

Unlocking the Power of JCL

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Salon 18

What is JCL?

Job Control Language (JCL) is the name for an IBM scripting language, consisting of a set of control statements used to instruct the z/OS® operating system on how to run JOBS (batch) or PROCS (procedures).

These JOBS or PROCS, once submitted, are managed through the **JECL (Job Entry Control Language)** to ensure these jobs are spooled through **JES2** to execute successfully

```
File Edit Edit_Settings Menu Utilities Compilers Test Help
EDIT      JCLEXPT.V1R1.DEMOJCL(JCLXDEM4) - 01.02      Columns 00001 00072
Command ==>                                       Scroll ==> PAGE
***** ***** Top of Data *****
==MSG> -Warning- The UNDO command is not available until you change
==MSG>          your edit profile using the command RECOVERY ON.
000001 //DEMOJCL JOB NOTIFY=&SYSUID,ADDRSPC=VIRP,BADPARM=A
000002 //LIB JCLLIB ORDER=JCLEXPT.V1R1.PROC
000003 /*
000004 /* SET INLINE SYMBOLS
000005 //SETSYM1 SET EXAMPLE1=DDALTER.DEMO.SYMBOL1
000006 //SETSYM2 SET EXAMPLE2=DOES.NOT.EXIST
000007 /*
000008 /* DEFINE INSTREAM PROC
000009 //INLINE PROC PSYM1=,PSYM2=
000010 /*
000011 //PSTEP1 EXEC PGM=BADMOD
000012 //INCCDS INCLUDE MEMBER=INC
000013 //INLINE PEND
000014 /*
000015 /* CREATE AND TRACK VALID DATA SETS USED IN PROCS
000016 //STEP1 EXEC PGM=IEFBR14
F1=Help      F3=Exit      F4=Return      F5=Rfind      F6=Rchange      F12=CRetrie
M B 04/015
```

Why JCL is Powerful Today

JCL is still critical and powerful because it drives the system that runs the world's most critical workloads

- Powers 70% of Fortune 500 companies
- Handles 90% of all credit card transactions
- Processes 30 billion transactions every day
- Sustains on average 340k transactions per second
- Stores ~ 80% of the world's mission-critical business data



JCL Will Continue to Grow

- Applications keep evolving and expanding
- Workloads and batch pipelines grow more complex
- Batch jobs increase in length, dependencies and resources needed
- Skills gap widens as experienced staff retire
- Organizations depend on reliable, error free JCL



Real-World Challenges

- Mistyped parameters, utilities and data set names
- Slow, inconsistent manual reviews
- New to Z staff expected to contribute without deep JCL knowledge
- Site standards are out of date or lacking

```
- JCL ERROR CN(INTERNAL)
```

The Cost of Abends/Errors

What is the actual cost behind an error?

It could cause...

- Operational and scheduling disruptions
- Wasted CPU resources (MIPS/MSU)
- Personnel intervention
- Production failures
- Missed SLA's



What JCL Validation Actually Does

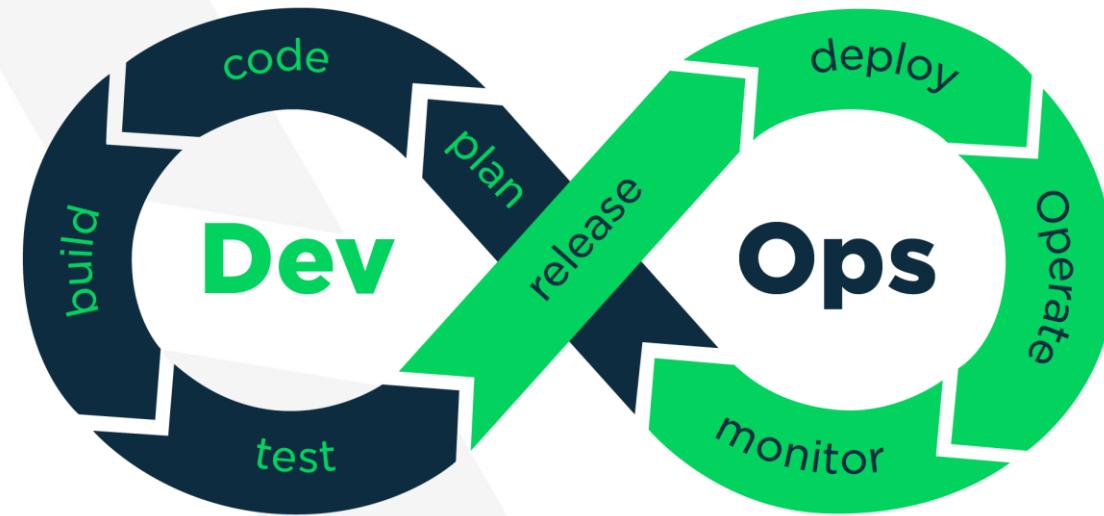
JCL Validation is the final enforcer before execution

- Verifies syntax and catches human errors
- Expands and resolves PROCs and INCLUDEs
- Confirms data set existence and security access
- Checking parameters and utility control statements
- Producing resolved, annotated JCL with warning and error messages

Why JCL Validation Must Evolve

- Environments and DevOps pipelines continue to advance
- Automation is ESSENTIAL for speed and reliability
- Validation can't live only in ISPF anymore
- Needs to integrate directly into DevOps pipelines
- Must be accessible through interfaces familiar to new Mainframers

Consistency is critical at scale



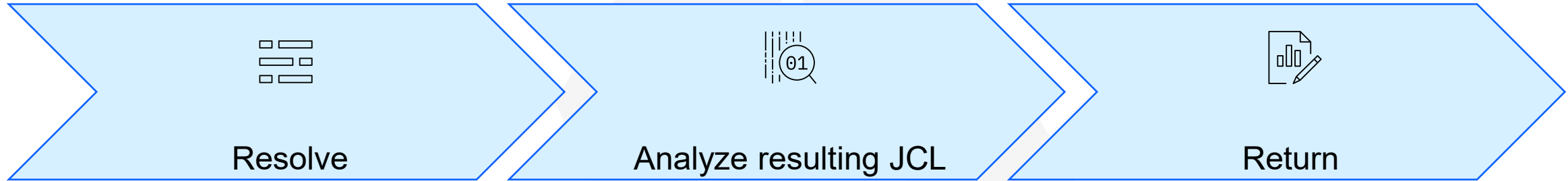
A Modern Tool that Helps Organizations

IBM z JCL Expert

- Advanced JCL validation with full site standards enforcement
- Delivers clear, resolved JCL for faster issue identification
- Helps teams avoid costly production failures
- Accelerates onboarding and time-to-value for new applications

```
==== IBM Z JCL Expert version: 2.1.0.003  
==MSG> CXPR0206I 30 Statements 3 Info 0 Warning 0 Error
```

IBM Z JCL Expert: how it works



- Load modules
- Includes
- Procs

- Spelling, characters, parentheses, and parameters
- In-stream control statements
- Data set existence
- Data set access & Security

The output through **expanded JCL listing with annotations**.
Gives warning, errors or information messages

Findings include:

- Basic JCL syntax
- Fragments of INCLUDE JCL
- Called PROCs
- Source data sets JCL Expert does not have access to
- Resolved LOAD/PROG modules
- Resolved system and inline symbolics
- Issues identified by the custom site rules it has been provided
- Incompatible parameters

JCL Expert can validate JCL

- *in a single data set member*
- *in all members of a data set*
- *in dynamically generated JCL*

Modern Interfaces

JCL Expert supports modern interfaces and produces validation results in JSON or text via:

- ZOWE CLI
- REST API
- USS Commands
- IDE Integration
- IZWS Scheduler support

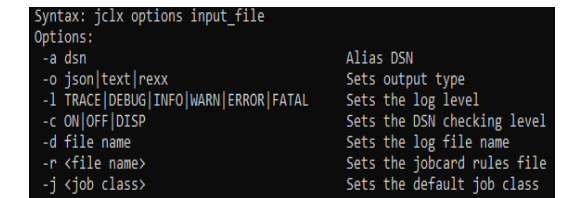
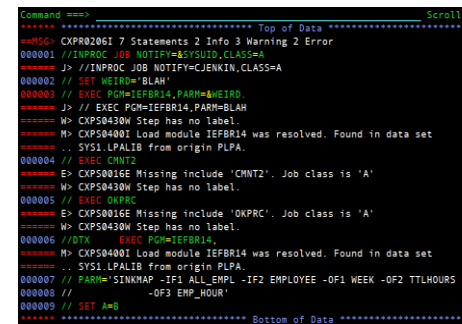
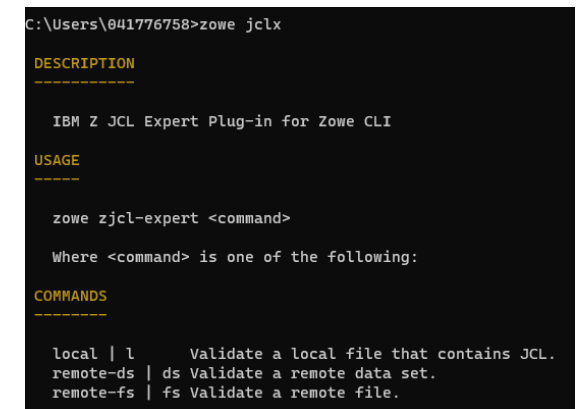




DEMO

What you will see....

- The ways you can invoke JCL Expert through different interfaces like..
 - ISPF/Batch
 - USS Command Line
 - REST API
 - IDz Eclipse Plug-in
 - ZOWE CLI



ISPF

JCL1 TRINITY.JCLX.DEMO(EXAMP2) - 01.10

Member EXAMP2 saved

Command ==> jclx Scroll ==> CSR

***** Top of Data *****

```
000001 //EXAMP2 JOB NOTIFY=&SYSUID
000002 //*****
000003 //* Valid JCL.
000004 //*****
000005 //COPY1 EXEC PGM=IEBCOPY,REGION=0M
000006 //SYSPRINT DD SYSOUT=*
000007 //SYSUT3 DD UNIT=SYSDA,DISP=(,DELETE),SPACE=(200,(20,20))
000008 //SYSUT4 DD UNIT=SYSDA,DISP=(,DELETE),SPACE=(200,(20,20))
000009 //STEP1 DD DSN=TRINITY.COLOR,DISP=SHR
000010 //STEP2 DD DSN=TRINITY.ANIMAL,DISP=SHR
000011 //SYSIN DD *
000012 COPY OUTDD=STEP2,INDD=STEP1
000013 /*
```

***** Bottom of Data *****

***** Top of Data *****

==== IBM Z JCL Expert version: 2.1.0.007

==MSG> CXPR0206I 11 Statements 1 Info 0 Warning 0 Error

000001 //EXAMP2 JOB NOTIFY=&SYSUID

==== //EXAMP2 JOB NOTIFY=TRINITY

000002 //*****

000003 //* Valid JCL.

000004 //*****

000005 //COPY1 EXEC PGM=IEBCOPY,REGION=0M

==MSG> CXPS0400I Load module IEBCOPY was resolved. Found in data set

==MSG> .. SYS1.LINKLIB from origin LINKLIST.

000006 //SYSPRINT DD SYSOUT=*

000007 //SYSUT3 DD UNIT=SYSDA,DISP=(,DELETE),SPACE=(200,(20,20))

000008 //SYSUT4 DD UNIT=SYSDA,DISP=(,DELETE),SPACE=(200,(20,20))

000009 //STEP1 DD DSN=TRINITY.COLOR,DISP=SHR

000010 //STEP2 DD DSN=TRINITY.ANIMAL,DISP=SHR

000011 //SYSIN DD *

000012 COPY OUTDD=STEP2,INDD=STEP1

000013 /*

***** Bottom of Data *****

JCL1 TRINITY.JCLX.DEMO(EXAMP3) - 01.03

Columns 00001 00080

Command ==> jclx

Scroll ==> CSR

***** Top of Data *****

```
000001 //EXAMP2 JOB
000002 //*****
000003 //* Data set TRINITY.PURPLE and TRINITY.PANDA does not exist.
000004 //*****
000005 //COPY1 EXEC PGM=IEBCOPY,REGION=0M
000006 //SYSPRINT DD SYSOUT=*
000007 //SYSUT3 DD UNIT=SYSDA,DISP=(,DELETE),SPACE=(200,(20,20))
000008 //SYSUT4 DD UNIT=SYSDA,DISP=(,DELETE),SPACE=(200,(20,20))
000009 //STEP1 DD DSN=TRINITY.PURPLE,DISP=SHR
000010 //STEP2 DD DSN=TRINITY.PANDA,DISP=SHR
000011 //SYSIN DD *
000012 COPY OUTDD=STEP2,INDD=STEP1
000013 /*
```

***** Bottom of Data *****

```
JCL1          TRINITY.JCLX.DEMO(EXAMP3) - 01.03          Columns 00001 00080
Command ==>          Scroll ==> CSR
*****
***** Top of Data *****
===== IBM Z JCL Expert version: 2.1.0.007
==MSG> CXPR0206I 11 Statements 1 Info 0 Warning 2 Error
000001 //EXAMP2      JOB
000002 //*****
000003 //* Data set TRINITY.PURPLE and TRINITY.PANDA does not exist.
000004 //*****
000005 //COPY1      EXEC PGM=IEBCOPY,REGION=0M
==MSG> CXPS0400I Load module IEBCOPY was resolved. Found in data set
==MSG> .. SYS1.LINKLIB from origin LINKLIST.
000006 //SYSPRINT DD SYSOUT=*
000007 //SYSUT3 DD UNIT=SYSDA,DISP=(,DELETE),SPACE=(200,(20,20))
000008 //SYSUT4 DD UNIT=SYSDA,DISP=(,DELETE),SPACE=(200,(20,20))
000009 //STEP1 DD DSN=TRINITY.PURPLE,DISP=SHR
==MSG> CXPS0477E The data set TRINITY.PURPLE in parameter DSNAME does not
==MSG> .. exist.
000010 //STEP2 DD DSN=TRINITY.PANDA,DISP=SHR
==MSG> CXPS0477E The data set TRINITY.PANDA in parameter DSNAME does not
==MSG> .. exist.
000011 //SYSIN DD *
000012 COPY OUTDD=STEP2,INDD=STEP1
000013 /*
*****
***** Bottom of Data *****
```

JCL1 TRINITY.JCLX.DEMO(EXAMP4) - 01.08

Columns 00001 00080

Command ==> jclx Scroll ==> CSR

***** Top of Data *****

```
000001 //EXAMP2 JOB
000002 //*****
000003 //* Duplicate parameter & Invalid permissions.
000004 //*****
000005 //COPY1 EXEC PGM=IEBCOPY,REGION=0M
000006 //SYSPRINT DD SYSOUT=*
000007 //SYSUT3 DD UNIT=SYSDA,DISP=(,DELETE),SPACE=(200,(20,20))
000008 //SYSUT4 DD UNIT=SYSDA,DISP=(,DELETE),SPACE=(200,(20,20))
000009 //STEP1 DD DSN=SYS1.LPALIB,DISP=(NEW,CATLG)
000010 //STEP2 DD DISP=SHR,DSN=TRINITY.COLOR,DISP=(NEW,CATLG)
000011 //SYSIN DD *
000012 COPY OUTDD=STEP2,INDD=STEP1
000013 /*
```

***** Bottom of Data *****

***** Top of Data *****

==== IBM Z JCL Expert version: 2.1.0.007

==MSG> CXPR0206I 11 Statements 1 Info 0 Warning 4 Error

000001 //EXAMP2 JOB

000002 //*****

000003 /* Duplicate parameter & Invalid permissions.

000004 //*****

000005 //COPY1 EXEC PGM=IEBCOPY,REGION=0M

==MSG> CXPS0400I Load module IEBCOPY was resolved. Found in data set

==MSG> .. SYS1.LINKLIB from origin LINKLIST.

000006 //SYSPRINT DD SYSOUT=*

000007 //SYSUT3 DD UNIT=SYSDA,DISP=(,DELETE),SPACE=(200,(20,20))

000008 //SYSUT4 DD UNIT=SYSDA,DISP=(,DELETE),SPACE=(200,(20,20))

000009 //STEP1 DD DSN=SYS1.LPALIB,DISP=(NEW,CATLG)

==MSG> CXPS0481E The data set SYS1.LPALIB in parameter DSNAME already

==MSG> .. exists.

==MSG> CXPS0603E User TRINITY requires ALTER access to create or delete

==MSG> .. data set SYS1.LPALIB. Current access level is READ.

000010 //STEP2 DD DISP=SHR,DSN=TRINITY.COLOR,DISP=(NEW,CATLG)

==MSG> CXPS0549E Duplicate parameter DISP.

==MSG> CXPS0481E The data set TRINITY.COLOR in parameter DSNAME already

==MSG> .. exists.

000011 //SYSIN DD *

000012 COPY OUTDD=STEP2,INDD=STEP1

000013 /*

***** Bottom of Data *****

JCL1 TRINITY.JCLX.DEMO(EXAMP5) - 01.00

Columns 00001 00080

Command ==> jclx VARTABLE=MIKTBL1

Scroll ==> CSR

***** Top of Data *****

000001 //EQQJOB1 JOB NOTIFY=&SYSUID,REGION=0M,CLASS=A

000002 //*

000003 //*%OPC SCAN

000004 //*%OPC SETFORM CDATE=(DD/MM/CCYY)

000005 //*%OPC SETFORM CTIME=(HH:MM)

000006 //*

000007 //* OADID=%OADID

000008 //* OADID=&OADID

000009 //* OADID=%OADID.

000010 //* OADID=&OADID.

000011 //* OJOBNAME=%OJOBNAME.

000012 //* OWSID=%OWSID.

000013 //*

000014 //* OADOWNER=%OADOWNER

000015 //* OAUGROUP=%OAUGROUP

000016 //* OCALID=%OCALID

000017 //* ODAY=%ODAY

000018 //* CHHMM =%CHHMM

000019 //* CMM =%CMM

000020 //* CMMYY =%CMMYY

000021 //* CWW =%CWW

000022 //* CWD =%CWD

000023 //* CYMD =%CYMD

000024 //* CYY =%CYY

000025 //* CYYDDD=%CYYDDD

000026 //*

000027 //* CDATE =%CDATE

000028 //* CTIME =%CTIME

000029 //*

000030 //MVSBO001 EXEC PGM=IRXJCL,

000031 // PARM='JCLX01 MA01 &SYSUID. C01 %CDATE. %BTVAR1. %BTVAR2.'

000032 //*

000033 //* NAME OF EXEC <---> |

000034 //* ARGUMENT <-----> |

000035 //*

000036 //*YSEXEC DD DSN=IZWSRUN.%BTOPCA..%BTEXEC.,DISP=SHR

```
000037 // *
000038 // *
000039 //SYSEXEC DD DSN=IZWSRUN.%BTOPCA..%BTEXEC.,DISP=SHR
000040 // DD DSN=IZWSRUN.%BTOPCA..%BTEXEC..MIK,DISP=SHR
000041 // DD DSN=IZWSRUN.%BTOPCA..X%CY..MIK,DISP=SHR
000042 // DD DSN=IZWSRUN.%BTOPCA..X%CMYY..&SYSUID.,DISP=SHR
000043 //SYSTSPRT DD SYSOUT=*
000044 //SYSPRINT DD SYSOUT=*
000045 //XYZHOME DD PATH='/u/mfroend/dummy/file/path',PATHOPTS=ORDONLY
000046 // *
***** Bottom of Data *****
```

JCL1 TRINITY.JCLX.DEMO(EXAMP5) - 01.00

Columns 00001 00080

Command ==> Scroll ==> CSR

***** Top of Data *****

=====
IBM Z JCL Expert version: 2.1.0.008

==MSG> CXPR0206I 45 Statements 1 Info 0 Warning 4 Error

000001 //EQQJOB1 JOB NOTIFY=&SYSUID,REGION=0M,CLASS=A

=====
//EQQJOB1 JOB NOTIFY=TRINITY,REGION=0M,CLASS=A

000002 //*

000003 //*%OPC SCAN

000004 //*%OPC SETFORM CDATE=(DD/MM/CCYY)

=====
//*>OPC SETFORM CDATE=(DD/MM/CCYY)

000005 //*%OPC SETFORM CTIME=(HH:MM)

=====
//*>OPC SETFORM CTIME=(HH:MM)

000006 //*

000007 //* OADID=%OADID

=====
//* OADID=CXP000000700000

000008 //* OADID=&OADID

=====
//* OADID=CXP000000700000

000009 //* OADID=%OADID.

=====
//* OADID=CXP000000700000

000010 //* OADID=&OADID.

=====
//* OADID=CXP000000700000

000011 //* OJOBNAME=%OJOBNAME.

=====
//* OJOBNAME=EQQJOB1

000012 //* OWSID=%OWSID.

=====
//* OWSID=JCL1

000013 //*

000014 //* OADOWNER=%OADOWNER

=====
//* OADOWNER=WAPL

000015 //* OAUGROUP=%OAUGROUP

=====
//* OAUGROUP=

000016 //* OCALID=%OCALID

=====
//* OCALID=DEFAULT

000017 //* ODAY=%ODAY

=====
//* ODAY=4

000018 //* CHHMM =%CHHMM

=====
//* CHHMM =2141

000019 //* CMM =%CMM

=====
//* CMM =02

```

000020 //* CMMYY   =%CMMYY
===== //* CMMYY   =0226
000021 //* CWW    =%CWW
===== //* CWW    =08
000022 //* CWARD  =%CWARD
===== //* CWARD  =084
000023 //* CYMD   =%CYMD
===== //* CYMD   =20260219
000024 //* CYY    =%CYY
===== //* CYY    =26
000025 //* CYYDDD=%CYYDDD
===== //* CYYDDD=26050
000026 //*
000027 //* CDATE  =%CDATE
===== //* CDATE  =19/02/2026
000028 //* CTIME  =%CTIME
===== //* CTIME  =21:41
000029 //*
000030 //MVS B0001 EXEC PGM=IRXJCL,
000031 //          PARM='JCLX01 MA01 &SYSUID. C01 %CDATE. %BTVAR1. %BTVAR2.'
===== //          PARM='JCLX01 MA01 &SYSUID. C01 19/02/2026 BTVAL1
..          BTVAL2 '
===== //MVS B0001 EXEC PGM=IRXJCL,PARM='JCLX01 MA01 &SYSUID. C01 19/02/2026
..          BTVAL1 BTVAL2 '
===== //MVS B0001 EXEC PGM=IRXJCL,PARM='JCLX01 MA01 TRINITY C01 19/02/2026
..          BTVAL1 BTVAL2 '
==MSG> CXPS0400I Load module IRXJCL was resolved. Found in data set
==MSG> ..          SYS1.LPALIB from origin PLPA.
000032 //*
000033 //* NAME OF EXEC   <----> |
000034 //* ARGUMENT      <-----> |----->
000035 //*
000036 //*YSEXEC   DD      DSN=IZWSRUN.%BTOPCA..%BTEXEC.,DISP=SHR
===== //*YSEXEC   DD      DSN=IZWSRUN.OPCA.EXEC,DISP=SHR
000037 //*
000038 //*
000039 //SYSEXEC   DD      DSN=IZWSRUN.%BTOPCA..%BTEXEC.,DISP=SHR
===== //SYSEXEC   DD      DSN=IZWSRUN.OPCA.EXEC,DISP=SHR
000040 //          DD      DSN=IZWSRUN.%BTOPCA..%BTEXEC..MIK,DISP=SHR
===== //          DD      DSN=IZWSRUN.OPCA.EXEC.MIK,DISP=SHR
==MSG> CXPS0477E The data set IZWSRUN.OPCA.EXEC.MIK in parameter DSNAME
==MSG> ..          does not exist.

```

```
000041 // DD DSN=IZWSRUN.%BTOPCA..X%CY..MIK,DISP=SHR
===== // DD DSN=IZWSRUN.OPCA.X26.MIK,DISP=SHR
==MSG> CXPS0477E The data set IZWSRUN.OPCA.X26.MIK in parameter DSNAME does
==MSG> .. not exist.
000042 // DD DSN=IZWSRUN.%BTOPCA..X%CMMYY..&SYSUID.,DISP=SHR
===== // DD DSN=IZWSRUN.OPCA.X0226.&SYSUID.,DISP=SHR
===== // DD DSN=IZWSRUN.OPCA.X0226.TRINITY,DISP=SHR
==MSG> CXPS0477E The data set IZWSRUN.OPCA.X0226.TRINITY in parameter
==MSG> .. DSNAME does not exist.
000043 //SYSTSPRT DD SYSOUT=*
000044 //SYSPRINT DD SYSOUT=*
000045 //XYZHOME DD PATH='/u/mfroend/dummy/file/path',PATHOPTS=ORDONLY
===== //XYZHOME DD PATH='/U/MFROEND/DUMMY/FILE/PATH',PATHOPTS=ORDONLY
==MSG> CXPS0479E The zFS file /U/MFROEND/DUMMY/FILE/PATH in parameter PATH
==MSG> .. does not exist.
000046 //*
***** Bottom of Data *****
```

Batch Processing

Batch Job Processing

- JCL Expert supports checking of multiple jobs at once.
- The **CXPJCLB** program invokes JCL Expert from a batch job.
 - CXPJCLB can be called to analyze JCL in a **PDS member** or **PDS**, a **sequential file**, or a z/OS **UNIX file or directory**.

JCL1 EDIT LANEN.JCLX.TEST Row 0000001 of 0000005

Command ==> Scroll ==> CSR

Name	Prompt	Size	Created	Changed	ID
CXPBATCH		41	2025/08/28	2026/02/11 00:21:43	LANEN
EMPTY		1	2026/02/10	2026/02/10 23:20:58	LANEN
IEBTEST		23	2025/08/27	2025/08/28 02:41:55	LANEN
IFTEST		7	2025/08/18	2025/08/20 23:29:39	LANEN
REPEAT		17	2025/08/27	2025/08/27 02:43:57	LANEN

End

F1=Help

F2=Split

F3=Exit

F5=Rfind

F7=Up

F8=Down

F9=Swap

F10=Left

F11=Right

F12=Retrieve

JCL1 LANEN.JCLX.TEST(CXPBATCH) - 01.67 Columns 00001 00080

Command ==> Scroll ==> CSR

***** Top of Data *****

```

000001 //CXPS0201 JOB 'L NICKSON',CLASS=A,NOTIFY=&SYSUID,MSGCLASS=X
000002 //      SET CXPHLQ=CXP.V210
000003 //      SET CXPPATH='/var/smpe/jclexpert/usr/lpp/IBM/jclexpert/V2R1M0'
000004 //      SET JCLPDS='LANEN.JCLX.TEST'
000005 //JCLXPRT EXEC PGM=CXPJCLB,PARM='/OUTPUT=TEXT'
000006 //* Program lives here...
000007 //CXPHOME DD PATH='&CXPPATH',PATHOPTS=ORDONLY
000008 //* Set the zFS home install directory...
000009 //STEPLIB DD DSN=&CXPHLQ..SCXPLOAD,DISP=SHR
000010 //* Scan the members of this PDS...
000011 //INDD DD DSN=&JCLPDS,DISP=SHR
000012 //* Output to this jobs spool
000013 //SYSPRINT DD SYSOUT=*
000014 //*
000015 //CEE0PTS DD *
000016 POSIX(ON)
000017 /*
000018 //

```

F1=Help F2=Split F3=Exit F4=Expand F5=Rfind F6=Rchange F7=Up
F8=Down F9=Swap F10=Left F11=Right F12=Cancel

JCL1 STATUS DISPLAY ALL CLASSES

LINE 19-19 (19)

COMMAND INPUT ==>

SCROLL ==> PAGE

PREFIX=* DEST=(ALL) OWNER=LANEN SYSNAME=*

NP	JOBNAME	JobID	Owner	Prty	Queue	C	Pos	SAff	ASys	Status	PrtDest	SecLabel
	CXPS0201	JOB26781	LANEN	1	PRINT	A	288				LOCAL	

JCL1 OUTPUT DISPLAY CXPS0201 JOB26781 DSID 102 LINE 0 COLUMNS 02- 133

COMMAND INPUT ==> SCROLL ==> PAGE

***** TOP OF DATA *****

IBM Z JCL Expert
2.1.0.007
2026/02/10 - 16:39:18

SETTINGS

CXPS0388I Inputs

INDD : //DD:INDD

CXPS0389I Parameters

OUTPUT : TEXT

LOGLEVEL : FATAL

DSNCHK : ON

SYMCHK : ON

USER : LANEN

SYSTEM : JCL1

DD:INDD(CXPBATCH)

(DD:INDD(CXPBATCH) :001) //CXPS0201 JOB 'L NICKSON',CLASS=A,NOTIFY=&SYSUID,MSGCLASS=X

F1=HELP F2=SPLIT F3=END F4=RETURN F5=RFIND F6=RCHANGE F7=UP F8=DOWN F9=SWAP F10=LEFT F11=RIGHT F12=...

-DSLIST SDSF *SDSF

```
JCL1  EDIT  LANEN.JCLX.TEST
Command ==>
      Name  Prompt  Size
-----
      CXPBATCH  41
      EMPTY      1
      IEBTEST   23
      IFTEST     7
      REPEAT    17
      **End**
```



```
IBM Z JCL Expert
2.1.0.007
2026/02/10 - 16:38:06

SETTINGS
CXPS0388I Inputs
      INDD      : //DD:INDD
CXPS0389I Parameters
      OUTPUT    : TEXT
      LOGLEVEL  : FATAL
      DSNCHK    : ON
      SYMCHK    : ON
      USER     : LANEN
      SYSTEM    : JCL1

      DD:INDD(CXPBATCH)
( ... )
      DD:INDD(EMPTY)
( ... )
      DD:INDD(IEBTEST)
( ... )
      DD:INDD(IEFTTEST)
( ... )
      DD:INDD(REPEAT)
( ... )

REPORT
CXPS0391I Summary
      Members scanned : 5
      Members passed  : 2
      Members failed   : 3
CXPS0392I Statistics
      Total errors    : 4
      Total warnings  : 6
      Total info      : 12
```

z/OS Unix Command Line

z/OS Unix Command Line

- Multiple output formats
- Integration with shell scripts and DevOps pipelines
- Familiar workflow for UNIX/Linux users

```
LANEN@JCL1:~$ jclx
CXPS0202I Missing input file name.
Syntax: jclx options input_file
Options:
-a dsn                Alias DSN
-o json[:syntax]|text|rexx  Sets output type
-l TRACE|DEBUG|INFO|WARN|ERROR|FATAL  Sets the log level
-d <file name>         Sets the log file name
-c ON|OFF             Sets the DSN checking level
-b ON|OFF             Sets the unresolved symbol parameter checking level
-j <job class>        Sets the default job class
-L <language>         Language code (ENU or JPN)
-U <user ID>          Perform analysis as userid
-S <system name>     Perform analysis on system
-W <variable table name>  IZWS variable table name
-I <date time simulation format>  IZWS date-time simulation (CCYYMMDDHHMM)
-v                    Display version information
```

```
LANEN@JCL1:~$ cat samp.jcl
//LANENA      JOB 'L NICKSON',CLASS=A,MSGCLASS=X

//STEP01      EXEC PGM=IEFBR14
//DD1         DD DSN=LANEN.JCLX.JUNK,
//            DISP=(MOD,DELETE,DELETE)
//SYSPRINT    DD SYSOUT=*
```

```
LANEN@JCL1:~$ jclx -o TEXT samp.jcl
```

```
-----  
IBM Z JCL Expert  
2.1.0.008
```

```
2026/02/10 - 19:37:46
```

```
-----  
SETTINGS
```

```
CXPS0388I Inputs  
INDD : samp.jcl
```

```
CXPS0389I Parameters  
OUTPUT : TEXT  
LOGLEVEL : FATAL  
DSNCHK : ON  
SYMCHK : ON  
USER : LANEN  
SYSTEM : JCL1
```

```
-----  
samp.jcl
```

```
-----  
(samp.jcl :001) //LANENA JOB 'L NICKSON',CLASS=A,MSGCLASS=X  
(samp.jcl :002)  
***** CXPS0605E - A JCL statement or JECL statement was expected.  
(samp.jcl :002)  
(samp.jcl :003) //STEP01 EXEC PGM=IEFBR14  
***** CXPS0400I - Load module IEFBR14 was resolved. Found in data set SYS1.LPALIB from origin PLPA.  
(samp.jcl :004) //DD1 DD DSN=LANEN.JCLX.JUNK,  
(samp.jcl :005) // DISP=(MOD,DELETE,DELETE)  
statement: //DD1 DD DSN=LANEN.JCLX.JUNK,DISP=(MOD,DELETE,DELETE)  
(samp.jcl :006) //SYSPRINT DD SYSOUT=*
```

```
-----  
CXPS0456I Results for samp.jcl  
Statements processed: 5  
Errors : 1  
Warnings : 0  
Info : 1
```

```
LANEN@JCL1:~$ jclx -o JSON samp.jcl
{
  "version":{
    "productName":"IBM Z JCL Expert",
    "productVersion":"2.1.0.008",
    "schemaVersion":"1.2.0.000"
  },
  "results":[
    {
      "input":"samp.jcl",
      "annotations":[
        {
          "messageId":"CXPS0605E",
          "message":"A JCL statement or JECL statement was expected.",
          "type":"E",
          "location":"samp.jcl",
          "lineNumber":2,
          "statementNumber":2
        },
        {
          "messageId":"CXPS0400I",
          "message":"Load module IEFBR14 was resolved. Found in data set SYS1.LPALIB from origin PLPA.",
          "type":"I",
          "location":"samp.jcl",
          "lineNumber":3,
          "statementNumber":4
        }
      ],
      "metrics":{
        "statements":5,
        "errors":1,
        "warnings":0,
        "infos":1
      }
    }
  ],
  "messages":[]
}
LANEN@JCL1:~$
```

REST API

REST API

- Web based application
- Local machine does not need mainframe access
- Response is given in .json or text format

POST /ibmjclexpert/api/v1/check Submit JCL for parsing

Include JCL in request body to be parsed by IBM Z JCL Expert

Parameters Cancel

JCL * *required* The JCL to pass to IBM Z JCL Expert for checking
string
(body) Edit Value | Model

```
//JE2101 JOB (999,XXX), 'ANDREW', CLASS=A, MSGLEVEL=(1,1),  
//          MSGCLASS=X, REGION=0M, NOTIFY=ANDREW  
//*****  
//STEP1 EXEC PGM=IKJEFT01, DYNAMNBR=30  
//*  
//DDIN DD DSN=ANDREW.JE2101.INFILE(+1), DISP=OLD  
//DDOUT DD DSN=ANDREW.TEST.OUTFILE.TEST,  
//        DISP=(NEW,CATLG,DELETE),  
//        UNIT=(SYSDA,20),  
//        SPACE=(CYL,(10,10)),  
//        DCB=(RECFM=FB, LRECL=80, BLKSIZE=0, BUFNO=2)  
//*
```

Cancel

Parameter content type
text/plain

ALIAS

string

(query)

Define alias for the checked JCL. For example, if the member THIS.JCL(MEMBER) was checked using alias 'THAT.JCL', IBM Z JCL Expert would treat that member as 'THAT.JCL(MEMBER)'

TRACE

string

(query)

The trace level to be used in conjunction with LOG parameter. Valid options are TRACE, DEBUG, INFO, WARN, ERROR and FATAL

DSNCHK

string

(query)

Instruct IBM Z JCL Expert to check DSNs. Valid options are OFF and ON

LOG

string

(query)

Designate a file to contain logging information

JOBCLASS

string

(query)

The jobclass of the JCL to be checked (when not specified in jobcard)

VARIABLE

string

(query)

The name of an IZWS variable table to use for IZWS variable substitution.

DATESIM

string

(query)

An optional simulated time-date to be used by IZWS during variable substitution. This must follow the format CCYYMMDDHHMM

SYSTEM

string

(query)

The name of the system to perform the check on

API Catalog

- (CMD)
- (bash)
- Unirest
- XHR
- AJAX
- (libcurl)

```
curl -X "POST" ^  
"https://pthcoe1.teracloud.com.au:7554/ibmjclexpert/api/v1/check" ^  
-H "accept: application/json" ^  
-H "Content-Type: text/plain" ^  
-d ^  
//JE2101 JOB (999,XXX), 'ANDREW',CLASS=A,MSGLEVEL=(1,1),^  
//          MSGCLASS=X, REGION=0M, NOTIFY=ANDREW      ^  
//*****^  
//STEP1 EXEC PGM=IKJEFT01,DYNAMNBR=30                ^  
//*                                                    ^  
//DDIN DD DSN=ANDREW.JE2101.INFILE(+1),DISP=OLD      ^  
//DDOUT DD DSN=ANDREW.TEST.OUTFILE.TEST,             ^  
//          DISP=(NEW,CATLG,DELETE),                  ^  
//          UNIT=(SYSDA,20),                           ^  
//          SPACE=(CYL,(10,10)),                       ^  
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=0,BUFNO=2) ^  
//*
```

Request URL

https://pthcoe1.teracloud.com.au:7554/ibmjclexpert/api/v1/check

Server response

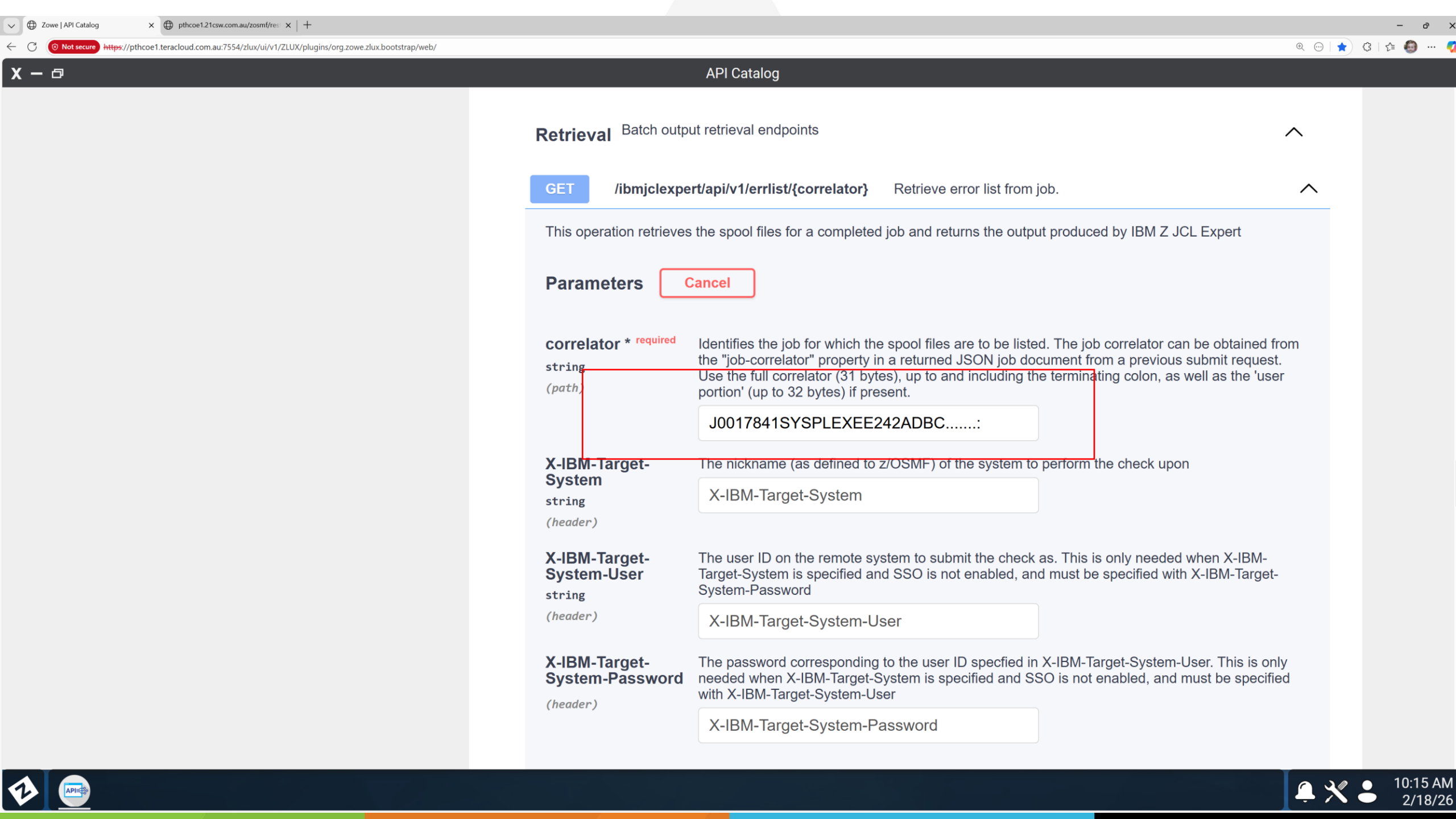
201
Undocumented Response body

Download

```
{  
  "owner": "ANDREW",  
  "phase": 130,  
  "subsystem": "JES2",  
  "phase-name": "Job is actively converting",  
  "job-correlator": "J0017841SYSPLEXEE242ADBC.....:",  
  "type": "JOB",  
  "url": "https://pthcoe1.21csw.com.au:443/zosmf/restjobs/jobs/J0017841SYSPLEXEE242ADBC.....%3A",  
  "jobid": "JOB17841",
```

Pretty-print

```
{
  "owner": "ANDREW",
  "phase": 20,
  "subsystem": "JES2",
  "phase-name": "Job is on the hard copy queue",
  "job-correlator": "J0017841SYSPLXEE242ADBC.....:",
  "type": "JOB",
  "url": "https://pthcoe1.21csw.com.au:443/zosmf/restjobs/jobs/J0017841SYSPLXEE242ADBC.....%3A",
  "jobid": "JOB17841",
  "class": "A",
  "files-url": "https://pthcoe1.21csw.com.au:443/zosmf/restjobs/jobs/J0017841SYSPLXEE242ADBC.....%3A/files",
  "jobname": "CXPCHECK",
  "status": "OUTPUT",
  "retcode": "CC 0008"
}
```



Retrieval Batch output retrieval endpoints

GET `/ibmjclexpert/api/v1/errlist/{correlator}` Retrieve error list from job.

This operation retrieves the spool files for a completed job and returns the output produced by IBM Z JCL Expert

Parameters Cancel

correlator * *required* Identifies the job for which the spool files are to be listed. The job correlator can be obtained from the "job-correlator" property in a returned JSON job document from a previous submit request. Use the full correlator (31 bytes), up to and including the terminating colon, as well as the 'user portion' (up to 32 bytes) if present.

J0017841SYSPLEXEE242ADBC.....:

X-IBM-Target-System The nickname (as defined to z/OSMF) of the system to perform the check upon
string
(header)
X-IBM-Target-System

X-IBM-Target-System-User The user ID on the remote system to submit the check as. This is only needed when X-IBM-Target-System is specified and SSO is not enabled, and must be specified with X-IBM-Target-System-Password
string
(header)
X-IBM-Target-System-User

X-IBM-Target-System-Password The password corresponding to the user ID specified in X-IBM-Target-System-User. This is only needed when X-IBM-Target-System is specified and SSO is not enabled, and must be specified with X-IBM-Target-System-User
(header)
X-IBM-Target-System-Password

API Catalog

Download

```
{
  "version": {
    "productName": "IBM Z JCL Expert",
    "productVersion": "2.1.0.003",
    "schemaVersion": "1.2.0.000"
  },
  "results": [
    {
      "input": "DD:INDD",
      "annotations": [
        {
          "messageId": "CXPS0400I",
          "message": "Load module IKJEFT01 was resolved. Found in data set SYS1.LPALIB from origin PLPA.",
          "type": "I",
          "location": "DD:INDD",
          "lineNumber": 4,
          "statementNumber": 3
        },
        {
          "messageId": "CXPS0460E",
          "message": "The GDG base ANDREW.C.JE2101.INFILE(+1) in parameter DSNAME does not exist.",
          "type": "E",
          "location": "DD:INDD",
          "lineNumber": 6,
          "statementNumber": 5
        }
      ],
      "metrics": {
        "statements": 7,
        "errors": 1,
        "warnings": 0,
        "infos": 1
      }
    }
  ],
  "messages": []
}
```

Response headers

```
cache-control: no-cache, no-store, max-age=0, must-revalidate, connection: keep-alive, content-type:
```

IDz Plug-in

IDz Plugin

- **IDz** – Eclipse-based modern IDE for mainframe development
- VERIFIⁿ is part of the AQUA toolkit for IDz
- Integrated with the IDz environment


```

GENERTST.jcl  META4.jcl x
-----1-----2-----3-----4-----5-----6-----7--|-----8
// CDCHECK JOB NOTIFY=&SYSUID
// JCLCHECK EXEC PGM=CXPJCLB,PARMDD=PDD
// PDD DD *
POSIX(ON) OUTPUT=TEXT,SYSTEM=JCL1
//SYSPRINT DD SYSOUT=*
//STDERR DD SYSOUT=
//INDD DD DSN=CALVIND.JCLX.TESTJCL(META4),DISP=SHR
//STEPLIB DD DISP=SHR,DSN=CXP.V210.SCXLOAD
//CXPHOME DD PAH='/var/smpe/jclexpert/usr/lpp/IBM/jclexpert/V2R1M0',
// PATHOPTS=ORDONLY
  
```

Remote Error List x z/OS File System Mapping Property Group Manager Snippets Git Staging Remote System Details z/OS Debugger Profiles Progress

Filter matched 3 of 3 messages

ID	Message	Severity	Line	Location
✘ CXPS0092E	CXPS0092E Unrecognized keyword parameter PAH.	2	9	CALVIND.JCLX.TESTJCL/META4.jcl
✘ CXPS0529E	CXPS0529E Parameter PATHOPTS must be specified with parameter PATH in the DD statement.	2	9	CALVIND.JCLX.TESTJCL/META4.jcl
i CXPS0400I	CXPS0400I Load module CXPJCLB was resolved. Found in data set CXP.V210.SCXLOAD from origin STEPLIB.	0	2	CALVIND.JCLX.TESTJCL/META4.jcl

JCL GENERTST.jcl META4.jcl ×

-----1-----2-----3-----4-----5-----6-----7--|-----8

```
//CDCHECK JOB NOTIFY=&SYSUID  
//JCLCHECK EXEC PGM=CXPJCLB,PARMDD=PDD  
//PDD DD *  
POSIX(ON) OUTPUT=TEXT,SYSTEM=JCL1  
//SYSPRINT DD SYSOUT=*  
//STDERR DD SYSOUT=|  
//INDD DD DSN=CALVIND.JCLX.TESTJCL(META4),DISP=SHR  
//STEPLIB DD DISP=SHR,DSN=CXP.V210.SCXPLOAD
```

Multiple markers at this line
- CXPS0529E Parameter PATHOPTS must be specified with parameter PATH in the DD statement.
- CXPS0092E Unrecognized keyword parameter PAH.
- "PATH" expected instead of this input

GENERTST.jcl META4.jcl ×

```

-----1-----2-----3-----4-----5-----6-----7--|--8
//CDCHECK JOB NOTIFY=&SYSUID
//JCLCHECK EXEC PGM=CXPJCLB,PARMDD=PDD
//PDD DD *
POSIX(ON) OUTPUT=TEXT,SYSTEM=JCL1
//SYSPRINT DD SYSOUT=*
//STDERR DD SYSOUT=
//INDD DD DSN=CALVIND.JCLX.TESTJCL(META4),DISP=SHR
//STEPLIB DD DISP=SHR,DSN=CXP.V210.SCXPLOAD
//CXPHOME DD PATH='/var/smpe/jclexpert/usr/lpp/IBM/jclexpert/V2R1M0',
// PATHOPTS

```

Change to "PATH"

Remote Error List ×

Filter matched 3 of 3 messages

ID	Message
✘ CXPS0092E	
✘ CXPS0529E	CXPS0529E Parameter PATHOPTS must be specified with parameter PATH in the DD statement
i CXPS0400I	CXPS0400I Load module CXPJCLB was resolved. Found in data set CXP.V210.SCXPLOAD

GENERTST.jcl META4.jcl ×

```

-----+-----1-----+-----2-----+-----3-----+-----4-----+-----5-----+-----6-----+-----7--|+-----8
//CDCHECK JOB NOTIFY=&SYSUID
i //JCLCHECK EXEC PGM=CXPJCLB, PARMDD=PDD
//PDD DD *
  POSIX(ON)/ OUTPUT=TEXT, SYSTEM=JCL1
  //SYSPRINT DD SYSOUT=*
  //STDERR DD SYSOUT=
  //INDD DD DSN=CALVIND.JCLX.TESTJCL(META4), DISP=SHR
  //STEPLIB DD DISP=SHR, DSN=CXP.V210.SCXpload
  //CXPHOME DD PATH='/var/smpe/jclexpert/usr/lpp/IBM/jclexpert/V2R1M0',
  // PATHOPTS=ORDONLY|

```

Remote Error List × z/OS File System Mapping Property Group Manager Snippets Git Staging Remote System Details z/OS Debug

Filter matched 1 of 1 messages

ID	Message
i CXPS0400I	CXPS0400I Load module CXPJCLB was resolved. Found in data set CXP.V210.SCXpload from origin STEPLIB.

ZOWE CLI Plug-in

Zowe CLI Plugin

- Command-line interface, similar to UNIX command line
- Utilizes existing z/OSMF infrastructure
- Does not need a terminal emulator, can invoke directly from command line
- Commands are the same as UNIX, no need to retrain to use
- Can be used to test a local file, a remote UNIX file or a remote mainframe dataset
- Response can be in .json or text

```
vboxuser@Ubuntu25:~$ zowe jclx local ~/testjcl/test.jcl --remote-home-dir /u/andrewc/ut/ -o text
```

```
vboxuser@Ubuntu25:~$ zowe jclx local ~/testjcl/test.jcl -remote-home-dir /u/andrewc/ut/ -o text
Enter the host name of your service: pthjcl1.21csw.com.au
Enter the user name for your service (will be hidden):
Enter the password for your service (will be hidden): █
```

IBM Z JCL Expert
2.1.0.008

2026/02/10 - 14:39:54

SETTINGS

CXPS0388I Inputs

INDD : /tmp/2026110_143937927.jcl

I

CXPS0389I Parameters

ALIAS : /home/vboxuser/testjcl/test.jcl

OUTPUT : TEXT

LOGFILE : /tmp/2026110_143939518.jclx.log

LOGLEVEL : FATAL

DSNCHK : ON

SYMCHK : ON

USER : ANDREWC

SYSTEM : JCL1

/home/vboxuser/testjcl/test.jcl

(/home/vboxuser/testjcl/test.jcl:001) //JE2101 JOB (999,XXX), 'ANDREWC', CLASS=A, MSGLEVEL=(1,1),

(/home/vboxuser/testjcl/test.jcl:002) // MSGCLASS=X, REGION=0M, NOTIFY=ANDREWC

statement: //JE2101 JOB (999,XXX), 'ANDREWC', CLASS=A, MSGLEVEL=(1,1), MSGCLASS=X, REGION=0M

FY=ANDREWC

(/home/vboxuser/testjcl/test.jcl:003) //*****

(/home/vboxuser/testjcl/test.jcl:004) //STEP1 EXEC PGM=IKJEFT01, DYNAMNBR=30

***** CXPS0400I - Load module IKJEFT01 was resolved. Found in data set SYS1.LPALIB from origin PLPA.

(/home/vboxuser/testjcl/test.jcl:005) /**

Enter the user name for your service (will be hidden):

Enter the password for your service (will be hidden):

```
{
  "version": {
    "productName": "IBM Z JCL Expert",
    "productVersion": "2.1.0.008",
    "schemaVersion": "1.2.0.000"
  },
  "results": [
    {
      "input": "/home/vboxuser/testjcl/test.jcl",
      "annotations": [
        {
          "messageId": "CXPS0400I",
          "message": "Load module IKJEFT01 was resolved. Found in data set SYS1.LPALIB from origin PLPA.",
          "type": "I",
          "location": "/home/vboxuser/testjcl/test.jcl",
          "lineNumber": 4,
          "statementNumber": 3
        },
        {
          "messageId": "CXPS0460E",
          "message": "The GDG base ANDREWC.JE2101.INFILE(+1) in parameter DSNAME does not exist.",
          "type": "E",
          "location": "/home/vboxuser/testjcl/test.jcl",
          "lineNumber": 6,
          "statementNumber": 5
        }
      ]
    },
    {
      "statements": 7,
      "errors": 1,
      "warnings": 0
    }
  ]
}
```

Thank you!

Your feedback is important!

Submit a session evaluation for each session you attend:

SHARE mobile app

-or-

www.share.org/evaluation

