IMS Tools
 ....What's new and exciting

business on demand software

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Fast Path
•IMS High Performance Fast Path Utilities
•**Full Function**
•IMS High Performance Load,
•IMS High Performance Pointer Checker
•IMS High Performance Prefix Resolution
•IMS High Performance Unload
•IMS Index Builder
•IMS Parallel Reorganization
•IMS Online Reorganization Facility
Administration
•IMS Database Control Suite

IBM Data Encryption for
        IMS and DB2 Databases
IMS Database Repair Facility
IMS HALDB Conversion and
        Maintenance Aid
IMS HD Compression- Extended
IMS Library Integrity Utilities
IMS Parameter Manager
IMS Sequential Randomizer Generator

IBM Application Recovery Tool for
        IMS and DB2 Databases
IMS Database Recovery Facility
IMS DataPropagator
MS DEDB Fast Recovery
IMS High Perf Image Copy
IMS High Perf Change Accumulation

End to End Management

Data Base Administration   **Utility Management**   **Recovery Management**

IMS DATA BASE TOOLS

**Performance Management**   **TM Management**   **Application Management**

IMS Buffer Pool Analyzer
IMS Network Compression Facility
IMS Performance Analyzer
IMS Problem Investigator
IMS Performance Monitor
IBM Tivoli OMEGAMON XE for IMS

IMS Command Control Facility
IMS ETO Support
IMS HP Sysgen Tools
IMS Queue Control Facility
IMS Workload Router

IMS Batch Terminal Simulator
IMS Batch Backout Manager
IMS Connect Extensions
IMS MFS Reversal Utilities
IMS Program Restart Facility

End to End Management

Data Base Administration	Utility Management	Recovery Management

IMS DATA BASE TOOLS

Performance Management	TM Management	Application Management
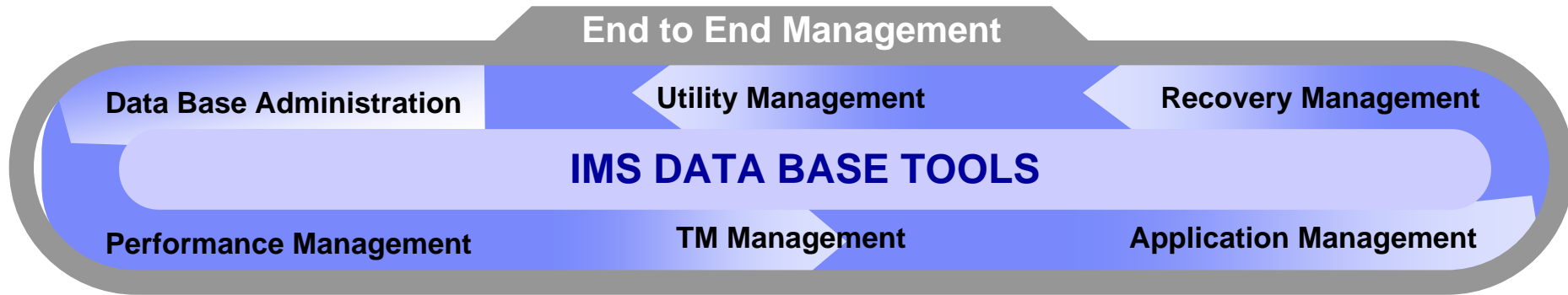
IMS Tools – Database Administration

- IBM Data Encryption for IMS and DB2 Databases
- IMS Database Repair Facility
- IMS HALDB Conversion and Maintenance Aid
- IMS HD Compression- Extended
- IMS Library Integrity Utilities
- IMS Parameter Manager
- IMS Sequential Randomizer Generator

IBM Data Encryption for IMS and DB2 Databases, V1.1 …..5655-P03

- Protects sensitive and private data in both IMS and DB2 databases

- Functions:
  - ▸ IMS - Segment level encryption – standard IMS Segment/Edit Compression
  - ▸ DB2 - Table level encryption – DB2 EDITPROC
  - ▸ Requires Security Analyst/System Programmer expertise:
    - Set up an encryption key token or tokens using z/OS Integrated Cryptographic Services Facility (ICSF) before this product can be utilized
- Your Value:
  - ▸ Uses ANSI Data Encryption Algorithm (DEA) – the U.S. National Institute of Science and Technology (NIST) Data Encryption Standard
  - ▸ Complies with US privacy and security regulations
    - Health care – Health Insurance Portability and Accountability Act of 1996
    - Financial services industry – Gramm-Leach-Bliley Act of 1999

# IMS Database Repair Facility, V1.2 5655-E03

- Repairs VSAM and OSAM organized IMS databases that contain pointer or data errors

- Functions:
  - ▶ Runs in interactive mode:
    - • View entire blocks of data or individual IMS segments
    - • Navigate to other segments via the display of pointers
    - • Track changes and undo any changes
  - ▶ Runs in batch mode:
    - • Dump blocks from the data set or submit changes to block data
    - • No undo capability
- Your Value:
  - ▶ Team with IMS HP Pointer Checker to quickly find, report, and repair database pointer or data errors
  - ▶ Minimize downtimes for IMS system
  - ▶ Audit trail of all database repair activity
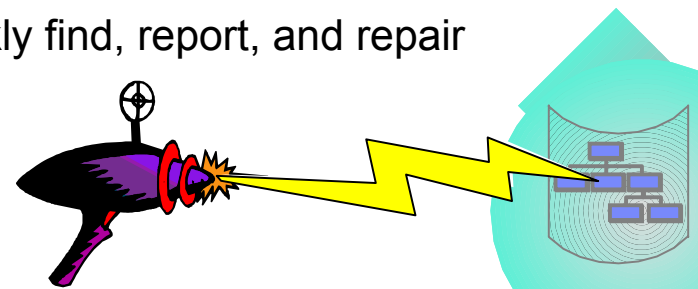
IMS HALDB Conversion & Maintenance Aid, V2.1 ….. 5655-K47

- Analyzes, models, and converts existing IMS databases to a HALDB format

- Functions:
  - ▸ Conversion Capability
    - • DEDB (without SDEP) to PHDAM
    - • User partitioning to 1 HALDB partition
  - ▸ Initial HALDB Load Assistance
    - • Support for PROCOPT=L Programs
    - • Support Secondary index and logical relationships
  - ▸ Partition Maintenance Aid
    - • Merge multiple partitions into one and divide one partition into multiple partitions
  - ▸ Clone partition definitions across RECONS and copy HALDB across RECONS
- Your Value:
  - ▸ Guides DBAs thru HALDB conversion with minimal manual intervention
  - ▸ Reduces administrative costs
  - ▸ Take advantage of database capacity with less DBA effort
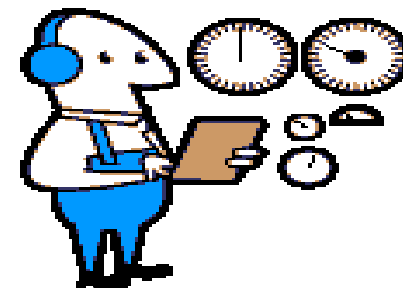
IMS Hardware Data Compression – Extended, V2.2 5655-E02

- Productivity aid for implementing Hardware Assisted Data Compression

- Functions:
  - ▶ Extends IMS basic HDC support with utilities that ease compression implementation and provide additional flexibility and function
  - ▶ Works on Image Copies, High Performance Unload files and IMS Unload files
  - ▶ Includes sample Compression Dictionaries
  - ▶ Enables effectiveness of existing dictionaries to be assessed
  - ▶ Allows monitoring of dictionary effectiveness over time
  - ▶ Builds DBD and Reload JCL
- Your Value:
  - ▶ Reduces DASD requirements and I/O
  - ▶ Minimizes CPU overhead
  - ▶ Provides flexibility to implement compression tailored to your needs

# IMS Library Integrity Utilities, V1.1 5655-I42

- Helps manage IMS ACB, PCB, and DBD Libraries

- Functions:
  - ▶ Integrity Checking Facility:
    - Verifies that IMS control blocks used to access the database are the same as the one that IMS used to load the database
  - ▶ Consistency Checking Utilities for RECON, DFSMDA, & MOD Blocks that checks for:
    - Necessary definitions in an IMS subsystem have been created
    - Associated ACB was generated in the ACB Library
    - Online database definition was created in the MODBLKS
    - Dynamic allocation member was created in the MDA library
    - Database was registered in the DBRC RECON data set
- Your Value:
  - ▶ Enhances IMS database integrity
  - ▶ Improves reliability of business operations
  - ▶ Increase administrator productivity

Integrity Checker help prevent system outages caused by databases corrupted by using wrong DBD

Consistency Checker ensure all the necessary definitions have been created for a database

IMS Parameter Manager, V1.1 5655-L69

- Controls and manages the specification and maintenance of IMS parameter library members

- Functions:

  ▶ Parameter specification by ISPF dialog panels or integrated ISPF editor

  ▶ Support for 19 IMS start up parameter members

  ▶ Parameter syntax and value checking

  ▶ Automatic parameter card construction

  ▶ View of active/current parameter members by IMS system

  ▶ Automatic 'back-up' member creation

IBM
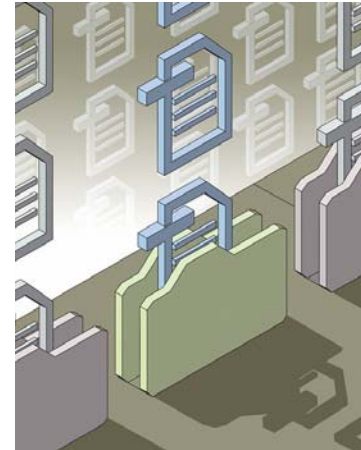
IMS Parameter Manager
Key features

- "Fill in the blanks" editing, with related parameters presented together (not just in a book in alphabetical order)
- Select field values from pop-up lists
- Extensive online help and prompts reduce the need to refer to the manuals
- Parameter syntax and value checking
- Validation of parameters: cross-member, IMS configurations, IMS versions (support for versions 7, 8, and 9)
- Cross-reference and view the parameter members used by each IMS system
- Automatic "backup" parameter member creation and change history
- Back out changes: restore from history or from backup
- Migrate parameters to a later IMS version

IMS Parameter Manager

- **IMS Syntax Checker (included with IMS)**
  - ▶ Syntax checking only: no history or audit trail
  - ▶ Does not check all members (see table)

Parameter members	IMS Parameter Manager	IMS V9 Syntax Checker
DBFMSDBx	✔	
DFSCGxxx	✔	
DFSDCxxx	✔	✔
DFSDRFnn	✔	
DFSFDRxx	✔	
DFSFIXnn	✔	
DFSHSBxx	✔	
DFSINTxx	✔	
DFSJVMxx	✔	
DFSMPLxx	✔	
DFSORSxx	✔	
DFSPBxxx	✔	✔
DFSRSRxx	✔	
DFSSPMxx	✔	
DFSSQxxx	✔	✔
DFSVFLxx	✔	
DFSVSMxx	✔	
DFSYDTx	✔	
DFS62DTx	✔	

IMS Sequential Randomizer Generator, V1.1 5655-E11

- Used to access HDAM and DEDB database segments directly or sequentially

- Functions:
  - ▶ Analyzes DB keys and DB record lengths to produce a sequential randomizer for a DEDB or HDAM DB
  - ▶ Enables high performance access of DB with both direct and sequential processing

- Your Value:
  - ▶ Faster access to data
  - ▶ More effective use of your HDAM and DEDB databases

End to End Management

Data Base Administration	Utility Management	Recovery Management

IMS DATA BASE TOOLS

Performance Management	TM Management	Application Management
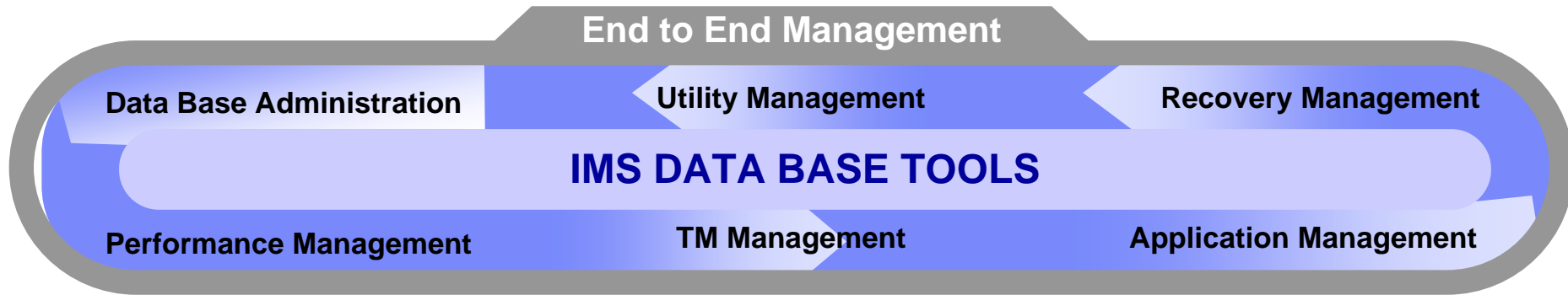
IMS Tools – Utilities Management

- Fast Path
  - ▸ IMS High Performance Fast Path Utilities
- Full Function
  - ▸ IMS High Performance Load
  - ▸ IMS High Performance Unload
  - ▸ IMS Index Builder
  - ▸ IMS High Performance Prefix Resolution
  - ▸ IMS Parallel Reorganization
  - ▸ IMS Online Reorganization Facility
  - ▸ IMS High Performance Pointer Checker
- Administration
  - ▸ IMS Database Control Suite

IMS High Performance Fast Path Utilities V2.2 5655-K94

- **High Performance Fast Path Reorganization Tool**
  - ▶ DEDB Unload/Reload
  - ▶ DEDB Analyze
  - ▶ DEDB Change

- **Fast Path Basic Tools**
  - ▶ DEDB Unload/Reload
  - ▶ DEDB Pointer Checker
  - ▶ DEDB Tuning Aid

- **Fast Path Online Tools**
  - ▶ Online Pointer Checker
  - ▶ Online Data Extract
  - ▶ Online Area Extender

Highlights of HPFP Reorganization Tool

- **JCL ease of use**
  - ▶ Increase the productivity of database support personnel
    - • Minimize steps for completing database Analyze, Change, Reload and Unload
    - • Minimize DD statements
    - • Single driver program with command language

- **Integrity with IMS**
  - ▶ Increase the application availability
  - ▶ Multiple area data sets (ADSs) support

- **High performance**
  - ▶ Reduce the consuming time for the maintenance and database conversion

JCL ease of use : Minimize JCL DD statements

- HPFP Reorganization Tool dynamically allocates :
  - DEDB area data sets for
    - Input of the analyze, change, and unload process
    - Output of the reload and change process (with space allocation)
  - ACB libraries
  - DBRC RECON data sets
  - Data sets of unloaded segment records for
    - Output of the unload process
    - Input of the reload process
  - HFPPRINT data set
  - HFPRPTS data set
  - SORT work data sets

- Above DD statements are no longer required in JCL!
- Operators need not care about these data set allocations !

JCL ease of use : Command language

- Single driver program with unified command language for all functions

```
//HFP      EXEC PGM=HFPMAIN0
//HFPSYSIN DD *
 GLOBAL
  DBRC=YES
 UNLOAD
  DBD=DEDBJN22
 /*
```

```
//HFP      EXEC PGM=HFPMAIN0
//HFPSYSIN DD *
 GLOBAL
  DBRC=YES
 CHANGE
  DBD=DEDBJN22
 /*
```

```
//HFP      EXEC PGM=HFPMAIN0
//HFPSYSIN DD *
 GLOBAL
  DBRC=YES
 RELOAD
  DBD=DEDBJN22
/*
```

```
//HFP      EXEC PGM=HFPMAIN0
//HFPSYSIN DD *
 GLOBAL
  DBRC=YES
 ANALYZE
  DBD=DEDBJN22
 /*
```

JCL ease of use : Command language

- Simple language structure
  - ▸ Commands
    - ANALYZE
    - CHANGE
    - GLOBAL
    - RELOAD
    - UNLOAD
  - ▸ Subcommands
    - ALLOCATE
    - FILECTL
    - IRENAME
    - LOADCTL
    - REPORT
    - THRESHOLD
  - ▸ Keywords
    - many…

- Nice features
  - ▸ Advanced data set name specification
    - Masks can be used for data set names
      - e.g.)
      - IMSVS.USERFILE.*&AREA*
    - Generate data set groups (GDG)

  - ▸ Command syntax check without run
    - GLOBAL SCAN=YES

Analyze : Minimize JCL steps

Sample JCL for analyzing an area registered with DBRC

```
//HPFP      EXEC PGM=HFPMAIN0
//STEPLIB   DD DISP=SHR,DSN=HFP220.SHFPMOD0
//          DD DISP=SHR,DSN=IMSVS.SDFSRESL
//IMSACB    DD DISP=SHR,DSN=IMSVS.ACBLIB
//IMSDALIB  DD DISP=SHR,DSN=IMSVS.MDALIB
//HFPPRINT  DD SYSOUT=A
//HFPRPTS   DD SYSOUT=A
//HFPSYSIN  DD *
  GLOBAL DBRC=YES
  ANALYZE
       DBD=DEDBJN22,
       IAREA=(DB22AR0),
       PTRCHKLVL=FULL,
       SDEPCHKLVL=FULL,
       SNAP=YES
    REPORT
/*
//HFPASNAP  DD SYSOUT=A
//*
```

Fast Path Online Tools

- **Online Pointer Checker**
    - ▶ Runs in a Fast Path Utility dependent region
    - ▶ Produces report of pointer errors (choice of fast scan or in-depth analysis)
    - ▶ Optionally creates set of sequential files which are input to DEDB Pointer Checker for space usage analysis, etc.
    - ▶ Optionally creates a Concurrent Image Copy
- **Online Data Extract**
    - ▶ Easy-to-use, flexible tool for extracting data for data reporting and populating test databases
    - ▶ Runs in a Fast Path Utility dependent region
    - ▶ Extraction criteria allows one or more tests of segment data at multiple locations
    - ▶ Can write to file in DEDB Unload/Reload Utility format
- **Online Area Extender**
    - ▶ Enables increasing size of the SDEP part or IOVF (if no SDEP part) while the area is online

IBM

Reorganization Toolsets
…Two Integrated IMS Tools choices

Reorg Utility Set

- Parallel Reorg
- HP Unload
- HP Load
- Index Builder
- HP Prefix Resolution
- HP Image Copy
- HP Pointer Checker
- Program Restart Facility

Online Reorg Utility Set

- Online Reorg Facility
- HP Unload
- HP Load
- HP Prefix Resolution
- HP Image Copy
- HP Pointer Checker
- Program Restart Facility

IMS High Performance Unload - 2 Components

- HP Unload
  - ▸ Unloads HDAM, HIDAM, HISAM and SHISAM databases
    - With IMS V7, support of the new HALDB database types PHDAM, PHIDAM

  - ▸ Provides an IMS application program interface
    - For stand-alone batch program
    - Assembler, COBOL, or PL/1
    - Transparent to programmer

  - ▸ Contains a high-performance DB retrieval engine
    - The *HSSR Engine*
    - High speed buffering technique similar to OSAM SB
    - Different from DL/I Buffering

- Sequential Subset Randomizer
  - ▸ Creates randomizing module for fast sequential processing of record subset
  - ▸ Allows physical clustering of database records in same subset

IMS HP Unload in the Reorganization Process

- Database unload utilities
    - ‣ Unload a database in compressed or uncompressed format
    - ‣ Unload a broken HIDAM, HDAM, or HISAM database
        - • Skip invalid HD pointers or invalid records
    - ‣ Create unloaded sequential data sets for use by application programs
        - • Multiple unload formats
    - ‣ Use dynamic allocation of DB datasets

- **Easy to read output reports and statistics**
    - ‣ DB statistics report or Randomizing statistics report

- **Pre-tuned with defaults that should be adequate for most databases**

- Full support for HALDB
    - ‣ Unload one, several or all partitions
    - ‣ Migration/fallback support
    - ‣ New function for user exit FABHEXTR
        - • Specify that n records are to be unloaded from each
        - • HALDB Partition
            - − PARTEXTR control statement

IMS High Performance Load – 3 Components

- **HP Load Utility**
  - ▶ Performance replacement of IMS HD Reorganization Load utility (DFSURGL0)

  - ▶ Complement to IMS High Performance Unload Tool
    - compressed/uncompressed input in various formats
    - dynamic allocation of DB datasets

  - ▶ Full support for HALDB

  - ▶ Self Optimization
    - Except for DATASPACE option where the default is N and use of Y is better

- **HDAM Physical Sequence Sort for Reload (PSSR) Utility**
  - ▶ Previously in DBTools SMU
  - ▶ Sorts the unloaded database data set before reload
    - Used with HALDB, when changing partition boundaries during reorg
  - ▶ Avoids "cascading" on Reload

- **Bitmap Resetter Utility**

> *> 71% reduction in elapse time*
> *> 92% reduction in CPU time*
> *(over base IMS load utility)*

IMS HP Load in the Reorganization Process

- Support of IMS HDAM, HIDAM, PHDAM and PHIDAM databases
  - From an HD unloaded data set created by:
    - IMS High Performance Unload product
    - IMS HD Reorganization Unload utility (DFSURGU0)
  - Supports reloading of compressed segments without calling compression routine
  - Initializes empty HDAM and HIDAM databases
    - DFSUINPT DD Dummy statement
  - SEQERROR=ACCEPT option
- Support of HISAM and SHISAM thru maintenance
  - DB Reload and DB Initialisation
- Support of logical relationship or secondary indexes
  - Creates a DFSURWF1 data set that can be used by:
    - Index Builder (IB) product
    - IMS High Performance Prefix Resolution
    - IMS Prefix Resolution utility (DFSURG10)
- Support of HALDB
  - Automatically initializes HALDB partition data set before reload
  - Provides a performance replacement for IMS Partition Initialization Utility
  - Creates ILDS
  - When changing partition boundaries during reorg of HALDB
    - PSSR may be used prior load to sort segments by RAP within partitions for PHDAM.

IMS HP Load in the Reorganization Process ...

- User exit facility for additional processing of each segment
  - ▶ Assembler, COBOL or PL/1
  - ▶ edit segment
  - ▶ delete segment (or this and subsequent segments of DB record)
  - ▶ force segment into overflow (HDAM or PHDAM)
  - ▶ force segment to start new block (HIDAM or PHIDAM)

- Statistics reports to aid in tuning the database
  - ▶ Reporting on space use and segment pointer statistics

- Same Functions than IMS HD Reorganization Unload utility (DFSURGU0) with the following restrictions
  - ▶ HDAM DBDs must specify nonzero max relative block nbr in the RMNAME operand of the DBD macro.
  - ▶ HP Load does not run under Utility Control Facility (UCF).
  - ▶ HP Load may use more DASD than IMS HD Reorganization Reload utility.
    - •Because of the difference between the free space search algorithms

IMS High Performance Prefix Resolution

- Replacement product for the IMS Database Prefix Resolution utility (DFSURG10)
  - ▶ Reduction of elapsed time
  - ▶ Reduction in tape handling and DASD allocation

- Creates a data set containing the information needed to resolve the logical relationship pointers and to create secondary index databases
  - ▶ DFSURWF3 used as input to IMS Prefix Update utility (DFSURGP0)
  - ▶ DFSURIDX used as input to IMS HISAM Reorganization Unload utility (DFSURUL0)

- Needs to be run after reorganization of Logically Related databases

- Eliminates the intermediate Works File 2 (WF2) data set
  - ▶ **With** the use of IBM BatchPipes with Version 1
  - ▶ **Without** the use of IBM BatchPipes with Version 2
    - •HIPPRPIPE Data Transfer Service

- Creates Statistical Reports
  - ▶ Diagnostics and Summary of Logical Parents Without Logical Children
  - ▶ Statistics and Distribution of Logical Parents Based on the Number of Their Logical Children

IMS Index Builder - Major Functions

- Support for Full-Function non-partitioned DB and HALDB
  - ▶ Easy-to-use one step procedure

- Creating New Secondary Indexes

- Rebuilding Secondary Indexes
  - ▶ Using as input output from initial load or reload after a reorg (DFSURWF1)
  - ▶ Using as input a DL/I scan of the IMS database
  - ▶ Using as input the output from prefix resolution (DFSURIDX)

- Creating Input for IMS HP Prefix Resolution
  - ▶ Split Function

- Initializing Empty Secondary Indexes

- Rebuilding a HIDAM Primary Index

- Using IMS IB for Recovery of Secondary Indices
  - ▶ Change in the GENJCL.RECOV skeleton

To rebuild indices after reorganization process

To recover damaged secondary indices and avoid full reorganization process

To avoid taking IC of secondary indices

To minimize elapsed time

....

IMS HP Prefix Resolution, V3.1 5655-M27

- Enables you to resolve and update prefixes of IMS databases involved in logical relationships as a single job step
- Functions:
  - ▸ Eliminates the WF2 and WF3 data sets by using the HPPRPIPE data transfer service
  - ▸ Executes prefix resolution and prefix update functions as replacements for the existing IMS Prefix Resolution and IMS Prefix Update utilities
  - ▸ Supports IMS Parallel Reorganization, V3 single job step execution of database reorganization, prefix resolution, and prefix update tasks
- Your Value:
  - ▸ Better performance and faster running prefix resolution and prefix updates
  - ▸ Significant performance improvements when used in place of existing IMS utilities
  - ▸ Use to maintain all logically related IMS databases and is required after the databases are loaded or reorganized

IMS Parallel Reorganization V3

- ## Current IPR Driver (V3)

  - ▸ Drives multiple IBM IMS Tools in a single job step

  - ▸ Enables offline or read-only reorganization

  - ▸ Can reorganize a non-partitioned full-function database that has no external logical relationship

  - ▸ Can reorganize a HALDB partition, a sequence of partitions, and the entire HALDB

  - ▸ Can take image copy with optional pointer check during the reorganization

IMS Tools running under IPR Driver V3

- High Performance Database Tools
  - ▶ **IMS High Performance Unload V1** + PTF UQ93748 (required)
  - ▶ **IMS High Performance Load V2** (required)
  - ▶ **IMS Index Builder V2.3** + PTF UQ93283
    (required if INDEXBLD=YES and the database has a secondary index)
  - ▶ **IMS High Performance Prefix Resolution V3**
    (required if PREFIXRES=YES and the database has an internal logical relationship)
  - ▶ **IMS High Performance Image Copy V3.2** (required if IC=YES)
  - ▶ **IMS High Performance Pointer Checker V2** + PTF UQ93559
    (required if IC=YES and HASH pointer checking is needed)
- Other database management tools
  - ▶ **IMS Library Integrity Utilities V1**
    (required if DECODEDBD=YES or DECODESXD=YES)

IPR Driver V3 – Big Picture

Online Read Access

Concurrent Database Backup

New in v3

Single Step Execution

DB

Secondary Index

IPR Driver V3

- IMS High Performance Unload V1
- IMS High Performance Load V2
- IMS Index Builder V2.3
- IMS High Performance Image Copy V3.2
- IMS High Performance Pointer Checker V2
- IMS High Performance Prefix Resolution V3

Database Image Copy

Index Image Copies

DB (Shadow)

Prefix Update for Internal Logical Relationship

New in V3

Reports and DB Statistics

DB Admin

Sec. Index (Shadow)

Automated DBRC Processing

Database "Health Check"

New in V3

IPR Driver V3 Functions

- **Stopping the database or making it read-only before reorg**
  - ▶ IMS /DBR or /DBD DATABASE command is issued by IPR Driver

- **Reorganizing database data sets into "shadow" data sets**
  - ▶ Unload, Reload, and Index-Builder tasks run concurrently
  - *(New)* ▶ Image copies can be taken during reorg, with optional HASH pointer check
    - → **Type-A Image Copy**

- *(New)* **Updating segment prefixes after the database reload**
  - ▶ For the database that has internal logical relationship
    - → **Concurrent Prefix Update**

- **Taking image copies with optional HASH check after the prefix update**
  - *(New)* → **Type-B Image Copy**

- **Stopping the database at the completion of READ-ONLY reorg**
  - ▶ IMS /DBR DATABASE command is issued by IPR Driver

- **Performing post-reorganization process**
  - ▶ Original and "shadow" data sets names are swapped
  - ▶ DBRC is notified of the reorg completion and the image copy

Sample JCL Statements

```
//IPR       EXEC PGM=HPSGMAIN,PARM='DBD=YOURDBD,DBRC=Y'
//STEPLIB  DD DISP=SHR,DSN=TOOLS.LIBRARY
//         DD DISP=SHR,DSN=IMS.SDFSRESL
//IMS       DD DISP=SHR,DSN=IMS.DBDLIB
//IMSDALIB DD DISP=SHR,DSN=IMS.DALIB
//HPSIN     DD *
(REORG)
  IMSCMD=YES
  DBSHARE=YES
  IC=YES
  INDEXBLD=YES
  NAMESWAP=YES
  DELOLDDS=YES
/*
//ICEIN     DD *
  GLOBAL    HDPC=(Y,HISTORY),ICHLQ=IMSICA
/*
//HISTORY  DD DISP=SHR,DSN=HDPC.HISTORY
```

The control statements for IPR Driver, IPR Unload, IPR Reload, Index Builder, and High Performance Prefix Resolution can be specified in **HPSIN**.

The control statements for High Performance Image Copy can be specified in **ICEIN**.

All SYSOUT streams for reports and statistics can be allocated dynamically
  ➢ You do not need to know the DD names for various utility outputs

Reorganization Toolsets
…Two Integrated IMS Tools choices

Reorg Utility Set

- Parallel Reorg
- HP Unload
- HP Load
- Index Builder
- HP Prefix Resolution
- HP Image Copy
- HP Pointer Checker
- Program Restart Facility

Online Reorg Utility Set

- Online Reorg Facility
- HP Unload
- HP Load
- HP Prefix Resolution
- HP Image Copy
- HP Pointer Checker
- Program Restart Facility

IMS Online Reorganization Facility

- **Data sharing environments fully supported**
- **Allows DBD changes to be implemented and does not require manual intervention after reorganization**
  - ▸ Automatic online change implementation
- **Complete restart-ability once in the Takeover Phase**
- **Controlling Takeover**
  - ▸ Delay, Abend, Window
- **Interface to PRF/Region controller front-end for pausing BMPs**

- **Internal Logical Relationships**
  - ▸ HDAM and HIDAM
  - ▸ HALDB
    - All partitions in single job
- **Reorg Index Only**
  - ▸ Primary or secondary for non-HALDB
  - ▸ Secondary for HALDB
  - ▸ Can be single partition if PSINDEX
- **Near Online Unload**
  - ▸ Create HD Unload data set while DB still online

IBM

IMS Control Region(s)

Online Reorg Facility (ORF)

Copy Phase

Capture log updates

Reorg & Apply Phases

Capture application update calls

Takeover Phase

•/DBR original DB

•Load new DMB

•/STA DB

Online Reorganization Completed

Original Primary Database

Image Copies

Reorganized Database and Indexes

Verification Phase

Copy Phase

Reorg Phase
•Unload
•Reload
•Rebuild Sec. Indexes
•PreReorg/Prefix Res/Update
•Image Copy/Pointer Checker

Apply Phase

Takeover Phase

•Request /DBR DB

•DBRC notifications

•Rename shadows to originals

•ACBGEN, Online change

•Request /STA DB

Completion Phase

Shadow **Primary DB & Primary Index**

Temporary Unload File

Reorganized Shadow DB, Primary & Secondary Indexes

Batch LOG

Example JCL

```
//ORFSTEP   EXEC PGM=HRFREORG
//STEPLIB    DD  DSN=your.orf.load,DISP=SHR          <=== ORF/HRF DIST LIB
//           DD  DSN=your.userlib,DISP=SHR                  <=== USER
   ROUTINES
//           DD  DSN=IMSUTIL.SHPSLMD0,DISP=SHR <=== IMS HP TOOLS
//           DD  DSN=your.vrmm.sdfsresl,DISP=SHR   <=== IMS RESLIB
//IMSDALIB   DD  DSN=your.mdalib,DISP=SHR
//IMS        DD  DSN=your.dbdlib,DISP=SHR          <=== IMS DBDLIB
//IMSACB     DD  DSN=your.acblib,DISP=SHR          <=== IMS ACBLIB
//*
//IEFRDER    DD  DISP=SHR,DSN=your.IEFRDER         <=== LOG DSN
//IEFRDER2   DD  DISP=SHR,DSN=your.IEFRDER2        <=== DUAL LOG (if needed)
//*
//HRFSYSIN   DD  *
 REORG DBD(HIOPR1) -
 ICDYN(Y) ICNUM(1) ICHLQ(your.ic.hlq) ICMID(1) ICID(1) ICTRLR(5) -
 DATACLAS(DATABASE) STORCLAS(DATABASE))
//*
```

IMS HP Pointer Checker, V2.1 5655-K53

- Helps you analyze, diagnose, and repair corrupt databases quickly
- Functions:

    ▶ Collects data for analysis and reports:

    - Hierarchical Direct (HD) Tuning Aid
    - Space Monitor
    - Database Historical Data Analyzer

    ▶ Provides parallel scan capabilities

    ▶ Repairs pointers or data errors in VSAM and OSAM organized IMS databases

    ▶ Identifies physical and logical direct pointer problems in HDAM, HIDAM, HISAM, and HALDZB indexes along with secondary index databases

- Your Value:

    ▶ Generates numerous reports that facilitate system tuning – detects and reports space utilization and physical and logical direct pointer problems

    ▶ Used in conjunction with IMS Database Repair Facility, they help detect and correct database errors and repair them with a minimum of downtime

> **Space Monitor Exception reporting:**
> **New thresholds can be monitored and reported**
> - available extents
> - CI and CA splits
> - used space as % of allocated space
> - in last extent (DB or DSet)
> - No. of days since last reorg

IMS Database Control Suite, V3.1 5655-L08

- Serves as the focal point for all database maintenance operations
- Functions:
  - Supports Full Function, HALDB, and Fast Path DBs
  - Exploits IMS Base Utilities and/or IMS HP Tools
  - Intuitive ISPF Front-end:
    - Integrates control of DBA activities
    - Backup and recover
    - Database reorganization
    - Space monitoring
    - Managing database and application descriptors (DBD, PSB)
    - Managing RECON data sets
- Your Value:
  - Improved IMS administrator productivity
  - Ease-of-use with JCL steam re-use
  - Increased knowledge of database activities and performance with improved database reporting

Control Suite V3 5655-L08

DB Reorganization

Health Check

Fast Path Tools

Library Management

Other Tools
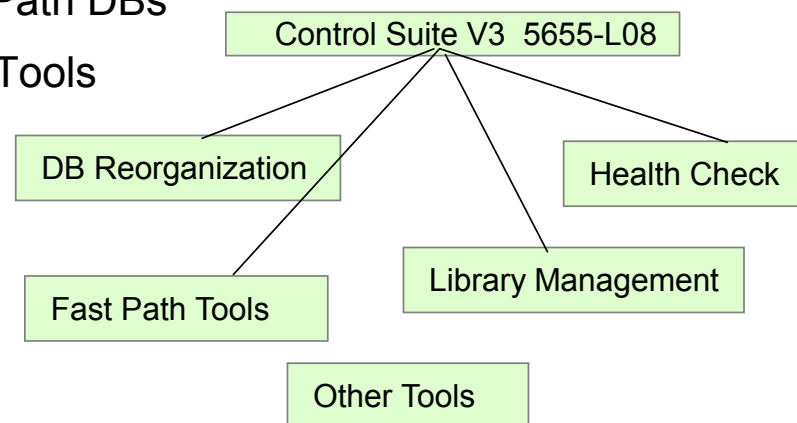
IMS Database Control Suite, V3.1 5655-L08

- RECON Maintenance

  - ▸ Confirm the DBRC SHARLVL, RECONPD, and GENMAX values during the Collect process before the values are initialized or changed in the RECONs.

  - ▸ Utilize global commands that are added to the RECON maintenance function to allow updates on multiple RECON records.

  - ▸ Add more selectivity to the RECON Maintenance utility commands; for example, report on a selected DBDSGRP rather than on the entire RECON.

- Utility Generation

  - ▸ Decide whether a new PSB for online image copies is to be generated or an existing one is to be used

End to End Management

Data Base Administration | Utility Management | Recovery Management

IMS DATA BASE TOOLS

Performance Management | TM Management | Application Management
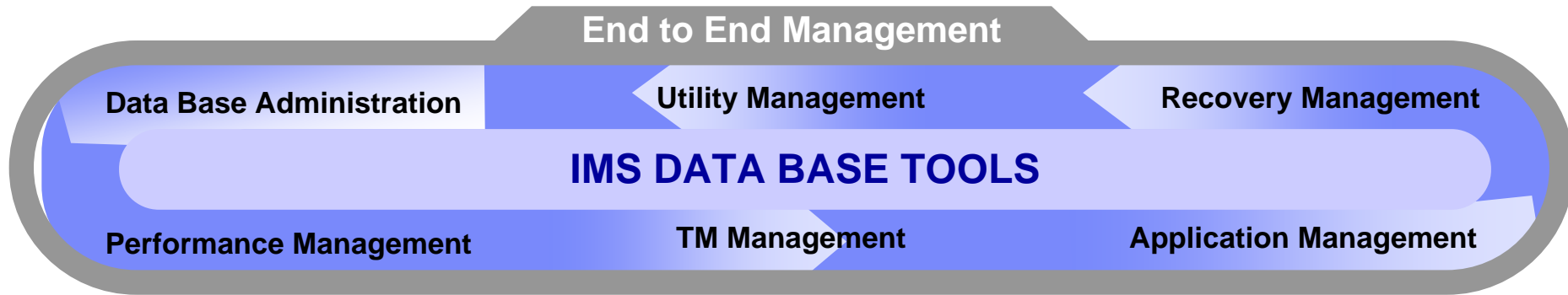
IMS Tools - Recovery and Replication Management

- IBM Application Recovery Tool for IMS and DB2 Databases
- IMS Database Recovery Facility
- IMS DataPropagator
- IMS DEDB Fast Recovery
- IMS High Performance Change Accumulation
- IMS High Performance Image Copy

Application Recovery Tool for IMS and DB2 Databases, …..V1.2 5697-F56

- Generates and runs all the jobs necessary to recover a set of IMS and/or DB2 databases to a common point of consistency

- Functions:
  - ▶ Virtual Image Copy – creates a point of consistency across IMS and DB2
    - Interacts with online IMS and WAITs for BMPs to complete if updating any DB in set, issues /DBDs and checks for completion
  - ▶ Provides facilities for:
    - Registering or changing DBRC DB information
    - Taking image copies
    - Performing change accumulation
    - Tidying and reorganizing RECONs
- Your Value:
  - ▶ Simplifies & coordinates the recovery of both IMS & DB2 data
  - ▶ Shortens the time and cost of data recovery and availability

IMS
DB2
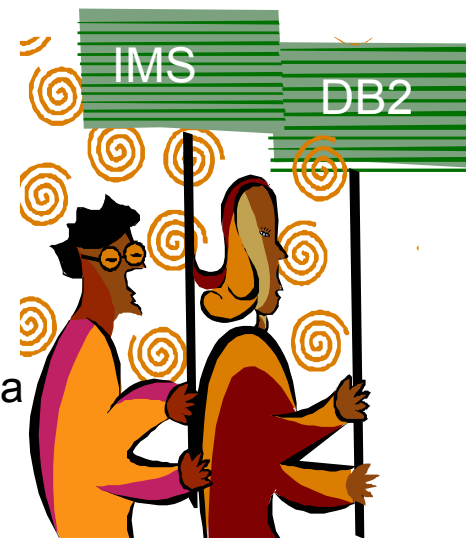
IMS Database Recovery Facility V3.1 - 5655-N47

- High Performance IMS Database Recovery Solution
  - Parallel Input/Output, affected by stacked IC datasets, tape drive availability, DFSMSdss SAMEDS usage
  - Parallel Processing / Sorting
  - Single archived Log and CA Data Set Pass
  - Single pass DB write
  - DBRC Controlled
- Recovery of Multiple DBDS or Areas in one step
  - Runs in Parallel with IMS Transaction Processing
  - Online or Batch mode recovery
- Supports all Recoverable IMS Database Types
  - Not GSAM, HSAM, SHSAM, or MSDB types

- Full formatted recovery report
- Report only execution (VERIFY option)

IMS DRF – Recovery Flow …

- Use dynamic allocation of data sets
  - database, log, change accumulation, and image copy
- Does NOT use IMS resources for recovery
- Gets all information about recovery datasets from RECONs
  - The Catalog is used if the RECON has not recorded data set migration
- Read Log data sets in parallel
  - From RLDS or SLDS only
  - Single Log Pass for Multiple DBDS Recovery
- Read Change Accumulation datasets concurrently with Log data sets
  - Complete or Incomplete (with Spill records)
  - Change Accum is not required, including in a data sharing environment
- Sort Log Records
- Update Image Copy data with log and change accumulation data in a single pass
  - Standard IC - Changes applied as data is read
  - IC2 - Data is restored - Only updated records are read

IMS DRF – Recovery Attributes

- Image Copy Support
  - From IMS HP Image Copy tool
    - Flashcopy from IMS HPIC V4 Tool
    - Compressed and non-compressed
  - From IMS image copy utility
  - From IMS IC2 (DFSMS format) utility
  - User Image Copy (USEDBDS)
    - User responsible for restoring non-standard Image Copy Data

IMS DRF - Recovery Attributes …

- Recovery Time Options
  - Recover to end of last allocation
  - Time Stamp Recovery (Recovery Point)
  - Point- In- Time Recovery (Arbitrary Point)
    - "Image Copy Needed" state is set in RECON for recovered databases after PITR

- Support for Virtual Tape System Data Staging/ Caching
- Support of DFSMS DELCAT option

- Optionally Automation of DB Start Command (Local or Global)

IMS DRF - Recovery vs Verify

Report Only Execution

- Verify Performs
  - ▶ Recovery List Syntax Validation
  - ▶ Obtaining of Recovery Input File Information from DBRC
  - ▶ Listing of All Input Data Sets in Formatted Report

- Verify Does NOT Perform
  - ▶ Recovery Processing
  - ▶ Allocation of Input Data Sets
  - ▶ Opening of Input Data Sets
  - ▶ Purge of Recovery List (in online mode

Batch Example

    ADD DB(HDAMW440)

    ADD DB(HIDAM001)

    START VERIFY

IMS DRF V3

- Increased Tools Integration
  - ▶ Automatic invocation of HPIC, HPPC, DEDB PC, IB, and DFSPREC0
- Database Copy Generation
  - ▶ Creation of copies of database data sets without accessing production copies
  - ▶ Input is image copy, change accumulation, and log data sets
  - ▶ Copies can be created to any point in time via PITR
- Automatic Delete/Define of Database Data Sets
  - ▶ Output data sets are created as part of the recovery process
- Incremental Image Copy
  - ▶ Created via HPIC
- Allocate/Open Option on START VERIFY
  - ▶ Logical and physical validation of data set availability prior to running the actual recovery job
- Submitting IMS Commands via TOI/XCF in Batch Mode
  - ▶ DBR and START local or global

IMS DRF V3 - Recovery Flow

Start Options

Master AS

IB/DFSPREC0 AS

IMS

JCL

DRF

Control Function

Log and CA read

DBRC

Log

Report

Recon

Subordinate AS

Sub AS

Sort

Data Set Restore

IC

IB or DFSPREC0

HPPC, DEDB PC HPIC

IC

DBDS

Area
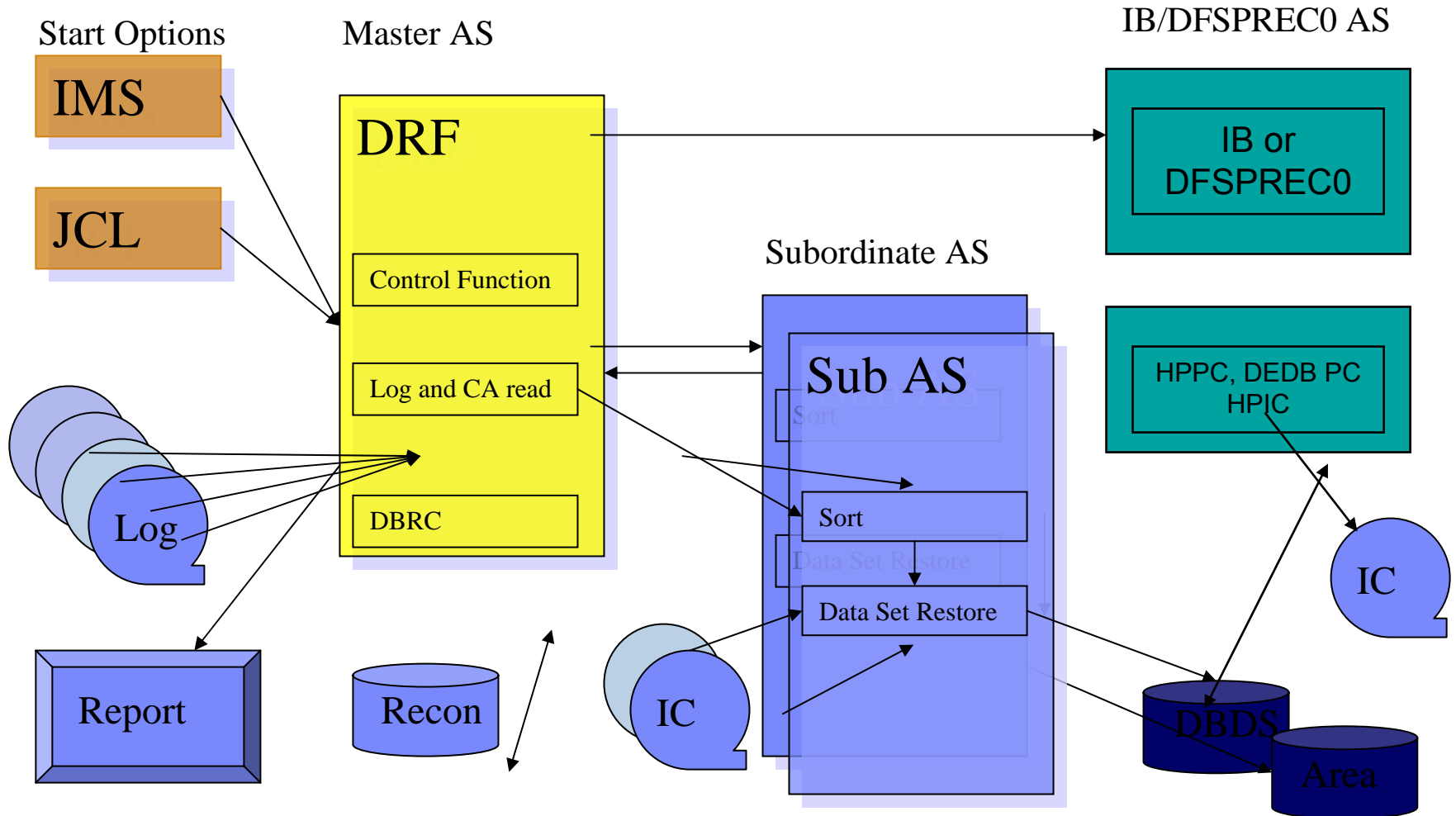
DRF V3 Integrated Auxiliary Processing

- HPIC
  - ▶ Produce image copies as part of recovery processing
  - ▶ Image copies are registered with DBRC
  - ▶ Block by block image copy
- HPPC, DEDB PC
  - ▶ Hash check pointer validation run as part of recovery processing
  - ▶ Block by block pointer check, not post processed

DRF V3 Integrated Auxiliary Processing

- IB
  - ▶ Build primary and secondary index data sets during the recovery process
  - ▶ Rebuild post recovery phase
- DFSPREC0
  - ▶ HALDB Primary Index and Index List Data Set rebuild
  - ▶ Rebuild post recovery phase

Database Copy Generation

DRF

Database Copy

CA, Log, IC

IMS

Production Database
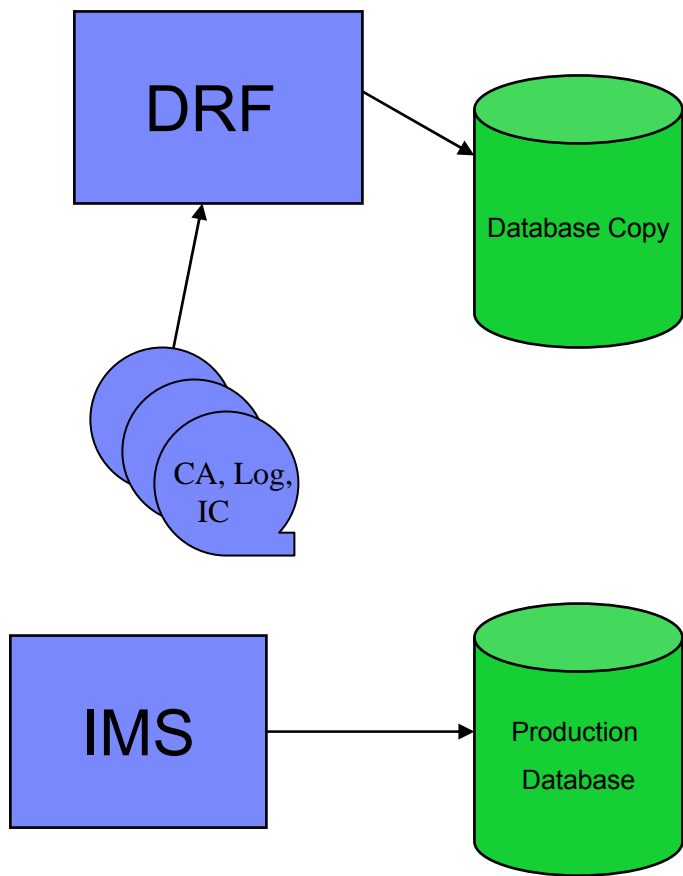
- Produce copies without accessing production databases
  - ▶ Test bed generation
  - ▶ Audit databases
- Build copies from image copy, change accumulation and log data sets
- Generate data set names
  - ▶ Prefix or suffix
  - ▶ Date, time
  - ▶ High level qualifier
  - ▶ Literal

DRF V3 Automatic Database Delete/Define

- Database cluster or data set definitions
  - Existing cluster or data set
  - DBRC (for HALDB)
  - Parameter overrides
    - DISP(OLD or NEW)
    - SMS classes (DATA, MGTC, STOR)
    - Primary and Secondary Space allocation
    - Volume list

Incremental Image Copy

DRF

HPIC

IC, CA,

Log

IC

IMS

Production
Database
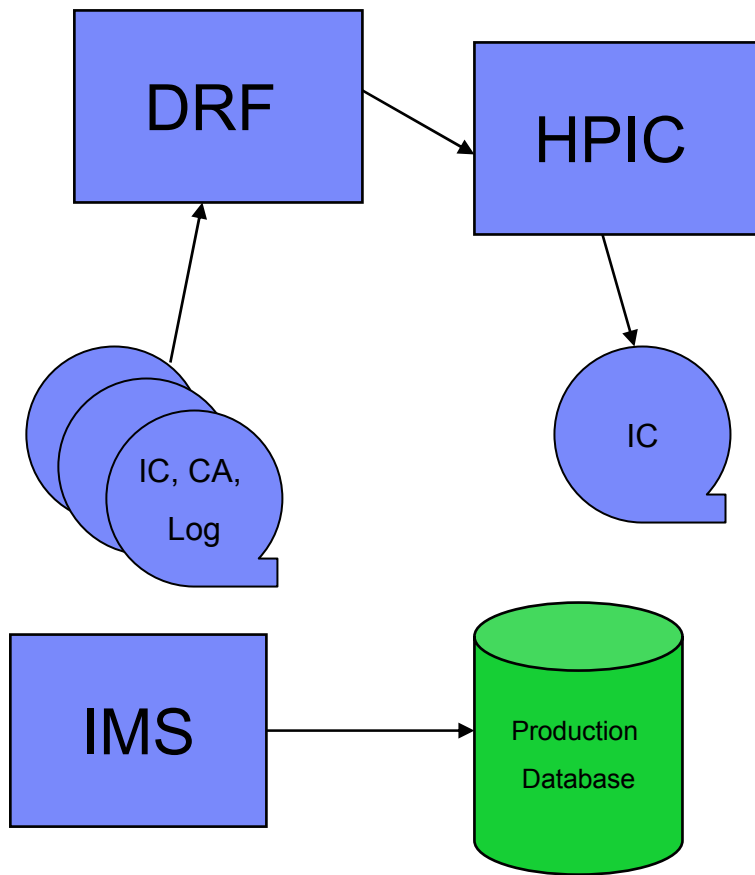
- Bring your image copies up to date
  - ▸ Image copies created from
    - •Image copy data sets
    - •Change accumulation data sets
    - •Log data sets
  - ▸ NO production database data set access
  - ▸ Image copies registered with DBRC

DRF V3 Allocate and Open on START VERIFY

- Physical access to data sets with START VERIFY
  - ▶ START VERIFY(ALLOC)
    - Deferred allocation
  - ▶ START VERIFY(OPEN)
    - Deferred allocation and open
  - ▶ Image copy, change accumulation, and log data sets

DRF V3 IMS Commands Issued in Batch

- IMS Tools Online System Interface (TOSI)
  - /DBR local or global for all databases or areas before recovery starts
  - /STA local or global for all databases or areas after recovery completes

DRF V3 Summary

- Increased Tools Integration
- Database Copy Generation
- Automatic Delete/Define of Database Data Sets
- Incremental Image Copy
- Allocate/Open Option on START VERIFY
- Submitting IMS Commands via TOI/XCF in Batch Mode

IMS DEDB Fast Recovery, V2.2 5655-E32

- Shortens recovery time after an emergency restart (ERE) failure

- Functions:
    - Avoids full DEDB AREA recoveries during enforced cold start
    - Closes the IMS Online Log
    - Recovers all DEDBs (using the log)
    - Produces status listing of the necessary subsequent system recovery activities
    - Supports multiple IMS releases from a single Load Library
    - Updates and maintains DBRC RECON data sets

- Your Value:
    - Increased database availability
    - Increased IMS database data integrity

IBM.
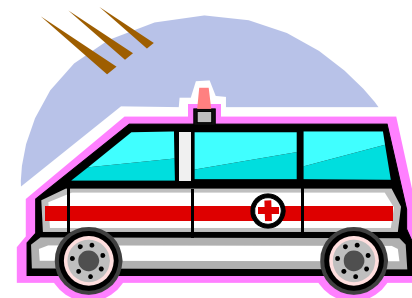
IMS HP Change Accumulation, V1.3 5655-F59

- Runs multiple change accumulation groups in parallel and streams output across all addresses simultaneously

- Functions:
  - ▶ Provides both ISPF interfaces that allow for customization, setup and execution and Batch interfaces for operations
  - ▶ Elimination of separately scheduled Fast Path sort address space
  - ▶ DBRC is now optional
  - ▶ Processes input data (from RLDS's) and output data (new CA's) in parallel
    - Users can control the number of parallel processes
  - ▶ Improved reporting :
    - Consolidates the status of associated address spaces into a single report, and extends diagnostic capabilities with new error reporting messages

- Your Value:
  - ▶ Increased database availability
  - ▶ Increased IMS database data integrity

IMS HP CA provides an environment in which multiple CA jobs can be run in parallel, instead of in sequence.

IMS High Performance Image Copy, V4.1 5655-N45

- Creates exact (image) copies of IMS databases

- Functions:
  - ▶ Run an Image Copy function with the hash checking of IMS HP Pointer Checker V2 under the control of IMS Parallel Reorganization, V3
    - Major reduction in run-time of the reorganization process
    - Supports processes in parallel within an IMS Parallel Reorganization
  - ▶ New optional parameter for controlling the secondary image copy data set
  - ▶ Performs accuracy checking of an image copy
  - ▶ Dynamic Allocation for all input and output datasets
  - ▶ Reports DBRC information about the registered Image Copy data sets

- Your Value:
  - ▶ Reduces operational costs by using less tape storage
  - ▶ Minimizes manual steps involved with tape usage
  - ▶ Automated functions help data centers run more efficiently

IMS High Performance Image Copy, V4.1 5655-N45

- **Advanced copy services**
  - ▶ Concurrent copy,
  - ▶ FlashCopy and
  - ▶ SnapShot copy.

- **Reduces image copy and recovery time**
  Reduces elapsed time and CPU utilization.
  - ▶ Minimizes CPU utilization and elapsed time by using High Performance (HP) Input/Output function for read and write processing

- **Provides automatic checkpoint and restart.**
  - ▶ Restart failed image copy jobs by resubmitting the same job stream.
  - ▶ No alterations to the job stream are necessary, which avoids duplicating previously successful image copies.

- **Stops and starts database automatically.**
  - ▶ IMS Tools Online System Interface

End to End Management

| Data Base Administration | Utility Management | Recovery Management |

IMS DATA BASE TOOLS

| Performance Management | TM Management | Application Management |
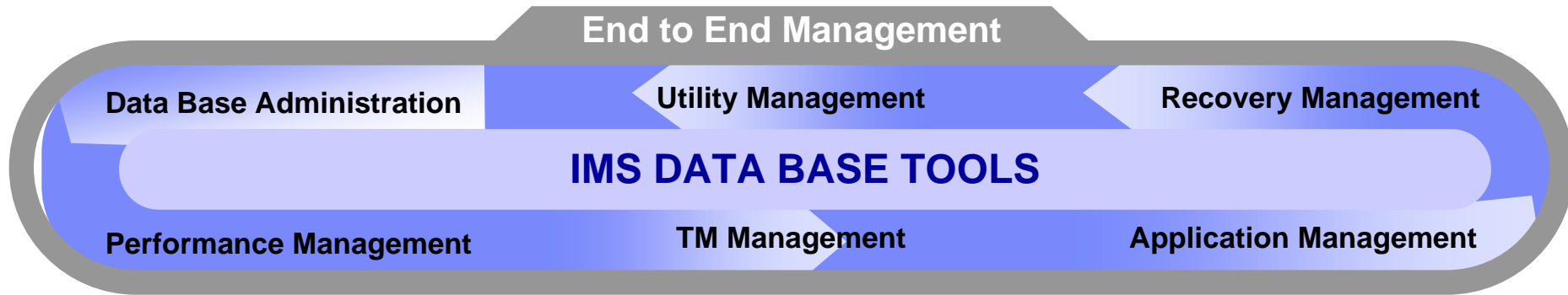
IMS Tools – Performance Management

- IMS Buffer Pool Analyzer, V1.1 5697-H77
- IMS Network Compression Facility, V1 5655-E41
- IMS Performance Analyzer, V3.3 5655-E15
- IMS Problem Investigator, V1.2 5655-K50
- IBM Tivoli OMEGAMON XE for IMS for z/OS

IMS Buffer Pool Analyzer, V1.1 5697-H77
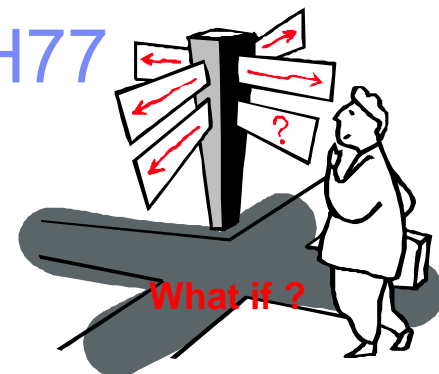
- Tune IMS Database buffer pools
- Functions:
  - ▶ Projects the impact of buffer pool changes
  - ▶ Modeling Component analyzes GTF data
    - Provides analysis of the current buffer subpool performance
    - Shows the effect of having a range of sizes of each buffer subpool
    - Optionally predicts the effect of using a new DFSVSMxx definition of subpools and dataset-to-subpool allocations
    - Identifies databases which most heavily use each database subpool
- Your Value:
  - ▶ Perform 'what if' scenario analysis to make more informed decisions
    - Will additional buffers improve the performance of a given buffer pool ?
    - Will fewer buffers improve the performance of a given buffer pool ?
  - ▶ Model buffer pool usage to estimate I/O rates
  - ▶ Determine the impact of changes to IMS online and batch job buffer pools may impact performance

IMS Network Compression Facility, V1.1 5655-E41

- Compresses LU2 (3270) outbound data streams

- Functions:
    - Compression of all repeated characters
    - Elimination of non-display fields
    - IMS specific (not VTAM) solution
    - ISPF Facility
        - Display statistics and options
        - Update currently used options
        - Trace data streams

- Your Value:
    - Improved user transaction response time
    - Easy installation
    - No IMS or MFS changes necessary

IMS Performance Analyzer, V3.3 5655-E15

- Provides performance analysis and tuning assistance for IMS
- Functions:
    - Supports IMS TM, IMS DBCTL or IMS Batch
    - Support for all IMS V9 Log and Monitor reports
    - Comprehensive reporting of IMS Connect Extensions Event Collection
    - Dashboard report for highlighting potential performance problem areas - can also spring to other reports
    - Transaction History file for help with long-term trend analysis by collecting historical transaction performance data
    - Improved IMS Performance Analyzer for z/OS Report Analysis (SC27-0913) to provide additional information to aid in the interpretation of reports
- Your Value:
    - Improves IMS system performance by using a wide variety of reports to analyze system performance, usage, & availability.
    - Boosts system & application programmer productivity

IMS PA Connect Reports

- **IMS Performance Analyzer V3.3 provides Connect Extensions reporting**

- **Automatic Archive Journal selection based on date and time**

- **Transaction Transit Reports**
  - ▶ Transit Analysis
  - ▶ Transit Log
  - ▶ Transit Extract
- **Resource Usage**
  - ▶ Port Usage
  - ▶ Resume Tpipe
  - ▶ ACK/NAK
  - ▶ Exception Events
- **Trace Report**

Transit Analysis Report

Total response time

Input

Output

```
                        IMS Performance Analyzer 3.3
                   IMS Connect Transit Analysis - IMSPAHWS
                   _____

          From 01Apr2004 16.30.06.98  To 21Apr2004 13.55.10.56              Page     6
```

Time 21Apr	User ID	Message Count		Response Time	Pre-OTMA	Input READ Sock	READ Ex	SAF	-Process- OTMA	Confirm	Output Post-OTMA	XMIT Ex	Rate /Sec	Time Outs	N
12.08.30	CEX000	1	Avg	278.488	257.268	252.434	4.496	0.000	19.520	0.000	1.699	0.119	0	0	
			80%	278.488	257.268	252.434	4.496	0.000	19.520	0.000	1.699	0.119			
12.08.35	CEX000	1	Avg	247.674	226.997	222.267	4.395	0.000	18.934	0.000	1.742	0.118	0	0	
			80%	247.674	226.997	222.267	4.395	0.000	18.934	0.000	1.742	0.118			
13.53.50	AXS	2	Avg	388.525	314.452	297.292	7.614	8.853	67.305	0.000	6.767	0.162	0	0	
			80%	392.847	319.171	302.458	7.614	9.005	81.317	0.000	11.736	0.203			
13.53.55	AXS	4	Avg	357.142	275.655	262.408	6.964	5.809	73.930	0.000	7.556	0.144	1	0	
			80%	457.589	310.779	297.228	7.556	6.343	152.839	0.000	13.602	0.201			
13.54.10	CEX001	5	Avg	273.333	249.026	238.302	5.147	5.130	21.257	0.000	3.049	0.117	1	0	
			80%	285.266	260.648	249.320	6.316	6.514	22.614	0.000	4.277	0.124			
Total		507	Avg	594.986	344.789	339.349	0.438	0.131	182.667	15.630	51.899	0.180	0	0	
			80%	997.382	535.249	527.124	1.544	0.905	387.900	221.726	141.791	0.928			

By 5 second interval

Transit Analysis Report

```
                              IMS Performance Analyzer 3.3
                           IMS Connect Transit Analysis - DVPCFGDA
                        _____

                    From 01Apr2004 16.30.06.98  To 21Apr2004 13.55.10.56                    Page     1
```

Transact Code	Time	Message Count		Response Time	Pre-OTMA	Input READ Sock	READ Ex	SAF	Process OTMA	Confirm	Output Post-OTMA	XMIT Ex	Rate /Sec	Time Outs	N
DSPALLI	16.57.00	40	Avg	627.906	351.026	345.913	0.115	0.000	179.675	0.000	97.205	0.134	1	0	
			80%	851.963	461.978	454.183	0.140	0.000	316.649	0.000	202.327	0.272			
	16.58.00	60	Avg	739.120	405.811	397.993	0.205	0.000	224.447	0.000	108.861	0.176	1	0	
			80%	1.029.203	538.471	527.321	0.742	0.000	435.416	0.000	206.930	0.525			
	15.00.00	1	Avg	379.674	303.223	302.479	0.131	0.000	74.694	0.000	1.755	0.125	0	1	
			80%	379.674	303.223	302.479	0.131	0.000	74.694	0.000	1.755	0.125			
	15.01.00	10	Avg	289.210	255.102	254.592	0.133	0.000	29.588	0.000	4.519	0.116	0	0	
			80%	309.454	278.241	277.839	0.168	0.000	33.428	0.000	8.854	0.149			
DSPALLI	Subtotal	111	Avg	655.272	371.567	365.446	0.166	0.000	189.409	0.000	94.296	0.155	2	1	
			80%	929.141	495.318	485.849	0.561	0.000	370.394	0.000	192.971	0.424			
DSPINV	16.57.00	30	Avg	480.970	301.331	299.460	0.213	0.000	169.187	0.000	10.451	0.148	1	0	
			80%	610.752	337.667	334.985	0.694	0.000	266.476	0.000	24.619	0.238			
	16.58.00	70	Avg	764.766	357.845	345.964	0.112	0.000	273.601	0.000	133.319	0.121	1	0	
			80%	1.087.110	552.226	533.146	0.146	0.000	475.206	0.000	291.942	0.165			
	15.00.00	1	Avg	427.369	332.736	331.765	0.203	0.000	86.633	0.000	7.998	0.148	0	4	
			80%	427.369	332.736	331.765	0.203	0.000	86.633	0.000	7.998	0.148			
	15.01.00	10	Avg	282.230	250.199	249.740	0.105	0.000	29.774	0.000	2.256	0.121	0	1	
			80%	304.595	274.617	274.140	0.119	0.000	34.776	0.000	3.137	0.126			
DSPINV	Subtotal	111	Avg	641.553	332.647	324.599	0.139	0.000	221.730	0.000	87.175	0.128	2	5	
			80%	941.738	490.798	476.417	0.391	0.000	401.265	0.000	222.969	0.187			
Total		222	Avg	648.413	352.107	345.022	0.152	0.000	205.569	0.000	90.735	0.142	0	6	
			80%	935.149	494.731	482.808	0.483	0.000	385.939	0.000	209.199	0.337			

By transaction and one minute interval with subtotals

Transit Log Report

```
                          IMS Performance Analyzer 3.3
                       IMS Connect Transit Log - IMSPAHWS

                    Log from 21Apr2004 12.07.21.07                          Page    20

 Start Time       Transact DataStor   Port/   Response -------------- Input -------------- -Process- -------- Output ----------
HH.MM.SS.THmiju   /User ID Targ/Org ClientID    Time     Pre-OTMA READ Sock READ Ex   SAF     OTMA    Confirm Post-OTMA XMIT Ex E
12.07.29.434100   PART     IMD3       3008     293.208   269.373  264.418   4.618   0.000    19.232   0.000    4.602   0.212
                  CEX000   IMD3     TRNBS001
12.07.32.102922   PART     IMD3       3008     241.134   218.794  214.010   4.505   0.000    20.660   0.000    1.679   0.119
                  CEX000   IMD3     TRNBS001
12.07.36.406894   PART     IMD3       3008     271.627   233.415  228.727   4.385   0.000    36.586   0.000    1.626   0.119
                  CEX000   IMD3     TRNBS001
12.07.37.935970   PART     IMD3       3008     236.185   212.608  207.908   4.364   0.000    21.473   0.000    2.103   0.120
                  CEX000   IMD3     TRNBS001
12.07.39.573994   PART     IMD3       3008     310.368   287.251  281.884   5.082   0.000    21.441   0.000    1.675   0.119
                  CEX000   IMD3     TRNBS001
12.07.44.538401   PART     IMD3       3008     267.676   244.953  240.104   4.489   0.000    20.728   0.000    1.994   0.119
                  CEX000   IMD3     TRNBS001
12.08.21.530130   PART     IMD3       3008     253.327   231.134  226.599   4.260   0.000    20.053   0.000    2.139   0.119
                  CEX000   IMD3     TRNBS001
```

- The IMS Connect Transit Log provides performance details about every transaction processed by IMS Connect

- The order of transactions in the report is based on end time, not start time

Port Utilization Report

```
                         IMS Performance Analyzer 3.3
                      IMS Connect Port Utilization - DVPCFGDA

             From 08Mar2004 08.47.44.11  To 25Mar2004 12.20.02.83            Page    1
        -- Depth --   Message    ACCEPT   ---- READ -----   --- Input READ ----   -- ACK/NAK READ ---   ---- WRITE ----
Port    Ave   Max     Count      Count     Count    Len     Average    90% Peak   Average    90% Peak    Count      Len

8801    11    26       1010        443      3681     32     668.505   1.888.699   773.304  4.310.637      910      128
8802    33    83       2500       2514      7412      6   1.072.717   2.006.237     0.000      0.000      2500       91
8803     0     0          0         14         0      0       0.000       0.000     0.000      0.000         0        0
8804     0     0          0         14         0      0       0.000       0.000     0.000      0.000         0        0
8805     0     0          0         14         0      0       0.000       0.000     0.000      0.000         0        0
8806     0     0          0         14         0      0       0.000       0.000     0.000      0.000         0        0
8807     0     0          0         14         0      0       0.000       0.000     0.000      0.000         0        0
8808     0     0          0         14         0      0       0.000       0.000     0.000      0.000         0        0
8809     0     0          0         14         0      0       0.000       0.000     0.000      0.000         0        0
```

- Provides maximum and average port depth information

- Read Elapsed times and Prepare Elapsed times are provided as averages and peak percentiles (i.e. 90% of transactions completed within the reported time)

- Read Count and Write Count

Resume TPIPE Report

```
                          IMS Performance Analyzer 3.3
                       IMS Connect Resume Tpipe - DVPCFGDA
                       _____

            From 15Mar2004 09.25.43.79  To 15Mar2004 12.20.02.83                Page    1

            --------------- Noauto ---------------    --------------- Auto ---------------    --------- Single ---------
Time                         --- Msg ---      Avg                       --- Msg ---      Avg                              Avg
15Mar     Tpipe    Count NResp  Fail  Avg  Max  Timeout  Count NResp  Fail  Avg  Max  Timeout  Count NResp  Fail  Timeout
_____  _____  _____ _____  ____  ___  ___  _____  _____ _____  ____  ___  ___  _____  _____ _____  ____  _____
9.25.00   TRRBS001    1     0     0     2    2    0.25      0     0     0     0    0    0.00      0     0     0    0.00
9.26.00   TRRBS001    0     0     0     0    0    0.00      0     0     0     0    0    0.00      2     0     0    0.25
          TRRBS002    2     0     0     2    2    0.25      0     0     0     0    0    0.00      0     0     0    0.00
9.27.00   CEX30001    1     0     0     2    2    0.25      0     0     0     0    0    0.00      0     0     0    0.00
          TRRBS001    1     0     0     2    2    0.25      0     0     0     0    0    0.00      0     0     0    0.00
          16034180    0     0     0     0    0    0.00      1     0     0     2    2    0.25      0     0     0    0.00
9.28.00   CEX40002    0     0     0     0    0    0.00      0     0     0     0    0    0.00      1     1     0    7.00
          TRRBS001    0     0     0     0    0    0.00      2     1     0     1    2    5.00      0     0     0    0.00
0.14.00   TRRBS001    1     0     0     2    2    0.25      0     0     0     0    0    0.00      0     0     0    0.00
0.15.00   TRRBS001    1     0     0     2    2    0.25      0     0     0     0    0    0.00      0     0     0    0.00
          TRRBS002    0     0     0     0    0    0.00      0     0     0     0    0    0.00      2     0     0    0.25
0.16.00   CEX40001    1     0     0     2    2    0.25      0     0     0     0    0    0.00      0     0     0    0.00
0.24.00   CEX40001    1     0     0     2    2    0.25      0     0     0     0    0    0.00      0     0     0    0.00
```

- Summary of RTPIPE activity
- May contain generated TPIPE names

ACK/NAK Report

```
                              IMS Performance Analyzer 3.3
                              IMS Connect ACK/NAK - DVPCFGDA
                         _____


                    From 01Apr2004 11.57.06.98  To 01Apr2004 15.17.58.84                  Page      1

  Time    Transact  Target   Confirm  ------ ACK -------  --- Client NAK --- --- OTMA NAK ----------------------------------
  19Apr     Code    Datastore  Count    Count  Avg Elaps    Count  Avg Elaps    Count  Sense Code
_____ _____ _____ _____ _____ _____ _____ _____ _____ _____
12.00.00 PART      IMD3          1        0     0.000        0     0.000        1   1A Message cancelled due to IMS error
12.30.00 PART      IMD3          3        3  2.641.491       0     0.000        0
13.00.00 *CMD_RHQ  IMD3         10       10     0.491        0     0.000        0
         *CMD_RHQ  IMD4         10       10     0.323        0     0.000        0
         *CMD_RTP  IMD3          8        8     0.293        0     0.000        0
         *CMD_RTP  IMD4          8        8     0.361        0     0.000        0
         DSPALLI   IMD3          1        1   271.069        0     0.000        0
         DSPALLI   IMD4          1        1   217.887        0     0.000        0
         DVPTRAN5  IMD3          2        0     0.000        2   255.411        0
15.00.00 *CMD_RHQ  IMD3          4        4     0.395        0     0.000        0
         *CMD_RHQ  IMD4          4        4    45.767        0     0.000        0
         *CMD_RTP  IMD3          6        6     0.358        0     0.000        0
         *CMD_RTP  IMD4          6        6     0.337        0     0.000        0
         DVPTRAN5  IMD3          8        6  2.568.341       2  1.631.982       0
         DVPTRAN5  IMD4          9        7   895.849        2  1.152.072       0
         ID=EXAMP  IMD3          3        0     0.000        0     0.000        3   24 Previous conversation still in progress
         ID=EXAMP  IMD4          3        0     0.000        0     0.000        3   1A Message cancelled due to IMS error
```

- Summary of positive (ACK) and negative (NAK) responses for Sync Level=CONFIRM
- Includes NAK code explanations for OTMA NAKs

Exception Events Report

```
                          IMS Performance Analyzer 3.3
                     IMS Connect Exception Report - DVPCFGDA


                      Report from 04Mar2004 10.19.36.22
  Event Time        ID Description                      Information

10.19.36.229174    11 Datastore Un-Available           DSname=XCFMIMD3
10.19.36.234938    11 Datastore Un-Available           DSname=XCFMIMD4
10.19.36.376444    13 TMember leaves XCF group         DSname=HWSDEV3
10.19.36.380776    13 TMember leaves XCF group         DSname=HWSDEV4
10.27.50.682345    11 Datastore Un-Available           DSname=XCFMIMD3
10.27.50.684494    11 Datastore Un-Available           DSname=XCFMIMD4
10.27.50.940388    13 TMember leaves XCF group         DSname=HWSDEV3
10.27.50.944613    13 TMember leaves XCF group         DSname=HWSDEV4
08.49.02.395660    41 Msg to OTMA response is NAK      DSname=XCFMIMD4 Tpipe=8801 RSN=0000
08.50.20.882001    11 Datastore Un-Available           DSname=XCFMIMD3
08.50.20.882091    47 Session error                    Type=TERM
08.50.20.889827    11 Datastore Un-Available           DSname=XCFMIMD4
08.50.20.899802    47 Session error                    Type=TERM
11.31.54.190824    13 TMember leaves XCF group         DSname=HWSDEV4
11.31.54.194165    13 TMember leaves XCF group         DSname=HWSDEV3
10.25.53.984955    45 OTMA time-out                    Time-out value= 1
```

- Lists events that cause transactions to fail or that signal critical resources are no longer available
- Summary report available as well

Trace Report

```
                        IMS Performance Analyzer 3.3

                        IMS Connect Trace - TRICKLE

                    _____

                    Trace from 16Feb2004 09.20.46.15                          Page      1

Start/+Relative     Elapsed  ID Description                  Information

_____    _____  __ _____  _____

09.20.46.158763     *Start*  3C Prepare Read Socket         Key=BAC8504463EE5280 Depth=8 Port=3382 Sock=8
      +0.231764     231.764  49 Read Socket                 Port=3382 Sock=8
      +0.232142       0.377  49 Read Socket                 Port=3382 Sock=8
      +0.232271       0.129  3D Message Exit called for READ Exit=HWSSMPL0
      +0.232500       0.229  3E Message Exit return for READ RC=00 RSN=00 IP=172.17.69.67 DSOrig=IMD3 DSTarg=IMD3 TC=PART
      +0.232980       0.480  41 Message sent to OTMA         TPipe=3382 MSG=Transaction
      +0.369607     136.626  42 Message received from OTMA   TPipe=3382 MSG=Data
      +0.369651       0.044  42 Message received from OTMA   TPipe=3382 MSG=Commit Conf CONFIRM=Committed
      +0.369908       0.257  46 De-allocate Session          RSN=COMT
      +0.370033       0.124  3D Message Exit called for XMIT Exit=HWSSMPL0
      +0.370242       0.209  3E Message Exit return for XMIT RC=00 RSN=00
      +0.371617       1.374  4A Write Socket                Port=3382 Sock=8
      +0.371779       0.162  0C Begin Close Socket           Port=3382 Sock=8
      +0.373483       1.703  0D End Close Socket             Port=3382 Sock=8
      +0.373512       0.028  48 Trigger event                Trigger=CLOSE
```

- Detailed list of all events for every transaction processed by IMS Connect
- Each report line is a IMS Connect Extensions event in the life of a transaction

IMS Problem Investigator
Version 1.2

Analyzing the IMS, CQS, and Connect logs
to investigate problems

Program number 5655-K50

IMS™ V9
Powering
ON DEMAND BUSINESS™

An age-old problem

- You have a problem with your IMS system…
- You know the information on the log can help you…

```
OPTION    PRINT OFFSET=5,FLDTYP=X,VALUE=50,FLDLEN=1,E=DFSERA30,COND=E
END
DFSERA30  -  FORMATTED LOG PRINT                                                    PAGE  0001
50 RECORD
 00000000 000000    00AC0000 50500001  C9D4C4F3 40404040    00000048 00000000  B7A092E3 3154C480   *....&&..IMD3     ..........KT..D.*
 00000020 000020    81000000 00000000  67004088 D7E2C2F3    F6404040 C8C4D7E5  F3F64040 01002000   *A......... HPSB36   HDPV36  ....*
 00000040 000040    00063000 00000000  0000004C 0000006C    007A0000 00000000  00000082 008C0000   *...........<...%.:.........B....*
 00000060 000060    2002134F 22315255  2401000C 00000001    00000000 00000000  0002D7E2 C2F3F640   *...|.....................PSB36 *
 00000080 000080    40408040 004C0004  00063088 8040004C    00040006 30C60000  00000000 B7A092E3   *  . .<.....H. .<....F.......KT*
 000000A0 0000A0    31551B80 00000000  00003ADA                                                    *............            *
```

but
- How do you get there?
- You need a tool to help you look!
- and… it needs to be easy to use and allow you to unlock the log's secrets

IMS log: a useful source of information

- You can use IMS PI to investigate problems associated with, but not limited to, the following areas of interest:
- Transaction message processing
- Full Function Database processing
- Application Program processing
- Fast Path message and database processing
- IMS Checkpoint processing
- Security
- External Subsystem processing
- IMS system events
- Traces

What's new in Version 1.2

- IMS Version 9 support
- CQS log record analysis
  - ▶ Comprehensive support includes log presentation, reporting, filtering, forms, and tracking (via unit-of-work ID)
- Analyze IMS User Log records
  - ▶ Create your own Knowledge Modules to harness the full capabilities of IMS PI against IMS User Log records
- Analyze IMS Connect event collected by IMS Connect Extensions
- Share system definitions with IMS Performance Analyzer

continued…

What's new in Version 1.2

- **Tracking enhancements**
  - ▶ Track via the batch reporter
  - ▶ Perform backward tracking
  - ▶ Run tracking while viewing formatted log records without needing to return to the browse session
- **Filtering enhancements**
  - ▶ Request tracking for batch reports using the filter
  - ▶ Exclude individual Log codes
  - ▶ Dynamically change filtering during a browse session:
    - • Suspend or resume filtering
    - • Review or change your active filtering options
    - • Exclude individual log codes in IMS PI formatted browse mode

continued…

What's new in Version 1.2

- Dialog enhancements

  - Forms can now be used to format log records in the dialog, complementing batch formatting

  - Control Data Set utility commands allow you to transfer Filter and Form definitions from one Control Data Set to another

  - New SKIP command allows you to skip to the next or previous record without returning to the Browse session

  - New TOP command moves the selected Log file to the top of the Process list

Navigation through the Log file

- You can navigate through the log file looking for particular problems or events of interest.
- Move forwards or backwards in time by a specified amount.
- Track events associated with a particular IMS resource:

  ▶ Transaction

  ▶ Program

  ▶ User ID

  ▶ LTERM or VTAM Terminal

  ▶ Database (and optionally RBA/RBN)

  ▶ IMS Dependent Region ID

  ▶ Transaction Origin Tracking UOW ID

  ▶ UOW Recovery ID

Tracking – Part 1

- Trace the lifecycle of a transaction using Tracking

- Records "connected" by Originating Tracking UOW ID and Recovery Token

```
BROWSE       IPIX.IMS810.PMR47918.IMSD.LOG01        Record 00036205 More: < >
Command ===>                                                Scroll ===> CSR
    Forwards / Backwards . . HH.MM.SS.THMIJU   Time of Day . . 08.51.35.420000
    Code Description                    Date 2005-01-07 Friday   Time (LOCAL)
/   ---- ----------------------------------------------------- ----------------
=> 01   IMS Message                                         08.51.32.911027
   35   Enqueue or Re-Enqueue a Message                     08.51.32.912449
=> 08   Application Start Accounting                        08.51.32.912569
   5607 External Subsystem - Start of a Unit-of-Recovery    08.51.32.912569
   31   GU from the Message Queue                           08.51.32.916173
   5600 External Subsystem - ESAF                           08.51.32.937352
   5600 External Subsystem - ESAF                           08.51.32.937385
=> 50   Database Update                                     08.51.33.027763
=> 03   IMS Message                                         08.51.33.137724
   31   GU from the Message Queue          <--             08.51.33.137730
   33   Free Message                                        08.51.33.138235
=> 5610 External Subsystem - Start Phase 1 Syncpoint (DBCTL) 08.51.33.138244
   5600 External Subsystem - ESAF                           08.51.33.138250
   37   Transfer Message from Temp to Perm Dest at SYNCPOINT 08.51.33.141393
   33   Free Message                                        08.51.33.142799
   5600 External Subsystem - ESAF                           08.51.33.142879
   5600 External Subsystem - ESAF                           08.51.33.142880
   5612 External Subsystem - End of Phase 2 Syncpoint (DBCTL) 08.51.33.142882
   5607 External Subsystem - Start of a Unit-of-Recovery    08.51.33.142882
=> 5612 External Subsystem - End of Phase 2 Syncpoint (DBCTL) 08.51.33.145287
=> 07   Application Terminate Accounting                    08.51.33.145336
************************************* Bottom of Data *****************************

   -----------------------------------------------------------------
   31   GU from the Message Queue          <--             08.51.32.916173
        UTC=08.51.32.916171 TranCode=YIE01 Region=000B
=>      OrgUOWID=IMSD/BC6229C0A1392677 RecToken=IMSD/062DB113
   -----------------------------------------------------------------
```

Labels (left column):
- Incoming message => 01
- Transaction starts => 08
- Database update => 50
- Output message => 03
- Syncpoint starts => 5610
- Syncpoint ends => 5612
- Transaction ends => 07
- Tracking Tokens =>

Tracking – Part 2

- Position – Use Navigate to position near the problem, then use Find to locate the problem transaction
- Track – Start tracking against the transaction, stop when you need to look at a problem, then resume

2. Find the offending transaction

1. Navigate to point-in-time

```
BROWSE      IPIX.IMS810.PMR47.18.IMSD.LOG01              Record    036205 More: < >
Command ===> FIND TRANCODE=YIE01                                  Scroll ===> CSR
       Forwards / Backwards . . HH.MM.SS.THMIJU    Time of Day . . 08.51.32.911000
       Code Description                   Date 2005-01-07 Friday    Time (LOCAL)
       ----  -----------                                            ---------------
/
T  01    IMS Message                                               08.51.32.911027
         UTC=08.51.32.911024 TranCode=YIE01 LTerm=RVM57601 Terminal=RESBNP
         OrgUOWID=IMSD/BC6229C0A1392677
       ---------------------------------------------------------------------------
__  35   Enqueue or Re-Enqueue a Message                           08.51.32.912449
         UTC=08.51.32.911024 TranCode=YIE01 OrgUOWID=IMSD/BC6229C0A1392677
       ---------------------------------------------------------------------------
__  08   Application Start Accounting                              08.51.32.912569
         UTC=08.51.32.912567 TranCode=YIE01 Region=000B RecToken=IMSD/062DB113
       ---------------------------------------------------------------------------
__  5607 External Subsystem - Start of a Unit-of-Recovery          08.51.32.912569
         UTC=08.51.32.423954 Region=000B IMSID=IMSD RecToken=IMSD/062DB113
       ---------------------------------------------------------------------------
__  31   GU from the Message Queue                                 08.51.32.916173
         UTC=08.51.32.916171 TranCode=YIE01 Region=000B
         OrgUOWID=IMSD/BC6229C0A1392677 RecToken=IMSD/062DB113
       ---------------------------------------------------------------------------
__  5600 External Subsystem - ESAF
         Region=000B IMSID=IMSD RecToken=IMSD/062DB11
       ---------------------------------------------------------------------------
__  5600 External Subsystem - ESAF
         IMSID=IMSD RecToken=IMSD/062DB113
       ---------------------------------------------------------------------------
S  50    Database Update                                           08.51.33.027763
         UTC=08.51.32.423954 Program=BIENIE01 Database=DVAS2000 RBA=13F13000
         Region=000B RecToken=IMSD/062DB113
       ---------------------------------------------------------------------------
```

3. Start tracking

4. Use PFK6 to continue tracking

5. Select record to look for problem

6. Resume tracking from inside the formatted record view to avoid returning here

View the Formatted Record – Part 1

```
   File   Menu   Help
─────────────────────────────────────────────────────────────
BROWSE     IPIX.IMS610.PMR03284.LOG                    Line 00000000
Command ===> █                                      _ Scroll ===> CSR
************************************** Top of data **************************************
+0004   Code... 01     IMS Message
+0A3A   STCK... B233C2A4649A3506      LSN.... 00000000056CF420
        Date... 1999-05-06 Thursday   Time... 07.54.18.076579

      00  MSGLRLL.... 0A4A         MSGLRZZ.... 0000        MSGLCODE... 01
      05  MSGFLAGS... D1           MSGDFLG2... 81          MSGFPADL... 94
      08  MSGMDRRN... 080000ED     MSGRDRRN... 080000ED    MSGPRFLL... 0264
      12  MSGCSW..... 00           MSGDFLG3... 00
      14  MSGUOW..... Unit of Work (UOW) - Tracking
      14  MSGORGID... 'IMW1    '   MSGORGTK... B233C2A464942D06
      24  MSGPROID... 'IMW1    '   MSGPROTK... B233C2A464942D06
      34  MSGUFLG1... 00           MSGUFLG2... 00
      36  MSGRSQTY... 00           MSGDOFS.... 0000        MSGDRBN.... 00000000

+0040   MSGSSEGM... Message Prefix System Segment; Item ID = 81
+0040   MSGSILL.... 0040           MSGSIID.... 81          MSGCFLG1... 00
+0044   MSGCFLG2... C8             MSGCFLG3... 00          MSGCQSF1... 00
+0047   MSGCQSF2... 00
+0048   MSGPTERM... Full Physical Input Terminal ID
+0048   MSGILINE... 00000000       MSGITERM... 00000000
+0050   MSGTISEQ... 0000           MSGPREFO...        0    MSGPREFI...        0
+0056   MSGSETS.... 00             MSGRES01... 00          MSGRECCT...        0
+0060   MSGIDSTN... FDFFFFFF1D8AF460
+0068   MSGODSTN... 'TASTO75N'     MSGIHSQN... 0000000000000000
+0078   MSGFMTNM... '        '

+0080   MSGEPHDR... Extended Prefix System Segment; Item ID = 86
```

Every IMS Log record type (including Traces) are formatted by IMS PI

View the Formatted Record – Part 4

Position cursor on field and press enter to Zoom

```
 File   Menu   Help
─────────────────────────────────────────────────────────────────────
BROWSE     IPIX.IMS610.PMR03284.LOG
Command ===>                                              Scroll ===> CSR
+01D6   MSGSQSID... 0000            MSGESINM... 0000000000000000
+01E2   MSGESONM... 0000000000000000
+01EA   MSGMETRA... 0000000000000033
+01F2   MSGMEVID... 0000000000000000000000000000000033    MSGDSSID ... 0033
+0204   MSGSRSID... 0033            MSGMORID... 'IMW1     '
+020E   MSGMMOTK... B233C2A464942D06

+021E   MSGMSC..... TMR System Segment; Item ID = 8C
+021E   MSGSILL.... 0046            MSGSIID.... 8C          MSGMSCZ2... 00
+0222   MSGMSTRA... 00000033        MSGMSVID... 0000000000000097
+022E   MSGMSONM... 'TASTO75N'      MSGMSINM... FDFFFFFF1D8AF460
+023E   MSGMSOID... 33              MSGMSIID... 33          MSGMSFL1... 01
+0241   MSGMSFL2... 4C              MSGMSFL3... 40          MSGMSFL4... 08
+0244   MSGMSUID... 0000000000000000                        MSGMSGID... 0000
+024E   MSGMSPAD... 0000000000000000

+0264   QLOGMSGD... Message Text
+0264   MSGXDLEN... 07D6            MSGXFLG1... 03          MSGXFLG2... 00
 268    MSGXSTXT...
        +0000  E3C1E2E3 D6F7F5D5 40C1C3C8 C7F0F5F0  *TASTO75N ACHG050*
        +0010  F6F9F9F0 F6F1F3D5 E6F1F8F6 C8C3C6E2  *6990613NW186HCFS*
        +0020  F1F0F0F2 F5F8C7E3 C5E64040 40404040  *100258GTEW      *
        +0030  40404040 404040C3 40404040 40404040  *      C         *
        +0040  40404040 40404040 40404040 40404040  *                *
        +0050  40404040 40404040 40404040 40404040  *                *
        +0060  40404040 40404040 40404040 40404040  *                *
        +0070  40404040 40404040 40404040 40404040  *                *
        +0080  40404040 40404040 40404040 40404040  *                *
```

Data like message text and database updates are dumped

Zoom to a Character or Hex field

```
 File   Menu   Help
 ─────────────────────────────────────────────────────────────────
 BROWSE      IPIX.IMS610.PMR03284.LOG                      Line 00000000
 Command ===> █                                        Scroll ===> CSR
 ******************************** Top of data ********************************
 +0068   MSGODSTN...  'NCBT2SIH'

         Destination CNT Name or SMB Name.
         For APPC transaction, Dest field made up
         of 2 parts: Dest Type and Dest address
         - valid only if MSGC2APP flag on.
         1. MSGOD62I   APPC (LU6.2) Dest Type QAB/TIB
         2. MSGOD62A   APPC (LU6.2) Dest Addr QAB/TIB
 ******************************** End of data ********************************
```

- Zoom allows you to drill down to obtain more information about a log record fields.
- From the Formatted Record display simply position the cursor at any field of interest and press Enter.
- Zoom provides addition field analysis and detailed field description.

Zoom to a Flag field

```
 File   Menu   Help
_____
BROWSE      IPIX.IMS610.PMR03284.LOG                    Line 00000000
Command ===> █_____  Scroll ===> CSR
************************************ Top of data *****************************
+0006    MSGDFLG2...  81    Flags from QDFLG2 of QDEST

  On     QDF2PRM....  80    This Destination is permanent and
                            implies that fields exist for
                            1. Average Msg length
                            2. Enqueue and Dequeue counts
                            3. Name field
                            If the above  bit is off,
                            the fields  are assumed to be absent
  Off    QDF2BKR....  40    Backup queue is required, either
                            for Resend or Conversational process
  Off    QDF2QMOV...  20    QMOVE in Process : XRF
  Off    QDF2LQUE...  10    Local QPOOL in Use : XRF
  Off    QDF2CLNR...  08    Cleanup Check Request Flag : XRF
  Off    QDF2MDEL...  04    Message Deletion in Progress Flag : XRF
  Off    QDF2BTYP...  03    Destination Type bits
  On     QDF2SMB....  81    Generated SMB - Transaction
  Off    QDF2CNT....  82    Generated CNT - Logical Terminal
************************************ End of data *****************************
```

IMSPI "knows" about Flags. Zoom to see which bits are on or off.

Filtering Criteria – Record Selection

```
 File   Menu   View   Help

EDIT                        Filter - FILT01              Row 1 of 8 More: < >
Command ===> _____       Scroll ===> CSR

Description . . . IMS PI Log Record Filter_____    /  Activate Tracking

/ Log Code + Exc Description
_ ____  ALL_    Global Criteria for all Log Record Codes
                Conditions . .  No    Form . .  _____  +
---------------------------------------------------------------------------------
_ IMS 01___     IMS Message
                Conditions . .  Yes   Form . .  _____  +
---------------------------------------------------------------------------------
_ IMS 07___     Application Terminate Accounting
                Conditions . .  No    Form . .  _____  +
---------------------------------------------------------------------------------
_ IMS 50___     Database Update
                Conditions . .  No    Form . .  _____  +
---------------------------------------------------------------------------------
_ IMS 5937_     Fast Path Syncpoint
                Conditions . .  No    Form . .  _____  +
---------------------------------------------------------------------------------
_ CQS 0701_     CQSPUT OBJECT completed
                Conditions . .  No    Form . .  _____  +
---------------------------------------------------------------------------------
_ CQS 0702_     CQSPUT COMMIT completed
                Conditions . .  No    Form . .  _____  +
---------------------------------------------------------------------------------
_ CON A03E_     Message Exit ret
                Conditions . .
---------------------------------------------------------------------------------
*************************** B
```

Use Filtering Criteria to select only the records of interest. Filter records by log record code and by setting conditions.

Filtering Criteria – Conditions Part 1

```
 File   Menu   Object Lists   Help
--------------------------------------------------------------------------------
                              Conditions                    Row 1 to 15 of 15
Command ===> ■_____      Scroll ===> PAGE

Code: ALL   Global Criteria for all Log Record Codes

/  Field Name +                            Oper  Value +
_  CODE                                     EQ    01
_  LSN                                      EQ    0000000000000001
_  TRANCODE                                 EQ    TRAN*
_  PROGRAM                                  EQ    PROG*
_  USERID                                   EQ    LOC*
_  LTERM                                    EQ    LT01
_  TERMINAL                                 EQ    TERM01
_  DATABASE                                 EQ    DB01
_  RBA                                      EQ    00001000
_  REGION                                   EQ    0002
_  ORGUOWID                                 EQ    */B7FD5E8A95FCD400
_  RECTOKEN
_  IMSID
_  6
_  X'0A'
```

Set conditions by comparing:

- Specialized field names, e.g. Trancode, Userid, Database etc.
- Field names from the IMS macros, eg. MSGODSTN
- Supports offsets similar to DFSERA10

Example 6 – CQS

```
 File   Menu   Mode   Navigate   Track   Filter   UTC   Help
──────────────────────────────────────────────────────────────────────────
BROWSE     ALZX.V120.STL.CQSLOG.MSGQ              Record 00000001 More: < >
Command ===> _____     Scroll ===> CSR
  Forwards / Backwards . . HH.MM.SS.THMIJU    Time of Day . . 07.01.45.656000
  Code Description                  Date 2005-05-03 Tuesday   Time (LOCAL)
/ ----  -------------------------------          ----------   ---------------
___ 0702  CQSPUT COMMIT completed                           22.20.00.006717
          UTC=15.20.00.006439 TranCode=IT8A Userid=DSWT4494 LTerm=DSWT4494
          Terminal=DSWP4494 OrgUOWID=IMS1/BCF4B6CE11D1C60C
          ------------------------------------------------------------------
___ 0801  CQSREAD completed                                 22.20.00.006907
          OrgUOWID=IMS1/BCF4B6CE11D1C60C
          ------------------------------------------------------------------
___ 0702  CQSPUT COMMIT completed                           22.20.00.007780
          UTC=15.20.00.000489 Userid=JBBT4914 LTerm=ALTERMN1
          OrgUOWID=IMS3/BCF4B6CE1176AEC8
          ------------------------------------------------------------------
___ 0801  CQSREAD completed                                 22.20.00.007976
          OrgUOWID=IMS3/BCF4B6CE1176AEC8
          ------------------------------------------------------------------
___ 0702  CQSPUT COMMIT completed                           22.20.00.009340
          UTC=15.20.00.000513 Userid=JBBT3091 LTerm=ALTERMN2
          OrgUOWID=IMS3/BCF4B6CE11CA9288
          ------------------------------------------------------------------
___ 0801  CQSREAD completed                                 22.20.00.009595
          OrgUOWID=IMS3/BCF4B6CE11CA9288
          ------------------------------------------------------------------
___ 0702  CQSPUT COMMIT completed                           22.20.00.015327
          UTC=15.20.00.000437 Userid=JBBT3887 LTerm=ALTERMD4
          OrgUOWID=IMS3/BCF4B6CE11C6F00E
          ------------------------------------------------------------------
```

Example 7 – IMS Connect Extensions

```
 File   Menu   Mode   Navigate   Track   Filter   UTC   Help

BROWSE      TEAM23.CONNECT.LOG                    Record 00000242 More: < >
Command ===>                                              Scroll ===> CSR
   Forwards / Backwards . . HH.MM.SS.THMIJU    Time of Day . . 07.01.45.656000
   Code Description                      Date 2004-09-21 Tuesday   Time (LOCAL)
/  ----  -----------                      -----------------------   -------------
___  A03C  Prepare READ Socket                               13.17.11.422971
___  A049  READ Socket                                       13.17.11.628840
___  A049  READ Socket                                       13.17.11.628929
___  A03D  Message Exit called for READ, XMIT, EXER          13.17.11.628957
___  A03E  Message Exit returned from READ, XMIT, EXER       13.17.11.629041
___  A041  Message sent to OTMA                              13.17.11.630047
___  A042  Message received from OTMA                        13.17.11.643979
___  A042  Message received from OTMA                        13.17.11.644085
___  A03D  Message Exit called for READ, XMIT, EXER          13.17.11.644173
___  A03E  Message Exit returned from READ, XMIT, EXER       13.17.11.644213
___  A04A  WRITE Socket                                      13.17.11.644347
___  A00C  Begin CLOSE Socket                                13.17.11.644403
___  A00D  End CLOSE Socket                                  13.17.11.644969
___  A048  Trigger Event                                     13.17.11.644993
********************************** Bottom of Data *********************************
```

Message sent to IMS for processing. Merge Connect, IMS and CQS log files for end-to-end problem determination.

IBM Tivoli OMEGAMON XE for IMS on z/OS, V2.2.1 5608-C08

- Acquired in June 2004

- Functions:
  - ▶ Improves the ability to monitor and manage sophisticated mainframe applications by delivering an integrated management infrastructure for zSeries
- Future Direction:
  - ▶ IBM IMS Performance Monitor will be converged with OMEGAMON for IMS.
  - ▶ IBM is exploring integration opportunities to ensure that CICS PA and IMS PA will be even more complementary with OMEGAMON monitors in the future to provide a more integrated and comprehensive offering for our customers.

The road to data center performance...

OMEGAMON®

OMEGAMON Tivoli Enterprise Portal

	Status	Situation Name
End to end		
UNIX Systems	⚠ Open	NT_Process_CPU_Warning
Linux Systems	⚠ Open	KS3_Channel_Busy_Pct_W
Windows Systems	⚠ Open	KS3_LCU_IO_Rate_Sec_W
NetView for z/OS	⚠ Open	KS3_Cachecu_Trk_Stag_W
CICS	⚠ Open	KS3_Vol_Cache_Read_HitP
DB2	⚠ Open	KS3_Vol_Cache_Writ_HitP_
IMS	⊗ Open	KS3_Cachecu_Trk_Stag_Cr
Mainframe Networks	⚠ Open	NT_Log_Space_Low
MQSERIES	⚠ Open	NT_Log_Space_Low
OS/390 Unix (USS)	⊗ Open	MQSeries_MQ_Channel_St
Storage Subsystem	⊗ Open	Crypto_Internal_Error

z/OS, IMS, CICS, DB2
z/OS Mgmt Console
NetView, Networks
TEC, Storage, USS
WAS, MQ, WBI
Distributed
Linux, Unix, Windows
Applications, DBs

- **Monitor enterprise from one console**
- **Quickly see who is causing problems**
- **Real Time and Historical Monitors**
- **Exceptions & Alerts**
- **Drill down Into specific metrics**
- **Take Action Commands**

Tivoli OMEGAMON XE for IMS on z/OS

CPU Usage

- IMS7CFP2
- IMS7CFP1
- IMS7CFP3
- IMS710CB
- IMS710CC
- IMS610MI
- IMS610MD
- IMS6AMS1
- IMS6AMS2
- IMSLK6A
- IMS610AB
- IMS 1.28 (IMS610AC)

0 6 12 18 24 30

- TCB CPU Time
- SRB CPU Time

Page In Counts

- L3OIS06
- IMS7CMS1
- IMS7CMS2
- IMS710CI
- IMS710CC
- IMS610MI
- IMS6AMS1
- IMS6AMS2
- IMSLK6A
- IMS610AC

0 60 120 180 240

- Common Page-Ins
- Private Page-Ins

Enterprise
- OS/390 Systems
  - SYS
    - IMSPLEX
      - I61A:SYS:IMS
        - IMS Address Spaces
        - IMS DASD Logging
        - IMS Device Activity
        - IMS IRLM Information
        - IMS OSAM BP Statistics
        - IMS OTMA Status
        - IMS Pools Display
        - IMS Program Scheduling Blo
        - IMS Recovery Control Datase
        - IMS System Exceptions
        - IMS System Information
        - IMS Transaction Summary
        - IMS VSAM Activity

Physical

Monitored IMS Systems

	Timestamp	IMSID	MVS Level	MPPs Active	BMPs Active	Applications Scheduled	Transactions Queued	RSR Global Service Group	RSR Service Group	RSR TMIName	APPC IMS LUname	APPC IMS NETID	APPC GRNAME	IMS Version
	04/25/03 10:15:41	I61A	SYS	2	1	68	65	N/A	N/A	N/A	N/A	N/A	N/A	V6.1
	04/25/03 10:15:41	I61M	SYS	1	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	V6.1
	04/25/03 10:15:41	I71C	SYS	2	1	1700	0	N/A	N/A	N/A	N/A	N/A	N/A	V7.1

- **IMS Transactions**
- **IMS Response Time Analysis**
- **IMS to MQ Status**
- **IMS MCS**
- **IMS OSAM**

- **IMS Pools, Regions, and Datasets**
- **IMS VSAM Activity**
- **IMS Exceptions**
- **IMS Fast Path Details**
- **IMS TRF**

OMEGAMON XE for IMS - Resources Monitored

- IMS Address Spaces
- IMS Connect CPU Usage
- IMS Coupling Facility Data Sharing Status
- IMS DASD Logging
- IMS Dependent Regions
- IMS Device Activity
- IMS Extended Recovery Facility
- IMS External Subsystems
- IMS Fast Path Balancing Groups
- IMS Fast Path DEDB Activity
- IMS Fast Path MSDB Information
- IMS Fast Path Regions
- IMS Fast Path System
- IMS Fast Path VSO Data Spaces
- IMS IRLM Information
- IMS Logical Terminals
- IMS MQSeries Status
- IMS Multiple Systems Coupling Facility (MSC)

- IMS OSAM BP Statistics
- IMS OSAM Subpool Statistics
- IMS OTMA Status
- IMS Pools Display
- IMS Program Scheduling Blocks
- IMS Recovery Control Datasets
- IMS Response Time Analysis (RTA)
- IMS Startup Parameters
- IMS System Datasets
- IMS System Exceptions
- IMS System Information
- IMS Transaction Summary
- IMS TRF Class Summary
- IMS TRF DLI Summary
- IMS VSAM Activity
- IMS VSAM/OSAM Activity
- IMS VSAM Subpool Statistics

End to End Management

Data Base Administration **Utility Management** **Recovery Management**

IMS DATA BASE TOOLS

Performance Management **TM Management** **Application Management**
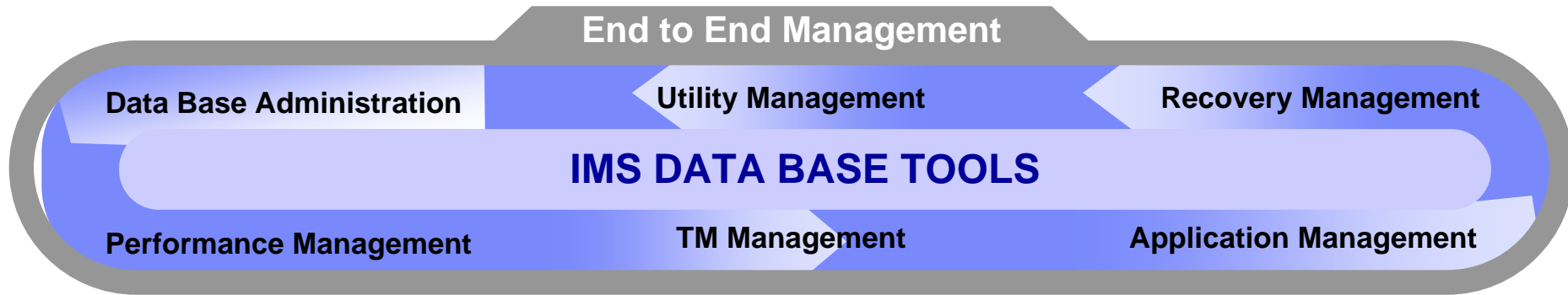
IMS Tools – TM Management

- IMS Command Control Facility
- IMS ETO Support
- IMS HP Sysgen Tools
- IMS Queue Control Facility
- IMS Workload Router

IMS Command Control Facility, V1.1 5655-F40

- Executes, analyzes, and coordinates IMS commands from a single point of control
- Functions:
  - ▶ Process IMS commands in all or selected systems of an IMSplex using either batch or TSO interface
  - ▶ Synchronize Online Change and database commands across all regions in a Sysplex using the batch command processor
- Your Value:
  - ▶ Ensures successful processing of db /START, /STOP, /DBR, and /DBD cmds
  - ▶ Improves overall system performance
  - ▶ Helps you manage your database environment more efficiently

TSO ISPF
(1) Set up CCF options
or
(2) Enter IMS command to one system

CCF Options
- IMSPROD = IMSA, IMSB, IMSC
- names of DD statements for CCFCMD00
- Global and job specific options

MVS BATCH JOB
(command processor)
CCFCMD00
- Can also be BMP or DLI
- Checks for completion of /STA, /STO, /DBD, and /DBR

APPC
/DBR...
IMSB /STA...

Command input

A P P C

IMSA   **IMSB**   **IMSC**
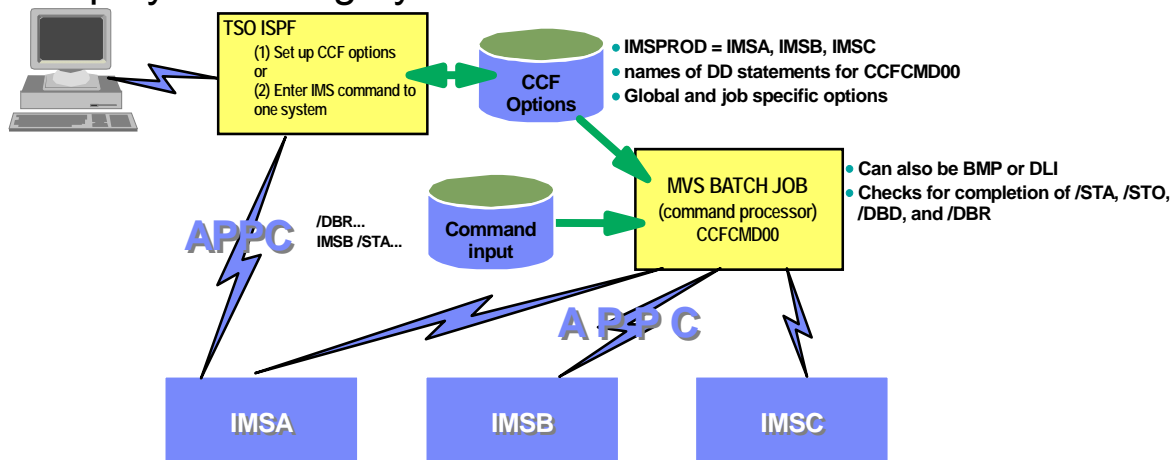
A similar implementation is possible with DBCTL systems, except that CCF uses APPC to communicate with a BMP, which in turn issues ICMD and RCMD commands. However, it is not possible to check for completion of DB commands (using DFS0488I)

IMS/ETO Support V3.1 5655-L61

◆ **Improved System Availability**

- ► reduced scheduled shutdown to add/delete terminals
- ► Allows to add VTAM terminal and USERs to IMS without predefine them via sysdef
- ► faster system availability to end users

◆ **Improved IMS security**

- ► output message related to user rather then terminals

◆ **Reduce system definition time**

- ► less macroes required to define terminal networks
- ► facilitate system programmers and unskilled personnel activity to maintain IMS connectivity

◆ **Reduce system checkpoint and restart time**

- ► resources allocated when actually required and deleted when no longer required
- ► automatic logoff and signoff

◆ **ETO Considerations**

- ► ETO Dynamic terminals do not support System Maintenance Utility (SMU)
  - ➢ IMS V9 last IMS version to support SMU
- ► Application programs that use specific LTERM names sometime require particular ETO customization

IMS ETO/Support Tool

❑ **Is a front-end to the existing IMS Extended Terminal Option (ETO) feature.**

- ✓ ETO Support simplifies and speeds up the process of implementing IMS ETO.
- ✓ Get the full power and benefits of IMS ETO functions: no ETO descriptors and user exits maintenance
- ✓ User friendly solution to implement customize control IMS ETO feature
  - ▪ Online and batch interface (definition saving and loading)
- ✓ ETO Support lets you set global options and override options for specific terminals or user IDs.

IMS ETO/Support Tool

❑ **ETO Support allows you to:**

✓ Support SLU1 Console, SLU2/3270, and SLUP/3600 devices.

✓ Perform auto signon by building the user/LTERM control blocks, no need to enter an IMS /SIGN command.

✓ Supply a user/LTERM name for a specific terminal, can specify up to 8 LTERMs for each SLU2/3270, SLU1 Console, or SLUP/FINANCE device.

▪ Use mask and wildcards characters to construct ETO structure names

✓ Supply an LTERM name for a specific user ID (and/or up to 8 LTERMs for each user ID)

✓ Clean up conversations, reset terminal status, and dequeue messages at sign-off time

✓ Manage its own and user specified IMS exits with direct reload .

✓ Provide Command Security Checking at keyword level

✓ Useful SQ and IMS new functions options

✓ ….. Much more ….

```
IZTRAN                    IMS ETO-SUPPORT              IMSID:   IMS
COMMAND ===> _____    VERSION - 03.01.00           RELEASE: 7.1.0
                         GLOBAL PROCESSING OPTIONS


ETO/SUPPORT OPTIONS                        TABLE SEARCH SEQUENCE
  PROCESS STATIC TERMINALS    N   (Y/N)    1    1 - USERID BEFORE LUNAME
  SIGNOFF CLEANUP             N   (Y/N)         2 - LUNAME BEFORE USERID
  ALLOW DYNAMIC TRANSACTIONS  Y   (Y/N)
  DFS3650 WHEN USER MOD USED  N   (Y/N)    USERID SUFFIXING TECHNIQUE
  SIGNON FAILURE LOG REC ID   __  (HEX)    1    1 - 0-9, A-Z
                                                2 - 000-FFF
DFSINTX0 OPTIONS                                3 - BLANK, 1-9, A-Z
  ALTERNATE ALOT=0            N   (Y/N)         4 - BLANK, 001-FFF
  DISABLE VGR FOR ISC         N   (Y/N)
  LU03 LOGON OPTIONS:                      SYSPLEX TERMINAL MANAGEMENT (V8)
  0    0 - NO LU03 OVERRIDE                SRMDEF _    0 - NONE
       1 - LU03 LOGON AS SLU1 PRINTER                 1 - GLOBAL
       2 - LU03 LOGON AS 3270P                        2 - LOCAL
                                           FAST PATH RECOVERY      _   (Y/N)
                                           CONVERSATION RECOVERY   _   (Y/N)
                                           STSN RECOVERY           _   (Y/N)
                                           ALLOW SIGNON W/RM AFFIN _   (Y/N)
```

IMS High Performance Sysgen Tools - The Basics

- Current Version 2.1
  - ▶ Announcement June 07, 2005
  - ▶ General Availability June 17, 2005
  - ▶ Product ID: 5655-P43
  - ▶ Subscription and Support PID: 5655-F42

New Version
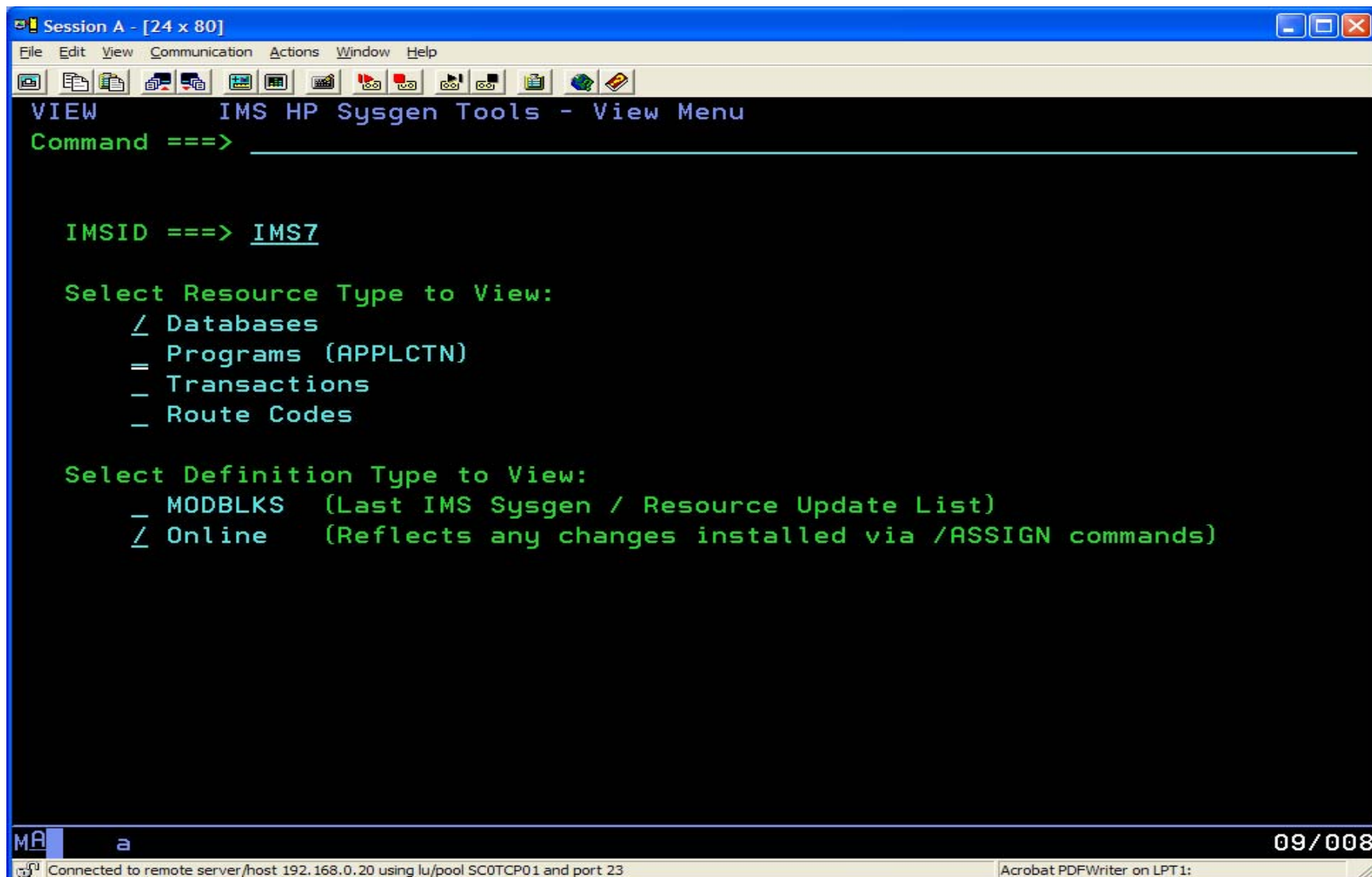
HP Sysgen Tools 2.1 Main Menu

```
Session A - [24 x 80]
File  Edit  View  Communication  Actions  Window  Help

                    IMS High Performance Sysgen Tools
Option ===> _

   0    Setup        IMS Configuration                 User    P390M
   1    View         Display IMS Resource Definitions  Date    05/09/06
   2    Edit         Create an IMS Resource Update List Time    05:05
   3    Verify       Verify an IMS Resource Update List z/OS    01.01.00
   4    Install      Implement an IMS Resource Update List Sysname P390
   5    Validate     Syntax Check Stage 1 Sysgen Source JESNode N1
   6    Fastgen      Perform a Fast IMS Sysgen          Sysplex ADCDPL
   7    Reverse      Create Stage 1 Source from MODBLKS
   8    History      Review Historical Log Information
   C    Command      Issue an IMS Command


IOHPDS Data Set Name ===> P390M.IOH.IOHPDS
                         (Fully qualified DSNAME without quotes)




MA    a                                                          02/014
Connected to remote server/host 192.168.0.20 using lu/pool SC0TCP01 and port 23    Acrobat PDFWriter on LPT1:
```

Option 1 – View Resource Definitions

```
Session A - [24 x 80]
File  Edit  View  Communication  Actions  Window  Help

 VIEW          IMS HP Sysgen Tools - View Menu
 Command ===> _____


    IMSID ===> IMS7

    Select Resource Type to View:
        / Databases
        _ Programs (APPLCTN)
        _ Transactions
        _ Route Codes

    Select Definition Type to View:
        _ MODBLKS  (Last IMS Sysgen / Resource Update List)
        / Online   (Reflects any changes installed via /ASSIGN commands)




MA      a                                                              09/008
Connected to remote server/host 192.168.0.20 using lu/pool SC0TCP01 and port 23        Acrobat PDFWriter on LPT1:
```

View – Display of Resource Definitions

Option 1 – View Resource Definitions

```
VIEW          IMS HP Sysgen Tools - View Program Definition
Command ===> _

IMS Sysgen source for program DFSSAM02 ...

      APPLCTN PSB=DFSSAM02,PGMTYPE=TP,SCHDTYP=PARALLEL


Parameter    Value      Description
PSB Name     DFSSAM02   PSB (or GPSB) Name
RESIDENT                PSB to remain resident in storage
DOPT                    Dynamic Option - reload PSB for each execution
GPSB                    Generic PSB
FPATH                   Fast Path
LANG                    GPSB Language
PGMTYPE      TP         Program Type
SCHDTYP      PARALLEL   Schedule Type




MA   a                                                          02/015
Connected to remote server/host 192.168.0.20 using lu/pool SC0TCP01 and port 23      Acrobat PDFWriter on LPT1:
```

Option 1 – View Resource Definitions

```
Session A - [24 x 80]
File  Edit  View  Communication  Actions  Window  Help

 VIEW          IMS HP Sysgen Tools - View Transaction Definition
 Command ===>  _


 IMS Sysgen source definition for transaction ADDPART ...


     TRANSACT CODE=ADDPART,PRTY=(2,4,2),DCLWA=NO,                  *
              MSGTYPE=(MULTSEG,NONRESPONSE,3)




 Parameter   Value    Description
                                                         More:       +

 Tran Code   ADDPART   Transaction Code
 PSB Name    DFSSAM04  Associated PSB Name
 DCLWA       NO        DC Log Write Ahead
 Edit Case   UC        Upper Case or Upper/Lower Case
 EDIT Name             Transaction Edit Routine Module Name
 FPATH       NO        Fast Path Specification
 INQUIRY     NO        Inquiry Mode
 RECOVER     RECOVER   Recoverable Transaction
 MAXRGN      0         Maximum regions
 MODE        MULT      Mode
 MSGTYPE     MULTSEG   Segments
 RESPONSE    NO        Response mode
MA    a                                                        02/015
Connected to remote server/host 192.168.0.20 using lu/pool SC0TCP01 and port 23     Acrobat PDFWriter on LPT1:
```
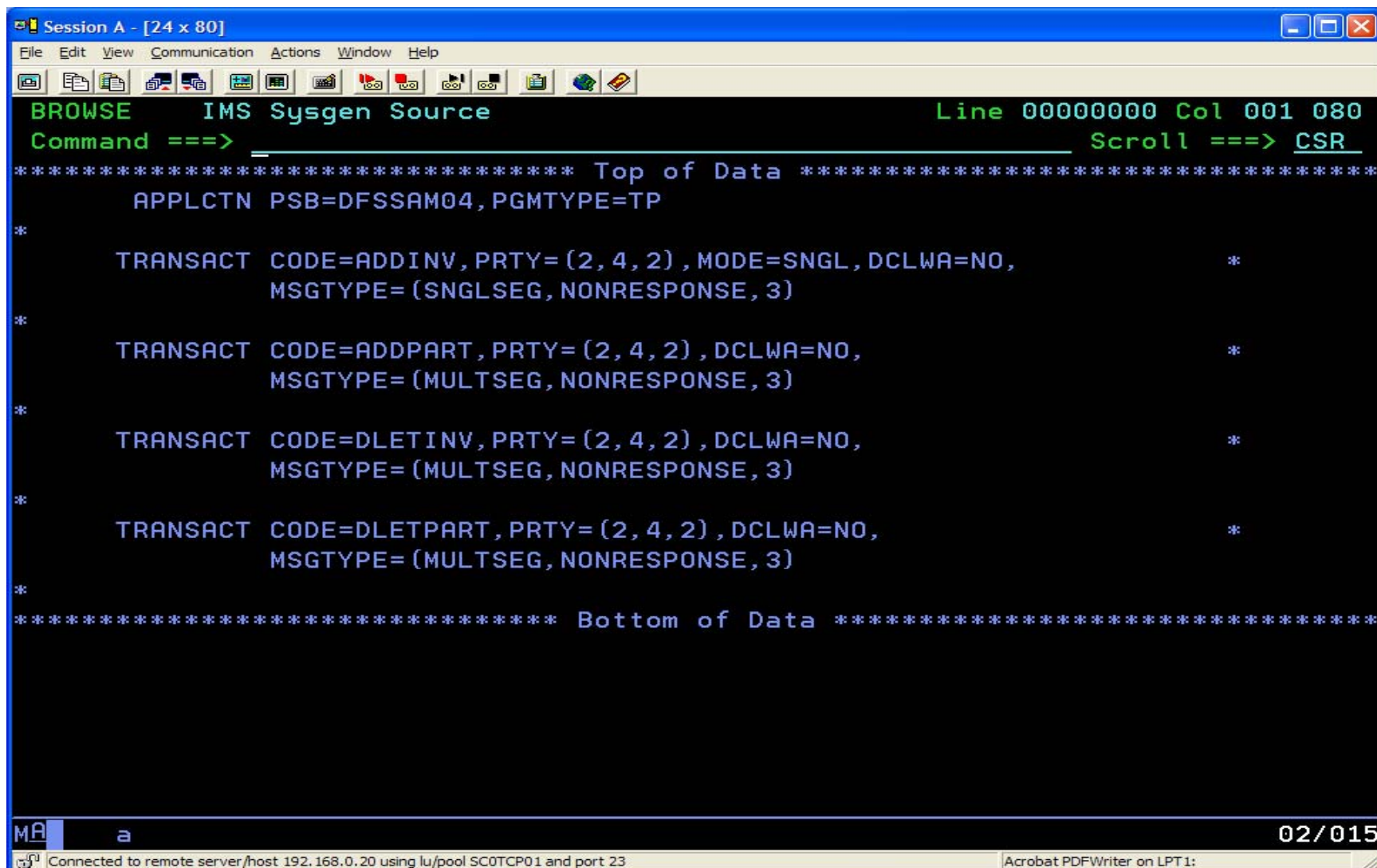
Option 1 – View Resource Definitions

```
Session A - [24 x 80]
File  Edit  View  Communication  Actions  Window  Help

 BROWSE     IMS Sysgen Source                    Line 00000000 Col 001 080
 Command ===> _____ Scroll ===> CSR
********************************* Top of Data *********************************
        APPLCTN PSB=DFSSAM04,PGMTYPE=TP
*
     TRANSACT CODE=ADDINV,PRTY=(2,4,2),MODE=SNGL,DCLWA=NO,              *
              MSGTYPE=(SNGLSEG,NONRESPONSE,3)
*
     TRANSACT CODE=ADDPART,PRTY=(2,4,2),DCLWA=NO,                       *
              MSGTYPE=(MULTSEG,NONRESPONSE,3)
*
     TRANSACT CODE=DLETINV,PRTY=(2,4,2),DCLWA=NO,                       *
              MSGTYPE=(MULTSEG,NONRESPONSE,3)
*
     TRANSACT CODE=DLETPART,PRTY=(2,4,2),DCLWA=NO,                      *
              MSGTYPE=(MULTSEG,NONRESPONSE,3)
*
******************************* Bottom of Data *******************************




MA    a                                                              02/015
Connected to remote server/host 192.168.0.20 using lu/pool SC0TCP01 and port 23    Acrobat PDFWriter on LPT1:
```

Option 2 – Edit a Resource Update List

```
Session A - [24 x 80]
File  Edit  View  Communication  Actions  Window  Help

EDIT         IMS HP Sysgen Tools - Update List Selection      Row 1 to 15 of 86
Command ===> _____      Scroll ===> CUR
                                                                    More ->

      Primary Commands:            Line Commands:
        S     Add/Edit a Member      S Edit a Member      E Edit a Member
        L     Locate a Member        D Delete a Member    V Verify a Member
        SORT  Sort the List          R Rename a Member    I Install a Member


CMD     Name     IMSID    Status   Lines  Cr-User   Cr-Date    Ex-User   Ex-Date
  _     ADDINV   IMS7     VERIFY   1      P390M     2005.247   P390M     2005.247
  _     DBDADD   IMS7              3      P390M     2005.059   P390M     2005.239
  _     DBDDEL   IMS7              3      P390M     2005.058   P390M     2005.170
  _     DBDUPD   IMS7     INSTALL  1      P390M     2005.060   P390M     2005.247
  _     DFSSAM0A IMS5              1      P390M     2005.045
  _     DI21PART IMS8              2      P390R     2005.100   P390R     2005.100
  _     EDITRTN  IMS5              2      P390M     2005.114   P390M     2005.114
  _     FP1      IMS7              4      P390M     2005.146
  _     IMSCMD   IMS9              2      P390M     2005.194   P390M     2005.195
  _     IMSCMD2  IMS9              1      P390M     2005.196   P390M     2005.196
  _     IMS6     IMS6              2      P390M     2005.125   P390M     2005.128
  _     IMS7001  IMS7              4      P390M     2005.129   P390M     2005.241
  _     IMS7002  IMS7              1      P390M     2005.130   P390M     2005.241
  _     IMS7003  IMS7              1      P390M     2005.130   P390M     2005.241
  _     IOHCMD   IMS9              1      P390M     2005.098   P390M     2005.124
MA    a                                                                 02/015
Connected to remote server/host 192.168.0.20 using lu/pool SC0TCP01 and port 23      Acrobat PDFWriter on LPT1:
```
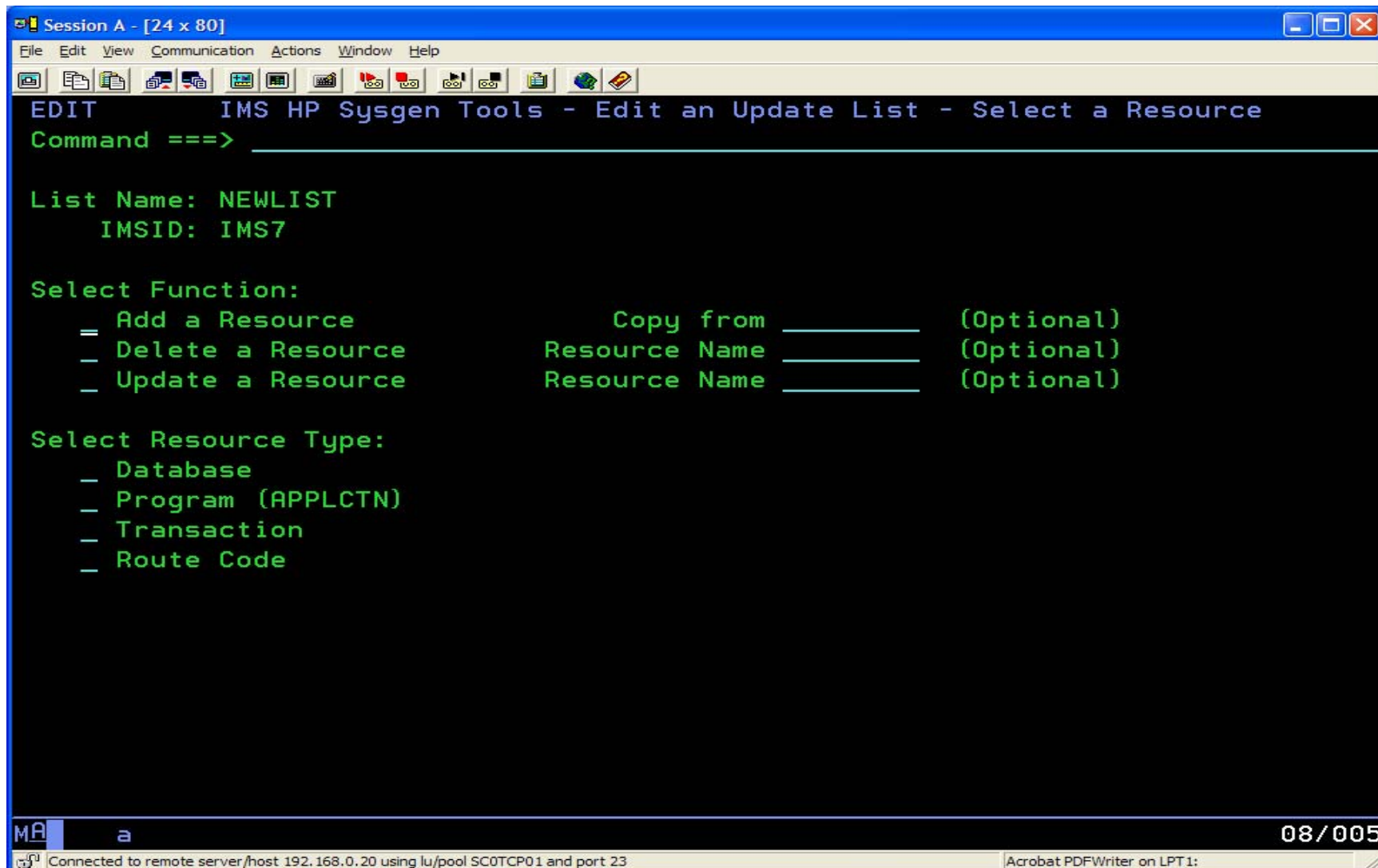
Option 2 – Edit a Resource Update List

```
Session A - [24 x 80]
File  Edit  View  Communication  Actions  Window  Help

EDIT        IMS HP Sysgen Tools - Edit an Update List - Select a Resource
Command ===>

List Name: NEWLIST
    IMSID: IMS7

Select Function:
   _  Add a Resource              Copy from  _____    (Optional)
   _  Delete a Resource           Resource Name  _____    (Optional)
   _  Update a Resource           Resource Name  _____    (Optional)

Select Resource Type:
   _  Database
   _  Program (APPLCTN)
   _  Transaction
   _  Route Code

MA     a                                                               08/005
Connected to remote server/host 192.168.0.20 using lu/pool SC0TCP01 and port 23        Acrobat PDFWriter on LPT1:
```

Option 2 – Edit a Resource Update List


```
Session A - [24 x 80]
File  Edit  View  Communication  Actions  Window  Help

EDIT          IMS HP Sysgen Tools - Add a Transaction Definition
Command ===> copy addinv_


    Primary Commands:
        COPY        Copy Attributes from an Existing Transaction Definition


Parameter    Value      Description
                                                        More:        +

Tran Code    _____   Transaction Code
PSB Name     _____   Associated PSB Name
DCLWA        YES        DC Log Write Ahead (YES or NO)
Edit Case    UC         Upper Case (UC) or Upper/Lower Case (ULC)
EDIT Name    _____   Transaction Edit Routine Module Name
FPATH        NO         Fast Path Specification (NO, YES or 12-30720)
INQUIRY      NO         Inquiry Mode (NO or YES)
RECOVER      RECOVER    Recoverable Transaction (RECOVER or NORECOV)
MAXRGN       0          Maximum regions (0-255)
MODE         MULT       Mode (SNGL or MULT)
MSGTYPE      MULTSEG    Segments (SNGLSEG or MULTSEG)
RESPONSE     NO         Response mode (NO or YES)
CLASS        1          Transaction Class (1-999)
PARLIM       NONE       Parallel Limit Count (NONE or 0-32767)
COUNT        65535      PROCLIM Count (0-65535)
SECONDS      65535      PROCLIM Time (0-65535)
MA   a                                                           02/026
Connected to remote server/host 192.168.0.20 using lu/pool SC0TCP01 and port 23       Acrobat PDFWriter on LPT1:
```

Option 2 – Edit a Resource Update List

```
EDIT        IMS HP Sysgen Tools - Add a Transaction Definition
Command ===> _____


    Primary Commands:
      COPY        Copy Attributes from an Existing Transaction Definition


Parameter    Value      Description
                                                            More:        +

Tran Code    addinv2_   Transaction Code
PSB Name     DFSSAM04   Associated PSB Name
DCLWA        NO         DC Log Write Ahead (YES or NO)
Edit Case    UC         Upper Case (UC) or Upper/Lower Case (ULC)
EDIT Name    _____   Transaction Edit Routine Module Name
FPATH        NO         Fast Path Specification (NO, YES or 12-30720)
INQUIRY      NO         Inquiry Mode (NO or YES)
RECOVER      RECOVER    Recoverable Transaction (RECOVER or NORECOV)
MAXRGN       0          Maximum regions (0-255)
MODE         SNGL       Mode (SNGL or MULT)
MSGTYPE      SNGLSEG    Segments (SNGLSEG or MULTSEG)
RESPONSE     NO         Response mode (NO or YES)
CLASS        3          Transaction Class (1-999)
PARLIM       NONE       Parallel Limit Count (NONE or 0-32767)
COUNT        65535      PROCLIM Count (0-65535)
SECONDS      65535      PROCLIM Time (0-65535)
MA    a                                                      09/020
```
Connected to remote server/host 192.168.0.20 using lu/pool SC0TCP01 and port 23   Acrobat PDFWriter on LPT1:

Option 3 – Verify a Resource Update List

```
Session A - [24 x 80]
File  Edit  View  Communication  Actions  Window  Help

VERIFY       IMS HP Sysgen Tools - Update List Selection       Row 36 to 50 of 89
Command ===> _____       Scroll ===> CUR
                                                                         More ->
      Primary Commands:
         S     Select a Member        Select one or more Resource Update Lists you
         L     Locate a Member        want to verify.  Press Enter without any
         SORT  Sort the List          changes to the screen to continue.

CMD      Name      IMSID    Status    Lines  Cr-User   Cr-Date    Ex-User   Ex-Date
  _      NEW       IMS7               11     P390M     2005.061   P390M     2005.100
  _      NEWLIST   IMS7     VERIFY    2      P390M     2005.249
  s      NEWLIST1  IMS9               1      P390M     2005.249
  s _    NEWLIST2  IMS7               1      P390M     2005.249
  _      NEWNAME   IMS6               0      P390M     2005.204
  _      NEW1      IMS9               10     P390M     2005.155   P390M     2005.155
  _      NEW2      IMS9               2      P390M     2005.111
  _      NEW3      IMS9               3      P390M     2005.111   P390M     2005.116
  _      NEW4      IMS9               3      P390M     2005.114   P390M     2005.115
  _      NEW5      IMS9               3      P390M     2005.204
  _      NEW6      IMS7               21     P390M     2005.221
  _      PART      IMS8               2      P390M     2005.100   P390M     2005.100
  _      PART2     IMS9     INSTALL   1      P390M     2005.120   P390M     2005.120
  _      PSBADD    IMS7               5      P390M     2005.058   P390M     2005.130
  _      PSBDEL    IMS7     INSTALL   3      P390M     2005.058   P390M     2005.130
MA    a                                                                    13/005
Connected to remote server/host 192.168.0.20 using lu/pool SC0TCP01 and port 23        Acrobat PDFWriter on LPT1:
```

Option 3 – Verify a Resource Update List

```
Session A - [24 x 80]
File  Edit  View  Communication  Actions  Window  Help

VERIFY      IMS HP Sysgen Tools - Update List Entries          Row 1 to 2 of 2
Command ===> _                                                 Scroll ===> CUR

IMSID    ===> IMS7   (Target IMSID - Required)

    Primary Commands:
       GO    Verify this Update List

Function    Resource    Name      List Name                         Comment
UPDATE      TRANSACT    PART      NEWLIST1   UPDATE CLASS FOR PART TRANSACTION
UPDATE      TRANSACT    ADDINV    NEWLIST2   UPDATE TRAN ADDINV TO REMOTE TRAN
******************************** Bottom of data ********************************




MA    a                                                                 02/015
Connected to remote server/host 192.168.0.20 using lu/pool SC0TCP01 and port 23        Acrobat PDFWriter on LPT1:
```
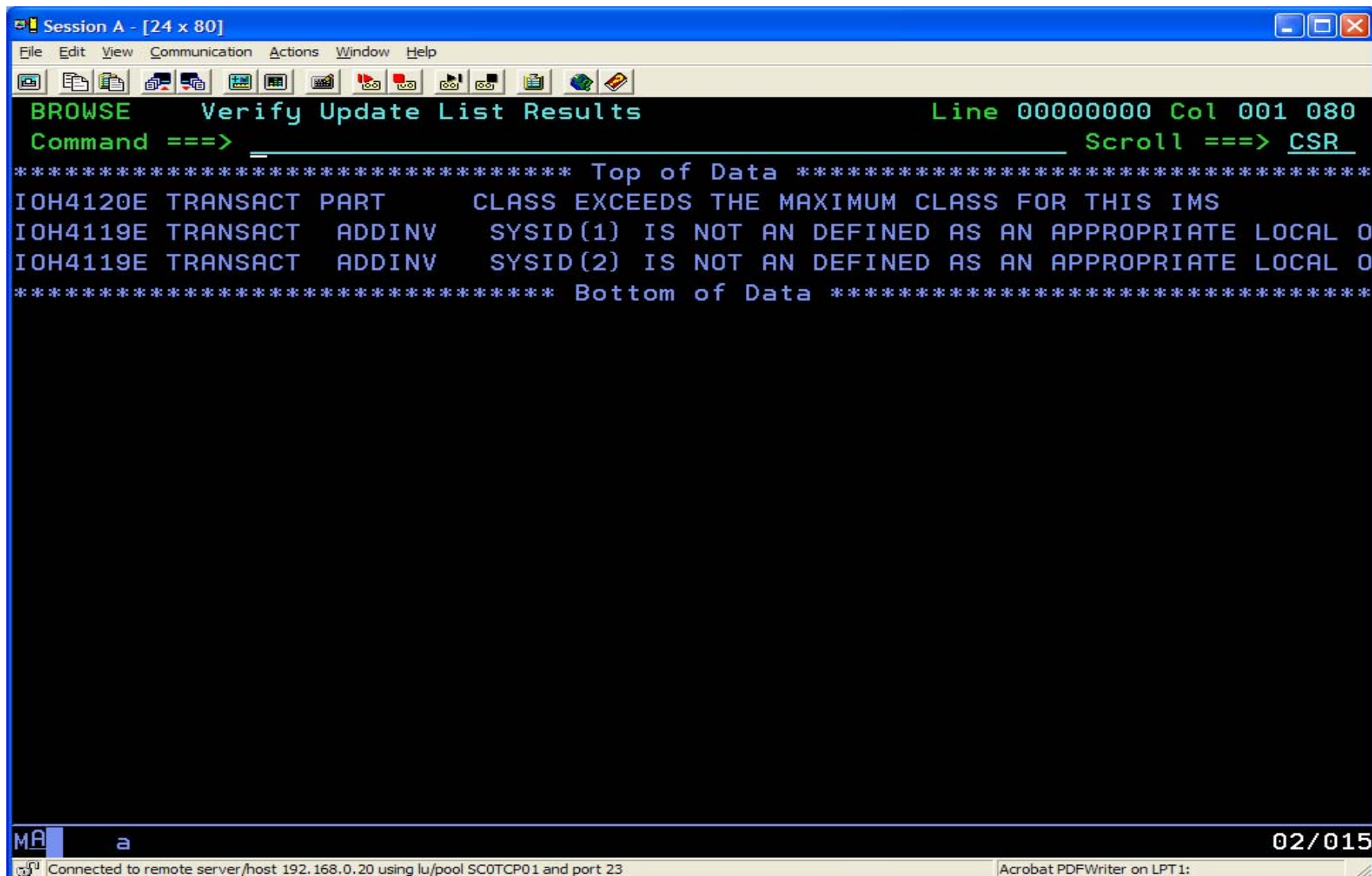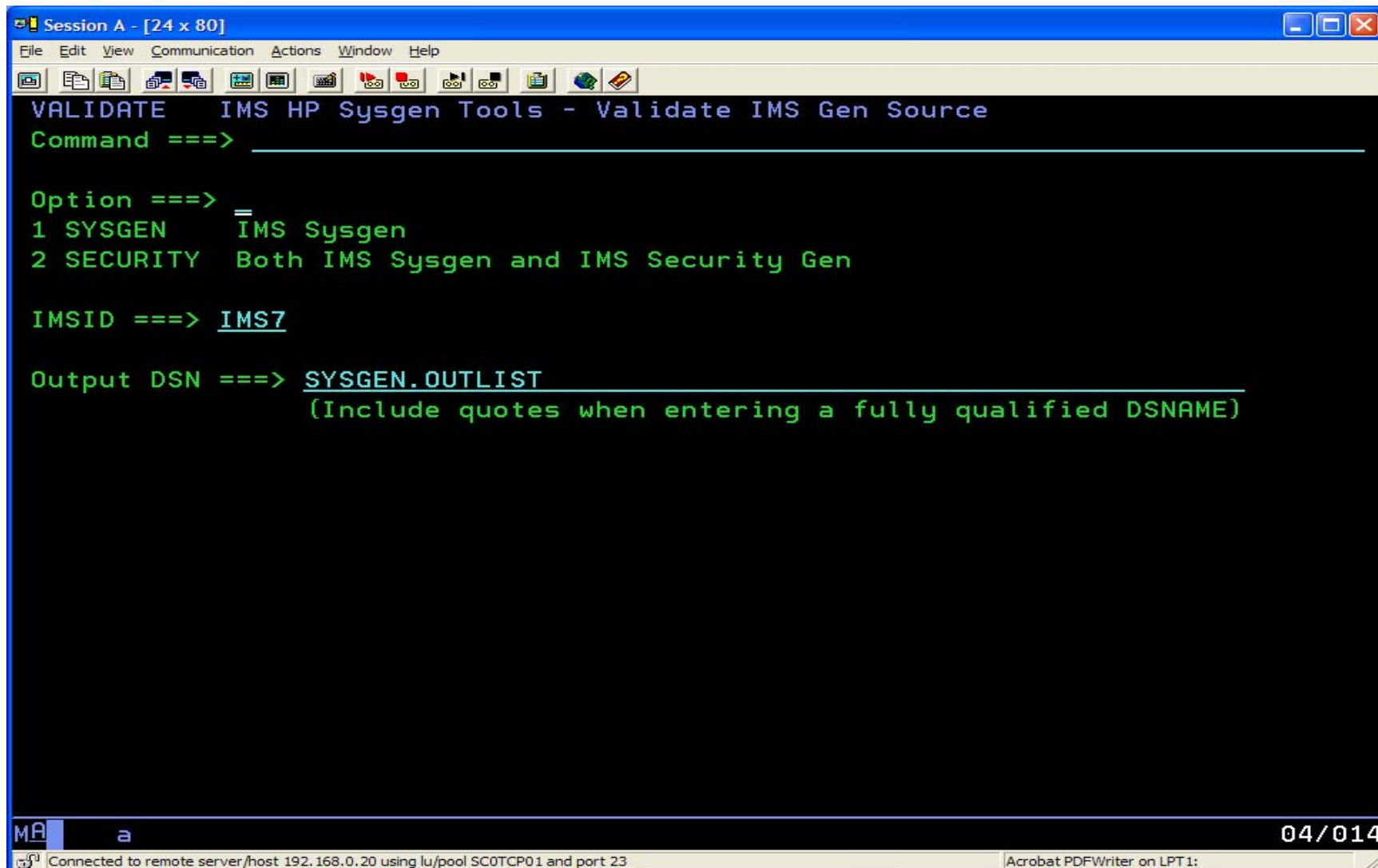
Option 3 – Verify a Resource Update List

```
Session A - [24 x 80]
File  Edit  View  Communication  Actions  Window  Help

 BROWSE        Verify Update List Results              Line 00000000 Col 001 080
 Command ===> _____  Scroll ===> CSR
********************************* Top of Data *********************************
IOH4120E TRANSACT  PART      CLASS EXCEEDS THE MAXIMUM CLASS FOR THIS IMS
IOH4119E TRANSACT  ADDINV    SYSID(1) IS NOT AN DEFINED AS AN APPROPRIATE LOCAL O
IOH4119E TRANSACT  ADDINV    SYSID(2) IS NOT AN DEFINED AS AN APPROPRIATE LOCAL O
******************************* Bottom of Data ********************************




MA       a                                                                02/015
Connected to remote server/host 192.168.0.20 using lu/pool SC0TCP01 and port 23    Acrobat PDFWriter on LPT1:
```

Option 4 – Install a Resource Update List

```
Session A - [24 x 80]
File  Edit  View  Communication  Actions  Window  Help

INSTALL      IMS HP Sysgen Tools - Update List Entries        Row 1 to 2 of 2
Command ===> _                                                Scroll ===> CUR

IMSID    ===> IMS7   (Target IMSID - Required)

    Primary Commands:
       GO    Install these Resource Update Entries

Function   Resource    Name     List Name                          Comment
UPDATE     APPLCTN    DFSSAM03   NEWLIST    NEW UPDATE LIST
ADD        TRANSACT   ADDINV2    NEWLIST    NEW UPDATE LIST
******************************** Bottom of data ********************************




MA    a                                                              02/015
Connected to remote server/host 192.168.0.20 using lu/pool SC0TCP01 and port 23    Acrobat PDFWriter on LPT1:
```

Option 4 – Install a Resource Update List

```
Session A - [24 x 80]
File  Edit  View  Communication  Actions  Window  Help

 INSTALL     Implement Update List Results              Install Successful
 Command ===> _____   Scroll ===> CSR
****************************** Top of Data ******************************
UPDATING INACTIVE MODBLKS DATASET IMS710.MODBLKSB
    MODULE     CSECT      ENTRY      SIZE     AMODE  RMODE   ATTRIBUTES
    --------   --------   --------   --------  -----  -----  --------------

    DFSDDIRI   DFSIDMD0              57F00     31     ANY    REUS
    DFSPDIRI   DFSIDIR0              AE210     31     ANY    REUS
    DFSRCTEI   DBFIRCT0                 58     31     ANY    REUS
    DFSSMB0I   DFSISMB0   DFSISMB   13E518     31     ANY    REUS
    DFSISDBI   DFSISDB0   DFSISDB    2EB40     24      24    REUS


UPDATING INACTIVE MATRIX  DATASET IMS710.MATRIXB
    MODULE     CSECT      ENTRY      SIZE     AMODE  RMODE   ATTRIBUTES
    --------   --------   --------   --------  -----  -----  --------------

    DFSISPBI   DFSISPB0                 50     31     ANY       OL
    DFSISPLI   DFSISPL0               B330     31     ANY       OL
    DFSISTBI   DFSISTB0                 30     31     ANY       OL
    DFSISTLI   DFSISTL0               4BA8     31     ANY       OL
    DFSISTCI   DFSISTC0                 28     31     ANY       OL
    DFSISTTI   DFSISTT0               4B28     31     ANY       OL


ONLINE CHANGE STATUS BEFORE INSTALLATION: MODBLKSA IMSACBB FORMATA
ONLINE CHANGE STATUS AFTER  INSTALLATION: MODBLKSB IMSACBB FORMATA
MA    a                                                          02/015
Connected to remote server/host 192.168.0.20 using lu/pool SC0TCP01 and port 23        Acrobat PDFWriter on LPT1:
```
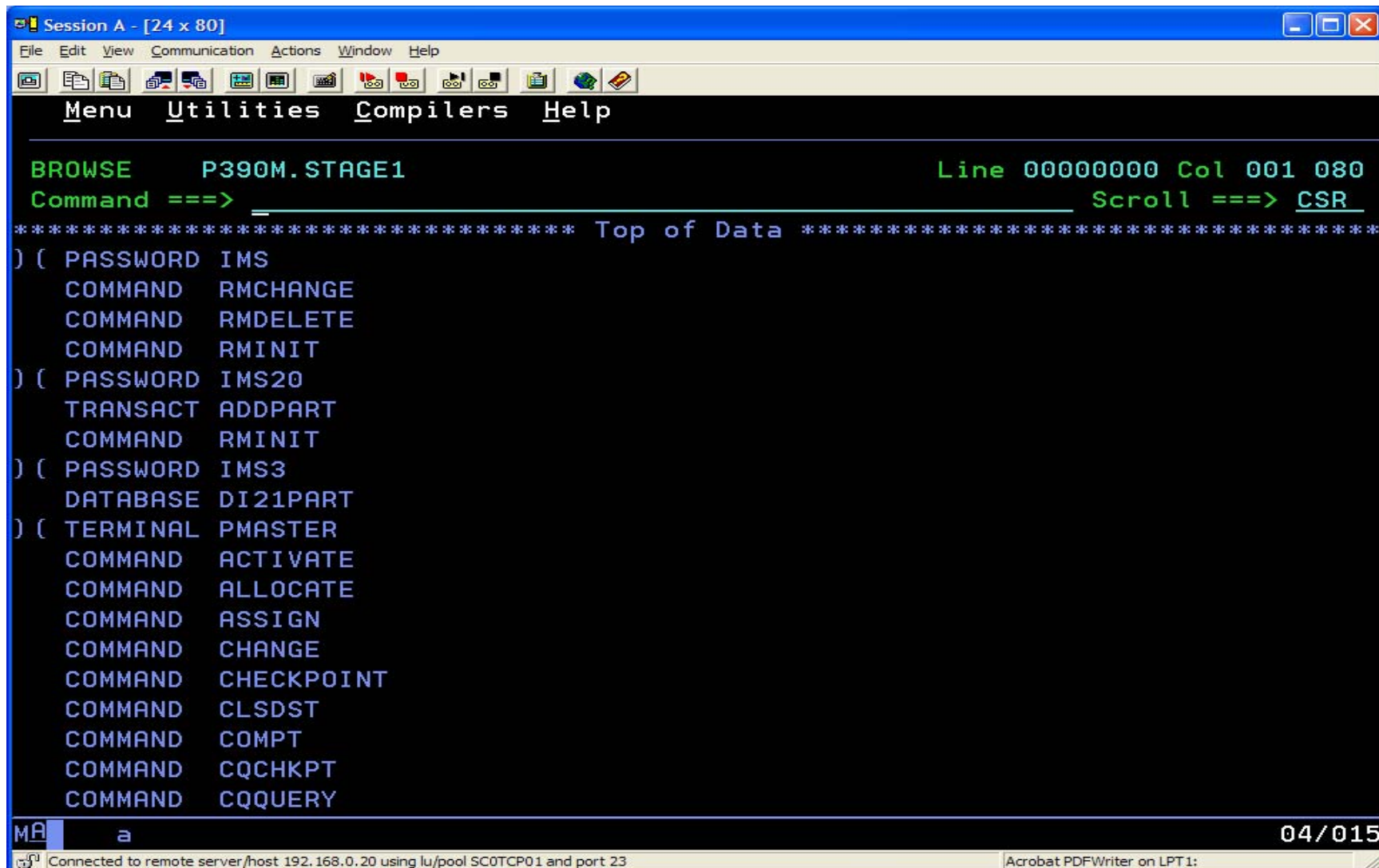
Option 5 – Verify IMS Sysgen Source

Option 7 – Reverse Sysgen Functions

```
Session A - [24 x 80]
File  Edit  View  Communication  Actions  Window  Help

  Menu    Utilities    Compilers    Help

 BROWSE      P390M.STAGE1                          Line 00003214 Col 001 080
 Command ===> _                                      Scroll ===> CSR
       DATABASE DBD=Z5TDTUDD,ACCESS=EX
       DATABASE DBD=Z5TDTUP1,ACCESS=EX
       DATABASE DBD=Z5TD01DD,ACCESS=EX
        APPLCTN PSB=$,PGMTYPE=TP
       TRANSACT CODE=$,PROCLIM=(65535,10),PRTY=(14,14,65535),MODE=SNGL, *
                DCLWA=NO,MSGTYPE=(SNGLSEG,RESPONSE,3),SCHD=3
        APPLCTN PSB=@D010101,PGMTYPE=BATCH
        APPLCTN PSB=@SUFI,PGMTYPE=BATCH
        APPLCTN PSB=@T9820,PGMTYPE=BATCH
        APPLCTN PSB=AC23011A,PGMTYPE=BATCH
       TRANSACT CODE=AC23011A,PRTY=(0,0,65535),DCLWA=NO,               *
                MSGTYPE=(MULTSEG,NONRESPONSE,9)
        APPLCTN PSB=AC24011A,PGMTYPE=TP
       TRANSACT CODE=ACRUMENU,PROCLIM=(2,10),MODE=SNGL,DCLWA=NO,       *
                MSGTYPE=(SNGLSEG,RESPONSE,3)
        APPLCTN PSB=AC24111A,PGMTYPE=TP
       TRANSACT CODE=ACRUCOH1,PROCLIM=(2,10),MODE=SNGL,DCLWA=NO,       *
                MSGTYPE=(SNGLSEG,RESPONSE,3)
        APPLCTN PSB=AC24211A,PGMTYPE=TP
       TRANSACT CODE=ACRUINQG,PROCLIM=(2,10),MODE=SNGL,DCLWA=NO,       *
MA      a                                                              04/015
 Connected to remote server/host 192.168.0.20 using lu/pool SC0TCP01 and port 23          Acrobat PDFWriter on LPT1:
```

Option 7 – Reverse Sysgen Functions

```
Session A - [24 x 80]
File  Edit  View  Communication  Actions  Window  Help

   Menu    Utilities    Compilers    Help

 BROWSE      P390M.STAGE1                          Line 00000000 Col 001 080
 Command ===> _                                         Scroll ===> CSR
********************************** Top of Data **********************************
) ( PASSWORD IMS
    COMMAND  RMCHANGE
    COMMAND  RMDELETE
    COMMAND  RMINIT
) ( PASSWORD IMS20
    TRANSACT ADDPART
    COMMAND  RMINIT
) ( PASSWORD IMS3
    DATABASE DI21PART
) ( TERMINAL PMASTER
    COMMAND  ACTIVATE
    COMMAND  ALLOCATE
    COMMAND  ASSIGN
    COMMAND  CHANGE
    COMMAND  CHECKPOINT
    COMMAND  CLSDST
    COMMAND  COMPT
    COMMAND  CQCHKPT
    COMMAND  CQQUERY
MA   a                                                                  04/015
Connected to remote server/host 192.168.0.20 using lu/pool SC0TCP01 and port 23      Acrobat PDFWriter on LPT1:
```

Option 8.1 – View History Log

```
Session A - [24 x 80]                                                    _ □ x
File  Edit  View  Communication  Actions  Window  Help
[toolbar icons]
 LOG          IMS HP Sysgen Tools - HP Sysgen Log Information   Row 1 to 14 of 153
 Command ===> _____   Scroll ===> CSR

    Primary Commands:                      Line Commands:
       SORT Sort the Log Entries              S View Entry Details
          L Locate a Log Entry                Y Change GEN SRC to YES
                                              N Change GEN SRC to NO

 IMSID ===> IMS7
                                                                          GEN
 CMD   Function   Resource    Name      List      Userid        Time      SRC
   _   ADD        TRANSACT   ADDINV2   NEWLIST   P390M    2005.249 10:34:2  NO
   _   UPDATE     PROGRAM    DFSSAM03  NEWLIST   P390M    2005.249 10:34:2  NO
   _   COMMAND    /STA       DB                  P390M    2005.248 06:01:0
   _   ADD        PROGRAM    DBUPD03   JIM       P390M    2005.248 06:00:3  NO
   _   ADD        DATABASE   DB001     JIM       P390M    2005.248 06:00:3  NO
   _   COMMAND    /STA       DB                  P390M    2005.248 05:50:4
   _   ADD        DATABASE   DBV06S1   JIM3      P390M    2005.248 05:50:0  NO
   _   COMMAND    /STA       DB                  P390M    2005.248 05:46:0
   _   ADD        DATABASE   DBV06     JIM2      P390M    2005.248 05:45:4  NO
   _   ADD        PROGRAM    DBUPD01   JIM       P390M    2005.248 05:43:0  NO
   _   ADD        DATABASE   DBV01     JIM       P390M    2005.248 05:43:0  NO
   _   UPDATE     DATABASE   DI21PART  DBDUPD    P390M    2005.247 19:56:2  NO
   _   UPDATE     PROGRAM    DFSSAM02  PSBUPD    P390M    2005.247 19:56:2  NO
   _   UPDATE     PROGRAM    DFSSAM02  PSBUPD    P390M    2005.247 18:22:1  NO
 MA     a                                                               02/015
 Connected to remote server/host 192.168.0.20 using lu/pool SC0TCP01 and port 23    Acrobat PDFWriter on LPT1:
```
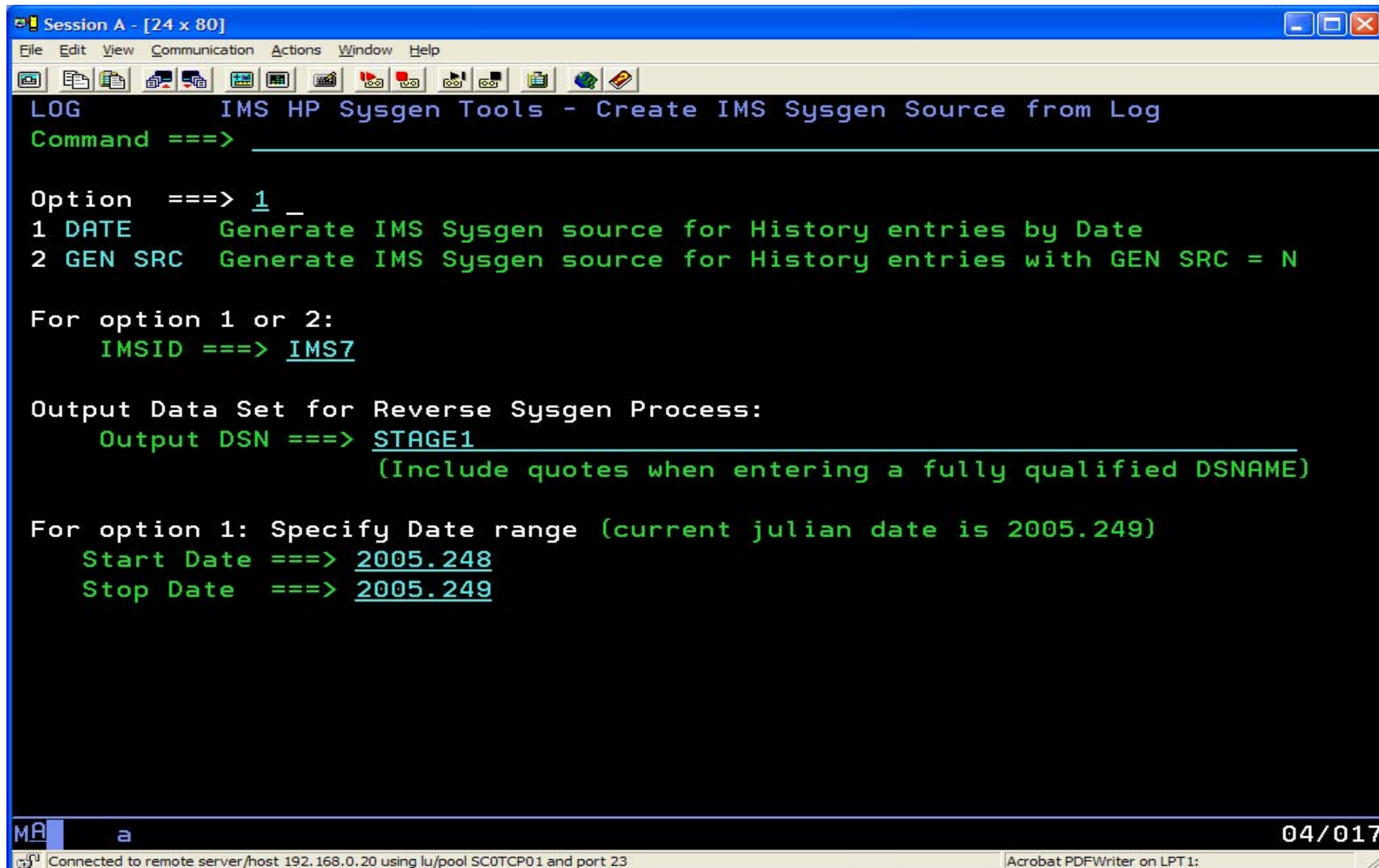
Option 8.2 – Reverse History Log

```
Session A - [24 x 80]
File  Edit  View  Communication  Actions  Window  Help

LOG          IMS HP Sysgen Tools - Create IMS Sysgen Source from Log
Command ===>


Option  ===> 1

1 DATE      Generate IMS Sysgen source for History entries by Date
2 GEN SRC   Generate IMS Sysgen source for History entries with GEN SRC = N


For option 1 or 2:
    IMSID ===> IMS7


Output Data Set for Reverse Sysgen Process:
    Output DSN ===> STAGE1
                    (Include quotes when entering a fully qualified DSNAME)


For option 1: Specify Date range (current julian date is 2005.249)
   Start Date ===> 2005.248
   Stop Date  ===> 2005.249




MA      a                                                           04/017
Connected to remote server/host 192.168.0.20 using lu/pool SC0TCP01 and port 23        Acrobat PDFWriter on LPT1:
```

Option 8.2 – Reverse History Log

Session A - [24 x 80]

File Edit View Communication Actions Window Help

Menu   Utilities   Compilers   Help

```
 BROWSE      P390M.STAGE1                              Line 00000008 Col 001 080
 Command ===> _                                            Scroll ===> CSR
* DATABASE DBV06    WAS ADDED     BY P390M      ON 2005.248 05:45:46
     DATABASE DBD=DBV06,ACCESS=EX
*
* DATABASE DBV06S1  WAS ADDED     BY P390M      ON 2005.248 05:50:07
     DATABASE DBD=DBV06S1,ACCESS=EX
*
* APPLCTN  DBUPD01  WAS ADDED     BY P390M      ON 2005.248 05:43:08
     APPLCTN PSB=DBUPD01,PGMTYPE=BATCH
*
* APPLCTN  DBUPD03  WAS ADDED     BY P390M      ON 2005.248 06:00:39
     APPLCTN PSB=DBUPD03,PGMTYPE=BATCH
*
* APPLCTN  DFSSAM03 WAS UPDATED   BY P390M      ON 2005.249 10:34:28
     APPLCTN PSB=DFSSAM03,PGMTYPE=TP,SCHDTYP=PARALLEL
*
* TRANSACT ADDINV2  WAS ADDED     BY P390M      ON 2005.249 10:34:28
* THIS TRANSACTION ASSOCIATED WITH APPLCTN NAME DFSSAM04
     TRANSACT CODE=ADDINV2,PRTY=(2,4,2),MODE=SNGL,DCLWA=NO,              *
             MSGTYPE=(SNGLSEG,NONRESPONSE,3)
******************************* Bottom of Data *******************************
```

MA   a   04/015

Connected to remote server/host 192.168.0.20 using lu/pool SC0TCP01 and port 23   Acrobat PDFWriter on LPT1:

Option 8.4 – Undo


```
Session A - [24 x 80]
File  Edit  View  Communication  Actions  Window  Help

UNDO          IMS HP Sysgen Tools - Select Resource Updates to Row 1 to 14 of 148
Command ===> _____ Scroll ===> CSR

Select entries to undo with a U and press Enter with no changes to continue.

      Primary Commands:                        Line Commands:
         SORT Sort the Log Entries                S View Entry Details
            L Locate a Log Entry                  U Create an UNDO Entry
                                                                          GEN
CMD  Function   Resource    Name      List      Userid          Time      SRC
 _   UPDATE     PROGRAM     DFSSAM03  NEWLIST   P390M    2005.249 10:34:2  NO
 _   ADD        TRANSACT    ADDINV2   NEWLIST   P390M    2005.249 10:34:2  NO
 _   ADD        PROGRAM     DBUPD03   JIM       P390M    2005.248 06:00:3  NO
 _   ADD        DATABASE    DB001     JIM       P390M    2005.248 06:00:3  NO
 _   ADD        DATABASE    DBV06S1   JIM3      P390M    2005.248 05:50:0  NO
 _   ADD        DATABASE    DBV06     JIM2      P390M    2005.248 05:45:4  NO
 _   ADD        DATABASE    DBV01     JIM       P390M    2005.248 05:43:0  NO
 _   ADD        PROGRAM     DBUPD01   JIM       P390M    2005.248 05:43:0  NO
 _   UPDATE     PROGRAM     DFSSAM02  PSBUPD    P390M    2005.247 19:56:2  NO
 _   UPDATE     DATABASE    DI21PART  DBDUPD    P390M    2005.247 19:56:2  NO
 _   UPDATE     PROGRAM     DFSSAM02  PSBUPD    P390M    2005.247 18:22:1  NO
 _   UPDATE     DATABASE    DI21PART  DBDUPD    P390M    2005.247 18:22:1  NO
 _   UPDATE     TRANSACT    ADDINV    ADDINV    P390M    2005.247 17:59:3  NO
 _   UPDATE     PROGRAM     DFSSAM02  PSBUPD    P390M    2005.247 11:56:1  NO
MA   a                                                                   02/015
Connected to remote server/host 192.168.0.20 using lu/pool SC0TCP01 and port 23    Acrobat PDFWriter on LPT1:
```
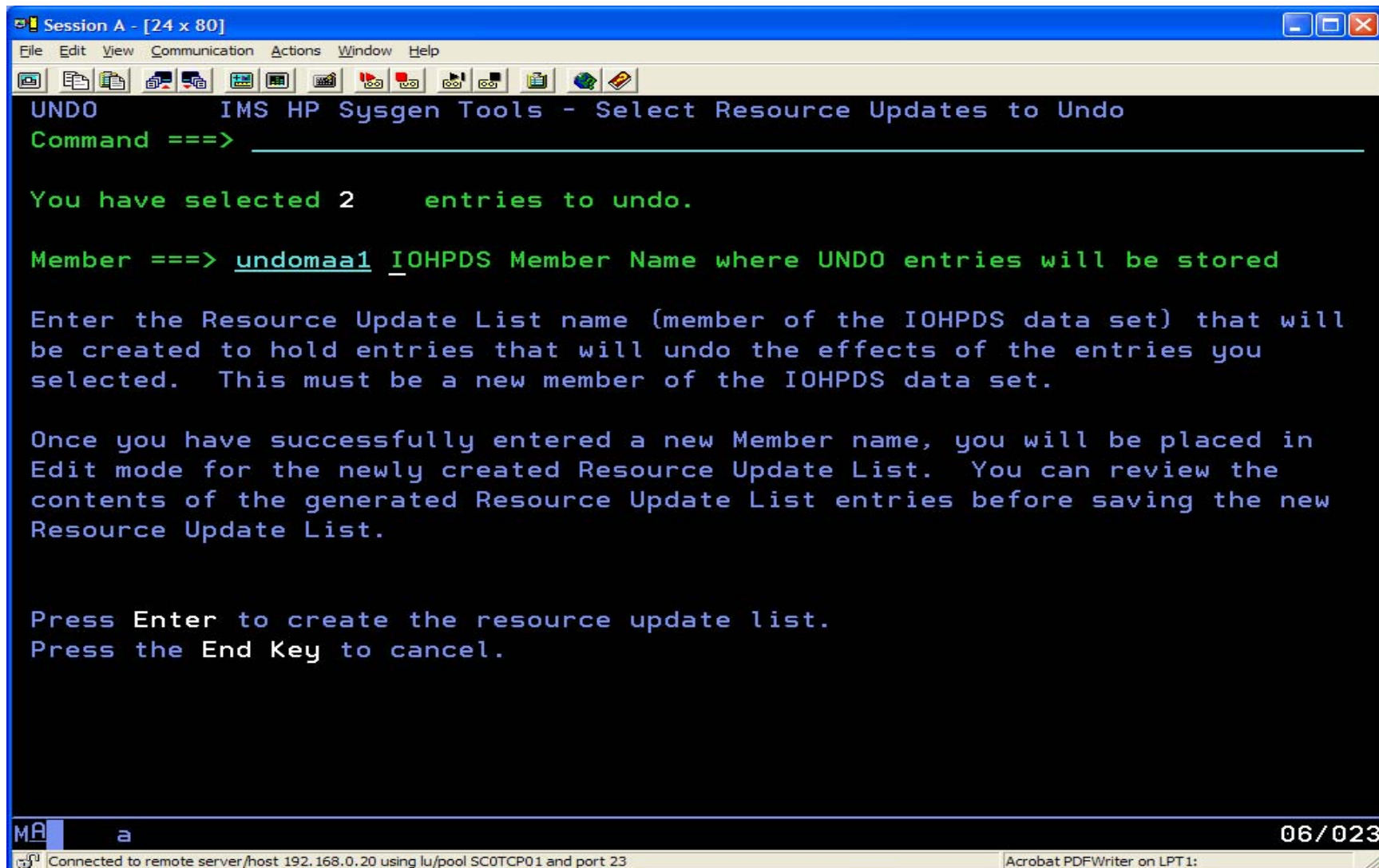
Option 8.4 – Undo


```
Session A - [24 x 80]
File  Edit  View  Communication  Actions  Window  Help

 UNDO          IMS HP Sysgen Tools - Select Resource Updates to Undo
 Command ===> _____

 You have selected 2      entries to undo.

 Member ===> undomaa1 IOHPDS Member Name where UNDO entries will be stored

 Enter the Resource Update List name (member of the IOHPDS data set) that will
 be created to hold entries that will undo the effects of the entries you
 selected.  This must be a new member of the IOHPDS data set.

 Once you have successfully entered a new Member name, you will be placed in
 Edit mode for the newly created Resource Update List.  You can review the
 contents of the generated Resource Update List entries before saving the new
 Resource Update List.



 Press Enter to create the resource update list.
 Press the End Key to cancel.




MA      a                                                              06/023
Connected to remote server/host 192.168.0.20 using lu/pool SC0TCP01 and port 23          Acrobat PDFWriter on LPT1:
```

Option 8.4 – Undo


```
Session A - [24 x 80]
File  Edit  View  Communication  Actions  Window  Help

EDIT        IMS HP Sysgen Tools - Update List Entries      Row 1 to 2 of 2
Command ===> _____      Scroll ===> CUR

IMSID   ===> IMS7   (Target IMSID - Required)
Comment ===> UNDO

   Primary Commands:              Line Commands:
      Ins  Insert an Entry        D Delete an Entry    S Edit an Entry
      COPY Copy an Update List     I Insert an Entry    R Replicate an Entry
      CAN  Cancel (do not save)

CMD    Function    Resource     Name
 _     DELETE      TRANSACT     ADDINV2
 _     UPDATE      PROGRAM      DFSSAM03
******************************** Bottom of data ********************************




MA    a                                                                 02/015
Connected to remote server/host 192.168.0.20 using lu/pool SC0TCP03 and port 23      Acrobat PDFWriter on LPT1:
```
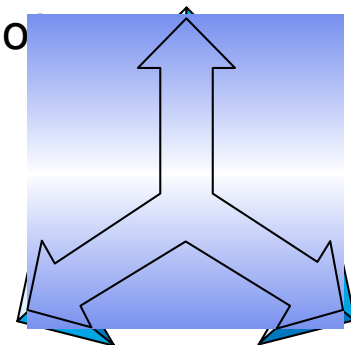
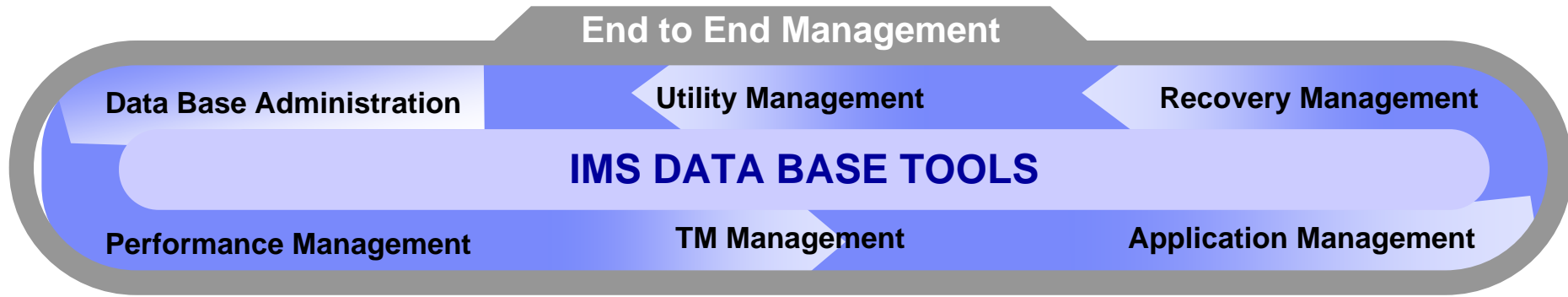# IMS Queue Control Facility, V2.1 5697-I08

- Helps manage your IMS message queues with ease & efficiency in both shared & nonshared queue environments

- Functions**:**
  - ▶ Addition of an IMS QCF/DBRC interface for:
    - • Automated solution for cold queue recovery for IMS/SMQ
    - • Automated selection & dynamic allocation of IMS log data sets
    - • Automated selection of an IMS system checkpoint ID
  - ▶ Implementation of the SAF/RACF security interface
  - ▶ Sysplex support
  - ▶ Messages requeued between different LTERMs and OTMA

- Your Value:
  - ▶ Improved system availability - eliminates programs causing the queue to overflow and take down the system
  - ▶ Testing aid – regression, stress, and application program testing when test data is needed to simulate production loads or application program input
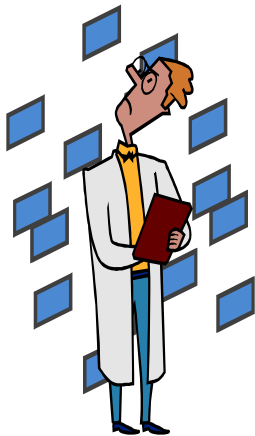
IMS Workload Router, V2.4 5697-B87

- Works with IMS TM to provide transparent routing or balancing o transaction workload among two or more IBM systems.

- Functions:
  - Adaptable to a variety of system configurations
  - Utilizes Multiple Systems Coupling (MSC) communications links
  - Non-Sysplex Environment - exploit benefits of MSC for workload distribution
  - Sysplex Environment - exploits IMS cloned resource environment
  - Connects two or more Parallel Sysplex

- Your Value:
  - In a Sysplex environment:
    - Increased system availability - IMS subsystems can be added without changing applications and scheduled maintenance can be done without shutting down
    - Reduced time and expense – more manageable than with multiple, stand-alone processors
    - Flexibility in configuring work loads

End to End Management

Data Base Administration	Utility Management	Recovery Management

IMS DATA BASE TOOLS

Performance Management	TM Management	Application Management

IMS Tools – Application Management

- IMS Batch Backout Manager
- IMS Batch Terminal Simulator
- IMS Connect Extensions
- IMS MFS Reversal Utilities
- IMS Program Restart Facility

IMS Batch Backout Manager, V1.1 5697-H75

- Global or Inclusion controls

- Automates batch backout process
    - ▶ Dynamically allocates an interim SLDS for Log close
    - ▶ Closes the interim batch SLDS
    - ▶ Dynamically allocates the new batch SLDS for backout
    - ▶ Performs the batch backout:
        - •Forces allocation of batch SLDS for jobs with no logs allocated (by specific or generic job name)
        - •Forces DBRC=Y (or DBRC=N) for IMS batch systems not generated with DBRC=FORCE

- Automatic Logging
    - ▶ Forces the allocation of batch SLDS for jobs with no logs allocated (by specific or generic job name)
    - ▶ Forces DBRC=Y or DBRC=N (by specific or generic job name)
    - ▶ Enforce log standards and override JCL logs

- Bypass logging
    - ▶ Avoid the overhead of logging even when running in a DBRC=FORCE
    - ▶ small log allocated/recorded in DBRC
    - ▶ no logging or backout
    - ▶ IMS logging usermod required

IMS Batch Terminal Simulator (BTS), V3.1 5655-J57

- Simulates operation of IMS applications in TSO or Batch environments

- Functions:

  - Playback Utility:

    - generates the BTSIN control statement using corresponding MFS associated with the MODNAME from IMS transaction log records
    - prints screen images of transactions including data, USER/LTERM identification, time stamp by extracting from BTSOUT

  - Supports JAVA language application under JBP region

  - Supports DB2 and Web Sphere MQ call trace

  - Supports LU6.2/APPC

  - Supports /EXIT under LE/370

- Your Value:

  - Automates testing & debugging of application program call logic

  - Enhanced DBA productivity with testing and checking of IMS databases

  - Evaluate impact of new applications
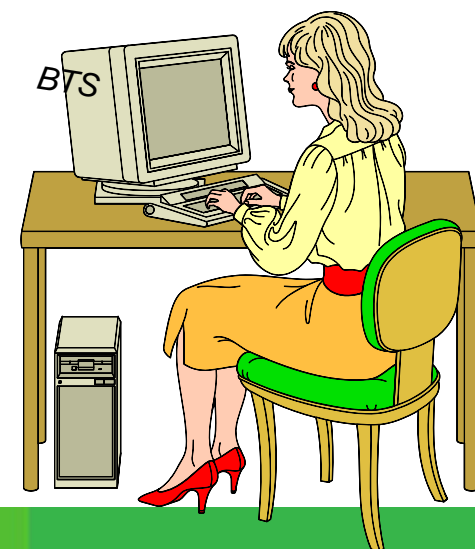
IMS Connect Extensions, V1.2 5655-K48

- Measures & analyzes activities within your IMS Connect system

- Functions:
  - ▶ Availability extensions provide enhanced services for user exits, transaction pacing, dynamic routing, workload balancing and extended control and reporting
  - ▶ Transaction pacing feature protects against overloading IMS or IMS Connect
  - ▶ Rejects transactions when user defined thresholds exceeded

- Your Value:
  - ▶ Provides performance enhancements IMS Connect
  - ▶ Users can monitor and display IMS Connect activity
  - ▶ Powerful performance and problem analysis tool for examining the details and timing of internal IMS Connect events
  - ▶ Improves system security

Enhancements

Active session display

- Real-time data on the state of all active sessions
- Session details
- Available using an ISPF dialog or through a batch utility

Summary view of active sessions

- View a snapshot of all active sessions
- Identify sessions with long wait times
- Use filters to select sessions based on conditions
- Use forms to customize the display

```
  File   Menu   Form   Filter   Help

EDIT                        Active Sessions                    Form saved
Command ===> _____       Scroll ===> PAGE

Session Wait Time . . .____  (Seconds)  /  Include persistent sockets

                                                Session             Session
    Port   Socket   Event                    Start Time          Wait Time

 _  3702      2   READ socket                08.49.53.386379   06.28.59.487394
 _  3702      2   Message Exit returned from 08.49.53.386379   06.28.59.487394
 _  3702      2   Message sent to OTMA       08.49.53.386379   06.28.59.487394
 _  3702      2   Message received from OTMA 08.49.53.386379   06.28.59.487394
 _  3702      2   Message Exit returned from 08.49.53.386379   06.28.59.487394
 _  3702      2   Trigger Event              08.49.53.386379   06.28.59.487394
```

Sort by any column

Filter sessions displayed by time in current status

Show or hide persistent sockets in Read Prepare status

IMS MFS Reversal Utilities, V1.1 5655-F45

- Converts MFS control blocks into MFS source and compares MFS libraries

- Functions:
  - ▶ MFS Reversal Utility - converts MFS MID/MOD/DIF/DOF control blocks back into IMS MFS utility control statements.
  - ▶ Provides summary reports of the IMS FORMAT library, including the relationships among members
  - ▶ MFS Compare Utility - compares two sets of MFS source libraries to quickly highlight differences between them
- Your Value:
  - ▶ Validation of what is operating in an IMS environment
  - ▶ Recreation of lost MFS source libraries

IMS Program Restart Facility, V2 5655-E14

- Restarts abended IMS batch jobs and enhances IMS Application Extended Checkpoint/Restart facilities

- Functions:
  - ▶ Enables restart on any system in Sysplex without changes to JCL
  - ▶ Used to restart programs that do not abend but end with a non-zero return code
  - ▶ Can supply global parameters to all batch/BMP jobs (i.e.. without JCL changes)
  - ▶ Useful in a data sharing environment to provide JCL parameters
    - • IRLM=, IRLMNM=
    - • IMSGROUP=groupname + list of IMS ids in group
  - ▶ Automatically uses the correct restart checkpoint ID if using the IMS Extended Restart facility

- Your Value:
  - ▶ Helps you avoid costly and time-consuming database recoveries with manual restarts
  - ▶ Reduces the overhead of applications that take too frequent checkpoints
  - ▶ Protects against starting an abended job with a valid but incorrect checkpoint ID

Summary

- **Data Management Tools is a strategic part of IBM Data Management**

- **We have made significant investments in these products**

- **We have been delivering new products and features in short order**

- **We remain flexible and responsive to customer needs**

- **IBM Data Management Tools for IMS on the web:**
    - ▸ **www.ibm.com/software/data/db2imstools/**