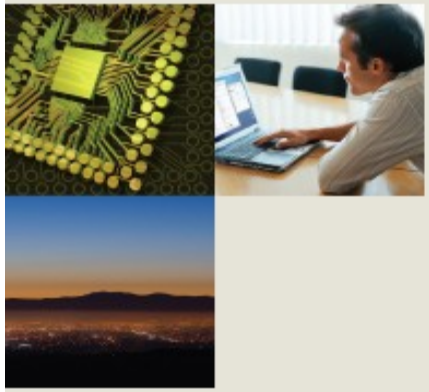

IMS Automation with IBM Tivoli System Automation for z/OS

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08/04/2010

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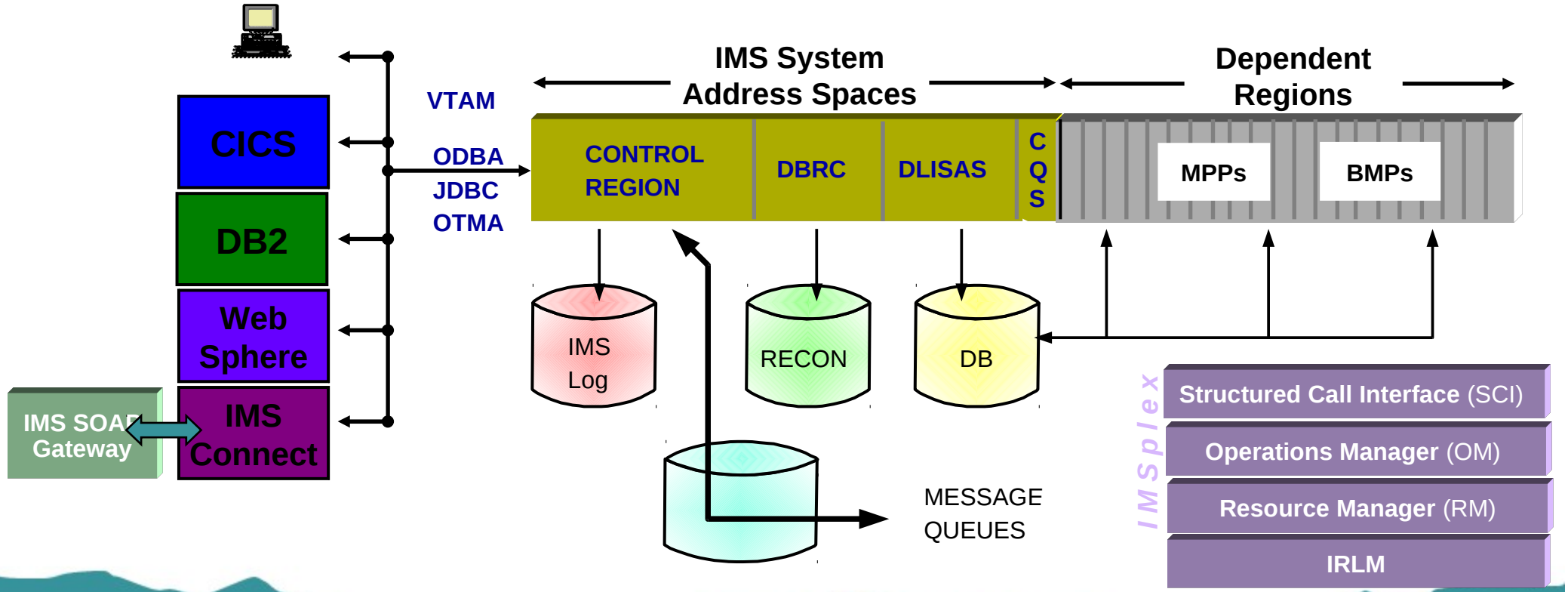
Agenda

- SA z/OS – IMS Automation Overview
- User scenarios – Use cases
  - RECON SPARE dataset for IMS are missing
  - Needed to start spare OLDS to have the minimum in AVAILABLE status
  - IMS users are unable to LOGON to IMS
  - Automatic recovery of ‘ABENDING’ IMS transactions or programs
  - IMS commands based on scheduled timer intervals
- START / Stop details for IMS applications
- Special IMS management
- *IMS Best practices

IMS Architecture overview

- An IMS system has multiple system address spaces
- Transaction programs (MPPs) are managed by the IMS control region
- Batch programs (called “BMPs”) can also be run concurrently
- CICS, DB2, WebSphere... access IMS and add **complexity**



SA z/OS - IMS Automation main topics

- Recover IMS components
- Recover transactions and/or programs
- Monitor critical resources
  - Monitors number of available **OLDS** and excessive switching
  - Monitors number of available **RECON** datasets
  - Monitors **VTAM** Application ID availability and the enablement of logons
  - **TCO** (Time Controlled Operation)
- Start/stop fast and reliably
  - Dependencies fulfilled: IMS and all connectivity actually works
- Resolve alert messages or escalate through **SA IOM**
- Proactive automation through **OMEGAMON** integration
- Special IMS start types. Three standard shutdown types
- Internal IMS messages can be automated
- Sysplex-wide automation
- … *and a lot more*…

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- START / STOP details for IMS applications
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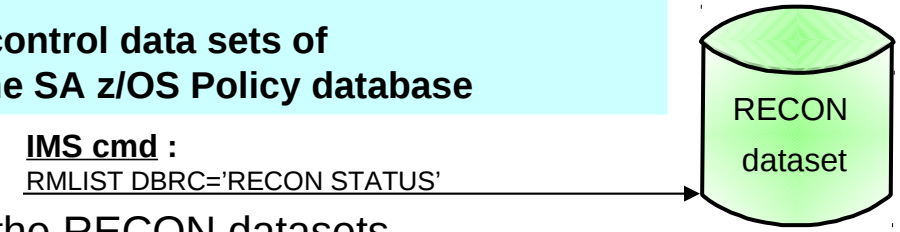
Scenario A :

Monitoring of Recovery Control Data Sets (RECON)

Problem: **IMS RECON SPARE datasets are missing**

Solution: **SA z/OS allows the monitoring of recovery control data sets of IMS control regions → add definitions in the SA z/OS Policy database**



- Monitoring routine **INGRMIRE** is used to monitor the RECON datasets

  → a **MTR resource** must be defined to monitor number of available RECON data sets

- Relationships have to be defined between MTR resource and IMS control region

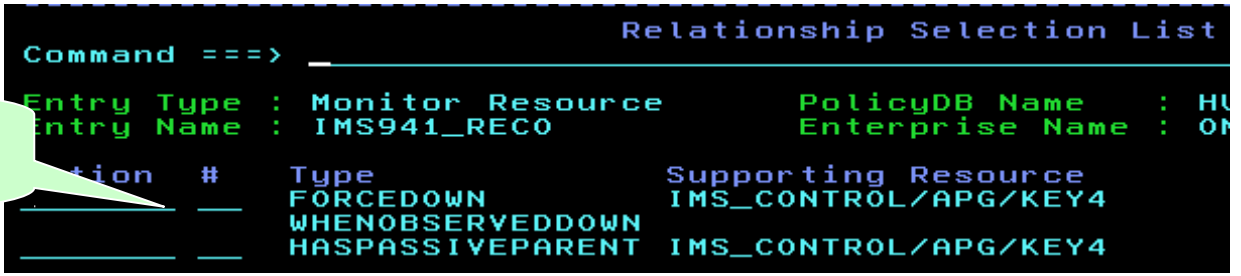
Meaning of Return Codes of INGRMIRE

Return Code	Health Status	Description
1	BROKEN	Severe error occured
2	FAILED	RMLIST command timeout / no response
3	NORMAL	Everything is just fine (3 RECON DSN found in status COPY1, COPY2 and SPARE)
4	WARNING	RECON COPY2 missing
5	MINOR	RECON SPARE missing
6	CRITICAL	RECON COPY2 and SPARE missing
7	FATAL	RECON COPY1, COPY2 and SPARE missing

Customization Dialogs Definitions

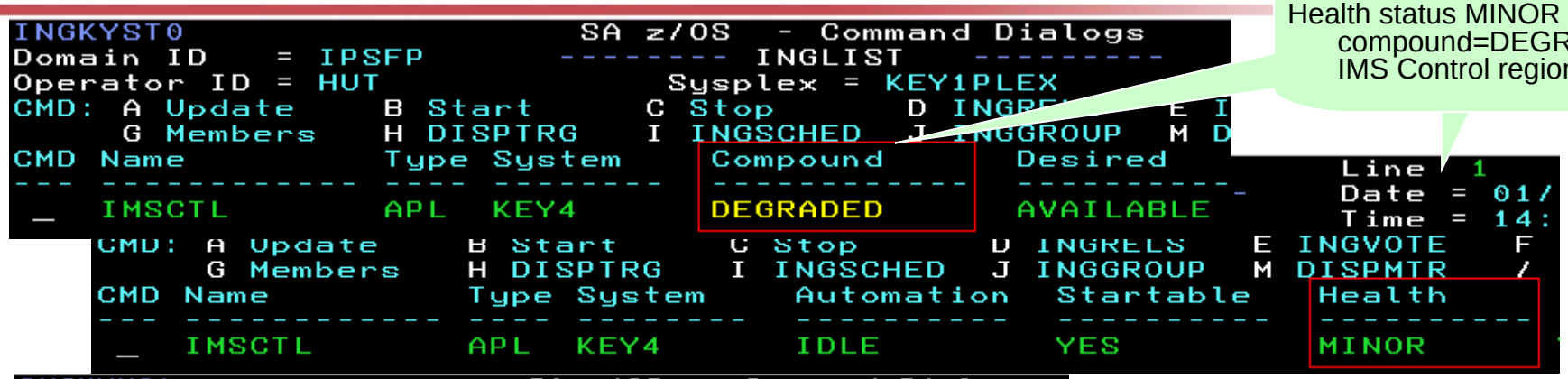
MTR resource with **"Monitored Object" = RECON**

Monitor command = **"INGRMIRE"**



Relationships :
MTR → IMS_control APG
Rely on all required functions

RECON monitoring



Health status MINOR results in compound=DEGRADED on IMS Control region

Look also at MTR resources on **SDF, NMC** and **TEP**

Check for details on DISPMTR details panel

Scenario B :

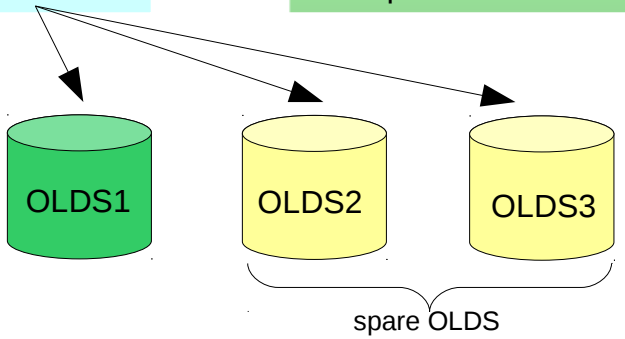
Monitoring of Online Log Data Sets (OLDS)

Problem: **Need SPARE OLDS**

Solution: **Add definitions to SA z/OS**

- Monitoring routine **INGRMIOL** is used
  →Two **MTR** resources must be defined to monitor
  - number of **available OLDS**
    →Monitored Object = **OLDS**
  - **excessive OLDS switching**
    →Monitored Object = **OLDS_SWITCH**
- Relationships between MTR resources and IMS control region

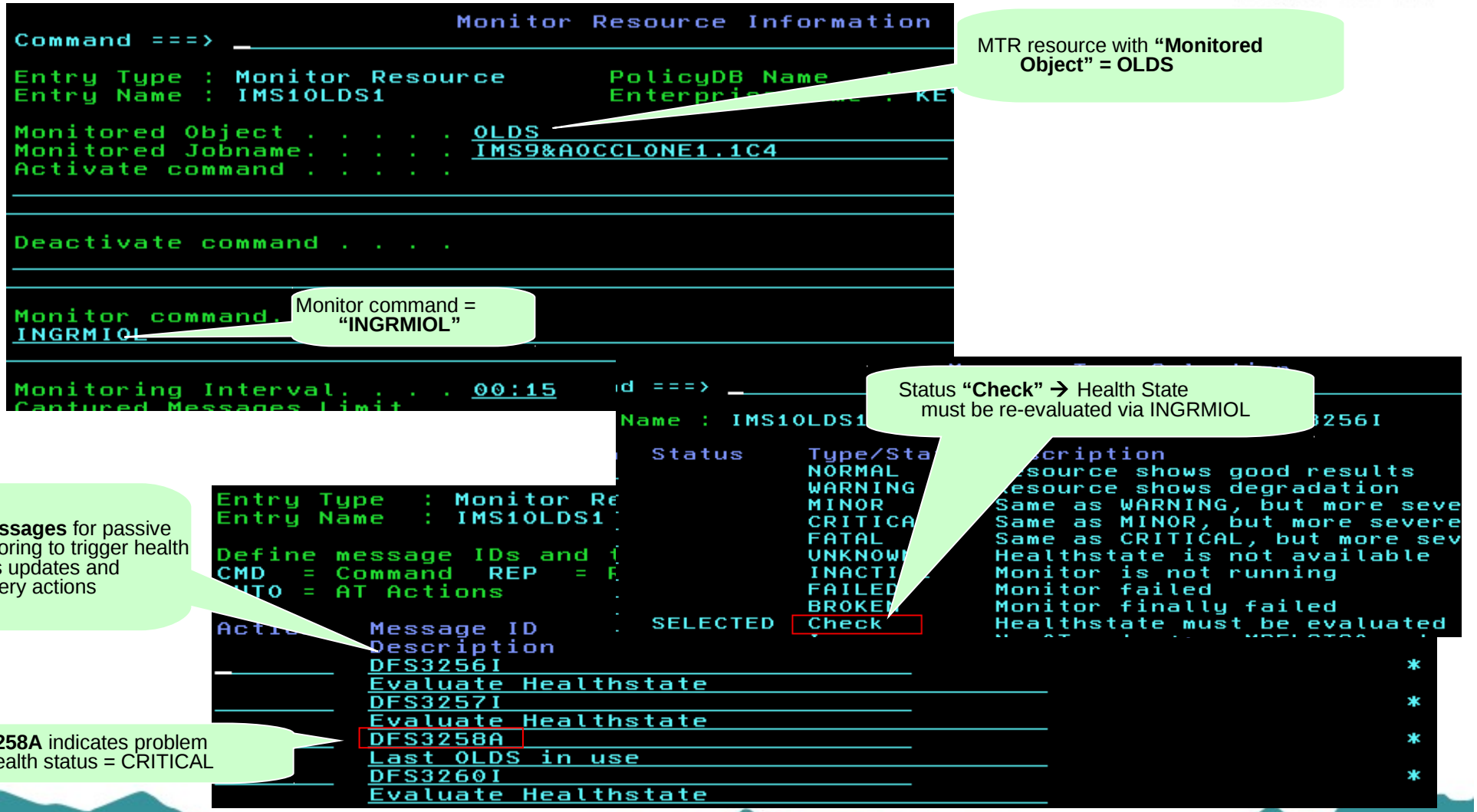
IMS **display** cmd to analyze status of OLDS → Health state WARNING → Spare OLDS startet!



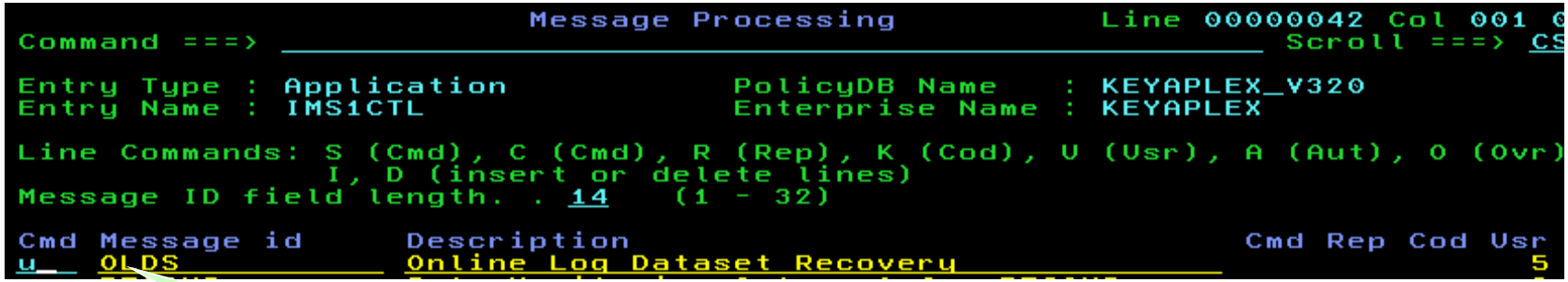
Meaning of Return Codes of INGRMIOL

Return Code	Health Status	Description
1	BROKEN	Monitor encountered a severe error
2	FAILED	DISPLAY OLDS failed
3	NORMAL	No problem found by OLDS monitoring
4	WARNING	One of the following occured: •Needed to start spare OLDS to have the minimum in AVAILABLE status •AUTOMATIC ARCHIVE is off
5	MINOR	Could not start enough spare OLDS to have the minimum in AVAILABLE status
6	CRITICAL	Number of OLDS in BACKOUT status exceeds maximum limit

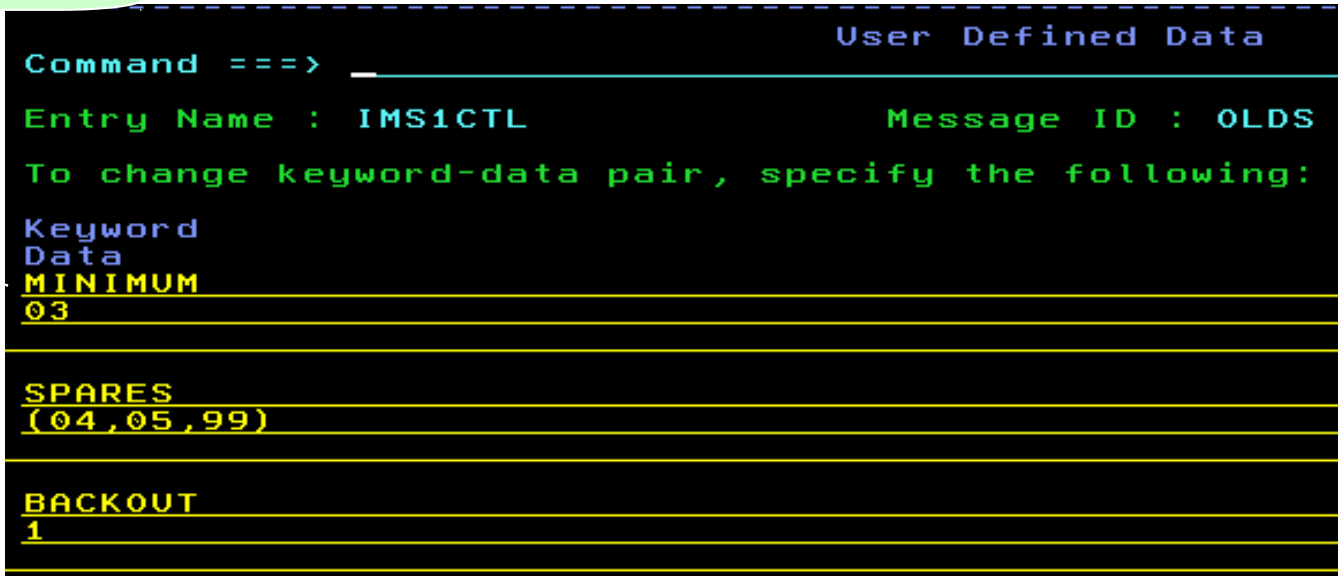
Define ‘OLDS’ MTR resource



Define OLDS monitoring



Special message id : **OLDS**



Minimum number of available **OLDS**

Spares to be activated in case of too less available **OLDS**

number of acceptable OLDS data sets with an OTHER-STS of BACKOUT.

Define ‘IMS OLDS Switch Frequency’

- MTR resource

```
                         Monitor Resource Information
Command ===> _

Entry Type : Monitor Resource        PolicyDB Name    : KEYAPLEX_V320
Entry Name : IMS1OLDS2               Enterprise Name  : KEYAPLEX

Monitored Object . . . . . . OLDS_SWITCH
Monitored Jobname. . . . . . IMS9&AOCCLONE1.1C4
Activate command . . . . . .
```

MTR resource with
“Monitored Object” = OLDS_SWITCH

Notices:

Don’t forget to define thresholds levels

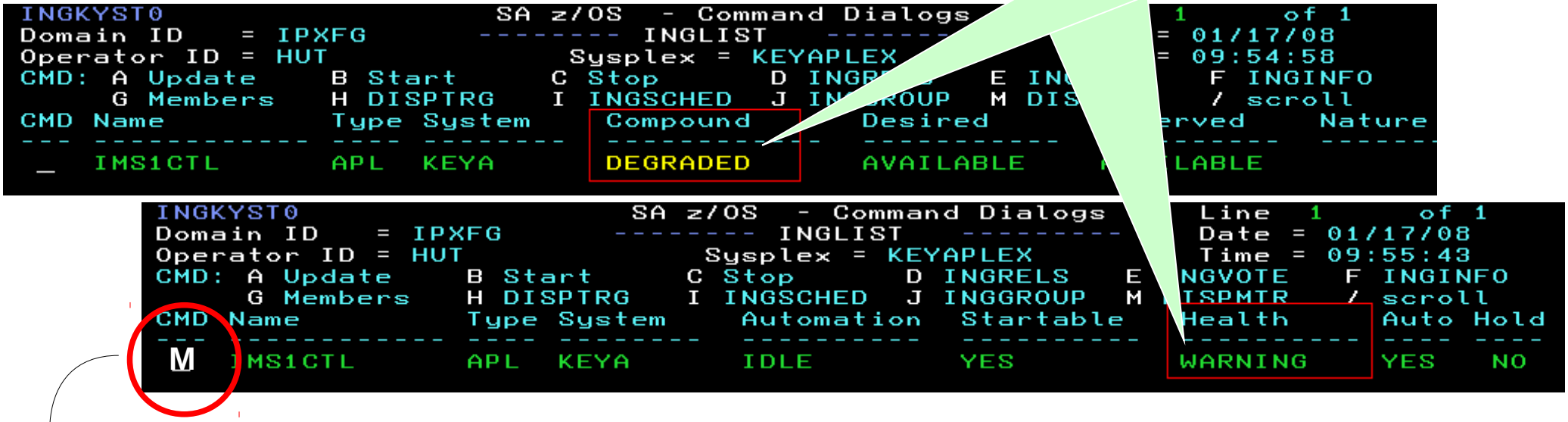
for minor resource DFS3257I for IMS control region

Command Definitions for the Health Status Update (INGMON → status change)
related to the **Switch Frequency**

```
                              CMD P          ng              Row 1 to 7 of 24
Command ===> _                                                SCROLL===> CSR

Entry Name : IMS1CTL                    Message ID : DFS3257I

Enter commands to be e    ted when resource issues the selected message
or define this mess    as status message.

Status . . . _________       ('?' for selection list)

Pass/Selection Automated Function/'*'
Command Text
INFR
INGMON OLDS_SWITCH,JOBNAME=&SUBSJOB,STATUS=WARNING,INFO=(MSG,INFREQUENT THRESHO
LDS LIMIT REACHED FOR OLDS SWITCHING)

FREQ
INGMON OLDS_SWITCH,JOBNAME=&SUBSJOB,STATUS=MINOR,INFO=(MSG,FREQUENT OLDS SWITCH
ING DETECTED)

CRIT
INGMON OLDS_SWITCH,JOBNAME=&SUBSJOB,STATUS=CRITICAL,INFO=(MSG,CRITICAL OLDS SWI
TCHING FREQUENCY REACHED)

ALWAYS
INGMON OLDS_SWITCH,JOBNAME=&SUBSJOB,STATUS=NORMAL,INFO=(MSG,OLDS SWITCHING FREQ
UENCY IS NORMAL)
```

Spare OLDS required

Compound status : **DEGRADED**
Results from health status **WARNING**



Invoke DISPMTR for further details

Spare OLDS required

```
INGKYMO0                              SA z/OS  - Command Dialogs
Domain ID    = IPXFG                 -------- DISPMTR   ---------
Operator ID = HUT                         Sysplex = KEYAPLEX

CMD: A Reset    B Start    C Stop    D Details    E INGVO

CMD Monitor        System     Status          Health
--- ------------ -------- ------------ ------------
    IMS1DC         KEYA       ACTIVE       NORMAL
 d  IMS1OLDS1      KEYA       ACTIVE       WARNING
    IMS1OLDS2      KEYA       ACTIVE       NORMAL
```

Look under DISPMTR → details for more information

```
INGKYMO1                              SA z/OS  - Command Dialogs        Line  1      of
Domain ID    = IPXFG                 ---------- DISPMTR  ----------    Date = 01/17/0
Operator ID = HUT                         Sysplex = KEYAPLEX            Time = 09:56:2

 Monitor              : IMS1OLDS1/MTR/KEYA
 System               : KEYA
 Description          : IMS1 OLDS Monitor

 Monitored Object     : OLDS
 Monitored Jobname    : IMS9A1C4
 Inform list          : SDF

 Commands...
    Activate          :
    Deactivate        :
    Monitoring        : INGRMIOL

 Interval             : 00:15

 Last termination     : 18:38:26 on 01/16/08
 Last start           : 18:46:14 on 01/16/08

 Monitor Status       : ACTIVE  at  2008-01-17 09:51:23
 Health Status        : WARNING
                        Needed to start spare OLDS to have the minimum in
                        AVAILABLE status
```

Detailed infos for Health state **WARNING**

Scenario C :

Monitoring of VTAM ACB

Problem: **IMS users are unable to LOGON to IMS** (VTAM ACB has been closed)

Solution: **Add definitions in the SA z/OS Policy database**

- Monitor routine **INGRMIDC** is used

  → Define **MTR** resource to monitor

  - the status of the VTAM ACB
  - status message (DFS2111I) for passive DC monitoring

- Define relationships between MTR resources and IMS Control region

IMS cmd **‚DISPLAY** ACTIVE DC'

... analyzes the status of the VTAM ACB and the LOGONS enablement

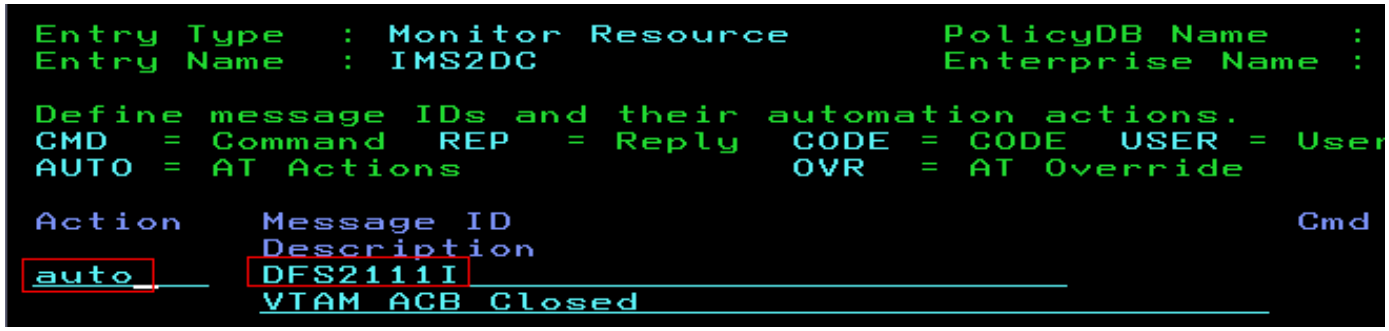
Meaning of Return Codes for INGRMIDC

Return Code	Health Status	Description
1	BROKEN	Monitor encountered a severe error
2	FAILED	DISPLAY ACTIVE DC failed
3	NORMAL	VTAM ACB is OPEN and LOGONS enabled
4	WARNING	LOGONs are not enabled

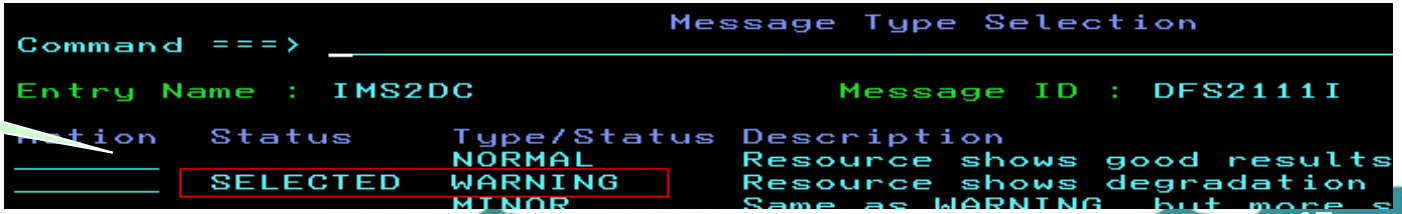
Define MTR resource

a) **ACTIVE** monitoring in a defined time interval

b) **PASSIVE** monitoring via message "**DFS2111I** VTAM ACB CLOSED. "

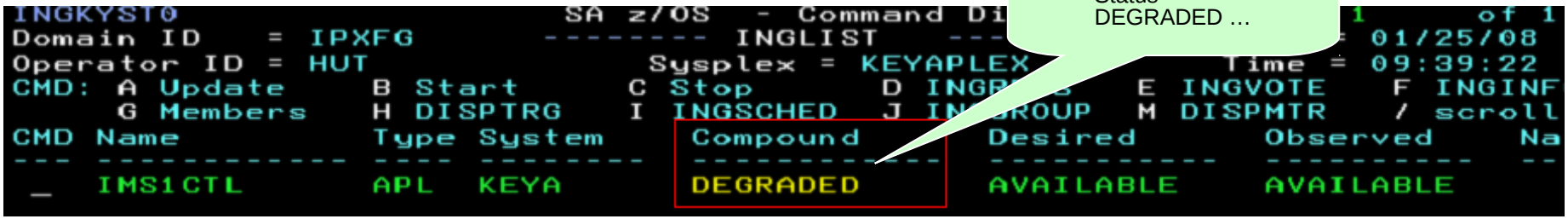


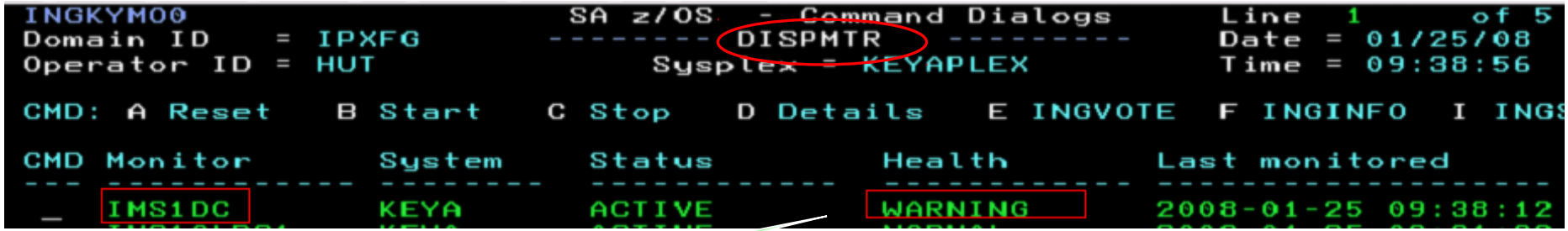
Select appropriated Status **message** for passive monitoring.



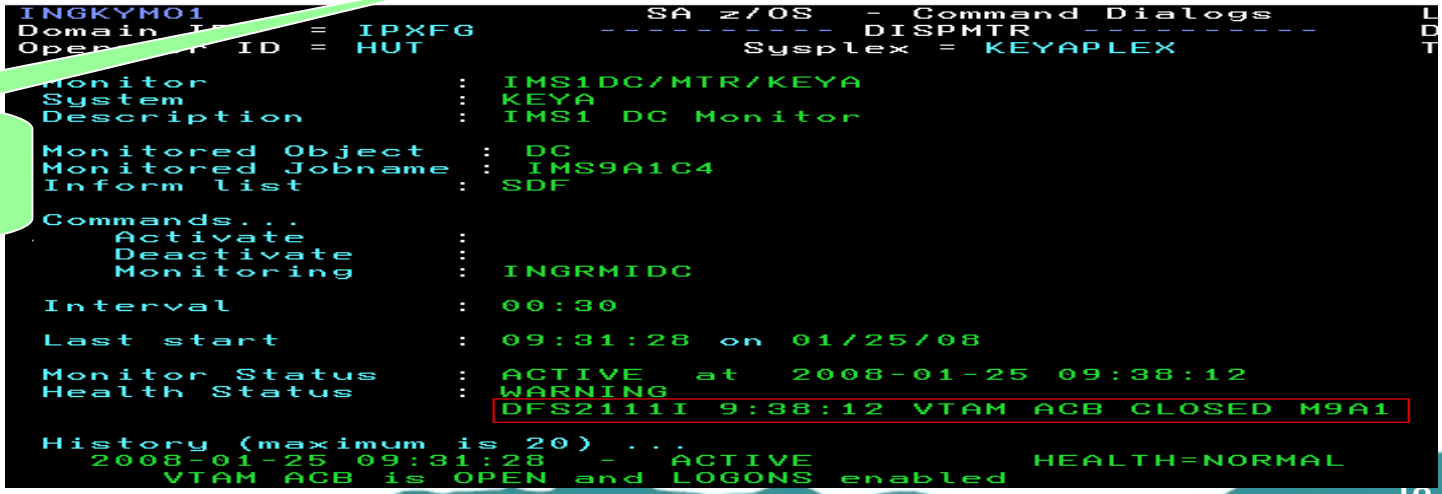
VTAM ACB closed...

IMS control region has Status DEGRADED ...





... results from Health status WARNING from MTR resource



Logon enabled again …

```
INGKYMO1                        SA z/OS - Command Dialogs
Domain ID    = IPXFG          ---------- DISPMTR ----------
Operator ID = HUT                      Sysplex = KEYAPLEX

 Monitor              : IMS1DC/MTR/KEYA
 System               : KEYA
 Description          : IMS1 DC Monitor

 Monitored Object     : DC
 Monitored Jobname    : IMS9A1C4
 Inform list          : SDF

 Commands...
    Activate          :
    Deactivate        :
    Monitoring        : INGRMIDC

 Interval             : 00:30

 Last start           : 09:31:28 on 01/25/08

 Monitor Status       : ACTIVE  at  2008-01-25 09:41:46
 Health Status        : NORMAL
                        VTAM ACB is OPEN and LOGONS enabled

 History (maximum is 20) ...
   2008-01-25 09:31:28  -  ACTIVE              HEALTH=NORMAL
      VTAM ACB is OPEN and LOGONS enabled
```

VTAM ACB is OPEN again – interval important to reflect actual status

Scenario D :

Recovery of IMS transactions and programs

Problem: **Automatic recovery of 'ABENDING' IMS transactions or programs**

Solution: **Add definitions in the SA z/OS Policy database**

What has to be considered....

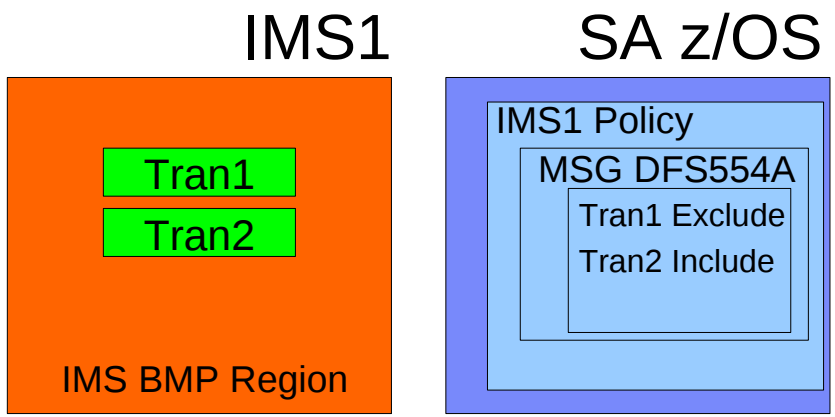
a) Which transactions should be recovered?

b) At which error threshold level should recovery be stopped?

c) Which ABEND codes needs special handling?

d) Which recovery procedure (command, routine, notifications to operators) should be done?

- Example:
  Application program or transaction abends → IMS issues message DFS554A to the master terminal
  - Issue recovery to restart the program or the transaction



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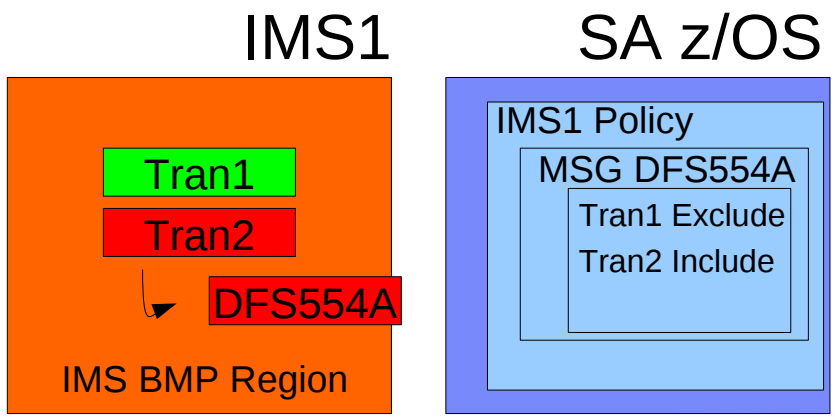

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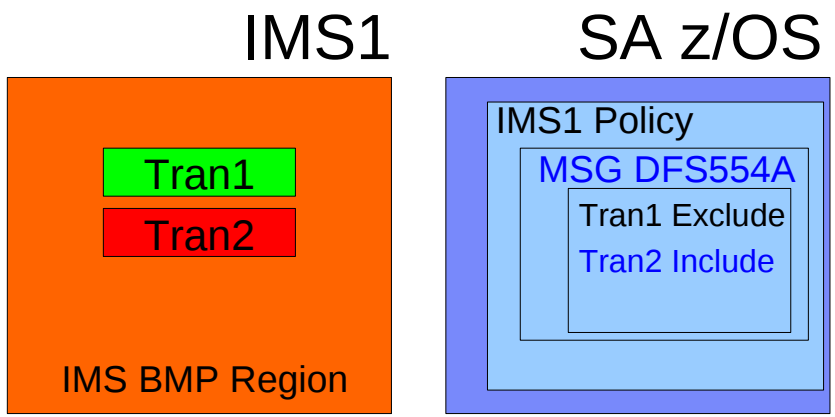

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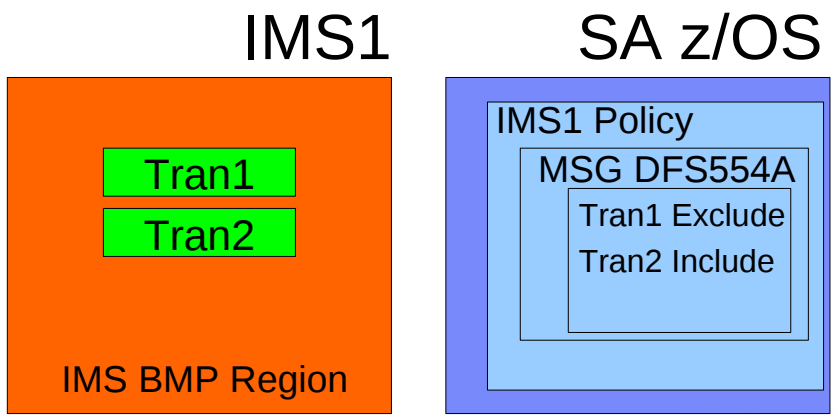
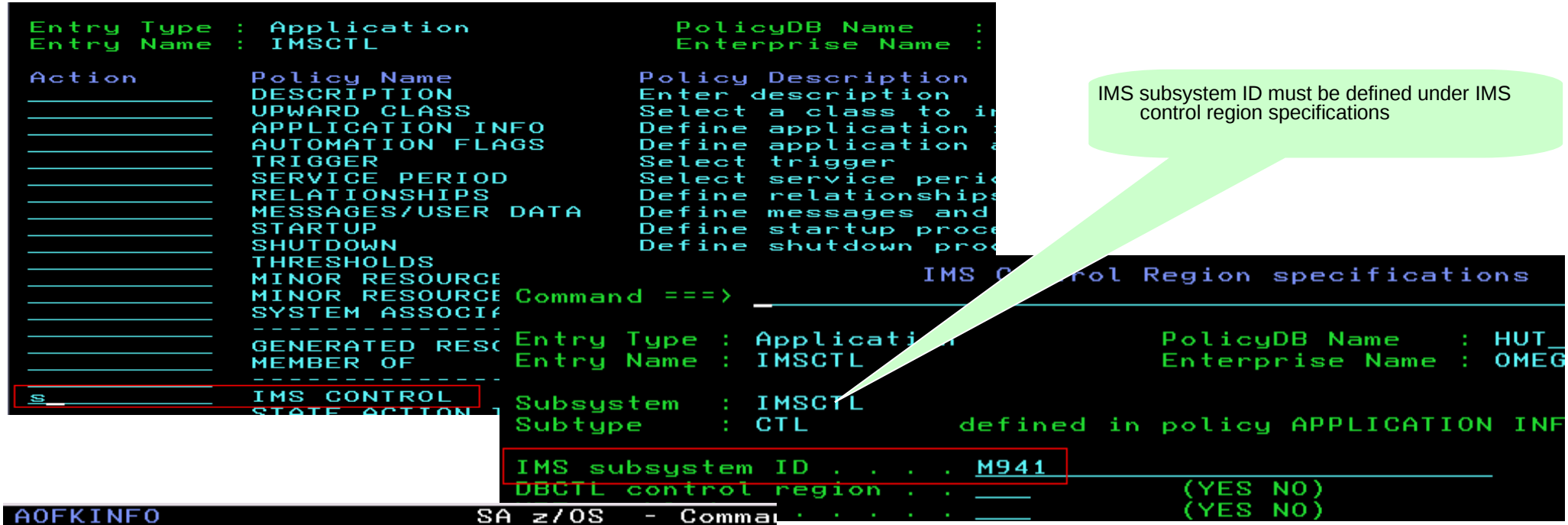


Customization Dialog Definitions



IMS subsystem ID must be defined under IMS control region specifications

Customization Dialog Definitions

SHARE
Technology · Connections · Results

a) Which transactions should be recovered?

```
                                      Minor Resource Flags
Command ===> ______________________________________________

Entry Type : Application                   Polic
Entry Name : IMSCTL                        Enterp

Major Name : IMSCTL

Action   Minor Resource
______   PROG.DFSIVP4
______   PROG.DFSIVP5
s_____   PROG.EVIRYPPI
______   TRAN.IVTFD
______   TRAN.IVTFM
```

Specify Transactions and/or
Programs to be recovered
→ Recovery Automation flag

```
Entry Type : Application                     Polic
Entry Name : IMSCTL                          Enter
Resource   : IMSCTL.PROG.EVIRYPPI

Enter level of automation desired.
Automation Flags:  Y = Yes   N = No   L

Actions     Flag               Auto       Exits
_______     Automation .                  0
_______     Recovery . .       YES        0
_______     Start. . . .                  0
```

b) At which error threshold level should recovery be stopped?

```
                        Minor Resource Thresholds
Command ===> ______________________________________

Entry Type : Application                PolicyDB Name
Entry Name : IMSCTL                     Enterprise Na

Major Name : IMSCTL

Action   Minor Resource
         DFS3257I
______   PROG.DFSIVP34
______   PROG.DFSIVP35
s_____   PROG.EVIRYPPI
______   TRAN.IVTCB
______   TRAN.IVTCX
```

Reminder:

If NO thresholds defined → RECOVERY forever!!

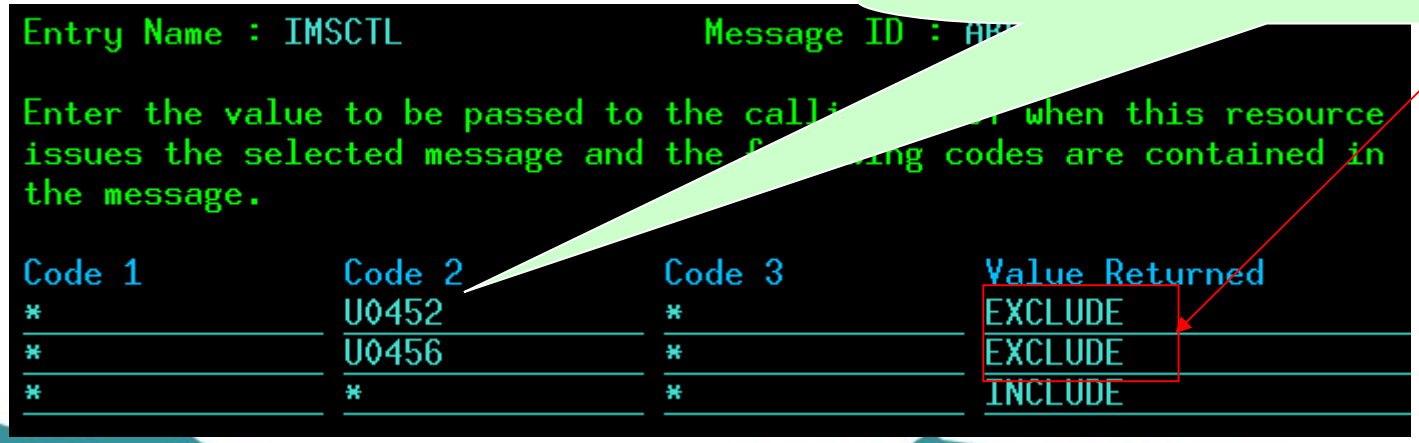
Recovery stopped dependent on
THRESHOLDS settings

```
                                     Thresholds Definition
Command ===> _

Entry Type : Application               PolicyDB Name
Entry Name : IMSCTL                    Enterprise Name

Resource   : IMSCTL.PROG.EVIRYPPI

Critical Number . . . . 3       (1 to 50)
Critical Interval . . . 02:00   (hh:mm or hhmm, 00
```

Customization Dialog Definitions

c) Which ABEND codes needs special handling?

Filter criteria for ABEND codes:
- Recovery done for all ABEND codes except U0452 and U0456
-



Customization Dialog Definitions

SHARE
Technology • Connections • Results

d) Which recovery procedure (command, routine, notifications to operators) ?

```
Entry Type  :  Application                    PolicyDB Name    :  HUT_OMEGAMO
Entry Name  :  IMSCTL                         Enterprise Name  :  OMEGAMON_SA

Line Commands:  S (Cmd), C (Cmd), R (Rep), K (Cod), U (Usr), A (A
                I, D (insert or delete lines)
Message ID field length. . 14    (1 - 32)

Cmd Message id        Description                                     Cmd
cmd DFS554A           Specifications for DFS554A                       3
```

```
Entry Name :  IMSCTL                       Message ID :  DFS554A

Enter commands to be executed when resource issues the selected message
or define this message as status message

Status . . .

Pass/Selection Automated Function/'*'
Command Text
PROG
MVS &SUBSSUBIDSTA PGM &EHKVAR2

TRAN
MVS &SUBSSUBIDSTA TRAN &EHKVAR1

MSG BINZ ,IMS ABEND JOB-ID: &EHKVAR3 | REGION-ID: &EHKVAR4 | USER ABEND-CODE: &
EHKVAR5 SYSTEM ABEND-CODE: &EHKVAR6 | TRANSACTION: &EHKVAR1 | PROGRAM: &EHKVAR2
```

Commands to be issued for Program recovery

…send msgs to operator

DFS554A msg -> SA z/OS actions

IMS subsystem ID followed by IMS master terminal command

Program name

Transaction id

```
M941STO REG 2 AB    P
DFS4445I CMD FR   M MCS/E-MCS CONSOLE USER ID=HUT: STO REG 2 ABDUMP M941
DFS058I 10:10:59 STOP COMMAND IN PROGRESS M941
DFS554A IMS941PP 00002 IMS941PP EVIRYPPI(2) EVITPPI1 000,0474 PSB SMB
        2008/023 10:10:59 M941
DFS552I BATCH   REGION IMS941PP STOPPED ID=00002 TIME=1010  M941
AOF502I 10:10 : RECOVERY FOR PROG IMSCTL.PROG.EVIRYPPI CONTINUING 308
 - 01 ERRORS SINCE 10:10 ON 01/23/2008 - FREQUENT ERROR THRESHOLD
 EXCE   DED
```

…now SA z/OS compares contents of DFS554A msg with recovery definitions in PDB

…Transaction restarted due to PDB definitions

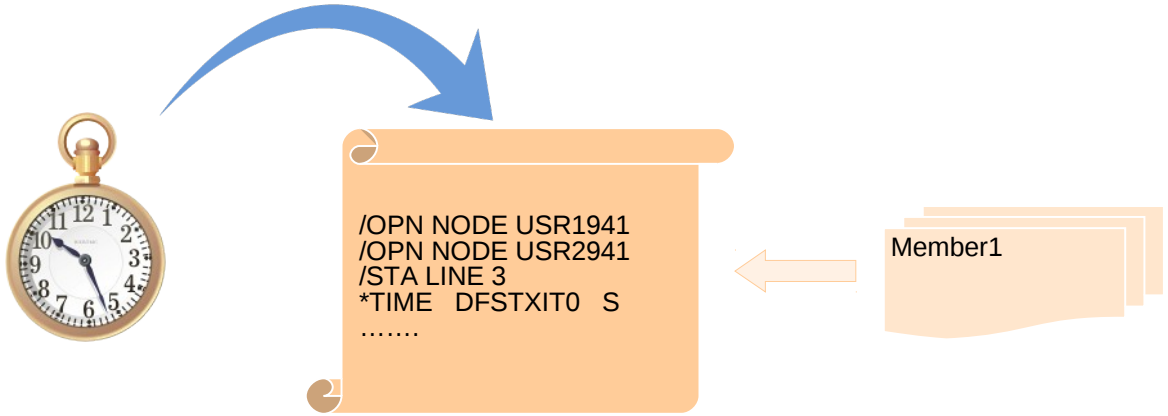
```
 END OF SYMPTOM DUMP
AOF502I 10:11 : RECOVERY FOR TR   IMSCTL.TRAN.EVITPPI1 CONTINUING 315
 - 01 ERRORS SINCE 10:11 ON 0  23/2008 - FREQUENT ERROR THRESHOLD
 EXCEEDED
$HASP395 IMS941PP ENDED
IEA989I SLIP TRAP ID=X   E MATCHED.  JOBNAME=*UNAVAIL, ASID=01E3.
M941STA TRAN EVITPPI1
DFS4445I CMD FROM MCS/E-MCS CONSOLE USERID=AWRK08Y4: STA TRAN EVITPPI1
M941
DFS058I 10:11:00 START COMMAND COMPLETED M941
AOF570I 10:11 : ISSUED "MVS M941STA TRAN EVITPPI1" FOR SUBSYSTEM 323
 IMSCTL - MSGTYPE IS DFS554A
AOF570I 10:11 : ISSUED "MSG BINZ ,IMS ABEND JOB-ID: IMS941PP | 324
 REGION-ID: 00002 | USER ABEND-CODE: 0474 SYSTEM ABEND-CODE: 000 |
 TRANSACTION: EVITPPI1 | PROGRAM: EVIRYPPI" FOR SUBSYSTEM IMSCTL -
 MSGTYPE IS DFS554A
S IMS941PP
```

Scenario E :

Time Controlled Operations (TCO)

Problem: Several IMS commands should be issued based on scheduled timer intervals

Solution: Add definitions in the SA z/OS Policy database



- Commands issued under logical terminal DFSTCF
- Several different members could be defined and loaded

Customization Dialogs Definitions

```
                        Message Processing              Line 00000079 Col 001 0
Command ===>                                                    Scroll ===> CS

Entry Type : Application              PolicyDB Name    : HUT_OMEGAMON_V320
Entry Name : IMSCTL                   Enterprise Name  : OMEGAMON_SA_V320

Line Commands: S (Cmd), C (Cmd), R (Rep), K (Cod), U (Usr), A (Aut), O (Ovr)
               I, D (insert or delete lines)
Message ID field length. . 14    (1 - 32)

Cmd Message id       Description                                  Cmd Rep Cod Usr
rep TCO              TCO Load command                                 1     1
    TCOMEMBERS       IMS TCO members in TCFSLIB                             5
```

Reserved message ids “**TCO**” and “**TCOMEMBERS**”

```
Entry Name : IMSCTL                   Message ID : TCO

Enter replies to be issued when this resource issue
or define this message as status message.

Status . . . _____________    ('?' for selection lis

Pass/      Retry Reply Text
Selection  Count
SPEC       __    DFSTCF LOAD &EHKVAR1 .
```

Specify that the logical terminal **DFSTCF** is used

```
Entry Name : IMSCTL                   Message ID : TCO

To change keyword-data pair, specify the following:

Keyword
Data
DSN
SYS1.IMS.M941.TCFSLIB
```

Under “USR” the dataset containing the TCO members is defined

Customization Dialogs Definitions

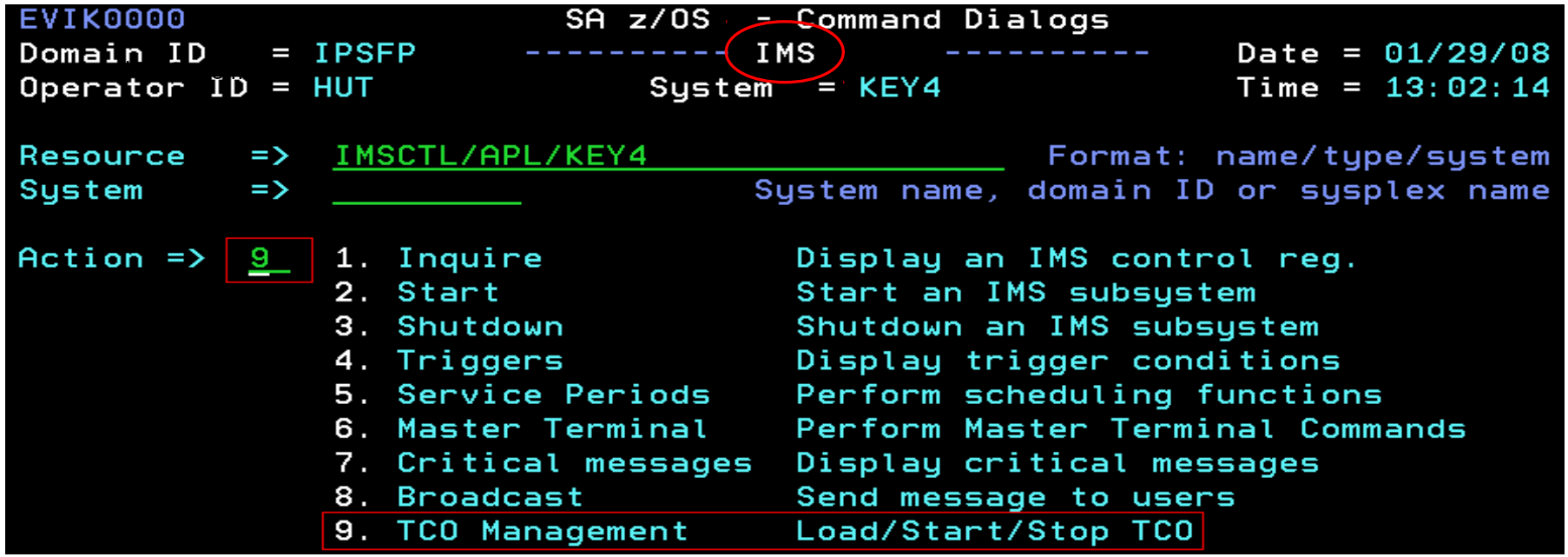
Definitions of the member names under message **"TCOMEMBERS"**

```
Entry Type : Application          PolicyDB Name    : HVT_OMEGAMON_V320
Entry Name : IMSCTL               Enterprise Name  : OMEGAMON_SA_V320

Line Commands: S (Cmd), C (Cmd), R (Rep), K (Cod), V (Usr), A (Aut), O (Ovr)
               I, D (insert or delete lines)
Message ID field length. . 14    (1 - 32)

Cmd Message id      Description                                  Cmd Rep Cod Usr
usr TCOMEMBERS      IMS TCO members in TCFSLIB                                5
```

```
Entry Name : IMSCTL                    Message ID : TCOMEMBERS

To change keyword-data pair, specify the following:

Keyword
Data
NAME
(BITEST1,'D MESSAGE QUEUE *QBUF* / USER AL')

NAME
(BITEST2,'DISPLAY MESSAGE QUEUE *QBUF*')

NAME
(BITEST3,'D MESSAGE QUEUE *QBUF* PLUS ACTI')

NAME
(DFSTCF,'DEFAULT MEMBER *DFSTCF* IN TCFSL')

NAME
(DISPROG,'DISPLAY PROG ALL AND LTERM DFS*')

NAME
(SVDFSTCF,'OLD DFSTCF WITH STA DC & STA REG')
```

Member name and descriptive text for it

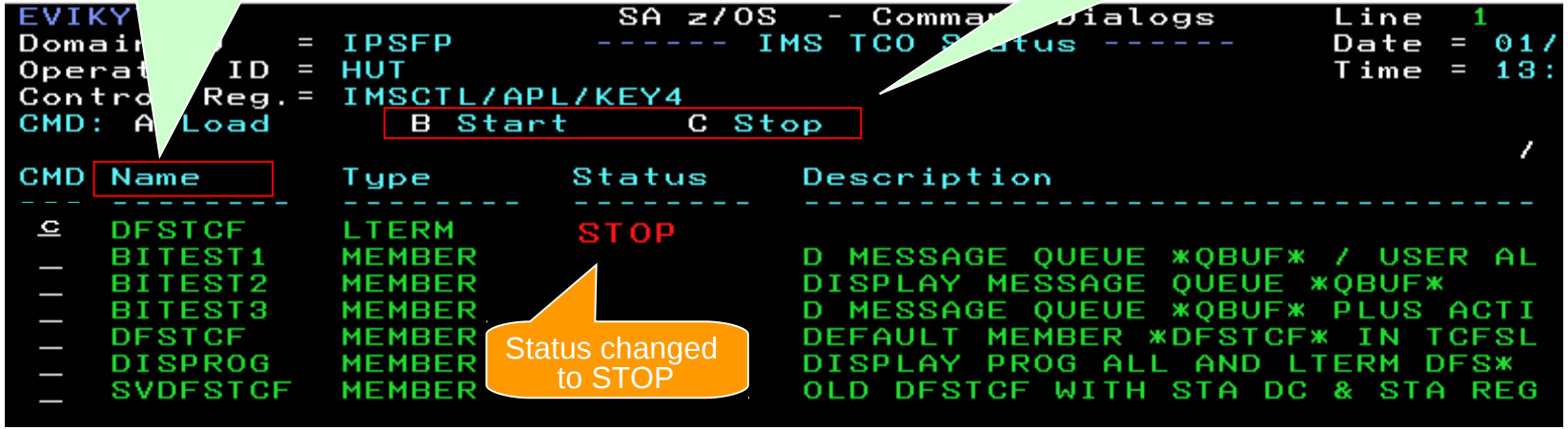
TCO handling with IMS command interface



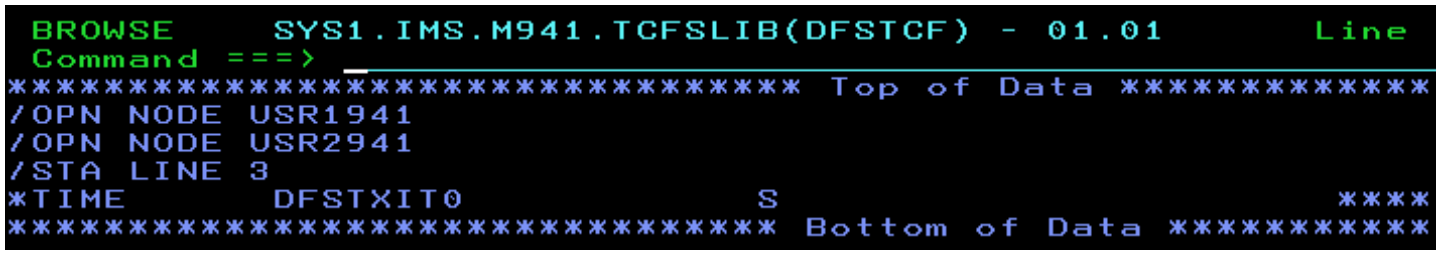
TCO handling with IMS command interface

Load TCO member

Start / Stop the logical terminal



SAMPLE contents of TCO member containing IMS commands



Agenda

- SA z/OS 3.2 – IMS Automation Overview
- User scenarios – Use cases
  - RECON SPARE dataset for IMS are missing
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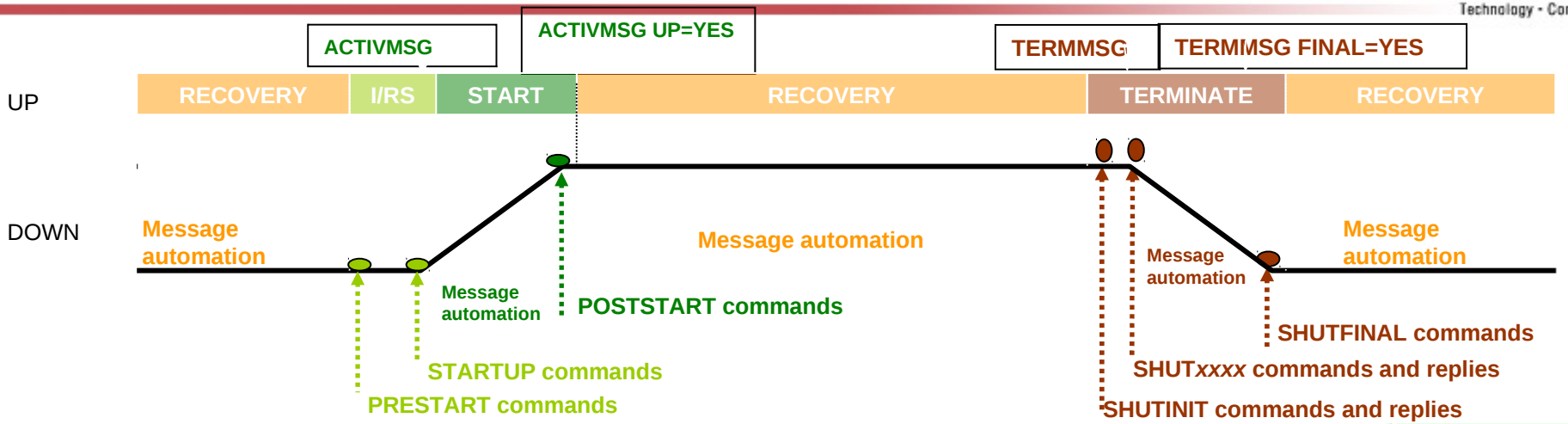
Automation Flags During Lifecycle of a Resource



- InitStart flag (I): Checked after IPL only, when application has a true DOWN status.
- Restart flag (RS): Tested in all other DOWN states.
- Start flag (S): Checked for automation after STARTUP command issued and for POSTSTART commands.
- Terminate flag (T): Controls all shutdown commands and automation during shutdown.
- Recovery flag (R): Controls automation when application is UP or DOWN.

- Automation flag (A): Global automation flag for the resource. **If NO, all flags are NO.**

Notices:

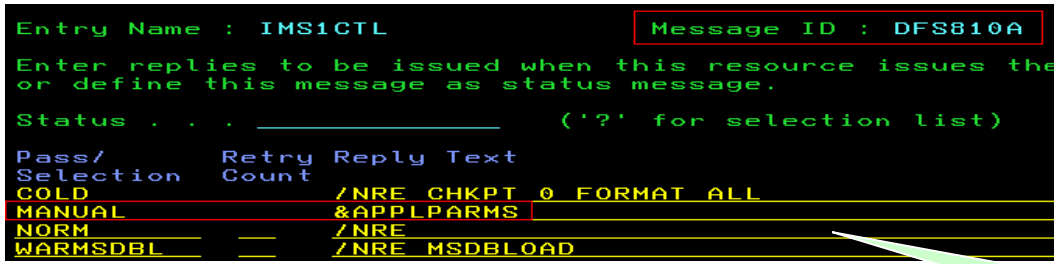
Special 'feature' code replaced by generic routines

ACTIVMSG / TERMMSG

→ **NO** differences to any other application

Start IMS address spaces

- Start types
  - COLD → *restart command in response to DFS810A*
  - AUTO → *use restart dataset to determine startup type*
  - NORM → *DEFAULT start type*
  - WARMSDBL → *restart command in response to DFS810A (load Main Storage Data Base MSDB)*
  - BUILDQ → *restart command in response to DFS810A (queues are build new)*
  - MANUAL → *reply to DFS810A with values from INGREQ panel*



REPLY with values entered on INGREQ panel
→ under "**Appl Parms**"

- Can reply to outstanding WTOR's
- Policy based startup

Starting of IMS control region

```
AOFKINFO                  SA z/OS  - Command Dialogs        Line  72   of
Domain ID    = IPSFP      -------- DISPINFO ----------      Date = 01/24/0
Operator ID = HUT                                          Time = 14:46:2

 Subsystem ==>  IMS1CTL      System ==>  KEY4      System name, domain ID
                                                  or sysplex name

   Start Up Process -
     Prestart :
       None

     Startup :

       User Start Up Commands :
         CMD=(AUTO,,'MVS S &SUBSJOB,PARM1=''AUTO=Y''')
         CMD=(COLD,,'MVS S &SUBSJOB,PARM1=''AUTO=N''')
         CMD=(NORM,,'MVS S &SUBSJOB,PARM1=''AUTO=Y''')
         CMD=(WARMSDBL,,'MVS S &SUBSJOB,PARM1=''AUTO=N''')
         CMD=(MANUAL,,'MVS S &SUBSJOB,PARM1=''AUTO=N''')

     Poststart :
       CMD=(,,'MVS &SUBSSUBIDCQSET SHUTDOWN SHAREDQ ON STRUCTURE ALL')
       CMD=(,,'MVS &SUBSSUBIDSTA DC')
       CMD=(,,'MVS &SUBSSUBIDCHE')
```

Variable **&SUBSSUBID** contains subsystem ID of IMS control region

```
AOFKINFO                  SA z/OS  - Command Dialogs
Domain ID    = IPSFP      -------- DISPINFO ----------
Operator ID = HUT

 Subsystem ==>  IMS1CTL      System ==>  KEY4      Syste
                                                  or sy

   DFS810A :
     REPLY=(COLD,,'/NRE CHKPT 0 FORMAT ALL')
     REPLY=(MANUAL,,'&APPLPARMS')
     REPLY=(NORM,,'/NRE')
     REPLY=(WARMSDBL,,'/NRE MSDBLOAD')
```

Defined **REPLYs** in PDB for message DFS810A

Stop IMS Address spaces

- **Supported stop types**
  - **NORM**
    - *Issue checkpoint, orderly shutdown. Cancellation of message regions and control region after predetermined time delay.*
  - **IMMED**
    - Issue checkpoint. Immediate cancellation of message regions. Cancellation control region after predetermined time delay.
  - **FORCE**
    - *Immediate flushing of all regions*

Stopping of IMS control region

```
AOFKINFO                          SA z/OS  - Command Dialogs
Domain ID    = IPSFP          -------- DISPINFO ----------
Operator ID  = HUT

 Subsystem ==>  IMS1CTL       System ==>  KEY4       System r
                                                     or syspl

      Shutdown Initialization :
        None

      Normal Shutdown :
        CMD=(PASS1,,'MVS &SUBSSUBIDCHE DUMPQ NOCQSSHUT')
        CMD=(PASS2,,'MVS &SUBSSUBIDCHE DUMPQ NOCQSSHUT')
        CMD=(PASS3,,'MVS &SUBSSUBIDCHE DUMPQ NOCQSSHUT')

      Immediate Shutdown :
        CMD=(PASS1,,'MVS &SUBSSUBIDCHE FREEZE NOCQSSHUT')
        CMD=(PASS2,,'MVS &SUBSSUBIDCHE FREEZE NOCQSSHUT')
        CMD=(PASS3,,'MVS &SUBSSUBIDCHE FREEZE NOCQSSHUT')

      Force Shutdown :
        CMD=(PASS1,,'MVS F &SUBSJOB,STOP')

      Shutfinal :
        None
```

Several retries, because IMS not always accept cmd at the first try!

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INGIMS Operator Command

- Allows operators or automation tasks to issue IMS console commands
  - Any console-enabled IMS type-1 command
  - Any IMS type-2 command if an IMSPlex name is provided (V3.3 only)
  - Send commands to one / more / all members of an IMSPlex (V3.3 only)
  - Auditing of IMS commands (V3.3 only)
- Multiple commands can be issued with a single invocation
- To broadcast messages to all or selected IMS users
- To issue a list of pre-defined transactions and view the output
- Usage: As fullscreen operator dialog or programmable API

INGIMS in SA z/OS V3.3

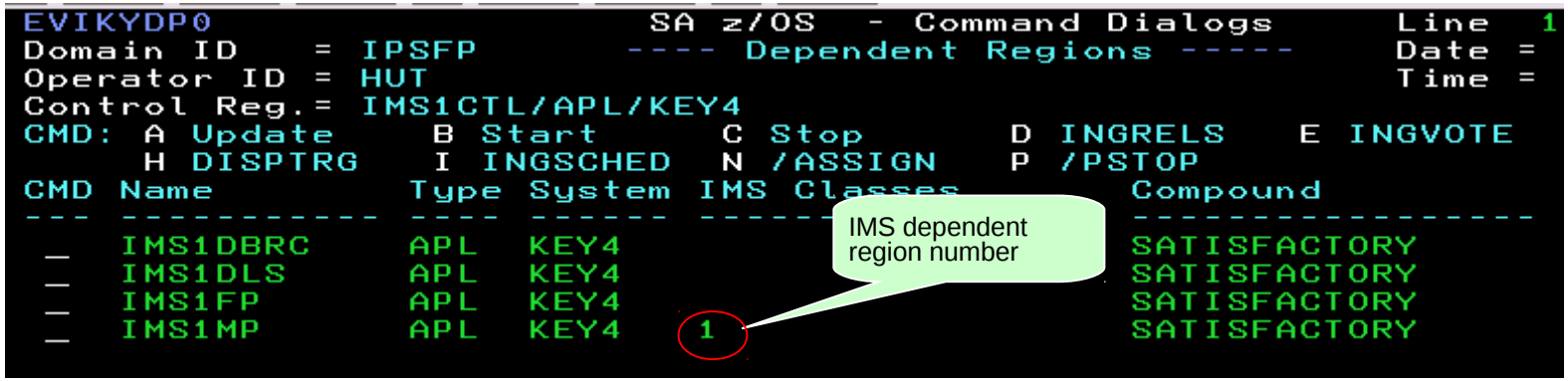
- Implementation
  - Specification of IMSPlex name in policy
  - Uses Common Service Layer (CSL) of IMSPlex
  - Provides new request types for plex-wide requests
    - Uses Operations Manager (OM) API to issue commands if IMSPlex name is given, else uses the console interface
    - Consolidates responses of multiple IMSPlex members
    - Generates tabular output in the same format for type-1 and type-2 commands, no matter whether the OM API was used or not
    - Displays responses in scrollable window when invoked in fullscreen mode
- Benefits
  - No SYSLOG flooding
  - Slight performance improvements compared to previous SA z/OS releases

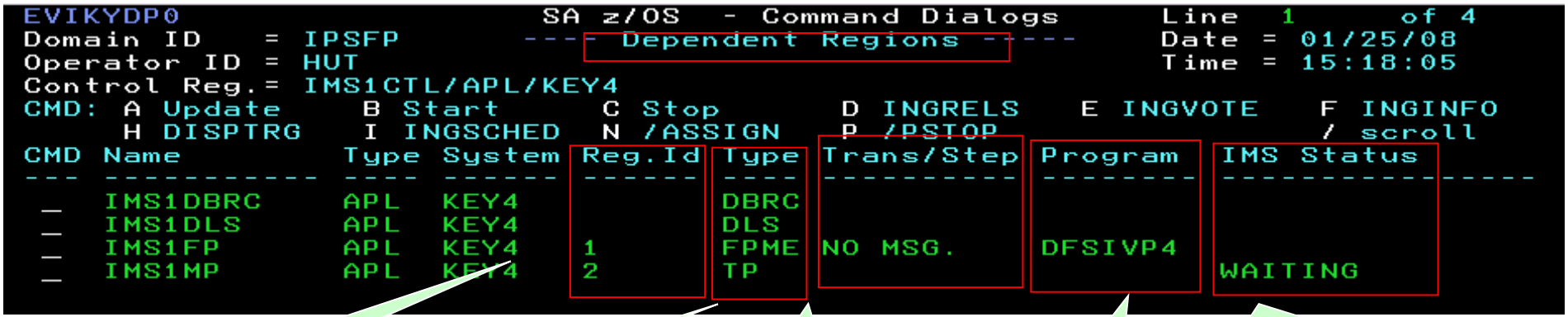
IMS Dependent Region

```
EVIK0000                    SA z/OS  - Command Dialogs
Domain ID    = IPSFP      ---------- IMS      ----------     Date = 01/25/08
Operator ID = HUT              System  = KEY4                 Time = 15:13:36

Resource    =>  IMS1CTL/APL/KEY4                  Format: name/type/system
System      =>  _________              System name, domain ID or sysplex name

Action => 10  1. Inquire              Display an IMS control reg.
              2. Start                Start an IMS subsystem
              3. Shutdown             Shutdown an IMS subsystem
              4. Triggers             Display trigger conditions
              5. Service Periods      Perform scheduling functions
              6. Master Terminal      Perform Master Terminal Commands
              7. Critical messages    Display critical messages
              8. Broadcast            Send message to users
              9. TCO Management       Load/Start/Stop TCO
             10. Dependent Regions    Manage Dependent Regions
             99. Local functions      Provide access to user defined local
                                      functions
```

```
EVIKYDP0                    SA z/OS  - Command Dialogs      Line  1      of 4
Domain ID    = IPSFP      ---- Dependent Regions -----     Date = 01/25/08
Operator ID = HUT                                         Time = 15:16:27
Control Reg.= IMS1CTL/APL/KEY4
CMD: A Update     B Start      C Stop       D INGRELS    E INGVOTE    F INGINFO
     H DISPTRG    I INGSCHED   N /ASSIGN    P /PSTOP                  / scroll
CMD  Name         Type System  Reg.Id Type  Trans/Step Program  IMS Status
---  -----------  ---- ------  ------ ----  ---------- -------- --------------
 _   IMS1DBRC     APL  KEY4            DBRC
 _   IMS1DLS      APL  KEY4            DLS
 _   IMS1FP       APL  KEY4    1       FPME NO MSG.    DFSIVP4
 _   IMS1MP       APL  KEY4    2       TP                       WAITING
```

IMS Dependent Region





IMS region id number of the region

Type of IMS resource

transaction or step running on the appropriate region type

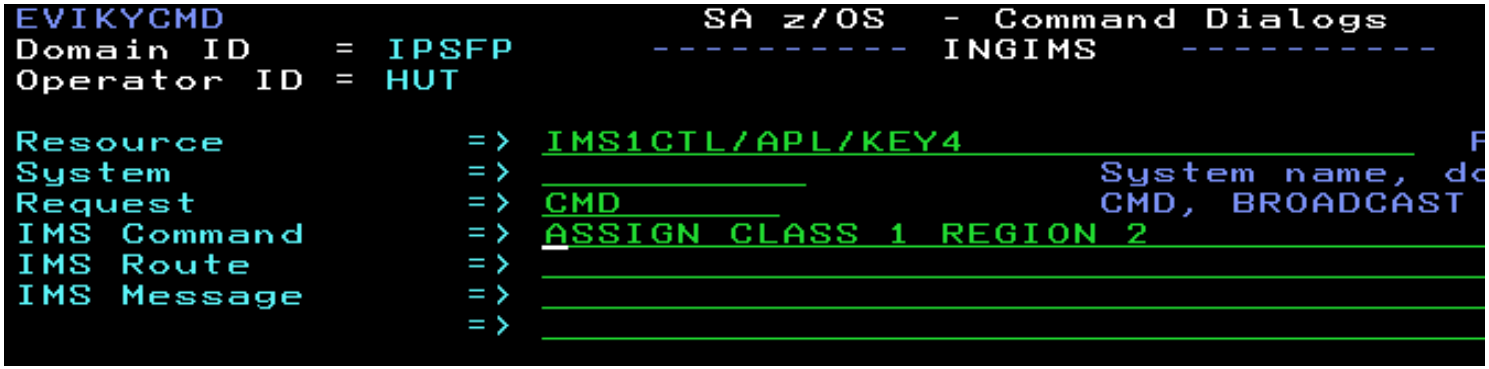
name of the program running in the region.

IMS status of the region e.g. SCHEDULED, AVAILABLE, TERMINATING, WAIT_SPOOLSPACE, ...

IMS Dependent Region

- "/ASSIGN"

  - assign additional classes to the region



- "/PSTOP"

  - Stop a transaction

IMSINFO: Display Information

→ Define your **own commands which should be executed under DISPINFO**

```
Entry Type : Application              PolicyDB Name    : HUT_OMEGAMON_V320
Entry Name : C_IMS_CONTROL            Enterprise Name  : OMEGAMON_SA_V320

Line Commands: S (Cmd), C (Cmd), R (Rep), K (Cod), U (Usr), A (Aut), O (Ovr)
               I, D (insert or delete lines)
Message ID field length. . 14    (1 - 32)

Cmd Message id      Description                                  Cmd Rep Cod Usr
u_  IMSINFO         Get IMS Information for DISPINFO cmd                     1
```

Define for reserved msg **IMSINFO** cmds

```
                                                    User Defined Data
Command ===> _

Entry Name : C_IMS_CONTROL          Message ID : IMSINFO

To change keyword-data pair, specify the following:

Keyword
Data
IMSCMD
('ACTIVE STATE DC','DIS A DC')
```

```
AOFKINFO                    SA z/OS  - Command Dialogs
Domain ID    = IPSFP       -------- DISPINFO ----------
Operator ID  = HUT

 Subsystem ==>  IMSCTL       System ==>  KEY4       System
                                                    or sysp
```

```
    IMSINFO :
      IMSCMD=('ACTIVE STATE DC','DIS A DC')

Command ===>
 PF1=Help      PF2=End       PF3=Return      PF4=INGINFO
 PF7=Back      PF8=Forward   PF9=Refresh     PF10=IMS Info
```

Available under **DISPINFO** → PF10

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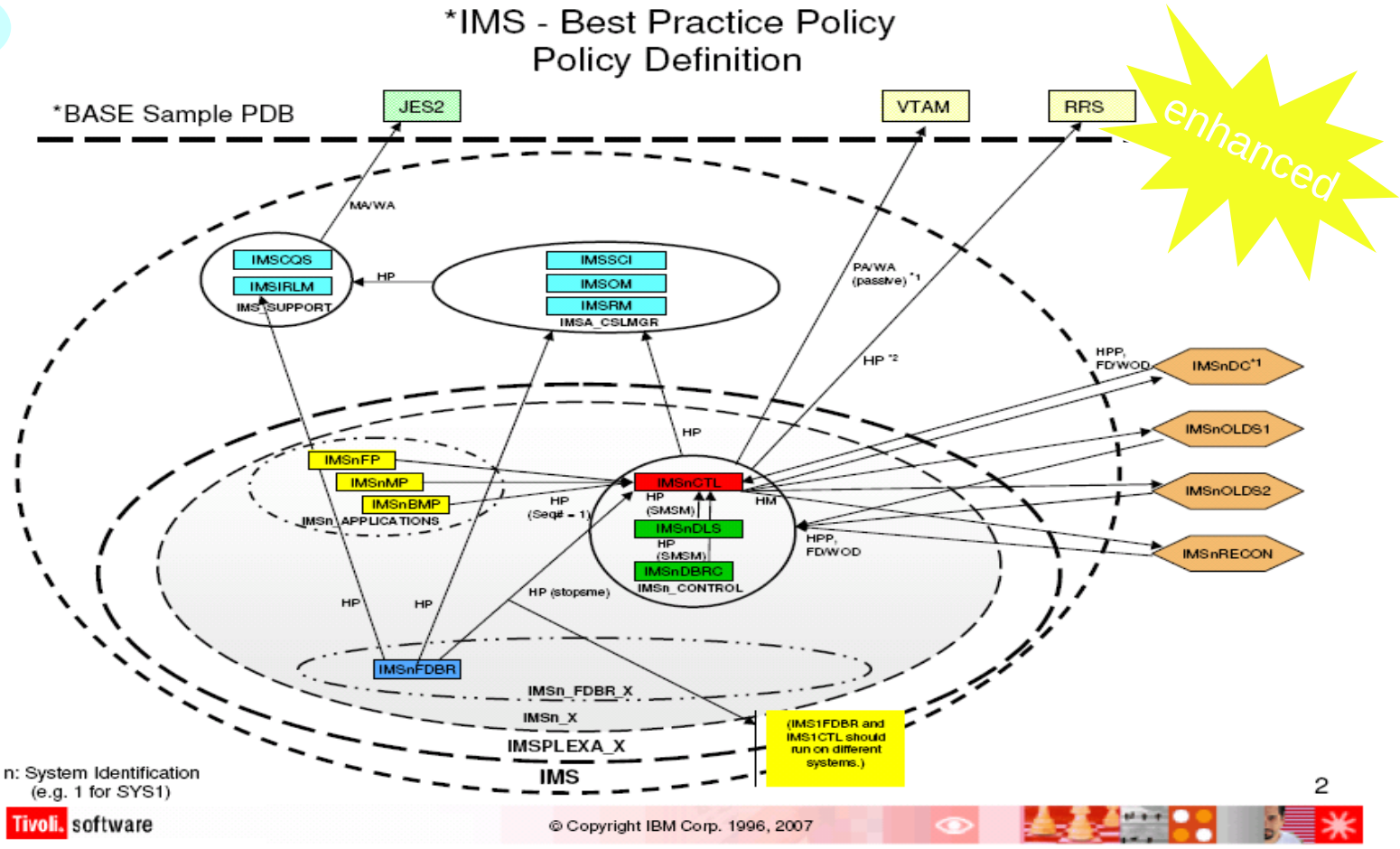
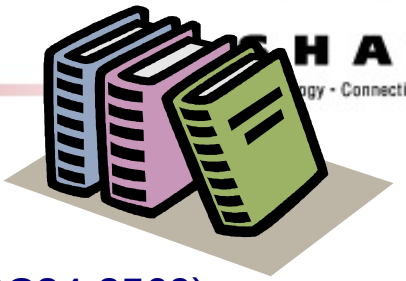
*IMS Best Practice Policy

- Exploit SA z/OS base code
- Support FDR (Fast Database Recovery)
- Monitor capabilities
  - DC
  - OLDS
  - OLDS switch
  - RECON
- Diagrams in PDF format available
  → /usr/lpp/ing/doc/policies



References



- **Related SA z/OS V3.3 Documentation**
  - Defining Automation Policy (SC34-2572)
  - Product Automation Programmer's Reference and Operator Guide (SC34-2569)
  - Customizing and Programming (SC34-2570)
  - User's Guide (SC34-2573)
  - Programmer's Reference (SC34-2576)

End of Presentation

Thank you very much for your attention

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IBM Tivoli System Automation for Integrated Operations Management:

http://www-01.ibm.com/software/tivoli/products/sys-auto-iom/features.html?S_CMP=wspace

User forums

http://groups.yahoo.com/group/SAUSERS/

*The purpose of this group is to discuss technical issues related to **IBM Tivoli System Automation for z/OS** with your peers.*

http://groups.yahoo.com/group/SA4DIST/

*The purpose of this group is to discuss technical issues related to **IBM Tivoli System Automation** with your peers.*

This group is for distributed platforms like Linux and others, but not z/OS.

Thank You ...


धन्यवाद
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多謝
Traditional Chinese
ขอบคุณ
Thai
Спасибо
Russian
Gracias
Spanish
Thank You
English
شكراً
Arabic
Obrigado
Brazilian Portuguese
多谢
Simplified Chinese
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Merci
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