

IMS 12 User Experience

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March 14, 2012
Session Number #10803



Disclaimer

- These are TI's experiences; your mileage may vary
- This is not meant to be an overview of IMS 12
 - Only items of interest to TI are discussed
- Point of view of an IMS systems programmer
- TI does not have IMS 12 in production yet
 - Currently on development and test systems
 - Scheduled for first production install in May 2012

Agenda

- About TI
- QPP
- IMS Environment
 - User modifications
- Installation
- New Features Tested
- “Gotchas”

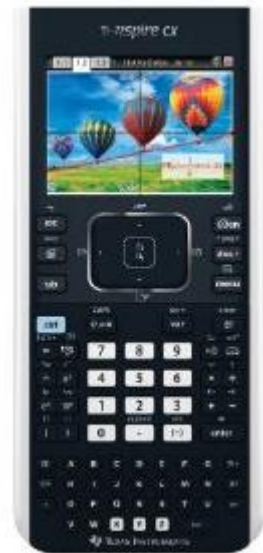
About Texas Instruments

- Semiconductor (Analog, DSP, Wireless, DLP®)
- Education Technology
- Headquartered in Dallas, Texas
- Sales, design, manufacturing sites worldwide
- 35,100 employees
- Revenue: US\$ 13.735 billion (2011)

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IMS Quality Partnership Program (QPP)

- IMS early support program for new releases
 - QPP customers involved through entire process
 - Many QPP customers go into production before GA
- Benefits for IBM
 - Technical issues can be identified and addressed early on
 - Code is tested in various customer environments
 - Product readiness for GA
- Benefits for QPP customers
 - Provide feedback on design and implementation
 - Develop relationship with IMS development team
 - Early look at release; evaluate impact
- IMS 12: QPP code (Jan 2011); GA (Oct 2011)

IMS Environment

- What we use
 - IMS 11 & 12 DB/DC
 - MSC
 - MQ
 - DB2
 - CSL
 - Simplified configuration
 - TSO SPOC and OM Audit Trail
 - DRD (via SPOC and RTD)
 - HALDB (*new*)
 - In-house written PSE
 - IMS Connect (*new*)
 - OTMA Destination Descriptors
- What we do *not* use
 - Fast Path
 - Shared Queues
 - Data Sharing
 - Java
 - Open Database

IMS Test Environment

- VM
 - 5 IMS control regions running on 4 VM guests; can be MSC-connected
 - Started as needed, usually only during normal business hours
 - Only systems programmers
- DV
 - Single IMS control region on stand-alone z/OS
 - Generally up 24/7; can be taken down as needed
 - Mostly systems programmers, occasionally DBAs
- YR/Y2
 - 2 IMS control regions, each on separate z/OS; MSC-connected
 - Up 24/7; semi-monthly scheduled maintenance windows
 - Applications, DBAs, and systems programmers
- ADS
 - Single IMS control region, running on same z/OS as commercial production
 - Up 24/7; can be taken down with prior notification and approval
 - Applications

IMS Production Environment

- Commercial
 - Four IMS control regions spread across two z/OS images
 - Order planning, supply chain, financials, job scheduling
 - Up 24/7; quarterly maintenance windows
- Manufacturing
 - Three IMS control regions, each on separate z/OS
 - Semiconductor Manufacturing System (SMS)
 - Up 24/7; yearly maintenance windows
- ~16 million transactions per day
- All production IMSs are MSC-connected

User Modifications

- 90 user modifications needed in our environment
 - Most created decades ago
 - Reliability, availability, serviceability
 - Many directly modify IBM code (!!!)
- Usermods to IBM code have slowly gone down over time
 - Example: internally replaced TI dynamics (RTD) with DRD
- Challenge: refit user modifications for new IMS release
- IMS 12: all user modifications fit without significant change
 - Able to test IMS 12 with all TI user modifications
 - IMS 12 was second QPP where we were able to do this

Installation (QPP)

- SMP/E and IVP (02/03/2011)
 - No major issues
 - DFSDDEF1 did not include SCEEMAC; APAR PM31505, PM44763
- VM (03/04/2011)
 - Brought up IMS 12 with all TI user modifications
 - 79 testplans; test user modifications and other base functionality
 - New RDDS created from MODBLKS (DFSURCM0 utility)
 - New RECONs allocated and initialized
- DV (09/27/2011)
 - First time to install during QPP
 - Used existing RDDS (no MODBLKS)
 - Upgraded existing RECONs
 - CA OPS/MVS; IBM Fault Analyzer and File Manager
 - Tested back-out to IMS 11 with DBRC coexistence PTF UK62971

Installation (GA)

- DV back-out to IMS 11 (10/27/2011)
 - Due to manufacturing down schedule and SVC charging
 - VM remained at IMS 12 (limited license)
- SMP/E (11/28/2011)
- DV (02/02/2012)
 - RECONs already upgraded
- Y2 (02/14/2012)
- YR (03/07/2012 tentative)
- ADS (03/21/2012 tentative)

New Feature Testing

- /DIAG Enhancement
- IMS Connect Type-2 Commands
- IMS Connect CM0 ACK NoWait
- Dynamic Database Buffer Pools
- Repository

/DIAG Enhancement

- TI has IMSLOOK, which displays storage to an Lterm
 - User modification + transaction
 - Similar to new /DIAG output to an Lterm

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2 - (vmprod) For help see - http://www.1itg.ti.com/tn3270
File Edit Transfer Fonts Options Tools View Window Help
: Enter Clear Attention

IMSLOOK SCD
00BEE998 E2E2C3C4 0000FAFE 00000000 0AF307FE *SSCD.....3.*
00BEE9A8 00619B01 12103853 02004200 C9D4E2C2 *.....IMSB*
00BEE9B8 40404040 00BDAFB0 89AC2000 00000000 *.....i.....*
00BEE9C8 00007043 00FC4E80 00470048 008A7A28 *.....*
00BEE9D8 008FF358 70FC0007 C9D4E2C2 40404040 *.3....IMSB *
00BEE9E8 D1D6C2F0 F0F1F0F2 00BEE9CC 00BEEAD4 *J0B00102.Z...M*
00BEE9F8 00BEEB58 00BEECAC 00BEECC4 00BEEED84 *.....D...d*
00BEEA08 00BEEDE0 00BEE18 00BEE5C 00BDB000 *.....*
00BEEA18 00BEEEB8 00BEEED4 00BEEEE4 00BEEF28 *.....M...U...*
00BEEA28 00BEF018 00BEF108 00BEF178 00BEF4BC *.0...1...1...4.*
00BEEA38 00BEF4F4 00BEF5A0 00BEF614 00BEF620 *.44..5...6...6.*
00BEEA48 00BEF644 00BEF674 00BEF720 00BEF7B0 *.6...6...7...7.*
00BEEA58 00000000 098EFBC0 09A4B000 09A51A88 *.....u...v.y*
00BEEA68 09AFCDA8 00FD6DC0 1BFF07FE 89A74000 *.y..._...ix.*
00BEEA78 89A9C970 09B09174 89ABA000 00BDBF00 *izI...j.i.....!
00BEEA88 00BDBFD0 001A00FF 023E5DF0 00BEE998 *.....0..Zq*
00BEEA98 0000AAA0 00030000 00000000 00BF0898 *.....*
00BEEAAB 00FAFE30 0A4A07E8 09A35698 09ADE140 *.....Y.t.q...!
00BEEAB8 098E2A80 58F0F000 0BEF58E0 E0000B0E *.....00.....*
00BEEAC8 58E0D00C 9501D00F 0B0E0000 09A8C1C9 *.....o.....yAI*
00BEEAD8 001983D8 00BD7000 00BD4070 001C8080 *..cQ.....*
00BEEAEB 00000BB8 00000A11 00000000 00051000 *.....*
00BEEAF8 00195000 00020080 00000000 00000000 *.....*
2 Sess-1 157.170.179.206 1/2
  
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2 - (vmprod) For help see - http://www.1itg.ti.com/tn3270
File Edit Transfer Fonts Options Tools View Window Help
: Enter Clear Attention

/DIAGNOSE SNAP STORAGE DISPLAY

SCD System Contents Directory Loc: 00BEE998
-----
0000 E2E2C3C4 0000FAFE 00000000 0AF307FE !SSCD.....3.!
0010 00619B01 12103853 02004200 C9D4E2C2 !/.....IMSB!
0020 40404040 00BDAFB0 89AC2000 00000000 !.....i.....!
0030 00007043 00FC4E80 00470048 008A7A28 !.....+.....!
0040 008FF358 70FC0007 C9D4E2C2 40404040 !.3....IMSB !
0050 D1D6C2F0 F0F1F0F2 00BEE9CC 00BEEAD4 !J0B00102.Z...M!
0060 00BEEB58 00BEECAC 00BEECC4 00BEEED84 !.....D...d!
0070 00BEEDE0 00BEE18 00BEE5C 00BDB000 !.....%...!
0080 00BEEEB8 00BEEED4 00BEEEE4 00BEEF28 !.....M...U...!
0090 00BEF018 00BEF108 00BEF178 00BEF4BC !.0...1...1...4.!
00A0 00BEF4F4 00BEF5A0 00BEF614 00BEF620 !.44..5...6...6.!
00B0 00BEF644 00BEF674 00BEF720 00BEF7B0 !.6...6...7...7.!
00C0 00000000 098EFBC0 09A4B000 09A51A88 !.....u...v.y!
00D0 09AFCDA8 00FD6DC0 1BFF07FE 89A74000 !.y..._...ix.!
00E0 89A9C970 09B09174 89ABA000 00BDBF00 !izI...j.i.....!
00F0 00BDBFD0 001A00FF 023E5DF0 00BEE998 !.....)0..Zq!
0100 0000AAA0 00030000 00000000 00BF0898 !.....*!
0110 00FAFE30 0A4A07E8 09A35698 09ADE140 !.....[.Y.t.q...!
2 Sess-1 157.170.179.206 1/2
  
```

/DIAG Enhancement

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File Edit Transfer Fonts Options Tools View Window Help
: [Icons] [PR1] [PR2] [PR3] Enter Clear Attention

IMSLOOK SCD
00BED998 E2E2C3C4 0000FC30 00000000 0AF307FE *SSCD.....3..*
00BED9A8 00619B01 12103853 02004200 C9D4E2C2 *.....IMSB*
00BED9B8 40404040 00BD9FB0 89AC7000 00000000 *.....i.....*
00BED9C8 00007043 00FC4E80 003F0040 008A7C58 *.....@.*
00BED9D8 008FF358 70FC0007 C9D4E2C2 40404040 *..3.....IMSB *
00BED9E8 D1D6C2F0 F0F0F3F5 00BED9CC 00BEDAD4 *JOB00035..R...M*
00BED9F8 00BEDB58 00BEDCAC 00BEDCC4 00BEDD84 *.....D...d*
00BEDA08 00BEDDE0 00BEDE18 00BEDE6C 00BDA000 *.....*
00BEDA18 00BEDEB8 00BEDED4 00BEDEE4 00BEDF28 *.....M...U...*
00BEDA28 00BEE018 00BEE108 00BEE178 00BEE4BC *.....U.*
00BEDA38 00BEE4F4 00BEE5A0 00BEE614 00BEE620 *..U4..V...W...W.*
00BEDA48 00BEE644 00BEE674 00BEE720 00BEE7B0 *..W...W...X...X.*
00BEDA58 00000000 09915E38 09A55A70 09A557C0 *....j...v...v..*
00BEDA68 09B02DA8 00FD6DC0 1BFF07FE 89A78000 *...y.....ix..*
00BEDA78 89AA1970 09B0F174 89ABF000 00BDAFD0 *i....1.i.0....*
00BEDA88 00BDAFD0 001A00FF 01FFDB30 00BED998 *.....Rq*
00BEDA98 0000AAA0 00030000 00000000 00BEF898 *.....8q*
00BEDAA8 00FC3010 0A4A07E8 09A47000 09AE3140 *.....Y.u.... *
00BEDAB8 09918D50 58F0F000 0BEF58E0 E0000B0E *..j...00.....*
00BEDAC8 58E0D00C 9601D00F 0B0E0000 09A921C9 *...o.....z.I*
00BEDAD8 001983D8 00BD6000 00BD3070 001C8080 *..cQ.....*
00BEDAE8 00000BB8 00000A36 00000000 00051000 *.....*
00BEDAF8 00195000 00020080 00000000 00000000 *.....*

[QB] 2 Sess-1 157.170.179.206 1/2
```

/DIAG Enhancement

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SCD          System Contents Directory          Loc: 00BED998
-----
0000 E2E2C3C4 0000FC30 00000000 0AF307FE |SSCD.....3..|
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0020 40404040 00BD9FB0 89AC7000 00000000 |.....i.....|
0030 00007043 00FC4E80 003F0040 008A7C58 |.....+.....@.|
0040 008FF358 70FC0007 C9D4E2C2 40404040 |..3.....IMSB |
0050 D1D6C2F0 F0F0F3F5 00BED9CC 00BEDAD4 |JOB00035..R...M|
0060 00BEDB58 00BEDCAC 00BEDCC4 00BEDD84 |.....D...d|
0070 00BEDDE0 00BEDE18 00BEDE6C 00BDA000 |.....%.....|
0080 00BEDEB8 00BEDED4 00BEDEE4 00BEDF28 |.....M...U...|
0090 00BEE018 00BEE108 00BEE178 00BEE4BC |.....U...|
00A0 00BEE4F4 00BEE5A0 00BEE614 00BEE620 |..U4..V...W...W.|
00B0 00BEE644 00BEE674 00BEE720 00BEE7B0 |..W...W...X...X.|
00C0 00000000 09915E38 09A55A70 09A557C0 |.....j;..v]..v..|
00D0 09B02DA8 00FD6DC0 1BFF07FE 89A78000 |...y.._.....ix..|
00E0 89AA1970 09B0F174 89ABF000 00BDAFD0 |i.....1.i.0.....|
00F0 00BDAFD0 001A00FF 01FFDB30 00BED998 |.....Rq|
0100 0000AAA0 00030000 00000000 00BEF898 |.....8q|
0110 00FC3010 0A4A07E8 09A47000 09AE3140 |.....[.Y.u.....|

[4E] 2 Sess-1 157.170.179.206 1/2
```

/DIAG Enhancement

- /DIAG provides most functionality provided by IMSLOOK
 - Minor display differences
 - No MSCD, DFS DFA[D,P,T], DFSCSLA
 - Can get to via BLOCK(SCD) and ADDRESS(xxxxxxxx)
 - /DIAG provides several CBs not implemented by IMSLOOK
 - No OTMA control blocks
 - DFSYTIP, DFSYTIB, DFSYQAB would be nice
- Several issues identified
 - See “PTFs of interest” later in this presentation

IMS Connect Type-2 Commands

- Issue IMS Connect commands from SPOC rather than replying to WTOR or issuing z/OS Modify commands
 - Greatly improves usability
- PM50772: QUERY IMSCON TYPE(CLIENT) SHOW(ALL)
 - Does not show DELDUMMY clients

IMS Connect CM0 ACK NoWait

- CM0 send-receive clients can eliminate receive of final timeout event
- Wrote client to test; looked OK
 - CSM_PROTOCOLVL: CSM_PR02 (X'02') = CM0 ACK NOWAIT SUPPORT
 - IRM_F1: IRM_F1_NOWAIT (X'02') = CM0 ACK NOWAIT
- Not useful to our IMS Connect implementation
 - All input via SENDONLY; no reply to IOPCB
 - All output via RESUME TPIPE (auto flow)

Dynamic Database Buffer Pools

- Tested for both OSAM and VSAM buffer pools
 - Looks good
 - Included testing after HALDB conversion
 - APAR PM55994
 - DSID for HALDB X and L datasets handled incorrectly
- Has potential for IMSs that come down yearly
 - Most active databases have their own subpools
 - Could add new or redefine existing without waiting for recycle
 - No definite plans to use in production yet

Repository

- Ran IVP 'U' jobs
- Do not plan to use at TI yet
 - Each IMS has its own simplified IMSplex configuration
 - Repository adds complexity to install, configure, monitor
 - Little perceived benefit for us
 - Will continue to use RDDS
- Will re-evaluate if we implement full IMSplex

“Gotchas”

- HWSSMPL1
 - TI adds 4 instructions (12 bytes) to READROUT subroutine
 - Required for in-house written security product
 - UK74666 (Sync Callout) adds code to HWSSMPL1
 - Addressability issues in READROUT
 - Had to .AGO around unused code
 - Now in SDFSRESL
 - HWSSMPL0, HWSJAVA0, HWSUINIT as well

“Gotchas”

- MINVERS
 - MINVERS 10.1 → DBRC timestamps in microseconds
 - 10.1 is lowest value supported in IMS 12
 - Still had application that read LIST.RECON SYSPRINT
 - Did not support new timestamp format
 - Wrote fix using DBRC API
- SECURITY macro
 - RPG: “IMS 12 is last version to support SECURITY macro”
 - Still need in IMS 12 if using DFSCSTRN0 or DFSCSGN0

PTFs of Interest

APAR	PTF	Date Available	Description
PM31505	UK70854	08/18/2011	SCEEMAC DDDEF in DFSDDEF1
PM32518	UK65897	03/19/2011	IEC214I on DFSWADS1
PM38076	UK67679	05/18/2011	/DIAG SNAP BLOCK(SCD) abend U3058
PM48421	UK73796	11/19/2011	DFS3187W CLASS=RXXX
PM44431	UK73125	10/22/2011	/DIAG SNAP LTERM/USER for ETO resource
PM44953	UK74971	12/21/2011	/DIAG SNAP LTERM abend S0C4
PM50772	UK75086	12/29/2011	QRY IMSCON TYPE(CLIENT) no DELDUMMY
PM28721	UA57797	12/14/2010	DFS0730I for VSAM databases
PM54754	UK75650	01/21/2012	/DIAG SNAP abend U0757 from AOI program
PM55994	UK76736	03/03/2012	DSID for HALDB X & L incorrectly handled

Conclusion

- No issues with installation
- Code base seems stable
 - Can only speak for what we tested and used
- Tested new features
 - A few minor problems found; no showstoppers
- Currently in our test environment
 - Plan to start production fan-out in May 2012
 - Complete fan-out in 1Q2013
 - Contact me if you want to hear more