

# IBM Education Assistance(IEA) for z/OS V2R3

Line Item Name: SPZAP to prevent partial updates to target data sets  
Element/Component: BCP SPZAP



# Agenda

- Trademarks
- Session Objectives
- Overview
- Usage & Invocation
- Interactions & Dependencies
- Migration & Coexistence Considerations
- Installation
- Session Summary
- Appendix

# Trademarks

- See url <http://www.ibm.com/legal/copytrade.shtml> for a list of trademarks.
- Additional Trademarks:
  - None.

# Session Objectives

- Things you will learn from this presentation
  - The purpose of the new function
  - Functional content and benefit
  - How to invoke the function
  - Migration / coexistence issues or concerns
  - List of publications

# Overview

- Problem Statement / Needs addressed
  - RFE 57187 - Top Share Requirement (MR0110123341)
    - 'SPZAP to perform CHECKSUM prior to committing REP'
      - SPZAP processes a control statement as it is read
      - REP statements preceding CHECKSUM are processed first
        - target data set updated
        - If the subsequent CHECKSUM is found to be invalid
          - updates committed by REP are not retracted
            - target data set left with partial / undesired updates
          - manual intervention required to UNDO the changes
            - error-prone and risky
            - major pain point for customers

# Overview

- Solution
  - CHECKSUM is calculated using hexadecimal data in SYSIN
    - May span the entire SYSIN
    - Affected by errors in SYSIN input
      - check all input for other errors besides CHECKSUM
  - Provide a new PARM option to PRECHECK input for errors
- Benefit / Value
  - With PARM=PRECHECK, partial updates are prevented when SYSIN has detectable errors
    - whether or not CHECKSUM is specified
  - Behavior unchanged without PARM=PRECHECK

# Overview

- More on the problem scenario – example
  - REP/SETSSI and IDRDATA statements are processed before CHECKSUM
    - Target data set is updated by the time CHECKSUM is validated
    - If CHECKSUM is invalid (incorrect data transcription), data set updates are not taken back

```
//TESTZAP JOB 'SPZAP,,VARAN1,',  
//          'TEST1',NOTIFY=&SYSUID,  
//          CLASS=J,MSGCLASS=A,MSGLEVEL=(1,1),  
//          REGION=2048K  
//STEP1     EXEC PGM=AMASPZAP  
//SYSPRINT  DD SYSOUT=A  
//SYSLIB    DD DSN='MVSSVA.GIRIJA.MIGLIB',DISP=SHR  
//SYSIN     DD *  
NAME EXSPZAP EXSPZAP  
REP 0020 0004  
SETSSI 09034016  
IDRDATA F145N1I1  
DUMPT EXSPZAP EXSPZAP  
NAME MYSPZAP MYSPZAP  
REP 0020 C2E8  
SETSSI 09051216  
IDRDATA F145N2I1  
DUMPT MYSPZAP MYSPZAP  
CHECKSUM 12491518  
/*
```

# Usage & Invocation

- Specify PARM=PRECHECK to invoke the new function
  - Batch jobs - some examples:
    - PARM=('IGNIDRFULL','PRECHECK')
    - PARM=('PRECHECK','IGNIDRFULL')
    - PARM=('PRECHECK')
  - Dynamic invocation of AMASPZAP
    - code PRECHECK in the OPLIST, for example:

```
OPLIST          DS  0H          ALIGN OPLIST ON  A WORD BOUNDARY
                  DC  H'19'      LENGTH OF THE CHAR STR CONTG OPLIST
                  DC  CL10'IGNIDRFULL'  IGNORE IDR FAILURES
                  DC  CL1', '     DELIMITER SPACE
                  DC  CL8'PRECHECK'    NEW PARM FOR FP1710(CHECKSUM)
```



# Usage & Invocation

- PARM=PRECHECK in the JCL
  - Dynamic invocations use OPLIST
- Checks entire SYSIN input for detectable errors
  - ex. syntax, VERIFY, CHECKSUM, SETSSI, OVERLAP errors etc
- Skips updates to target data set during PRECHECK
  - REP, SETSSI and IDRDATA statements
- When PRECHECK fails, SPZAP ends without updating target data set
  - output shows error(s) detected
- When PRECHECK is successful, SPZAP output will be twice in size
  - Includes output from both PRECHECK and Post-Check phases
- For PDSE and z/OS USS files
  - LE's Binder supports PRECHECK function in V2R3

## Usage & Invocation

- IBM does not recommend PRECHECK with interactive SYSIN input
  - Results vary
    - If interactive nature of input is detected, SPZAP will fail, for example
      - When SYSIN is from TSO TERMINAL
      - When SYSIN has CONSOLE statement
    - If interactive nature is not detected by SPZAP, you need to enter the input again
      - Data reentry can be error-prone
        - If input is different, PRECHECK won't help
        - Partial updates may still occur

## Usage & Invocation

- When PARM option is specified incorrectly, SPZAP fails with AMA129I

- AMA129I INVALID PARAMETER SPECIFICATION

Example scenarios:

- PARM=('PRECEHCK,IGNIDRFULL') *incorrect spelling*
- PARM=('PRECHECK IGNIDRFULL') *missing comma*
- PARM=('PRECHECK,PRECHECK') *duplicate keyword*
- PARM=('PRECHECK,') *2nd keyword missing*
- *scenarios ignored before, but now errors*
- PARM=('IGNIDRFULL,IGNIDRFULL') *duplicate keyword IGNIDRFULL*
- PARM=('IGNIDRFULL,') *2nd keyword missing*
- PARM=('IGNIDRFULLER') *only first 10 bytes are correct*

# Usage & Invocation

- PARM=PRECHECK example
  - REP/SETSSI and IDRDATA statements are skipped during PRECHECK
    - Target data set is not updated by the time CHECKSUM is validated
    - If CHECKSUM is found to be invalid (incorrect data transcription)
      - SPZAP does not continue because PRECHECK fails

```
//TESTZAP JOB 'SPZAP,,VARAN1,',  
//          'TEST1',NOTIFY=&SYSUID,  
//          CLASS=J,MSGCLASS=A,MSGLEVEL=(1,1),  
//          REGION=2048K  
//STEP1     EXEC PGM=AMASPZAP,PARM='PRECHECK'  
//SYSPRINT DD SYSOUT=A  
//SYSLIB DD DSN='MVSSVA.GIRIJA.MIGLIB',DISP=SHR  
//SYSIN DD *  
NAME EXSPZAP EXSPZAP  
REP 0020 0004  
SETSSI 09034016  
IDRDATA F145N1I1  
DUMPT EXSPZAP EXSPZAP  
NAME MYSPZAP MYSPZAP  
REP 0020 C2E8  
SETSSI 09051216  
IDRDATA F145N2I1  
DUMPT MYSPZAP MYSPZAP  
CHECKSUM 12491518  
/*
```

# Usage & Invocation

- New AMA messages when PRECHECK is specified
  - AMA167I SYSIN PRECHECKING STARTED *at the beginning of precheck*
  - AMA167I SYSIN PRECHECKING SKIPS UPDATES *for REP/SETSSI and IDRDATA*
  - AMA167I SYSIN PRECHECKING COMPLETED *at the end of successful precheck*
  - ===== *separator line between 2 phases*
  - AMA168I SYSIN PROCESSING STARTED *at the beginning of post-checking process*
  - AMA168I SYSIN PROCESSING COMPLETED *at the end of post-checking process*

# Usage & Invocation

- New AMA Messages (continued)
  - when errors are found in input during PRECHECK
    - AMA167I SYSIN PRECHECKING FOUND ERRORS
      - *at the end of precheck*
  - when PRECHECK is on but CONSOLE statement is found in input
    - AMA166I PRECHECK AND CONSOLE ARE MUTUALLY EXCLUSIVE
    - AMA167I SYSIN PRECHECKING WAS ABORTED
      - *at the end of precheck*
  - when PRECHECK is on but SYSIN data is entered via a TSO terminal
    - AMA166I PRECHECK AND TSO ARE MUTUALLY EXCLUSIVE
    - AMA167I SYSIN PRECHECKING WAS ABORTED
      - *at the end of precheck*

## Usage &amp; Invocation

AMASPZAP INSPECTS, MODIFIES, AND DUMPS CSECTS OR SPECIFIC DATA RECORDS ON DIRECT ACCESS STORAGE.

AMA167I SYSIN PRECHECKING STARTED

|                      |          |
|----------------------|----------|
| NAME EXSPZAP EXSPZAP | 00140000 |
| VER 0020 C2E8        | 00150000 |
| REP 0020 0004        | 00160000 |

AMA167I SYSIN PRECHECKING SKIPS UPDATES

|               |          |
|---------------|----------|
| REP 0020 C2E8 | 00160100 |
|---------------|----------|

AMA167I SYSIN PRECHECKING SKIPS UPDATES

|                 |          |
|-----------------|----------|
| SETSSI 08034516 | 00160200 |
|-----------------|----------|

AMA167I SYSIN PRECHECKING SKIPS UPDATES

|                   |          |
|-------------------|----------|
| CHECKSUM 0864CAEA | 00160400 |
|-------------------|----------|

AMA132I CHECKSUM WAS CORRECT , IS NOW 0.

|                  |          |
|------------------|----------|
| IDRDATA F14512NG | 00160500 |
|------------------|----------|

AMA167I SYSIN PRECHECKING SKIPS UPDATES

|                          |          |
|--------------------------|----------|
| ABSDUMPT EXSPZAP EXSPZAP | 00160600 |
|--------------------------|----------|

|                     |                       |                     |   |
|---------------------|-----------------------|---------------------|---|
| **CCHHR- 000C000A14 | RECORD LENGTH- 000018 | MEMBER NAME EXSPZAP |   |
| 000000              | 2080 0000             | 0001 0010           | C5E7 E2D7 E9C1 D740 0000 0000 0000 0406 |
|                     | LPDR                  |                     | BPRP UNPKU PKA XC                       |

\*.....EXSPZAP \*

.....

AMA113I COMPLETED DUMP REQUIREMENTS

|    |          |
|----|----------|
| /* | 00160700 |
|----|----------|

AMA167I SYSIN PRECHECKING COMPLETED

=====

AMA168I SYSIN PROCESSING STARTED

|                      |          |
|----------------------|----------|
| NAME EXSPZAP EXSPZAP | 00140000 |
| VER 0020 C2E8        | 00150000 |
| REP 0020 0004        | 00160000 |

AMA122I OLD DATA WAS C2E8

|               |          |
|---------------|----------|
| REP 0020 C2E8 | 00160100 |
|---------------|----------|

AMA122I OLD DATA WAS 0004

|                 |          |
|-----------------|----------|
| SETSSI 08034516 | 00160200 |
|-----------------|----------|

AMA122I OLD DATA WAS 09051216

|                   |          |
|-------------------|----------|
| CHECKSUM 0864CAEA | 00160400 |
|-------------------|----------|

AMA132I CHECKSUM WAS CORRECT , IS NOW 0.

|                  |          |
|------------------|----------|
| IDRDATA F14512NG | 00160500 |
|------------------|----------|

AMA125I EXSPZAP IDR COUNT = 0015 (MAX=0019)

|                          |          |
|--------------------------|----------|
| ABSDUMPT EXSPZAP EXSPZAP | 00160600 |
|--------------------------|----------|

|                     |                       |                     |   |
|---------------------|-----------------------|---------------------|---|
| **CCHHR- 000C000A14 | RECORD LENGTH- 000018 | MEMBER NAME EXSPZAP |   |
| 000000              | 2080 0000             | 0001 0010           | C5E7 E2D7 E9C1 D740 0000 0000 0000 0406 |
|                     | LPDR                  |                     |   |

\*.....EXSPZAP \*

.....

AMA113I COMPLETED DUMP REQUIREMENTS

|    |          |
|----|----------|
| /* | 00160700 |
|----|----------|

AMA168I SYSIN PROCESSING COMPLETED

AMA100I AMASPZAP PROCESSING COMPLETED

# Usage & Invocation

## Sample SPZAP output with PRECHECK and CHECKSUM error

AMASpzAP INSPECTS, MODIFIES, AND DUMPS CSECTS OR SPECIFIC DATA RECORDS ON DIRECT ACCESS STORAGE.

AMA167I SYSIN PRECHECKING STARTED

NAME EXSPZAP EXSPZAP 00140000

VER 0020 C2E8 00150000

REP 0020 0004 00160000

AMA167I SYSIN PRECHECKING SKIPS UPDATES

REP 0020 C2E8 00160100

AMA167I SYSIN PRECHECKING SKIPS UPDATES

SETSSI 08034516 00160200

AMA167I SYSIN PRECHECKING SKIPS UPDATES

CHECKSUM 0864CAE0 00160400

**AMA133I CHECKSUM ERROR. NO-GO SWITCH SET**

AMA132I CHECKSUM WAS 0864CAEA, IS NOW 0.

IDRDATA F14512NG 00160500

AMA105I INVALID CARD OR NO GO SWITCH SET

ABSDUMPT EXSPZAP EXSPZAP 00160600

\*\*CCHHR- 000C000A14 RECORD LENGTH- 000018 MEMBER NAME EXSPZAP

000000 2080 0000 0001 0010 C5E7 E2D7 E9C1 D740 0000 0000 0000 0406

LPDR BPRP UNPKU PKA XC SPM

\*.....EXSPZAP \*

\*.....\*

-  
\*\*CCHHR- 000C000A1A RECORD LENGTH- 000028 MEMBER NAME EXSPZAP

000000 0E00 0000 0000 0018 0000 0000 0000 0000 0001 0001 0D00 0070 0900 01C1 0900 020D

MVCL BASR ISK ISK

000020 0D00 021C 0C00 0224

BASR BASSM

\*.....\*

\*.....A....\*

\*.....\*

\*\*CCHHR- 000C000A1B RECORD LENGTH- 000000 MEMBER NAME EXSPZAP

AMA113I COMPLETED DUMP REQUIREMENTS

/\* 00160700

**AMA167I SYSIN PRECHECKING FOUND ERRORS**

AMA100I AMASpzAP PROCESSING COMPLETED



## Usage &amp; Invocation

## Sample SPZAP output with PRECHECK and VER error

AMASpzAP INSPECTS, MODIFIES, AND DUMPS CSECTS OR SPECIFIC DATA RECORDS ON DIRECT ACCESS STORAGE.

AMA167I SYSIN PRECHECKING STARTED

|                      |          |
|----------------------|----------|
| NAME EXSPZAP EXSPZAP | 00140000 |
| VER 0020 C2E8        | 00150000 |
| REP 0020 0004        | 00160000 |

AMA167I SYSIN PRECHECKING SKIPS UPDATES

|               |          |
|---------------|----------|
| VER 0020 0004 | 00150000 |
|---------------|----------|

**AMA104I VERIFY REJECT - SET NO GO SWITCH**

| **CCHHR- | 000C000A19 | RECORD LENGTH- | 000408   | MEMBER NAME | EXSPZAP  | CSECT NAME | EXSPZAP           |
|----------|------------|----------------|----------|-------------|----------|------------|-------------------|
| 000000   | 00E8C1D4   | C1E3C5D9       | E2C50004 | 072C0004    | 10000000 | 0000D2C7   | 01599811 800133D8 |
| 000020   | C2E80101   | 0000C1D4       | C1E9C1D7 | 4040001A    | 142C001A | 19000000   | 000002E2 003EC817 |
| 000040   | FE000000   | 88000101       | 0000C5E7 | E2D7D7D9    | D4400002 | 182C0002   | 1D000000 000002E2 |
| 000060   | 00041804   | 18000000       | 88000101 | 0100C5E7    | E2D7E9C1 | D7400018   | 142E0018 19000000 |
| 000080   | 000002E2   | 00040804       | 08000000 | 98000100    | 05233516 | 0101C5E7   | E2E9D7D9 D4400002 |
| 0000A0   | 202C0002   | 25000000       | 000002E2 | 0004D804    | D8000000 | 88000101   | 0100C7C9 D4E4D5D7 |

..

AMA113I COMPLETED DUMP REQUIREMENTS

REP 0020 C2E8

AMA105I INVALID CARD OR NO GO SWITCH SET

|                 |          |
|-----------------|----------|
| SETSSI 08034516 | 00160200 |
|-----------------|----------|

AMA111I PREVIOUS ERROR - SETSSI IGNORED

|                   |          |
|-------------------|----------|
| CHECKSUM 0864CAEA | 00160400 |
|-------------------|----------|

AMA133I CHECKSUM ERROR. NO-GO SWITCH SET

AMA132I CHECKSUM WAS 0060C2F0, IS NOW 0.

|                  |          |
|------------------|----------|
| IDRDATA F14512NG | 00160500 |
|------------------|----------|

AMA105I INVALID CARD OR NO GO SWITCH SET

|                          |          |
|--------------------------|----------|
| ABSDUMPT EXSPZAP EXSPZAP | 00160600 |
|--------------------------|----------|

| **CCHHR- | 000C000A14 | RECORD LENGTH- | 000018              | MEMBER NAME | EXSPZAP   |
|----------|------------|----------------|---------------------|-------------|-----------|
| 000000   | 2080 0000  | 0001 0010      | C5E7 E2D7 E9C1 D740 | 0000 0000   | 0000 0406 |
|          | LPDR       |                | BPRP UNPKU PKA XC   |             | SPM       |

\* .....EXSPZAP \*  
\* ..... \*

..

| **CCHHR- | 000C000A1B | RECORD LENGTH- | 000000 | MEMBER NAME | EXSPZAP |
|----------|------------|----------------|--------|-------------|---------|
|----------|------------|----------------|--------|-------------|---------|

AMA113I COMPLETED DUMP REQUIREMENTS

/\*

00160700

AMA167I SYSIN PRECHECKING FOUND ERRORS

AMA100I AMASpzAP PROCESSING COMPLETED

## Usage and Invocation

### Sample SPZAP output with PRECHECK Aborted

```
AMASPZAP  INSPECTS, MODIFIES, AND DUMPS CSECTS OR SPECIFIC DATA RECORDS ON DIRECT ACCESS STORAGE.
AMA167I SYSIN PRECHECKING STARTED
  NAME EXSPZAP EXSPZAP                                00140000
  VER 0020 C2E8                                         00150000
  REP 0020 0004                                         00160000
AMA167I SYSIN PRECHECKING SKIPS UPDATES
  REP 0020 C2E8                                         00160100
AMA167I SYSIN PRECHECKING SKIPS UPDATES
  SETSSI 08034516                                       00160200
AMA167I SYSIN PRECHECKING SKIPS UPDATES
  CHECKSUM 0864CAEA                                     00160400
AMA132I CHECKSUM WAS CORRECT , IS NOW 0.
  CONSOLE
AMA166I PRECHECK AND CONSOLE ARE MUTUALLY EXCLUSIVE
AMA167I SYSIN PRECHECKING WAS ABORTED
```

-----

```
AMASPZAP  INSPECTS, MODIFIES, AND DUMPS CSECTS OR SPECIFIC DATA RECORDS ON DIRECT ACCESS STORAGE.
AMA167I SYSIN PRECHECKING STARTED
AMA166I PRECHECK AND TSO ARE MUTUALLY EXCLUSIVE
AMA167I SYSIN PRECHECKING WAS ABORTED
```

# Interactions & Dependencies

- Software Dependencies
  - None
- Hardware Dependencies
  - None
- Exploiters
  - Users of SPZAP

# Installation

- Are any APARs or PTFs needed for enablement?
  - None
- What jobs need to be run?
  - None
- What hardware configuration is required?
  - None
- What PARMLIB statements or members are needed?
  - None
- Are any other system programmer procedures required?
  - None
- Are there any planning considerations?
  - None
- Are any special web deliverables needed?
  - None
- Does installation change any system defaults?
  - None

# Migration & Coexistence Considerations

- No migration or coexistence considerations
  - No change in behavior without PARM=PRECHECK.
- On lower releases without support for FP1710
  - Syntax error message AMA129I seen when PRECHECK is specified as the only parm option OR the first parm option
    - PARM=('PRECHECK') or PARM=('PRECHECK',IGNIDRFULL')
  - PRECHECK is ignored when PARM=('IGNIDRFULL','PRECHECK')

# Session Summary

- No change in behavior without PRECHECK option
- Specifying PARM=PRECHECK on SPZAP prevents partial updates to target data sets
  - new AMA messages are issued appropriately
  - updates to the target data set are skipped during PRECHECK
  - output contains twice the amount of data if PRECHECK works
  - subtle differences in behavior are expected
    - ex. a **VER** to confirm a previous REP will now fail ZAP

```
//SYSIN DD *  
NAME IEECB866 IEAVTS0L  
VER 20 F024 034E  
REP 20 F0FF 035F  
VER 20 F0FF 035F  
.../  
/*
```

# Appendix

- Publications:
  - z/OS V2R3 MVS Diagnosis: Tools and Service Aids
    - Chapter on SPZAP
  - z/OS V2R3 MVS System Messages Vol 1 (ABA-AOM)
    - Section on AMA messages