

ESP Encore

Version 3, Release 1

User's Guide

ENC-3.1-UG-01

First Edition (March 2005)

This edition applies to Version 3, Release 1 of ESP Encore. The software and related manuals are protected by copyright law.

ESP Encore documentation
© Copyright 1992-2005 Cybermation Inc.
All rights reserved.

No portion of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means without the express written permission of

Cybermation Inc.
www.cybermation.com

U.S. Government Users. RESTRICTED RIGHTS - Use, duplication or disclosure restricted by GSA ADP Schedule Contract with Cybermation USA, Inc., a subsidiary of Cybermation International Distribution SRL.

Trademark Notice

ESP Encore is a registered trademark of Cybermation Inc.

Cybermation, ESP Workload Manager, and ESP Workstation are registered trademarks of Cybermation, Inc.

CA-ACF2 and CA-Top Secret are registered trademarks of Computer Associates International, Inc.

Other company, product, and service names may be trademarks, registered trademarks or service marks of others.



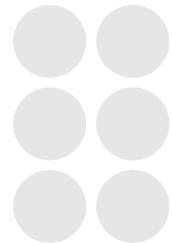
Contents

About This Guide	1
1 Using ESP Encore	3
Getting started	4
Learning about ESP Encore	4
Making a job restartable by ESP Encore.....	5
Confirming in CSF that a job is tracked by ESP Encore.....	5
Preparing to restart a job	6
Overriding the default settings for restart	6
Recreating data sets deleted in a job prior to restart.....	6
Changing JCL before restarting a job	7
Selecting a job for restart from duplicate job names and job numbers	7
Restarting a job	7
Restarting a job from CSF.....	7
Restarting a job with batch JCL	14
Restarting the most recent run of a job.....	15
Specifying the condition codes that the ESP Encore job step produces.....	16
Controlling the steps that are run in a restart or backout.....	16
Keeping a job step from running during a restart	16
Specifying steps to rerun by using logical statements	16
Specifying the restart step by using the CCFAIL statement	17
Preventing jobs from restarting on abend program steps	17
Ignoring condition codes from the previous run during a restart	17

Continuing to run a job that has errors predicted.....	18
Controlling data set processing.....	18
Backing out data sets moved to a different volume.....	18
Backing out only GDG data set generations created by a job	19
Backing out data sets on volumes excluded by ENCPARM VOLUME.....	19
Controlling the deletion and uncataloging of data sets created by a job run.....	19
Preventing ESP Encore processing and error prediction on specified data sets.....	19
Deleting data sets created by a job run outside ESP Workload Manager	20
Preventing deletion of data sets on specified volumes	20
Controlling the automatic restoration of missing or invalid data sets.....	20
Using relative and absolute GDG generations from the JCL for a restart....	21
Specifying the storage volume for migrated or archived data sets	21
Preventing rollback of database-related files during restart.....	21
Requesting a tape scratch from a TMS (Tape Management System)	22
Controlling error predictions and warnings.....	22
Controlling the errors that ESP Encore predicts.....	22
Disabling error prediction and processing for specified data sets.....	23
Displaying warnings for manual adjustments before restart	23
Producing reports for restart and backout.....	23
Reporting information from a job run.....	23
Reporting jobs and steps that use data sets	25
Inserting a comment into the ESP Encore Job Run Report	25
Viewing job run history outside of CSF	26
Backing out a job	26
Recreating data sets deleted in a job prior to backout	27
Backing out a job from CSF.....	27
Backing out a job by submitting JCL.....	31
Rerunning multiple jobs.....	34
Maintaining and troubleshooting ESP Encore.....	35
Ensuring ESP Encore is activated	35
Allocating an EXH data set	35
Controlling the Auxiliary Address Space.....	35
Controlling the internal processing of ESP Encore.....	35
Copying jobs from one EXH data set to another.....	36
Reporting the ENCPARM commands issued and the assigned command numbers.....	36
Undoing an ENCPARM command.....	36
Dumping EXH data set records	36
Purging jobs from the EXH data set.....	37
Reclaiming lost slots from the EXH data set.....	38
Matching ESP Encore resource serialization and GRS settings	38
Quiescing ESP Encore	38
Restarting ESP Encore	38

Displaying details on job run history and restart analysis requests	39
Reporting/modifying ESP Encore Auxiliary Address Space parameters.....	39
Reporting diagnostic information.....	39
Reporting errors in and removing lost slots from the EXH data set	40
Reporting the distribution of index records in an EXH data set	40
Reporting the status of ESP Encore.....	40
Reporting the jobs in the EXH data set	40
Specifying EXH data set utilization thresholds	40
Tracing ESP Encore modules.....	41
Using ESP Encore with ACF2 V5.2 or earlier	41
2 ESP Encore Concepts	43
An overview of ESP Encore.....	44
ESP Encore components	45
The ESP Encore step.....	45
How ESP Encore processes a job.....	47
The initial job run.....	47
The restart and backout job run	47
Details of ESP Encore	50
The EXH data set	51
About the EXH data set	51
Management of the number of records on the EXH data set.....	51
Auxiliary Address Space.....	51
About the Auxiliary Address Space	51
Controlling the Auxiliary Address Space.....	52
ESP Encore commands	52
Commands entered as initialization parameters.....	54
Commands entered in page mode	54
Commands entered in Procedures.....	54
Commands from ESP Encore screens.....	56
Commands entered in the ESP Encore step	57
ESP Encore ISPF screens.....	57
ESP Encore reports	58
Job restart considerations	58
How ESP Encore chooses the restart step.....	58
Limits to JCL changes before restarting a job	59
Error predictions	61
Cleanup of data sets	62
Data sets created outside of the job tracked by ESP Encore.....	63
Database considerations	64
Handling GDG adjustments for a restart	65
Warning messages	65
CCFAIL statement and ESP Encore.....	66
Security.....	67
RACF	67

CA-Top Secret	67
CA-ACF2	67
3 ESP Encore Reference	69
ESP Encore ISPF screens.....	70
Organization of ESP Encore screens.....	70
Job List Options screen	71
Job List screen.....	72
Step Summary screen	72
Step Detail screen.....	73
Data Set Summary screen.....	74
Data Set Detail screen	74
Restart Action Summary screen.....	76
Restart Step Summary screen	77
Restart Step Detail screen.....	77
Restart Data Set Summary screen.....	77
Restart Data Set Detail screen	78
Resubmit an Object screen.....	78
Resubmit Request Encore Statements screen	79
ESP Encore command summary	81
Where to use ESP Encore commands.....	82
ESP Encore utility summary	84
ESP Encore job run report	85
Main sections of the ESP Encore job run report.....	86
Diagnostic sections of the ESP Encore job run report	91
ESP Encore condition codes.....	102
 Glossary	 105
 Index	 107



About This Guide

This guide shows you how to use and maintain ESP Encore Version 3.1, a rerun/restart manager that works with ESP Workload Manager and is accessible through ISPF and ESP Workstation (version 4.4 or higher).

Before using this guide, you should have a basic knowledge of using ESP Workload Manager.

To start using ESP Encore, see “Getting started” on page 4.



Using ESP Encore

- Getting started
- Preparing to restart a job
- Restarting a job
- Controlling the steps that are run in a restart or backout
- Controlling data set processing
- Controlling error predictions and warnings
- Producing reports for restart and backout
- Viewing job run history outside of CSF
- Backing out a job
- Rerunning multiple jobs
- Maintaining and troubleshooting ESP Encore

Getting started

1. Read this section and follow the procedures.
2. Read “Preparing to restart a job” and follow the procedures as needed.
3. Read the other sections in this chapter and follow the procedures as needed.

Learning about ESP Encore

Introduction to ESP Encore

ESP Encore is a rerun/restart manager that works with ESP Workload Manager and is accessible through ISPF and ESP Workstation (version 4.4 or higher). When a job abnormally terminates (ABENDS), there are two ways to recover from the ABEND and continue processing:

- Restart the job from the point of failure and continue processing until the job reaches its normal end.
- Backout the processing done by the failed job as if the job had never executed.

Note: You can restart or rerun a job in ESP Encore even if the job has never run successfully before.

You can restart or back out batch jobs from CSF or by submitting JCL outside of ESP Workload Manager. Specifically, you can

- Review the steps, data sets, and errors in a job
- Review the actions that ESP Encore will take when it restarts or backs out a job
- Make detailed changes to how ESP Encore restarts or backs out a job before resubmitting the job
- Simulate a job restart or backout

ESP Encore has default settings for restarts and backouts, but you can also use ESP Encore commands to customize these settings. These settings can apply

- System-wide — affects all Applications
- At the Application level — affects all jobs in the Application
- At the job-definition level — affects the job
- As overrides for a job restart — affects the job being restarted

Depending on the situation, ESP Encore commands can be used in different places, such as in an ESP Encore screen, batch JCL, or as initialization parameters. For a summary, see “Where to use ESP Encore commands” on page 82.

Finding information about ESP Encore

You can find information about

- ESP Encore screens, commands, utilities, reports, and condition codes in “ESP Encore Reference” on page 69
- How ESP Encore works in “ESP Encore Concepts” on page 43
- ESP Encore commands in the *ESP Workload Manager Reference Guide*
- ESP Encore initialization parameters in the *ESP Workload Manager Installation and Configuration Guide*
- ESP Encore utilities in the *ESP Workload Manager System Programmer’s Guide*

Making a job restartable by ESP Encore

To use ESP Encore with any job, you have to make the job restartable with ESP Encore.

- Add the `OPTIONS RESTARTSTEP` statement to any Procedure where jobs are to be tracked by ESP Encore.

You can add `OPTIONS RESTARTSTEP`

- At the global level in the Procedure
- At the SUBAPPL level
- Within the scope of an IF statement
- Within a JOB statement

Important: Be aware that if you add `OPTIONS RESTARTSTEP` to jobs that validate data sets (for example, JCLPREP, Endeavor, or VTOC scan jobs), a large number of SMF records are produced. The types of jobs mentioned are not designed to be restarted.

To override ESP Encore tracking for specific jobs:

- Add the `OPTIONS NORESTARTSTEP` statement to specific jobs within a Procedure.

Confirming in CSF that a job is tracked by ESP Encore

A **Yes** in the **Enc** presentation column in CSF indicates a job is tracked by ESP Encore. This does not necessarily mean that the job ran. Also, if the job ran, its run history on the EXH data set may have been purged at a later time.

Preparing to restart a job

Overriding the default settings for restart

Before you restart a job in CSF or when you create job restart JCL, you can customize the restart settings by using ESP Encore commands. For example, you may want to bypass certain job steps, prevent expected errors from being reported, produce a special report, or keep certain data sets from being rolled back before restart.

The default settings on the ESP Encore commands may be fine for most job restarts. However, you should review the following sections of this guide to determine changes you may want to make to ESP Encore restart processing:

- “Controlling the steps that are run in a restart or backout” on page 16.
- “Controlling data set processing” on page 18.
- “Controlling error predictions and warnings” on page 22.
- “Producing reports for restart and backout” on page 23.

You should also review ESP Encore initialization parameters that were coded and ESP Encore commands that were issued in page mode. To do this

- Issue the OPER ENCPARM command in page mode.

In addition, review any ESP Encore commands in the ESP Workload Manager Procedure for the job you are restarting.

Recreating data sets deleted in a job prior to restart

If a data set was created and then deleted in the same job and you want to use the data set in a restart, do one of the following:

- Make sure the ENCPARM AUTOREST command is set to automatically restore the data set (see “Controlling the automatic restoration of missing or invalid data sets” on page 20).

By default, ESP Encore attempts to automatically restore missing data sets.

- If the ENCPARM AUTOREST command is not set to automatically restore the data set, include in the restart the step that created the data set (see “Restarting a job” on page 7).

If a data set was created outside a job and then deleted by the job, and you want to use the data set in a restart, you need to recreate the data set yourself.

Changing JCL before restarting a job

You can make any change you want to the restart step and all the steps that follow. However, you can only make limited changes to steps preceding the restart step. Here are the guidelines:

- You can add, remove, or change STEPLIB and JOBLIB statements.
- You cannot change step names or DD names.
- You cannot change the order of steps or DD statements.
- You cannot change data set names except for data sets that were only opened for input in the original job.

For background information, see “Limits to JCL changes before restarting a job” on page 59.

Selecting a job for restart from duplicate job names and job numbers

On rare occasions, ESP Encore cannot discriminate between two or more jobs with the same job name and job number on the EXH file. You can specify a reader-on (RDRON) time as an extra criterion to find a job in the EXH data set.

- Issue the ENCPARM PREVTIME command.

Restarting a job

Restarting a job usually involves rerunning the job from the point of failure to the end of the job. ESP Encore enables you to customize the steps that are rerun for a restart. You can also customize other restart processing, such as how data sets are handled.

Before you actually restart the job, ESP Encore simulates the results of any changes you make to the restart settings. This way, you can try different scenarios. Once you are satisfied with the results, you can restart the job.

Restarting a job from CSF

The procedures in this section enable you to

- View the job status and details of the job steps and data sets
- Choose job steps for a restart
- Run a restart simulation and view ESP Encore’s error predictions and restart actions
- Make changes to ESP Encore restart settings
- Restart a job

Carry out the procedures in the sections following.

Selecting a job to restart in CSF

- Beside the job you want to restart, type `RX`

Note: You can still type the old `RR` command instead of `RX`. However, when you enter `RR`, you cannot then use the `X` or `XX` command to exclude job steps from the restart.

Viewing ESP Encore information on steps and data sets in a job

In the Step Summary screen, you can view the job status and a summary of the steps in the job. You can also access the screens listed in the following table to view details of the job steps and data sets.

To	Go to the
View details of a step in a job.	Step Detail screen by typing <code>S</code> beside a step.
View a summary of the data sets in a job.	Data Set Summary screen by typing <code>DS</code> on the command line.
View details of a data set in a job.	Data Set Detail screen by typing one of the following: <ul style="list-style-type: none"> • <code>S</code> beside a data set name in the Data Set Summary screen. • <code>S</code> beside a <code>DD</code> name in the Step Detail screen.

Choosing job steps to include and exclude in a restart (`RX` in CSF)

Follow this procedure if you typed `RX` beside a job in CSF, otherwise, see “Choosing job steps to include in the restart (`RR` in CSF)” on page 11.

This section shows you how to use the `R`, `RR`, `X`, and `XX` commands in the Step Summary screen to control the steps that are run in a job restart. For other ways to control steps that are run, see “Controlling the steps that are run in a restart or backout” on page 16.

In the Step Summary screen, do one of the following:

- Type `R` on the command line to have ESP Encore select the job steps to run for the restart.
- Use the following procedures to select job steps to include and exclude from the restart run.

Restarting a single step

- Type `R` beside the step you want to rerun.

Example

Only step S2 runs except that step S1 runs if ESP Encore needs to run it to recreate a data set required by step S2. Steps S3 and S4 are bypassed.

```

      JOBNAME      JOB ID      Restr
      PAYROLL1    JOB49546
-----
      Stepname Procstep Program
R   S1                PAY01
   S2                PAY02
   S3                PAY03
   S4                PAY04

```

Restarting a range of steps

- Type RR beside the first and last steps for the range of steps you want to rerun.

Example

Steps S2 to S4 run; step S1 is bypassed unless ESP Encore needs to run it to recreate a data set required by a subsequent step.

```

      JOBNAME      JOB ID      Restr
      PAYROLL1    JOB49546
-----
      Stepname Procstep Program
RR  S1                PAY01
RR  S2                PAY02
   S3                PAY03
RR  S4                PAY04

```

Restarting from a step and running to the end of a job

- Type RF beside the step you want to restart from.

Example

Only steps S2 to S4 run; step S1 is bypassed unless ESP Encore needs to run it to recreate a data set required by a subsequent step.

```

      JOBNAME      JOB ID      Restr
      PAYROLL1    JOB49546
-----
      Stepname Procstep Program
RF  S1                PAY01
   S2                PAY02
   S3                PAY03
   S4                PAY04

```

Restarting a job and running to a step

- Type RT beside the step you want to run to in a restart.

Unless you specify otherwise, ESP Encore selects the step to run from. If ESP Encore chooses a step after the one you selected with RT, your selection is rejected and the job is not submitted. The Restart Action Summary screen displays the following error messages:

```
TO-STEP step_name OUT OF BOUNDS

TO-STEP rejected: 'step name'
A step with this name precedes the FROMSTEP.
This job cannot be submitted.
```

Example

Assuming step S1 is selected as the restart step, only steps S1 and S2 run; steps S3 and S4 are bypassed. If ESP Encore selects step S3 as the restart step, the RT selection is rejected, the job is not submitted, and an error message is issued.

```
      JOBNAME   JOB ID   Restrt
      PAYROLL1  JOB49546

-----
      Stepname  Procstep  Program
      S1                PAY01
RT S2                PAY02
      S3                PAY03
      S4                PAY04
```

Excluding a single step from a restart

- Type X beside the step you want to exclude from the rerun. If you are only excluding steps from a run, you must also type R in the command line.

Example

Step S2 is bypassed; the other steps run if they are required by ESP Encore. Note that R is typed on the command line.

```
ESP Encore Step Summary: PAY...
COMMAND ==>> R
```

```
      JOBNAME   JOB ID   Restrt
      PAYROLL1  JOB49546

-----
      Stepname  Procstep  Program
      S1                PAY01
X S2                PAY02
      S3                PAY03
      S4                PAY04
```

Excluding a range of steps from a restart

- Type XX beside the first and last steps for the range of steps you want to exclude from the rerun. If you are only excluding steps from a run you must also type R in the command line.

Example 1

Steps S2 to S4 are bypassed; the other steps run if they are required by ESP Encore. Note that R is typed on the command line.

```
ESP Encore Step Summary: PAY...
COMMAND ==> R
```

JOBNAME	JOB ID	Restr
PAYROLL1	JOB49546	

Stepname	Procstep	Program
S1		PAY01
XX S2		PAY02
S3		PAY03
XX S4		PAY04
S5		PAY05
S6		PAY06

Example 2

You can combine RR and XX to specify steps you want to run and steps you want to exclude from the run. In this example, steps S2, S6, and S7 run; steps S3 to S5 are bypassed. Step S1 is bypassed, unless ESP Encore needs to run it to recreate a data set required by a subsequent step.

JOBNAME	JOB ID	Restr
PAYROLL1	JOB49546	

Stepname	Procstep	Program
S1		PAY01
RR S2		PAY02
XX S3		PAY03
S4		PAY04
XX S5		PAY05
S6		PAY06
RR S7		PAY07

Proceed to “Viewing ESP Encore job restart information” on page 13.

Choosing job steps to include in the restart (RR in CSF)

Follow this procedure if you typed RR beside a job in CSF, otherwise, see “Choosing job steps to include and exclude in a restart (RX in CSF)” on page 8.

This section shows you how to use the R and RR commands in the Step Summary screen to control the steps that are run in a job restart. For other ways to control steps that are run, see “Controlling the steps that are run in a restart or backout” on page 16.

In the Step Summary screen, do one of the following:

- Type R on the command line to have ESP Encore select the job steps to run for the restart.
- Choose job steps to include in the restart run.

Restarting a single step

- Type RR beside the step you want to rerun.

Example

Only step S2 runs except that step S1 runs if ESP Encore needs to run it to recreate a data set required by step S2. Steps S3 and S4 are bypassed.

```

JOBNAME    JOB ID    Restr
PAYROLL1  JOB49546
-----
Stepname  Procstep  Program
S1                PAY01
RR S2                PAY02
S3                PAY03
S4                PAY04

```

Restarting a range of steps

- Type RR beside the first and last steps for the range of steps you want to rerun.

Example

Steps S2 to S4 run; step S1 is bypassed unless ESP Encore needs to run it to recreate a data set required by a subsequent step.

```

JOBNAME    JOB ID    Restr
PAYROLL1  JOB49546
-----
Stepname  Procstep  Program
S1                PAY01
RR S2                PAY02
S3                PAY03
RR S4                PAY04

```

Restarting from a step and running to the end of a job

- Type R beside the step you want to restart from.

Example

Only steps S2 to S4 run, step S1 is bypassed unless ESP Encore needs to run it to recreate a data set required by a subsequent step.

```

JOBNAME   JOB ID   Restrt
PAYROLL1  JOB49546
-----
Stepname  Procstep  Program
S1
R S2
S3
S4
          PAY01
          PAY02
          PAY03
          PAY04

```

Viewing ESP Encore job restart information

- In the Restart Action Summary screen
 - View errors predicted by ESP Encore.
 - View a description of how ESP Encore will restart the job.
 - Access the screens listed in the following table to view job restart details of the job steps and data sets.

To	Go to the
View a restart summary of steps in a job.	Restart Step Summary screen by typing <code>ST</code> on the command line.
View restart details of a step in a job.	Restart Step Detail screen by typing <code>S</code> beside a step in the Restart Step Summary screen.
View a restart summary of the data sets in a job.	Restart Data Set Summary screen by typing <code>DS</code> on the command line.
View restart details of a data set in a job.	Restart Data Set Detail screen by typing <code>S</code> beside a data set in the Restart Data Set Summary screen.

- On the command line of the Restart Action Summary screen, type `SUB`.

This takes you to the Resubmit an Object screen where you can specify `ENCPARM` commands to customize the restart.

Customizing the job restart with ENCPARM commands

In the Resubmit an Object screen, you can specify `ENCPARM` commands before submitting the restart. `ENCPARM` commands enable you to change the actions that ESP Encore takes during a restart. For example, you may want to bypass certain job steps, prevent expected errors from being reported, produce a particular report, or keep certain data sets from being deleted before the restart. For background information, see “ESP Encore commands” on page 52.

If you want to specify ENCPARM commands, do one or both of the following:

- Select ENCPARM commands in the Resubmit an Object screen.
- Enter ENCPARM commands by typing Y beside **DO YOU WISH TO ENTER ENCPARM STATEMENTS?** and pressing **Enter** to go to the Resubmit Request Encore Statements screen.

Submitting the job restart

Important: The next step will restart the job. To cancel the restart, press **F3/End**.

- In the Resubmit an Object screen or the Resubmit Request Encore Statements screen, press **Enter**.

Restarting a job with batch JCL

One reason to use batch JCL to restart a job is that the job is no longer on the SCHDFILE. However, the job must still be in the EXH data set. When you create the JCL, you specify ESP Encore commands to control the restart process. For background information, see “The ESP Encore step” on page 45 and “The EXH data set” on page 51.

1. Create JCL based on the model in “Sample JCL for restarting a job” on page 15.
2. Issue ESP Encore commands in the SYSIN DD statement of the JCL.

Note: Do not include the prefix “ENCPARM” when you issue commands in the JCL.

- To simulate a job restart, issue the ENCPARM MODE SCAN command and the ENCPARM TYPE RESTART command.

You can view ESP Encore’s error predictions and restart actions. Only the ESP Encore step runs; the rest of the job does not run.

- To restart a job, issue the ENCPARM MODE NORMAL command or the ENCPARM TYPE RESTART command.

Note: If you are running a job outside ESP Workload Manager, you must include the ENCPARM SUBSYS command in your JCL. This must match the SUBSYS command in the ESP Workload Manager initialization parameters.

Sample JCL for restarting a job

```
//job_name JOB (PROD001),'RESTART A JOB',MSGCLASS=X,CLASS=A
//          EXEC CYBRMENC
//SYSIN    DD *
SUBSYS    ESP ESPGROUP(PROD)
TYPE      RESTART
JOBID     Jxxxxxxxx
FROMSTEP  ffffffff
TOSTEP    tttttttt
Additional ENCPARM commands...
/*
Other job steps...
//
```

job_name: the name of the job being restarted

xxxxxxxx: job number

fffffff: the first step in the range of steps to be restarted (omit ENCPARM FROMSTEP to allow ESP Encore to select the first step to restart from)

ttttttt: the last step in the range of steps to be restarted (omit ENCPARM TOSTEP to finish the restart at the end of the job)

Note: If you specify a step in ENCPARM TOSTEP that comes before the step in ENCPARM FROMSTEP, ESP Encore rejects the job and issues the following error in the job run report:

```
=====
SEVERE ERROR
=====
```

```
THE SPECIFIED FROMSTEP OR TOSTEP
COULD NOT BE FOUND IN THE JOB.
```

Restarting the most recent run of a job

You can have ESP Encore restart the most recent run of the job found on the EXH data set.

- Issue the ENCPARM TYPE PREVIOUS or ENCPARM TYPE P command.

ESP Encore sets ENCPARM TYPE for a job run to

- INITIAL if the previous run of the job finished normally or there was no previous run.
- RESTART if the previous run of the job failed (including failures defined by commands such as CCCHK and CCFAIL).

Specifying the condition codes that the ESP Encore job step produces

Normally, the ESP Encore step finishes with a condition code of zero, unless errors have been predicted. Your JCL may need to distinguish between a restart and an initial run. You can have the ESP Encore step produce a specified condition code for an initial run and a specified condition code for a restart run.

- Issue the ENCPARM CONDCODE command with the operands you require.

Controlling the steps that are run in a restart or backout

Keeping a job step from running during a restart

Do one or more of the following:

- Add z/OS parameter RD=NR to the EXEC statement of each step that you want to exclude from a restart. For example

```
//STEP01 EXEC PGM=ABC, RD=NR
```

Note: You cannot specify RD=NR in the step that ESP Encore will restart on. When ESP Encore encounters a restart step with RD=NR, the ESP Encore step ends with completion code 150 or 151.

- Issue an ENCPARM EXCLUDE command with the operands you require for each step you want to exclude from the restart.
- In CSF, type RX beside the job being restarted and follow the procedure to exclude a step in “Excluding a single step from a restart” on page 10.
- Use z/OS IF/THEN/ELSE/ENDIF statements to control the job steps that are eligible to be rerun by ESP Encore. See “Specifying steps to rerun by using logical statements” on page 16.

Specifying steps to rerun by using logical statements

- Use z/OS IF/THEN/ELSE/ENDIF statements to control the job steps that are eligible to be rerun by ESP Encore.

ESP Encore chooses the step from which to restart from among the steps eligible for rerun.

Example

If STEP01 abends with completion code E37, STEP02 and STEP03 are eligible to be rerun by ESP Encore. Otherwise, STEP04 and STEP05 are eligible to be rerun by ESP Encore.

After STEP01 abends with completion code E37, if ESP Encore determines that the optimal restart step is STEP03, then STEP04 and STEP05 do not run.

```
//STEP01
// IF ABENDCC=SE37 THEN
//STEP02
//STEP03
// ELSE
//STEP04
//STEP05
// ENDIF
```

Specifying the restart step by using the CCFAIL statement

If you add the ESP Workload Manager CCFAIL statement to the Procedure that submits a job, you can specify the condition code that the job fails on and the step to restart the job on if it fails. For background information, see “CCFAIL statement and ESP Encore” on page 66.

Preventing jobs from restarting on abend program steps

Some job steps run a program that abends if a prior step ends with a specified completion code. You can have ESP Encore ignore the abend program step and restart on the step that caused the abend program step to run.

- Issue the ENCPARM ABENDER command to specify the abend program.

Example

In the following example, STEP3 executes when STEP2 receives a completion code of 16. Program ABEND806 in STEP3 abends on behalf of STEP2 and causes the remainder of the job to be flushed.

```
//...
//STEP1 EXEC PGM=P1
//STEP2 EXEC PGM=P2
//STEP3 EXEC PGM=ABEND806,COND(16,NE,STEP2)
//STEP4 EXEC PGM=P3
//...
```

ESP Encore restarts the job in STEP3, the abend step. To avoid this and restart in STEP02, you can issue the ENCPARM ABENDER command:

```
ENCPARM ABENDER ABEND806
```

Ignoring condition codes from the previous run during a restart

You can have ESP Encore ignore the condition codes from the previous run during a restart. By default, ESP Encore considers condition codes from the previous run.

- Issue the ENCPARM HONORCC NONE command.

Example

In the following JCL, if STEP1 ends with condition code 0, STEP3 is bypassed, otherwise, STEP3 is run.

```
//STEP1 EXEC PGM=P1
...
//STEP2 EXEC PGM=P2
...
//STEP3 EXEC PGM=P3, COND=(0,EQ,STEP1)
...
```

However, if STEP1 ends with condition code 0 and STEP2 abends, the restart from STEP2 proceeds as follows:

- STEP3 is run if you issue ENCPARM HONORCC NONE.
In this case, the condition code check for STEP1 is not done.
- STEP3 is bypassed if you issue ENCPARM HONORCC ALL.
In this case, ESP Encore checks the condition codes from the previous run so the condition code test in STEP3 is true.

Continuing to run a job that has errors predicted

By default, when ESP Encore predicts errors for a job run, it flushes the remainder of the job and it does not run the job. In this case, the ESP Encore step returns a completion code greater than 100. You can have ESP Encore predict errors and run the job despite the errors, although the job still fails.

- Issue the ENCPARM FORCE YES command.
In this case, the ESP Encore step returns completion code 0 and the job runs until it encounters any errors predicted.

Controlling data set processing

Backing out data sets moved to a different volume

You can back out any data set, even if it has been moved to a different volume from the one on which it was originally created.

- Issue the ENCPARM BACKOUT MOVED(YES) command.

By default, ESP Encore does not back out data sets moved to another volume.

Backing out only GDG data set generations created by a job

You can back out GDG generations only and leave other data sets as they were.

- Issue the ENCPARM BACKOUT GDGONLY(YES) command.

By default, ESP Encore backs out GDG and non-GDG data sets.

Backing out data sets on volumes excluded by ENCPARM VOLUME

The ENCPARM VOLUME command allows you to exclude data sets on a specified volume from any ESP Encore processing. However, you can override ENCPARM VOLUME and back out the excluded data sets.

- Issue the ENCPARM BACKOUT EXCLUDED(YES) command.

By default, ESP Encore does not back out data sets on volumes excluded by ENCPARM VOLUME.

Controlling the deletion and uncataloging of data sets created by a job run

ESP Encore can prevent NOT CATLGD 2 and DUPLICATE NAME ON DASD errors on a job restart by deleting and uncataloging data sets created by a job run. You can enable or disable this function for specified situations.

Before the initial run of a job, you can have ESP Encore delete and uncatalog existing data sets that are also created in that job. By default, ESP Encore does not cleanup data sets before an initial run.

- Issue the ENCPARM CLEANUP INITIAL(YES) command.

You can prevent the deletion and uncataloging of data sets before a restart. By default, ESP Encore deletes and uncatalogs data sets before a job restart.

- Issue the ENCPARM CLEANUP RESTART(NO) command.

You can prevent the deletion and uncataloging of dynamically allocated data sets before a restart. By default, ESP Encore deletes and uncatalogs dynamically allocated data sets before a job restart.

- Issue the ENCPARM CLEANUP DYNALLOC(NO) command.

See also, “Preventing ESP Encore processing and error prediction on specified data sets” on page 19. For background information, see “Cleanup of data sets” on page 62.

Preventing ESP Encore processing and error prediction on specified data sets

You can have ESP Encore ignore specified data sets. ESP Encore does not process the specified data sets or predict errors for the specified data sets.

- Issue the ENCPARM IGNOREDS command with the operands you require.

Deleting data sets created by a job run outside ESP Workload Manager

You can have ESP Encore clean up data sets prior to restart on jobs run outside of ESP Workload Manager. The job runs, errors are predicted, and ESP Encore performs data set cleanup, but it does not track the job in the EXH data set.

- Issue the ENCPARM MODE NULL command in the ESP Encore step of your JCL.

Preventing deletion of data sets on specified volumes

You can prevent ESP Encore from deleting data sets on specified volumes during a job restart.

- Issue the ENCPARM VOLUME EXCLUDE command.

You can also reverse a prior exclusion of data sets on specified volumes.

- Issue the ENCPARM VOLUME INCLUDE command.

Controlling the automatic restoration of missing or invalid data sets

ESP Encore can

- Reduce DATA SET NOT FOUND errors by looking for job steps that create missing data sets. If such steps are found, ESP Encore includes them in the job restart.
- Restore data sets produced in an abending step. ESP Encore considers these data sets invalid and looks for job steps that create them. If it finds such steps, it deletes the corresponding data sets and includes the steps in the job restart.

By default, if ESP Encore is unable to recover missing data sets (temporary and permanent) then

- The restart continues if there are no “DATA SET NOT FOUND” errors or ENCPARM FORCE YES is specified.

The ESP Encore step completes normally and the restart continues to run.

- The ESP Encore step fails and the restart job is flushed if there is a “DATA SET NOT FOUND” error and ENCPARM FORCE YES is not specified.

You can override the default settings for automatic data set restoration.

- Issue the ENCPARM AUTOREST command with the operands you require.

Important: Do not issue ENCPARM AUTOREST for jobs that include database files or sequential files containing data moved from a database. To handle these jobs, see “Preventing rollback of database-related files during restart” on page 21. For background information, see “Database considerations” on page 64.

Using relative and absolute GDG generations from the JCL for a restart

Sometimes, a relative GDG reference in the JCL does not refer to the correct generation when a job is restarted. New generations could have been created by other jobs before the restart.

By default, ESP Encore replaces relative generation numbers in the JCL with the absolute generation numbers stored in the EXH record for the job being restarted. ESP Encore does this even if a data set generation was moved to another volume (implying the data set was deleted and recreated by another job).

You can control whether ESP Encore uses absolute generation numbers or relative generation numbers for a restart.

- Issue the ENCPARM GDGADJ command with the operands you require.

For background information, see “Handling GDG adjustments for a restart” on page 65.

Specifying the storage volume for migrated or archived data sets

You can specify a volume that ESP Encore treats as containing data sets that were migrated.

- Issue the ENCPARM VOLUME MIGRATE command.

Migrated data sets are indicated by **MIGRATED** in the Catalog section of the ESP Encore job run report (see “Catalog section” on page 92). Also, for these data sets, ESP Encore does not predict the following errors:

- DATA SET ALREADY DELETED
- DATA SET NOT YET EXPIRED, NOT DELETED
- PERMANENT DATA SET NOT ON VOLUME

Preventing rollback of database-related files during restart

You can prevent ESP Encore from rolling back database files and sequential files of data permanently extracted from a database. For background information, see “Database considerations” on page 64.

Do one of the following:

- Issue the ENCPARM AUTOREST NO command in the ESP Workload Manager Procedure that submits a job containing database-related files.
- Before restarting the job, remove the job step that creates a sequential data set for data that will be permanently extracted from the database.

This prevents ESP Encore from performing an auto-restore of that data set.

- Issue the ENCPARM IGNOREDS command to identify database-related data sets that should not be auto-restored by ESP Encore.

ESP Encore does not process or predict errors for the specified data sets.

Requesting a tape scratch from a TMS (Tape Management System)

When ESP Encore needs to delete a tape data set, it uncatalogs it by issuing the IDCAMS 'DELETE *dsn* NSCR' command. You need to scratch or initialize the tape manually. If tapes are managed by a TMS (Tape Management System), you can have ESP Encore request a tape scratch from the TMS.

- Issue the ENCPARM TAPESCR command with the operands you require.

You can edit and call a sample tape scratch utility from ENCPARM TAPESCR PROG.

- Edit and call utility CYBRMTA1 from ENCPARM TAPESCR PROG.

You can test the preceding sample tape scratch utility before you call it from ENCPARM TAPESCR PROG.

- Edit and run utility CYBRMD01.

Controlling error predictions and warnings

Controlling the errors that ESP Encore predicts

You can enable or disable the error predictions that ESP Encore makes. By default, ESP Encore predicts all errors.

- Issue the ENCPARM PREDICT command with the operands you require.

The ENCPARM PREDICT command allows you to control error prediction by specifying

- An error type

Error types can be predicted or not predicted. For a list of error types, see the ENCPARM PREDICT command in the *ESP Workload Manager Reference Guide*.
- A step condition code

ESP Encore does not predict DSNOTFOUND or NOTCATLG2 errors for steps that test for the specified condition code in a COND parameter.
- A program name

ESP Encore does not predict DSNOTFOUND errors for all job steps after the first step that runs the specified program.

Disabling error prediction and processing for specified data sets

You can have ESP Encore ignore specified data sets. ESP Encore will not process or predict errors for specified data sets.

- Issue the ENCPARM IGNOREDS command with the operands you require.

Displaying warnings for manual adjustments before restart

In some restart situations, you may need to do manual adjustments to data sets. For example, you may have to recreate a missing data set or adjust a data set that has DISP=MOD specified. You can have ESP Encore issue extra warning messages in the Restart Action Summary screen to remind you about the required adjustments.

- Issue the ENCPARM WARNING command with the operands you require.

For background information, see “Warning messages” on page 65.

Producing reports for restart and backout

Reporting information from a job run

The ESP Encore step generates a job run report that provides details about the job execution. For details, see “ESP Encore job run report” on page 85. The following tables summarize the sections in the report.

Main sections of the job run report

The following report sections are always produced in the job run report:

Reporting	See report in
The job ID of the job being restarted or backed out	“Introductory section” on page 86
ESP Encore restart parameters.	“Parameter Summary section” on page 86.
All the ESP Encore initialization parameter settings and overrides.	“Initialization Parameters section” on page 87.

The following report section is only produced when a severe error occurs. For example, an ESP Encore condition code 44 (a job's EXH record is no longer in the EXH data set) causes the Severe Error section to be produced.

Reporting	See report in
Severe errors that prevent job restart.	“Severe Error section” on page 90.

The following report sections are produced in the job run report if they are relevant to the current run or if you select them by issuing the ENCPARM PRINT command. For example, to print the job steps that will rerun during a restart (the Job Restart Summary section), issue ENCPARM PRINT RESTART.

Reporting	Issue command See report in
All subsystems that have a specified ESP group in the z/OS image.	ENCPARM PRINT SUBSYS “Subsystem Information section” on page 87.
Steps in a job that will rerun during a restart.	ENCPARM PRINT RESTART “Job Restart Summary section” on page 88.
Job steps and the data sets used by each step.	ENCPARM PRINT SUMMARY “Job Summary section” on page 89.
Restart actions ESP Encore will take.	ENCPARM PRINT ACTIONS “Action Summary section” on page 90.

Diagnostic sections of the job run report

The diagnostic sections of the report provide detailed information on the internal operation of ESP Encore. A diagnostic section is not printed unless you request it by issuing the ENCPARM PRINT or ENCPARM DIAG command. For example, to print the data sets in a job and their catalog status (the Catalog section), you issue ENCPARM PRINT CATALOG.

You can print all the diagnostic sections by issuing the ENCPARM DIAG command.

Reporting	Issue command See report in
Hexadecimal dump of SIOT and JFCB fields.	ENCPARM PRINT SIOTJFCB “SIOT/JFCB section” on page 91.
Data sets in a job and their catalog status.	ENCPARM PRINT CATALOG “Catalog section” on page 92.
Volumes associated with all multivolume data sets in existence before the job starts.	ENCPARM PRINT MULTIVOL “Multivolume Data Sets section” on page 92.
Volumes for multi-volume data sets in a job.	ENCPARM PRINT VTOC “VTOC section” on page 93.
Basic information on all the storage devices used by the job.	ENCPARM PRINT UNIT “Unit Names section” on page 93.
All error predictions, including predictions that are disabled by the ENCPARM PREDICT command.	ENCPARM PRINT ERRORS “Errors section” on page 94.
Status of all ESP Encore actions.	ENCPARM PRINT ACTION2 “Dump of Action Table section” on page 95.
SMF records for a job.	ENCPARM PRINT SMF “SMF Records section” on page 96.
Execution history of a job.	ENCPARM PRINT HISTORY “History of Previous Job section” on page 97.
Miscellaneous information regarding the EXH file.	ENCPARM PRINT EXHFILE “EXH File Statistics section” on page 101.

Reporting jobs and steps that use data sets

The ESP Encore Data Set Summary report lists the jobs and steps that use the data sets. You can produce the report by doing one of the following:

- Run utility CYBRMDMP and then CYBRMEXJ.
- Run utility CYBRMDSS, which combines CYBRMDMP and CYBRMEXJ.

See CYBRMDSS, CYBRMDMP, and CYBRMEXJ in the *ESP Workload Manager System Programmer's Guide*.

Inserting a comment into the ESP Encore Job Run Report

In the SYSIN DD statement of your job restart or backout JCL, do one or both of the following:

- Type a space in column 1 and then type “/*” before your comment and “*/” after your comment.
- Code the ENCPARM COMMENT command (don't include prefix ENCPARM).

Example

```
//SYSIN DD *  
/* HERE IS THE FIRST COMMENT. NOTE THE SPACE IN COLUMN 1. */  
COMMENT HERE IS THE SECOND COMMENT.  
other ESP Encore statements...
```

Viewing job run history outside of CSF

You can view run history for jobs that are on the EXH data set, but may or may not be in CSF. For background information, see “The EXH data set” on page 51.

Note: This procedure only allows you to view job run history on the EXH data set. To restart a job, see “Restarting a job” on page 7. To back out a job, see “Backing out a job” on page 26.

1. In the ESP Workload Manager main menu, select option R.
2. In the Job List Options screen, specify the jobs to view in the Job List screen.
3. In the Job List screen
 - View details of the jobs you selected in the Job List Options screen
 - Type *s* beside a job to go to the Step Summary screen and view a summary of the steps in the job.

Backing out a job

Backing out a job involves undoing the effects of the processing done by the failed job, as if the job had never executed. You can back out an entire job or a specified range of steps in a job. When ESP Encore backs out a job, it

- Deletes all the data sets created by the job.
- Warns the user when data sets with DISP=MOD are found in the job.

Note: ESP Encore does not issue a warning for DISP=MOD data sets that were created as DISP=(NEW, CATLG) in the job being restarted.

ESP Encore cannot back out data sets that include DISP=MOD. You need to adjust the data set content manually.

For background information, see “Data sets with DISP=MOD” on page 65

Before you actually back out the job, ESP Encore simulates the results of any changes you make to the backout settings. This way, you can try different scenarios. Once you are satisfied with the results, you can back out the job.

Recreating data sets deleted in a job prior to backout

- If a data set was created and then deleted in the same job, and you want to use the data set in a rerun, include in the rerun the step that created the data set.
- If a data set was created outside a job and then deleted by the job, and you want to use the data set in a rerun, you need to recreate the data set yourself.

Backing out a job from CSF

The procedures in this section enable you to

- View the job status and details of the job steps and data sets.
- Choose job steps for a backout.
- Run a backout simulation and view ESP Encore’s error predictions and backout actions.
- Make changes to ESP Encore backout settings.
- Back out a job.

Carry out the procedures in the sections following.

Note: In the following procedures you work with the same screens as you do when you restart a job. Some screens have “Restart” in the name, but these work for a backout also.

Selecting a job to back out in CSF

- Beside the job you want to back out, type `RX`.

Viewing ESP Encore information on steps and data sets in a job

In the Step Summary screen, you can view the job status. You can also access the screens listed in the following table to view details of the job steps and data sets.

To...	Go to the...
View a summary of the steps in a job.	Step Summary screen.
View details of a step in a job.	Step Detail screen.
View a summary of the data sets in a job.	Data Set Summary screen.
View details of a data set in a job.	Data Set Detail screen.

Choosing job steps to backout

In the Step Summary screen you can do one of the following:

- Type `R` on the command line to have ESP Encore back out the entire job.
- Choose the job steps to back out and job steps to exclude from the backout.

Backing out a single step

- Type R beside the step you want to back out.

Example

Only step S2 is backed out.

```

JOBNAME   JOB ID   Restr
PAYROLL1  JOB49546
-----
Stepname  Procstep  Program
S1                PAY01
R S2                PAY02
S3                PAY03
S4                PAY04

```

Backing out a range of steps

- Type RR beside the first and last steps for the range of steps you want to back out.

Example

Steps S2 to S4 are backed out.

```

JOBNAME   JOB ID   Restr
PAYROLL1  JOB49546
-----
Stepname  Procstep  Program
S1                PAY01
RR S2                PAY02
S3                PAY03
RR S4                PAY04

```

Backing out steps starting from a specified step to the end of a job

- Type RF beside the step you want to start the backout from.

Example

Only steps S2 to S4 are backed out.

```

JOBNAME   JOB ID   Restr
PAYROLL1  JOB49546
-----
Stepname  Procstep  Program
S1                PAY01
RF S2                PAY02
S3                PAY03
S4                PAY04

```

Backing out steps from the start of a job to a specified step

- Type RT beside the step you want to finish the backout on.

Example

Steps S1 and S2 are backed out.

```

JOBNAME    JOB ID   Restr
PAYROLL1   JOB49546
-----
Stepname   Procstep  Program
S1          PAY01
RT S2      PAY02
S3          PAY03
S4          PAY04

```

Excluding a single step from a backout

- Type X beside the step you want to exclude from the backout. If you are only excluding steps from a backout, you must also type R in the command line.

Example

All steps except Step S2 are backed out. Note that R is typed on the command line because steps are only being excluded from the backout.

```

ESP Encore Step Summary: PAY...
COMMAND ==> R

```

```

JOBNAME    JOB ID   Restr
PAYROLL1   JOB49546
-----
Stepname   Procstep  Program
S1          PAY01
X S2      PAY02
S3          PAY03
S4          PAY04

```

Excluding a range of steps from a backout

- Type XX beside the first and last steps for the range of steps you want to exclude from the backout. If you are only excluding steps from a backout, you must also type R in the command line.

Example 1

All steps except steps S2 to S4 are backed out. Note that R is typed on the command line because steps are only being excluded from the backout.

```
ESP Encore Step Summary: PAY...
COMMAND ==> R
```

JOBNAME	JOB ID	Restrt
PAYROLL1	JOB49546	

Stepname	Procstep	Program
S1		PAY01
XX S2		PAY02
S3		PAY03
XX S4		PAY04
S5		PAY05
S6		PAY06

Example 2

You can combine RR and XX to specify steps you want to back out and steps you want to exclude from the backout. In this example, steps S2, S6, and S7 are backed out; steps S3 to S5 are not backed out.

JOBNAME	JOB ID	Restrt
PAYROLL1	JOB49546	

Stepname	Procstep	Program
S1		PAY01
RR S2		PAY02
XX S3		PAY03
S4		PAY04
XX S5		PAY05
S6		PAY06
RR S7		PAY07

Viewing ESP Encore job backout information

1. In the Restart Action Summary screen

- View errors predicted by ESP Encore.
- View a description of how ESP Encore will back out the job.
- Access the screens listed in the following table to view job backout details of the job steps and data sets.

To...	Go to the...
View a backout summary of steps in a job.	Restart Step Summary screen.
View backout details of a step in a job.	Restart Step Detail screen.
View a backout summary of the data sets in a job.	Restart Data Set Summary screen.
View backout details of a data set in a job.	Restart Data Set Detail screen.

2. On the command line of the Restart Action Summary screen, type `SUB`.

Note: Your job is not backed out yet. In the next procedure, you can specify ENCPARM commands to customize the backout.

Customizing the job backout with ENCPARM commands

In the Resubmit an Object screen, you can select ENCPARM commands before submitting the backout. ENCPARM commands enable you to change the actions that ESP Encore takes during a backout. For example, you may want to avoid backing out certain job steps, prevent expected errors from being reported, or produce a particular report. For background information, see “ESP Encore commands” on page 52.

1. If you want to specify ENCPARM commands, select ENCPARM commands in the Resubmit an Object screen.

You can also enter ENCPARM commands in the Resubmit Request Encore Statements screen when you perform the next procedure.

2. Type `Y` beside `DO YOU WISH TO ENTER ENCPARM STATEMENTS?` and press `Enter`.

Submitting the job backout

1. In the Resubmit Request Encore Statements screen, type `Y` beside `Backout`.
2. If you want to customize the backout, enter ENCPARM statements.

Important: The next step will back out the job. To cancel the backout, press `F3/End`.

3. In the Resubmit Request Encore Statements screen, press `Enter` to submit the backout.

Backing out a job by submitting JCL

One reason to use batch JCL to back out a job is that the job is no longer on the SCHDFILE. However, the job must still be in the EXH data set. When you create JCL, you specify ESP Encore commands to control the backout process. For background information, see “The ESP Encore step” on page 45 and “The EXH data set” on page 51.

1. Create JCL based on the model in “Sample JCL to back out a job” on page 32.
2. Enter ESP Encore commands in the SYSIN DD statement of the JCL.

Note: Do not include the prefix “ENCPARM” when you issue commands in the JCL.

- To simulate a job backout, issue the ENCPARM MODE SCAN command. You can view ESP Encore’s error predictions and backout actions. Only the ESP Encore step runs; the rest of the job does not run.
- To back out a job, issue the ENCPARM MODE NORMAL command. Since NORMAL is the default you can omit this command.

Sample JCL to back out a job

```
//job_name JOB (PROD001), 'BACKOUT A JOB',MSGCLASS=X,CLASS=A
//          EXEC CYBRMENC
//SYSIN    DD *
SUBSYS    ESP ESPGROUP(PAYROLL)
TYPE      BACKOUT
JOBID     Jxxxxxxx
JOBNAME   yyyyyyyy
FROMSTEP  ffffffff
TOSTEP    tttttttt
Additional ENCPARM commands...
/*
Other job steps...
//
```

job_name: the name of the job submitting the backout

xxxxxxx: job number of the job being backed out

yyyyyyy: job name of the job being backed out

fffffff: the first step in the range of steps to be backed out (omit FROMSTEP to allow ESP Encore to select the first step to be backed out)

ttttttt: the last step in the range of steps to be backed out (omit TOSTEP to finish the backout at the end of the job)

Note: If you specify a step in ENCPARM TOSTEP that comes before the step in ENCPARM FROMSTEP, ESP Encore rejects the job and issues the following error in the job run report:

```
=====
SEVERE ERROR
=====
```

```
THE SPECIFIED FROMSTEP OR TOSTEP
COULD NOT BE FOUND IN THE JOB.
```

ENCPARM BACKOUT can do a complete or partial (limited to specific steps) backout of data sets created by a job. It does the following:

- Deletes all data sets created by the job being backed out.
- Warns you when it finds data sets with DISP=MOD. ESP Encore cannot roll back the content of these data sets. You have to restore these data sets manually.

Note: ESP Encore does not issue a warning for DISP=MOD data sets that were created as DISP=(NEW, CATLG) in the job being restarted. For background information, see “Data sets with DISP=MOD” on page 65

Note: You can code multiple backout steps in your JCL, but you can't add other kinds of steps after the backout steps. That is, if you add a step with a program name that doesn't begin with CYBRM, ESP Encore flushes the rest of the job.

Example - backout of an entire job run

The following example shows the JCL setup for a complete data set backout for two jobs.

- Program CYBRM000 does the backout.
- Jobs PAYROLL1 (job ID J0055892) and PAYROLL2 (job ID J0055894) are backed out.
- ESPM is the ESP Workload Manager subsystem that tracked the jobs.

```
//BACKOJOB JOB (PROD1100), 'USER', CLASS=J, MSGCLASS=X
//STEPENC1 EXEC PGM=CYBRM000
//STEPLIB DD DISP=SHR, DSN=PCY.SSCPLINK
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
TYPE BACKOUT
JOBID J0055892
JOBNAME PAYROLL1
SUBSYS ESPM
/*
//STEPENC2 EXEC PGM=CYBRM000, COND=EVEN
//STEPLIB DD DISP=SHR, DSN=PCY.SSCPLINK
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
TYPE BACKOUT
JOBID J0055894
JOBNAME PAYROLL2
SUBSYS ESPM
/*
```

Example - partial backout

The following example shows the JCL setup for a partial data set backout for a job:

```
//BACKOJOB JOB (PROD1101), 'USER', CLASS=J, MSGCLASS=X
//          EXEC CYBRM000
//SYSIN    DD *
SUBSYS    ESP ESPGROUP (PAYROLL)
TYPE      BACKOUT
JOBID     J0055894
JOBNAME   BACK0006
FROMSTEP  PROTRANS
TOSTEP    RPTTRANS
/*
...other job steps...
//
```

Rerunning multiple jobs

You can rerun multiple jobs using the RERUNM (RM) command. The command resets specified jobs to the state before they ran. Application Manager schedules a rerun for them as their dependencies are satisfied. By default, the command requests a rerun of the root job and all of its successors. In the resulting CSF screen, you can modify the list of jobs run. You can also request an ESP Encore restart, and enter USER variables and ESP Encore commands.

To rerun multiple jobs from CSF:

1. In CSF, type RM next to the root job of the group of jobs you want to rerun.
2. Press **Enter**. The Rerun jobs in application screen appears. The root job name has a plus sign (+) appended to it, indicating that all successors will be included. From the screen, you can specify multiple root jobs, request ESP Encore restart, and enter USER variables and ESP Encore commands.
3. Press **Enter** to update the list of selected jobs.
4. Type SUB to submit your request.

Maintaining and troubleshooting ESP Encore

Ensuring ESP Encore is activated

- Check the ESP Workload Manager initialization parameter file for the following initialization parameter to ensure that ESP Encore is available to ESP Workload Manager:

```
ERMSTEP ('//ENCORE EXEC CYBRMENC')
```

Allocating an EXH data set

You can format the EXH (Encore Execution History) file and specify the criteria for automatically purging job groups from the file.

- Run the CYBRMALC utility.

See also “Purging jobs from the EXH data set” on page 37. For background information, see “The EXH data set” on page 51.

Controlling the Auxiliary Address Space

You can start and stop the Auxiliary Address Space, which stores SMF records from job runs tracked by ESP Encore.

- Issue the AUX_AS command.

Important: The AUX_AS command is for exceptional situations only. You may lose tracking data when you issue the AUX_AS command. Contact Cybermation support if you are issuing the AUX_AS command for the first time.

Important: Before you issue the AUX_AS command, quiesce ESP Encore (OPER ENCPARM QUIESCE). If you do not quiesce ESP Encore, some active tasks may terminate abnormally when AUX_AS is issued.

For background information, see “Auxiliary Address Space” on page 51.

Controlling the internal processing of ESP Encore

You can modify ESP Encore processing such as EXH data set record compression, enqueueing versions of GDG data sets, and user exits for processing wildcards in data set names.

- Issue the ENCPARM MODIFY command with the operands you require.

Important: This command should only be used by your ESP Encore system programmer because it can affect all users on your ESP Encore system.

Copying jobs from one EXH data set to another

You can copy all the jobs from one EXH data set to another, or you can use wildcards to specify the jobs to copy.

- Run the CYBRMCPY utility.

For background information, see “The EXH data set” on page 51.

Reporting the ENCPARM commands issued and the assigned command numbers

You can list the ENCPARM commands issued in the initialization parameters and from page mode that are in effect for the current operating environment. The listing includes the command number. ENCPARM commands are assigned a number according to the order in which they were issued, for example, 1 for the first command, 2 for the second, and so on.

- Issue the ENCPARM command.

See also “Undoing an ENCPARM command” on page 36.

Undoing an ENCPARM command

You can undo the effect of an ENCPARM command issued in the initialization parameters or from page mode by deleting the command from the current operating environment. You can still reissue the command.

- Issue the ENCPARM DELETE(*nn*) command, where *nn* is the number of the command you want to delete.

ENCPARM commands are assigned a number according to the order in which they were issued, that is, 1 for the first command, 2 for the second, and so on. So, ENCPARM DELETE(3) undoes the third ENCPARM command issued.

- Issue the ENCPARM command to obtain a numbered list of the stored ESP Encore commands such as ENCPARM CLEANUP.

Dumping EXH data set records

You can dump selected EXH data set records to a sequential file. The records are formatted for printing.

To dump all information on the prior run of a specified job:

- Create and submit JCL based on the model in “Sample JCL to dump EXH data set records” on page 37.

To dump records selected by job name, data set name, volume, and program name:

- Run the CYBRMDMP utility.

For background information, see “The EXH data set” on page 51.

Sample JCL to dump EXH data set records

```
//DUMPJOB JOB (CYB001), 'DUMP A JOB', MSGCLASS=X, CLASS=A
//          EXEC CYBRMENC
//SYSIN DD *
SUBSYS ESP ESPGROUP (PAYROLL)
TYPE DUMP
JOBID Jxxxxxx
JOBNAME YYYYYYYY
//
```

xxxxxx: job number

YYYYYYYY: job name

ENCPARM TYPE DUMP signifies a dump of an EXH record. The specific record is specified by JOBID command. For background information, see “The EXH data set” on page 51.

Purging jobs from the EXH data set

Job run history records are purged off the EXH data set according to the retention parameters for all jobs set when you allocate the EXH data set. You can change the automatic purge parameters or purge job run history records manually.

For background information, see “The EXH data set” on page 51.

To purge jobs automatically:

1. When you run the CYBRMALC utility to allocate the EXH data set, specify the default retention parameters for all jobs.
2. At any other time
 - Run the CYBRMKEP utility to change the default retention values set by the CYBRMALC utility.
 - Set retention parameters for a specified job by issuing the ENCPARM PURGE command.

Note: The retention operands in the ENCPARM PURGE command override the retention parameters set by the CYBRMALC utility.

To purge jobs manually:

- Run the CYBRMPRG utility.

Note: The retention parameters in the CYBRMPRG utility override the retention parameters set by the CYBRMALC or CYBRMKEP utilities.

Reclaiming lost slots from the EXH data set

- Run the CYBRMSAN utility.

For background information, see “The EXH data set” on page 51.

Matching ESP Encore resource serialization and GRS settings

If two or more ESP Workload Manager sub-systems are sharing a JES spool, they may also share a single EXH data set. ESP Encore uses the same serialization mechanism that ESP Workload Manager does to avoid contention problems with shared files. ESP Workload Manager/ESP Encore resource serialization settings should be consistent with your installation’s GRS (Global Resource Serialization) settings.

To specify ESP Workload Manager/ESP Encore resource serialization settings:

- Specify the RSVLOGIC initialization parameter for all sub-systems sharing the EXH data set.

Quiescing ESP Encore

- Issue the ENCPARM QUIESCE command.

Quiescing ESP Encore

- Suspends ESP Encore operation.
- Deallocates the EXH data set from the ESP Workload Manager subsystem address space.
- Stops the recording of tracking information to the EXH data set.

Job tracking continues, but data is stored in the Auxiliary Address Space until the EXH data set is available again.

See also “Restarting ESP Encore” on page 38. For background information, see “The EXH data set” on page 51.

Restarting ESP Encore

- Issue the ENCPARM RESTART command.

Restarting ESP Encore

- Reactivates ESP Encore operation.
- Allocates the EXH data set to the ESP Workload Manager subsystem address space.
- Resumes the recording of tracking information to the EXH data set.
- Drains tracking data that was accumulated in the Auxiliary Address Space and writes the data to the EXH data set.

See also “Quiescing ESP Encore” on page 38. For background information, see “The EXH data set” on page 51.

Displaying details on job run history and restart analysis requests

- Issue the ENCLOG command.

Reporting/modifying ESP Encore Auxiliary Address Space parameters

- Run the CYBRMSTA utility.

Important: Contact Cybermation support for instructions if you need to modify ESP Encore Auxiliary Address Space parameters.

For background information, see “Controlling the Auxiliary Address Space” on page 52.

Reporting diagnostic information

You can include diagnostic information in the job run report. For background information, see “ESP Encore job run report” on page 85.

- Issue the ENCPARM PRINT command and specify YES for each section that you want to include in the job run report.

For a list of sections you can specify, see the ENCPARM PRINT command in the *ESP Workload Manager Reference Guide*.

- Issue the ENCPARM DIAG YES command to include all the diagnostic sections in the job run report.

For details, see “Diagnostic sections of the ESP Encore job run report” on page 91.

Example

If you want to report a list of the volumes associated with multi-volume data sets, issue the ENCPARM PRINT command as follows:

```
ENCPARM PRINT MULTIVOL (YES)
```

Reporting errors in and removing lost slots from the EXH data set

Use the sanity report utility to monitor the EXH data set for errors and remove lost slots from the EXH data set. For background information, see “The EXH data set” on page 51.

- Run the CYBRMSAN utility.

Any condition code greater than 4 could indicate an error that needs investigation. If you run the sanity report several times and the same error condition persists, this indicates that the EXH data set is damaged. Contact Cybermation support to determine if the problem is serious and what actions to take.

Reporting the distribution of index records in an EXH data set

- Run the CYBRMANA utility.

For background information, see “The EXH data set” on page 51.

Reporting the status of ESP Encore

You can view the general status of ESP Encore.

- Issue the ENCPARM STATUS command.

You can view the detailed internal status of ESP Encore.

- Run the CYBRMQRY utility.

Reporting the jobs in the EXH data set

- Run the CYBRMLST utility.

For background information, see “The EXH data set” on page 51.

Specifying EXH data set utilization thresholds

You can set a maximum and minimum EXH data set utilization limit. Above the maximum limit, warning messages are sent to the operator until the utilization falls below the minimum utilization limit.

- Run the CYBRMTHR utility.

For background information, see “The EXH data set” on page 51.

Tracing ESP Encore modules

You can have ESP Encore report trace information for specified ESP Encore program modules. The trace information appears at various places in the ESP Encore job run report.

- Issue the ENCPARM TRACE command with the operands you require.

Using ESP Encore with ACF2 V5.2 or earlier

- Add a SAFPROT record with control point 'CYBRM000' and CLASS=DATA SET

Example

```
LGOPROD/SAFPROT.ENCCLASSES (DATASET)  
CNTLPTS (CYBRM000)  
SUBSYS (CYBRM000)
```




ESP Encore Concepts

- An overview of ESP Encore
- ESP Encore components
- The ESP Encore step
- How ESP Encore processes a job
- Details of ESP Encore
- The EXH data set
- Auxiliary Address Space
- ESP Encore commands
- ESP Encore ISPF screens
- ESP Encore reports
- Job restart considerations
- Security

An overview of ESP Encore

ESP Encore is an advanced rerun/restart manager that works with ESP Workload Manager. You can restart or back out batch jobs with a minimum amount of manual intervention. ESP Encore automatically makes JCL adjustments for an error-free restart or backout.

You can

- Simulate a job restart or backout so you can proceed to the actual restart or backout with confidence in the results
- Restart a job from the point of failure and continue processing until the job reaches its normal end
- Back out a job as if the job had never executed

ESP Encore can provide error predictions for an initial job run or restart run, information on the steps and data sets in a failed job, and ESP Encore's intended restart actions. This information is available in ISPF screens and batch reports. You can override the intended restart actions prior to restating a job.

You can issue ESP Encore commands to customize how ESP Encore works. For example, you can choose the type of errors that ESP Encore predicts, control how completion codes are handled, and control how specified data sets are treated.

ESP Encore works with products such as security systems, tape management systems, and DASD management systems.

ESP Encore uses ESP Workload Manager services so ESP Workload Manager must be active. However, you can use ESP Encore to restart jobs submitted by ESP Workload Manager or outside of ESP Workload Manager.

To enable ESP Encore to track a job for possible backout or restart, an ESP Encore step is added to the start of the job. It has access to z/OS control blocks, a job run history data set called the EXH data set, and ESP Encore commands entered by a user in the SYSIN DD statement. With these sources of data, ESP Encore decides how to modify the internal representation of the job's JCL before a restart or backout of a job.

ESP Encore components

- ESP Encore step
The ESP Encore step must be the first step in a job that ESP Encore can restart.
- ESP Encore ISPF screens accessible from ESP Workload Manager CSF
When you access ESP Encore from CSF, you can view job history and restart failed jobs.
- ESP Encore screens accessible from the ESP Workload Manager main menu
When you access ESP Encore from the ESP Workload Manager main menu (option R), you can view job history, but you can not restart failed jobs.
- Utility programs
- Diagnostic aids and run logs
- High speed buffer implemented as an Auxiliary Address Space
- EXH data set, ESP Encore’s record of job run history

The ESP Encore step

The ESP Encore step controls the processing of a job by ESP Encore. It must be the first step in any job that is restartable with ESP Encore. When you submit a job through ESP Workload Manager, the ESP Encore step is automatically inserted into the JCL before it runs. If you submit a job outside of ESP Workload Manager, you must add the ESP Encore step, including any ESP Encore commands you want to issue.

You do not include the prefix “ENC Parm” when you add commands to the ESP Encore step of a batch job.

Example

```

//PAYROLL JOB ...
//step0 EXEC CYBRMENC <-- The ESP Encore step
//SYSIN DD *
TYPE INITIAL
/*
//step1 EXEC...
.
.
.
//step2 EXEC...
.
.
.

```

The SYSIN DD statement in the ESP Encore step reads in ESP Encore ENCPARM processing parameters and commands for the run.

The ENCPARM command TYPE INITIAL in the preceding example means that this is the first run of the job. If the job fails, you can change the JCL to issue TYPE RESTART or TYPE BACKOUT, depending on how you want to handle the rerun of the job. You can also issue TYPE SCAN to simulate an initial run, a restart, or a backout.

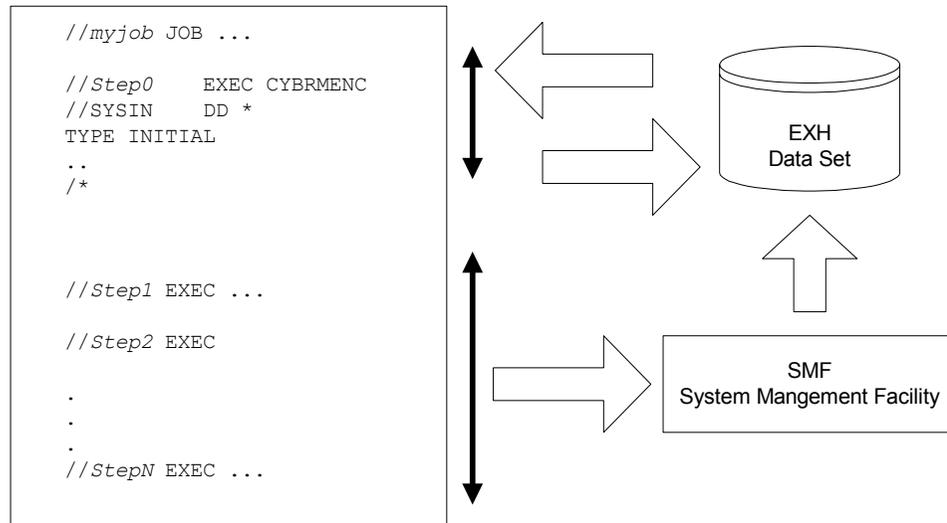
When you run the job from ESP Workload Manager, TYPE is automatically set to the appropriate value depending on whether you are doing an initial run, a restart, a backout, or a simulation of a run.

How ESP Encore processes a job

The initial job run

The following diagram below shows the flow of information for the first run of a job tracked by ESP Encore.

The flow of data for the initial run of a job tracked by ESP Encore



The ESP Encore step (*Step0* in the preceding diagram) analyzes the JCL of the job and stores information about it in the EXH data set (Execution History data set). If a data set is supposed to exist, its existence is checked; if it is supposed to be new, a check is made that it does not exist. Errors are collected and reported.

If the ESP Encore step finds no errors, the subsequent job steps run. ESP Encore then monitors SMF (System Management Facility) messages regarding all system events and collects the ones it needs to provide restart and backout services for the job. ESP Encore tracks the data sets that are allocated dynamically, the I/O activity for individual data sets, how individual steps completed processing, and any other information relating to a potential backout or restart.

If a job runs normally, the collected data is still stored in the EXH data set and remains there until the record is purged. You can control the number of run history records that are kept on the EXH data set and you can also view these history records.

The restart and backout job run

The information flow for a restart and backout is essentially the same as for an initial run (see the diagram in “The initial job run” on page 47). The ENCPARM command TYPE in the JCL is changed to either RESTART or BACKOUT, depending on the desired run type. We will look at the restart run to explain the data flow of both restart and backout runs.

Changes to the JCL

The ESP Encore step reads the EXH data set to get data on the initial run or previous run. It then analyzes the restart JCL and checks for changes to the JCL. You can only make limited changes to job steps before the restart step (see “Limits to JCL changes before restarting a job” on page 59). This restriction ensures that ESP Encore can properly process steps that are already completed. If ESP Encore finds any disallowed changes, it reports them and aborts the restart run. You can correct the errors and try again. Once the JCL changes are checked and errors are corrected, ESP Encore can determine where to restart the job.

Restart analysis

ESP Encore does a restart analysis to select the restart point (see “How ESP Encore chooses the restart step” on page 58) and proposes a set of actions to recreate the initial job run environment and ensure a successful restart. To recreate the initial job run environment ESP Encore may need to rerun previously completed steps. For example, if STEP A allocates data sets used in subsequent steps, and the initial run failed in STEP B, it may be necessary to rerun STEP A. You can review the proposed actions and modify them, if you want.

Review of the restart analysis

If you are restarting a job with stand-alone JCL, you can review the ESP Encore restart analysis by including the ENCPARM MODE SCAN command in your JCL. In CSF or the ESP Encore EXH File Viewer (option R on the ESP main menu), the restart analysis is always available before you restart a job.

In scan mode, ESP Encore reports its suggested actions, but does not run the job. Once you have reviewed the restart recommendations and made any changes, you can restart the job by issuing the ENCPARM MODE NORMAL command. Since ENCPARM MODE NORMAL is the default, you just need to remove ENCPARM MODE SCAN command from your JCL.

Determination of the restart step

To determine the restart step, ESP Encore looks at individual data sets. Two error situations need to be handled:

- A data set exists, but the restarted job will try to allocate it again.
- A data set does not exist, but the restarted job assumes that it does.

ESP Encore tries to correct the preceding problems, unless you override this process with an ESP Encore command such as ENCPARM IGNOREDS or ENCPARM CLEANUP RESTART(NO).

In some cases, ESP Encore needs to adjust the selected restart point to correct data set problems. For example, because data sets used in a job are often allocated in the first step, ESP Encore may decide to rerun the first step to recover from a “data set not

found” error. Rerunning the first step may have cascading effects. ESP Encore may need to rerun additional steps that use the data sets allocated in the first step.

Understanding ESP Encore restart suggestions

ESP Encore analyzes JCL, but it has no information on what the programs in a job do. Because of this, ESP Encore’s restart decisions may seem unusual to you if you are a new user. Sometimes it looks like ESP Encore is disregarding your instructions on where to restart. However, ESP Encore is just trying to recreate the environment for the restart point you selected. You can override ESP Encore’s recommendations if you want, but make sure you are aware of the effect your changes will have on the restart.

It also may seem unusual to new users that ESP Encore often proposes to run more steps than appear necessary. Remember that ESP Encore looks only at the JCL, it does not make any assumptions about what the programs in a job do. Because of this, ESP Encore errs on the side of caution and sometimes runs a few more steps than are necessary. Again, you can always override ESP Encore’s decisions, as long as you are aware of the results your changes will have.

Customizing ESP Encore’s restart suggestions

Usually, ESP Encore’s restart suggestions fit the situation and the job can be restarted without further delay. Sometimes, though, you may need to issue ESP Encore commands to modify the restart. Often, there are several ways to achieve the result you want. However, it is better to use fewer commands and take advantage of ESP Encore’s default processing.

Most ESP Encore commands enable you to modify or turn off the default ESP Encore actions. When you issue a command, carefully consider the effect that command will have on the restart. For example, you can issue the ENCPARM IGNOREDS command within the scope of a specific job. The data set specified in the command is then ignored by ESP Encore everywhere in the job. ESP Encore does not consider the data set in the restart analysis.

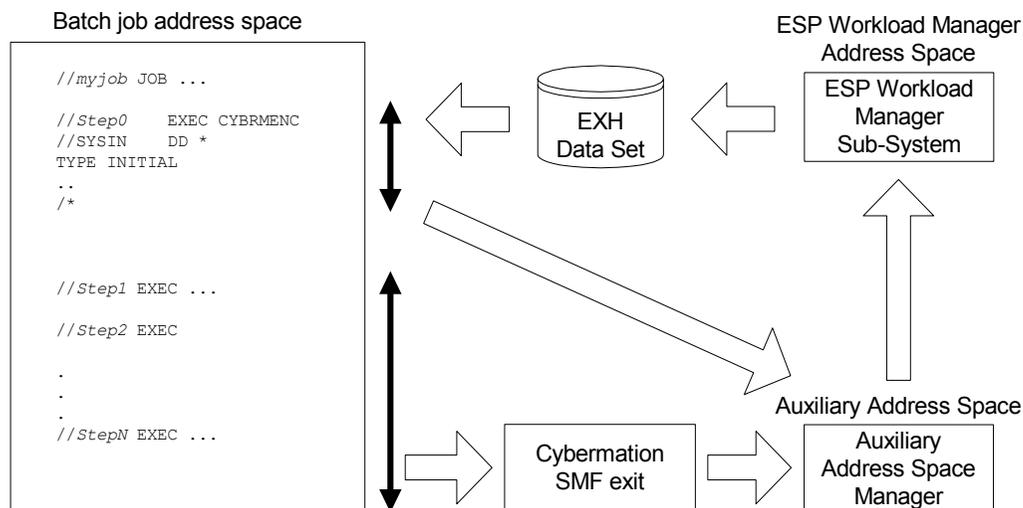
The restart run

During a restart job run (as in the initial run), ESP Encore detects system events by using the SMF interface and then records relevant events on the EXH data set. There is a complete record of each execution of a job on the EXH data set. For example, if there is an initial run, two unsuccessful restart attempts, and a successful restart, there are four instances of this job execution recorded on the EXH data set. Consider this if you are responsible for setting the number of job execution instances to keep on the EXH data set.

Details of ESP Encore

ESP Encore works together with ESP Workload Manager to capture and store job run SMF records on the EXH data set. The following diagram shows the systems architecture involved:

The detailed flow of data for a job tracked by ESP Encore



Three address spaces are used:

- The address space that executes the program being restarted
- The Auxiliary Address Space that acts as a high speed buffer
- The ESP Workload Manager address space that writes to the EXH data set

The Cybermation SMF exit captures SMF records from the job run and writes them to a high-speed buffer called the Auxiliary Address Space. This minimizes the time that the user exit needs to use SMF resources.

The Auxiliary Address Space does not need any user attention, it comes up on its own as part of the ESP Workload Manager initialization. It stays up all the time until the next IPL.

Once job run SMF records are on the Auxiliary Address Space, ESP Workload Manager can read them and write them to the EXH data set.

If ESP Workload Manager is down for any reason, you do not lose any job run data. SMF records are still captured and stored on the Auxiliary Address Space. When the Auxiliary Address Space has no further space, it stops storing tracking data. In this instance any further tracking data is lost.

When ESP Workload Manager comes back up again, it reads the records captured while it was down and writes them to the EXH data set.

The EXH data set

About the EXH data set

ESP Encore stores all its job run history information in the EXH (Execution History) data set. Job run history records are stored as job groups. A job group consists of an initial run and all the restart runs. A job group is considered complete when the most recent job is executed successfully; it is incomplete until then.

Management of the number of records on the EXH data set

To control the number of records on the EXH data set, job groups are purged from the EXH data set according to the default retention parameters set for all jobs when you allocate the EXH data set (see the CYBRMALC utility in the *ESP Workload Manager System Programmer's Guide*). When a job tracked by ESP Encore is submitted, the ESP Encore in the ESP Workload Manager's address space reviews the EXH data set's existing index entries for all jobs with the same name and decides whether any of these old entries should be purged.

To change the automatic purge parameters or purge job groups manually:

- Run the EXH data set purge utility (CYBRMPRG job in the sample library).
- Set the parameters for automatic purging of job run history.

For details, see “Purging jobs from the EXH data set” on page 37.

Because a job may be run once a year or every five minutes, be careful when you set up automatic purging. Both job purging mechanisms need to be coordinated to achieve the desired results. Too much data retention results in a large EXH data set.

Auxiliary Address Space

About the Auxiliary Address Space

The Auxiliary Address Space is a high-speed buffer that the Cybernation SMF exit uses to capture and store SMF records from a job run. This minimizes the time that the Cybernation SMF exit uses SMF resources. For more information, see “Details of ESP Encore” on page 50.

The Auxiliary Address Space is created when the ESP Workload Manager is started for the first time after the system IPL. It stays up until the next IPL, even when ESP Workload Manager is brought down. Under normal operating circumstances, you do not need to do anything to manage this resource. Use the information in this section to troubleshoot problems with the Auxiliary Address Space.

The Auxiliary Address Space name is a combination of the name of the ESP Workload Manager subsystem and the letters AUX. For example, if your ESP Workload

Manager subsystem is named GESPE, the name of the Auxiliary Address Space will be GESPAUX.

Controlling the Auxiliary Address Space

The command to control the Auxiliary Address Space is AUX_AS.

Important: AUX_AS is for exceptional situations only. You will likely lose tracking data when you issue AUX_AS. Contact Cybermation support if you are using AUX_AS for the first time.

Important: Before you issue the AUX_AS command, quiesce ESP Encore (OPER ENCPARM QUIESCE). If you do not quiesce ESP Encore, some active tasks may terminate abnormally when AUX_AS is issued.

You cannot shut down the Auxiliary Address Space with the STOP command because it does not respond to the STOP command. However, the STOP command remains queued for processing and further commands are rejected with the message “IEE342I Task is busy”. To recover, you could do one of the following:

- Issue the z/OS command FORCE ARM to terminate the Auxiliary Address Space.
- IPL the system.

Note: Neither of the preceding actions is desirable. Some installations have policies against using the z/OS command FORCE.

ESP Encore commands

ESP Encore commands allow you to control how ESP Encore processes job restarts and backouts.

To distinguish ESP Encore commands from ESP Workload Manager commands, ESP Encore commands start with “ENCPARM”. However, you do not include ENCPARM when you add commands to the ESP Encore step of a batch job or in the Resubmit Request Encore Statements screen. For details, see “The ESP Encore step” on page 45 and “Resubmit Request Encore Statements screen” on page 79.

ESP Encore commands are issued or automatically created from different places:

Command is...	Command applies to...
Issued as an initialization parameter.	All jobs that ESP Workload Manager submits.
Issued in page mode or as a z/OS Modify command.	All jobs that ESP Workload Manager submits.
Issued in a Procedure.	All jobs falling within the scope of the command: <ul style="list-style-type: none"> • Application scope • Sub-Application scope • Job scope • Conditional Logic scope (IF/THEN/ELSE) See “Commands entered in Procedures” on page 54.
Specified in ESP Encore screens.	The job that you are working with in the screens.
Entered in the ESP Encore step.	The job containing the ESP Encore step.

For a summary of places to use ESP Encore commands, see “Where to use ESP Encore commands” on page 82.

The commands entered at a lower level override the same commands entered at the higher level. So an Application scope command in a Procedure overrides the same command issued as an initialization parameter. A command issued from an ESP Encore screen overrides an Application scope command in a Procedure. For example, assume the initialization parameter data set includes a command telling ESP Encore to predict security errors for all jobs:

```
ENCPARM SECURITY(YES)
```

You can override the security error predictions for a single job by coding the same command with a NO operand in a Procedure as follows:

```
...
JOB CYB0001
  ENCPARM SECURITY(NO)
  RUN DAILY
ENDJOB
...
```

ENCPARM commands issued in an ESP Procedure, from page mode, or from the z/OS modify command, override those set in the initialization parameter data set.

Some commands make sense only at some levels, for example, the commands that tailor the processing of the ESP Encore step do not make sense at the other levels. ENCPARM FROMSTEP makes sense for a particular job, but does not make sense as an ESP Encore initialization parameter that applies to all jobs.

Commands entered as initialization parameters

Commands entered as ESP Workload Manager initialization parameters apply to all jobs that ESP Workload Manager submits.

If ESP Workload Manager goes down and is then brought up again, the initialization parameters are read in again. Any changes made to the initialization parameters while ESP Workload Manager is down take effect at this point.

Note that some parameters stay in effect during an ESP Workload Manager outage. For example, if initialization parameter SMFINT ON (Specify SMF Interface) is issued, the associated Auxiliary Address Space can be selected by the ESP Encore step of a batch job that starts running after the ESP Workload Manager becomes inactive.

See “Introduction to ESP Workload Manager Initialization Parameters” in the *ESP Workload Manager Installation and Configuration Guide*.

Commands entered in page mode

Commands entered in ESP Workload Manager page mode apply to all jobs that ESP Workload Manager submits. You must re-enter these commands if ESP Workload Manager is taken down and brought up again.

To enter commands in page mode you must prefix the command with OPER or issue a z/OS modify command.

Example 1

```
OPER ENCPARM CLEANUP INITIAL(NO)
```

You need authority to issue OPER commands. See “Access to issue OPER commands” in the *ESP Workload Manager Security Guide*.

Example 2

Using the following z/OS modify command causes ESP Encore to run jobs even when errors have been predicted:

```
F ESPA,ENCPARM FORCE YES
```

Commands entered in Procedures

Commands entered in ESP Workload Manager Procedures are applied to jobs if the jobs fall within the scope of the command:

- Application scope
- Sub-Application scope
- Job scope
- Conditional Logic scope

You can enter any number of commands in a Procedure.

Example - Application scope

The command ENCPARM FORCE applies to every job in the following Procedure:

```
JCLLIB 'CYB.JCL.CNTL'
APPL APPLTEST
OPTIONS RESTARTSTEP
ENCPARM FORCE
```

```
JOB CYB0001
  RUN DAILY
ENDJOB
```

```
JOB CYB0002
  RUN DAILY
ENDJOB
```

Example - Sub-Application scope

In the following Procedure, the command ENCPARM FORCE applies only to the jobs in sub-Application SUB2 (CYB0002 and CYB0003):

```
JCLLIB 'CYB.JCL.CNTL'
APPL APPLTEST
OPTIONS RESTARTSTEP
```

```
SUBAPPL SUB1
JOB CYB0001
  RUN DAILY
ENDJOB
```

```
SUBAPPL SUB2
ENCPARM FORCE
JOB CYB0002
  RUN DAILY
ENDJOB
JOB CYB0003
  RUN DAILY
ENDJOB
```

```
SUBAPPL SUB3
JOB CYB0004
  RUN DAILY
ENDJOB
```

Example - Job scope

The command ENCPARM FORCE applies only to job CYB0001 in the following Procedure:

```
JCLLIB 'CYB.JCL.CNTL'
APPL APPLTEST
OPTIONS RESTARTSTEP
```

```
JOB CYB0001
  ENCPARM FORCE
  RUN DAILY
ENDJOB
```

```
JOB CYB0002
  RUN DAILY
ENDJOB
```

Example - Conditional Logic scope

The command ENCPARM FORCE applies to job CYB0001 only if the following Procedure is submitted on a Tuesday:

```
JCLLIB 'CYB.JCL.CNTL'
APPL APPLTEST
OPTIONS RESTARTSTEP
```

```
JOB CYB0001
  IF TODAY(TUESDAY) THEN DO
    ENCPARM FORCE
  ENDDO
  RUN DAILY
ENDJOB
```

Commands from ESP Encore screens

ESP Encore can generate commands based on your input to the ESP Encore screens. These commands are input to the ESP Encore step (for details, see “Commands entered in the ESP Encore step” on page 57). For example, when you choose the steps to rerun in the Step Summary screen, ESP Encore generates an ENCPARM FROMSTEP command and an ENCPARM TOSTEP command.

You can also type in or select commands in an ESP Encore Resubmit Request Encore Statements screen. These commands are input to the ESP Encore step.

Commands entered in the ESP Encore step

Commands entered in the ESP Encore step are applied to the job containing the step. See “The ESP Encore step” on page 45.

When ESP Workload Manager submits a job, the following ENCPARM commands are added automatically to the SYSIN DD statement of the ESP Encore step:

- Commands issued as initialization parameters
- Commands issued in page mode
- Commands issued in Procedures
- Commands created by ESP Encore screens or specified in ESP Encore screens

If you submit a job manually, you must input all the required ENCPARM commands to the SYSIN DD statement of the ESP Encore step.

Example - Commands entered in the ESP Encore step

```
//job_name JOB (PROD001), 'RESTART A JOB',MSGCLASS=X,CLASS=A
//          EXEC CYBRMENC
//SYSIN    DD *
SUBSYS    ESP ESPGROUP (PAYROLL)
TYPE      R
JOBID     J12345
PREDICT   DSNOTFOUND (NO)
```

job_name: the name of the job being restarted

ESP Encore ISPF screens

The ESP Encore ISPF screens allow you to view restart or backout recommendations from ESP Encore, accept them or modify them, run “what if” simulations, enter additional ESP Encore ENCPARM commands, and submit the job.

When you set up a job restart or backout using the ESP Encore screens, ENCPARM commands are created that control how ESP Encore processes the restart or backout. For example, the ENCPARM FROMSTEP command specifies the first step to restart a job from. You can also enter additional ENCPARM commands in a screen. ESP Workload Manager adds all the commands to the SYSIN statement of the ESP Encore step, where they are read in when the job is run.

You can create restart or back out jobs submitted outside of ESP Workload Manager, but you must add the ESP Encore step and ENCPARM statements manually. For details, see “Restarting a job with batch JCL” on page 14 and “Backing out a job by submitting JCL” on page 31.

For details on each screen and the commands to navigate through the screens, see “ESP Encore ISPF screens” on page 70.

ESP Encore reports

ESP Encore provides the following reports to assist in restarting jobs, backing out jobs, and maintaining ESP Encore:

- A job run report from the ESP Encore step
See “ESP Encore job run report” on page 85.
- A Data Set Summary report from ESP Encore utility CYBRMDSS, or utilities CYBRMDMP and CYBRMEXJ
See utilities CYBRMDSS, CYBRMDMP, and CYBRMEXJ in the *ESP Workload Manager System Programmer's Guide*.
- Maintenance and Troubleshooting reports from ESP Encore utilities
See
“Dumping EXH data set records” on page 36
“Reporting/modifying ESP Encore Auxiliary Address Space parameters” on page 39
“Reporting errors in and removing lost slots from the EXH data set” on page 40
“Reporting the ENCPARM commands issued and the assigned command numbers” on page 36
“Reporting the distribution of index records in an EXH data set” on page 40
“Reporting the status of ESP Encore” on page 40
“Reporting the jobs in the EXH data set” on page 40
“Tracing ESP Encore modules” on page 41

Job restart considerations

How ESP Encore chooses the restart step

Before recommending a restart point for a failed job, ESP Encore looks at the job's history to determine the optimum restart step. It performs the following checks in the order given to choose a restart step:

1. The first step that satisfies a failure condition in a CCCHK statement is chosen as the restart step.
2. If a job abends, the first abending step is chosen as the restart step.
3. If a job fails because of a COND parameter on the JOB statement, the step that triggered that COND is chosen as the restart step.

4. If a job has been flushed (for example, because of a JCL error), the first flushed step is chosen as the restart step.
5. If a job completes successfully, the first step is chosen as the restart step.
6. If a job failed because it met the condition code test on a CCFAIL statement, the first step that satisfies the CCFAIL conditions is chosen as the restart step.
7. If none of the preceding checks apply, the first step is chosen as the restart step.

The preceding rules apply in most cases, but not all. If a job abends in a step executing an “abender” program (a program that abends the job on behalf of another program), ESP Encore inspects the COND parameter of that step. The first step referred to by that COND parameter is chosen as the restart step.

For example

```
//          EXEC CYBRMENC
//SYSIN    DD *
ABENDER   ABPGM
...
//STEP1    EXEC PGM=IEBGENER
//STEP2    EXEC PGM=ABPGM, COND=(0, EQ, STEP1)
```

In the example, the ABENDER command in the SYSIN DD statement tells ESP Encore to treat program ABPGM in STEP2 as the abender program. If STEP1 completes with a non-zero condition code, ABPGM abends. ESP Encore then looks at the COND parameter for STEP2 and chooses STEP1 as the restart step.

Limits to JCL changes before restarting a job

Before you restart a job with ESP Encore, you can only make certain changes to steps preceding the step you are restarting from.

During a restart, ESP Encore looks at the JCL being restarted and the original JCL. It compares the job steps preceding the restart step. The steps must match, subject to the following guidelines:

- You can add, remove, or change STEPLIB and JOBLIB statements.
- You cannot change step names or DD names.
- You cannot change the order of steps or DD statements.
- You cannot change data set names except for data sets that were only opened for input in the original job.

For example, the following JCL is submitted and abends in STEP2:

```
//JOBABC...
//STEPLIB DD DSN=PCY.LOADLIB,DISP=SHR
//*
//STEP1 EXEC PGM=P1
//IN1 DD DSN=PCY.INDATA1,DISP=SHR
//OUT1 DD DSN=PCY.OUTDATA1,DISP=(NEW,DELETE),
// UNIT=PROD,SPACE=(40,30),
// DCB=(LRECL=80,BLKSIZE=223440,RECFM=FBA)
//OUT2 DD DSN=PCY.REPORT,DISP=(NEW,DELETE),
// UNIT=PROD,SPACE=(40,30),
// DCB=(LRECL=80,BLKSIZE=223440,RECFM=FBA)
//*
//STEP2 EXEC PGM=P2
//IN2 DD DSN=PCY.OUTDATA1,DISP=SHR
//OUT2 DD DSN=PCY.OUTDATA2,DISP=(NEW,DELETE),
// UNIT=PROD,SPACE=(40,30),
// DCB=(LRECL=80,BLKSIZE=223440,RECFM=FBA)
/*
```

Prior to the restart from STEP2, the JCL is changed as follows:

```
//JOBABC...
//STEPLIB DD DSN=PCY.TEMP.LOADLIB,DISP=SHR <-- Addition
// DD DSN=PCY.LOADLIB,DISP=SHR
//*
//STEP1 EXEC PGM=P1
//IN1FIX DD DSN=PCY.INDATA1.FIX,DISP=SHR <-- Change 1
//OUT1 DD DSN=PCY.OUTDATA1,DISP=(NEW,DELETE),
// UNIT=PROD,SPACE=(40,30),
// DCB=(LRECL=80,BLKSIZE=223440,RECFM=FBA)
//OUT2 DD DSN=PCY.REPORT.FIX,DISP=(NEW,DELETE), <-- Change 2
// UNIT=PROD,SPACE=(40,30),
// DCB=(LRECL=80,BLKSIZE=223440,RECFM=FBA)
//*
//STEP2 EXEC PGM=P2
//IN2 DD DSN=PCY.OUTDATA1,DISP=SHR
//OUT2FIX DD DSN=PCY.OUTDATA2.FIX,DISP=(NEW,DELETE), <-- Change 3
// UNIT=PROD,SPACE=(40,30),
// DCB=(LRECL=80,BLKSIZE=223440,RECFM=FBA)
/*
```

Note the following:

- Addition: The addition of the steplib is allowed.
- Change 1: The DD name change is not allowed; the data set name change is allowed.
- Change 2: The data set name change is not allowed.
- Change 3: The data set name change is allowed.

Changes to the restart JCL must be limited because ESP Encore may have to run a step to recreate a data set needed by the restart step or a later step. For example,

STEP1 creates a temporary data set that is used later in STEP2. If STEP2 is rerun, ESP Encore must also rerun STEP1 to recreate the temporary data set.

In some jobs, there may be several steps that create the same temporary data set. Logical statements or COND parameters are used to ensure that only one of these steps executes. As long as these steps have not changed for the restart, ESP Encore can check the SMF records of the first run of the job to determine the step that created the temporary data set. ESP Encore can rerun that step and recreate the data set.

Error predictions

If ESP Encore predicts errors, the ESP Encore step returns a completion code greater than 100 and no other steps are run. This may eliminate the need for a restart, which would almost certainly be necessary if the job ran.

ESP Encore lists error predictions in the job run report (see “ESP Encore job run report” on page 85). Each predicted error is described in detail in a footnote that follows the Job Summary section of the report.

The first error in the job that ESP Encore predicts encountered determines the completion code for the ESP Encore step (see “ESP Encore condition codes” on page 102).

Normally, if ESP Encore predicts an error, it flushes the remainder of the job. You can deactivate this by issuing the ENCPARM FORCE YES command. In this case, ESP Encore continues to report error predictions, but the job proceeds. The ESP Encore step returns a completion code of 0.

NOT CATLGD2 errors

One of the most common errors found in batch jobs is NOT CATLGD 2, meaning that z/OS cannot catalog a data set that is already cataloged. ESP Encore predicts these errors and flushes the remaining steps, or attempts to correct the error condition by deleting the cataloged data set.

If a data set first appears in a job with DISP=(NEW,CATLG), ESP Encore checks the system catalog for the status of that data set name. If the name is already cataloged, a NOT CATLGD 2 error is predicted for the DD statement that creates the data set. COND parameters and IF statements are ignored during this analysis; ESP Encore assumes that the step containing this DD executes.

You can use the ENCPARM CLEANUP command to have ESP Encore delete and uncatalog data sets before a job executes. This prevents NOT CATLGD 2 errors from being predicted.

DATA SET NOT FOUND errors

Another common error in JCL is DATA SET NOT FOUND, meaning that z/OS cannot find a data set name in the system catalog. z/OS searches the catalog when an

existing data set is being referenced and no VOLUME parameter has been specified on the DD statement.

If a data set first appears in a job with DISP=SHR or DISP=OLD, and no VOLUME parameter is specified, ESP Encore checks the system catalog for this name. If the name is not cataloged, a DATA SET NOT FOUND error is predicted for this DD statement. COND parameters and IF statements are ignored during this analysis; ESP Encore assumes that the step containing this DD executes.

Security errors

ESP Encore attempts to predict data set authorization errors that result in the security system issuing a S913-38 system abend. This abend occurs when a program attempts to open a data set for which the user does not have sufficient access. ESP Encore uses IBM's standard SAF interface to query the security system on the user's behalf. Any security package which supports the SAF interface (that is, the RACROUTE macro) works in conjunction with ESP Encore.

When ESP Encore queries the security system, an assumption is made about the type of access that is requested by the executing program. The following table lists the criteria used by ESP Encore to determine what access level is used when querying the security system.

Disposition	ESP Encore's Assumption
DISP=NEW	ALTER access
DISP=DELETE	ALTER access
DISP=CATLG	ALTER access
DISP=OLD,DASD	UPDATE access
DISP=OLD,TAPE	READ access
DISP=MOD	UPDATE access
DDNAME=STEPLIB	EXECUTE access
DDNAME=JOBLIB	EXECUTE access
DISP=SHR	READ access

If these assumptions are incorrect, you can turn off the security error prediction with the ENCPARM PREDICT SECURITY command.

If you want to turn off security checking for specific data sets, issue the ENCPARM IGNOREDS command.

ESP Encore does not check for access to controlled programs or a program's access to data sets.

Cleanup of data sets

ESP Encore's data set cleanup process is intended to prevent NOT CATLGD 2 and DUPLICATE NAME ON DASD errors when a job is restarted. You control data set

cleanup with the ENCPARM CLEANUP command. You can exclude some data sets from the cleanup by issuing the ENCPARM IGNOREDS command.

Before a restart, ESP Encore scans the JCL for the first occurrence of each data set. If a data set has DISP=(NEW,CATLG), ESP Encore assumes that the job creates and catalogs that data set. ESP Encore checks the system catalog and performs VTOC searches to ensure that data set does not already exist. If it exists, and cleanup processing is turned on, the data set is deleted before the job executes. If cleanup is turned off, a NOT CATLDG 2 error is predicted.

If ESP Encore determines that a data set is cataloged on one volume, but exists only on another, ESP Encore uncatalogs the data set from the one volume and scratches it from the other.

When ESP Encore deletes a tape data set, it first uncatalogs it and then scratches it by calling the TAPESCR routine, if one exists.

Data sets created outside of the job tracked by ESP Encore

To find the data sets that are used by a job, ESP Encore analyzes the JCL. However, ESP Encore is unaware of data sets that are allocated or deleted outside of the job. These data sets can be allocated or deleted by

- IDCAMS.
- A batch TSO session (IKJEFT01) executing TSO commands.
- REXX or CLIST.
- A user-written allocate utility.
- Dynamically allocated or deleted data sets in a user program.

ESP Encore predicts errors for data sets created outside JCL because it is unaware of them. The solution to this problem is to turn off the prediction feature of ESP Encore after execution of the program that creates or deletes data sets outside of JCL. You do this with the ENCPARM PREDICT command:

```
ENCPARM PREDICT PROG(program creating or deleting the data set)
```

This command stops the prediction of missing data sets for all steps following a step whose EXEC statement specifies the program named in ENCPARM PREDICT PROG. In a batch job, Encore error prediction is done in the Encore step, before any other job steps execute. If prediction is enabled and an error is predicted, the Encore step ends with a condition code such as 146 (missing data set) and the rest of the job is flushed. If prediction is disabled and an error occurs, the Encore step ends successfully and the rest of the job executes until the error causes failure.

Example

In this example, IDCAMS is executed to create a data set that a later step refers to. As a result, ESP Encore predicts a DSNOTFOUND error.

```
//STEP01 EXEC PGM=IEFBR14
//*
//STEP02 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=A
//SYSIN DD *
  DEFINE CLUSTER -
    (NAME (DATA.SET.NAME) -
    VOL (VOLUME) )
  ...
//*
//STEP03 EXEC PGM=MYPGM
//DD1 DD DSN=DATA.SET.NAME, DISP=SHR
```

To stop ESP Encore from predicting DATA SET NOT FOUND errors for all steps after STEP02 (the IDCAMS step), code the following ESP Encore command:

```
ENCPARM PREDICT PROG (IDCAMS)
```

Database considerations

Job steps containing database-related data sets need special treatment to keep ESP Encore from trying to back out or recreate the data sets. All DBMSs (Database Management Systems) use sophisticated techniques to protect the integrity of data under their control. All use checkpointing and, in case of a failure, roll back the data to the last successful checkpoint. The rollback is done for all data sets under DBMS control, including database data sets and database extract sequential data sets. ESP Encore needs to be informed when it is dealing with a job that is being checkpointed and subject to an automatic rollback. Unless ESP Encore is told, it assumes that files updated in a failed step are invalid. It then tries to recreate these files, even though they are already corrected by the DBMS.

Consider a database application where data is permanently extracted from a database and the database is updated to indicate the extraction was done. For example, a job permanently extracts data for an invoice run and writes the data to a sequential file. These jobs often abend in the extraction step. When this happens, ESP Encore considers the sequential data set to be invalid. If an earlier job step creates this sequential data set, ESP Encore deletes the data set and restarts that earlier step. The data in the sequential file that is being recreated is lost forever.

To prevent the loss of important data, you must prevent ESP Encore from deleting database-related files, including sequential data sets, as discussed in the preceding example. See “Preventing rollback of database-related files during restart” on page 21.

Handling GDG adjustments for a restart

When restarting a job, ESP Encore must ensure that the restarted steps refer to the same GDG generations as they did in the original job. Relative GDG references may no longer refer to the same generation as originally intended. Therefore, ESP Encore uses absolute generation names in place of relative names when restarting a job. For example, if GDG.DATA(-1) refers to absolute generation GDG.DATA.G0012V00, ESP Encore uses GDG.DATA.G0012V00 in the restart.

See the ENCPARM GDGADJ command in the *ESP Workload Manager Reference Guide* for ways to customize GDG adjustments for a restart.

Warning messages

In some restart situations, you may need to manually adjust the data sets. By issuing the ENCPARM WARNING command, you can have ESP Encore issue extra warning messages in the Restart Action Summary screen to remind you about the required adjustments. For example

```
WARNING: A CONCATENATED GDG GENERATION IS MISSING.
THE MISSING GENERATION IS PA.TESTGDGB.G0017V00
THIS GENERATION WAS PART OF A GDG CONCATENATION.
```

Following are some situations where a warning message can help.

Data sets with DISP=MOD

You may need to manually adjust data sets that have DISP=MOD specified before you can restart a job. ESP Encore issues a warning if it finds

- A data set with DISP=MOD that was created by another job
- A data set with DISP=MOD that did not exist before and was not created as DISP=(NEW, CATLG) in the job being restarted

ESP Encore does not issue a warning for DISP=MOD data sets that were created as DISP=(NEW, CATLG) in the job being restarted. In this case, ESP Encore can rerun the step that creates the data set.

Missing data sets

When a job is restarted, ESP Encore cleans up data sets that were created by the original job and that are about to be recreated by the new job. However, some other job or TSO user may have already deleted one or more of these data sets. In this case, there is no need for ESP Encore to clean up that data set, but you may still want to know when some job or user has deleted the data set.

Missing GDG generations

When a job containing GDGs is restarted, ESP Encore may not be able to recreate the generation numbers that existed when the job was first run. Some generations may

have been deleted since the original job. This often occurs because of the generation limit on a group. For example, if a GDG group keeps ten generations, the first generation is deleted when the eleventh generation is created.

Usually, you only need to be concerned about missing GDG generations when a DD statement specifies a GDG group name without specifying an individual generation. In this case, all cataloged generations are logically concatenated together. If one of the generations is later deleted, ESP Encore cannot recreate it in case of a restart. For example, GDG group PCY.TRANS has a limit of three generations and generations 1, 2, and 3 exist. When you run a job, the following happens:

1. STEPA specifies input data set PCY.TRANS, which concatenates generations 1, 2, and 3.
2. STEPB creates PCY.TRANS(+1), so PCY.TRANS now has generations 2, 3, and 4.
3. The job fails on or after STEPB.
4. You restart the job on STEPA and ESP Encore deletes generation 4. Now PCY.TRANS can only concatenate generation 2 and 3; generation 1 was deleted when generation 4 was created.

Note: Jobs can still run, even though a warning messages was issued for a missing GDG generation.

CCFAIL statement and ESP Encore

The ESP Encore step at the beginning of a job adjusts its condition code automatically to work properly with the ESP Workload Manager CCFAIL statement.

You can issue the CCFAIL statement in a Procedure to specify a condition code that will cause a job to fail. The CCFAIL statement adds a step called ESPCCFCK at the end of a job. The COND parameter in ESPCCFCK is derived from the CCFAIL condition. If the condition code check in the ESPCCFCK step is true, the step is bypassed and the job fails with a “JOB FAILED—JCL ERROR” message.

Note: Initialization parameter CCFLOPT must be set to 66660044, otherwise the job does not fail as in the preceding discussion. See CCFLOPT in the *ESP Workload Manager Initialization and Configuration Guide*.

When CCFAIL is used, the condition code from the ESP Encore step is adjusted so it does not meet the CCFAIL condition. This ensures that the ESPCCFCK step runs for a job that completes normally and does not meet the CCFAIL condition. Without CCFAIL, the ESP Encore step issues condition code 0 for a successful run.

For example, if you code the following:

```
CCFAIL (*,NE,4)
```

ESP Workload Manager adds the following step to the end of the job:

```
//ESPCCFCK EXEC PGM=IEFBR14,COND=(4,NE)
```

In the example, the condition code from the ESP Encore step is set to 4, so that it does not meet the CCFAIL condition. If any step finishes with a condition code other than 4, the ESPCCFCK step is bypassed and the job fails on a JCL error.

Security

RACF

RACF allows you to protect individual “controlled programs” inside load libraries. It also allows you to specify programs that are allowed access to data sets. These features are not supported in ESP Encore.

If you have jobs that use controlled programs to access data sets, ESP Encore may produce incorrect security violation predictions. To avoid these predictions, use the following command to turn off security checking by ESP Encore for these jobs.

```
ENCPARM PREDICT SECURITY(NO)
```

CA-Top Secret

RACF and CA-Top Secret can protect load module libraries by providing an intermediate level of access, generally known as EXECUTE access. This access level is between NONE and READ. With EXECUTE access only, a user cannot read a load library directly or copy load modules from it.

EXECUTE access is handled differently between CA-Top Secret and RACF. ESP Encore cannot predict EXECUTE access violations if you use CA-Top Secret.

CA-ACF2

If you have CA-ACF2 release 5.2 or earlier installed on your system, then you must add a SAFPROT record with control point ‘CYBRM000’ and CLASS=DATA SET. For example

```
LGOPROD/SAFPROT.ENCCLASSES(DATASET)
CNTLPTS(CYBRM000)
SUBSYS(CYBRM000)
```

For CA-ACF2 release 6.0 and later, this may be unnecessary.



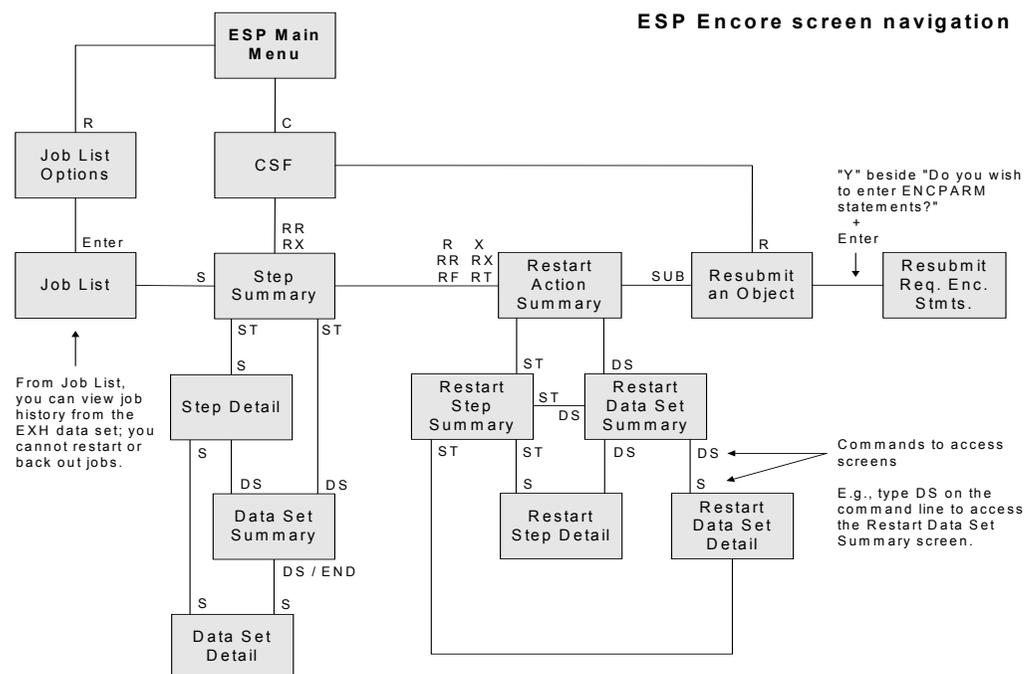
ESP Encore Reference

- ESP Encore ISPF screens
- ESP Encore command summary
- Where to use ESP Encore commands
- ESP Encore utility summary
- ESP Encore job run report
- ESP Encore condition codes

ESP Encore ISPF screens

Organization of ESP Encore screens

The following diagram and table show you how to navigate through the various ESP Encore screens. The commands closest to each screen (for example, “RR, RX, and SUB”) show how to get to the screen from the preceding screen.



The following table gives details on how to navigate to the various ESP Encore screens:

From Screen	To Screen	Command	Where
ESP Main Menu	Job List Options	R	Command line
	CSF	C	Command line
Job List Options	Job List	Enter	Keyboard
Job List (see note)	Step Summary	S	Beside job
CSF	Step Summary	RR, RX	Beside job
Step Summary	Step Detail	S	Beside step
	Data set Summary	DS	Command line
	Restart Action Summary	R	Command line
		R, X, RR, XX	Beside step

From Screen	To Screen	Command	Where
Step Detail	Step Summary	ST	Command line
	Data Set Summary	DS	Command line
	Data Set Detail	S	Beside DDname
Data Set Summary	Data Set Detail	S	Beside data set
	Step Summary	ST	Command line
Data Set Detail	Step Detail	S	Beside step
	Data set Summary	DS	Command line
Restart Action Summary	Restart Step Summary	ST	Command line
	Restart Data Set Summary	DS	Command line
	Resubmit an Object	SUB	Command line
Restart Step Summary	Restart Step Detail	S	Beside step
	Restart Data set Summary	DS	Command line
	Restart Action Summary	F3/End	Keyboard
Restart Step Detail	Restart Step Summary	ST	Command line
	Restart Data Set Summary	DS	Command line
Restart Data Set Summary	Restart Action Summary	F3/End	Keyboard
	Restart Data Set Detail	S	Beside data set
	Restart Step Summary	ST	Command line
Restart Data Set Detail	Restart Data Set Summary	DS	Command line
	Restart Step Summary	ST	Command line
Resubmit an Object	Resubmit Request Encore Statements	Y	Beside "Do you wish to enter ENCPARM statements?"
		+	
		Enter	Command line

Note: You cannot restart or back out jobs from the Job List screen.

Job List Options screen

The Job List Options screen allows you to specify the jobs to view in the Job List screen. You can filter on certain jobnames or list all jobnames.

Note: The ESP Workload Manager main menu selection to get to the Job Options screen is labeled as follows:

R ESP Encore EXH File Viewer

Field	Description
Jobname mask	Job name of the current job. You can specify the entire job name or use wildcard characters. Hyphen ('-') at the end of Jobname mask represents any string of characters. Asterisk ('*') anywhere in Jobname mask represents any single character.
Age in days	ESP Encore displays only the jobs in the EXH data set that are this age or younger.
Show job details	Specify Y to display the Programmer Name and MaxCC data.

Job List screen

The Job List screen lists the names and numbers of all the jobs stored in the ESP Encore EXH (Execution History) data set. Jobs are listed alphanumerically by job name. Jobs with the same name are listed by start date and start time with the most recent first.

Note: You cannot restart or back out jobs from the Job List screen.

See also “The EXH data set” on page 51.

Field	Description
Jobname	Job name of the current job.
Job ID	Job ID of the current job.
Restart	Job number of the job being restarted (if the current job is a restart job).
Start Date	Date the job started executing.
Start Time	Time the job started executing.
<i>day</i>	The day of the week the job started executing. This is shown if the job is no older than one week. The day is highlighted if the job started today or yesterday.
MaxCC	Highest condition code for this job.
Programmer Name	Value of the PROGRAMMER-NAME positional parameter of a JOB JCL statement, for example, JANE SMITH.

Step Summary screen

The step summary screen lists the steps in the selected job.

Field	Description
JOBNAME	Job name of the current job.
JOB ID	Job ID of the current job.
Restrt	Job number of the job being restarted (if the current job is a restart job).
Start Date	Date the job started executing.

Field	Description
Start Time	Time the job started executing.
MaxCC	Highest condition code for this job.
Programmer Name	Value of the PROGRAMMER-NAME positional parameter of a JOB JCL statement, for example, JANE SMITH.
Stepname	JCL step name.
Procstep	JCL procedure step name (if applicable).
Program	Name of the program executed in a job step.
CmpC	If the step was run, CmpC shows the step completion code, system abend code, or user abend code. There are also some special values: <ul style="list-style-type: none"> (<i>n</i>) – The step was bypassed but was executed in an earlier run and finished with the condition code given by <i>n</i>. byp – The step was bypassed and there is no historical data available from a previous run.
Cre	Number of data sets created by this step.
Inp	Number of data sets opened for input by this step.
Upd	Number of data sets opened for output by this step.
Not	Number of data sets referred to, but not opened, by this step.
Tot	Total of the fields Cre, Inp, Upd, and Not.
Del	Number of data sets deleted by this step.
Error	Indicates whether an error or warning was detected for this step. If there are no errors in the job, this heading is omitted. See the <i>Step Error Details</i> field in this table.
Parm	Value of the PARM= parameter of the job step, for example, PARM(ABC,DEF) for PARM='ABC,DEF'.
<i>Step Error Details</i>	The errors for each job step are listed underneath the list of job steps.

Step Detail screen

The Step Detail screen lists the data sets in the selected step.

Field	Description
<i>Fields from Step Summary screen</i>	See “Step Summary screen” on page 72.
DD Name	The JCL DDNAME for the data set given in the Data Set Name field.
Excp In	Number of EXCPs issued during this step while the data set was opened for input.
Excp Out	Number of EXCPs issued during this step while the data set was opened for output.
Disposition	The disposition shows the effect that a step had on the data set, for example. New-Sav, Shr-Kpt, New-Sav-Cat.

Field	Description
Volume	The volume on which the data set resides. If the data set is on multiple volumes, only the first volume is shown.
Type	Specifies the type of data set, for example, DASD, CLUSTER, GDG(2) for a generation data set, (1,SL) for a tape data set.
Data Set Name	Data Set Name.
Error	Indicates whether an error or warning was detected for this data set. See the <i>Data Set Error Details</i> field in this table.
<i>Data Set Error Details</i>	The errors for each data set are listed underneath the list of data sets.

Data Set Summary screen

The Data Set Summary screen lists the data sets in the selected job.

Field	Description
<i>Fields from Step Summary screen</i>	See “Step Summary screen” on page 72.
Data Set Name	Data Set Name
Volume	The volume on which the data set resides. If the data set is on multiple volumes, only the first volume is shown.
Type	Specifies the type of data set, for example, DASD, CLUSTER, GDG(2) for a generation data set, (1,SL) for a tape data set.
Excp In	Number of exceptions issued during this step while the data set was opened for input.
Excp Out	Number of exceptions issued during this step while the data set was opened for output.
Unit	The type of device on which the data set resides, for example, DASD, TAPE.

Data Set Detail screen

The Data Set Detail screen lists the job steps in which the data set appears.

Field	Description
<i>Fields from Step Summary screen</i>	See “Step Summary screen” on page 72.
<i>Fields from Data Set Summary screen</i>	See “Data Set Summary screen” on page 74.
Stepname	JCL step name.
Procstep	JCL procedure step name (if applicable).
Program	Name of the program executed in a job step.

Field	Description
CmpC	If the step was run, CmpC shows the step completion code, system abend code, or user abend code. There are also some special values: <ul style="list-style-type: none"> • (n) – The step was bypassed but was executed in an earlier run and finished with the condition code given by n. • byp – The step was bypassed and there is no historical data available from a previous run.
DD Name	The JCL DDNAME for the data set given in the Data Set Name field.
Excp In	Number of exceptions issued during this step while the data set was opened for input.
Excp Out	Number of exceptions issued during this step while the data set was opened for output.
Disposition	The disposition shows the effect that a step had on the data set, for example. New-Sav, Shr-Kpt, New-Sav-Cat.
Member	Member name if the data set is a member of a PDS or PDSE
Found	Indicates how z/OS found this data set. The possible values are: <ul style="list-style-type: none"> • New – The data set did not need to be found, since it was created by the current step. • Vol – The volume serial was specified on the DD statement. No catalog search was necessary. • Cat – The data set was found using a catalog search, since a volume was not specified on the DD statement. If the values are prefixed with “Rec”, this means that the data set was received from a preceding step that passed it on.

Field	Description
Detected Error	<p data-bbox="646 281 1419 380">Indicates the JCL error detected by ESP Encore. For some of these errors, z/OS stops the job. Other errors are just warnings in disposition messages and the job continues to execute.</p> <p data-bbox="646 422 732 451">Errors:</p> <ul data-bbox="651 457 1419 863" style="list-style-type: none"> <li data-bbox="651 457 1419 520">• DS Not Found – Data set not found because it is not cataloged, yet no volume serial specified in DD statement. <li data-bbox="651 562 1419 625">• GDG Not Defined – New GDG generation specified, but GDG group name not yet defined. <li data-bbox="651 667 1419 730">• Dupl Name on Vol – A data set with the same name already exists on this volume. <li data-bbox="651 772 1419 863">• Abend S213-04 – The data set does not exist on this volume. This error occurs when the executed program attempts to open this data set. <p data-bbox="646 905 769 934">Warnings:</p> <ul data-bbox="651 940 1419 1339" style="list-style-type: none"> <li data-bbox="651 940 1419 1003">• Not Catlgd 2 – The data set cannot be cataloged because it is already cataloged. <li data-bbox="651 1045 1419 1108">• Not Uncatld 2 – The data set cannot be uncataloged because it is not cataloged. <li data-bbox="651 1150 1419 1213">• Not Deleted 8 – The data set cannot be deleted from volume since it does not exist. <li data-bbox="651 1255 1419 1339">• Wrong volume – The data set is being uncataloged as requested, but the volume serial in the catalog does not match the volume serial in the DD statement.

Restart Action Summary screen

The Restart Action Summary screen lists

- Errors predicted by ESP Encore.
- Actions that ESP Encore will take when it restarts the job.

Restart Step Summary screen

The Restart Step summary screen lists the steps in the job to be restarted.

Field	Description
<i>Fields from Step Summary screen</i>	See “Step Summary screen” on page 72.
Restart?	Indicates whether the step is to be restarted (“YES”) or bypassed (“BYPASSED”).
Reason	The reason the step is to be restarted or bypassed, for example, “Chosen by ESP Encore”, or “EXCLUDE command”.

Restart Step Detail screen

The Restart Step Detail screen lists details for the selected step in the job to be restarted.

Field	Description
<i>Fields from Restart Step Summary screen</i>	See “Restart Step Summary screen” on page 77.
Explanation	A detailed explanation as to why the step is to be restarted or bypassed, for example, “This is the first abending step of the job”. See the Reason field.

Restart Data Set Summary screen

The Restart Data Set Summary screen shows the impact of a restart analysis on the data sets that a job accessed in previous runs.

Field	Description
<i>Fields from Step Summary screen</i>	See “Step Summary screen” on page 72.
Data Set Name	Data Set Name
Volume	The volume on which the data set resides. If the data set is on multiple volumes, only the first volume is shown, followed by a plus sign (+).
Action?	The action that ESP Encore must perform on this data set before the restart job can commence, for example, “will be deleted”.
Type	The type of data set, for example, DASD, CLUSTER, GDG(2) for a generation data set, (1,SL) for a tape data set.
Catlgd?	Indicates whether the data set is cataloged. The values are: Catlgd – The data set is cataloged. Blank – The data set is not cataloged
On Vol?	The volume on which the data set resides. If the data set is on multiple volumes, only the first volume is shown.

Restart Data Set Detail screen

The Restart Data Set Detail screen shows additional details, if any are available, about the impact of a restart analysis on a data set listed in the Restart Data Set Summary screen.

Field	Description
<i>Fields from Restart Step Summary screen</i>	See “Restart Step Summary screen” on page 77.
<i>Fields from Restart Data Set Summary screen</i>	See “Restart Data Set Summary screen” on page 77.
Explanation	A detailed explanation as to why an action will be taken for a data set.

Resubmit an Object screen

The Resubmit an Object screen allows you to view and make changes to the ESP Encore restart or backout settings before submitting a job.

Field	Description
JOB	The name of the job being submitted
DSNAME	The data set containing the JCL to be submitted.
MEMBER	The PDS or PDSE member containing the JCL.
USER1-USER4	User variables used to tailor the JCL as it is submitted.
FROMSTEP	The first step executed. Note: ESP Encore may rerun earlier steps for the purposes of data set re-creation.
TOSTEP	The last step executed. TOSTEP is blank if all steps after FROMSTEP will be run.
RESTART	<ul style="list-style-type: none"> Y – The job is to be restarted with ESP Encore. The ENCPARM TYPE RESTART command is issued. Note: You must also specify JOBID. N – The job is not to be restarted with ESP Encore. The ENCPARM TYPE INITIAL command is issued. Note: JOBID must be blank because no job history is needed for "ENCPARM TYPE INITIAL". <p>CSF automatically sets RESTART to Y if the job is to be tracked by ESP Encore (that is, OPTIONS RESTARTSTEP is coded and applies to the job). If a job is not tracked by ESP Encore, Y has no effect. See “Confirming in CSF that a job is tracked by ESP Encore” on page 5.</p>
JOBID	The job ID of the job being restarted.

Field	Description
DO YOU WISH TO ENTER ENCPARM STATEMENTS?	Enter 'Y' to specify ENCPARM commands

Resubmit Request Encore Statements screen

In the Resubmit Request Encore Statements screen you can specify ENCPARM commands that are included in a restart job.

Do not include the prefix “ENCPARM” when you specify commands in the Resubmit Request Encore Statements screen.

You can either select one of the ENCPARM commands available on the screen or you can type an ENCPARM command. When you select a command, you can type in the full operand name or just the first character of the operand. For example, you can type `Normal` beside `MODE` or you can type `N`. If you leave a command blank, that command is not issued.

Field	Description
Backout	<ul style="list-style-type: none"> Y – Request a backout run. Only the ESP Encore step runs. The ENCPARM TYPE BACKOUT command is issued. N or blank – Do not request a backout run.
Cleanup	<ul style="list-style-type: none"> Y – Issue the ENCPARM CLEANUP RESTART(YES) command to perform data set cleanup on the restart. N – Issue the ENCPARM CLEANUP RESTART(NO) command to disable data set cleanup on the restart. blank – Use the default ENCPARM CLEANUP command setting or the setting from a previous ENCPARM CLEANUP command.
Mode	Issue a ENCPARM MODE command to specify how ESP Encore processes the job. Type in the first letter of the appropriate operand. The specified operand is issued with the ENCPARM MODE command.
Force	<ul style="list-style-type: none"> Y – Issue the ENCPARM FORCE YES command to continue to run a job that has errors predicted. N – Issue the ENCPARM FORCE NO command to avoid running a job that has errors predicted. blank – Use the default ENCPARM FORCE command setting or the setting from a previous ENCPARM FORCE command.

Field	Description
Auto-restore	<ul style="list-style-type: none"> <li data-bbox="654 285 1427 415">• Y – Issue the ENCPARM AUTOREST YES command to automatically restore missing or invalid data sets for a restart. The restart is abandoned if the restore was unsuccessful and certain condition were not met. <li data-bbox="654 457 1427 552">• A – Issue the ENCPARM AUTOREST ALWAYS command to automatically restore missing or invalid data sets for a restart. The restart is abandoned if the restore was unsuccessful. <li data-bbox="654 594 1427 688">• N – Issue the ENCPARM AUTOREST NO command to disable the automatic restore of missing or invalid data sets for a restart. <li data-bbox="654 730 1427 831">• blank – Use the default ENCPARM AUTOREST command setting or the setting from a previous ENCPARM AUTOREST command.
Honor cond codes	<ul style="list-style-type: none"> <li data-bbox="654 842 1427 909">• A – Issue the ENCPARM HONORCC ALL command to check condition codes from the previous run during a restart. <li data-bbox="654 951 1427 1045">• N – Issue the ENCPARM HONORCC NONE command to disable the checking of condition codes from the previous run during a restart. <li data-bbox="654 1087 1427 1188">• blank – Use the default ENCPARM HONORCC command setting or the setting from a previous ENCPARM HONORCC command.
<i>Additional ENCPARMs</i>	<p data-bbox="654 1199 1427 1293">Under “Enter one or more ESP Encore statements below.”, you can enter additional ENCPARM commands. Do not prefix the commands with ENCPARM.</p> <p data-bbox="654 1314 1427 1377">Note: If you enter a command that is already available on the screen, your new entry overrides the command available on the screen.</p>

ESP Encore command summary

ESP Encore commands are documented in *The ESP Workload Manager Reference Guide*. See also “Where to use ESP Encore commands” on page 82.

Command	Description
AUX_AS	Start and stop the auxiliary address space.
ENCLOG	Display additional information about the most recent ESP Encore request.
ENCPARM	List all ENCPARM commands in effect.
ENCPARM ABENDER	Specify a program that abends on behalf of another program.
ENCPARM AUTOREST	Recover data sets automatically for a job restart.
ENCPARM BACKOUT	Control whether a data set is backed out under ESP Encore
ENCPARM CLEANUP	Delete data sets that will be allocated by a restart job.
ENCPARM COMMENT	Insert a comment in the ESP Encore job run report.
ENCPARM CONDCODE	Specify the condition codes that the ESP Encore job step produces.
ENCPARM DELETE	Undo an ENCPARM command.
ENCPARM DIAG	Produce all diagnostic sections of the ESP Encore job run report.
ENCPARM EXCLUDE	Specify a step to exclude from a job restart.
ENCPARM FORCE	Run a job even if ESP Encore predicts errors.
ENCPARM FROMSTEP	Specify a step from which a job is restarted.
ENCPARM GDGADJ	Specify how ESP Encore processes relative generations for a job restart.
ENCPARM HONORCC	Control ESP Encore condition code checks of previous job runs.
ENCPARM IGNOREDS	Specify data sets to ignore on job restart.
ENCPARM JOBID	Specify the JES job ID of the job that is being restarted by ESP Encore.
ENCPARM JOBNAME	Specify a job to be backed out or whose EXH record is to be dumped.
ENCPARM MODE	Specify how a job is processed by ESP Encore.
ENCPARM MODIFY	Modify the internal processing of ESP Encore.
ENCPARM PREDICT	Specify the error types that ESP Encore predicts.
ENCPARM PREVTIME	Specify a reader-on (RDRON) time to find a job in the EXH data set.
ENCPARM PRINT	Select sections of the ESP Encore job run report to print.
ENCPARM PURGE	Set criteria for automatic purge of job history from the ESP Encore EXH data set.

Command	Description
ENCPARM QUIESCE	Quiesce ESP Encore.
ENCPARM RESTART	Restart ESP Encore.
ENCPARM STATUS	List the status of ESP Encore.
ENCPARM SUBSYS	Specify the subsystem identifier for a job processed by ESP Encore.
ENCPARM TAPESCR	Request a tape scratch from a TMS.
ENCPARM TOSTEP	Specify a step to which a job runs when it is restarted.
ENCPARM TRACE	Specify modules to be traced.
ENCPARM TYPE	Specify the type of processing that ESP Encore does.
ENCPARM VOLUME	Specify data set processing based on volume serial.
ENCPARM WARNING	Display extra warning messages to support manual restart tasks.

Where to use ESP Encore commands

ESP Encore commands can be used in one or more of the following places:

- In the ESP Workload Manager initialization parameter data set
- In page mode or in a z/OS Modify command
- In the ESP Encore step of a batch job
- In the Resubmit Request Encore Statements Screen
- In an ESP Workload Manager Procedure
- On the command line of any ESP Encore summary or detail screen (ENCLOG only)

The following table shows you where to use each command. An “X” marks a valid use of the associated command.

Note: The table indicates that ENCPARM MODIFY can be used anywhere except if you use the operands listed. Beside each operand are the restrictions for using ENCPARM MODIFY with that operand.

Command	Init'n Parm Data Set	Page Mode or Modify Command	ESP Encore Step in Batch JCL	Resubmit Request Encore Statements Screen	ESP Workload Manager Procedure
AUX_AS		X			
ENCLOG	Command line of any ESP Encore summary or detail screen				
ENCPARM		X			
ENCPARM ABENDER	X	X	X	X	X
ENCPARM AUTOREST	X	X	X	X	X
ENCPARM BACKOUT	X	X	X	X	X
ENCPARM CLEANUP	X	X	X	X	X
ENCPARM COMMENT	X	X	X	X	X
ENCPARM CONDCODE	X	X	X	X	X
ENCPARM DELETE		X			
ENCPARM DIAG	X	X	X	X	X
ENCPARM EXCLUDE	X	X	X	X	X
ENCPARM FORCE	X	X	X	X	X
ENCPARM FROMSTEP	X	X	X	X	X
ENCPARM GDGADJ	X	X	X	X	X
ENCPARM HONORCC	X	X	X	X	X
ENCPARM IGNOREDS	X	X	X	X	X
ENCPARM JOBID	X	X	X	X	X
ENCPARM JOBNAME	X	X	X	X	X
ENCPARM MODE	X	X	X	X	X
ENCPARM MODIFY	X	X	X	X	X
Use is limited if you include these operands:					
PACING, COMPRESS	X	X			X
USECSI		X			X
ENCPARM PREDICT	X	X	X	X	X
ENCPARM PREVTIME	X	X	X	X	X
ENCPARM PRINT	X	X	X	X	X
ENCPARM PURGE	X	X			X
ENCPARM QUIESCE		X			
ENCPARM RESTART		X			
ENCPARM STATUS		X			
ENCPARM SUBSYS	X	X	X	X	X
ENCPARM TAPESCR	X	X	X	X	X
ENCPARM TOSTEP	X	X	X	X	X

Command	Init'n Parm Data Set	Page Mode or Modify Command	ESP Encore Step in Batch JCL	Resubmit Request Encore Statements Screen	ESP Workload Manager Procedure
ENCPARM TRACE	X	X	X	X	X
ENCPARM TYPE	X	X	X	X	X
ENCPARM VOLUME	X	X	X	X	X
ENCPARM WARNING	X	X	X	X	X

ESP Encore utility summary

ESP Encore utilities are documented in *The ESP Workload Manager System Programmer's Guide*.

Utility	Description
CYBRMALC	EXH data set allocation utility
CYBRMANA	EXH data set analysis utility
CYBRMCPY	EXH data set copy utility
CYBRMD01	ESP Encore user exit simulation utility
CYBRMDMP	EXH data set entry dump utility
CYBRMDSS	Data Set Summary report utility
CYBRMKEP	EXH data set retention defaults change utility
CYBRMLST	EXH data set job list utility
CYBRMPRG	EXH data set batch purge utility
CYBRMQRY	EXH data set query report utility
CYBRMSAN	EXH data set list of errors and lost slot cleanup utility
CYBRMSTA	Auxiliary Address Space parameters display and modify utility
CYBRMTA1	Tape scratch utility
CYBRMTHR	EXH data set utilization threshold utility

ESP Encore job run report

The ESP Encore job run report provides details on the results of a job run tracked by ESP Encore. There are a number of sections in the report that list information such as the parameters in effect for the restart, a summary of job steps, and a summary of data sets in a job. The report is produced whether or not the job completes normally.

ESP Encore normally only produces the most useful sections in the job run report, however, you can produce other report sections. For details, see “Reporting information from a job run” on page 23.

When the ESP Encore step executes within a batch job, it produces the ESP Encore job run report and spools it to SYSOUT=* by default. You can change the output destination by modifying the ESP Encore cataloged procedure. For details, see “The ESP Encore step” on page 45 and “ESP Encore Procedure” in the *ESP Workload Manager Installation and Configuration Guide*.

Main sections of the ESP Encore job run report

Introductory section

The Introductory section reports the job ID of the job being restarted or backed out.

ESP ENCORE RELEASE 3.1.0 COPYRIGHT (C) CYBERMATION INC. 1991,2004

WEDNESDAY JULY 28TH, 2004

```
=====
THIS IS A RESTART OF JOB JOB19131
=====
```

Parameter Summary section

The Parameter Summary section lists all the ENCPARM command and initialization parameter settings that are in effect for the job.

```
=====
PARAMETER SUMMARY
=====

TYPE:      RESTART
MODE:      NORMAL
SUBSYS:    PROD
ESPGROUP:  PAYROLL

JOBID:     JOB19131

FORCE:     NO      (WILL NOT EXECUTE THIS JOB IF ERRORS ARE PREDICTED)
CLEANUP:   YES     (CLEANING UP DATA SETS THAT WILL BE RECREATED BY THIS JOB)
           DYN     (ALSO CLEANING UP DYNAMICALLY ALLOCATED DATA SETS)
BACKOUT:   ALL     (BACKING OUT ALL DYNAMICALLY ALLOCATED DATA SETS THAT WERE CREATED BY INITIAL RUN, EVEN IF MOVED)
GDGADJ:    YES     (USING ABSOLUTE GDG GENERATIONS)
AUTOREST:  YES     (RESTORING MISSING DATA SETS UNLESS JCL MISMATCHES)
DIAG:      YES
MODIFY:    GDGENQ(YES) (PERFORM GDG ENQ'S ON BEHALF OF THE INITIATOR)

PRINTING:  SUBSYSINFO SUMMARY RESTART ACTIONS SIOTJFCB ERRORS HISTORY
           CATALOG MULTIVOL VTOC UNIT EXHFILE SMF ACTION2
```

Initialization Parameters section

The Initialization Parameters section lists all the ESP Encore initialization parameter settings, overrides by ESP Encore for particular job runs, and overrides specified by a user in the Resubmit Request Encore Statements screen.

```

=====
INITIALIZATION PARAMETERS
=====

/* -- DEFAULT STATEMENTS FROM THE ESP INIT PARMS -- */
MODIFY COMPRESS(YES)
/* -- ADDITIONAL STATEMENTS INSERTED BY ESP -- */
SUBSYS  PROD  ESPGROUP(PAYROLL)
TYPE    R
JOBID   JOB19131
PREVTIME 200407281148
/* -- STATEMENTS FROM THE RESUBMISSION PANEL -- */
DIAG YES

END
    
```

Subsystem Information section

The Subsystem Information section lists all subsystems that have a specified ESP group in the z/OS image.

```

=====
SUBSYSTEM INFORMATION
=====

SEARCHING FOR ESP WORKLOAD MANAGER WITH ESPGROUP <PAYROLL>
SUBSYS PRD1 REJECTED: SMFINT IS OFF
SUBSYS PROD IS SELECTABLE
FOUND ESP WORKLOAD MANAGER SYSTEM PRODPRX1 WITH SUBSYS PROD ON JES SUBSYSTEM JESB (JES NODE JESB)
CSI CATALOG SEARCH INTERFACE WILL BE USED.

ESP WORKLOAD MANAGER SUBSYSTEMS ON THIS CPU:
ESP ENCORE  RELEASE 3.1.0  COPYRIGHT (C) CYBERMATION INC. 1991,2004                                WEDNESDAY JULY 28TH, 2004
    
```

SUBSYS	SYSID	ESPGROUP	SMFINT	JES_SUBSYS	JES_NODE	JESNAME
ESPP	ESPP	ESPPA	ON	JES2	CYBJES	
PRD1	PRD1MAST	PAYROLL	OFF	JES2	CYBJES	
PROD	PRODPRX1	PAYROLL	ON	JESB	JESB	** SELECTED

Job Restart Summary section

The Job Restart Summary section is produced only when the job is a restart of another job. It lists the steps in the job, indicates which steps will be run during restart, and provides an explanation of the reason for the restart. If ESP Encore has chosen the initial step for restart, an explanation is given as well.

```
=====
JOB RESTART SUMMARY
=====
```

```
-----STEPNAME---PROCSTEP---PROGRAM---RESTART?--BYPASS?---REASON-----
                STEP00          PAY01          BYPASSED
                STEP10          PAY02          RESTARTED          RESTORES A DATA SET      (SEE FOOTNOTE 1 BELOW)
FROM  STEP20          PAY03          RESTARTED          CHOSEN BY USER
                STEP30          PAY04          RESTARTED          USER REQUEST
                STEP40          PAY05          RESTARTED          USER REQUEST
                STEP50          PAY06          RESTARTED          USER REQUEST
                STEP60          PAY07          RESTARTED          USER REQUEST
                STEP65          IEBGENER     RESTARTED          USER REQUEST
                STEP66          PAY08          RESTARTED          USER REQUEST
                STEP70          PAY09          RESTARTED          USER REQUEST
                STEP80          CONDCODE     RESTARTED          USER REQUEST
                STEP90          PAY10          RESTARTED          USER REQUEST
```

FOOTNOTES:

1. RESTARTING STEP 'STEP10'.
THIS STEP RECREATES DATA SET &&TEMP1

Job Summary section

The Job Summary section summarizes the steps in the job and the data sets used by those steps. Each report line corresponds to either an EXEC or a DD statement within the JCL. All of ESP Encore's error predictions are shown here, next to the line in the JCL on which the error occurs. A detailed explanation of each of the errors is also provided.

```
=====
JOB SUMMARY
=====
```

```
JOBNAME-----JOBID-----PROGRAMMER NAME-----RESTART OF--ORIGINAL
PAYROLLA      JOB20096  PA                               JOB20061
```

```
STEP-----PROCSTEP-PROGRAM--DDNAME-----DISP-----VOLUME--DATA SET NAME-----
-----
STEP00          IEFBR14
                   JOBLIB          SHR, PASS          PROD01  PA. LOAD
-----
STEP10          IEFBR14
                   JOBLIB          SHR, PASS          PROD01  PA. LOAD
                   DD1001          SHR              PROD01  PA. LOAD
                   DD1002          SHR              LARGE8  PA. QA. PARMLIB (ESPCOLD)
                   DD1002  +001  SHR              LARGE8  PA. QA. PARMLIB (ESPWARM)
                   DD1003          SHR              LARGE8  PA. QA. PARMLIB (ESPPARM)
                   DD1004          SHR              RESAA2  SYS1. MACLIB
                   DD1005          SHR              RESAA2  SYS1. MACLIB (ACI)
                   DD1006          SHR              RESAA1  CEE. SCEEMAC
                   DD1007          NEW, PASS, DLET      &&TEMP1
-----
STEP20          IEFBR14
                   JOBLIB          SHR, PASS          PROD01  PA. LOAD
                   SYSPRINT
                   SYSIN              DUMMY
                   DD2001          NEW, CTLG          SMALL6  CYBNWP1. TEST. NWPCU4E1. DD2001
                   DD2002          NEW, CTLG          CYBNWP1. TEST. NWPCU4E1. DD2002
                   DD2007          OLD, PASS, DLET      &&TEMP1
-----
```

Action Summary section

The Action Summary section lists the actions ESP Encore will take, along with an explicit reason for each action. These actions include resolving relative GDG references, deleting data sets, and bypassing steps. ESP Encore performs all of these actions when the ESP Encore step runs.

```
=====
ACTIONS TO BE TAKEN BY ESP ENCORE
=====
```

1. RESTARTING STEP 'STEP10'.
(THIS STEP RECREATES DATA SET &&TEMP1)
2. DELETING CYBNWP1.TEST.NWPCU4E1.DD2001 FROM SMALL6.
(STEP 'STEP20' WILL RECREATE THIS DATA SET.)
3. DELETING CYBNWP1.TEST.NWPCU4E1.DD2002 FROM SMALL5.
(STEP 'STEP20' WILL RECREATE THIS DATA SET.)
4. DELETING CYBNWP1.TEST.NWPCU4E1.DD3001 FROM SMALL5.
(STEP 'STEP30' WILL RECREATE THIS DATA SET.)
5. DELETING CYBNWP1.TEST.NWPCU4E1.DD3002 FROM SMALL4.
(STEP 'STEP30' WILL RECREATE THIS DATA SET.)

Severe Error section

The Severe Error section is produced only when ESP Encore detects an error that prevents it from proceeding. Typically, this involves a completion code greater than zero but less than 100. This report section explains the nature of the error and how the user can correct the error.

When a severe error occurs, ESP Encore causes the remainder of the job to be flushed. The one exception occurs when the ESP Encore load library is not APF-authorized. In this case ESP Encore is unable to flush the job. The ESP Encore step ends with a U0001 abend. All of the subsequent steps are automatically flushed by z/OS, with the exception of those that have COND=EVEN or COND=ONLY on their EXEC statements. This situation presents very little risk, since it only occurs after an incomplete installation of ESP Encore.

The following report sample is produced when the ESP Encore step ends with CC=44 after trying to restart a job whose EXH record has been purged from the EXH file.

```
=====
SEVERE ERROR
=====
```

```
THE JOB YOU ARE TRYING TO RESTART CANNOT BE
FOUND IN THE ESP ENCORE EXECUTION HISTORY FILE.
```

```
ESP ENCORE MAY NOT HAVE RECORDED THE EXECUTION
OF THAT JOB. PLEASE CHECK WITH YOUR ESP SYSTEM
ADMINISTRATOR TO SEE IF ESP ENCORE HAS STOPPED
RECORDING. IF SO, ESP MAY NEED TO BE RE-CYCLED.
```

Diagnostic sections of the ESP Encore job run report

The diagnostic sections of the report provide detailed information on the internal operation of ESP Encore. A diagnostic section is not printed unless you request it by issuing the ENCPARM PRINT command. You can print all the diagnostic sections by issuing the ENCPARM DIAG command.

SIOT/JFCB section

The SIOT/JFCB section is a hexadecimal dump of several SIOT and JFCB fields from the system I/O table. A Cybermation support person may ask you to produce this report to help solve problems.

```
=====
SIOT/JFCB
=====
```

```
STEP----PROC-----DDNAME---S1S2S3S4-B0B2B4B5-DISP-UNIT-----SWSM--JFCB--J1J2J3-RFCT-ELNM----
STEP01      DD1      08000100 00000080 0000      0000 0001AF 004800 0000
STEP01      DD2      08000100 00000080 0000 SYSDA  4000 0001DF 004800 0000
STEP01      DD3      08000480 00000080 0200 SYSDA  40F0 00020F 02C000 0080 +1
-----
STEP02      DD4      08000400 00000080 0200 SYSDA  40F0 00027F 00C000 0080
STEP02      DD5      08000400 00000080 0200 SYSDA  40F0 0002AF 00C000 0000
STEP02      DD6      08000480 00000080 0200 SYSDA  40F0 0002DF 02C000 0080 +1
-----
STEP03      DD7      08000100 00000080 0000      0000 00033F 004800 0000
STEP03      DD8      08000400 00000082 0200 SYSDA  40F0 00039F 00C000 9080
-----
```

Catalog section

The Catalog section lists all data set names used in the job and their catalog status at the beginning of the job.

```

=====
CATALOG
=====

DSN-----#VOL--1STVOL--DEV TYP---TYPE-----RACF--MISC-----
&&TEMP1                                     (SMS)
CEE.SCEEMAC                               1  PASAA1  00000000  DASD      04FF  (PERM)
PA.TEST.NWPCU4E1.DD2001                   1  SMALL6  3010200F  DASD      0CFF  (SMS) (UNCATLGING)
PA.TEST.NWPCU4E1.DD2002                   1  SMALL5  3010200F  DASD      0CFF  (SMS) (UNCATLGING)
PA.TEST.NWPCU4E1.DD3001                   1  SMALL5  3010200F  DASD      0CFF  (SMS) (UNCATLGING)
PA.TEST.NWPCU4E1.DD3002                   1  SMALL4  3010200F  DASD      0CFF  (SMS) (UNCATLGING)
PA.TEST.NWPCU4E1.DD4001                   1  SMALL5  3010200F  DASD      0CFF  (SMS) (UNCATLGING)
PA.TEST.NWPCU4E1.DD4002                   1  MIGRAT  3010200F  DASD      0CFF  (SMS) (UNCATLGING) (MIGRATED)
PA.TEST.NWPCU4E1.DD4003                   1  SMALL4  3010200F  DASD      0CFF  (SMS) (UNCATLGING)
PA.TEST.NWPCU4E1.DD5001                   1  SMALL5  3010200F  DASD      0CFF  (SMS) (UNCATLGING)
PA.TEST.NWPCU4E1.DD5002                   1  SMALL6  3010200F  DASD      0CFF  (SMS) (UNCATLGING)
PA.TEST.NWPCU4E1.DD6001                   1  SMALL5  3010200F  DASD      0CFF  (SMS) (UNCATLGING)
PA.TEST.NWPCU4E1.DD6002                   1  SMALL6  3010200F  DASD      0CFF  (SMS) (UNCATLGING)
PA.TESTGDGB                               GDG BASE (SMS) (12 GENS) (LASTGEN=0012) (PERM)
PA.TESTGDGB.G0013V00                     1  SMALL5  3010200F  GDG MEMB  0CFF  (GEN +1) (UNCATLGING)
PA.LIST.CYBESDDB.REL5300                  1  LARGEM  3010200F  DASD      04FF  (PERM)
PA.LOAD                                    1  PROD01  3010200F  DASD      04FF  (PERM)
PA.P540.MVOL3                             3  SMALL4  3010200F  DASD      04FF  (PERM)
PA.QA.PARMLIB                             1  LARGE8  3010200F  DASD      04FF  (PERM)
SYS1.MACLIB                               1  PASAA2  00000000  NONVSAM   04FF  (PERM)

```

Multivolume Data Sets section

The Multivolume Data Sets section lists the volumes associated with all multivolume data sets in existence before the job starts.

```

=====
MULTIVOLUME DATA SETS
=====

DSN-----#VOL--VOLUMES-----
PA.MVOL3                                     3  VOL001, VOL002, VOL003
-----

```

VTOC section

The VTOC section lists the VTOC status for all data sets referenced by the job.

A numeric volume name beginning with “?” (see the sample report following) is a dummy volume name that ESP Encore assigns to each data set that a job will access or create. The dummy volume name in an Encore report indicates that the ESP Encore step does not know yet on which volume a data set resides or will reside.

```
====
VTOC
====
```

```

DSN-----VOLUME--SEQ#--SMINDS--MISC-----
PA.LOAD          PROD01  0001  008002
PA.PARMLIB       LARGE8  0001  888202  (SMS)
PA.TEST.DD2001   SMALL6  0001  808040  (SMS) (SCRATCHING)
PA.TEST.NWPCU4E1.DD2002  ?00014                (UNKNOWN VOL)
-----
```

Unit Names section

The Unit Names section lists basic information on all the storage devices used by the job.

```
=====
UNIT NAMES
=====
```

```

UNITNAME---DEVTYPE---TYPE
SYSDA      00022000  DASD
-----
```

Errors section

The Errors section lists all error predictions, including predictions that are disabled by the ENCPARM PREDICT command. In some cases, detailed reason codes are given.

```
=====  
ERRORS  
=====
```

```
STEPNAME-PROCSTEP-DDNAME---REASON-----MESSAGE-----  
STEP01          DD3           0          THIS GDG GROUP HAS NOT YET BEEN DEFINED IN THE CATALOG.  
STEP02          DD6           0          THIS GDG GROUP HAS NOT YET BEEN DEFINED IN THE CATALOG.  
STEP03          DD7           0          THE UNIT PARAMETER IS REQUIRED WHEN VOLUME IS PRESENT.  
STEP03          DD8           156         WHEN RECFM=FB, BLKSIZE MUST BE A MULTIPLE OF LRECL.  
STEP03          DD8           0          THE PROGRAM NAMED IN THE PGM PARAMETER CANNOT BE FOUND.  
STEP01          DD1           0          THIS DATA SET NAME CANNOT BE FOUND IN THE CATALOG.  
STEP01          DD2           0          THIS DATA SET NAME CANNOT BE FOUND IN THE VTOC.  
-----
```

Dump of Action Table section

The Dump of Action Table section lists all ESP Encore actions and their status. Both this section and the Action Summary section list the same action queue. However, the Dump of Action Table section shows the result of each action and an extra line of diagnostic text. The Action Summary section omits actions such as bypassing a step.

```
=====
DUMP OF ACTION TABLE
=====
```

```

RESULT-----DESCRIPTION OF ACTION-----
OK           RESTARTING STEP 'STEP10'.
              THIS STEP RECREATES DATA SET &&TEMP1
              (THIS STEP CREATES THE DATA SET)
-----
OK           DELETING PA.TEST.NWPCU4E1.DD2001 FROM SMALL6.
              STEP 'STEP20' WILL RECREATE THIS DATA SET.
              (DELETE)
-----
OK           DELETING PA.TEST.NWPCU4E1.DD2002 FROM SMALL5.
              STEP 'STEP20' WILL RECREATE THIS DATA SET.
              (DELETE)
-----
OK           DELETING PA.TESTGDGB.G0013V00 FROM SMALL5.
              STEP 'STEP65' WILL RECREATE THIS DATA SET.
              (DELETE)
-----
OK           REPLACING (+1) BY G0013V00 IN DD SYSUT2 IN STEP 'STEP65'.
              (DSN=PA.TESTGDGB.G0013V00)
-----
OK           BYPASSING STEP 'STEP00'.
              (THIS STEP PRECEDES THE FROMSTEP.)
-----
```

SMF Records section

The SMF Records section lists all the SMF records that were gathered for the job being restarted.

```
=====
SMF RECORDS
=====
```

ST#	SMFTYPE	JFCB	UNIT	VOLUME	EXCP	CMPCODE
2	SMF14	00022F	267	PROD001	0	
2	SMF30:3					0 (STI=0000)
3	SMF14	00024F	267	PROD001	0	
3	SMF30:3					0 (STI=0000)
4	SMF14	00043F	267	PROD001	0	
4	SMF30:3					0 (STI=0000)
5	SMF14	00058F	267	PROD001	0	
5	SMF30:3					0 (STI=0000)
6	SMF14	0006EF	267	PROD001	0	
6	SMF30:3					0 (STI=0000)
7	SMF14	00082F	267	PROD001	0	
7	SMF30:3					0 (STI=0000)
8	SMF14	00098F	267	PROD001	0	
8	SMF30:3					0 (STI=0000)
9	SMF14	000AEF	240	LARGEM	2	
9	SMF15	000B2F	208	SMALL5	1	(NEW) G0013V00
9	SMF14	000ACF	267	PROD001	0	
9	SMF30:3					0 (STI=0000)
10	SMF14	000C0F	267	PROD001	0	
10	SMF30:3					0 (STI=0000)
11	SMF14	000C8F	267	PROD001	0	
11	SMF30:3					0 (STI=0000)
12	SMF14	000D0F	267	PROD001	1	
12	SMF30:3					SOC1 (STI=0200)
13	SMF30:3					BYPASSED (STI=0100)
	SMF30:5					

History of Previous Job section

The History of Previous Job section provides a detailed execution history of the job being restarted.

```
=====
HISTORY OF PREVIOUS JOB
=====
```

```
-----
NWPCU4E1      JOB20061  (ABENDED)  (COMPLETED)
-----
//STEP00      EXEC PGM=IEFBR14   EXECUTED  COND CODE 0000
//JOBLIB      DD      LOC-      PAS PA01.LOAD  EXCP=0/0
-----
//STEP10      EXEC PGM=IEFBR14   EXECUTED  COND CODE 0000
//JOBLIB      DD      REC-LOC-  PAS PA01.LOAD  EXCP=0/0
//DD1001      DD      LOC-      KPT PA01.LOAD  EXCP=0/0
//DD1002      DD      LOC-      KPT PA02.QA.V54H.PARMLIB  EXCP=0/0
//DD1002      +001      DD      LOC-      KPT PA02.QA.V54H.PARMLIB  EXCP=0/0
//DD1003      DD      LOC-      KPT PA02.QA.V54H.PARMLIB  EXCP=0/0
//DD1004      DD      LOC-      KPT SYS1.MACLIB   EXCP=0/0
//DD1005      DD      LOC-      KPT SYS1.MACLIB   EXCP=0/0
//DD1006      DD      LOC-      KPT CEE.SCEEMAC   EXCP=0/0
//DD1007      DD      NEW-SAVE-PAS  &&TEMP1   EXCP=0/0
-----
//STEP20      EXEC PGM=IEFBR14   EXECUTED  COND CODE 0000
//JOBLIB      DD      REC-LOC-  PAS PA01.LOAD  EXCP=0/0
//DD2001      DD      NEW-SAVE-CAT  PANWT01..TEST.NWPCU4E1.DD2001  EXCP=0/0
//DD2002      DD      NEW-SAVE-CAT  PANWT01..TEST.NWPCU4E1.DD2002  EXCP=0/0
//DD2007      DD      REC-NEW-     PAS &&TEMP1   EXCP=0/0
-----
//STEP30      EXEC PGM=IEFBR14   EXECUTED  COND CODE 0000
//JOBLIB      DD      REC-LOC-  PAS PA01.LOAD  EXCP=0/0
//DD3001      DD      NEW-SAVE-CAT  PANWT01..TEST.NWPCU4E1.DD3001  EXCP=0/0
//DD3002      DD      NEW-SAVE-CAT  PANWT01..TEST.NWPCU4E1.DD3002  EXCP=0/0
//DD3007      DD      REC-NEW-DLET-  &&TEMP1   EXCP=0/0
-----
//STEP40      EXEC PGM=IEFBR14   EXECUTED  COND CODE 0000
//JOBLIB      DD      REC-LOC-  PAS PA01.LOAD  EXCP=0/0
//DD4001      DD      NEW-SAVE-CAT  PANWT01..TEST.NWPCU4E1.DD4001  EXCP=0/0
//DD4002      DD      NEW-SAVE-CAT  PANWT01..TEST.NWPCU4E1.DD4002  EXCP=0/0
-----
//STEP50      EXEC PGM=IEFBR14   EXECUTED  COND CODE 0000
//JOBLIB      DD      REC-LOC-  PAS PA01.LOAD  EXCP=0/0
//DD5001      DD      NEW-SAVE-CAT  PANWT01..TEST.NWPCU4E1.DD5001  EXCP=0/0
//DD5002      DD      NEW-SAVE-CAT  PANWT01..TEST.NWPCU4E1.DD5002  EXCP=0/0
-----
```

```

-----
//STEP60      EXEC PGM=IEFBR14      EXECUTED COND CODE 0000
//JOB LIB     DD REC-LOC-           PAS PA01.LOAD EXCP=0/0
//DD6001      DD NEW-SAVE-CAT PANWT01..TEST.NWPCU4E1.DD6001 EXCP=0/0
//DD6002      DD NEW-SAVE-CAT PANWT01..TEST.NWPCU4E1.DD6002 EXCP=0/0
-----
//STEP65      EXEC PGM=IEBGENER     EXECUTED COND CODE 0000
//JOB LIB     DD REC-LOC-           PAS PA01.LOAD EXCP=0/0
//SYSUT1      DD LOC-              KPT PA01.LIST.CYBESDDB.REL5300 EXCP=2/0
//SYSUT2      DD NEW-SAVE-CAT PANWT01..TESTGDGB.G0013V00 EXCP=0/1
-----
//STEP66      EXEC PGM=IEFBR14      EXECUTED COND CODE 0000
//JOB LIB     DD REC-LOC-           PAS PA01.LOAD EXCP=0/0
//SYSUT1      DD LOC-              KPT PA01.NORMP540.MVOL3 EXCP=0/0
-----
//STEP70      EXEC PGM=IEFBR14      EXECUTED COND CODE 0000
//JOB LIB     DD REC-LOC-           PAS PA01.LOAD EXCP=0/0
//DD7001      DD LOC-              KPT PA01.LOAD EXCP=0/0
-----
//STEP80      EXEC PGM=CONDCODE     EXECUTED ABEND S0C1
//JOB LIB     DD REC-LOC-           KPT PA01.LOAD EXCP=1/0
//DD8001      DD LOC-              KPT PA01.LOAD EXCP=0/0
-----
//STEP90      EXEC PGM=IEFBR14      BYPASSED
//JOB LIB     DD LOC-              PA01.LOAD EXCP=0/0
//DD9001      DD LOC-              PA01.LOAD EXCP=0/0
-----

```

CATALOGED DATA SETS:

CEE.SCEEMAC	RESAA1	00000000	00
PANWT01..TEST.NWPCU4E1.DD2001	SMALL6	00022000	00
PANWT01..TEST.NWPCU4E1.DD2002	?00014	00022000	00
PANWT01..TEST.NWPCU4E1.DD3001	?00017	00022000	00
PANWT01..TEST.NWPCU4E1.DD3002	?00018	00022000	00
PANWT01..TEST.NWPCU4E1.DD4001	?00022	00022000	00
PANWT01..TEST.NWPCU4E1.DD4002	?00023	00022000	00
PANWT01..TEST.NWPCU4E1.DD5001	?00025	00022000	00
PANWT01..TEST.NWPCU4E1.DD5002	?00026	00022000	00
PANWT01..TEST.NWPCU4E1.DD6001	?00028	00022000	00
PANWT01..TEST.NWPCU4E1.DD6002	?00029	00022000	00
PANWT01..TESTGDGB	?00001	00000000	80
PANWT01..TESTGDGB.G0013V00	SMALL5	00000000	40
PA01.LIST.CYBESDDB.REL5300	LARGEM	3010200F	00
PA01.LOAD	PAT001	3010200F	00
PA01.NORMP540.MVOL3	SMALL4	3010200F	00
PA02.QA.V54H.PARMLIB	LARGE8	3010200F	00
SYS1.MACLIB	RESAA2	00000000	00

 EXISTING DATA SETS:

Dataset Name	Volume	Created	Deleted
&&TEMP1	?00011	00022000	CREATED
CEE.SCEEMAC	RESAA1	00002000	
PANWT01..TEST.NWPCU4E1.DD2001	SMALL6	00022000	CREATED
PANWT01..TEST.NWPCU4E1.DD2002	?00014	00022000	CREATED
PANWT01..TEST.NWPCU4E1.DD3001	?00017	00022000	CREATED
PANWT01..TEST.NWPCU4E1.DD3002	?00018	00022000	CREATED
PANWT01..TEST.NWPCU4E1.DD4001	?00022	00022000	CREATED
PANWT01..TEST.NWPCU4E1.DD4002	?00023	00022000	CREATED
PANWT01..TEST.NWPCU4E1.DD5001	?00025	00022000	CREATED
PANWT01..TEST.NWPCU4E1.DD5002	?00026	00022000	CREATED
PANWT01..TEST.NWPCU4E1.DD6001	?00028	00022000	CREATED
PANWT01..TEST.NWPCU4E1.DD6002	?00029	00022000	CREATED
PANWT01..TESTGDGB.G0013V00	SMALL5	00000000	CREATED
PA01.LIST.CYBESDDB.REL5300	LARGEM	00002000	
PA01.LOAD	PAT001	00002000	
PA01.NORMP540.MVOL3	SMALL4	00002000	
PA02.QA.V54H.PARMLIB	LARGE8	00002000	
SYS1.MACLIB	RESAA2	00000000	

 DATA SET SUMMARY:

```

&&TEMP1 VOL=?00011 FLAGS=00022000
  STEP10          DD1007  0018808C
  STEP20          DD2007  00109088
  STEP30          DD3007  00109040
CEE.SCEEMAC VOL=RESAA1 FLAGS=00002000
  STEP10          DD1006  00182880
PANWT01..TEST.NWPCU4E1.DD2001 VOL=SMALL6 FLAGS=00022000
  STEP20          DD2001  001280A4
PANWT01..TEST.NWPCU4E1.DD2002 VOL=?00014 FLAGS=00022000
  STEP20          DD2002  001080A4
PANWT01..TEST.NWPCU4E1.DD3001 VOL=?00017 FLAGS=00022000
  STEP30          DD3001  001080A4
PANWT01..TEST.NWPCU4E1.DD3002 VOL=?00018 FLAGS=00022000
  STEP30          DD3002  001080A4
PANWT01..TEST.NWPCU4E1.DD4001 VOL=?00022 FLAGS=00022000
  STEP40          DD4001  001080A4
PANWT01..TEST.NWPCU4E1.DD4002 VOL=?00023 FLAGS=00022000
  STEP40          DD4002  001080A4
PANWT01..TEST.NWPCU4E1.DD5001 VOL=?00025 FLAGS=00022000
  STEP50          DD5001  001080A4
PANWT01..TEST.NWPCU4E1.DD5002 VOL=?00026 FLAGS=00022000
  STEP50          DD5002  001080A4
PANWT01..TEST.NWPCU4E1.DD6001 VOL=?00028 FLAGS=00022000
  STEP60          DD6001  001080A4
  
```

```

PANWT01..TEST.NWPCU4E1.DD6002 VOL=?00029 FLAGS=00022000
  STEP60          DD6002  001080A4
PANWT01..TESTGDGB.G0013V00 VOL=SMALL5 FLAGS=00000000
  STEP65          SYSUT2  407080A4
PA01.LIST.CYBESDDB.REL5300 VOL=LARGEM FLAGS=00002000
  STEP65          SYSUT1  00502880
PA01.LOAD VOL=PAT001  FLAGS=00002000
  STEP00          JOBLIB  00102888
  STEP10          JOBLIB  00103888
  STEP10          DD1001  00182880
  STEP20          JOBLIB  00103888
  STEP30          JOBLIB  00103888
  STEP40          JOBLIB  00103888
  STEP50          JOBLIB  00103888
  STEP60          JOBLIB  00103888
  STEP65          JOBLIB  00103888
  STEP66          JOBLIB  00103888
  STEP70          JOBLIB  00103888
  STEP70          DD7001  00102880
  STEP80          JOBLIB  00503880
  STEP80          DD8001  00102880
  STEP90          JOBLIB  00102800
  STEP90          DD9001  00102800
PA01.NORMP540.MVOL3 VOL=SMALL4  FLAGS=00002000
  STEP66          SYSUT1  00102880
PA02.QA.V54H.PARMLIB VOL=LARGE8  FLAGS=00002000
  STEP10          DD1002  00182880
  STEP10          DD1002  00182880
  STEP10          DD1003  00182880
SYS1.MACLIB VOL=RESAA2  FLAGS=00000000
  STEP10          DD1004  00182880
  STEP10          DD1005  00182880

```

ACTIVITY SUMMARY:

```

STEP 'STEP10' CREATED &&TEMP1 ON ?00011
STEP 'STEP20' CREATED PANWT01..TEST.NWPCU4E1.DD2001 ON SMALL6
STEP 'STEP20' CREATED PANWT01..TEST.NWPCU4E1.DD2002 ON ?00014
STEP 'STEP30' CREATED PANWT01..TEST.NWPCU4E1.DD3001 ON ?00017
STEP 'STEP30' CREATED PANWT01..TEST.NWPCU4E1.DD3002 ON ?00018
STEP 'STEP40' CREATED PANWT01..TEST.NWPCU4E1.DD4001 ON ?00022
STEP 'STEP40' CREATED PANWT01..TEST.NWPCU4E1.DD4002 ON ?00023
STEP 'STEP50' CREATED PANWT01..TEST.NWPCU4E1.DD5001 ON ?00025
STEP 'STEP50' CREATED PANWT01..TEST.NWPCU4E1.DD5002 ON ?00026
STEP 'STEP60' CREATED PANWT01..TEST.NWPCU4E1.DD6001 ON ?00028
STEP 'STEP60' CREATED PANWT01..TEST.NWPCU4E1.DD6002 ON ?00029
STEP 'STEP65' CREATED PANWT01..TESTGDGB.G0013V00 ON SMALL5

```

EXH File Statistics section

The EXH File Statistics section lists miscellaneous information regarding the EXH file.

```
=====
EXH FILE STATISTICS
=====

EXH FILE NAME          PA.EXH
EXH FILE USAGE        127/1800 (7%)
REQUEST QUEUE        ALLOC=2048  CURR=1  HWM=1  TOTAL=13
TRACES              RM311:          RM312:          IO:
CPU ID/MVS LEVEL    000139FA 20660000  HBB7703
EXH RECORD SIZE     3072
SPACE USED          3072
MAX RECORD SIZE     1044472
```

ESP Encore condition codes

Listed below are the various condition codes produced from the ESP Encore step.

Code	Description
0	No errors were detected.

A completion code greater than zero but less than 100 from the ESP Encore step means ESP Encore cannot continue to process the job. The job fails in the ESP Encore step, and the remaining steps within the job flush.

Code	Description
4	PARAMETER ERRORS. There is an error in an operand of an ENCPARM command that was issued.
8	ERROR BUILDING EXH RECORD.
12	CANNOT RESTART JOB BECAUSE SOME DATA SET NEEDS TO BE RECREATED. See the job log for details.
16	INVALID RESTART STEP(S) WERE SPECIFIED.
20	ERROR PERFORMING SOME DATA SET ACTION. See the job log for details.
24	SWA ERRORS.
28	CATALOG OR VTOC ERRORS.
32	ESP ENCORE IS NOT AVAILABLE.
36	UNSUPPORTED FEATURE ATTEMPTED.
40	JCL MISMATCH DURING RESTART.
44	JOB NOT FOUND IN EXH.
48	ESP ENCORE MODULE IS NOT AUTHORIZED.
52	ESP ENCORE IS NOT AVAILABLE. NO SSCT.
56	ESP ENCORE IS NOT AVAILABLE. NO XSSV.
60	ESP ENCORE IS NOT AVAILABLE. BAD XSSV.
64	A GDG GENERATION WAS NOT AVAILABLE TO THE JOB.
68	MORE THAN ONE EXH FILE RECORD MATCHES THE SPECIFIED JOB NAME AND JOB ID.

A completion code greater than 100 from the ESP Encore step means ESP Encore has detected an error. The job fails in the ESP Encore step and the remaining steps are flushed.

Code	Description
124	This data set is not cataloged and cannot be uncataloged.
126	This data set is already cataloged.
127	This data set cannot be deleted. Some possible reasons are that it does not exist, or it is protected.
128	This data set already exists on the volume.
129	This data set has not yet expired, and cannot be deleted.
134	This GDG group has not yet been defined in the catalog.
135	The program named in the PGM parameter cannot be found.
137	The SPACE parameter is required when creating a DASD data set.
139	The LRECL value is inconsistent with BLKSIZE and RECFM.
140	Your security system will not allow this data set to be opened.
141	RACF will not allow this data set to be opened.
143	This generation of the GDG does not exist.
145	The UNIT parameter is required when VOLUME is present.
146	This data set name cannot be found in the catalog, or the catalog entry is damaged and the file is unusable.
147	This data set name cannot be found in the VTOC.
148	Encore cannot determine the generation to which this report line would have referred.
149	This GDG base is empty.
150	The job cannot be restarted in a step with RD=NR.
151	The optimal restart step of this job has RD=NR specified. The job cannot be restarted in a step with RD=NR.
152	DISP=OLD/SHR was specified on a temporary data set.
153	When RECFM=U LRECL must not be larger than BLKSIZE.
154	When RECFM=VB, LRECL must be less than BLKSIZE minus 4.
155	When RECFM=V, LRECL must be less than BLKSIZE minus 4.
156	When RECFM=FB, BLKSIZE must be a multiple of LRECL.
157	When RECFM=F, LRECL must equal BLKSIZE.
158	A data set was not cleaned up. A data set with the same name is cataloged and the data set resides on a volume excluded because of a VOLUME statement.
159	A DASD data set was not cleaned up. A data set with the same name exists on the target volume and the volume is excluded because of a VOLUME statement.
160	The status of this data set could not be determined because of a severe error. Please check all job output.



Glossary

Abender program	A program written to abend on behalf of other programs.
APF-authorized	Gives a program the authority to execute z/OS commands without a security check.
Backout	The act of deleting all data sets previously created by a job.
Cleanup	The act of deleting data sets prior to a job being run or restarted.
COPYJCL	The library to which complete sets of JCL are written when all lines in the JCL have been properly resolved.
CSF	An abbreviation for the Consolidated Status Facility in ESP Workload Manager. This facility allows the user to selectively display the status of jobs by application name, job name, job status, and so on. The user can then issue commands from the Consolidated Status Facility to restart jobs, edit JCL, and so on.
DBMS	Data Base Management System – a generic name for all database managers such as ISM, DB2, ORACLE, ADABAS and others.
ESP Application	A group of related jobs defined to ESP, enabling ESP Workload Manager to control dependencies at the submit level.
ESP Event	A unit of work that executes to create an ESP application, or submit a job.

ESP Procedure	A set of stored instructions for ESP Workload Manager. These instructions may describe an Application.
CYBRMENC	The name of the ESP Encore cataloged procedure which executes as the first step of every job.
EXH data set	A set of records stored and processed as a unit by ESP Encore to maintain information describing the execution of the batch jobs that are being tracked. EXH is an abbreviation for Execution History.
EXH record	A collection of related information about a batch job stored on the Execution History file.
GDG	Generation data group. GDGs are used to cause several copies of a data set to be retained on DASD or tape.
Initial run	The first time a job is being submitted for execution.
Rerun	To re-execute a job as an initial job.
Restart	To re-initiate a run of a job using information from the previous execution.
SMF	System Management Facility. The facility that creates records for each activity performed on the system, for example, data set accesses, batch job runs, and so on.
SWA	Scheduler Work Area. A system storage area that contains information about jobs and job steps.
VTOC	Volume Table of Content. A VTOC resides on the system and master catalog, and holds information pertinent to all cataloged data sets, such as type, resident volume, expiry date, blocking factor.



Index

A

- abend program steps, preventing jobs from restarting on, 17
- abender program, 59
- ABENDER, ENCPARM, 17, 59
- about
 - the Auxiliary Address Space, 51
 - the EXH data set, 51
- ACF2
 - SAFPROT record for, 67
 - security, 67
 - V5.2 or earlier, using ESP Encore with, 41
- activation of ESP Encore, ensuring, 35
- address space
 - Auxiliary, 50
 - ESP Workload Manager, 50
 - that executes the program being restarted, 50
- allocating an EXH data set, 35
- Application scope of commands, 55
- archived or migrated data sets, specifying the storage volume for, 21
- AUTOREST, ENCPARM, 6, 20, 22, 80
- AUX_AS, 35, 52
- Auxiliary Address Space, 50, 51

- about the, 51
- controlling the, 35, 52
- parameters, ESP Encore, reporting and modifying, 39

B

- backing out
 - a job
 - that is no longer in the SCHDFILE, 31
 - data sets moved to a different volume, 18
 - data sets on volumes excluded by ENCPARM VOLUME, 19
 - only GDG data set generations created by a job, 19
- backing out a job, 26
 - by submitting JCL, 31
- backout
 - and restart, producing reports for, 23
 - choosing job steps to, 27
 - controlling the steps that are run, 16
 - job run, 47
 - recreating data sets deleted in a job prior to, 27
 - simulating, 7, 26
- BACKOUT, ENCPARM, 18, 19, 33

batch job address space, 50

C

CA-ACF2 security, 67

CA-Top Secret security, 67

CCCHK, 15, 58

CCFAIL, 15, 17, 59

 statement and ESP Encore, 66

 statement, specifying the restart step using
 the, 17

changing JCL before restarting a job, 7, 48, 59

choosing job steps

 to backout, 27

 to include and exclude for a restart, 8

 to include in the restart, 11

CLASS=DATA SET, 41

cleanup of data sets, 62

CLEANUP, ENCPARM, 19, 48, 79

command

 AUX_AS, 35, 52

 CCCHK, 15

 CCFAIL, 15, 17

 ENCLOG, 39

 ENCPARM, 6, 36

 ABENDER, 17, 59

 AUTOREST, 6, 20, 22, 80

 BACKOUT, 18, 19, 33

 CLEANUP, 19, 48, 79

 COMMENT, 25

 CONDCODE, 16

 DELETE, 36

 DIAG, 39, 91

 EXCLUDE, 16

 FORCE, 18, 79

 FROMSTEP, 15, 32

 GDGADJ, 21

 HONORCC, 17, 80

 IGNOREDS, 19, 22, 23, 48

 JOBID, 15, 32, 37

 JOBNAME, 32, 37

 MODE, 14, 20, 32, 48, 79

 MODIFY, 35

 PREDICT, 22, 67

 PREVTIME, 7

 PRINT, 39, 91

 PURGE, 37

 QUIESCE, 38, 52

 RESTART, 38

STATUS, 40

SUBSYS, 14, 32, 37

TAPESCR, 22

TOSTEP, 15, 32

TRACE, 41

TYPE, 14, 15, 32, 37, 79

VOLUME, 20, 21

WARNING, 23

R, 8, 10, 12, 27, 28

RF, 9, 28

RR, 9, 11, 12, 28, 30

RSVLOGIC, 38

RT, 9, 28

RX, 8, 16, 27

scope, 53

 Application, 55

 job, 56

 Sub-Application, 55

STOP, 52

SUB, 13, 31

X, 10, 29

XX, 10, 11, 29, 30

z/OS modify, 53, 54

z/OS, FORCE, 52

commands

 ENCPARM, 14, 52, 57, 79, 86

 ENCPARM, customizing the job restart with, 13
 entered

 as initialization parameters, 54

 in page mode, 54

 in Procedures, 54

 in the ESP Encore step, 57

 ESP Encore, 52, 57

 from ESP Encore screens, 56

 summary of ESP Encore, 81

 using to customize ESP Encore restart
 suggestions, 49

 where to use ESP Encore, 82

COMMENT, ENCPARM, 25

components of ESP Encore, 45

CONDCODE, ENCPARM, 16

condition codes

 ESP Encore, 102

 ignoring from the previous run during a
 restart, 17

 that the ESP Encore job step produces,
 specifying, 16

confirming ESP Encore is activated, 35

- considerations
 - database, 64
 - for restarting a job, 58
 - contention, 38
 - continuing to run a job that has errors predicted, 18
 - control point, CYBRM000, 41
 - controlling
 - data set processing, 18
 - error predictions and warnings, 22
 - the automatic restoration of missing or invalid data sets, 20
 - the Auxiliary Address Space, 35, 52
 - the deletion and uncataloging of data sets, 19
 - the errors that ESP Encore predicts, 22
 - the internal processing of ESP Encore, 35
 - the steps that are run in a restart or backout, 16
 - copying jobs from one EXH data set to another, 36
 - CSF
 - Enc column, 5
 - indication that a job is tracked by ESP Encore, 5
 - restarting a job from, 7, 27
 - selecting a job to restart in, 8
 - viewing job run history outside of, 26
 - customizing
 - restart suggestions, 49
 - the job restart with ENCPARM commands, 13
 - customizing ESP Encore restart suggestions with commands, 49
 - CYBRM000 control point, 41
 - CYBRMALC utility, 35, 37, 51
 - CYBRMANA utility, 40
 - CYBRMCPY utility, 36
 - CYBRMDMP utility, 25, 37
 - CYBRMDSS utility, 25
 - CYBRMEXJ utility, 25
 - CYBRMKEP utility, 37
 - CYBRMLST utility, 40
 - CYBRMPRG utility, 38, 51
 - CYBRMQRY utility, 40
 - CYBRMSAN utility, 38, 40
 - CYBRMSTA utility, 39
 - CYBRMTHR utility, 40
- D**
- data flow for a job tracked by ESP Encore, 50
 - data set
 - execution history *See* EXH data set
 - EXH *See* EXH data set
 - processing, controlling, 18
 - summary report, 25
 - tape, requesting a scratch of from a Tape management System, 22
 - Data Set Detail screen, 74
 - DATA SET NOT FOUND errors, 20, 61
 - Data Set Summary report, ESP Encore, 25
 - Data Set Summary screen, 74
 - data sets
 - cleanup of, 62
 - controlling deletion and uncataloging of dynamically allocated, 19
 - controlling the automatic restoration of missing or invalid, 20
 - controlling the deletion and uncataloging of, 19
 - created by a job run outside ESP Workload Manager, deleting, 20
 - created outside of the job tracked by ESP Encore, 63
 - deleted in a job prior to backout, recreating, 27
 - deleted in a job prior to restart, recreating, 6
 - GDG generations created by a job, backing out only, 19
 - missing, 65
 - moved to a different volume, backing out, 18
 - on volumes excluded by ENCPARM VOLUME, backing out, 19
 - preventing deletion of on specified volumes, 20
 - reporting jobs and steps that use, 25
 - specified, disabling error prediction for, 23
 - specifying the storage volume for migrated or archived, 21
 - with DISP=MOD, 65
 - database
 - considerations, 64
 - related files
 - preventing rollback during restart, 21
 - warning against automatically restoring, 21
 - default restart settings, overriding, 6
 - DELETE, ENCPARM, 36
 - deleting
 - and uncataloging of data sets, controlling, 19
 - data sets created by a job run outside ESP Workload Manager, 20
 - details about ESP Encore, finding, 5
 - details of the ESP Encore system, 50
 - DIAG, ENCPARM, 39, 91

- diagnostic
 - information, reporting, 39
 - sections of the ESP Encore job run report, 91
- disabling error prediction for specified data sets, 23
- DISP=MOD, 23, 26, 33
- DISP=MOD, data sets with, 65
- displaying
 - details on job run history and restart analysis requests, 39
 - extra warning messages to support manual restart tasks, 65
 - warnings for manual adjustments before restart, 23, 65
- dumping EXH data set records, 36
- duplicate job names and job numbers, selecting a job for restart from, 7
- DUPLICATE NAME ON DASD errors, 19
- dynamically allocated data sets, controlling deletion and uncataloging of, 19

E

- Enc column in CSF, 5
- ENCLOG, 39
- ENCPARM commands, 14, 52, 57, 79, 86
 - customizing the job restart with, 13
 - issued and numbers assigned, reporting the, 36
 - undoing, 36
- ENCPARM *See* command, ENCPARM
- ensuring ESP Encore is activated, 35
- ERMSTEP, 35
- error predictions, 61
 - and warnings, controlling, 22
 - controlling, 22
 - disabling for specified data sets, 23
- errors
 - DATA SET NOT FOUND, 20, 61
 - DUPLICATE NAME ON DASD, 19
 - NOT CATLGD2, 19, 61
 - predicted, continuing to run a job that has, 18
 - reporting EXH data set, 40
 - security, 62
- ESP Encore
 - and the CCFAIL statement, 66
 - Auxiliary Address Space parameters, reporting and modifying, 39
 - command summary, 81
 - commands, 52, 57
 - commands, where to use, 82
 - components, 45
 - condition codes, 102
 - confirming in CSF that a job is tracked by, 5
 - confirming the activation of, 35
 - controlling the internal processing of, 35
 - details of the system, 50
 - finding information about, 5
 - how a job is processed by, 47
 - how the restart step is chosen, 58
 - ISPF screens, 57
 - ISPF screens, commands from, 56
 - job restart information, viewing, 13
 - maintaining and troubleshooting, 35
 - overview, 44
 - quiescing, 38
 - reporting the internal status of, 40
 - reports, 58
 - Data Set Summary, 25
 - job run report *See* job run report, ESP Encore
 - resource serialization, matching with GRS
 - settings, 38
 - restarting, 38
 - screens, ISPF, 70
 - security, 67
 - step, 45, 56
 - commands entered in the, 57
 - specifying the condition codes produced, 16
 - SYSIN DD statement of the, 14, 31, 44, 46, 57
 - tracing modules, 41
 - using with ACF2 V5.2 or earlier, 41
 - utilities summary, 84
- ESP Workload Manager address space, 50
- EXCLUDE, ENCPARM, 16
- EXECUTE access, security, 67
- execution history data set *See* EXH data set
- EXH data set, 47, 50, 51
 - about the, 51
 - allocating, 35
 - copying jobs from one to another, 36
 - dumping records, 36
 - management of the number of records on the, 51
 - purging jobs from the, 37, 51
 - record, absolute GDG generation number stored on, 21
 - removing lost slots from the, 38
 - reporting errors in the, 40

- reporting the distribution of index records in
 - an, 40
 - reporting the jobs in the, 40
 - retention parameters for jobs on the, 37, 51
 - specifying utilization thresholds, 40
- external jobs, deleting data sets created by, 20

F

- first run of a job, 47
- flow of data for a job tracked by ESP Encore, 50
- FORCE z/OS command, 52
- FORCE, ENCPARM, 18, 79
- from, 9, 12
- FROMSTEP, ENCPARM, 15, 32

G

- GDGADJ, ENCPARM, 21
- GDGs
 - missing generations, 65
 - relative and absolute generations from the JCL,
 - using for a restart, 21
- getting started, 4
- GRS settings, matching with ESP Encore resource
 - serialization, 38

H

- history, job run
 - displaying details on, 39
 - viewing outside of CSF, 26
- HONORCC, ENCPARM, 17, 80
- how ESP Encore chooses the restart step, 58
- how ESP Encore processes a job, 47

I

- IDCAMS, 22
- IF/THEN/ELSEIF statements, 16
- IGNOREDS, ENCPARM, 19, 22, 23, 48
- index records, reporting the distribution of in an
 - EXH data set, 40
- information
 - about ESP Encore, finding, 5
 - diagnostic, reporting, 39
 - on steps and data sets in a job, viewing, 8
 - reporting from a job run, 23
- initial job run, 47
- initialization parameter

- ERMSTEP, 35
- initialization parameters
 - commands entered as, 54
- internal
 - processing of ESP Encore, controlling, 35
 - status of ESP Encore, reporting, 40
- IPL, 50, 51, 52
- ISPF screen, Rerun jobs in an Application, 34
- ISPF screens, ESP Encore, 57, 70
 - Data Set Detail, 74
 - Data Set Summary, 74
 - ESP Encore commands from, 56
 - Job List, 72
 - Job List Options, 71
 - Restart Action Summary, 10, 13, 76
 - Restart Data Set Detail, 78
 - Restart Data Set Summary, 77
 - Restart Step Detail, 77
 - Restart Step Summary, 77
 - Resubmit an Object, 13, 78
 - Resubmit Request Encore
 - Statements, 14, 56, 79, 87
 - Step Detail, 73
 - Step Summary, 8, 72

J

- JCL
 - changing before restarting a job, 7, 48, 59
 - DISP=MOD, 23, 26, 33
 - submitting to back out a job, 31
 - submitting to restart a job, 14
- JES spool, 38
- job
 - backing out a, 26
 - batch, address space, 50
 - how ESP Encore processes a, 47
 - initial run, 47
 - making restartable, 5
 - restart considerations, 58
 - restart, submitting, 14
 - restarting the most recent run of, 15
 - run
 - reporting information from a, 23
 - restart and backout, 47
 - run history
 - and the EXH data set, 51
 - displaying details on, 39
 - viewing outside of CSF, 26

- scope of commands, 56
- selecting to restart in CSF, 8
- steps
 - to backout, choosing, 27
 - to include and exclude for a restart, choosing, 8
 - to include in the restart, choosing, 11
- submitting JCL to backout a, 31
- that is no longer in the SCHEDFILE
 - backing out, 31
 - restarting, 14
- tracked by ESP Encore, data sets created outside of the, 63
- Job List Options screen, 71
- Job List screen, 72
- job run report, ESP Encore, 85
 - Action Summary section, 90
 - Catalog section, 92
 - diagnostic sections, 91
 - Dump of Action Table section, 95
 - Errors section, 94
 - EXH File Statistics section, 101
 - History of Previous Job section, 97
 - Initialization Parameters section, 87
 - Introductory section, 86
 - Job Restart Summary section, 88
 - Job Summary section, 89
 - main sections, 86
 - Multivolume Data Sets section, 92
 - Parameter Summary section, 86
 - Severe Error section, 90
 - SIOT/JFCB section, 91
 - SMF Records section, 96
 - Subsystem Information section, 87
 - Unit Names section, 93
 - VTOC section, 93
- JOBID, ENCPARM, 15, 32, 37
- JOBLIB JCL statements, changing before a restart, 59
- JOBNAME, ENCPARM, 32, 37
- jobs
 - copying from one EXH data set to another, 36
 - in the EXH data set, reporting the, 40
 - on the EXH data set, retention parameters for, 37, 51
 - purging from the EXH data set, 37, 51
 - rerunning, multiple, 34
 - that use data sets, reporting, 25

K

keeping *See* preventing

L

- limits to JCL changes before restarting a job, 7, 48, 59
- logical statements, using to specify steps to rerun, 16
- lost slots, removing from the EXH data set, 38

M

- main sections of the ESP Encore job run report, 86
- maintaining and troubleshooting ESP Encore, 35
- making a job restartable, 5
- management of the number of records on the EXH data set, 51
- manual adjustments, before restarts, displaying warnings for, 23, 65
- manual restart tasks, displaying extra warning messages to support, 65
- matching ESP Encore resource serialization and GRS settings, 38
- messages, 65
- migrated or archived data sets, specifying the storage volume for, 21
- missing
 - data sets, 65
 - GDG generations, 65
- MODE, ENCPARM, 14, 20, 32, 48, 79
- MODIFY, ENCPARM, 35
- modifying and reporting ESP Encore Auxiliary Address Space parameters, 39
- modules, ESP Encore, tracing, 41
- multiple jobs, rerunning, 34

N

- navigating through ESP Encore ISPF screens, 70
- NOT CATLGD2 errors, 19, 61
- number of records on the EXH data set, management of the, 51

O

- OPTIONS, 5
- overriding the default settings for restart, 6
- overview of ESP Encore, 44

P

page mode, commands entered in, 54
 panels, ESP Encore *See* ESP Encore ISPF screens
 PREDICT, ENCPARM, 22, 67
 predictions

- controlling ESP Encore error, 22
- error, 61
- error and warning, controlling, 22

 preparing to restart a job, 6
 preventing

- a job step from running during a restart, 16
- deletion of data sets on specified volumes, 20
- jobs from restarting on abend program steps, 17
- rollback of database-related files during restart, 21

 previous run, ignoring condition codes from during a restart, 17
 PREVTIME, ENCPARM, 7
 PRINT, ENCPARM, 39, 91
 Procedures, commands entered in, 54
 producing reports for restart and backout, 23
 PURGE, ENCPARM, 37
 purging jobs from the EXH data set, 37, 51

Q

QUIESCE, ENCPARM, 38, 52
 quiescing ESP Encore, 38

R

R command, 8, 10, 12, 27, 28
 RACF security, 67
 RD=NR z/OS parameter, 16
 records, dumping EXH data set, 36
 recreating data sets deleted in a job prior to backout, 27
 recreating data sets deleted in a job prior to restart, 6
 relative and absolute GDG generations from the JCL, using for a restart, 21
 removing lost slots from the EXH data set, 38
 reporting

- and modifying ESP Encore Auxiliary Address Space parameters, 39
- diagnostic information, 39
- errors in the EXH data set, 40
- information from a job run, 23
- jobs and steps that use data sets, 25

the distribution of index records in an EXH data set, 40
 the ENCPARM commands issued and the assigned command numbers, 36
 the internal status of ESP Encore, 40
 the jobs in the EXH data set, 40
 reports

- ESP Encore, 58
 - Data Set Summary, 25
 - job run *See* job run report, ESP Encore
- producing restart
 - and backout, 23

 requesting a tape scratch from a Tape Management System, 22
 rerun

- using logical statements to specify steps to, 16

 rerunning multiple jobs, 34
 resource serialization for ESP Encore, matching with GRS settings, 38
 restart

- a range of steps, 9, 12
- a single step, 8, 12
- analysis requests, displaying details on, 39
- and backout, producing reports for, 23
- and run to a step, 9
- choosing job steps to include and exclude for a, 8
- choosing job steps to include in the, 11
- controlling the steps that are run, 16
- default settings, overriding, 6
- exclude a range of steps, 10
- exclude a single step, 10
- from a step and run to the end of the job, 9, 12
- ignoring condition codes from the previous run
 - during a, 17
- information, viewing ESP Encore job, 13
- job run, 47
- job, considerations, 58
- job, customizing with ENCPARM
 - commands, 13
- job, submitting, 14
- keeping a job step from running during a, 16
- recreating data sets deleted in a job prior to, 6
- run, 49
- simulating, 7, 26
- suggestions, customizing, 49
- suggestions, understanding ESP Encore, 49

 Restart Action Summary screen, 10, 13, 76
 Restart Data Set Detail screen, 78

- Restart Data Set Summary screen, 77
- restart step
 - how ESP Encore chooses the, 58
 - specifying using the CCFAIL statement, 17
- Restart Step Detail screen, 77
- Restart Step Summary screen, 77
- RESTART, ENCPARM, 38
- restartable, making a job, 5
- restarting
 - a job, 7
 - by submitting JCL, 14
 - changing JCL before, 7, 48, 59
 - from a step other than an abend program step, 17
 - from CSF, 7, 27
 - that is no longer in the SCHDFILE, 14
 - ESP Encore, 38
 - the most recent run of a job, 15
- Resubmit an Object screen, 13, 78
- Resubmit Request Encore Statements screen, 14, 56, 79, 87
- retention parameters for jobs on the EXH data set, 37, 51
- RF command, 9, 28
- rollback, preventing for database-related files during restart, 21
- RR command, 9, 11, 12, 28, 30
- RSVLOGIC, 38
- RT command, 9, 28
- running a job for the first time, 47
- RX command, 8, 16, 27

S

- SAFPROT record, 41
- SAFPROT record for ACF2, 67
- SCHDFILE, backing out a job that is no longer in the, 31
- SCHDFILE, restarting a job that is no longer in the, 14
- scope, 56
- scope of commands, 53, 55, 56
- scratch, tape, requesting from a Tape Management System, 22
- screens, ESP Encore ISPF *See* ISPF screens, ESP Encore
- security, 67
 - CA-ACF2, 67
 - CA-Top Secret, 67
- errors, 62
- EXECUTE access, 67
- RACF, 67
- selecting
 - a job for restart from duplicate jobnames and job numbers, 7
 - a job to restart in CSF, 8
- serialization, 38
- serialization, resource, ESP Encore, matching with GRS settings, 38
- simulating a restart or backout, 7, 26
- slots, lost, removing from the EXH data set, 38
- SMF, 47, 49, 50, 51
- specifying
 - EXH data set utilization thresholds, 40
 - steps to rerun by using logical statements, 16
 - the condition codes that the ESP Encore job step produces, 16
 - the restart step using the CCFAIL statement, 17
 - the storage volume for migrated or archived data sets, 21
- spool, JES, 38
- statement
 - CCCHK, 58
 - CCFAIL, 59
 - CCFAIL, and ESP Encore, 66
 - OPTIONS, 5
- statements
 - IF/THEN/ELSEIF, 16
 - JCL, JOBLIB, changing before a restart, 59
 - JCL, STEPLIB, changing before a restart, 59
- STATUS, ENCPARM, 40
- status, internal, reporting of ESP Encore, 40
- Step Detail screen, 73
- Step Summary screen, 8, 72
- STEPLIB JCL statements, changing before a restart, 59
- steps, that use data sets, reporting, 25
- STOP, 52
- SUB command, 13, 31
- Sub-Application scope of commands, 55
- submitting the job restart, 14
- SUBSYS, ENCPARM, 14, 32, 37
- summary of
 - ESP Encore commands, 81
 - ESP Encore utilities, 84
 - where to use ESP Encore commands, 82

SYSIN DD statement of the ESP Encore
 step, 14, 31, 44, 46, 57
 system details of ESP Encore, 50
 System Management Facility *See* SMF

T

Tape Management System, requesting a tape scratch
 from, 22
 tape scratch, requesting from a Tape Management
 System, 22
 TAPESCR, ENCPARM, 22
 thresholds, utilization, specifying for the EXH data
 set, 40
 TMS, requesting a tape scratch from, 22
 Top Secret security, 67
 TOSTEP, ENCPARM, 15, 32
 TRACE, ENCPARM, 41
 tracing ESP Encore modules, 41
 troubleshooting and maintaining ESP Encore, 35
 TYPE, ENCPARM, 14, 15, 32, 37, 79

U

uncataloging and deletion of data sets, controlling, 19
 understanding ESP Encore restart suggestions, 49
 undoing an ENCPARM command, 36
 utilities, summary of ESP Encore, 84
 utility
 CYBRMALC, 35, 37, 51
 CYBRMANA, 40
 CYBRMCPY, 36
 CYBRMDMP, 25, 37
 CYBRMDSS, 25
 CYBRMEXJ, 25
 CYBRMKEP, 37
 CYBRMLST, 40
 CYBRMPRG, 38, 51

CYBRMQRY, 40
 CYBRMSAN, 38, 40
 CYBRMSTA, 39
 CYBRMTHR, 40

utilization thresholds, specifying for the EXH data
 set, 40

V

viewing
 ESP Encore job restart information, 13
 information on steps and data sets in a job, 8
 job run history outside of CSF, 26
 VOLUME, ENCPARM, 20, 21
 volume, storage, specifying for migrated or archived
 data sets, 21
 volumes, preventing deletion of data sets on
 specified, 20

W

warning messages, extra, displaying to support
 manual restart tasks, 65
 WARNING, ENCPARM, 23
 warnings
 and error predictions, controlling, 22
 displaying for manual adjustments before
 restart, 23, 65

X

X command, 10, 29
 XX command, 10, 11, 29, 30

Z

z/OS modify command, 53, 54

