

## Advanced MVS JCL and Utilities

### Course Summary

#### Description

This course is designed to help intermediate to advanced system programmers, operators, and application programmers use and code JCL procedures effectively, including analyzing condition codes and system error messages that provide clues to the cause of JCL and utility control statement errors. Effective procedure coding techniques are stressed, such as use of symbolic parameters, DDNAME operands, and other coding techniques to streamline the required JCL. Use of MVS and vendor utility programs are used to demonstrate advanced program, library, and system management techniques. This course includes lecture components and hands-on labs to give each student the opportunity to understand and use JCL language for production processing.

#### Objectives

At the completion of this course, the student will be able to:

- Write and debug efficient JCL streams, which execute programs and invoke procedures.
- Apply overrides to existing procedures.
- Design, code, and debug cataloged procedures to execute applications and utilities.
- Diagnose and correct JCL errors and restart the affected jobs.
- Use the IDCAMS utility to define and manage VSAM data sets.
- Navigate the MVS documentation to locate details for running MVS utility programs
- Know which IBM and third party utilities to use to accomplish developer and MVS maintenance tasks.

#### Topics

- Job Control Language Essentials Review
- The IEBCOPY Utility
- The Sort Utility
- Using and Writing Procedures
- Advanced Printing Techniques
- The IDCAMS Utility
- Tape Processing
- Miscellaneous Topics

#### Prerequisites

Students must be familiar with basic JCL coding, as well as use of ISPF edit and an output retrieval program such as SDSF.

#### Duration

Two days

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### Course Outline

#### I. Job Control Language Essentials Review

- A. JCL Overview and Syntax Review
- B. JCL Overview
- C. JCL Statement Types
- D. JCL Statement Categories
- E. JCL Syntax
- F. JES JCL Statements
- G. JOB Statement Review
- H. JOB Statement: Jobname
- I. JOB Statement: Accounting Info
- J. JOB Statement: Programmer-Name
- K. JOB Statement: Apostrophe Rules
- L. JOB Statement: Keyword Parameters
- M. JOB Statement: CLASS Keyword
- N. JOB Statement: MSGCLASS Keyword
- O. JOB Statement: MSGLEVEL Keyword
- P. JOB Statement: NOTIFY Keyword
- Q. JOB Statement: TYPRUN Keyword
- R. JOB Statement: RESTART Keyword
- S. JOB Statement: Other Keywords
- T. MVS Utilities: IEFBR14
- U. JCL Review 01
- V. Lab: Create a JOB JCL Statement
- W. EXEC Statement
- X. Big Picture: Compile & Link Process
- Y. EXEC Statement: Keyword Parameters
- Z. EXEC Statement: PGM Keyword
- AA. EXEC Statement: PROC Keyword
- BB. EXEC Statement: COND Keyword
- CC. EXEC Statement: PARM Keyword
- DD. Using PARM in a COBOL Program
- EE. EXEC Statement: REGION Keyword
- FF. EXEC Statement: TIME Keyword
- GG. More EXEC Keyword Parameters
- HH. JCL Review: EXEC Statement
- II. Lab: JCL EXEC
- JJ. DD Statement
- KK. DD Statement: DDNAME
- LL. Referring to the DDNAME in COBOL
- MM. DD Statement: \*
- NN. DD Statement: DATA
- OO. DD Statement: DUMMY
- PP. DD Statement: Keyword Parameters
- QQ. DD Statement: SYSOUT=
- RR. DD Statement: DSN=
- SS. DD Statement: DISP=
- TT. DD Statement: UNIT=

- UU. DD Statement: VOL= & VOL=SER=
- VV. DD Statement: DCB=
- WW. DD Statement: SPACE=
- XX. DD Statement: AVGREC=
- YY. DD Statement: LIKE=
- ZZ. DD Statement Review
- AAA. MVS Utilities: IEBGENER
- BBB. LAB: In-stream & SYSOUT data
- CCC. LABDD2: Reading from DASD
- DDD. LABDD3: Writing to DASD
- EEE. Data Set Concatenation
- FFF. Special DD Names
- GGG. JOBLIB Statement
- HHH. STEPLIB DD Statement
- III. DD Statement: Backward Reference
- JJJ. IF / THEN / ELSE / ENDIF
- KKK. Lab: JCL IF

#### II. The IEBCOPY Utility

- A. IEBCOPY Documentation
- B. IEBCOPY JCL
- C. IEBCOPY Parameters
- D. IEBCOPY Statement Types
- E. COPY Control Statement
- F. IEBCOPY Operation Types
- G. SELECT Control Statement
- H. EXCLUDE Control Statement
- I. IEBCOPY Return Codes
- J. IEBCOPY Examples
- K. IEBCOPY Lab LABCOPY1
- L. IEBCOPY Lab LABCOMP1

#### III. The Sort Utility

- A. SORT Overview
- B. Example Sort JCL
- C. SORT DD Statements
- D. SORT control statements
- E. SORT Operands
- F. SORT: Lab

#### **IV. Using and Writing Procedures**

- A. JCLLIB Statement
- B. INCLUDE Statement
- C. INCLUDE Statement: Lab
- D. Procedures
- E. Procedures: Symbolic Parameters
- F. Procedures: Statement Overrides
- G. Procedures: Order of Overrides
- H. Procedures: Adding In-stream data
- I. Procedures: Symbolics Example
- J. LABPRCxx: Create a Procedure
- K. LABPRC1: Use a Procedure
- L. LABPRC2: An In-stream Procedure
- M. SET Statement
- N. SET Statement: Example
- O. SET Statement: Lab

#### **V. Advanced Printing Techniques**

- A. OUTPUT Statement
- B. OUTPUT Statement: Example
- C. OUTPUT Statement: Lab

#### **VI. The IDCAMS Utility**

- A. IDCAMS Utility Program Overview
- B. IDCAMS Documentation
- C. IDCAMS Functional Commands
- D. IDCAMS Cmd Language Syntax
- E. IDCAMS Syntax Example
- F. DEFINE Command Overview
- G. VSAM Terminology Review
- H. VSAM KSDS Datasets
- I. Define Cluster command
- J. Selected Define Cluster Parameters
- K. Define Alternateindex command
- L. Define AlternatelIndex Parameters
- M. Define AlternatelIndex Example
- N. Define Path Command
- O. Build Index Command
- P. Complete BldIndex Example
- Q. Delete Command
- R. Delete Examples
- S. Repro Command
- T. Print Command
- U. Listcat Command
- V. Modal Commands

- W. IDCAMS Lab LABVSAM1
- X. Optional IDCAMS Lab LABVSAM2
- Y. Generation Data Sets
- Z. DD Statement: Generation Data Sets
- AA. Example: Generation Data Sets
- BB. Lab: Generation Data Sets
- CC. System Programmer Tasks w/ IDCAMS
- DD. Alter ManagementClass Example
- EE. Define Alias Example
- FF. Define User Catalog Example
- GG. Define Page Dataset Example
- HH. Backup the IODF Example

#### **VII. Tape Processing**

- A. Tape Fundamentals
- B. DD Statement Review
- C. DD Statement Review: UNIT=
- D. DD Statement: UNIT= Examples
- E. DD Statement: VOL= & VOL=SER=
- F. DD Statement: VOL= Examples
- G. Minimizing Tape Units in a Job Step
- H. Tape Management Subsystems
- I. TMS (CA-1) Overview
- J. TMS JCL Considerations
- K. TMS Expiration Dates
- L. TMS JCL Examples
- M. IEBCOPY Lab LABTAPE1
- N. IEBCOPY Lab LABTAPE2
- O. Tape Mapping Utility Overview
- P. Using the IBM Ditto Utility
- Q. Mapping a Tape Using Ditto
- R. Copying a Tape Using Ditto
- S. Initializing Tape Volumes

#### **VIII. Miscellaneous Topics**

- A. Issue UNIX cmds from BATCH JCL
- B. BPXBATCH DDNAME Usage
- C. BPXBATCH Examples
- D. BPXBATCH Alternatives
- E. Pro's and Con's of USS access via Batch
- F. File System Maintenance - Backup
- G. File System Maintenance - Restore
- H. Running REXX from Batch
- I. Submitting JCL From REXX