

Achieving Gains in Velocity and Quality for Batch Application Delivery

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SEA

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Session **MF**



Agenda

- Introductions
- Why the Focus on Testing
- Considering Culture
- Practical Opportunities for Increased Velocity and Quality
- Reporting and Measurement

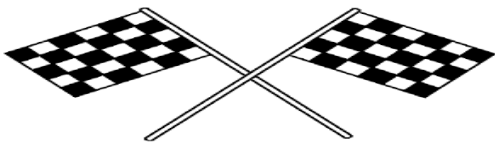
The Challenge Today

How Do I Increase Velocity AND Quality In Application Delivery?

Culture and Perceptions of :

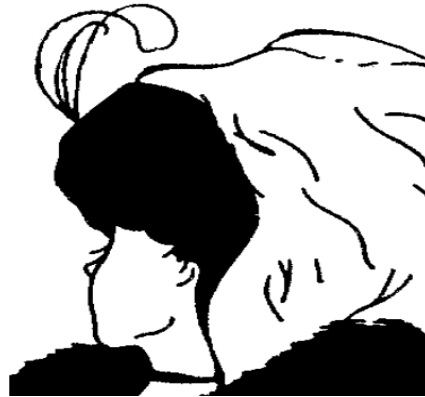


Agile Build



Fast is Good!

ITIL Deploy



Fast is Not as Good!

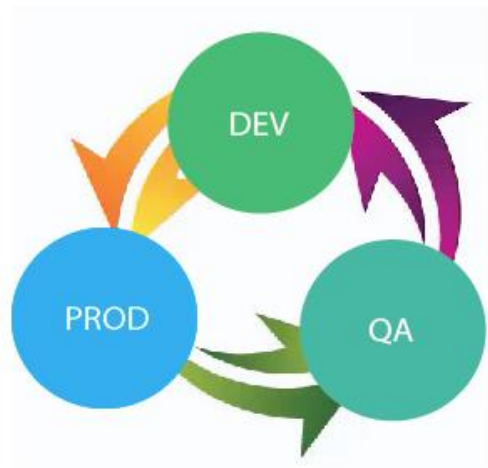
A DevOps Culture... What Might I Observe

1. Highest Priority Given to Investments Enabling Early Confidence in Predictive Run-Time Outcome
2. Reliable and Shared Sources for Maintenance, Testing and One Time Change Projects
3. Knowledge Management Incorporated Into Process Automation Strategies
4. Reliance on Metrics, Measurements and Trend Reporting

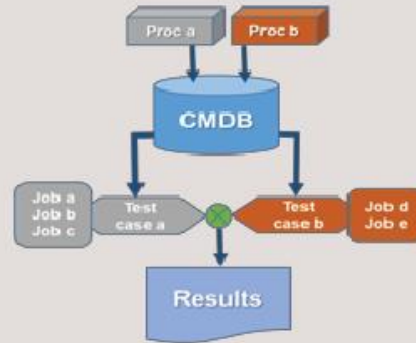


“Communication, Collaboration, Cooperation Executing with Speed and High Quality”

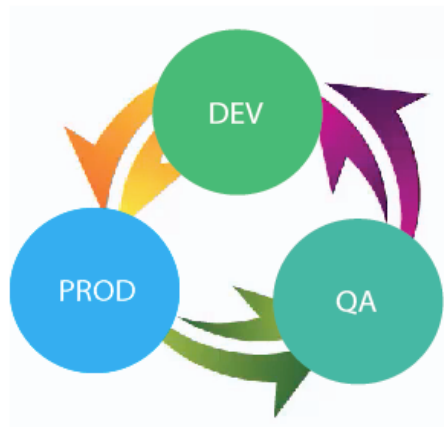
Considering Perspective



Predictive runtime testing
for build and run teams



The Opportunity for Metrics



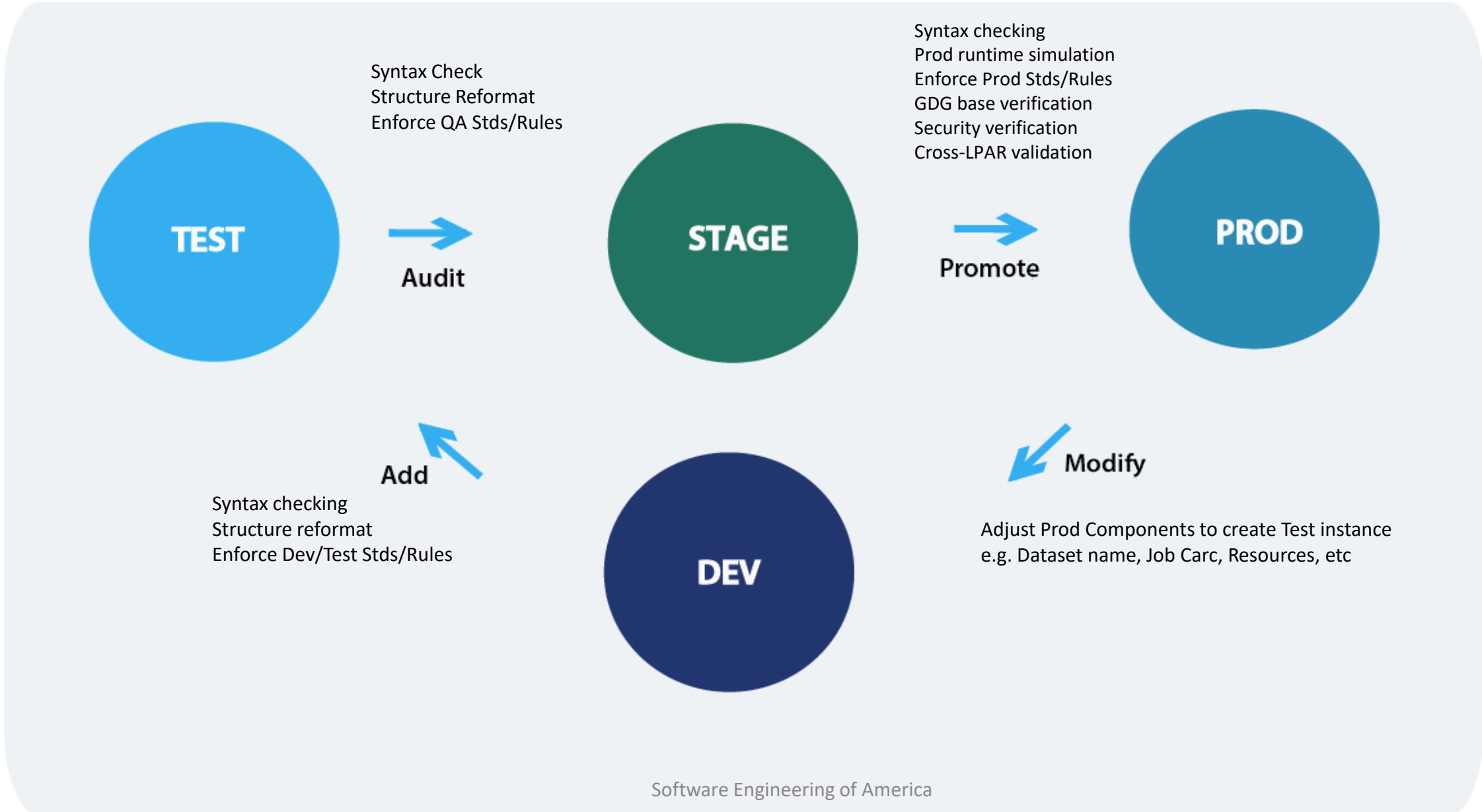
Reporting Metrics

- Show me only "dataset not found" defetcs
- Show me only JCL naming standards Defects for my DEV environment

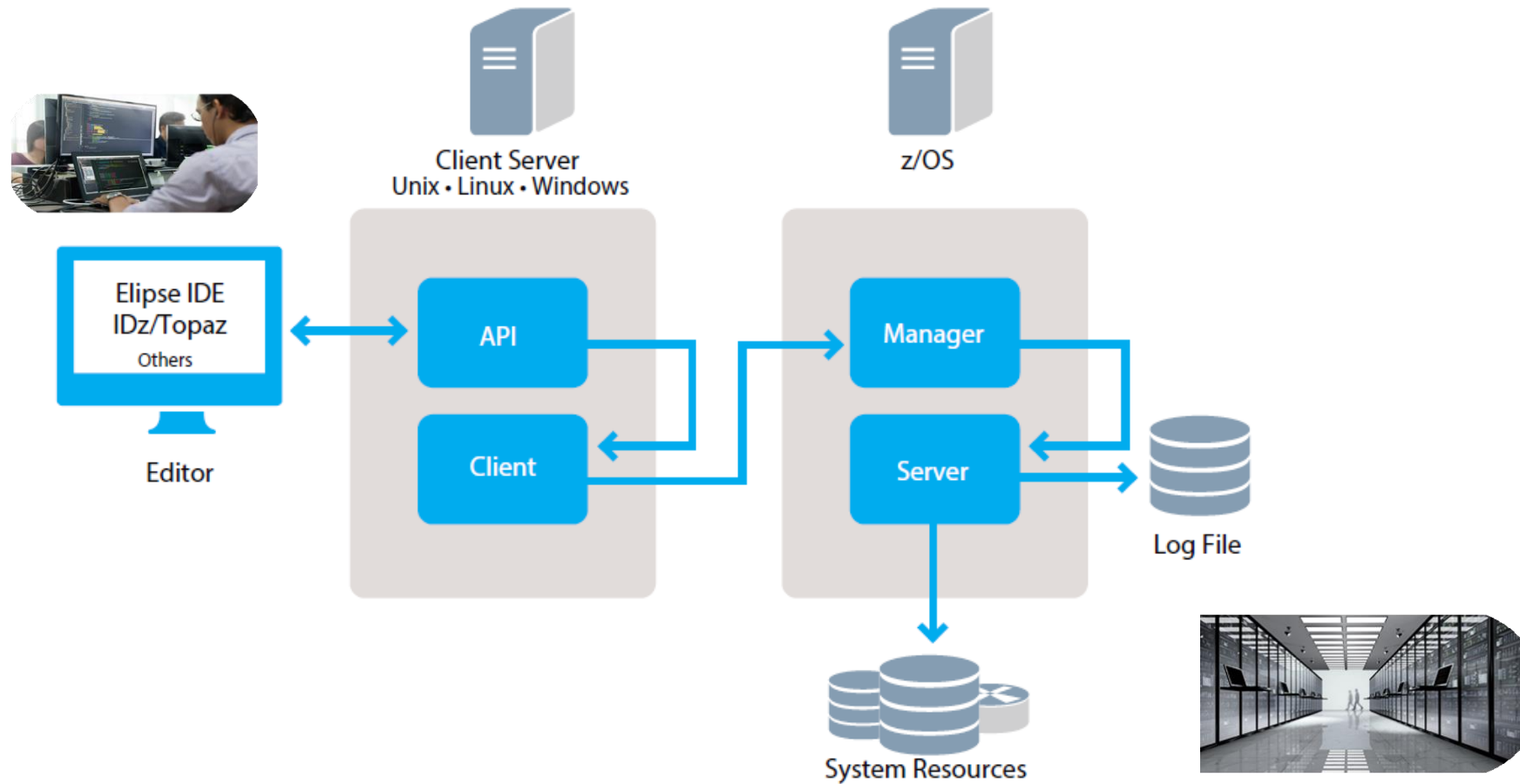


- Are we using the process ?
- What is the ROI of our process?
- Are we trending in the right direction?

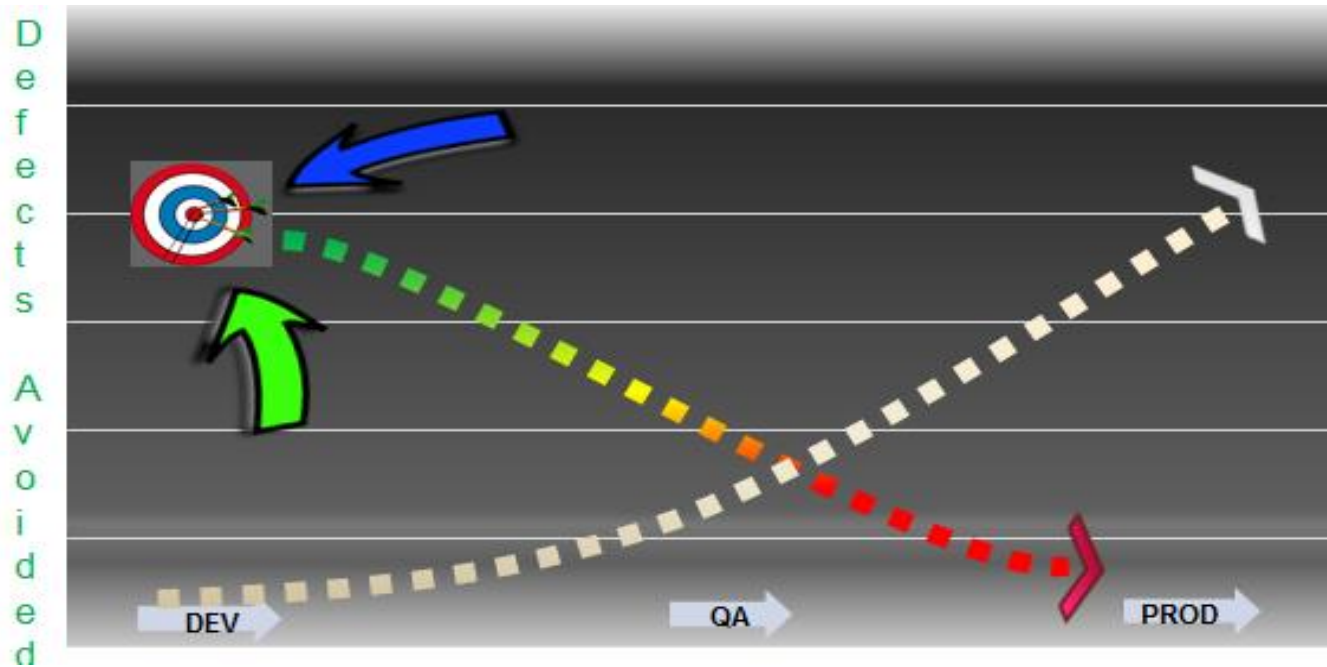
Highest Priority Given to Early Defect Elimination



Architecture Considerations

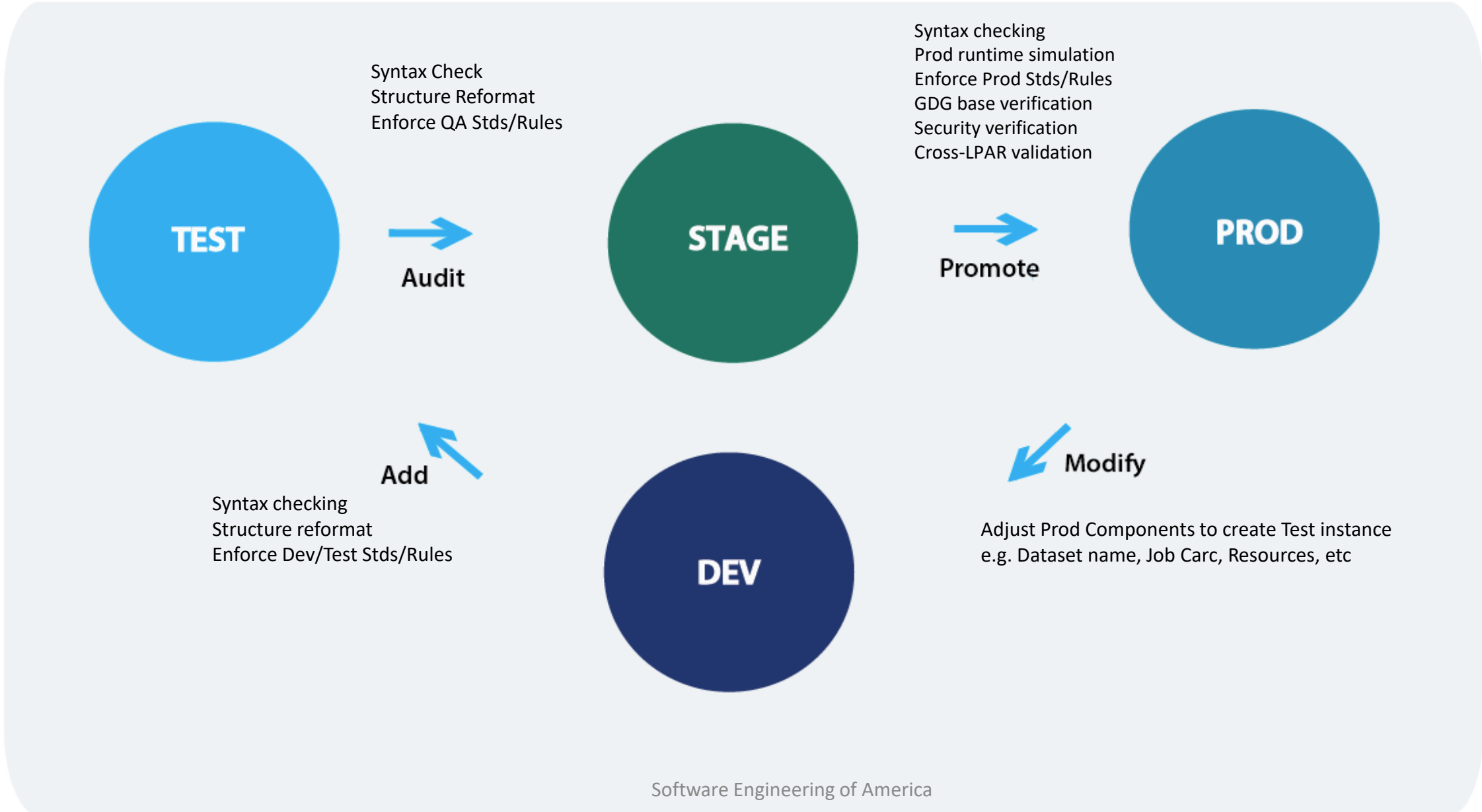


Investments to Enable Access for Early Defect Elimination



- Automate Testing
- Cross System Validation
- Check Dependencies and Generate Test Cases
- Automate Standards Compliance
- Manage Creation and Maintenance of Component Items

Highest Priority Given to Early Defect Elimination



Investments to Enable Access for Early Defect Elimination

The screenshot displays the IBM Rational Developer for z Systems interface. The main editor shows JCL code for a job named JREMCLIP. A yellow callout box points to the code with the text "Procedure with Defects is Opened for Analysis".

The JCL code includes a procedure definition for JREMCLIP and its execution. A red arrow points from a yellow callout box "Defects markers" to a line in the code: `ROOTDEF='-r /sea/rdz'`. Another red arrow points from the same callout box to an error message in the JCL OUT REPORT: `!!!ERROR 08: MISSING, INVALID OR UNKNOWN STATEMENT TYPE`.

The JCL OUT REPORT shows the following error:

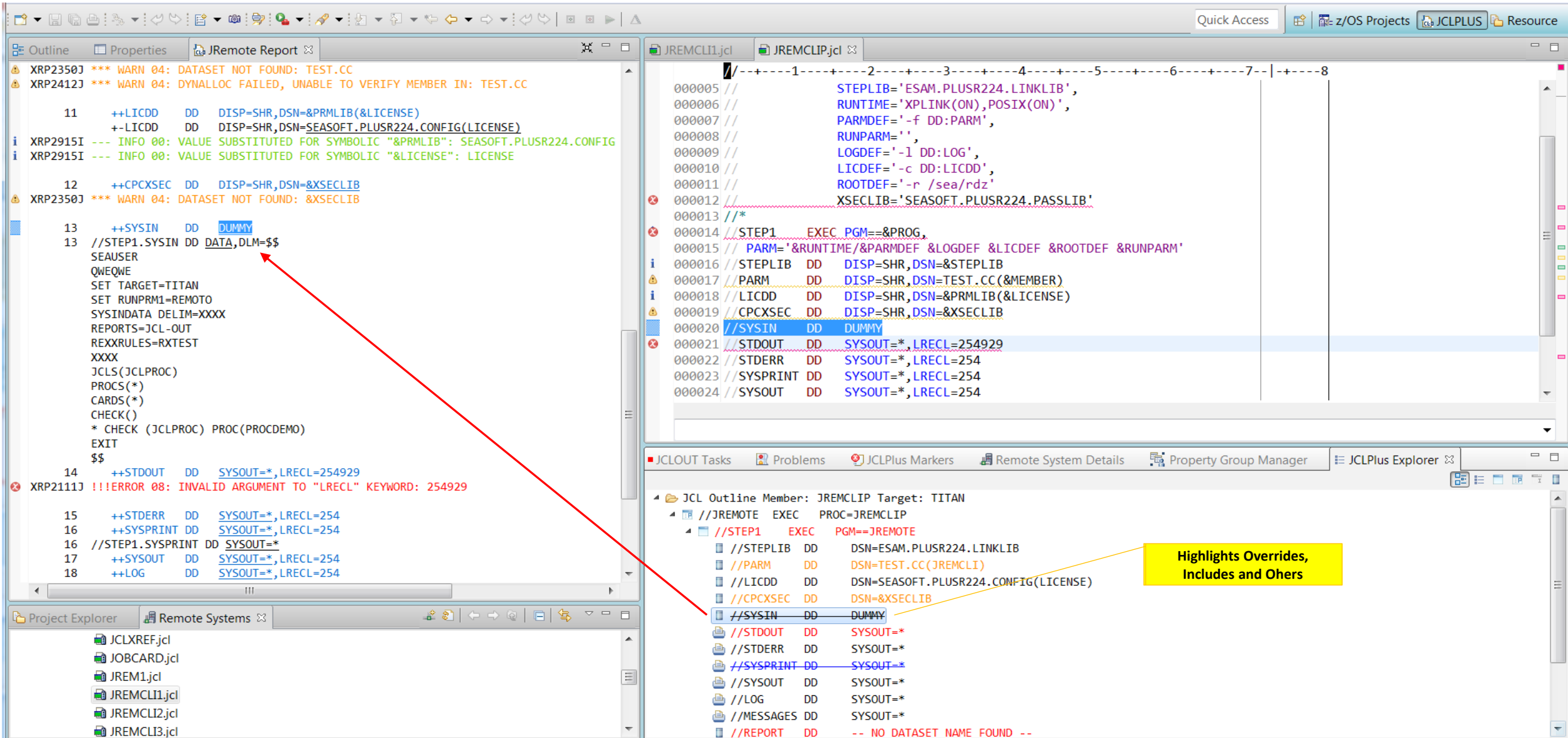
```

XRP2106J !!!ERROR 08: MISSING, INVALID OR UNKNOWN STATEMENT TYPE
    
```

The bottom of the screen shows the "Problems" view, which lists several errors:

Description	Location	Type	Resource	Path	Host
XRP2106J !!!ERROR 08: MISSING, INVALID OR UNKNOWN STAT	line 5	JCLPlus Error	JREMCLIP.jcl	/SEA2/SEA2JC...	seasoft1
XRP2111J !!!ERROR 08: INVALID ARGUMENT TO "LRECL" KEYWI	line 5	JCLPlus Error	JREMCLIP.jcl	/SEA2/SEA2JC...	seasoft1
XRP2111J !!!ERROR 08: INVALID ARGUMENT TO "PGM" KEYWO	line 5	JCLPlus Error	JREMCLIP.jcl	/SEA2/SEA2JC...	seasoft1
XRP2114J !!!ERROR 08: MISSING "=" SIGN AFTER "SYSOUT" KEY	line 5	JCLPlus Error	JREMCLIP.jcl	/SEA2/SEA2JC...	seasoft1
XRP2307J !!!ERROR 04: NO PARAMETERS ON STATEMENT	line 5	JCLPlus Error	JREMCLIP.jcl	/SEA2/SEA2JC...	seasoft1
XRP0354J +++RULES 08: INVALID JOBCLASS X FOR TEST JOBS	line 1	JCLPlus Rules Vi...	JREMCLIP.jcl	/SEA2/SEA2JC...	seasoft1

Investments to Enable Access for Early Defect Elimination



The screenshot displays the JCLPLUS interface with the following components:

- Left Pane (JRemote Report):** Shows JCL code and error messages. A red arrow points from the error message at line 14 to the corresponding JCL statement in the right pane.

```
11 ++LICDD DD DISP=SHR,DSN=&PRMLIB(&LICENSE)
+-LICDD DD DISP=SHR,DSN=SEASOFT.PLUSR224.CONFIG(LICENSE)
i XRP2915I --- INFO 00: VALUE SUBSTITUTED FOR SYMBOLIC "&PRMLIB": SEASOFT.PLUSR224.CONFIG
i XRP2915I --- INFO 00: VALUE SUBSTITUTED FOR SYMBOLIC "&LICENSE": LICENSE
12 ++CPCXSEC DD DISP=SHR,DSN=&XSECLIB
XRP2350J *** WARN 04: DATASET NOT FOUND: &XSECLIB
13 ++SYSIN DD DUMMY
13 //STEP1.SYSIN DD DATA,DLM=$$
SEAUSER
QWEQWE
SET TARGET=TITAN
SET RUNPRM1=REMOTO
SYSINDATA DELIM=XXXX
REPORTS=JCL-OUT
REXXRULES=RXTEST
XXXX
JCLS(JCLPROC)
PROCS(*)
CARDS(*)
CHECK()
* CHECK (JCLPROC) PROC(PROCDEMO)
EXIT
$$
14 ++STDOUT DD SYSOUT=*,LRECL=254929
XRP2111J !!!ERROR 08: INVALID ARGUMENT TO "LRECL" KEYWORD: 254929
15 ++STDERR DD SYSOUT=*,LRECL=254
16 ++SYSPRINT DD SYSOUT=*,LRECL=254
16 //STEP1.SYSPRINT DD SYSOUT=*
17 ++SYSOUT DD SYSOUT=*,LRECL=254
18 ++LOG DD SYSOUT=*,LRECL=254
```
- Right Pane (JREMCLI1.jcl):** Shows the JCL code being executed.

```
//-----1-----2-----3-----4-----5-----6-----7-----8
000005 // STEPLIB='ESAM.PLUSR224.LINKLIB',
000006 // RUNTIME='XPLINK(ON),POSIX(ON)',
000007 // PARMDEF='-f DD:PARM',
000008 // RUNPARM='',
000009 // LOGDEF='-l DD:LOG',
000010 // LICDEF='-c DD:LICDD',
000011 // ROOTDEF='-r /sea/rdz'
000012 // XSECLIB='SEASOFT.PLUSR224.PASSLIB'
000013 //*
000014 //STEP1 EXEC PGM=&PROG,
000015 // PARM='&RUNTIME/&PARMDEF &LOGDEF &LICDEF &ROOTDEF &RUNPARM'
i 000016 //STEPLIB DD DISP=SHR,DSN=&STEPLIB
000017 //PARM DD DISP=SHR,DSN=TEST.CC(&MEMBER)
i 000018 //LICDD DD DISP=SHR,DSN=&PRMLIB(&LICENSE)
000019 //CPCXSEC DD DISP=SHR,DSN=&XSECLIB
000020 //SYSIN DD DUMMY
000021 //STDOUT DD SYSOUT=*,LRECL=254929
000022 //STDERR DD SYSOUT=*,LRECL=254
000023 //SYSPRINT DD SYSOUT=*,LRECL=254
000024 //SYSOUT DD SYSOUT=*,LRECL=254
```
- Bottom Pane (JCL Outline Member):** Shows a tree view of the JCL outline. A yellow callout box points to the highlighted line: `//SYSIN DD DUMMY`.

```
JCL Outline Member: JREMCLIP Target: TITAN
--JREMOTE EXEC PROC=JREMCLIP
--STEP1 EXEC PGM=JREMOTE
--STEPLIB DD DSN=ESAM.PLUSR224.LINKLIB
--PARM DD DSN=TEST.CC(JREMCLI)
--LICDD DD DSN=SEASOFT.PLUSR224.CONFIG(LICENSE)
--CPCXSEC DD DSN=&XSECLIB
--SYSIN DD DUMMY
--STDOUT DD SYSOUT=*
--STDERR DD SYSOUT=*
--SYSPRINT DD SYSOUT=*
--SYSOUT DD SYSOUT=*
--LOG DD SYSOUT=*
--MESSAGES DD SYSOUT=*
--REPORT DD -- NO DATASET NAME FOUND --
```

Automate Standards Compliance

- Code is easier to read and manage when formatted consistently and adhering to common naming conventions
- Reporting is more powerful and specific when naming standards are well deployed

```

EDIT      SEAS.JCLPLUS.CNTL(COMPILE) - 01.01      Columns 00001 00072
Command ==> _____ Scroll ==> CSR
*****
***** Top of Data *****
000001 //SEA5Cmpl JOB (5056,XXX),'.. D. BERG ..',CLASS=X,
000002 //      MSGCLASS=X,MSGLEVEL=(1,1),NOTIFY=SEAS
000003 /*JOBPARM L=50
000004 /** COBOL COPMPILE STEP
000005 //COMPILE EXEC PGM=IKFCBL00,
000006 //      REGION=4096K,
000007 //      PARM='CLIST,OPT,SXR,NOLoad,DEC,NOSEQ,NOADV,SIZE=800K'
000008 //STEPLIB DD DSN=CSIOEM.SYS1.VSCOLIB,
000009 //      DISP=SHR
000010 //SYSUT1 DD SPACE=(CYL,(5,5)),UNIT=SYSDA
000011 //SYSUT2 DD UNIT=SYSDA,
000012 //      SPACE=(CYL,(5,5))
000013 //SYSUT3 DD SPACE=(CYL,(5,5)),
000014 //      UNIT=SYSDA
000015 //SYSUT4 DD UNIT=SYSDA,
000016 //      SPACE=(CYL,(5,5))
000017 //SYSPRINT DD SYSOUT=*
000018 //SYSUDUMP DD SYSOUT=*
000019 //SYSIN DD DSN=SEA2.COBOL.SOURCE(TECHLIST),
000020 //      DISP=SHR
000021 //SYSPUNCH DD DSN=SEA2.OBJ.CNTL(TECHLIST),

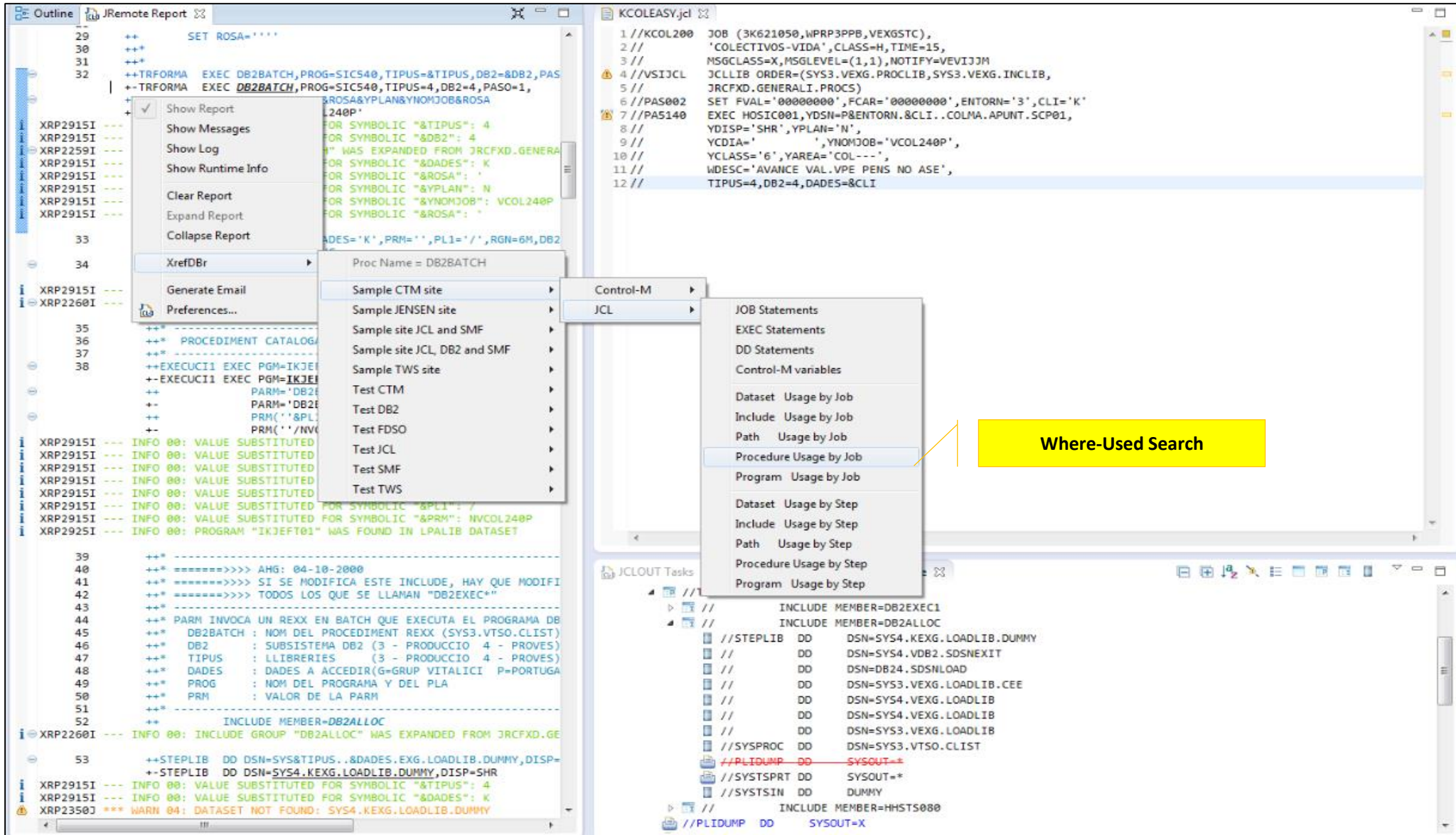
```

```

EDIT      SEAS.JCLPLUS.CNTL(COMPILE) - 01.02      Columns 00001 00072
Command ==> _____ Scroll ==> CSR
*****
***** Top of Data *****
000100 //SEA5Cmpl JOB (5056,XXX),'.. D. BERG ..',
000200 //      CLASS=X,
000300 //      MSGCLASS=X,
000400 //      MSGLEVEL=(1,1),
000500 //      NOTIFY=SEAS
000600 /*JOBPARM L=50
000700 /** COBOL COPMPILE STEP
000800 //COMPILE EXEC PGM=IKFCBL00,
000900 //      REGION=4096K,
001000 //      PARM='CLIST,OPT,SXR,NOLoad,DEC,NOSEQ,NOADV,SIZE=800K'
001100 //STEPLIB DD DSN=CSIOEM.SYS1.VSCOLIB,
001200 //      DISP=SHR
001300 //SYSUT1 DD SPACE=(CYL,(5,5)),
001400 //      UNIT=SYSDA
001500 //SYSUT2 DD UNIT=SYSDA,
001600 //      SPACE=(CYL,(5,5))
001700 //SYSUT3 DD SPACE=(CYL,(5,5)),
001800 //      UNIT=SYSDA
001900 //SYSUT4 DD UNIT=SYSDA,
002000 //      SPACE=(CYL,(5,5))
002100 //SYSUT4 DD UNIT=SYSDA,

```


Anticipating Target System Impact



The screenshot displays a JCL editor interface with three main panes. The left pane shows a JRemote Report with a context menu open over the 'XrefDBr' option. The middle pane shows a JCL file named 'KCOLEASY.jcl' with a sub-menu open for 'Control-M' and 'JCL', where 'Procedure Usage by Job' is highlighted. A yellow callout box labeled 'Where-Used Search' points to this option. The right pane shows a JCLOUT Tasks window with a list of dataset inclusions.

```
1 //KCOL200 JOB (3K621050,WPRP3PPB,VEXGSTC),
2 //          'COLECTIVOS-VIDA',CLASS=H,TIME=15,
3 //          MSGCLASS=X,MSGLEVEL=(1,1),NOTIFY=VEVIJ0M
4 //VSIJCL   JCLLIB ORDER=(SYS3.VEXG.PROCLIB,SYS3.VEXG.INCLIB,
5 //          JRCFXD.GENERALI.PROCS)
6 //PAS002  SET FVAL='00000000',FCAR='00000000',ENTORN='3',CLI='K'
7 //PAS140  EXEC HOSIC001,YDSN=P&ENTORN.&CLI..COLMA.APUNT.SCP01,
8 //          YDISP='SHR',YPLAN='N',
9 //          YCDIA='          ',YNOMJOB='VCOL240P',
10 //         YCLASS='6',YAREA='COL---',
11 //         WDESC='AVANCE VAL.VPE PENS NO ASE',
12 //         TIPUS=4,DB2=4,DADES=&CLI
```


Anticipating Target System Impact

```

29      ++      SET ROSA='***'
30      ++
31      ++
32      ++TRFORMA EXEC DB2BATCH,PROG=SIC540,TIPUS=&TIPUS,DB2=&DB2,PAS
++TRFORMA EXEC DB2BATCH,PROG=SIC540,TIPUS=4,DB2=4,PASO=1,
DADES=&DADES,PRM=&ROSA&YPLAN&YNOMJOB&ROSA
DADES=K,PRM='NVCOL240P'
XRP2915I --- INFO 00: VALUE SUBSTITUTED FOR SYMBOLIC "&TIPUS": 4
XRP2915I --- INFO 00: VALUE SUBSTITUTED FOR SYMBOLIC "&DB2": 4
XRP2259I --- INFO 00: PROCEDURE "DB2BATCH" WAS EXPANDED FROM JRCFXD.GENERA
XRP2915I --- INFO 00: VALUE SUBSTITUTED FOR SYMBOLIC "&DADES": K
XRP2915I --- INFO 00: VALUE SUBSTITUTED FOR SYMBOLIC "&ROSA": '
XRP2915I --- INFO 00: VALUE SUBSTITUTED FOR SYMBOLIC "&YPLAN": N
XRP2915I --- INFO 00: VALUE SUBSTITUTED FOR SYMBOLIC "&YNOMJOB": VCOL240P
XRP2915I --- INFO 00: VALUE SUBSTITUTED FOR SYMBOLIC "&ROSA": '

33      ++DB2BATCH PROC TIPUS=4,DADES='K',PRM='',PL1='/',RGN=6M,DB2
++
++ PASO=0,AMBIT=EXG
++ INCLUDE MEMBER=DB2EXEC&PASO
++ INCLUDE MEMBER=DB2EXEC1
XRP2915I --- INFO 00: VALUE SUBSTITUTED FOR SYMBOLIC "&PASO": 1
XRP2260I --- INFO 00: INCLUDE GROUP "DB2EXEC1" WAS EXPANDED FROM JRCFXD.GE

35      ++
36      ++
37      ++
38      ++
-----
++ EXECUCI1 EXEC PGM=IKJEFT01,DYNAMNBR=30,REGION=&RGN,
++ EXECUCI1 EXEC PGM=IKJEFT01,DYNAMNBR=30,REGION=6M,
++ PARM='DB2BATCH DB2(&DB2) PROG(&PROG) PLAN(B&
++ PARM='DB2BATCH DB2(4) PROG(SIC540) PLAN(BKSI
++ PRM(''&PL1&PRM'' )'
++ PRM(''NVCOL240P'' )'
XRP2915I --- INFO 00: VALUE SUBSTITUTED FOR SYMBOLIC "&RGN": 6M
XRP2915I --- INFO 00: VALUE SUBSTITUTED FOR SYMBOLIC "&DB2": 4
XRP2915I --- INFO 00: VALUE SUBSTITUTED FOR SYMBOLIC "&PROG": SIC540
XRP2915I --- INFO 00: VALUE SUBSTITUTED FOR SYMBOLIC "&DADES": K
XRP2915I --- INFO 00: VALUE SUBSTITUTED FOR SYMBOLIC "&PROG": SIC540
XRP2915I --- INFO 00: VALUE SUBSTITUTED FOR SYMBOLIC "&PL1": /
XRP2915I --- INFO 00: VALUE SUBSTITUTED FOR SYMBOLIC "&PRM": NVCOL240P
XRP2925I --- INFO 00: PROGRAM "IKJEFT01" WAS FOUND IN LPALIB DATASET

39      ++
40      ++
41      ++
42      ++
43      ++
44      ++
45      ++
46      ++
47      ++
48      ++
49      ++
50      ++
51      ++
52      ++
53      ++
-----
++
++++>>>>> AHG: 04-10-2000
++++>>>>> SI SE MODIFICA ESTE INCLUDE, HAY QUE MODIFI
++++>>>>> TODOS LOS QUE SE LLAMAN "DB2EXEC*"
++++
++ PARM INVOCA UN REXX EN BATCH QUE EXECUTA EL PROGRAMA DB
++ DB2BATCH : NOM DEL PROCEDIMENT REXX (SYS3.VTSD.CLIST)
++ DB2      : SUBSISTEMA DB2 (3 - PRODUCCIO 4 - PROVES)
++ TIPUS    : LLIBRERIES (3 - PRODUCCIO 4 - PROVES)
++ DADES    : DADES A ACCEDIR(G=GRUP VITALICI P=PORTUGA
++ PROG     : NOM DEL PROGRAMA Y DEL PLA
++ PRM      : VALOR DE LA PARM
++++
++ INCLUDE MEMBER=DB2ALLOC
XRP2260I --- INFO 00: INCLUDE GROUP "DB2ALLOC" WAS EXPANDED FROM JRCFXD.GE

53      ++STEPLIB DD DSN=SYS&TIPUS..&DADES.EXG.LOADLIB.DUMMY,DISP=
++STEPLIB DD DSN=SYS4.KEXG.LOADLIB.DUMMY,DISP=SHR
XRP2915I --- INFO 00: VALUE SUBSTITUTED FOR SYMBOLIC "&TIPUS": 4
XRP2915I --- INFO 00: VALUE SUBSTITUTED FOR SYMBOLIC "&DADES": K
XRP2350J *** WARN 04: DATASET NOT FOUND: SYS4.KEXG.LOADLIB.DUMMY
          
```

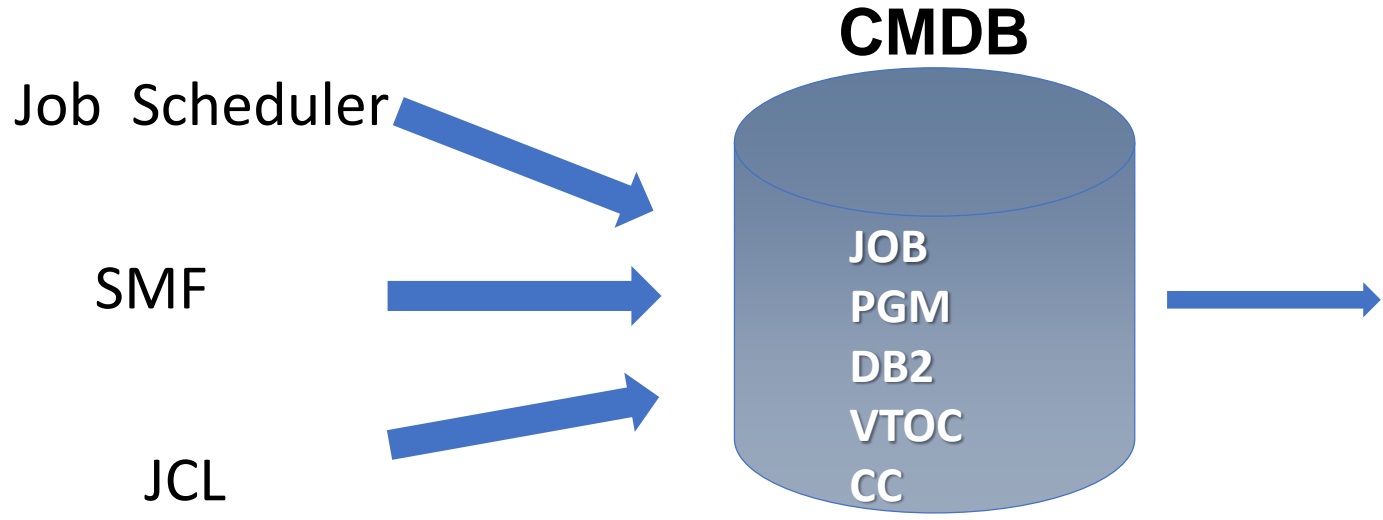
```

KCOL200 JOB (3K621050,WPRP3PPB,VEXG5TC),
2 //
3 //
4 //VSIJCL JCLLIB ORDER=(SYS3.VEXG.PROCLIB,SYS3.VEXG.INCLIB,
5 //
6 //PAS002 SET FVAL='00000000',FCAR='00000000',ENTORN='3',CLI='K'
7 //PAS140 EXEC HOSIC001,YDSN=P&ENTORN.&CLI..COLMA.APUNT.SCP01,
8 //
9 // YDISP='SHR',YPLAN='N',
10 // YCDIA=' ',YNOMJOB='VCOL240P',
11 // YCLASS='6',YAREA='COL---',
12 // WDESC='AVANCE VAL.VPE PENS NO ASE',
TIPUS=4,DB2=4,DADES=&CLI
          
```

Jobs referenced Proc = DB2BATCH

Procedure Name	Proc Source Library	Job Name	System	Source Dataset
DB2BATCH	JRCFXD.GENERALI.PROCS	KDSI0103	JRCA	SYS3.KEXG.JCLLIB
DB2BATCH	JRCFXD.GENERALI.PROCS	KRED915	JRCA	SYS3.KEXG.JCLLIB
DB2BATCH	JRCFXD.GENERALI.PROCS	KRED915C	JRCA	SYS3.KEXG.JCLLIB
DB2BATCH	JRCFXD.GENERALI.PROCS	KRED915P	JRCA	SYS3.KEXG.JCLLIB
DB2BATCH	JRCFXD.GENERALI.PROCS	KCOA720Z	JRCA	SYS3.KEXG.JCLLIB
DB2BATCH	JRCFXD.GENERALI.PROCS	KCOA802	JRCA	SYS3.KEXG.JCLLIB
DB2BATCH	JRCFXD.GENERALI.PROCS	KCOL003	JRCA	SYS3.KEXG.JCLLIB
DB2BATCH	JRCFXD.GENERALI.PROCS	KCOL023J	JRCA	SYS3.KEXG.JCLLIB
DB2BATCH	JRCFXD.GENERALI.PROCS	KCOL023P	JRCA	SYS3.KEXG.JCLLIB
DB2BATCH	JRCFXD.GENERALI.PROCS	KCOL050	JRCA	SYS3.KEXG.JCLLIB
DB2BATCH	JRCFXD.GENERALI.PROCS	KCOL102	JRCA	SYS3.KEXG.JCLLIB
DB2BATCH	JRCFXD.GENERALI.PROCS	KCOL102B	JRCA	SYS3.KEXG.JCLLIB
DB2BATCH	JRCFXD.GENERALI.PROCS	KCOL151	JRCA	SYS3.KEXG.JCLLIB
DB2BATCH	JRCFXD.GENERALI.PROCS	KCOL152	JRCA	SYS3.KEXG.JCLLIB
DB2BATCH	JRCFXD.GENERALI.PROCS	KCOL160	JRCA	SYS3.KEXG.JCLLIB
DB2BATCH	JRCFXD.GENERALI.PROCS	KCOL161	JRCA	SYS3.KEXG.JCLLIB
DB2BATCH	JRCFXD.GENERALI.PROCS	KCOL162	JRCA	SYS3.KEXG.JCLLIB
DB2BATCH	JRCFXD.GENERALI.PROCS	KCOL162E	JRCA	SYS3.KEXG.JCLLIB
DB2BATCH	JRCFXD.GENERALI.PROCS	KCOL163	JRCA	SYS3.KEXG.JCLLIB

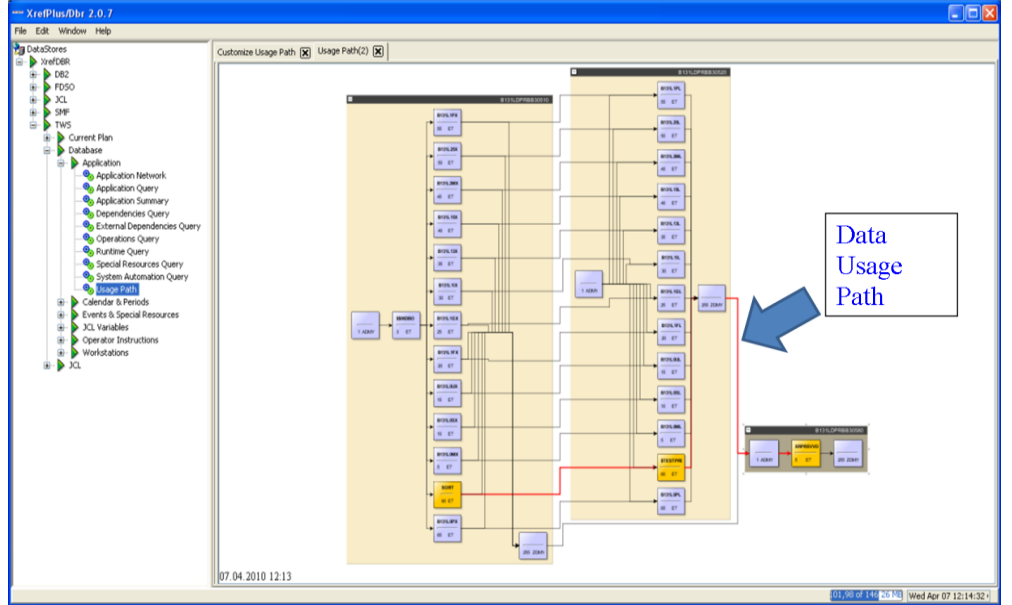
Knowledge Management Incorporated



- Quickly identify dependencies for testing
- Where-Used Datasets
 - Where-Used Procs
 - Where-Used Control Cards
- Obsolete components cleanup

Accurate System Documentation

- Process Flow and Data Dependencies



Knowledge Management Incorporated

JCLPLUS - JCLOUT report read from /RemoteSystemsTempFiles/FttRemoteTempFiles/jrcs.jrc.lan/JRC1/JRC1.FXD.TEST.JCLOUT - IBM Rational Developer for z Systems

File Edit Navigate Search Project Run Window Help

XrefDBr/Web JCLOUT Tasks JCLPlus Markers JCLPlus Explorer Remote System Details JCLPlus Tasks

Parameters Operations Query Count Operations Query Run Application Details

Click and drag to move

Environments > Env02 - TWS only > TWS > Database > Application Details

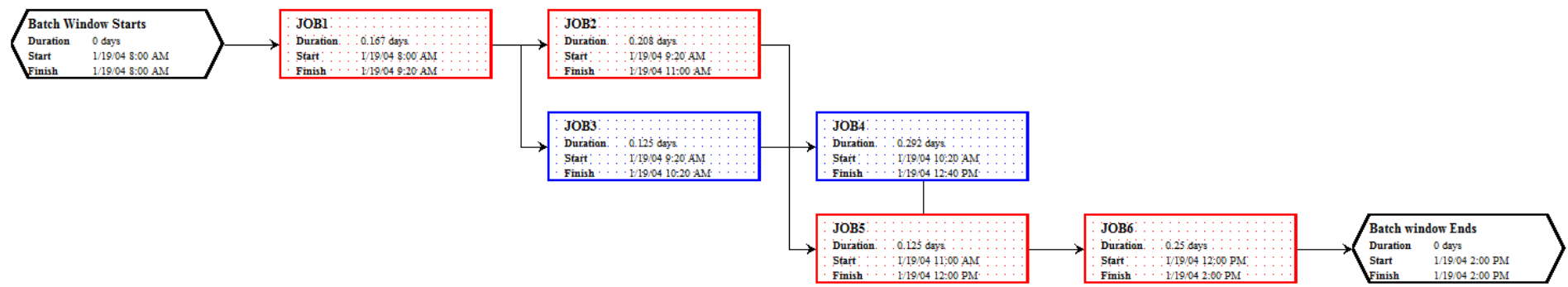
Reload Tab Export Report

Table	Selected	Application ID
TWS Subsystem										
OPCJ		\$QPOSITIONS1	O 10	CPU	\$Q1IMP55	Q PDB main part 5- set 1	12:00:00 AM	12:00:00 AM	16	N
OPCJ		\$QPOSITIONS1	O 11	CPU	\$Q1IMP56	Q PDB index 1- set 1	12:00:00 AM	12:00:00 AM	15	N
OPCJ		\$QPOSITIONS1	O 12	CPU	\$Q1IMP57	Q PDB index 2- set 1	12:00:00 AM	12:00:00 AM	1	N
OPCJ		\$QPOSITIONS1	O 13	CPU	\$Q1IMPA1	Q posit archive image 1	12:00:00 AM	12:00:00 AM	8	N
OPCJ		\$QPOSITIONS1	O 20	NREP	NJCLBR14	End of Images	12:00:00 AM	12:00:00 AM	1	N
OPCJ		\$QPOSITIONS1	O 40	CPU	\$Q5PS100	RTTC PDB PS101 extract	12:00:00 AM	12:00:00 AM	9	N

3 rows 64 rows

Zoom In Zoom Out Export Detail View

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Defects by Job

Job ID	Message	Level
@DSI0102	XRP2245J *** WARN 04: UNABLE TO FIND INCLUDE GROUP: HHSTS080	WARN
@DSI0102	F9901T XRP2297J *** WARN 04: UNIT NAME NOT DEFINED TO MVS: TREBALL	WARN
@DSI0102	XRP2245J *** WARN 04: UNABLE TO FIND INCLUDE GROUP: HHSTS080	WARN
@DSI0102	XRP2245J *** WARN 04: UNABLE TO FIND INCLUDE GROUP: HHSTS080	WARN
@RED915	KRED915 RC=4	RC=4
@RED915	VSIJCL XRP2219J *** WARN 04: DATASET NOT FOUND: SYS3.VEXG.PROCLIB	WARN
@RED915	VSIJCL XRP2225J *** WARN 04: RECFM=U IS INVALID FOR JCLLIB: SYS3.VEXG.PROCLIB	WARN
@RED915	SYSREC00 XRP2297J *** WARN 04: UNIT NAME NOT DEFINED TO MVS: TREBALL	WARN
@RED915	SYSTSIN XRP2412J *** WARN 04: DYNALOC FAILED, UNABLE TO VERIFY MEMBER IN: SYS3.VEXG.PROCLIB	WARN
@RED915	SORTOUT XRP2297J *** WARN 04: UNIT NAME NOT DEFINED TO MVS: TREBALL	WARN
@RED915	F9901T XRP2297J *** WARN 04: UNIT NAME NOT DEFINED TO MVS: TREBALL	WARN
@RED915	SORTOUT XRP2297J *** WARN 04: UNIT NAME NOT DEFINED TO MVS: TREBALL	WARN
@RED915	F9902T XRP2297J *** WARN 04: UNIT NAME NOT DEFINED TO MVS: TRANSFER	WARN
@RED915	F9903T XRP2297J *** WARN 04: UNIT NAME NOT DEFINED TO MVS: TRANSFER	WARN
@RED915C	KRED915C RC=4	RC=4
@RED915C	VSIJCL XRP2219J *** WARN 04: DATASET NOT FOUND: SYS3.VEXG.PROCLIB	WARN
@RED915C	VSIJCL XRP2225J *** WARN 04: RECFM=U IS INVALID FOR JCLLIB: SYS3.VEXG.PROCLIB	WARN
@RED915C	SYSREC00 XRP2297J *** WARN 04: UNIT NAME NOT DEFINED TO MVS: TREBALL	WARN
@RED915C	SYSTSIN XRP2412J *** WARN 04: DYNALOC FAILED, UNABLE TO VERIFY MEMBER IN: SYS3.VEXG.PROCLIB	WARN
@RED915C	SORTOUT XRP2297J *** WARN 04: UNIT NAME NOT DEFINED TO MVS: TREBALL	WARN
@RED915C	F9901T XRP2297J *** WARN 04: UNIT NAME NOT DEFINED TO MVS: TREBALL	WARN
@RED915C	SORTOUT XRP2297J *** WARN 04: UNIT NAME NOT DEFINED TO MVS: TREBALL	WARN
@RED915C	F9902T XRP2297J *** WARN 04: UNIT NAME NOT DEFINED TO MVS: TRANSFER	WARN
@RED915C	F9903T XRP2297J *** WARN 04: UNIT NAME NOT DEFINED TO MVS: TRANSFER	WARN
@RED915P	KRED915P RC=4	RC=4

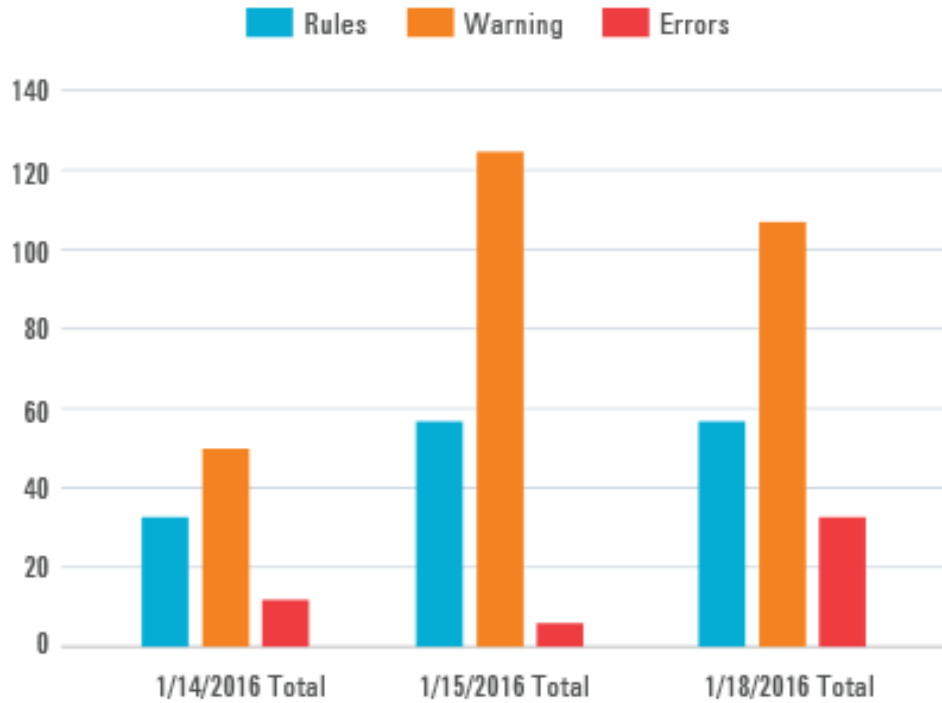
```

    MEMBER @DSI0102 IN LIBRARY SYS3.KEXG.JCLLIB, ON VOLUME JRCV32
    MESSAGE LEVELS BEING PRINTED: (1)INFO (2)WARN (3)ERROR (4)RULE

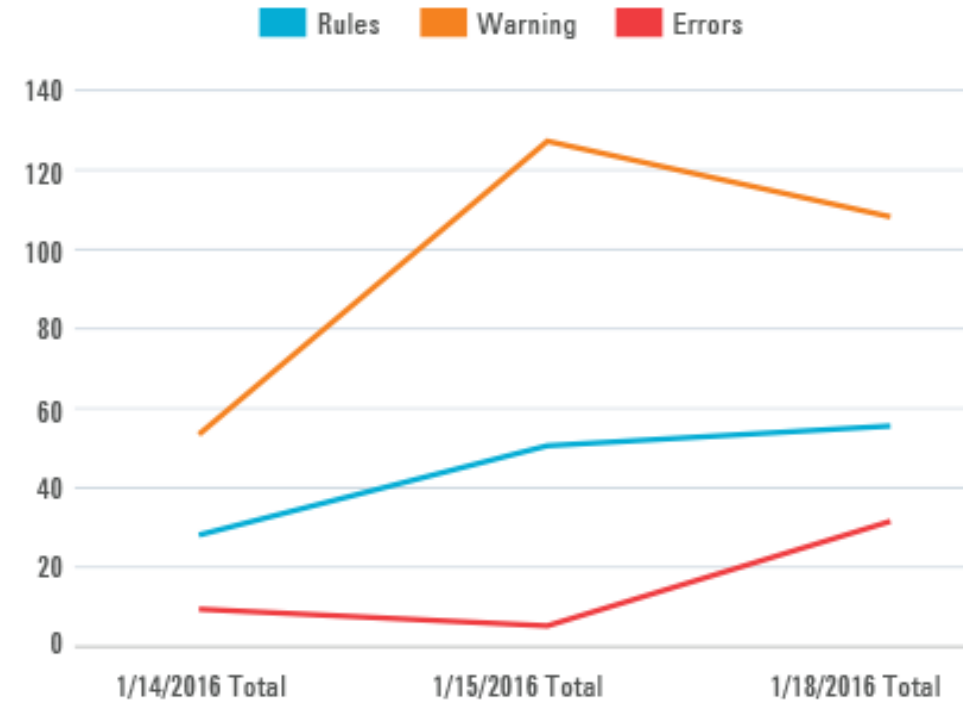
    STMT #      STATEMENT
    -----
    1          DD DSN=SYS3.VEXG.LOADLIB,DISP=SHR
    2          //*
    3          //*
    4          //*-----PROCEDIMIENTO DE NOTES (SEGUROS GENERALES)-----*
    5          //*
    6          //*
    7          //J5010 EXEC DB2UNLD,DB2=3,MEMBRE='DSI009',DADES=K
    8          ++DB2UNLD PROC DB2=4,OUT='*',MEMBRE='',RGN=5M,TIPUS=3,DADES='X'
    9          ++*
    10         ++* AVISAR A MARIUS / MANEL SI SE MODIFICA EL NOMBRE DEL PROCEDIMIENTO
    11         ++* O EL STRING "//DB2UNLD PROC"
    12         ++*
    13         +-----+
    14         ++* - PERMET DESCARREGAR EL RESULTAT D'UN SELECT EN UN FITXER. *
    15         ++* - EL PROGRAMA STS748 ALOCA DINAMICAMENT EL MEMBRE QUE REB COM *
    16         ++* A PARMETRE DE LA LLIBRERIA SYS3.&DADES.DB2.DB2UNLD. AQUEST *
    17         ++* MEMBRE CONT LA SENTENCIA SQL. *
    18         ++* - LA DESCARREGA LA FA EL ILMINAD+ DE BMC (PROG ADJUMATN) *
  
```

Reliance on Metrics

Graphical Representation



Trends Analysis



Indices

#Stmts/Job	60
#Defects/Job	10
#Stmts/Job w/Defects	6
#Critical-Defects/Job	3
#Standards-Defects/Job	8

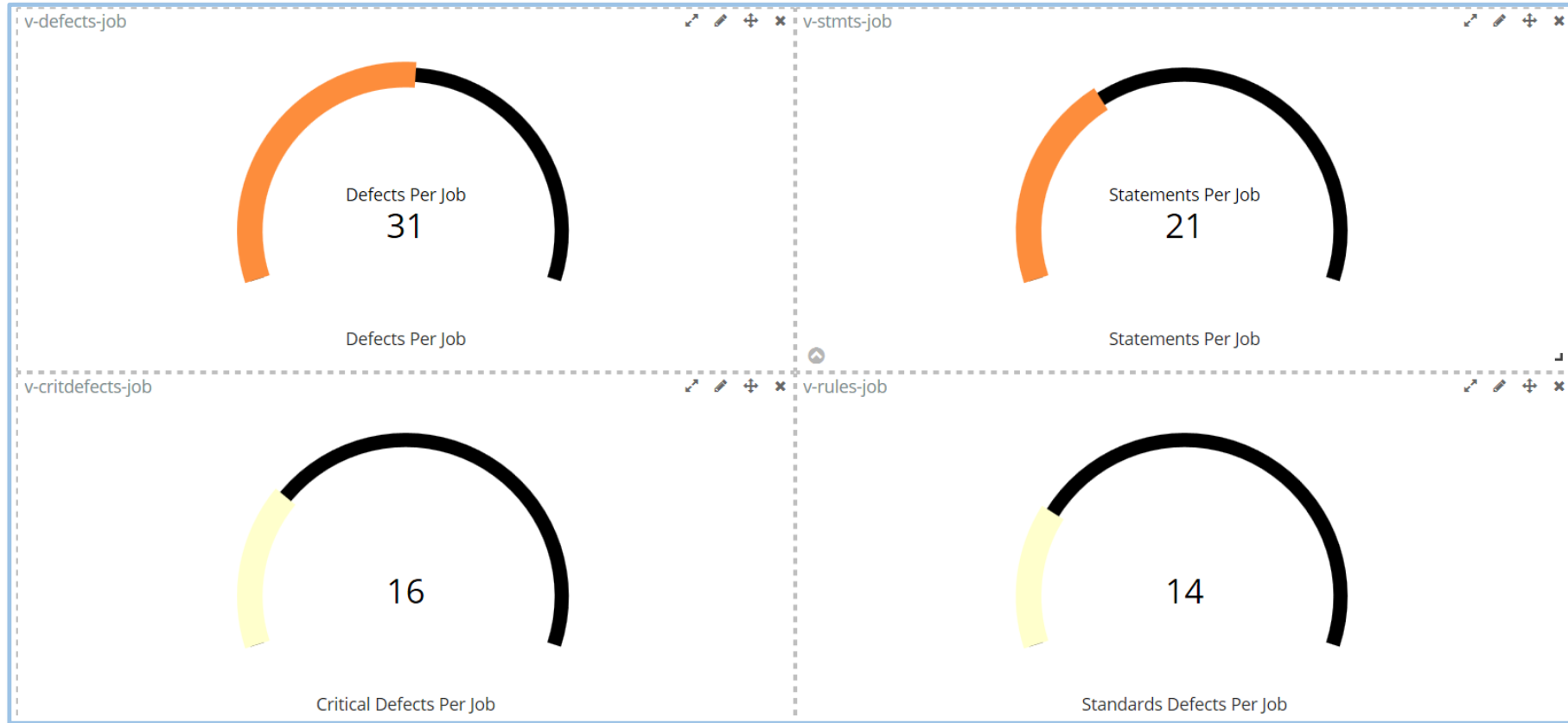
Reliance on Metrics

Global Data

Date ↕	Mode ↕	Testing Process ↕	# Critical Defects ↕	# Standards Defects ↕	# Stmt Defects ↕	# Jobs Tested ↕	Records ↕
October 19th 2018, 14:38:01.769	EDIT	SEAUSER	2	0	3	1	1
October 19th 2018, 14:38:01.776	BATCH	SEAUSERC	277	0	267	1	1
October 19th 2018, 14:38:01.778	BATCH	SEAUSERB	392	0	449	23	1
October 19th 2018, 14:38:01.780	EDIT	SEAUSER	2	0	3	1	1
October 19th 2018, 14:38:01.781	EDIT	SEAUSER	2	0	3	1	1
October 19th 2018, 14:38:01.782	EDIT	SEAUSER	0	17	13	1	1
October 19th 2018, 14:38:01.786	BATCH	SEAUSERB	275	414	389	7	1
October 19th 2018, 14:38:01.790	BATCH	SEAUSERB	275	414	389	7	1
October 19th 2018, 14:38:01.793	EDIT	SEAUSER	2	0	2	0	1
October 19th 2018, 14:38:01.801	EDIT	SEAUSER	2	8	6	1	1
October 19th 2018, 14:38:01.804	EDIT	SEAUSER	15	4	17	1	1
October 19th 2018, 14:38:01.806	BATCH	SEAUSERB	181	343	291	39	1
October 19th 2018, 14:38:01.808	EDIT	SEAUSER	2	12	7	1	1
			1,427	1,212	1,839	84	13

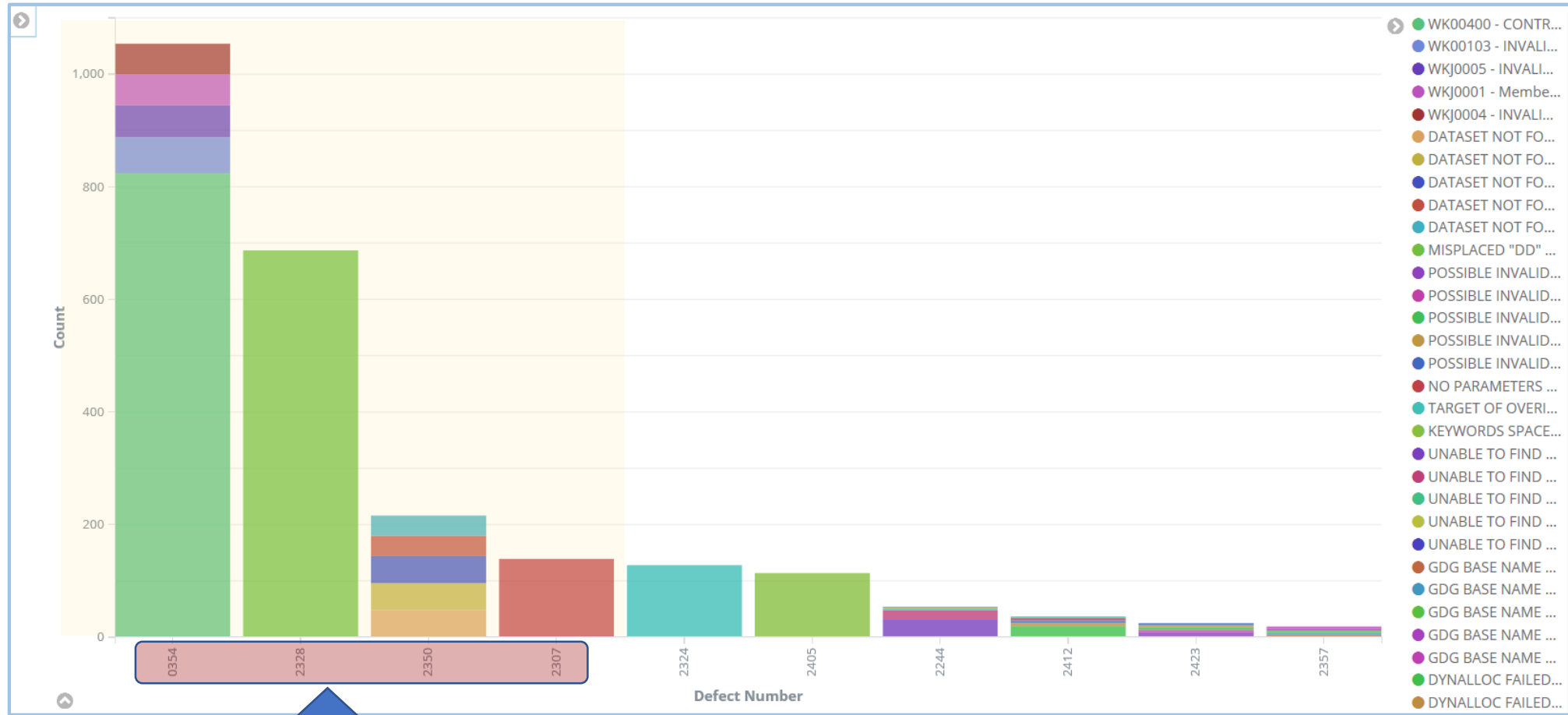
Reliance on Metrics

From the global data we can deduce the following Indices



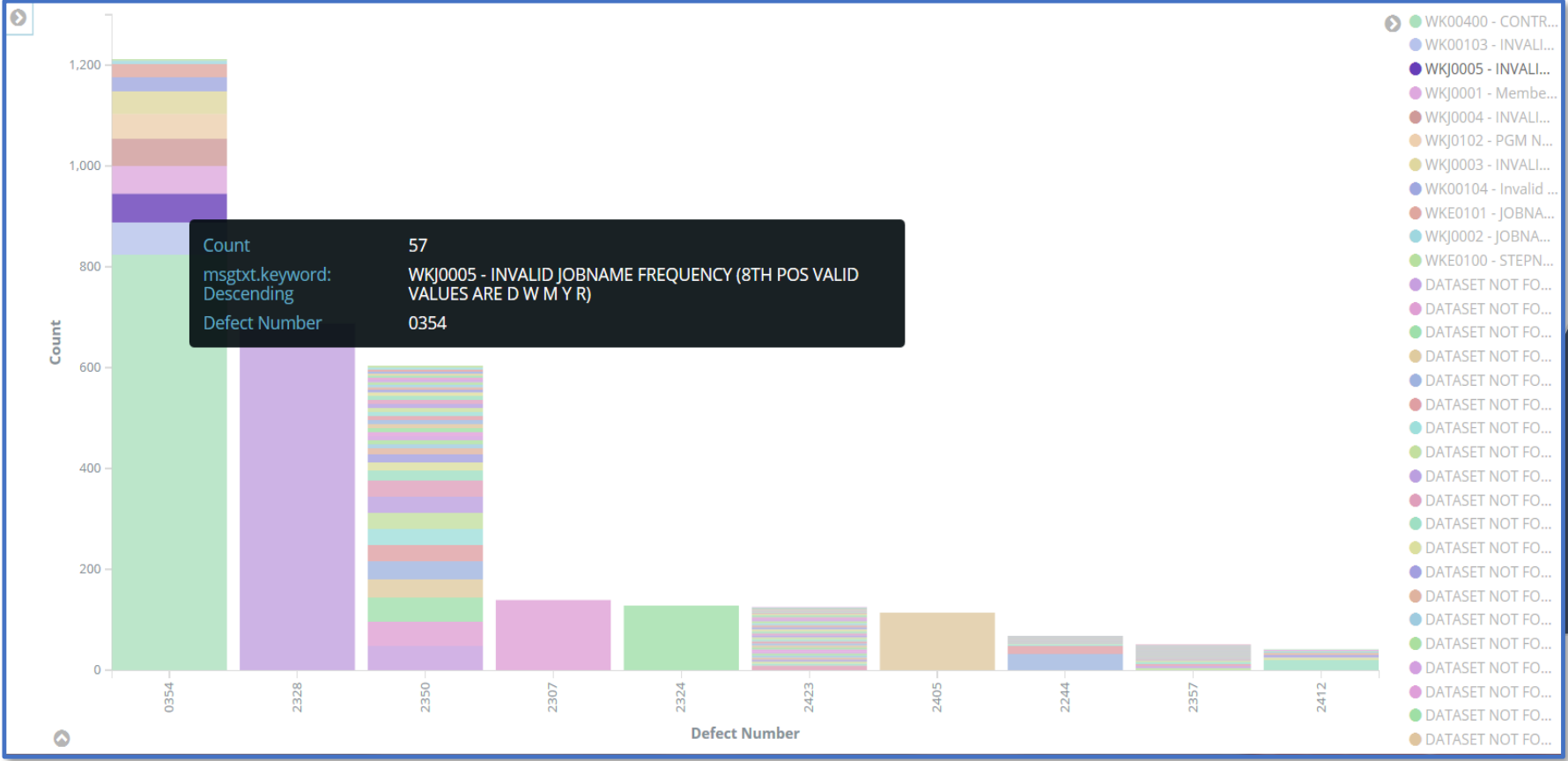
- At a higher level these indices provide significant information for major release, application forecast, massive changes, scheduler setups and other events
- Detailed record offers more information to categorize defects' source, type and frequency

Defects by Type



Top 4 Defects for This Event

Reliance on Metrics



Defect **0354** is related to a Standards Enforcement Defect

This example of a release management shows a lack of company's standards knowledge when deploying an application

An action campaign can be easily implemented for developers (shift-Left)

What Types of Metrics are Interesting?

Why?

We want your feedback!

- Please submit your feedback online at
 - <http://conferences.gse.org.uk/2018/feedback/mf>
- Paper feedback forms are also available from the Chair person
- This session is **MF**

