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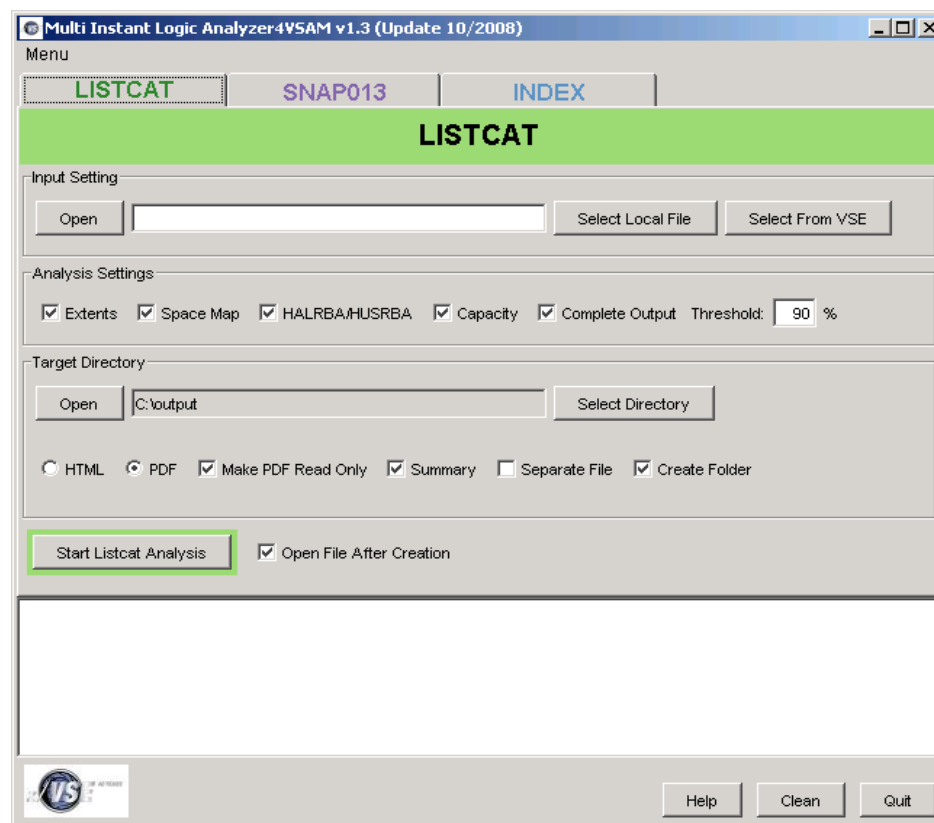
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Multi Instant Logic Analyzer4VSAM v1.3

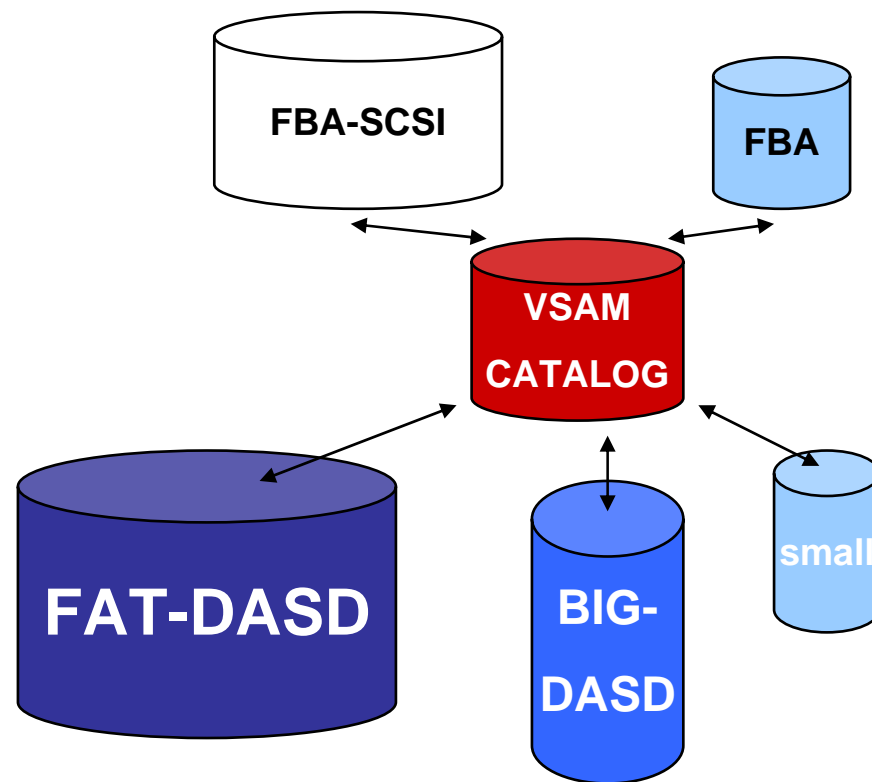
What is **MILA4VSAM** ?

- A collection of tools to analyze VSAM data instantly
- Helps identifying & solving potential problems early
- Java based
- VSE Connector integration
- Available at no cost
- HTML / PDF output



AGENDA

- ❖ LISTCAT Analyzer
- ❖ SNAP013 Analyzer
- ❖ INDEX Analyzer
- ❖ New Features
- ❖ Samples



Multi Instant Logic Analyzer4VSAM v1.3

LISTCAT Analysis

– EXTENT Analysis

- overlapping EXTENTs, invalid EXTENTs

– SPACE-MAP Analysis

- detect defective areas (blocks/cylinders/tracks) within a VSAM space-map

– RBA Analysis

- detect inconsistencies between HUSRBA and HALRBA

– Capacity-Analysis

- check if a cluster/AIX reaches the following cluster limitations:
 - Max file size 4 GB or 123 extent
 - *NEW Unused-Space and Split-Byte-Ratio
 - *NEW scan for option IMBED and REPLICATE

EXTENT Analysis

Invalid EXTENT

- EXTENT inconsistencies inside of LISTCAT output

```

VOLSER-----BADVOL      PHYREC-SIZE-----4096      HALRBA-OR-CI-----8847362
DEVTYPE-----3390       PHYRECS/TRK-----12       HUSRBA-OR-CI-----8110080
VOLFLAG-----PRIME      TRACKS/CA-----15
EXTENTS:
LOW-CCHH-----X'00010000'  LOW-RBA-OR-CI-----0       TRACKS-----150
HIGH-CCHH-----X'0007000E'  HI-RBA-OR-CI-----7372799
  
```

Overlapping EXTENTS

- One EXTENT overlaps another EXTENT on the same volume

```

LOW-CCHH-----X'00030000'  LOW-RBA-OR-CI-----7372800  TRACKS-----30
HIGH-CCHH-----X'04C0000E'  HI-RBA-OR-CI-----8847359
  
```

Cluster A

0001

0007

0003

04C0

Cluster B

EXTENT Analysis Output

Result of Extent Analysis

Volume	Err	Cluster	Extent Start X'CCCCHHH'	Extent End X'CCCCHHH'	Error Type	Extent Start X'CCCCHHH'	Extent End X'CCCCHHH'	
TBST26	13		04BC0000	05B5000E	<<<<<<<<< >>>>	05470000	0548000E	
			04BC0000	05B5000E	<<<<<<<<< >>>>	05490000	054A000E	
			04BC0000	05B5000E	<<<<<<<<< >>>>	054B0000	054C000E	
			09640000	0A8D000E	<<<<<<<<< >>>>	09670000	0967000E	
			15650000	1756000E	<<<<<<<<< >>>>	15C40000	15C4000E	
			15650000	1756000E	<<<<<<<<< >>>>	15C50000	15C5000E	
			15650000	1756000E	<<<<<<<<< >>>>	15C60000	15C6000E	

SPACE-MAP Analysis

Space marked as free in SPACE-Map but **occupied** by Cluster(s)

- EXTENT inconsistencies inside of LISTCAT output

```

DATASETS-----1          FORMAT-1-LABEL:          ATTRIBUTES:
EXTENTS-----2          CCHHR-----X'012D000003'      SUBALLOC
SEC-ALLOC-----0          TIMESTAMP              EXPLICIT
TYPE-----TRACK          2006.004    19:46:28
CLASS-----0            X'BE29DF4C9940F326'
EXTENT-DESCRIPTOR:
TRACKS-TOTAL-----4514    BEG-CCHH-----X'00000001'      SPACE-MAP-----006EFD02D0FD0EC4
TRACKS-USED-----720

LOW-CCHH-----X'00010000'    LOW-RBA-OR-CI----7372800      TRACKS-----30
HIGH-CCHH-----X'0002000E'    HI-RBA-OR-CI-----8847359
  
```

Space marked as **occupied** in SPACE-Map but **not used** by any Cluster



SPACE-MAP Analysis Output

Waisting SPACE ->>

Track(s) indicated as used but don't belong to a cluster		
	Defect Start X'CCCCHHHH'	Defect End X'CCCCHHHH'
	06370000	0638000E
	064F0000	0653000E
	06650000	066A000E
	06890000	068A000E
	07D20000	07D2000E
	07DE0000	07E3000E
	080C0000	080F000E
	084E0000	0853000E
	08590000	085C000E
	08620000	0865000E
	08680000	0868000E
	0BCF0000	0BCF000E
	0C110000	0C13000E
	0C190000	0C1E000E
	0C600000	0C61000E
	0D000000	0D01000E

DANGER ->>

Cylinder indicated as free but in use by cluster(s)		
Defect Start X'CCCCHHHH'	Defect End X'CCCCHHHH'	Affected cluster(s)
16BE0000	16D2000E	
19D30000	19D4000E	
19D90000	1A7A000E	
26D00000	26D3000E	

Note: Please consider rebuilding every affected cluster in the table.

RBA Analysis

- **Analyze** all High-Used-RBA (HUSRBA) and all High-Allocated-RBA (HALRBA) values

- **Identified problems are:**
 - HALRBA < HUSRBA
 - No match between overall HUSRBA(AG) for Cluster and HUSRBA(VG) of specific VOLUME for the same cluster
 - HUSRBA(VolumeGroup) > HUSRBA(AllocationGroup)

- **Identified problem can in most cases being recovered by running IDCAMS VERIFY** for specific VSAM clusters or rebuilding (delete/redefine) of single clusters

RBA Analysis Output

Portion	Volume	Type	Value		Type	Value
DATA		HUSRBA-OR-CI VG	2580480	>	HUSRBA-OR-CI AG	645120
DATA		HUSRBA-OR-CI VG	no match found		HUSRBA-OR-CI AG	645120
INDEX		HUSRBA-OR-CI VG	17920	>	HUSRBA-OR-CI AG	3584
INDEX		HUSRBA-OR-CI VG	no match found		HUSRBA-OR-CI AG	3584
DATA		HUSRBA-OR-CI VG	443105280	>	HUSRBA-OR-CI AG	434995200
DATA		HUSRBA-OR-CI VG	443105280	>	HUSRBA-OR-CI AG	434995200
DATA		HUSRBA-OR-CI VG	no match found		HUSRBA-OR-CI AG	434995200
INDEX		HUSRBA-OR-CI VG	938496	>	HUSRBA-OR-CI AG	915456
INDEX		HUSRBA-OR-CI VG	no match found		HUSRBA-OR-CI AG	915456
DATA		HUSRBA-OR-CI VG	2949120	>	HUSRBA-OR-CI AG	737280
DATA		HUSRBA-OR-CI VG	no match found		HUSRBA-OR-CI AG	737280
INDEX		HUSRBA-OR-CI VG	7680	>	HUSRBA-OR-CI AG	1536
INDEX		HUSRBA-OR-CI VG	no match found		HUSRBA-OR-CI AG	1536
DATA		HALRBA-OR-CI VG	no match found		HALRBA-OR-CI AG	55296000

Capacity Analysis Part 1

- Max-#of-EXTENTs and Max-Bytes analysis based on Threshold

123 EXTENT limit

STATISTICS

REC-TOTAL-----4343444	SPLITS-CI-----0	EXCPS-----9
REC-DELETED-----786872	SPLITS-CA-----0	EXTENTS-----115
REC-INSERTED-----79890	FREESPACE-%CI-----0	SYSTEM-TIMESTAMP:
REC-UPDATED-----768768	FREESPACE-%CA-----0	2008.112 22:22:28
REC-RETRIEVED-----277557	FREESPACE-----6635520	X'BF9E2A3BD9903F00'

4.3 Gigabyte limit

ALLOCATION

SPACE-TYPE-----CYLINDER		
SPACE-PRI-----10	USECLASS-PRI-----0	HALRBA-OR-CI--429400000
SPACE-SEC-----2	USECLASS-SEC-----0	HUSRBA-OR-CI--4279878766

- *NEW** check for options **IMBED** and **REPLICATE**

*NEW Capacity Analysis Part 2

- **Unused-Space and Split-Byte-Ratio analysis for DATA & INDEX & AIX**
 - Find unused space inside of High-Used-RBA
 - Possible free space inside CIs is considered
 - e.g. CISIZE=2K, Recordsize=150 bytes ->> 13 recs and 90 bytes unused
 - Calculation based on MAX REC-length
 - No SPANNED Records
 - Calculate Split-Byte-Ratio between
 - identified unused space and
 - Space allocated for CI/CA splits

DATA+INDEX+AIX Capacity Analysis

■ Capacity-Analysis (**Reorganisation-Indicator**)

During delete of data records only data component of cluster is updated but index component is unchanged

- High performance during record delete since index stays untouched
- Overhead during read via index (max 5 index levels)
- Possible unnecessary I/Os while reading a KSDS via index

SOLUTION:

- capacity-analysis will identify the real number of used index records
- check if reorganization is necessary or recommended for a cluster

Capacity Analysis Output

Result of Capacity Extent Analysis

Cluster Name	Warning	Value
	Cluster defined as IMBED or REPLICATE	
	Cluster defined as IMBED or REPLICATE	
	Data part extents reached the threshold (90%)	113 Extents (92%)
	Index part extents reached the threshold (90%)	114 Extents (93%)

Summary

4 capacity warning(s) found.

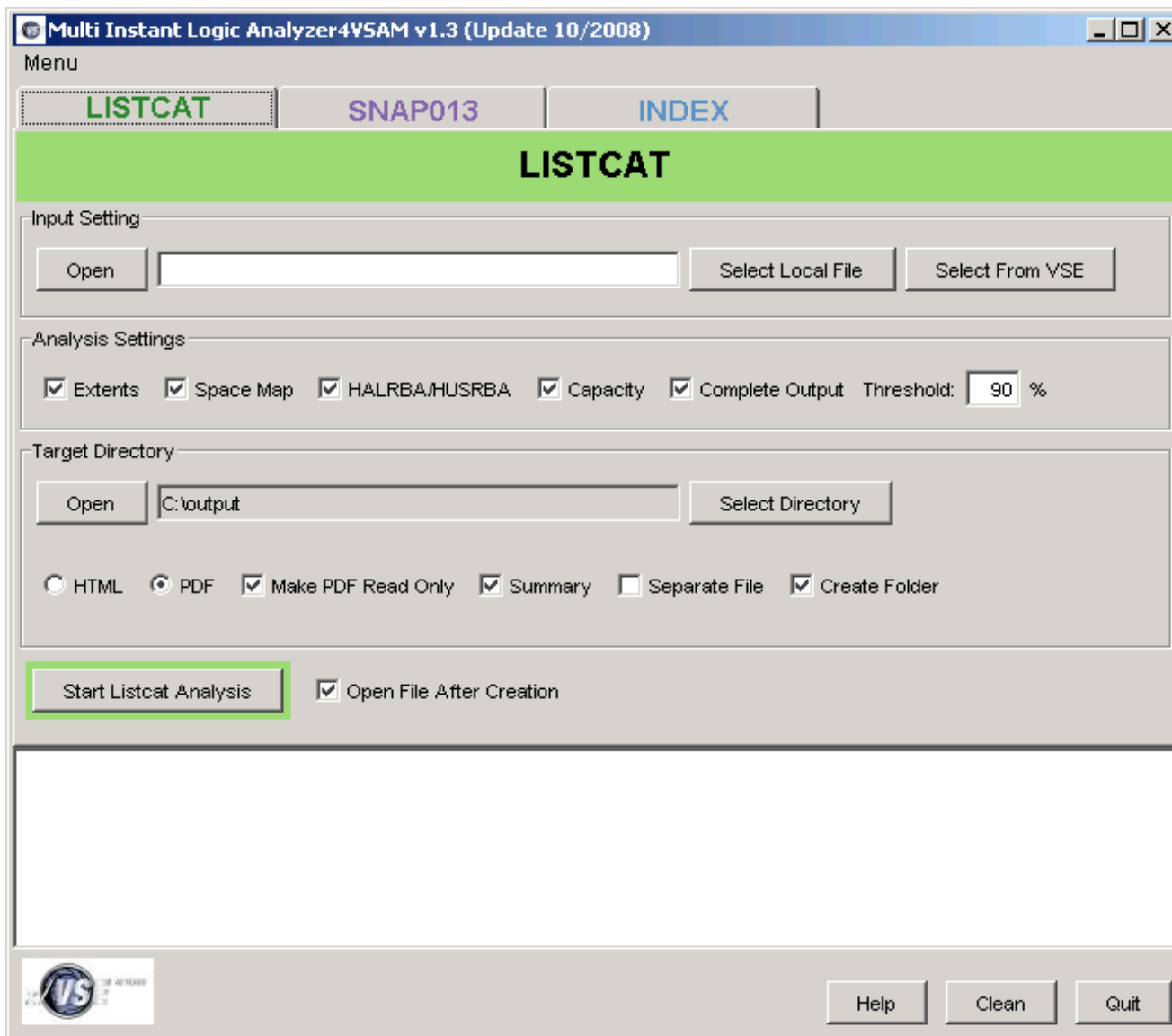
(HUSRBA(16,220,160 B) - Used Data Space(3,737,346 B))= Data UnSp -> (reused Space(3,737,346 B) / Split Space(21,446,656 B))= Data SBR ->	12,482,814 B (76.96 %) 17.43 %
(HUSRBA(58,880 B) - Used Index Space(15,479 B))= Index UnSp -> Index SBR - could not be computed due to insufficient data.	43,401 B (73.71 %)
(HUSRBA(645,120 B) - Used Data Space(283,699 B))= Data UnSp -> Data SBR - could not be computed due to insufficient data.	361,421 B (56.02 %)
Only 1 EXTENT or less. Index SBR - could not be computed due to insufficient data.	
(HUSRBA(302,561,280 B) - Used Data Space(60,156,432 B))= Data UnSp -> (reused Space(60,156,434 B) / Split Space(365,938,688 B))= Data SBR ->	242,404,848 B (80.12 %) 16.44 %
(HUSRBA(2,188,800 B) - Used Index Space(458,824 B))= Index UnSp -> Index SBR - could not be computed due to insufficient data.	1,729,976 B (79.04 %)
Only 1 EXTENT or less. Data SBR - could not be computed due to insufficient data.	
Only 1 EXTENT or less. Index SBR - could not be computed due to insufficient data.	
(HUSRBA(147,732,480 B) - Used Data Space(86,228,168 B))= Data UnSp -> (reused Space(86,228,168 B) / Split Space(66,746,368 B))= Data SBR ->	61,504,312 B (41.63 %) 100.00 %
(HUSRBA(1,059,840 B) - Used Index Space(622,745 B))= Index UnSp ->	437,095 B (41.24 %)

Capacity Analysis Output for AIX

Result of Capacity Space Analysis

Color	Notation
	Index Part Of Cluster
	Data Part Of Cluster
	AIX
	No Analysis Available

Cluster Name	Information and Details on Unused Space (UnSp) and Split Bytes Ratio (SBR)	Value
ESDS1	Data UnSp - could not be computed HUSRBA was 0. Data SBR - could not be computed due to insufficient data.	
KSDS1	HUSRBA(3,686,860,800 B) - Used Data Space(3,680,800,000 B)= Data UnSp -> Data SBR - could not be computed due to insufficient data.	6,060,800 B(0.16 %)
AIXA.KSDS1	HUSRBA(91,422,720 B) - Used Data Space(84,000,000 B) = Data UnSp -> AIX SBR - could not be computed due to insufficient data.	7,422,720 B(8.12 %)
AIX1.KSDS1	AIX Only 1 EXTENT or less.	
AIX2.KSDS1	AIX Only 1 EXTENT or less.	
AIX3.KSDS1	AIX Only 1 EXTENT or less.	
AIX4.KSDS1	AIX UnSp - could not be computed HUSRBA was 0. AIX UnSp - could not be computed HUSRBA was 0.	
AIX5.KSDS1	AIX Only 1 EXTENT or less.	
AIX6.KSDS1	HUSRBA(172,523,520 B) - Used Data Space(164,000,000 B) = Data UnSp -> AIX SBR - could not be computed due to insufficient data.	8,523,520 B(4.94 %)
AIX7.KSDS1	AIX Only 1 EXTENT or less.	
AIX8.KSDS1	AIX Only 1 EXTENT or less.	
AIX9.KSDS1	AIX Only 1 EXTENT or less.	



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4 VSAM**



LISTCAT Analysis Summary

Status	Details
OK	did not show any error(s).
Error	did show critical error(s). 263 error(s) found during Extent Analysis. 5 defective space map(s) found. 5 defective space map(s) found.
Error	did show critical error(s). 1 defective space map(s) found. 14 HALRBA/HUSRBA error(s) found. 4 capacity warning(s) found.
Warning	did show some uncritical error(s). 1 capacity warning(s) found.
Warning	did show some uncritical error(s). 1 capacity warning(s) found.

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SNAP013 Trace Analysis

- VSAM SNAP Traces produce a great amount of data to be analyzed Exclusive Control Conflicts, Record Management problems and more

```
// EXEC IKQVEDA
  ENABLE SNAP=013
/*
```

- SNAP013 will analyze this data and provide [HTML or PDF output](#)
- The SNAP013 Analyzer tool also allows to [transform](#) any „raw-Dump“ into a „printed hex-Dump“
- Input can be any DUMP from a PC as well as any Dump available in a VSE (Dump)Library ([Online Instant access via VSE Connectors](#))
- ***NEW** Support of SNAP013 Versions 0, 1 and 2 (December 2007)

What is SNAP013 ?

- **Incore Wrap-around Trace**
- **Enabling SNAP013 via IKQVEDA** does not create external output, on either SYSLOG or SYSLST
- **trace entries are written into an incore wrap-around trace table**
- At open time a unique SNAP013 Trace Table is defined for each AMBL
- **SNAP013 can be enabled for another partition.** For instance, the job can be run in batch, enabling SNAP013 for on-lines files. (close and re-open of files required to enable SNAP013)

ENABLE SNAP=013,PART=F2

- **SNAP013 trace table defaults size is 2048 bytes,** and can be adjusted (larger or smaller)

ENABLE SNAP=013,SIZE=8K,PART=F2

- **Either all currently active SNAP traces (1-15) or only one specific can be disabled**

DISABLE SNAP=013 -or- DISABLE SNAP=ALL

SNAP013

- **SNAP013 can be enabled for a specific file or “ALL”**

```
ENABLE SNAP=013,SIZE=2K,DDNAME=(KSDS,ESDS),PART=F2
```

- **Following JOB will active file KSDS with a tracetable of 12K and for ALL other files with a trace table size of 512 bytes**

```
// JOB ENABLE SNAP013
```

```
// EXEC IKQVEDA,PARM='SYSIPT'
```

```
ENABLE SNAP=013,DDNAME=KSDS,SIZE=12K
```

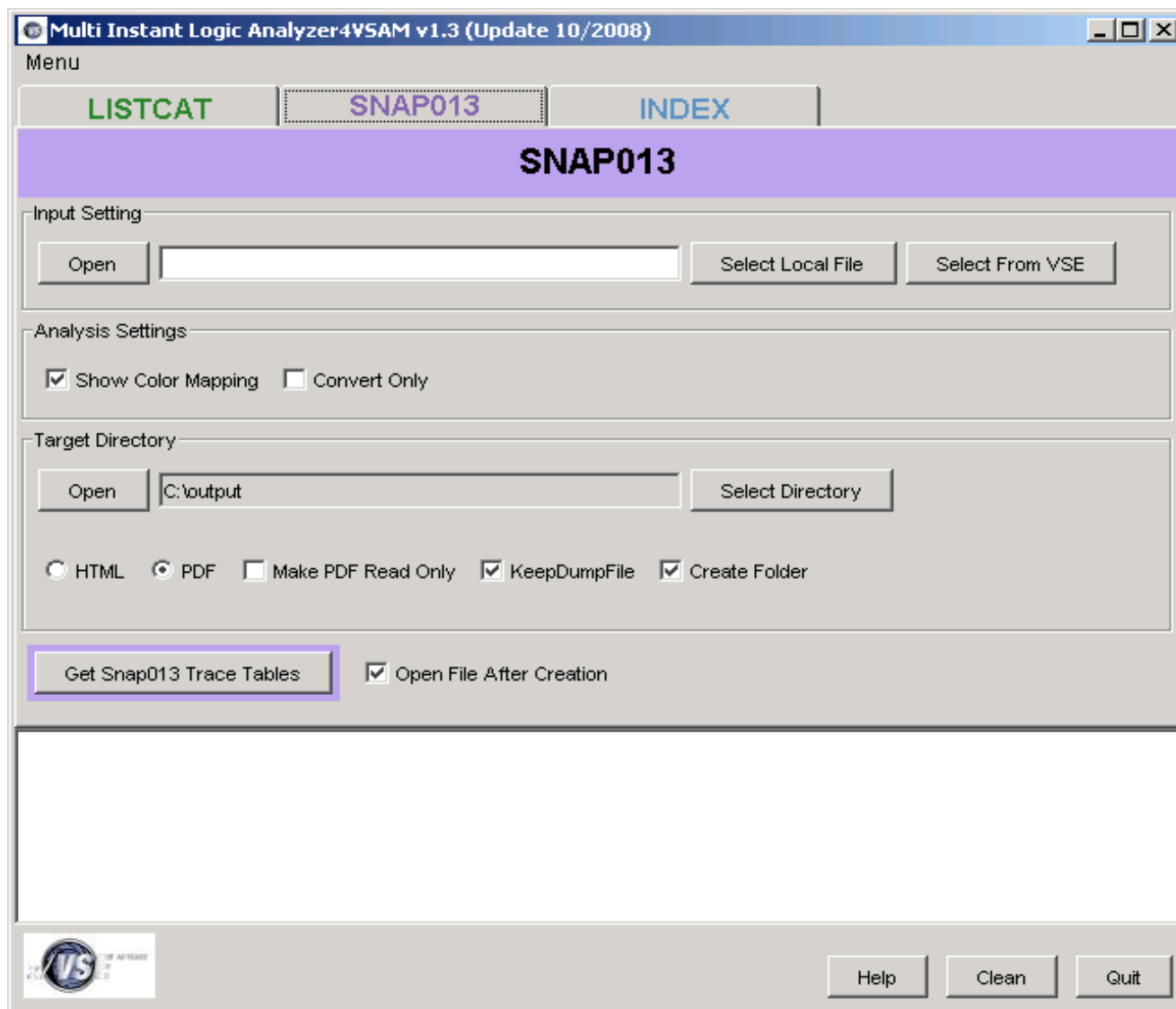
```
ENABLE SNAP=013,DDNAME=ALL,SIZE=512
```

```
/*
```

```
/&
```

- **Trace entries for every of the following entry types:**

```
OPEN / INPUT (from User Application) / UPGRADE RESET / RETURN /  
LOCK / UNLOCK / RSCB / Exclusive Control (SHR4) / IKQBFC / EXCPAD /  
Return from EXCPAD / Catalog Update
```



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SNAP013 Analysis Output

Time	Type	Information
0,0ms	PsydoOPEN	<u>D76CBE1F</u> <u>06A027C4</u> <u>00662098</u> <u>DAA01108</u> <u>00E3F390</u> <u>40880400</u> <u>00201000</u> <u>00000000</u> P%....D...q....T3..h..... VSE Task ID: 27 ACB Address: <u>00662098</u> ACB MACRF: <u>DAA0</u> Access data via IX / Access without IX / Sequential processing / Direct processing / Put, Write / Local shared res. / Skip seq accessing SHAREOPTION: <u>40</u> SHR 2 Cross Partition AMDATTR2: <u>00</u>
... entries overwritten ...		
33m 12s 350,8ms	IKQBFC	<u>C26CC58B</u> <u>14632709</u> <u>0A86FC18</u> <u>00000100</u> <u>00000000</u> <u>0A000000</u> <u>03652454</u> <u>37480000</u> B%E....f..... VSE Task ID: 27 String Number: 10 / RPL Address: <u>86FC18</u> Tracepoint: <u>09</u> IKQBFC50 entry (Release USB lock if Reg0 = '1', or Space Lock if Reg0 = '2') PARMSW: <u>01</u> Request was for redirected VSAM access
33m 12s 350,9ms	UNLOCK	<u>F56CC58B</u> <u>146A2709</u> <u>0A86FC18</u> <u>00000000</u> <u>E5C1C8D2</u> <u>F4F0F600</u> <u>0FA90004</u> <u>0A000000</u> 5%E....f....VAHK406..z..... VSE Task ID: 27 String Number: 10 / RPL Address: <u>86FC18</u> Tracepoint: <u>09</u> IKQBFC50 Unlock DTL Name: <u>E5C1C8D2F4F0F600FA90004</u> "VAHK406" Return Code (Reg15): <u>00</u> Successful

Type	Information
PsydoOPEN	<u>D7161802</u> <u>53C87260</u> <u>007868F0</u> <u>5C801108</u> <u>006A81AC</u> <u>40810580</u> <u>00401000</u> <u>00000000</u> P....H.-...0*....a..a... .. VSE Task ID: 72 ACB Address: <u>007868F0</u> ACB MACRF: <u>5C80</u> Access without IX / Sequential processing / Direct processing / Get, Read / Local shared res. SHAREOPTION: <u>40</u> SHR 2 Cross Partition AMDATTR2: <u>00</u>
... entries overwritten ...	
RETURN	<u>D9166741</u> <u>1C107200</u> <u>0296B0E8</u> <u>04A8A000</u> <u>007E28F4</u> <u>00000000</u> <u>020E87A8</u> <u>800010FF</u> R.....o.Y.y...=.4.....gy... VSE Task ID: 72 String Number: 2 / RPL Address: <u>96B0E8</u> Tracepoint: <u>00</u> Normal Exit (IKQVSM) Return to caller (IKQVSM / ERX) User BUFF size: <u>020E87A8</u> RPLREQ: <u>04</u> RPLOPTCD: <u>A8A0</u> THBFLGBY: <u>00</u> PLH Condition Flags: <u>80</u> Status PLHUSE: <u>FF</u> PLH set / Next record / EOD reached / I/O pending / Skip CNV / Restart / First time RPLRBA: <u>007E28F4</u> PLHDSW: <u>00</u> PLHDSW1: <u>00</u> RPLFDBK: <u>000000</u> Record Mgmt Internal Return code: <u>00</u>
INPUT	<u>C9166741</u> <u>1C107200</u> <u>0296B0E8</u> <u>04A8A001</u> <u>007E28F4</u> <u>F0F5F9F3</u> <u>F4F3F0F0</u> <u>5C800000</u> I.....o.Y.y...=.405934300*.. VSE Task ID: 72 String Number: 2 / RPL Address: <u>96B0E8</u> Tracepoint: <u>00</u> Single RPL (IKQVSM / IKQVSMTR) RPL Request Type: <u>04</u> Get request RPL Option Codes: <u>A8A0</u> Keyed access / Sequential / Asynchronous / Search Key GT/EQ / Note string position / Forward Seq. / Any request RPLARG: <u>F0F5F9F3F4F3F0F0</u> "05934300"

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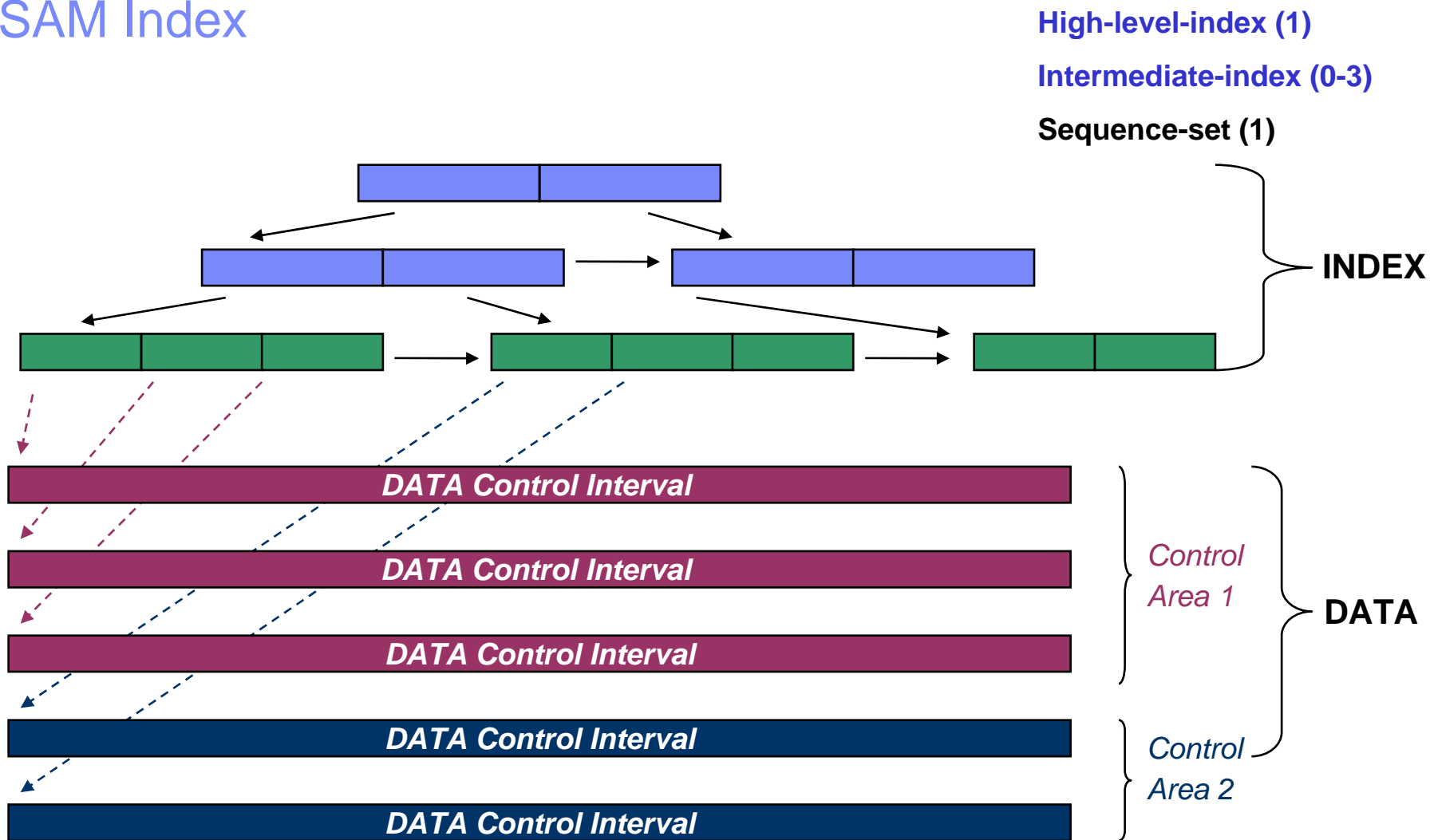
INDEX Analysis

Analysis of INDEX component of a single VSAM CLUSTER.

■ Error Analysis

- Check for logic errors in the index part of a cluster:
 - Duplicate CI pointer(s)
 - ***NEW** Duplicate IXKEY(s)
 - ***NEW** IXKEY length out of range
 - Invalid pointer(s) inside of Index Component
 - Invalid pointer(s) from Index to Data Component (RBA Error(s))
 - Invalid pointer(s) from Index to Data Component (CI Pointer Error(s))
- ***NEW Single Record Analysis**

VSAM Index

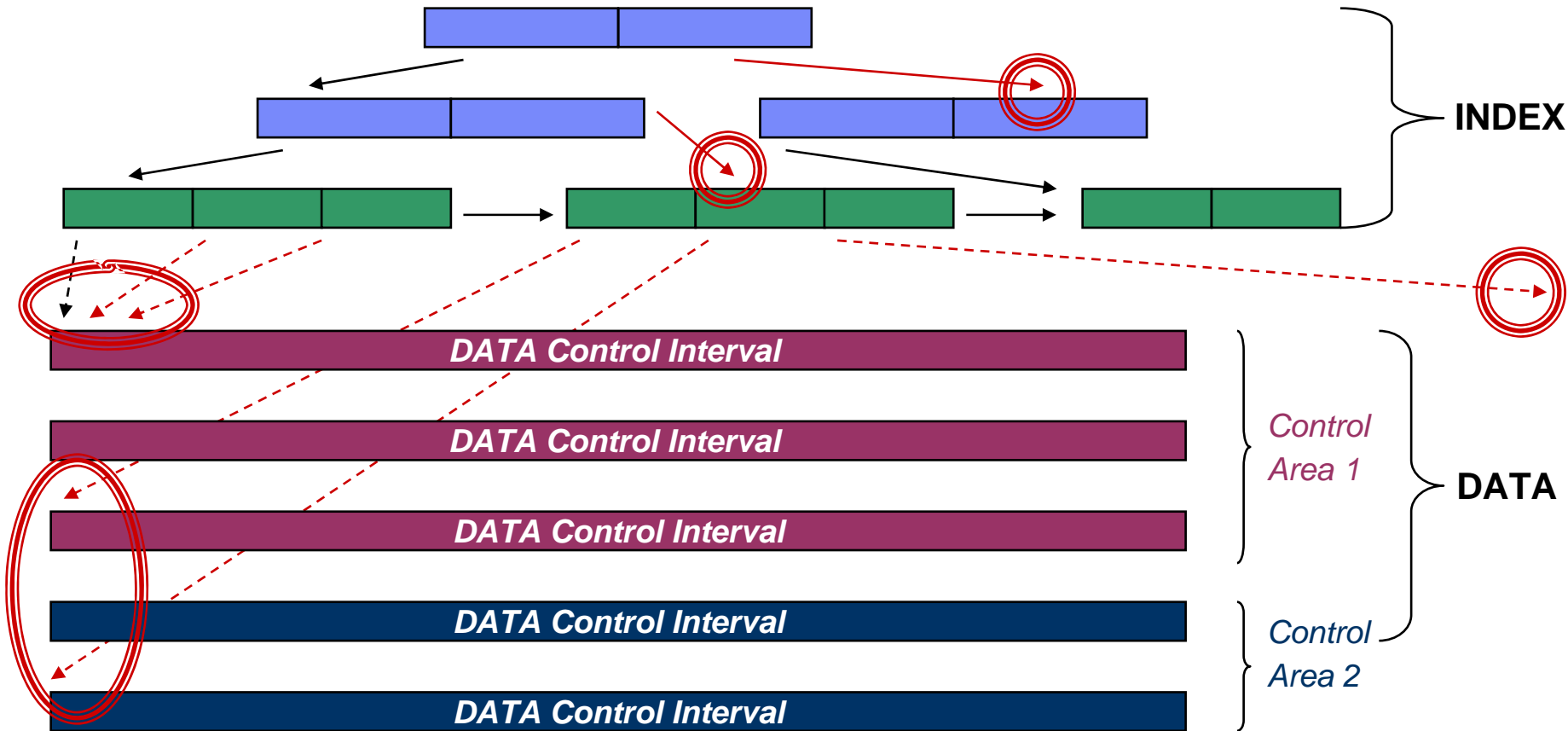


Index

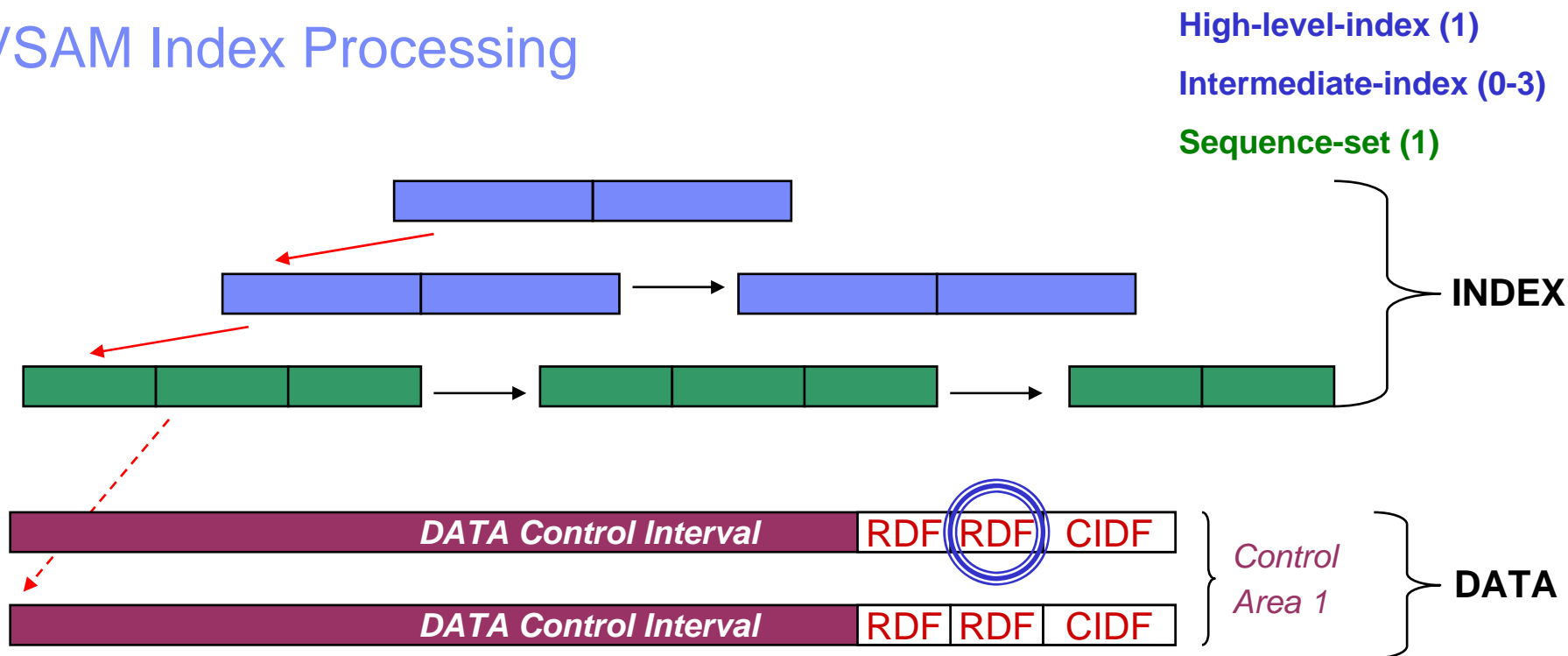
- Max 5 index levels
- High- Intermediate-levels index records point to lower index records only
- Lowest-level index records point to data records (sequence set)
- 1 index sequence set entry points to 1 data CI
- 1 index sequence set record points to all data CIs of 1 data CA
- 1 index record per index CI
- Different index records point to different data Control Areas

Index Errors

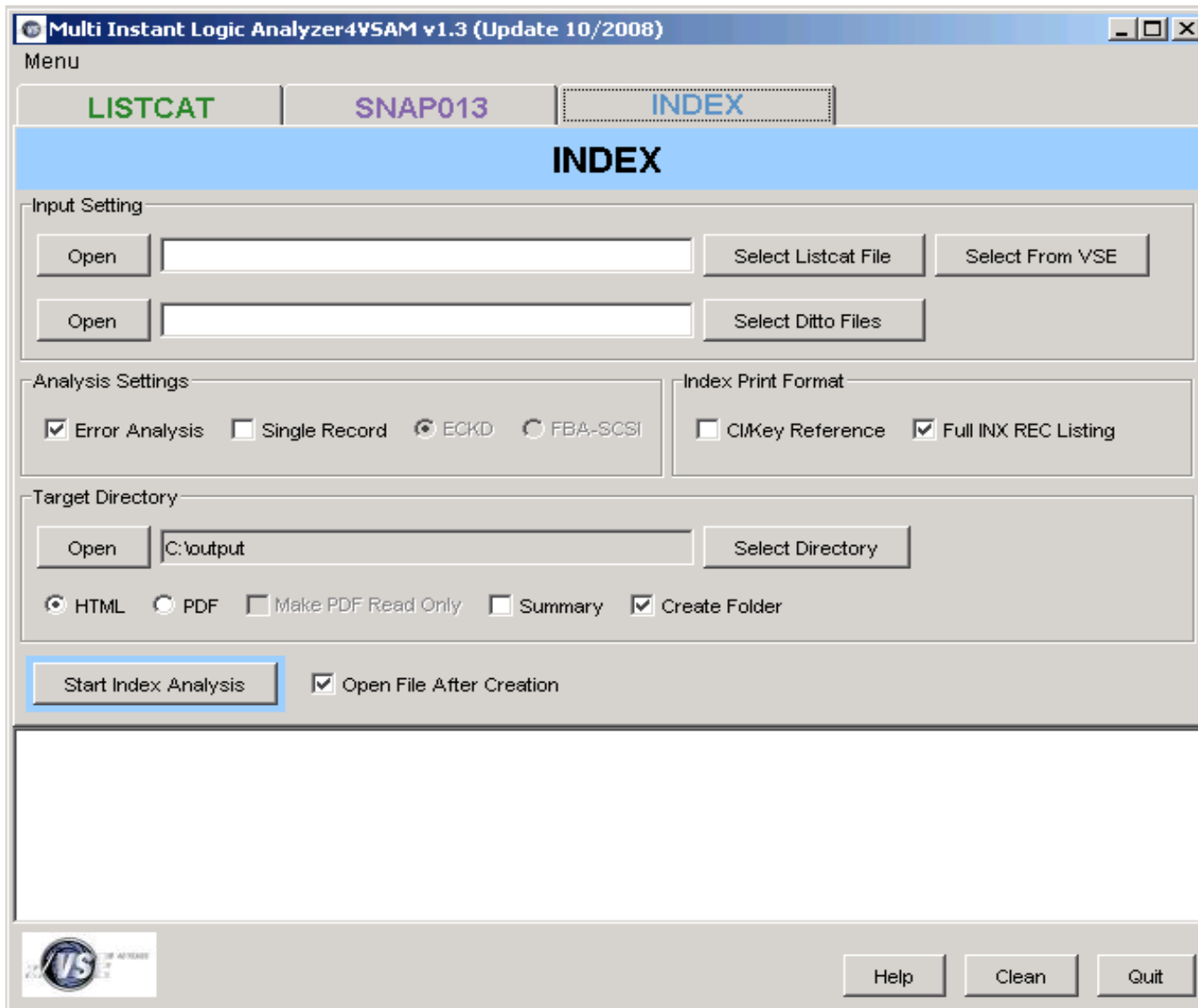
High-level-index (1)
Intermediate-index (0-3)
Sequence-set (1)



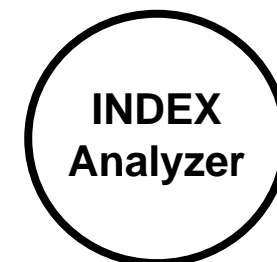
VSAM Index Processing



- RDF (Records Definition Field) keeps indicator if record is valid or invalid(deleted)
- Index records and record entries do NOT posses any indication about record validity
- ratio between High-Used-RBA & High-Allocated-RBA form a LISTCAT is **NO indicaton** about Index utilization
- Index will be not reduced in size even if all records in a VSAM file are deleted



**Multi
Instant
Logic
Analyzer
4 VSAM**



INDEX Analysis Output

Invalid pointer(s) inside of Index Component

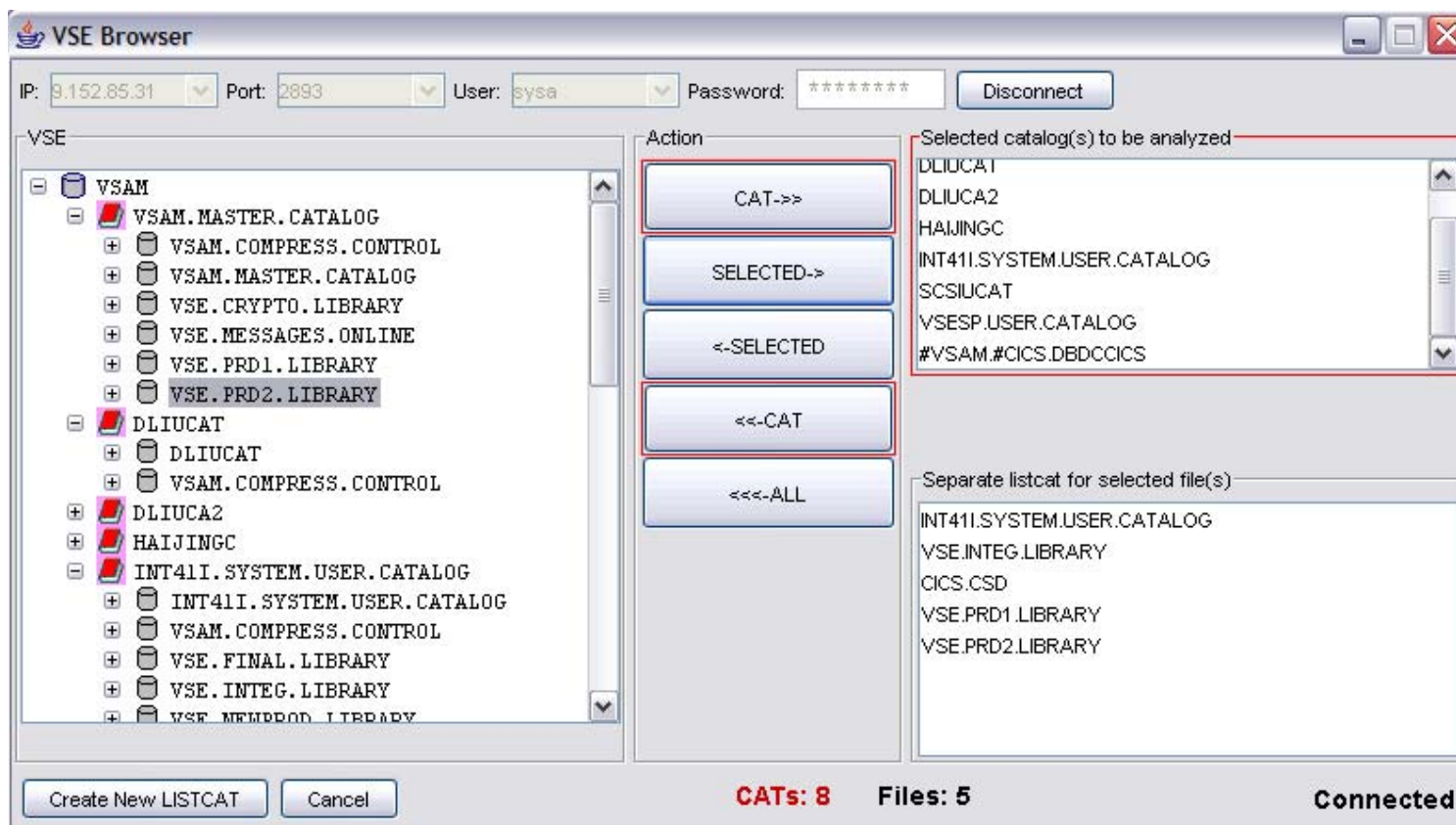
CYL-HD-REC	points to RBA	Error Description
00257-02-001	==> 1433	Invalid horizontal point (1433 % 1536(CISIZE) ≠ 0)
00257-02-002	==> 4026536448	> 23040 (Index HUSRBA-OR-CI)

Summary

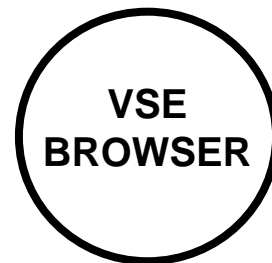
2 error(s) found.

Invalid pointer(s) from Index to Data Component (RBA Error(s))

CYL-HD-REC	Error I/KEY	points to RBA ((CI# * CISIZE) + I/CRASRBA)	> (HUSRBA - 1)
00257-02-014	X'C5F4D5F4F1'	==> 8005632 ((X'2B' * 6144) + 7741440)	> (8000000 - 1)
	X'C5F4D5F4'	==> 8011776 ((X'2C' * 6144) + 7741440)	> (8000000 - 1)
	X'C5F4D5F5F8'	==> 8017920 ((X'2D' * 6144) + 7741440)	> (8000000 - 1)
	X'C5F4D5F6F7'	==> 8024064 ((X'2E' * 6144) + 7741440)	> (8000000 - 1)
	X'C5F4D5F7F8'	==> 8030208 ((X'2F' * 6144) + 7741440)	> (8000000 - 1)



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XML Configuration File

```
<?xml version="1.0" encoding="UTF-8" ?>
- <MILASettings version="2.0">
- <ListCatSettings>
  - <Analyses>
    <ExtentsAnalysis enable="false" />
    <SpaceMapAnalysis enable="true" />
    <HALRBAHUSRBAAnalysis enable="true" />
    - <CapacityAnalysis enable="true">
      <Threshold>90</Threshold>
    </CapacityAnalysis>
  </Analyses>
  - <Output createFolder="true" autoOpen="true" type="pdf">
    <ExtendPDF summary="true" readOnly="false" />
    <ExtendHTML summary="false" separate="false" />
    <Path>C:\output</Path>
  </Output>
</ListCatSettings>
```

...

DEFAULT-settings

ListCat Settings

Snap013 Settings

Index Settings

Analysis Settings

Output Settings

Batch Processing Listcat from File

```

<?xml version="1.0" encoding="UTF-8" ?>
- <MILAActions>
- <ListCatActions enable="true">
  <!-- Local -->
- <LCAction enable="true" inputType="file">
  - <ListCatSettings>
    - <Analyses>
      <ExtentsAnalysis enable="true" />
      <SpaceMapAnalysis enable="true" />
      <HALRBAHUSRBAAnalysis enable="true" />
    - <CapacityAnalysis enable="true">
      <Threshold>10</Threshold>
    </CapacityAnalysis>
      <CapacityAnalysisComplete enable="true" />
    </Analyses>
  - <Output createFolder="true" autoOpen="false" type="html">
      <ExtendPDF summary="true" readOnly="false" separate="false" />
      <ExtendHTML summary="false" separate="false" />
      <Path>C:\output</Path>
    </Output>
  </ListCatSettings>
  <LCInputFile path="C:\vsam\listcatbucket\111110.LISTCAT" />
  <LCInputFile path="C:\vsam\listcatbucket\3333339000.txt" />
  <LCInputFile path="C:\vsam\listcatbucket\CATLIST.aaaaa.00" />
  <LCInputFile path="C:\vsam\listcatbucket\LISTCAT2.TXT" />
  <LCInputFile path="C:\vsam\listcatbucket\listcat-6.txt" />
  <LCInputFile path="C:\vsam\listcatbucket\LISTCAT.bbbbb.txt" />
  <LCInputFile path="C:\vsam\listcatbucket\LISTCAT.ccccc" />

```

BATCH-settings

LCAction – Listcat Action

IAction – Index Action

Analyse-settings

Output-settings

InputType=„vse“

LCInputCat - Listcat input

IInputCat - Index input

InputType=„file“

LCInputFile - Listcat

IInputFile – Index

Batch Processing Listcat from VSE

```

<!-- vse -->
- <LCAction enable="false" inputType="vse" serverport="0000" serverip="*.*.*.*" username="username" password="password">
- <ListCatSettings>
  - <Analyses>
    <ExtentsAnalysis enable="false" />
    <SpaceMapAnalysis enable="true" />
    <HALRBAHUSRBAAnalysis enable="true" />
  - <CapacityAnalysis enable="true">
    <Threshold>90</Threshold>
  </CapacityAnalysis>
  <CapacityAnalysisComplete enable="true" />
</Analyses>
- <Output createFolder="true" autoOpen="true" type="html">
  <ExtendPDF summary="true" readOnly="false" separate="false" />
  <ExtendHTML summary="true" separate="false" />
  <Path />
</Output>
</ListCatSettings>
<LCInputCat catalog="TESTCAT1" password="" />
<LCInputCat catalog="TESTCAT2" password="" />
</LCAction>
</ListCatActions>

```

BATCH-settings

LCAction – Listcat Action

IAction – Index Action

Analyse-settings

Output-settings

InputType=„vse“

LCInputCat - Listcat input

IInputCat - Index input

InputType=„file“

LCInputFile - Listcat

IInputFile – Index

Batch Processing INDEX from File

```

- <IndexActions enable="false">
  <!-- Local -->
  - <IAction enable="true" inputType="file">
    - <IndexSettings>
      - <Analyses>
        <ErrorAnalyses enable="true" />
        <SingleAnalysis enable="false" />
        <CYL enable="true" />
        <PBN enable="false" />
      </Analyses>
      <!-- printIndex 0 off, 1 Full index REC Listing format, 2 CI/KEY Reference format -->
    - <Output createFolder="true" autoOpen="true" printIndex="1" type="PDF">
      <ExtendPDF summary="false" readOnly="false" />
      <ExtendHTML summary="false" />
      <Path>C:\output</Path>
    </Output>
  </IndexSettings>
  <!-- just 1 cluster allowed -->
- <IInputFile>
  <DittoPath>C:\vsam\listcatbucket\DITTOIND.12811.00</DittoPath>
  <ListCatPath>C:\vsam\listcatbucket\LISTCAT.12802.00</ListCatPath>
</IInputFile>
</IAction>

```

BATCH-settings

IAction – Index Action

Analyse-settings

Output-settings

InputType=„vse“

IInputCat - Index input

InputType=„file“

IInputFile – Index

POWER JECL listcatCat.skl

3 Skeletons

Address		
F:\MILA4VSAMv1.3\skeletons		
Name	Size	Type
ditto.skl	1 KB	SKL File
listcatCat.skl	1 KB	SKL File
listcatCluster.skl	1 KB	SKL File

```

$$ JOB JNM=%JOBNAME(1,8,"MILALC")%,CLASS=%JOBCLASS(1,1,"0")%,
    DISP=%JOBDISP(1,1,"L")%,PRI=%JOBPRI(1,1,"9")%,PWD=%PWRPWD(0,1,"")%
$$ LST LST=%LST(1,6,"SYSLST")%,CLASS=%LSTCLASS(1,1,"Z")%,
    DISP=%LSTDISP(1,1,"L")%,PRI=%LSTPRI(1,1,"9")%
// JOB %JOBNAME(1,8,"MILALC")% - GET LISTCAT
// EXEC IDCAMS,SIZE=AUTO
LISTCAT ALL CATALOG(%CATALOGNAME(1,44,"")%/CATALOGPWD(0,8,"")%)
/*
/&
* $$ EOJ

```

Features

- All 3 tools have direct access to VSE systems using the VSE Connectors
- LISTCAT and/or DITTO JCL will be generated by the tools itself, transmitted to the selected VSE System executed and analyzed
- **Batch-processing** for LISTCAT- & INDEX Analysis via XML
- possibility to specify **password** for access protected VSAM catalogs
- **profile** to save user settings like TCPIP, PORT and USERID for multiple VSE Systems
- Analysis of multiple VSAM catalogs (LISTCAT) **in a single step**
- Analysis **summary** for multiple catalogs
- MILA4VSAM does support German and English language
- SCSI & **FAT-DASD Support**

*NEW Features with MILA4VSAM v1.2+ & v1.3

- Added **POWER JECL** feature
- Index analysis can produce PDF output.
- Handle **older Listcat formats** for Listcat analysis
- **Linux** Support
- Added tracking information while running the batch function.
- Additional information added into the footer of PDF/HTML output.
- Index error processing expanded from 4 to **6 different error types**
- Handle **single index record**
- Summary for Index analysis.
- In Index analysis, it is possible to select **multiple index files at once**
- **iText** Libraries Versions from **1.4.8 up to 2.1.3** are now supported.
- Inter-File links between summary and output for Listcat and Index analysis
- **Performance** enhancements on **Linux**.
- More detailed error information for invalid or missing XML parameters.
- Listcat **DATA & INDEX & AIX Capacity Analysis** added
- Check for options **IMBED & REPLICATE**
- New **SNAP013 Version 1** supported

VSAM Tools Outlook

- **YOUR Ideas**
- **YOUR Requirements**



Latest Service for z/VSE 4.1 VSAM (91C)

- **DY46943**/UD53371 0C4 Pgm Check when Processing a Dummy USB Entry After AIX Failed to OPEN
- **DY46942**/UD53370 Performance Degradation with Certain Applications
- **DY46918**/UD53365 LOOP Between CICS/TS and VSE/VSAM attempting to retry Exclusive Control Error
- **DY46836** Program Check in IKQAIX attempting Journaling on Alternate Index
- **DY46913**/UD53354 RESTORE Hang After Secondary Allocation Failure by Specifying a HighNumber of Data Buffers
- **DY46859**/UD53356 SNAP13 for Redirector
- **DY46861**/UD53311 Invalid FREEVIS After Unsuccessful GETVIS
- **DY46899**/UD53345 Skip SDUMP for Invalid RBA Case if RBA Came from Application
- **DY46893**/UD53339 Fixed-Point Divide Exception on PUT for an RRDS CLUSTER
- **DY46835**/UD53319 RECMAP Error Message Does Not Set Correct MAXCC
- **DY46852**/UD53305 Progchk (Protection Exception) During VSE/VSAM OPEN
- **DY46878**/UD53332 Restrict SDUMPS in Some Invalid RBA Cases
- **DY46786**/UD53251 Progchk in IKQVRM Accessing AIX Cluster

MILA4VSAM v1.3



QUESTIONS ?

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