

# JCL/JCS Requirements and Examples

This section describes the job control information required to run ADARAI with BS2000, z/OS, z/VM, and VSE systems and shows examples of each of the job streams.

This chapter covers the following topics:

- BS2000
- z/OS
- z/VM
- VSE

## BS2000

This section describes additional considerations and requirements for using ADARAI on a BS2000 system.

Data Set	Link Name	Storage	More Information
Associator	DDASSORn	disk	
Data Storage	DDDATARn	disk	Required for RECOVER
Work	DDWORKR1 DDWORKR4	disk	Required for RECOVER
Data protection log	DDPLOGRn	tape/ disk	Required for RECOVER
Recovery log (RLOG)	DDRLOGR1	disk	
Job stream input	DDJCLIN	disk	Required for RECOVER
Recovery job output	DDJCLOUT	disk	Required for RECOVER
Recovery job output (JCL for console subtask)	DDJCLCON	disk	Optional; used only for RECOVER
ADARUN parameters	SYSDTA/ DDCARD		<i>Operations</i>
ADARAI parameters	SYSDTA/ DDKARTE		<i>Operations</i>
ADARUN messages	SYSOUT DDPRINT		<i>Messages and Codes</i>
ADARAI messages	SYSLST DDDRUCK		<i>Messages and Codes</i>

## BS2000 Data Sets

### Handling Sequential Disk Data Sets

There are no restrictions for sequential data sets on public disks.

Sequential data sets on private disks must not be exported; this means that the catalog entry must not be erased and that the recovery job control will not contain /IMPORT-FILE commands for data sets on private disks.

### Handling Sequential Tape Data Sets

Software AG recommends not removing catalog entries for sequential data sets on tapes from the system's catalog. If RECOVER does not find a catalog entry for a sequential data set on tape or cartridge, it includes the following statement in the job stream:

```
/IMPORT-FILE FILE-NAME=tempfile ,...
```

where *tempfile* has the following structure:

```
#ADARAI.RECOVER.TAPE.nnnnn
```

### Using File Generation Groups (FGGs)

There are no restrictions when using FGGs for sequential data sets, whether on disk or on tape.

### Input Data Sets

ADARAI tries to access sequential BS2000 data sets using the original catalog entries. If a sequential data set is in a file generation group (FGG), ADARAI assigns the absolute member; ADARAI does not use or change the base pointer.

If sequential data sets are read-protected by passwords, the %%JCL-JOB-HEADER section in the skeleton job control must contain these passwords.

ADARAI neither exports nor erases data sets. If catalog entries for tape data sets no longer exist, ADARAI creates temporary data sets with the names #ADARAI.RECOVER.TAPE.nnnnn, where *nnnnn* is "00001", "00002", and so on.

## ADARAI JCL Examples (BS2000)

### Begin Recovery Logging (ADARAI PREPARE)

#### In SDF Format:

```
/.ADARAI LOGON
/MODIFY-TEST-OPTIONS DUMP=YES
/REMARK *
/REMARK *A D A R A I   START RECOVERY LOGGING
/REMARK *
/ASS-SYSLST L.RAI.DATA
/ASS-SYSDTA *SYSCMD
/SET-FILE-LINK DDLIB,ADAvrs.MOD
/SET-FILE-LINK DDASSOR1,DB.yyyyyy.ASSO
/SET-FILE-LINK DDRLOGR1,DB.yyyyyy.RLOGR1,OPEN-MODE=OUTIN,BUFF-LEN=STD(2)
```

```

/START-PROGRAM *M(ADA.MOD,ADARUN),PR-MO=ANY
ADARUN PROG=ADARAI,DBID=yyyyyy,MODE=MULTI
ADARAI PREPARE RLOGSIZE=5,RLOGDEV=dddd,MINGENS=5
/LOGOFF SYS-OUTPUT=DEL

```

**In ISP Format:**

```

/.ADARAI LOGON
/OPTION MSG=FH,DUMP=YES
/REMARK *
/REMARK *A D A R A I   START RECOVERY LOGGING
/REMARK *
/REMARK *
/SYSFILE SYSLST=L.RAI.DATA
/FILE ADAvrs.MOD,LINK=DDLIB
/FILE DB.yyyyyy.ASSO ,LINK=DDASSOR1
/FILE DB.yyyyyy.RLOGR1,LINK=DDRLOGR1,OPEN=OUTIN,BLKSIZE=(STD,2)
/EXEC (ADARUN,ADAvrs.MOD)
ADARUN PROG=ADARAI,DBID=yyyyyy,MODE=MULTI
ADARAI PREPARE RLOGSIZE=5,RLOGDEV=dddd,MINGENS=5
/LOGOFF NOSPOOL

```

**List the RLOG (ADARAI LIST)****In SDF Format:**

```

/.ADARAI LOGON
/MODIFY-TEST-OPTIONS DUMP=YES
/REMARK *
/REMARK *A D A R A I   LIST RECOVERY LOGS
/REMARK *
/ASS-SYSLST L.RAI.DATA
/ASS-SYSDTA *SYSCMD
/SET-FILE-LINK DDLIB,ADAvrs.MOD
/SET-FILE-LINK DDASSOR1,DB.yyyyyy.ASSO
/SET-FILE-LINK DDRLOGR1,DB.yyyyyy.RLOGR1
/START-PROGRAM *M(ADA.MOD,ADARUN),PR-MO=ANY
ADARUN PROG=ADARAI,DBID=yyyyyy,MODE=MULTI
ADARAI LIST GENS=NO,RLOGDEV=dddd,RELGEN=1
/LOGOFF SYS-OUTPUT=DEL

```

**In ISP Format:**

```

/.ADARAI LOGON
/OPTION MSG=FH,DUMP=YES
/REMARK *
/REMARK *A D A R A I   LIST RECOVERY LOGS
/REMARK *
/REMARK *
/SYSFILE SYSLST=L.RAI.DATA
/FILE ADAvrs.MOD,LINK=DDLIB
/FILE DB.yyyyyy.ASSO ,LINK=DDASSOR1
/FILE DB.yyyyyy.RLOGR1,LINK=DDRLOGR1
/EXEC (ADARUN,ADAvrs.MOD)
ADARUN PROG=ADARAI,DBID=yyyyyy,MODE=MULTI
ADARAI LIST GENS=NO,RLOGDEV=dddd,RELGEN=1
/LOGOFF NOSPOOL

```

## Create Recovery JCL (ADARAI RECOVER)

### In SDF Format:

```

/.ADARAI LOGON
/MODIFY-TEST-OPTIONS DUMP=YES
/REMARK *
/REMARK *A D A R A I   BUILD RECOVERY JCL STREAM
/REMARK *
/DELETE-FILE DB.yyyyyy.JCLOUT
/SET-JOB-STEP
/CREATE-FILE DB.yyyyyy.JCLOUT,PUB( SPACE=( 48 , 48 ) )
/SET-JOB-STEP
/DELETE-FILE DB.yyyyyy.JCLCON
/SET-JOB-STEP
/CREATE-FILE DB.yyyyyy.JCLCON,PUB( SPACE=( 48 , 48 ) )
/SET-JOB-STEP
/ASS-SYSLST L.RAI.DATA
/ASS-SYSDTA *SYSCMD

/SET-FILE-LINK DDLIB,ADAvrs.MOD
/SET-FILE-LINK DDASSOR1,DB.yyyyyy.ASSO
/SET-FILE-LINK DDRLOGR1,DB.yyyyyy.RLOGR1
/SET-FILE-LINK DDPLOGR1,DB.yyyyyy.PLOGR1
/SET-FILE-LINK DDPLOGR2,DB.yyyyyy.PLOGR2
/SET-FILE-LINK DDJCLIN,DB.yyyyyy.JCLIN
/SET-FILE-LINK DDJCLOUT,DB.yyyyyy.JCLOUT
/SET-FILE-LINK DDJCLCON,DB.yyyyyy.JCLCON
/START-PROGRAM *M(ADA.MOD,ADARUN),PR-MO=ANY
ADARUN PROG=ADARAI,DBID=yyyyyy,MODE=MULTI
ADARUN UEX2=EXITR2
ADARAI RECOVER PLOGDEV=2201,FEOPPL=YES,RELGEN=1
/LOGOFF SYS-OUTPUT=DEL

```

### In ISP Format:

```

/.ADARAI LOGON
/OPTION MSG=FB,DUMP=YES
/REMARK *
/REMARK *A D A R A I   BUILD RECOVERY JCL STREAM
/REMARK *
/REMARK *

/SYSFILE SYSLST=L.RAI.DATA
/FILE ADAVrs.MOD,LINK=DDLIB
/FILE DB.yyyyyy.ASSO,LINK=DDASSOR1
/FILE DB.yyyyyy.RLOGR1,LINK=DDRLOGR1
/FILE DB.yyyyyy.PLOGR1,LINK=DDPLOGR1
/FILE DB.yyyyyy.PLOGR2,LINK=DDPLOGR2
/FILE DB.yyyyyy.JCLIN,LINK=DDJCLIN
/FILE DB.yyyyyy.JCLOUT,LINK=DDJCLOUT
/FILE DB.yyyyyy.JCLCON,LINK=DDJCLCON
/EXEC (ADARUN,ADAvrs.MOD)
ADARUN PROG=ADARAI,DBID=yyyyyy,MODE=MULTI
ADARUN UEX2=EXITR2
ADARAI RECOVER PLOGDEV=2201,FEOPPL=YES,RELGEN=1
/LOGOFF NOSPOOL

```

## Skeleton Job Control

For a BS2000 system, the skeleton job control should have the following characteristics:

- The first two positions must be blank;
- Statements can be up to 256 characters long, *including* the blanks in the first two positions;
- Statements can be continued; the continuation mark (-) can be in any position (it does not have to be in position 74);
- In version 10, ADARAI automatically adds the command:  

```
/MODIFY-SDF-OPTIONS CONTINUATION=NEW-MODE
```
- Job control statements for the BS2000 executive are automatically broken up into 72-byte segments, if necessary. Normal program control statements are *not* segmented.
- Except for string substitution (described below), ADARAI does not check or change the job control statement syntax.

In addition to the general JCL characteristics described above, BS2000 systems can include the following in the skeleton JCL:

- Substitution strings for repeating often-used job control input;
- DDFILEA data set overwriting, tape volume assignment, and disk space credit;
- Subtask processing of RECOVER-generated console messages.

These options must be specified at the beginning of the skeleton JCL, immediately before the %%JCL-JOB-HEADER statement.

### Specifying Substitution Strings

Frequently occurring strings such as data set names can be defined in the substitution section. The strings are then inserted into the BS2000 JCL as well as in the user program control statements.

To use string substitution, include the following JCL statement before %%JCL-JOB-HEADER:

```
%%JCL-BS2-SUBSTITUTION
```

This statement is followed by the substitution definitions, which have the following format:

```
%%argname=substring
```

where *argname* is the 1- to 8-character JCL or user program control argument to be replaced, and *substring* is the replacement string of up to 128 characters. One substitution statement per line is allowed; the substitution statements are ended by the next %%JCL statement.

## DDFILEA JCL Options

The JCL statements described in this section must appear before %%JCL-JOB-HEADER in the skeleton JCL.

ADAORD is the only utility that opens DDFILEA output data sets during the BS2000 recovery job. ADARAI assists in allocating those data sets on disk or tape regardless of whether the data sets existed at RECOVER time.

Existing tape data sets are never overwritten. To overwrite existing DDFILEA disk data sets, specify the following statement in the skeleton JCL:

```
%%JCL-BS2-WORK-DATASET-OVERWRITE=YES
```

OVERWRITE defaults to NO. If no DDFILEA assignments are found and overwriting is prohibited (the default), ADARAI tries to write the DDFILEA data sets on TAPE-C1 cartridges.

To allocate DDFILEA on disk instead of tape, include the following JCL statement:

```
%%JCL-BS2-WORK-DISK-SPACE
```

Then specify one or more disk space assignment statements, as follows:

```
:catid :=pam-pages
```

ADARAI checks the availability of the specified pubsets and for permission of the ADARAI task's logon user ID to allocate the specified number of PAM pages on those pubsets. If the checks fail, the user's logon ID must be added to the joinfile of the related pubset, and the ADARAI RECOVER job step must be repeated before starting the generated recovery job. Otherwise, the ADAORD job steps may abend.

To assign DDFILEA output tape devices and volumes, include the following statement:

```
%%JCL-BS2-WORK-TAPE-VOLUMES=device-type
```

If output tape data sets must be created, ADARAI uses temporary data sets named #ADARAI.RECOVER.TAPE.nnnnn, where nnnnn equals "00001", "00002", and so on. If the console subtask option described in the next section is enabled, each line can contain one or more volser numbers separated by blanks or commas. The first two positions on each line must be blanks; the maximum line length is 256 characters.

The following is an example:

```
%%JCL-BS2-WORK-TAPE-VOLUMES=TAPE-C1
  A00001,A00002,A00003,A00004
  A00005,A00006,A00007,A00008
```

Up to 512 volumes can be specified.

## BS2000 Console Subtask

When a recovery job created by ADARAI RECOVER is submitted, console messages may occur that require operator intervention, such as the following:

- The catalog entry for a tape data set is not available, and ADARAI inserts a /IMPORT-FILE statement for a temporary tape data set, causing a DMS0DA5 console message.
- Tape output for the DDFILEA data set is required, and ADARAI includes JCL that causes a message requesting that a scratch tape be mounted.

These messages can be answered automatically by a UCON program, which runs as a subtask in parallel with the recovery job. The UCON program (ADAR2C) receives all relevant console messages and sends answers whenever possible.

To run a console subtask, include the following section before %%JCL-JOB-HEADER:

```
%%JCL-BS2-CONSOLE-SUBTASK-SPECIFICATION
CONSOLE-NAME=name,C'password'          (this statement is required)
DCAM-APPL=dcamappl                      (this statement is optional)
```

where

<i>name</i>	is a /LOGON userid;
<i>password</i>	is the user ID's logon password; and
<i>dcamappl</i>	is the name of a DCAM application (the default is "RAIRUCON").

For more information, see the *Authorized User Tasks* section in the BS2000 Systems Administration documentation.

The following optional statement can be included in the skeleton JCL, followed by volser definitions. If the console subtask is not called, the volser definitions have no effect.

```
%%JCL-BS2-WORK-TAPE-VOLUMES=device-type
```

Include the following statement in the JCL for the ADARAI RECOVER function ( *not* in the skeleton JCL):

```
/SET-FILE-LINK
FILE-NAME=console-job,LINK-NAME=DDJCLCON
```

The following example JCL for the RECOVER function includes the console subtask:

```
/ LOGON
/ SET-FILE-LINK FILE-NAME=ADA.JCLIN,LINK-NAME=DDJCLIN
/ SET-FILE-LINK FILE-NAME=ADA.JCLOUT,LINK-NAME=DDJCLOUT
/ SET-FILE-LINK FILE-NAME=ADA.JCLCON,LINK-NAME=DDJCLCON
.
.

/ ASSIGN-SYSDTA TO-FILE=*SYSCMD
/ SET-FILE-LINK ADAvrs.MOD,LINK-NAME=DDLIB
/ START-PROG *M(E=ADARUN,L=ADAvrs.MOD)
ADARUN PROG=ADARAI,DB=47
ADARAI RECOVER
/ LOGOFF NOSPOOL
```

The console subtask evaluates the following BS2000 console messages, where *tsn* is the task serial number, and *mn* is the technical device name:

**NKVT010 VOLUME volser IS MOUNTED ON DEVICE mn**

If the volser and device are specified as described in the section DDFILEA JCL Options, they are registered in the subtask's online volser table. If the message NKVT013 is also outstanding at this time, the subtask returns the response "tsn.mn".

**NKVT011/97 VOLUME volser IS DISMOUNTED FROM DEVICE mn...**

The volser is removed from the online volser table.

**NKVT013 MOUNT TAPE '\*SCRAT' ON DEVICE ...**

If this message is related to the RECOVER task and the volser is available in the online volser table, the subtask sends the response "tsn.mn".

**DMS0DFB ACKNOWLEDGE VSN volser ON DEVICE mn...**

If this message is related to the RECOVER task, the subtask sends the response "tsn".

**DMS0DA5 INVALID FILE SPECIFICATION: VSN volser FOR FILE file...**

If the related "tsn" is the RECOVER task's "tsn" and *file* is a temporary data set with the name #ADARAI.RECOVER.TAPE.nnnnn, the message is answered with the response "tsn.I".

For the subtask to respond, the logon ID must be able to ignore tapes with incorrect file IDs. To enable this, issue the following statement under the system administrator's logon ID (TSOS):

```
/MOD-USER userid,PROTECTION-ATTRIBUTE=(TAPE-ACCESS=READ)
```

**Skeleton Job Control Example (BS2000)**

```
%%JCL-BS2-WORK-DATASET-OVERWRITE = NO
%%JCL-BS2-WORK-DISK-SPACE
    :A: = 500000
    :B: = 1000000
%%JCL-BS2-CONSOLE-SUBTASK-SPECIFICATION
    CONSOLE-NAME=CON1,C'PASSWORD'
%%JCL-BS2-WORK-TAPE-VOLUMES=TAPE-C1
    A00001,A00002,A00003,A00004,A00005
    A00006,A00007,A00008,A00009,A00010
%%JCL-BS2-SUBSTITUTION
%%USERID = ADAvrs
%%AC %%ASSOR1 = $ADAvrs.DByyyyy.ASSOR1
%%ASSOR2 = $ADAvrs.DByyyyy.ASSOR2
%%DATAR1 = $ADAvrs.DByyyyy.DATAR1
%%DATAR2 = $ADAvrs.DByyyyy.DATAR2
%%WORK = $ADAvrs.DByyyyy.WORK
%%SORT = $ADAvrs.DByyyyy.SORT%
%%TEMP = $ADAvrs.DByyyyy.TEMP
%%RLOGR1 = $ADAvrs.DByyyyy.RLOGR1
%%PLOGR1 = $ADAvrs.DByyyyy.PLOGR1
```



```

%%PLOGR2 = $ADAvrs.DByyyyy.PLOGR2
%%DBID   = yyyyy
%%IDTNAME = ADABASvB
%%USEREX = ADAvrs.USEREXITS.MOD
%%DDLIB  = ADAvrs.MOD
%%DEVICE = dddd
%%JCL-JOB-HEADER
/.RECOVER LOGON %%USERID,%%ACCOUNT
/      SET-FILE-LINK FILE-NAME=%%USEREX, LINK-NAME=BLSLIB01
/      SET-FILE-LINK FILE-NAME=%%DDLIB, LINK-NAME=DDLIB
/      ASSIGN-SYSOUT TO-FILE=$ADAvrs.RAI.OUT
/      ASSIGN-SYSLST TO-FILE=$ADAvrs.RAI.LST%%JCL-JOB-TRAILER
/REMARK -----*
/REMARK *          RECOVERY JOB SUCCESSFULLY TERMINATED          *
/REMARK -----*
/LOGOFF NOSPOOL
/.JOBERROR REMARK
/REMARK ++++++*
/REMARK *          RECOVERY JOB TERMINATED WITH ERROR          *
/REMARK ++++++*
/LOGOFF NOSPOOL
%%JCL-ADARES
/REMARK
/REMARK REGENERATE/ BACKOUT
/REMARK
/      SET-FILE-LINK FILE-NAME=%RLOGR1, LINK-NAME=DDRLOGR1,      -
/      SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%ASSOR1, LINK-NAME=DDASSOR1,      -
/      SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%ASSOR2, LINK-NAME=DDASSOR2,      -
/      SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%DATAR1, LINK-NAME=DDDATAR1,      -
/      SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%DATAR2, LINK-NAME=DDDATAR2,      -
/      SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%WORK, LINK-NAME=DDWORKR1,        -
/      SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=RAI.DRU.JCLO.ADARES, LINK-NAME=DDDRUCK
/      SET-FILE-LINK FILE-NAME=RAI.PRI.JCLO.ADARES, LINK-NAME=DDPRINT
%SEQUENTIAL
/      ASSIGN-SYSDTA TO-FILE=*SYSCMD
/      START-PROGRAM
FROM-FILE=*MODULE( ELEMENT=ADARUN, LIBRARY=%%DDLIB )
ADARUN MODE=MULTI, PROG=ADARES
ADARUN DBID=%%DBID, DE=%%DEVICE, IDTNAME=%%IDTNAME
%KARTE
%%JCL-STEP-TRAILER
/SET-JOB-STEP%%JCL-ADASAV
/REMARK
/REMARK RESTORE FILE(S)/DATABASE
/REMARK
/.%STEP REMARK
/      SET-FILE-LINK FILE-NAME=%RLOGR1, LINK-NAME=DDRLOGR1,      -
/      SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%ASSOR1, LINK-NAME=DDASSOR1,      -
/      SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%ASSOR2, LINK-NAME=DDASSOR2,      -
/      SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%DATAR1, LINK-NAME=DDDATAR1,      -
/      SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%DATAR2, LINK-NAME=DDDATAR2,      -
/      SUP=DISK( SHARE-UPD=YES )

```

```

/      SET-FILE-LINK FILE-NAME=%%WORK , LINK-NAME=DDWORKR1 ,      -
/
/      SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK
FILE-NAME=RAI . DRU . JCLO . RESTORE , LINK-NAME=DDDRUCK
/      SET-FILE-LINK
FILE-NAME=RAI . PRI . JCLO . RESTORE , LINK-NAME=DDPRINT
%SEQUENTIAL
/      ASSIGN-SYSDTA TO-FILE=*SYSCMD
/      START-PROGRAM
FROM-FILE=*MODULE( ELEMENT=ADARUN , LIBRARY=%%DDLIB )
ADARUN MODE=MULTI , PROG=ADASAV
ADARUN DBID=%%DBID , DE=%%DEVICE , IDTNAME=%%IDTNAME
%KARTE
%%JCL-ENDNUC
/REMARK
/REMARK ADADBS END NUCLEUS

/REMARK
/      SET-FILE-LINK FILE-NAME=%%RLOGR1 , LINK-NAME=DDRLOGR1 ,      -
/
/      SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%%ASSOR1 , LINK-NAME=DDASSOR1 ,      -
/
/      SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%%ASSOR2 , LINK-NAME=DDASSOR2 ,      -
/
/      SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%%DATAR1 , LINK-NAME=DDDATAR1 ,      -
/
/      SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%%DATAR2 , LINK-NAME=DDDATAR2 ,      -
/
/      SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%%WORK , LINK-NAME=DDWORKR1 ,      -
/
/      SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%%SORT , LINK-NAME=DDSORTR1
/      SET-FILE-LINK FILE-NAME=%%TEMP , LINK-NAME=DDTEMPR1
/      SET-FILE-LINK FILE-NAME=RAI . DRU . JCLO . ADADBS , LINK-NAME=DDDRUCK
/      SET-FILE-LINK FILE-NAME=RAI . PRI . JCLO . ADADBS , LINK-NAME=DDPRINT
/      ASSIGN-SYSDTA TO-FILE=*SYSCMD
/      START-PROGRAM
FROM-FILE=*MODULE( ELEMENT=ADARUN , LIBRARY=%%DDLIB )
ADARUN MODE=MULTI , PROG=ADADBS
ADARUN DBID=%%DBID , DE=%%DEVICE , IDTNAME=%%IDTNAME
ADADBS OPERCOM ADAEND
/REMARK
/REMARK CHECK INACTIVE DATABASE
/REMARK
/      SET-FILE-LINK FILE-NAME=RAI . DRU . JCLO . ADARAI , LINK-NAME=DDDRUCK
/      SET-FILE-LINK FILE-NAME=RAI . PRI . JCLO . ADARAI , LINK-NAME=DDPRINT
/      ASSIGN-SYSDTA TO-FILE=*SYSCMD
/      START-PROGRAM
FROM-FILE=*MODULE( ELEMENT=ADARUN , LIBRARY=%%DDLIB )
ADARUN
MODE=MULTI , PROG=ADARAI , DBID=%%DBID , DE=%%DEVICE , IDTNAME=%%IDTNAME
ADARAI CHKDB INACTIVE
%%JCL-ADADEF
/REMARK
/REMARK DEFINE NEWWORK
/REMARK
/      SET-FILE-LINK FILE-NAME=%%RLOGR1 , LINK-NAME=DDRLOGR1 ,      -
/
/      SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%%ASSOR1 , LINK-NAME=DDASSOR1 ,      -
/
/      SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%%ASSOR2 , LINK-NAME=DDASSOR2 ,      -
/
/      SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%%DATAR1 , LINK-NAME=DDDATAR1 ,      -

```

```

/
/          SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%%DATAR2 , LINK-NAME=DDDATAR2 ,      -
/          SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%%WORK , LINK-NAME=DDWORKR1 ,      -
/          SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%%SORT , LINK-NAME=DDSORTR1
/      SET-FILE-LINK FILE-NAME=%%TEMP , LINK-NAME=DDTEMPR1
/      SET-FILE-LINK FILE-NAME=RAI . DRU . JCLO . ADADEF , LINK-NAME=DDDRUCK
/      SET-FILE-LINK FILE-NAME=RAI . PRI . JCLO . ADADEF , LINK-NAME=DDPRINT
/      ASSIGN-SYSDTA TO-FILE=*SYSCMD
/      START-PROGRAM
FROM-FILE=*MODULE( ELEMENT=ADARUN , LIBRARY=%%DDLIB )
ADARUN MODE=MULTI , PROG=ADAEF
ADARUN DBID=%%DBID , DE=%%DEVICE , IDTNAME=%%IDTNAME
%KARTE
%%JCL-ADALOD
/REMARK
/REMARK LOAD A FILE/ MASS UPDATE
/REMARK
/      SET-FILE-LINK FILE-NAME=%%RLOGR1 , LINK-NAME=DDRLOGR1 ,      -
/          SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%%ASSOR1 , LINK-NAME=DDASSOR1 ,      -
/          SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%%ASSOR2 , LINK-NAME=DDASSOR2 ,      -
/          SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%%DATAR1 , LINK-NAME=DDDATAR1 ,      -
/          SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%%DATAR2 , LINK-NAME=DDDATAR2 ,      -
/          SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%%WORK , LINK-NAME=DDWORKR1 ,      -
/          SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%%SORT , LINK-NAME=DDSORTR1
/      SET-FILE-LINK FILE-NAME=%%TEMP , LINK-NAME=DDTEMPR1
/      SET-FILE-LINK FILE-NAME=RAI . DRU . JCLO . ADALOD , LINK-NAME=DDDRUCK
/      SET-FILE-LINK FILE-NAME=RAI . PRI . JCLO . ADALOD , LINK-NAME=DDPRINT
%SEQUENTIAL
/      ASSIGN-SYSDTA TO-FILE=*SYSCMD
/      START-PROGRAM
FROM-FILE=*MODULE( ELEMENT=ADARUN , LIBRARY=%%DDLIB )
ADARUN MODE=MULTI , PROG=ADALOD
ADARUN DBID=%%DBID , DE=%%DEVICE , IDTNAME=%%IDTNAME
%KARTE
%%JCL-ADAORD
/REMARK
/REMARK REORDER
/REMARK
/      SET-FILE-LINK FILE-NAME=%%RLOGR1 , LINK-NAME=DDRLOGR1 ,      -
/          SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%%ASSOR1 , LINK-NAME=DDASSOR1 ,      -
/          SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%%ASSOR2 , LINK-NAME=DDASSOR2 ,      -
/          SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%%DATAR1 , LINK-NAME=DDDATAR1 ,      -
/          SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%%DATAR2 , LINK-NAME=DDDATAR2 ,      -
/          SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%%WORK , LINK-NAME=DDWORKR1 ,      -
/          SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%%SORT , LINK-NAME=DDSORTR1
/      SET-FILE-LINK FILE-NAME=%%TEMP , LINK-NAME=DDTEMPR1
/      SET-FILE-LINK FILE-NAME=RAI . DRU . JCLO . ADAORD , LINK-NAME=DDDRUCK
/      SET-FILE-LINK FILE-NAME=RAI . PRI . JCLO . ADAORD , LINK-NAME=DDPRINT

```

```

%SEQUENTIAL
/      ASSIGN-SYSDTA TO-FILE=*SYSCMD
/      START-PROGRAM
FROM-FILE=*MODULE( ELEMENT=ADARUN , LIBRARY=%DDLIB )
ADARUN MODE=MULTI , PROG=ADAORD
ADARUN DBID=%DBID , DE=%DEVICE , IDTNAME=%IDTNAME
%KARTE
%%JCL-ADAINV
/REMARK
/REMARK INVERT/ COUPLE
/REMARK
/      SET-FILE-LINK FILE-NAME=%RLOGR1 , LINK-NAME=DDRLOGR1 ,      -
/      SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%ASSOR1 , LINK-NAME=DDASSOR1 ,      -
/      SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%ASSOR2 , LINK-NAME=DDASSOR2 ,      -
/      SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%DATAR1 , LINK-NAME=DDDATAR1 ,      -
/      SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%DATAR2 , LINK-NAME=DDDATAR2 ,      -
/      SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%WORK , LINK-NAME=DDWORKR1 ,      -
/      SUP=DISK( SHARE-UPD=YES )
/      SET-FILE-LINK FILE-NAME=%SORT , LINK-NAME=DDSORTR1
/      SET-FILE-LINK FILE-NAME=%TEMP , LINK-NAME=DDTEMPR1
/      SET-FILE-LINK FILE-NAME=RAI . DRU . JCLO . ADADBS , LINK-NAME=DDDRUCK
/      SET-FILE-LINK FILE-NAME=RAI . PRI . JCLO . ADADBS , LINK-NAME=DDPRINT
/      ASSIGN-SYSDTA TO-FILE=*SYSCMD
/      START-PROGRAM
FROM-FILE=*MODULE( ELEMENT=ADARUN , LIBRARY=%DDLIB )
ADARUN MODE=MULTI , PROG=ADAINV
ADARUN DBID=%DBID , DE=%DEVICE , IDTNAME=%IDTNAME
%KARTE
%%JCL-STARTNUC
/REMARK
/REMARK START NUCLEUS
/REMARK
/      MODIFY-JOB-SWITCHES ON=( 4 , 5 )
/      ASSIGN-SYSDTA TO-FILE=*SYSCMD
/      START-PROGRAM FROM-FILE=EDT
: / .ADANUC LOGON %%USERID , %%ACCOUNT
: /      SET-FILE-LINK FILE-NAME=%RLOGR1 , LINK-NAME=DDRLOGR1 , -
: /      SUP=DISK( SHARE-UPD=YES )
: /      SET-FILE-LINK FILE-NAME=%PLOGR1 , LINK-NAME=DDPLOGR1 , -
: /      SUP=DISK( SHARE-UPD=YES )
: /      SET-FILE-LINK FILE-NAME=%PLOGR2 , LINK-NAME=DDPLOGR2 , -
: /      SUP=DISK( SHARE-UPD=YES )
: /      SET-FILE-LINK FILE-NAME=%ASSOR1 , LINK-NAME=DDASSOR1 , -
: /      SUP=DISK( SHARE-UPD=YES )
: /      SET-FILE-LINK FILE-NAME=%ASSOR2 , LINK-NAME=DDASSOR2 , -
: /      SUP=DISK( SHARE-UPD=YES )
: /      SET-FILE-LINK FILE-NAME=%DATAR1 , LINK-NAME=DDDATAR1 , -
: /      SUP=DISK( SHARE-UPD=YES )
: /      SET-FILE-LINK FILE-NAME=%DATAR2 , LINK-NAME=DDDATAR2 , -
: /      SUP=DISK( SHARE-UPD=YES )
: /      SET-FILE-LINK FILE-NAME=%WORK , LINK-NAME=DDWORKR1 , -
: /      SUP=DISK( SHARE-UPD=YES )
: /      SET-FILE-LINK FILE-NAME=RAI . DRU . JCLO . ADANUC , LINK-NAME=DDDRUCK
: /      SET-FILE-LINK FILE-NAME=RAI . PRI . JCLO . ADANUC , LINK-NAME=DDPRINT
: /      ASSIGN-SYSDTA TO-FILE=*SYSCMD
: /      SET-FILE-LINK FILE-NAME=%USEREX , LINK-NAME=BLSLIB01
: /      SET-FILE-LINK FILE-NAME=%DDLIB , LINK-NAME=DDLIB

```

```

: /      START-PROGRAM FROM-FILE=*MODULE (ELEMENT=ADARUN , LIBRARY=%DDLIB)
: ADARUN  PROG=ADANUC
: ADARUN  DATABASE=%DBID          DATA BASE ID
: ADARUN  IDTNAME=%IDTNAME        NAME OF IDT
: ADARUN  DEVICE=%DEVICE
: ADARUN  IDTNAME=%IDTNAME
: ADARUN  LFIOP=1000000 , LWP=800000 , LBP=4000000 , LU=64000
: ADARUN  LP=200 , LS=20000 , TT=900 , TNAE=900 , OPENRQ=NO , PLOGRQ=YES
: ADARUN  NAB=20 , NH=400 , NU=200 , NISNHQ=50 , NC=20 , NPLOG=2 , PLOGDEV=2000
: ADARUN  PLOGSIZE=1000 , NCLOG=2 , CLOGDEV=2000 , CLOGSIZE=500
: ADARUN  UEX2=USEREX2
: /LOGOFF SYSOUT=DEL
@D &:1-1:
@W '#NUCENT' O
@H
/STEP
/ENTER-JOB #NUCENT , PROC-ADMIS=PAR (USER-ID=%USERID ,
/
/          ACCOUNT=%ACCOUNT)
/STEP
/
/   SET-FILE-LINK FILE-NAME= %DDLIB , LINK-NAME=DDLIB
/
/   SET-FILE-LINK FILE-NAME=RAI . DRU . JCLO . ADARES , LINK-NAME=DDDRUCK
/
/   SET-FILE-LINK FILE-NAME=RAI . PRI . JCLO . ADARES , LINK-NAME=DDPRINT
/
/   ASSIGN-SYSDTA TO-FILE=*SYSCMD
/
/   START-PROGRAM
FROM-FILE=*MODULE (ELEMENT=ADARUN , LIBRARY=%DDLIB)
ADARUN  MODE=MULTI , PROG=ADARAI
ADARUN  DBID=%DBID , DE=%DEVICE , IDTNAME=%IDTNAME
ADARAI  CHKDB ACTIVE

```

## ADAR2E Utility

If a pubset member is lost because of, for example, a head crash or other unrecoverable hardware error, initialize a new member, include it in the pubset, and restore all data sets in the pubset. In most cases, you must also reallocate the ASSO, DATA, WORK, and PLOG data sets on exactly the same disk locations they were on before the hardware failure.

The ADAR2E utility reads the TSOSCAT entries of assigned data sets and creates a procedure that reallocates the Adabas files at exactly the same disk locations where they were before. The ADAR2E utility operates totally independently of ADARAI and other Adabas utilities; ADAR2E should be run whenever disk allocation changes are made to the major Adabas components (ASSO, DATA, WORK, PLOG, CLOG, TEMP, or SORT).

**The following example JCL is for running the ADAR2E utility:**

```

/ LOGON
/ SET-FILE-LINK FILE-NAME=DB.yyyyyy.ASSO-01 , LINK-NAME=DDASSOR1
/ SET-FILE-LINK FILE-NAME=DB.yyyyyy.DATA-01 , LINK-NAME=DDDATAR1
/ SET-FILE-LINK FILE-NAME=DB.yyyyyy.WORK-01 , LINK-NAME=DDWORKR1
/ SET-FILE-LINK FILE-NAME=DB.yyyyyy.TEMP-01 , LINK-NAME=DDTEMPR1
/ SET-FILE-LINK FILE-NAME=DB.yyyyyy.PLOGR1 , LINK-NAME=DDPLOGR1
/ SET-FILE-LINK FILE-NAME=DB.yyyyyy.PLOGR2 , LINK-NAME=DDPLOGR2
/ SET-FILE-LINK FILE-NAME=ALLOCATE.JOB , LINK-NAME=DDJCLOUT
/ START-PROGRAM *MOD (LIB=ADAvrs , ELEM=ADAR2E)
/ LOGOFF SYS-OUTPUT=DEL

```

**The following is a list of available link names:**

```
DDASSOR1, DDASSOR2, DDASSOR3, DDASSOR4, DDASSOR5
DDDATAR1, DDDATAR2, DDDATAR3, DDDATAR4, DDDATAR5
DDWORKR1, DDWORKR2
DDSORTR1, DDSORTR2
DDTEMPR1, DDTEMPR2
DDPLOGR1, DDPLOGR2, DDPLOGR3, DDPLOGR4, DDPLOGR5, DDPLOGR6, DDPLOGR7, DDPLOGR8
```

*The following is an example of the job control created by the ADAR2E utility:*

```
/ BEGIN-PROCEDURE
/ MODIFY-SDF-OPTIONS CONTINUATION=NEW-MODE
/ CREATE-FILE FILE-NAME=:A:$ADABAS.DB.YYYYYY.ASSO-01,-
/   SUPPORT=PUBLIC-DISK(VOLUME=PUBA00,-
/   DEVICE-TYPE=Ddddd,SPACE=ABSOLUTE-
/   (FIRST-PAGE=32833,SIZE=5001))
/ MODI-FILE-ATTR FILE-NAME=:A:$ADABAS.DB.YYYYYY.ASSO-01,-
/   SUPPORT=PUBLIC-DISK(VOLUME=PUBA00,-
/   DEVICE-TYPE=Ddddd,SPACE=ABSOLUTE-
/   (FIRST-PAGE=29761,SIZE=5001))
/
/
/
/ CREATE-FILE FILE-NAME=:A:$ADABAS.DB.YYYYYY.DATA-01,-
/   SUPPORT=PUBLIC-DISK(VOLUME=PUBA02,-
/   DEVICE-TYPE=Ddddd,SPACE=ABSOLUTE-
/   (FIRST-PAGE=119809,SIZE=8001))
/ MODI-FILE-ATTR FILE-NAME=:A:$ADABAS.DB.YYYYYY.DATA-01,-
/   SUPPORT=PUBLIC-DISK(VOLUME=PUBA03,-
/   DEVICE-TYPE=Ddddd,SPACE=ABSOLUTE-
/   (FIRST-PAGE=75841,SIZE=8001))
```

Execute the ADAR2E-generated reallocation procedure under the system administrator's logon ID (TSOS) before starting the ADARAI RECOVER function.

Under BS2000 version 11 and above, it is possible to allow all users with access rights to a certain pubset to allocate disk space absolutely by issuing the following command under TSOS:

```
/MODIFY-MASTER-CATALOG CATID= catid,PHYSICAL-ALLO=USER-ALLOWED
```

## **z/OS**

Data Set	DD Name	Storage	More Information
Associator	DDASSORn	disk	
Data protection log	DDPLOGRn	tape/ disk	Required for RECOVER only if FEOFPL=YES is specified.
Recovery log (RLOG)	DDRLOGR1	disk	
Job stream input	DDJCLIN	disk	Required only for RECOVER
Recovery job output	DDJCLOUT	disk	Required only for RECOVER
ADARAI messages	DDDRUCK	printer	<i>Messages and Codes</i>
ADARUN messages	DDPRINT	printer	<i>Messages and Codes</i>
ADARUN parameters	DDCARD	reader	<i>Operations</i>
ADARAI parameters	DDKARTE	reader	

## JCL Examples (z/OS)

### Prepare for Recovery Logging (ADARAI PREPARE):

```
//RAIPREP EXEC PGM=ADARUN
//STEPLIB DD DISP=SHR,DSN=ADABAS.ADAvrs.LOADLIB
//DDASSOR1 DD DISP=SHR,DSN=EXAMPLE.ADAyyyyy.ASSOR1
//DDRLOGR1 DD DISP=SHR,DSN=EXAMPLE.ADAyyyyy.RLOGR1
//DDDRUCK DD SYSOUT=A
//DDPRINT DD SYSOUT=A
//DDCARD DD *
ADARUN PROGRAM=ADARAI,SVC=xxx,DEVICE=dddd,DBID=yyyyy,MODE=MULTI
//DDKARTE DD *
ADARAI PREPARE RLOGSIZE=5,MINGENS=5
```

### List the RLOG (ADARAI LIST)

```
//RAILIST EXEC PGM=ADARUN
//STEPLIB DD DSN=ADABAS.ADAvrs.LOADLIB,DISP=SHR
//DDASSOR1 DD DSN=EXAMPLE.ADAyyyyy.ASSOR1,DISP=SHR
//DDRLOGR1 DD DSN=EXAMPLE.ADAyyyyy.RLOGR1,DISP=SHR
//DDDRUCK DD SYSOUT=A
//DDPRINT DD SYSOUT=A
//DDCARD DD *
ADARUN PROGRAM=ADARAI,SVC=xxx,DEVICE=dddd,DBID=yyyyy,MODE=MULTI
//DDKARTE DD *
ADARAI LIST
/*
```

### Create Recovery JCL (ADARAI RECOVER)

```
//ADARAI EXEC PGM=ADARUN
//STEPLIB DD DSN=ADABAS.ADAvrs.LOADLIB,DISP=SHR
//*
//DDASSOR1 DD DSN=EXAMPLE.ADAyyyyy.ASSOR1,DISP=SHR
/*
```

```
//DDRLOGR1 DD DSN=EXAMPLE.ADAyyyyyy.RLOGR1,DISP=SHR
//DDJCLIN DD DSN=EXAMPLE.ADAyyyyyy.RAIJCL(JCLIN),DISP=SHR
//DDJCLOUT DD SYSOUT=A
//*
//DDPLOGR1 DD DSN=EXAMPLE.ADAyyyyyy.PLOGR1,DISP=SHR
//DDPLOGR2 DD DSN=EXAMPLE.ADAyyyyyy.PLOGR2,DISP=SHR
//*
//DDDRUCK DD SYSOUT=A
//DDPRINT DD SYSOUT=A
//DDCARD DD *
ADARUN PROGRAM=ADARAI,SVC=xxx,DEVICE=ddd,DBID=yyyyy,MODE=MULTI
ADARUN UEX2=UEX2
//DDKARTE DD *
ADARAI RECOVER JCLLOG=YES,RELGEN=0,DRIVES=2
```

## Skeleton Job Control Example (z/OS)

This example can be found in member ADARAIN of the JOBS data set.

```
%%JCL-JOB-HEADER
//ADARECOV JOB 5,'ADA-USER',MSGCLASS=X,CLASS=A,REGION=4096K
//*
//JOBLIB DD DSN=ADABAS.ADAvrs.LOAD,DISP=SHR
//*
%%JCL-JOB-TRAILER
//*
/** END OF RECOVERY
/**
//
%%JCL-STEP-TRAILER
//*
/** END OF STEP
/**
%%JCL-DDKARTE
//DDKARTE DD *
%%JCL-ADADEF
//*
/** DEFINE NEWWORK
/**
/**%STEP EXEC PGM=ADARUN ADADEF JOB STEP
//DDASSOR1 DD DSN=ADABAS.ADAvrs.ASSOR1,DISP=SHR
//DDDATAR1 DD DSN=ADABAS.ADAvrs.DATAR1,DISP=SHR
//DDWORKR1 DD DSN=ADABAS.ADAvrs.WORKR1,DISP=SHR
//DDTEMPR1 DD DSN=ADABAS.ADAvrs.TEMPR1,DISP=OLD
//DDSORTR1 DD DSN=ADABAS.ADAvrs.SORTR1,DISP=OLD
//DDRLOGR1 DD DSN=ADABAS.ADAvrs.RLOGR1,DISP=SHR
//SYSUDUMP DD SYSOUT=*
//DDDRUCK DD SYSOUT=*
//DDPRINT DD SYSOUT=*
//DDCARD DD *
ADARUN MODE=MULTI,PROG=ADADEF,DBID=xxxxx,DE=yyyy,SVC=zzz
//DDKARTE DD *
%KARTE
%%JCL-ADAINV
//*
/** INVERT / COUPLE
/**
/**%STEP EXEC PGM=ADARUN ADAINV JOB STEP
//DDASSOR1 DD DSN=ADABAS.ADAvrs.ASSOR1,DISP=SHR
//DDRLOGR1 DD DSN=ADABAS.ADAvrs.RLOGR1,DISP=SHR
//DDSORTR1 DD DSN=ADABAS.ADAvrs.SORTR1,DISP=OLD
//DDTEMPR1 DD DSN=ADABAS.ADAvrs.TEMPR1,DISP=OLD
```



```

//SYSUDUMP DD SYSOUT=*
//DDDRUCK DD SYSOUT=*
//DDPRINT DD SYSOUT=*
//DDCARD DD *
ADARUN MODE=MULTI,PROG=ADAINV,DBID=xxxxxx,DE=yyyy,SVC=zzz
//DDKARTE DD *
%KARTE
%%JCL-ADALOD
// *
// * LOAD A FILE / MASS UPDATE
// *
//%STEP EXEC PGM=ADARUN ADALOD JOB STEP
%SEQUENTIAL
//DDASSOR1 DD DSN=ADABAS.ADAvrs.ASSOR1,DISP=SHR
//DDDATAR1 DD DSN=ADABAS.ADAvrs.DATAR1,DISP=SHR
//DDWORKR1 DD DSN=ADABAS.ADAvrs.WORKR1,DISP=SHR
//DDTEMPR1 DD DSN=ADABAS.ADAvrs.TEMPR1,DISP=OLD
//DDSORTR1 DD DSN=ADABAS.ADAvrs.SORTR1,DISP=OLD
//DDRLOGR1 DD DSN=ADABAS.ADAvrs.RLOGR1,DISP=SHR
//SYSUDUMP DD SYSOUT=*
//DDDRUCK DD SYSOUT=*
//DDPRINT DD SYSOUT=*
//DDCARD DD *
ADARUN MODE=MULTI,PROG=ADALOD,DBID=xxxxxx,DE=yyyy,SVC=zzz
//DDKARTE DD *
%KARTE
%%JCL-ADAORD
// *
// * REORDER
// *
//%STEP EXEC PGM=ADARUN ADAORD JOB STEP
%SEQUENTIAL
//DDASSOR1 DD DSN=ADABAS.ADAvrs.ASSOR1,DISP=SHR
//DDDATAR1 DD DSN=ADABAS.ADAvrs.DATAR1,DISP=SHR
//DDWORKR1 DD DSN=ADABAS.ADAvrs.WORKR1,DISP=SHR
//DDRLOGR1 DD DSN=ADABAS.ADAvrs.RLOGR1,DISP=SHR
//SYSUDUMP DD SYSOUT=*
//DDDRUCK DD SYSOUT=*
//DDPRINT DD SYSOUT=*
//DDCARD DD *
ADARUN MODE=MULTI,PROG=ADAORD,DBID=xxxxxx,DE=yyyy,SVC=zzz
//DDKARTE DD *
%KARTE
%%JCL-ADARES
// *
// * PLCOPY / REGENERATE / BACKOUT
// *
//%STEP EXEC PGM=ADARUN
%SEQUENTIAL
//DDASSOR1 DD DSN=ADABAS.ADAvrs.ASSOR1,DISP=SHR
//DDRLOGR1 DD DSN=ADABAS.ADAvrs.RLOGR1,DISP=SHR
// * Omit DDPLGRx for Parallel and Cluster Services
//DDPLOGR1 DD DSN=ADABAS.ADAvrs.PLOGR1,DISP=SHR
//DDPLOGR2 DD DSN=ADABAS.ADAvrs.PLOGR2,DISP=SHR
// * Include MERGIN1 and MERGIN2 for Parallel and Cluster Services
//MARGIN1 DD DSN=ADABAS.ADAvrs.INTER1,DISP=SHR
//MARGIN2 DD DSN=ADABAS.ADAvrs.INTERO,DISP=SHR
//SYSUDUMP DD SYSOUT=*
//DDDRUCK DD SYSOUT=*
//DDPRINT DD SYSOUT=*
//DDCARD DD *
ADARUN MODE=MULTI,PROG=ADARES,DBID=xxxxxx,DE=yyyy,SVC=zzz

```

```

//DDKARTE DD *
%KARTE
%%JCL-DDSIAUS1
//DDSIAUS1 DD DSN=ADABAS.ADAvrs.PLCOPY(+1),
// DISP=(NEW,CATLG),UNIT=TAPE
%%JCL-DDSIAUS2
//DDSIAUS2 DD DSN=ADABAS.ADAvrs.PLCOPY2(+1), Optional second copy
// DISP=(NEW,CATLG),UNIT=TAPE
%%JCL-ADASAV
//*
//* RESTORE FILE(S)/DATABASE
//*
//%STEP EXEC PGM=ADARUN ADASAV JOB STEP
%SEQUENTIAL
//DDRLOGR1 DD DSN=ADABAS.ADAvrs.RLOGR1,DISP=SHR
//DDASSOR1 DD DSN=ADABAS.ADAvrs.ASSOR1,DISP=SHR
//DDDATAR1 DD DSN=ADABAS.ADAvrs.DATAR1,DISP=SHR
//DDWORKR1 DD DSN=ADABAS.ADAvrs.WORKR1,DISP=SHR
//DDTEMPR1 DD DSN=ADABAS.ADAvrs.TEMPR1,DISP=OLD
//SYSUDUMP DD SYSOUT=*
//DDDRUCK DD SYSOUT=*
//DDPRINT DD SYSOUT=*
//DDCARD DD *
ADARUN MODE=MULTI,PROG=ADASAV,DBID=xxxxxx,DE=yyyy,SVC=zzz
//DDKARTE DD *
%KARTE
%%JCL-STARTNUC
//*
//* START NUCLEUS
//*
//%STEP EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=*
//SYSIN DD DUMMY
//SYSUT2 DD SYSOUT=(*,INTRDR)
//SYSUT1 DD DATA,DLM='$$'
//ADANUC JOB 5,'ADANUC',CLASS=A,MSGCLASS=X,REGION=6M,TIME=1440
//NUCxxxx EXEC PGM=ADARUN
//STEPLIB DD DSN=ADABAS.ADAvrs.LOAD,DISP=SHR
//*
//DDASSOR1 DD DSN=ADABAS.ADAvrs.ASSOR1,DISP=SHR
//DDDATAR1 DD DSN=ADABAS.ADAvrs.DATAR1,DISP=SHR
//DDWORKR1 DD DSN=ADABAS.ADAvrs.WORKR1,DISP=SHR
//DDRLOGR1 DD DSN=ADABAS.ADAvrs.RLOGR1,DISP=SHR
//DDPLOGR1 DD DSN=ADABAS.ADAvrs.PLOGR1,DISP=SHR
//DDPLOGR2 DD DSN=ADABAS.ADAvrs.PLOGR2,DISP=SHR
//INTRDR2 DD SYSOUT=(*,INTRDR)
//SYSUDUMP DD SYSOUT=*
//DDPRINT DD SYSOUT=*
//DDCARD DD *
ADARUN PROG=ADANUC
ADARUN UEX2=UEX2
ADARUN DUALPLS=nnn dual PLOG size
ADARUN DUALPLD=mmmm dual PLOG device type
ADARUN MODE=MULTI
ADARUN DATABASE=xxxxxx DATA BASE ID
ADARUN DEVICE=yyyy ASSOCIATOR DEVICE TYPE
ADARUN SVC=zzz SVC NUMBER
$$
//*
//* End of input for internal reader. Check whether nucleus is active.
//*
//ADARAI EXEC PGM=ADARUN

```

```

//STEPLIB DD DSN=ADABAS.ADAvrs.LOAD,DISP=SHR
//SYSOUT DD SYSOUT=*
//DDPRINT DD SYSOUT=*
//DDDRUCK DD SYSOUT=*
//DDCARD DD *
ADARUN MODE=MULTI,PROGRAM=ADARAI,DBID=xxxxxx,SVC=zzz,DE=yyyy
//DDKARTE DD *
ADARAI CHKDB ACTIVE
//*
%%JCL-ENDNUC
//*
//* ADADBS END NUCLEUS
//*
//%STEP EXEC PGM=ADARUN
//DDASSOR1 DD DSN=ADABAS.ADAvrs.ASSOR1,DISP=SHR
//DDDATAR1 DD DSN=ADABAS.ADAvrs.DATAR1,DISP=SHR
//DDWORKR1 DD DSN=ADABAS.ADAvrs.WORKR1,DISP=SHR
//DDTEMPR1 DD DSN=ADABAS.ADAvrs.TEMPR1,DISP=OLD
//DDSORTR1 DD DSN=ADABAS.ADAvrs.SORTR1,DISP=OLD
//DDRLOGR1 DD DSN=ADABAS.ADAvrs.RLOGR1,DISP=SHR
//DDDRUCK DD SYSOUT=*
//DDPRINT DD SYSOUT=*
//DDCARD DD *
ADARUN MODE=MULTI,PROG=ADADBS,DBID=xxxxxx,DE=yyyy,SVC=zzz
//DDKARTE DD *
ADADBS OPERCOM ADAEND
//*
//* Check whether nucleus is inactive.
//*
//ADARAI EXEC PGM=ADARUN
//STEPLIB DD DSN=ADABAS.ADAvrs.LOAD,DISP=SHR
//SYSOUT DD SYSOUT=*
//DDPRINT DD SYSOUT=*
//DDDRUCK DD SYSOUT=*
//DDCARD DD *
ADARUN MODE=MULTI,PROGRAM=ADARAI,DBID=xxxxxx,SVC=zzz,DE=yyyy
//DDKARTE DD *
ADARAI CHKDB INACTIVE
//*
```

**z/VM**

Data Set	DD Name	Storage	More Information
Associator	DDASSORn	disk	
Data Storage	DDDATARn	disk	Required for RECOVER
Work	DDWORKR1 DDWORKR4	disk	Required for RECOVER
Data protection log	DDPLOGRn	tape/ disk	Required for RECOVER
Recovery log (RLOG)	DDRLOGR1	disk	
Job stream input	DDJCLIN	disk	Required for RECOVER
Recovery job output	DDJCLOUT	disk	Required for RECOVER
ADARAI messages	DDDRUCK	disk/ terminal/ printer	<i>Messages and Codes</i>
ADARUN messages	DDPRINT	disk/ terminal/ printer	<i>Messages and Codes</i>
ADARUN parameters	DDCARD	disk/ terminal/ reader	<i>Operations</i>
ADARAI parameters	DDKARTE	disk/ terminal/ reader	

## JCL Examples (z/VM)

### Start Recovery Logging (ADARAI PREPARE)

```

DATADEF DDASSOR1 , DSN=ADABASVv . ASSO , VOL=ASSOV1
DATADEF DDRLOGR1 , DSN=ADABASVv . RLOG1 , VOL=RLOGV1
DATADEF DDDRUCK , DSN=ADARAI . DDDRUCK , MODE=A
DATADEF DDPRINT , DSN=ADAFRM . DDPRINT , MODE=A
DATADEF DDCARD , DSN=RUNRAI . CONTROL , MODE=A
DATADEF DDKARTE , DSN=ADARAI . CONTROL , MODE=A
ADARUN

```

### Contents of RUNRAI CONTROL A1:

```
ADARUN PROG=ADARAI , DEVICE=dddd , DB=99 , MODE=MULTI
```

### Contents of ADARAI CONTROL A1:

```
ADARUN PREPARE RLOGSIZE=5 , RLOGDEV=eeee , MINGENS=5
```

### List The RLOG (ADARAI LIST)

```

DATADEF ASSOR1 , DSN=ADABASVv . ASSO , VOL=ASSOV1
DATADEF RLOGR1 , DSN=ADABASVv . RLOG1 , VOL=RLOGV1
DATADEF DDDRUCK , DSN=ADARAI . DDDRUCK , MODE=A
DATADEF DDPRINT , DSN=ADARAI . DDPRINT , MODE=A
DATADEF DDCARD , DSN=RUNRAI . CONTROL , MODE=A
DATADEF DDKARTE , DSN=ADARAI . CONTROL , MODE=A

```

**Contents of RUNRAI CONTROL A1:**

```
ADARUN
PROG=ADARAI ,DEVICE=dddd ,DB=yyyyyy ,MODE=MULTI
```

**Contents of ADARAI CONTROL A1:**

```
ADARUN LIST
```

**VSE**

The following functions are available for use with ADARAI on a VSE system:

<b>Function</b>	<b>Action</b>
CHKDB	check the database status
DISABLE	disable the recovery log (RLOG)
LIST	list the RLOG contents
PREPARE	start the RLOGs
REMOVE	remove the RLOG

The ADARAI RECOVER function used to rebuild the job stream is not currently supported on a VSE system.

File	Symbolic Name	Storage	Logical Unit	More Information
Associator	ASSORn	disk	See note 1	
Data Storage	DATARn	disk	See note 1	Required for RECOVER
Work	WORKR1	disk		Required for RECOVER
Recovery log (RLOG)	RLOGR1	disk		
Data protection log	PLOGRn	tape disk		Required for RECOVER
Job stream input	JCLIN	SYSIPT		Required for RECOVER
Recovery job output	JCLOUT	SYSPCH		Required for RECOVER
ADARAI messages		printer	SYS009	<i>Messages and Codes</i>
ADARUN messages		printer	SYSLST	<i>Messages and Codes</i>
ADARUN parameters	- CARD CARD	reader tape disk	SYSRDR SYS000 See note 1	
ADARAI parameters		reader	SYSIPT	

**Note:**

Any programmer logical unit may be used.

**Example JCS (VSE)****Start Recovery Logging (ADARAI PREPARE)**

```
// ASSGN SYS009,00F
// EXEC PROC=ADAVvFIL
// EXEC PROC=ADAVvLIB
// EXEC ADARUN,SIZE=ADARUN
ADARUN PROG=ADARAI,SVC=xxx,DEVICE=dddd,DB=yyyyy,MODE=MULTI
/*
ADARAI PREPARE RLOGSIZE=5,MINGENS=5
/*
```

See Library and File Procedures for VSE Examples for descriptions of the VSE procedures (PROCs).

**List the RLOG (ADARAI LIST)**

```
// ASSGN SYS009,00F
// EXEC PROC=ADAVvFIL
// EXEC PROC=ADAVvLIB
// ASSGN SYS000,SYSIPT
// EXEC ADARUN,SIZE=ADARUN
ADARUN PROG=ADARAI,SVC=xxx,DEVICE=dddd,DB=yyyyy,MODE=MULTI
/*
ADARAI LIST
/*
```