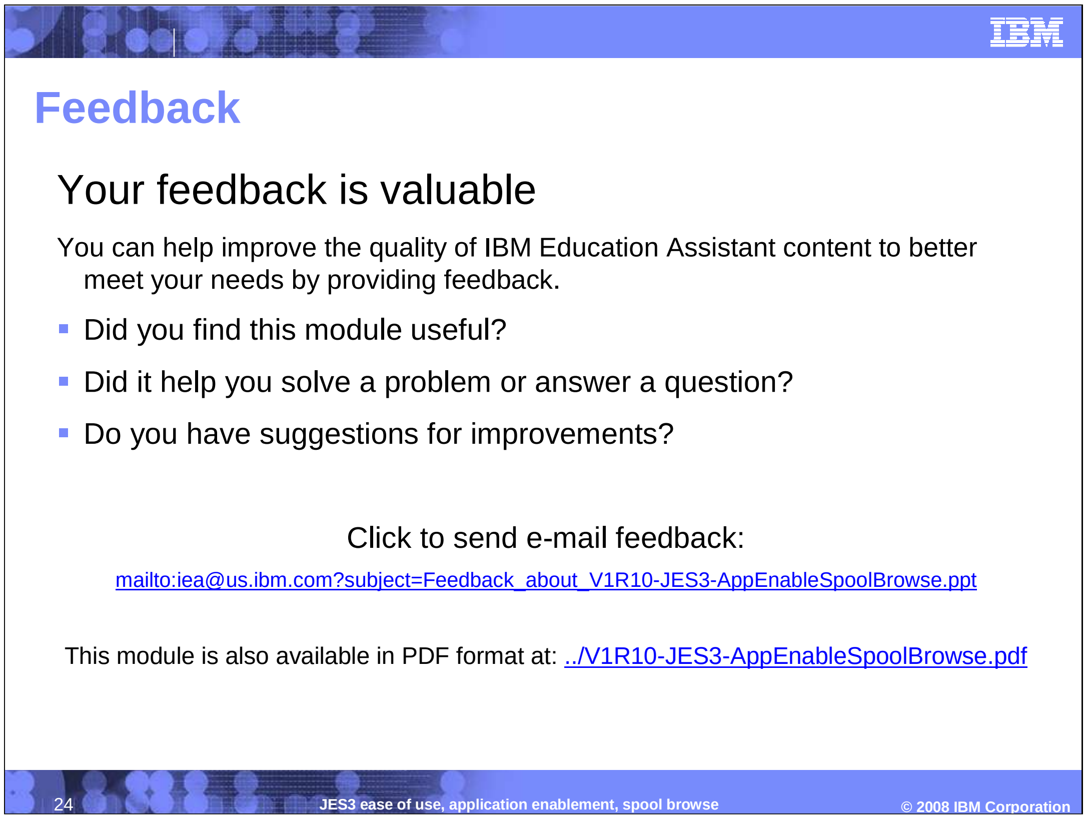
JES Application Programming is a new book. It contains information on spool browse that was formerly documented in the JES2 Initialization and Tuning Guide, other information formerly in JES publications but not geared towards applications (the internal reader and external writer), and it contains some application information formerly documented in the Using the Subsystem Interface book but not strictly about SSI calls (for example using the client print interface to work with allocation tokens).



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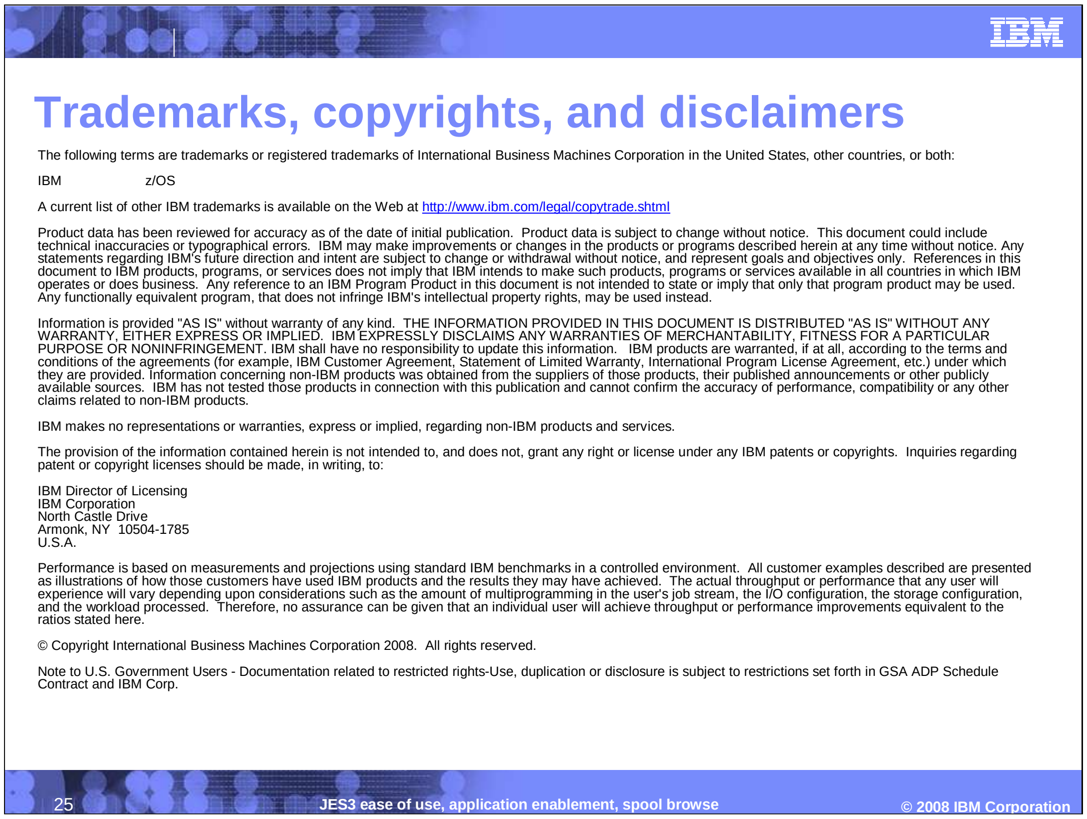

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