IBM® Tivoli® OMEGAMON® XE for IMS® on z/OS® v4.2.0

Interim Feature 2 (IF2)

July 5, 2010

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Chapter 1. Interim Feature 2 Overview

This document describes the enhancements that have been provided in Interim Feature 2 (IF2) for the IBM® Tivoli® OMEGAMON® XE for IMS® on z/OS® v4.2.0 product.

IF2 enhancements are included in APAR OA33043 that requires the installation of mainframe PTF UA55228 and the installation of Fix Pack 4.2.0-TIV-KIP-IF0003.

The following enhancements have been provided by IF2:

- New journaling disk archival option

- Performance improvements for ATF and NTH and new startup parameters

- Improved navigation for ATF and NTH (3270 interface)

- CPU time enhancements for ATF and NTH (3270 interface)

- TRF batch extractor improvements (3270 interface)

- IPL elimination (3270 interface)

- DBCTL enhancements (3270 and TEP interface)

- 64-bit integer support (TEP interface)

The following chapters include a description of each of these enhancements.

Chapter 2. New Journaling Disk Archival Option

A new ARCHAUTO parameter has been added for journaling to determine whether messages should be output during archival when switching VSAM datasets. This parameter allows system automation to detect when data has been completely written to a given VSAM dataset and invoke any desired reporting or additional backup of the journal dataset.

The ARCHAUTO parameter is specified in member KOIJLF00 of RKANPARU. The value of the ARCHAUTO parameter can be YES or NO; the default is NO.

If ARCHAUTO is set to YES, the following WTO messages will be output during archival when switching VSAM datasets:

```
OIJ490: SWITCH FROM dataset-name
OIJ491: SWITCH TO dataset-name
```

Chapter 3. Performance Improvements for ATF and NTH and New Startup Parameters

The ATF queueing mechanism has been modified to improve throughput and eliminate recursive chain errors, message ATF1030E. TRF and NTH have been updated to properly handle incomplete UOWs, thereby, reducing storage and CPU consumption.
.

New startup parameters have been added for ATF and NTH to improve performance and resource usage. ATF startup parameters are specified in member KI2ATFxx of RKANPARU or can be provided on the z/OS modify START ATF command. NTH startup parameters are specified in member KI2TRFxx of RKANPARU or can be provided on the z/OS modify START ITR command.

New BUFFSIZE startup parameter for ATF and NTH
The BUFFSIZE parameter specifies the number of bytes (in KB) that ATF or NTH will use to buffer data to the Journal Logging Facility (JLF). A JLF buffer write is signaled when the buffer becomes full. Too many JLF buffer writes may cause performance degradation of the OMEGAMON address space. Adjusting to a larger buffer size in higher volume transaction environments will allow fewer JLF buffer writes and better overall performance. The value for BUFFSIZE can be from 4-16384; the default is 32 (32KB).

New ECSAMAX startup parameter for ATF
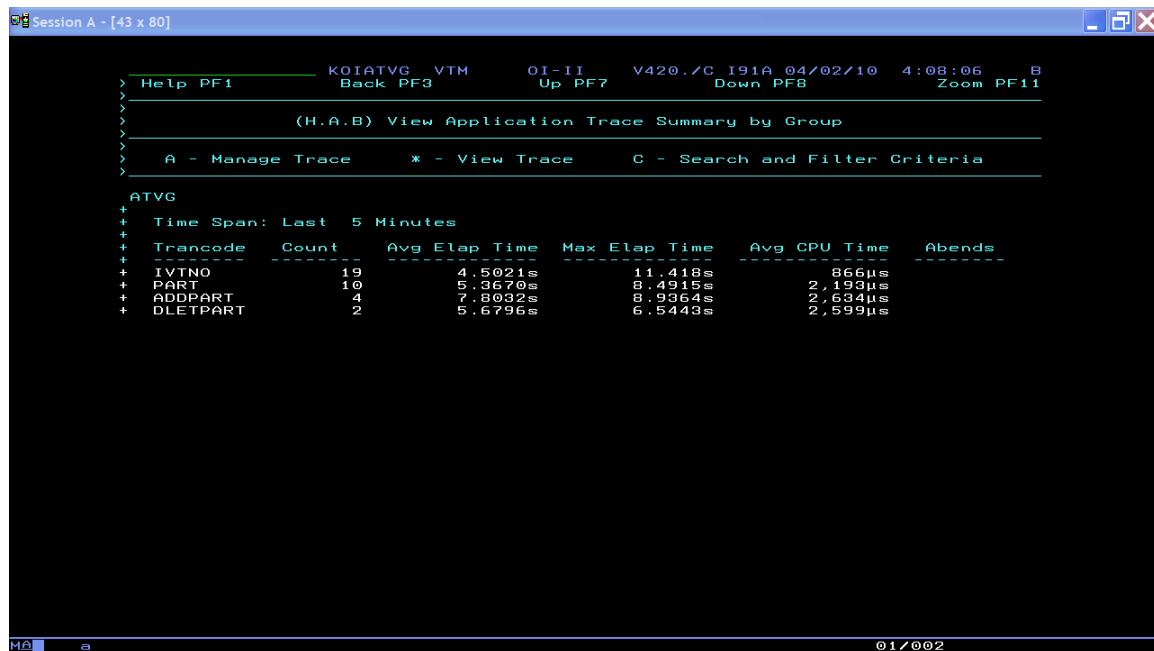The ECSAMAX parameter specifies the maximum number of bytes (in KB) that ATF can obtain in ECSA to buffer trace event records. Caution should be used with this value not to over-allocate ECSA but also not to under-allocate it as ATF may need to suspend collection if not enough ECSA is available to handle the higher transaction volume environments. The value for ESCAMAX can range from 256-32768; the default is 8192 (8192KB).

Chapter 4. Improved Navigation for ATF and NTH

New navigation keys are provided in ATF and NTH detail displays to allow easier viewing of transaction detail records within the current group. Navigation to the previous (PF5) and next (PF6) detail record can now be done from the detail panel instead of having to return to the summary panel for the next transaction instance.

The ATF and NTH transaction detail displays provide an indication of the transaction instance being viewed and the total number of instances available in the group.

The ATF summary screen summarizes trace data by group. The summaries can be grouped by transaction, PSB, Region, or LTERM. In this example, the summary data is grouped by transaction and the filtering requests the last 5 minutes of trace data be displayed:

The zoom key (PF11) can be used on this screen to view the summary information for each transaction instance belonging to the group. In this example, zoom is selected for the IVTNO transaction resulting in the following display:

```
Session A - [43 x 80]                                                    _ □ X

                KOIATVS  VTM      OI-II    V420./C I91A 04/02/10  4:08:38    B
>  Help PF1          Back PF3         Up PF7        Down PF8       Zoom PF11
>
>
>              (H.A.B) View Application Trace Summary
>
>     A - Manage Trace       * - View Trace      C - Search and Filter Criteria
>

  ATVS
+ Strt Date\Time Trancode PSB Name RGN Name LTERM     Elap Time  CPU Time   Abend
+ ----- -------- -------- -------- -------- --------   ---------  --------   -----
+ 04/02 04:03:49 IVTNO    DFSIVP1  IMS9AMS1 RSTIL       7.1505s   1,037µs
+ 04/02 04:03:56 IVTNO    DFSIVP1  IMS9AMS1 RSTIL       2,793µs     404µs
+ 04/02 04:03:56 IVTNO    DFSIVP1  IMS9AMS1 RSTIL       4.3431s   1,064µs
+ 04/02 04:04:01 IVTNO    DFSIVP1  IMS9AMS1 RSTIL       5.3564s   1,048µs
+ 04/02 04:04:06 IVTNO    DFSIVP1  IMS9AMS1 RSTIL       8.3669s   1,020µs
+ 04/02 04:04:15 IVTNO    DFSIVP1  IMS9AMS1 RSTIL       0.0291s     442µs
+ 04/02 04:04:15 IVTNO    DFSIVP1  IMS9AMS1 RSTIL       2.8023s     886µs
+ 04/02 04:04:17 IVTNO    DFSIVP1  IMS9AMS1 RSTIL      11.418s      977µs
+ 04/02 04:04:29 IVTNO    DFSIVP1  IMS9AMS1 RSTIL       8.4673s   1,017µs
+ 04/02 04:04:37 IVTNO    DFSIVP1  IMS9AMS1 RSTIL       2,441µs     333µs
+ 04/02 04:04:37 IVTNO    DFSIVP1  IMS9AMS1 RSTIL       4.5723s   1,143µs
+ 04/02 04:04:42 IVTNO    DFSIVP1  IMS9AMS1 RSTIL       3.4439s   1,052µs
+ 04/02 04:04:45 IVTNO    DFSIVP1  IMS9AMS1 RSTIL       7.0556s   1,100µs
+ 04/02 04:04:52 IVTNO    DFSIVP1  IMS9AMS1 RSTIL       2,684µs     332µs
+ 04/02 04:04:52 IVTNO    DFSIVP1  IMS9AMS1 RSTIL       3.8926s   1,039µs
+ 04/02 04:04:56 IVTNO    DFSIVP1  IMS9AMS1 RSTIL       5.7914s   1,055µs
+ 04/02 04:05:02 IVTNO    DFSIVP1  IMS9AMS1 RSTIL       8.2496s   1,101µs
+ 04/02 04:05:10 IVTNO    DFSIVP1  IMS9AMS1 RSTIL       5,684µs     427µs
+ 04/02 04:05:10 IVTNO    DFSIVP1  IMS9AMS1 RSTIL       4.5872s     968µs


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```

The zoom key can also be used on this display in order to view the transaction detail information for the selected transaction instance. The next display is a result of using the zoom key on the second transaction instance of IVTNO:

```
Session A - [43 x 80]                                                    _ □ X

                KOIATVW  VTM      OI-II    V420./C I91A 04/02/10  4:12:21    B
>  Help PF1          Back PF3         Up PF7        Down PF8       Zoom PF11
>                 Prev Tran Detail PF5    Next Tran Detail PF6
>
>              (H.A.B) View Application Trace Overview
>
>     A - Near-Term History
>

  ATVW
+                   Transaction instance 000002 out of 000019 displayed
+ Transaction . . . . . IVTNO              PSB . . . . . . . . . . DFSIVP1
+ Logical Terminal. . . RSTIL              Transaction Class . . . 001
+ Region Type . . . . . MPP (PWFI)         Message Source. . . . . TERM
+ Region ID . . . . . . 3                  Primed Message. . . . . NO
+ Job Name. . . . . . . IMS9AMS1           Quick Schedule. . . . . NO
+ Step Name . . . . . . REGION             Current SPA Size. . . . N/A
+ UserID. . . . . . . . RSTIL              CPU Time in DEP . . .    404µs
+ Abend Code. . . . . .                    CPU Time in DL/I. . :    337µs
+ Start Date. . . . . . 04/02/10           CPU Time in DB2 . . :      0µs
+ Start Time. . . . . . 04:03:56.964       CPU Time in MQ. . . :      0µs
+ End Time. . . . . . . 04:03:56.967       CPU Time in CTL . . :      0µs
+                                          CPU Time in DLISAS. .      0µs
+ Total Elapsed Time. . 2,793µs            Total CPU Time. . . .    404µs
+
+                                   Total             Average
+   Event      Type      Count     Duration          Duration
+   -----      ----      -----     --------          --------
+ DLI TM       GU          1       4.6155s           4.6155s
+ DLI DB       GHU         1         403µs             403µs
+ DLI DB       REPL        1         596µs             596µs
+ DLI TM       ISRT        1          18µs              18µs


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```

This detail screen now shows the current transaction instance being viewed (instance 2) and the total number of transactions in the group (19). In addition, PF5 and PF6 can be used to view the transaction detail for the previous transaction instance (PF5) and next transaction instance (PF6). This eliminates the need to go back to the previous summary screen in order

to view the transaction detail. Pressing PF6 on this screen results in displaying the detail for the next transaction instance:

```
                      KOIATVW  VTM      OI-II    V420./C I91A 04/02/10   4:12:53    B
>  Help PF1            Back PF3        Up PF7         Down PF8          Zoom PF11
>                 Prev Tran Detail PF5     Next Tran Detail PF6
>_____
>
>                 (H.A.B)  View Application Trace Overview
>_____
>
>    A - Near-Term History
>_____

   ATVW
+              Transaction instance 000003 out of 000019 displayed
+  Transaction . . . . . . . IVINO               PSB . . . . . . . . . DFSIVP1
+  Logical Terminal. . . . RSTIL               Transaction Class . . 001
+  Region Type . . . . . . MPP (PWFI)          Message Source. . . . TERM
+  Region ID . . . . . . 3                     Primed Message. . . . NO
+  Job Name. . . . . . . IMS9AMS1              Quick Schedule. . . . NO
+  Step Name . . . . . . REGION                Current SPA Size. . . N/A
+  UserID. . . . . . . . RSTIL                 CPU Time in DEP . . .      1,064µs
+  Abend Code. . . . . .                       CPU Time in DL/I. .         947µs
+  Start Date. . . . . . 04/02/10              CPU Time in DB2 . .           0µs
+  Start Time. . . . . . 04:03:56.975          CPU Time in MQ. . .           0µs
+  End Time. . . . . . . 04:04:01.318          CPU Time in CTL . .           0µs
+                                              CPU Time in DLISAS. .         0µs
+  Total Elapsed Time. .  4.3431s              Total CPU Time. . . .      1,064µs
+
+                                      Total               Average
+   Event       Type        Count     Duration            Duration
+   -----       ----        -----     --------            --------
+   DLI TM      GU             1           2µs                 2µs
+   DLI DB      GHU            1         461µs               461µs
+   DLI DB      DLET           1       2,971µs             2,971µs
+   DLI TM      ISRT           1          16µs                16µs
```

Pressing PF5 displays detail data for the previous transaction instance:

```
                      KOIATVW  VTM      OI-II    V420./C I91A 04/02/10   4:13:21    B
>  Help PF1            Back PF3        Up PF7         Down PF8          Zoom PF11
>                 Prev Tran Detail PF5     Next Tran Detail PF6
>_____
>
>                 (H.A.B)  View Application Trace Overview
>_____
>
>    A - Near-Term History
>_____

   ATVW
+              Transaction instance 000002 out of 000019 displayed
+  Transaction . . . . . . . IVINO               PSB . . . . . . . . . DFSIVP1
+  Logical Terminal. . . . RSTIL               Transaction Class . . 001
+  Region Type . . . . . . MPP (PWFI)          Message Source. . . . TERM
+  Region ID . . . . . . 3                     Primed Message. . . . NO
+  Job Name. . . . . . . IMS9AMS1              Quick Schedule. . . . NO
+  Step Name . . . . . . REGION                Current SPA Size. . . N/A
+  UserID. . . . . . . . RSTIL                 CPU Time in DEP . . .        404µs
+  Abend Code. . . . . .                       CPU Time in DL/I. .         337µs
+  Start Date. . . . . . 04/02/10              CPU Time in DB2 . .           0µs
+  Start Time. . . . . . 04:03:56.964          CPU Time in MQ. . .           0µs
+  End Time. . . . . . . 04:03:56.967          CPU Time in CTL . .           0µs
+                                              CPU Time in DLISAS. .         0µs
+  Total Elapsed Time. .  2,793µs              Total CPU Time. . . .        404µs
+
+                                      Total               Average
+   Event       Type        Count     Duration            Duration
+   -----       ----        -----     --------            --------
+   DLI TM      GU             1       4.6155s             4.6155s
+   DLI DB      GHU            1         403µs               403µs
+   DLI DB      REPL           1         596µs               596µs
+   DLI TM      ISRT           1          18µs                18µs
```

To view the event details for this transaction, use the zoom key on any of the displayed Events.   Here is the resulting display:

```
Session A - [43 x 80]

                  KOIATVD  VTM     OI-II   V420./C I91A 04/02/10  4:13:49    B
> Help PF1          Back PF3        Up PF7         Down PF8          Zoom PF11
>                 Prev Tran Detail PF5    Next Tran Detail PF6
>
>                  (H.A.B) View Application Trace Detail
>
 ATVD
 +              Transaction instance 000002 out of 000019 displayed
 + Transaction              IVTNO            DSB                   n SIVP1
 + Start Date. . . . . 04/02/10          Region Name . . . . . IMS9AMS1
 + Start Time. . . . . 04:03:56.964      Total CPU Time. . . .    404µs
 +
 +                      Accumul.   Event
 + Start Time    L Duration  CPU Time  Description      Resources        Verb
 + -----------  - --------  --------  -----------------  --------------- ----
 + 04:03:52.349 0   4.6155s    N/A    DL/I CALL (TM)          I/O PCB   GU
 +                                    CPU=    521µs     Status=<blank>
 + 04:03:56.965 1       34µs   221µs PI ENQUEUE
 + 04:03:56.964 0      403µs + 35µs DL/I CALL (DB)    IVPDB1   A1111111 GHU
 +                                    CPU=    257µs     Status=<blank>
 + 04:03:56.965 1       65µs +  28µs PI ENQUEUE
 + 04:03:56.965 0      596µs + 38µs DL/I CALL (DB)    IVPDB1   A1111111 REPL
 +                                    CPU=     62µs     Status=<blank>
 + 04:03:56.965 0       18µs +  25µs DL/I CALL (TM)          I/O PCB   ISRT
 +                                    CPU=     17µs     Status=<blank>
 + 04:03:56.967 1      384µs +  54µs DB I/O IWAIT        DFSIVD1

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```

The event details screen also supports the use of PF5 and PF6 to view the event detail for the previous and next transaction instance.

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Chapter 5. CPU Time Enhancements for ATF and NTH

More granularity is provided for CPU times in ATF and NTH displays improving the ability to monitor the health and performance of an application.

ATF transaction level CPU times will be broken down by:
- Region type – Control, Dependent, and DLISAS
- Call type – DL/I, DB2, and MQ
- Individual event – DLI, DB2, and MQ calls and IMS events

NTH transaction level CPU times will be broken down by:
- TCB and SRB
- Individual DL/I database calls.

The following examples show the ATF CPU times for three separate transactions; IVTNO issues DL/I calls, DSN8CS performs DB2 calls, and RJST0000 issues MQ calls.

Here is the transaction detail for information for IVTNO (DL/I databases).

The amount of CPU time spent in the dependent region, control region, and DLISAS region is displayed. The CPU time used in DL/I for DL/I calls is typically a subset of the CPU time spent in the dependent region. The total CPU time is the sum of the CPU time in the dependent, control, and DLISAS region.

Event detail data is displayed when you press the zoom key (PF11) on any of the displayed Events.

The Accumulated CPU Time value is the amount of CPU time that was spent from the end of the previous event to the end of the current event. For example, 168 microseconds are display on the PI ENQUEUE event. This is the amount of CPU time used from the end of the GU call to the I/O PCB to the end of the PI ENQUEUE event. The second line of each DL/I call displays the CPU time used by the actual DL/I call itself as well as the status code returned from the call.

The next examples show the transaction detail and event detail displays for the DSN8CS transaction (DB2) and the RJST0000 transaction (MQ):

Screen 1:

```
 Session A - [43 x 80]

                 KOIATVW  VTM      OI-II    V420./C I91Y 04/02/10 12:24:57    B
> Help PF1           Back PF3         Up PF7         Down PF8        Zoom PF11
>                Prev Tran Detail PF5    Next Tran Detail PF6
>
>
>              (H.A.B) View Application Trace Overview
>
>   A - Near-Term History
>
 ATVW
                 Transaction instance 000001 out of 000001 displayed
+ Transaction . . . . . RJST0000      PSB . . . . . . . . RJST0000
+ Logical Terminal. . . RSTIL         Transaction Class . . 001
+ Region Type . . . . . MPP (PWFI)    Message Source. . . . TERM
+ Region ID . . . . . . 4             Primed Message. . . . NO
+ Job Name. . . . . . . IMS9YMS1      Quick Schedule. . . . NO
+ Step Name . . . . . . REGION        Current SPA Size. . . N/A
+ UserID. . . . . . . . RSTIL         CPU Time in DEP . . . 3,683µs
+ Abend Code. . . . . .                  CPU Time in DL/I. .    73µs
+ Start Date. . . . . . 04/02/10         CPU Time in DB2 . .     0µs
+ Start Time. . . . . . 12:22:14.871     CPU Time in MQ. . .   256µs
+ End Time. . . . . . . 12:22:14.976  CPU Time in CTL . . .     0µs
+                                      CPU Time in DLISAS. .     0µs
+ Total Elapsed Time. .  0.1051s      Total CPU Time. . . . 3,683µs
+
+                                      Total            Average
+ Event       Type        Count       Duration         Duration
+ -----       ----        -----       --------         --------
+ DLI TM      GU            1           5µs               5µs
+ ESS MQS     MQCONN        1          14µs              14µs
+ ESS MQS     MQOPEN        1         114µs             114µs
+ ESS MQS     MQINQ         1          51µs              51µs
+ ESS MQS     MQCLOS        1          35µs              35µs
+ ESS MQS     MQDISC        1          56µs              56µs
+ DLI TM      ISRT          1          73µs              73µs

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```

Screen 2:

```
 Session A - [43 x 80]

                 KOIATVD  VTM      OI-II    V420./C I91Y 04/02/10 12:25:22    B
> Help PF1           Back PF3         Up PF7         Down PF8        Zoom PF11
>                Prev Tran Detail PF5    Next Tran Detail PF6
>
>              (H.A.B) View Application Trace Detail
>
 ATVD
                 Transaction instance 000001 out of 000001 displayed
+ Transaction . . . . . RJST0000      PSB . . . . . . . . RJST0000
+ Start Date. . . . . . 04/02/10      Region Name . . . . . IMS9YMS1
+ Start Time. . . . . . 12:22:14.871  Total CPU Time. . . . 3,683µs
+
+                       Accumul.    Event                            Func
+ Start Time   L Duration  CPU Time  Description    Resources        Verb
+ ----------   - --------  --------  -----------    ---------        ----
+ 12:22:14.871 0    574µs     202µs MPP SCHEDULING
+ 12:22:14.872 0      5µs +   406µs DL/I CALL (TM)      I/O PCB      GU
+                        CPU=    2µs      Status=<blank>
+ 12:22:14.956 0     83µs +1,296µs ESS CALL       Q6C1
+ 12:22:14.956 0    123µs +   158µs ESS CALL       Q6C1
+ 12:22:14.956 0     14µs +    24µs MQSERIES CALL  Q6C1             MQCONN
+                        CPU=   11µs      PGM=RJST0000
+                        RC=00000000, Reason=00000000
+                        Qmgr=*default*
+ 12:22:14.957 0    114µs +   231µs MQSERIES CALL  Q6C1             MQOPEN
+                        CPU=  111µs      PGM=RJST0000
+                        RC=00000000, Reason=00000000
+                        Qmgr=*default*
+ 12:22:14.957 0     51µs +   117µs MQSERIES CALL  Q6C1             MQINQ
+                        CPU=   47µs      PGM=RJST0000
+                        RC=00000000, Reason=00000000
+                        Qmgr=*default*
+                        Object type=00000005
+                        Name=*default*
+ 12:22:14.957 0     35µs +   194µs MQSERIES CALL  Q6C1             MQCLOS
+                        CPU=   33µs      PGM=RJST0000
+                        RC=00000000, Reason=00000000
+                        Qmgr=*default*
+                        Object type=00000005
+                        Name=*default*
+ 12:22:14.974 0     56µs +   837µs MQSERIES CALL  Q6C1             MQDISC

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```

Chapter 6. TRF Batch Extractor Improvements

CPU time metrics have been added for DL/I and Fast Path databases to the TRF output records as follows:

- Total CPU time added to DL/I and Fast Path database summary records
- TCB CPU time before and after the call added to DL/I and Fast Path database detail records include.

A new WTO message will be issued when no TRF records are found in the input IMS log or SMF dataset. In addition, a new NOTRF parameter can be used to set the condition code (0-99) in the batch TRF job step to indicate when no TRF records were found in the input IMS log or SMF dataset. These changes can alert automation of a problem with the input IMS log or with OMEGAMON not collecting the necessary data.

The TRF batch extractor EXEC statement using the NOTRF parameter is shown below along with the resulting WTO and condition code from the TRF batch job step due to the input IMS log not having any TRF records.

JCL
```
 //  EXEC KI2BT,PGMVER=KI2BTK0,PARM='LOGS=IMS,NOTRF=20'
```

JESMSGLG
```
19.57.03 JOB31806 ---- WEDNESDAY, 17 MAR 2010 ----
19.57.03 JOB31806  IRR010I  USERID RSTIL    IS ASSIGNED TO THIS JOB.
19.57.03 JOB31806  ICH70001I RSTIL    LAST ACCESS AT 18:37:49 ON WEDNESDAY,
19.57.03 JOB31806  $HASP373 TRFXTRAC STARTED - INIT 2    - CLASS A - SYS SYSG
19.57.03 JOB31806  IEF403I TRFXTRAC - STARTED - TIME=19.57.03
19.57.03 JOB31806  +KI2TR800I NO TRF RECORDS FOUND ON INPUT LOG DATASET(S)
19.57.03 JOB31806  IEF404I TRFXTRAC - ENDED - TIME=19.57.03
19.57.03 JOB31806  $HASP395 TRFXTRAC ENDED
```

JESYSMSG
```
KI2TR800I NO TRF RECORDS FOUND ON INPUT LOG DATASET(S)
IEF142I TRFXTRAC - STEP WAS EXECUTED - COND CODE 0020
```

Chapter 7. IPL Elimination

Previous to IF2, OMEGAMON IMS maintenance occasionally required that an IPL be performed in order to successfully apply the maintenance. The KIPWIPER utility has been provided in IF2 to eliminate the need to perform an IPL when applying maintenance.

The KIPWIPER utility operates in one of two modes based on the EXEC statement parameter specified when invoking the utility.

REPORT
Writes a report of active OMEGAMON 3270 monitoring tasks to SYSOUT

CLEAN (or CLEAN,FORCE)
- Terminates active OMEGAMON 3270 monitoring tasks (P command)
- Waits up to 5 minutes to ensure all OMEGAMON 3270 tasks have been terminated. If any OMEGAMON 3270 tasks are still active after 5 minutes, then KIPWIPER will terminate with a return code of 8 unless the FORCE option is specified in which case a z/OS cancel will be issued to terminate the task.
- Discovers active IMS systems
- Releases common storage related to IMS console messages
- Releases common storage related to z/OS console messages
- A log of all activity performed will be written to SYSOUT

Caution should be used when using the FORCE option as this can result in IMS termination if the OMEGAMON 3270 task is actively monitoring an IMS application in a DL/I call.

The following examples show the KIPWIPER output from the REPORT and CLEAN parameters.

JCL:
```
//KIPWIPER EXEC PGM=KIPWIPER,REGION=0M,PARM='REPORT'
```

Sample SYSOUT for REPORT parameter:

```
   OMEGAMON/XE for IMS on z/OS Wiper Utility      Date:2010.077  Time:09:19:25


 KIPWIPER utility at V420 and PTF level DEVTEST running on system SYSG
 The following option(s) are enabled: REPORT only
 Found OMEGAMON 3270 monitoring task: PLOIIP51, IMSID=I91C
 Found OMEGAMON 3270 monitoring task: PLOIIP65, IMSID=I91C
 Found OMEGAMON 3270 monitoring task: PLOIIP16, IMSID=I91C
```


JCL
```
KIPWIPER EXEC PGM=KIPWIPER,REGION=0M,PARM='CLEAN,FORCE'
```

Sample SYSOUT for CLEAN,FORCE parameter:

```
 OMEGAMON/XE for IMS on z/OS Wiper Utility      Date:2010.077  Time:09:20:59

KIPWIPER utility at V420 and PTF level DEVTEST running on system SYSG
The following option(s) are enabled: CLEAN with FORCE
Stopping OMEGAMON 3270 monitoring task: PLOIIP51
Stopping OMEGAMON 3270 monitoring task: PLOIIP65
Stopping OMEGAMON 3270 monitoring task: PLOIIP16
Waiting 5 seconds for 3270 monitoring shutdown
OMEGAMON 3270 monitoring task now stopped: PLOIIP65
Waiting 5 seconds for 3270 monitoring shutdown
OMEGAMON 3270 monitoring task now stopped: PLOIIP16
Waiting 5 seconds for 3270 monitoring shutdown
Waiting 5 seconds for 3270 monitoring shutdown
OMEGAMON 3270 monitoring task now stopped: PLOIIP51
LWHA of length=012288, freed for IMSID=I91C
LWHA of length=012288, freed for IMSID=I91A
LWHA of length=012288, freed for IMSID=I81A
LWHA of length=012288, freed for IMSID=I91M
LWHA of length=012288, freed for IMSID=IA1W
GWHA of length=004096, freed
SSCT chain is now clean of OMEGAMON XE for IMS
MTO hook has been removed from IMSID=I91C
MTO SSCT of length=004096, freed
MTO SSCT of length=004096, freed
MTO SSCT of length=004096, freed
MTO SSCT of length=004096, freed
All IMS MTO hooks have been removed successfully
```

Chapter 8. DBCTL Enhancements

The 3270 and TEP interfaces have been updated to include several enhancements for DBCTL.

3270 Interface

DBCTL thread summary and detail information is now provided by CCTL (CICS) in the 3270 interface to enable DBCTL workload throughput to be monitored. The thread summary and detail information can be displayed from the Workload menu screen. The Workload menu screen is output when option W is selected from the Main menu.

The new DBCTL thread summary screen (new THRS command) displays summary information for each connected CCTL (CICS) and includes the following items:

- CCTL ID – For CICS, this is the VTAM applid.
- Number of active, available, unavailable, and indoubt threads
- Percentage of active threads in use
- Number of input threads and processed threads
- UOW input and processed rate
- Ability to zoom on a given CICS region to view a detailed list of threads for the selected CICS (enhanced THRD command)

The new DBCTL thread detail screen (enhanced THRD command) provides the following information for each thread:

- CCTL ID, Region ID, CICS transaction name, and PSB
- Thread state and status
- Elapsed time for an active thread
- Thread occupancy percentage
- Ability to zoom on an active thread to display additional detailed information for the selected thread (PNRnn region command and minors)

To display DBCTL thread summary and detail information, select the Workload option from the Main menu followed by the DBCTL threads option as shown below:

w_

KOIMENU VTM   DBCTL   V420./C I91P 03/19/10 6:39:16   B
> Help/News PF1   Exit PF3   Keys PF5   Command Mode PF12
> Return to CUA PA2   Colors PF18
>
>   Enter a selection letter on the top line.
===
>   OMEGAMON for DBCTL Performance Monitor Main Menu

_ E   EXCEPTIONS .... Current and potential system problems, latch conflicts
_ B   BOTTLENECKS ...... Resource contention (bottleneck analysis) (DEXAN users)
_ H   TRANS HISTORY .... Near-Term History, Application Trace

_ M   MONITOR   IMS status, potential problems and graphs
_ W   WORKLOAD .... PSBs, DMBs, and regions/threads
_ A   ALL POOLS .... General, database and program pools
_ C   COMPONENTS ...... I/O, logging, storage, and control blocks/modules

_ F   FAST PATH .... IMS Fast Path information
_ O   OTHER SYSTEMS ... DB2 interface and XRF information

_ T   TOOLS .... Operator tools
_ P   PROFILE .... Profile maintenance and session settings
>
===

MA   a   01/003

The above screen shows the new DBCTL thread summaries output for each connected CICS system. It includes summaries by thread type and UOW counts and rates. The zoom key (PF11) can be used on this screen to view the thread data for the selected CICS system:

20

```
                    KOITHRD   VTM       DBCTL      V420./C I91P 03/19/10  7:44:36    B
  > Help PF1           Back PF3         Up PF7         Down PF8          Zoom PF11
  > _____
  >
  >              View Thread Data for Selected CCTL (CICS)
  > _____

    THRD
  +
  +  CCTL    Pseudo   Rgn CICS   PSB     Thread   Thread   Elapsed       Thread
  +   ID     R-Token  ID  Tran   Name    State    Status   Time          Occupancy
  +  -------- -------- --- ---- --------  -------  -------- ------------  ---------
  +  CICS22RS          26                 Avail    Idle             0µs     25.02%
  +  CICS22RS          34                 Avail    Idle             0µs     20.97%
  +  CICS22RS           6                 Avail    Idle             0µs     25.02%
  +  CICS22RS          17                 Avail    Idle             0µs     25.02%
  +  CICS22RS          28                 Avail    Idle             0µs     25.06%
  +  CICS22RS          33                 Avail    Idle             0µs     25.28%
  +  CICS22RS          32                 Avail    Idle             0µs     25.20%
  +  CICS22RS          23  WD82 DFHSAM05  Active   Ex-Drgn      0.3653s     25.37%
  +  CICS22RS          27                 Avail    Idle             0µs     25.20%
  +  CICS22RS          19                 Avail    Idle             0µs     25.15%
  +  CICS22RS           3  WD82 DFHSAM05  Active   Wt-PSB       0.3548s     25.15%
  +  CICS22RS          16  WD82 DFHSAM05  Active   Ex-Drgn      0.3642s     25.15%
  +  CICS22RS          12                 Avail    Idle             0µs     25.15%
  +  CICS22RS          18                 Avail    Idle             0µs     24.88%
  +  CICS22RS           2                 Avail    Idle             0µs     24.97%
  +  CICS22RS           4  WD82 DFHSAM05  Active   Wt-PSB       0.3552s     25.11%
  +  CICS22RS           8                 Avail    Idle             0µs     25.02%
  +  CICS22RS           1                 Avail    Idle             0µs     24.88%
  +  CICS22RS           9  WD82 DFHSAM05  Active   Wt-PSB       0.3451s     25.06%
  +  CICS22RS          15  WD82 DFHSAM05  Active   Ex-Drgn      0.3638s     24.93%
  +  CICS22RS           7                 Avail    Idle             0µs     24.71%
  +  CICS22RS          14                 Avail    Idle             0µs     24.66%
  +  CICS22RS          35  WD82 DFHSAM05  Active   Wt-PSB       0.3550s     24.93%
  +  CICS22RS          10                 Avail    Idle             0µs     24.40%
  +  CICS22RS          13  WD80 DFHSAM05  Active   Ex-Drgn       5m 21s     98.75%
```

The above thread display now includes the state of the thread (available, active, unavailable, or indoubt), the current status of the thread, elapsed time the thread has been executing, and the percentage the thread has been occupied. The zoom key can be used on an active thread to display additional thread detail information as output from the PNRnnn region major command and its minor commands:

```
Session A - [43 x 80]

                      KOITHRP  VTM      DBCTL    V420./C I91P 03/19/10  7:52:47    B
>  Help PF1          Back PF3          Up PF7          Down PF8
>
>                    View Detail Data for Selected Thread
>_____
>
 PNR013 CICS22RS
 ctrn     WD80
 ctsk     5892
 ctrm     M488
 psbn  DFHSAM05
 stat   Ex-Drgn
 tokn  C5B3614C1470F8AB
 ocup    98.75%
 inum  --None--
 ihld        1
 dbt        15
 call     User Parm Information For Current DLI Call
 +    FUNC  GHN
 +    PCB   DI21PART01  G   .8\0PARTROOT........02252252-003
 +    IOA   02252252-003       .  .   COUPLING              ..........
 +    SSA01 PARTROOT*-------------------------
 dgu
 ghu         1
 ghn        14
 ghnp
 dgn
 gnp
 isrt
 dlet
 repl
 etpl  --None--
 etic  --None--
 etio  --None--
 etsp  .000057
 etlk  --None--
 wtte  --None--
 wtue  --None--
 wtee  --None--
 wtde  --None--
 lock  Subsys    Workunit PSBname   Tx/RgID  Lterm ID Status DB/Area  Token   DCB
 +                         PDBName   PartName PartID WaitTime
 +     I91P    CICS22RS DFHSAM05      13  --none-- SH/Own DI21PART E26D36CB  1
MA     a                                                              03/002
```

TEP Interface

The following updates have been made to the TEP interface for DBCTL:

- The DBCTL Thread Summaries workspace and supporting attribute group has been updated to include the number of input threads, processed threads, UOW input rate, and UOW processed rate.
- Thread occupancy percentage and thread elapsed time in microseconds has been added to the DBCTL Thread Detail workspaces.
- A new plex-level workspace is provided to display DBCTL thread summaries for each monitored IMS belonging to the data sharing group and includes:
  - ➢ the number of active, available, unavailable, and indoubt threads
  - ➢ percentage of active threads in use
  - ➢ the number of input threads and processed threads
  - ➢ UOW input and processed rate

The IMS DBCTL Thread Summaries workspace is shown below. The summaries now include the number of input and processed threads for each connected CICS system as well as the UOW input and processed rate.
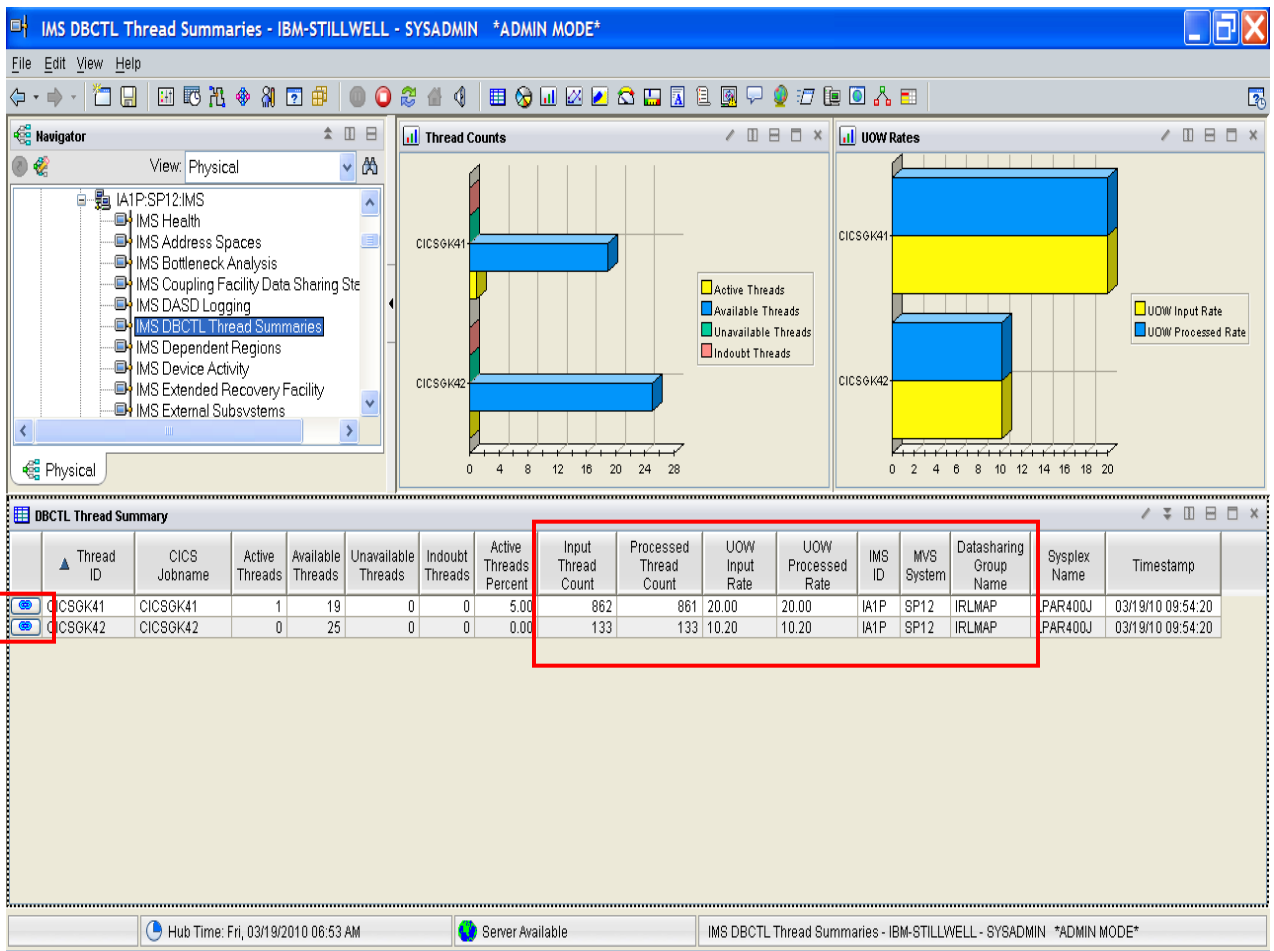
The individual threads for a given CICS can be viewed by selecting the blue link preceding the thread id. The following workspace shows the active threads for the CICSGK41 region. This workspace now includes the thread elapsed time in microseconds and thread occupancy percentage.
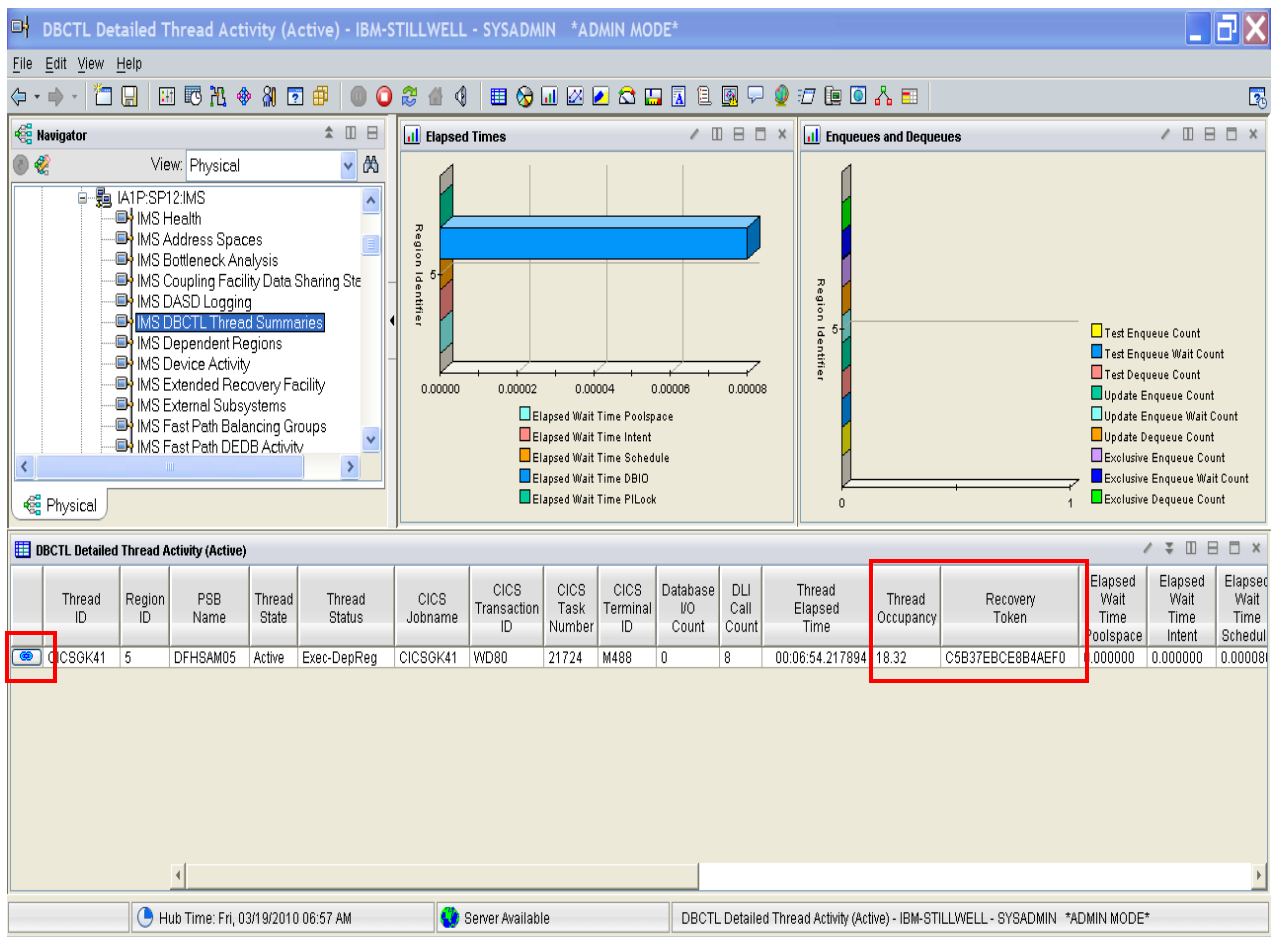
Call statistics for an active thread can be displayed by selecting the blue link preceding the thread id:

DBCTL Thread Call Statistics - IBM-STILLWELL - SYSADMIN *ADMIN MODE*
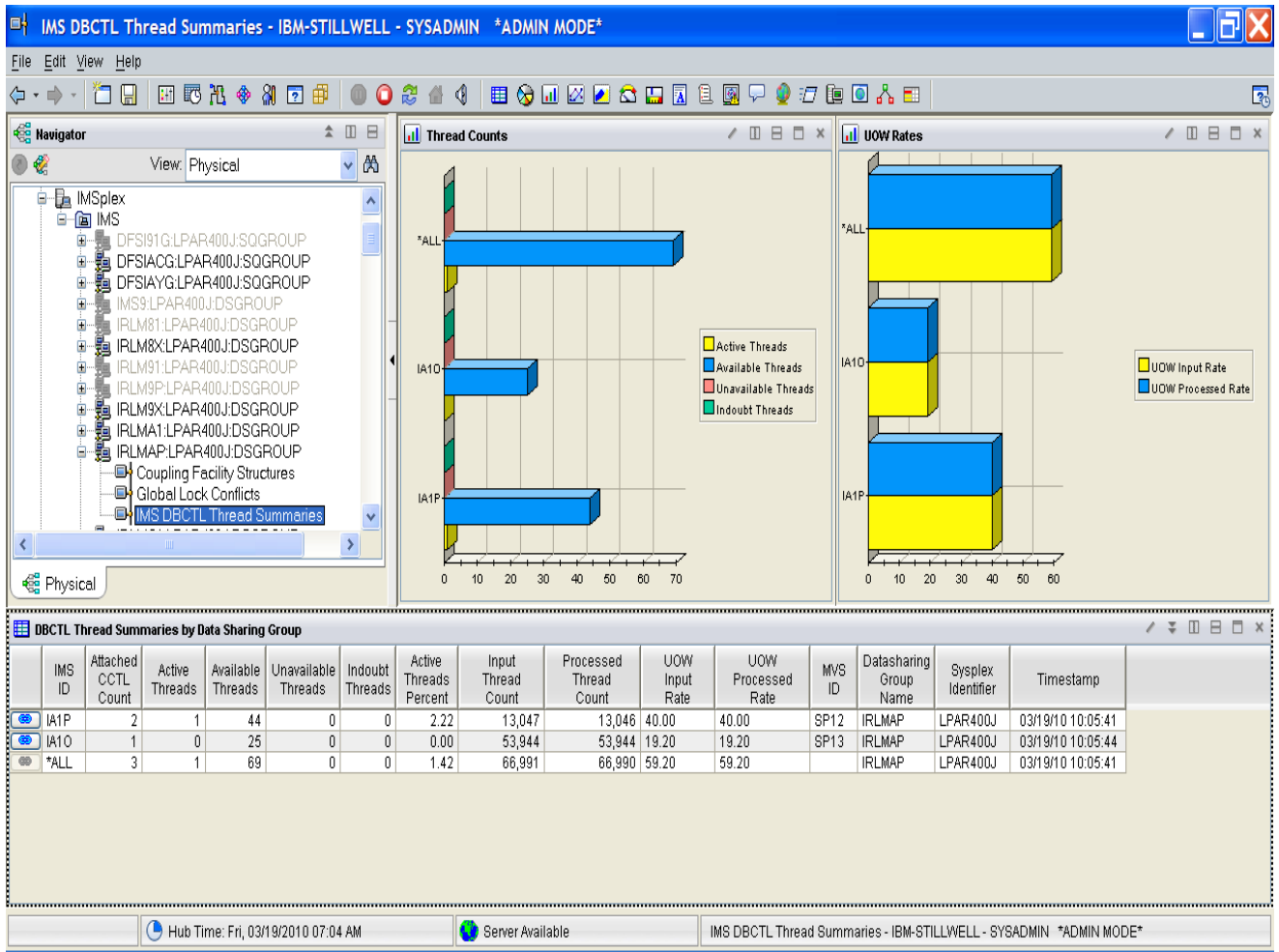
File Edit View Help

Navigator
View: Physical

IA1P:SP12:IMS
- IMS Health
- IMS Address Spaces
- IMS Bottleneck Analysis
- IMS Coupling Facility Data Sharing Sta
- IMS DASD Logging
- IMS DBCTL Thread Summaries
- IMS Dependent Regions
- IMS Device Activity
- IMS Extended Recovery Facility

Physical

DLI Counts

GU Call Count
GHU Call Count
GN Call Count
GHN Call Count
GNP Call Count
GHNP Call Count
DLET Call Count
ISRT Call Count
REPL Call Count

Region Identifier

DBCTL Thread Call Statistics

Thread ID	Region ID	PSB Name	Thread State	Thread Status	CICS Jobname	CICS Transaction ID	CICS Task Number	CICS Terminal ID	Database I/O Count	GU Call Count	GHU Call Count	GN Call Count	GHN Call Count	GNP Call Count	GHNP Call Count	DLET Call Count	ISRT Call Count	REPL Call Count	DLI Call Count	DEDB Call Count	DEDB Read Count	DEDB Write Count	DEDB Overflow Buffers
CICSGK41	5	DFHSAM05	Active	Exec-DepReg	CICSGK41	WD80	21724	M488	0	0	1	0	9	0	0	0	0	0	10	0	0	0	0

DBCTL Thread Call Detail

Thread ID	Region ID	PSB Name	Call Function	Call PCB Database Name	Call PCB Segment Level	Call PCB Status Code	Call PCB PROCOPT	Call PCB Segment Name	Call PCB Sensitive Segments	Call SSA	Call SSA Hex	Call IOARE
CICSGK41	5	DFHSAM05	GHN	DI21PART	01		G	PARTROOT	5	PARTROOT*--------------------------	40D7C1D9E3D9D6D6E35C606060606060606060606060606060...	U02250239

Hub Time: Fri, 03/19/2010 06:58 AM   Server Available   DBCTL Thread Call Statistics - IBM-STILLWELL - SYSADMIN *ADMIN MODE*

The next screen shows the new plex-level DBCTL workspace which displays thread summaries for each monitored IMS belonging to the data sharing group:

The *ALL value under the IMS ID column represents the thread summaries for the entire data sharing group. Selecting the blue link preceding the IMS ID allows summaries to be displayed for each CICS connected to the selected IMS. The following workspace is a result of selecting the link for IMS IA1P:
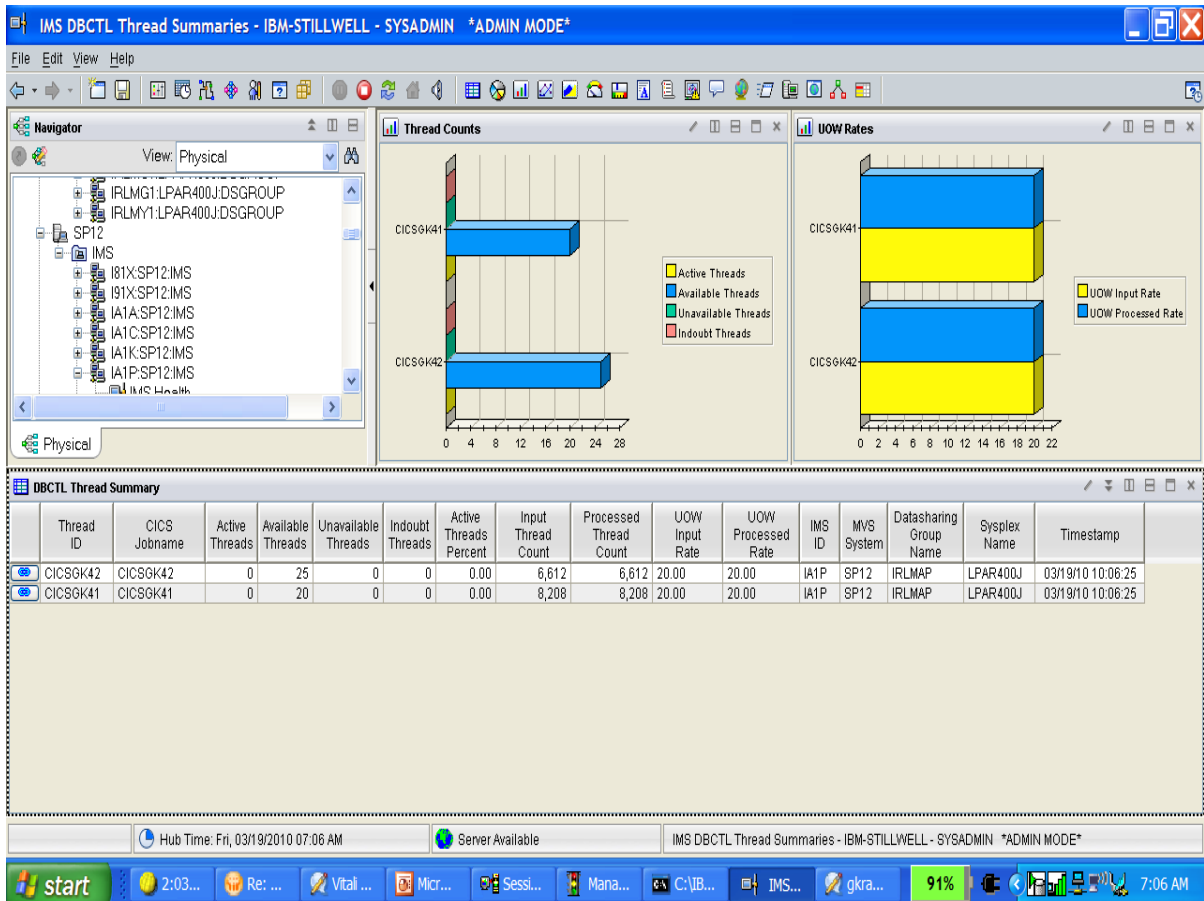
Chapter 9. 64-Bit Integer Support

With IMS and z/OS systems remaining active for extended periods of time (6 months or more), many of the unsigned 32-bit counters in OMEGAMON XE are exceeding x'7FFFFFFF' (2,147,483,647). OMEGAMON XE will internally convert z/OS and IMS 32-bit signed counters to 64-bit signed fields allowing TEP table and graph views to display these numbers accurately.

Support of 64-bit integers was originally planned to be part of IF2. However, since this support was completed early, the 64-bit support was released prior to IF2. The 64-bit support is currently available with mainframe PTF UA52789 (APAR OA32023) and fixpack IF0002. This support is also included in IF2.

The new 64-bit counters will replace the 32-bit versions in all applicable workspaces; "Extended Precision" is appended to the original column heading and "64" is appended to the attribute name:

	32-Bit Count	**64-Bit Count**
Attribute Name	EXCP Count	EXCP Count 64
Column Heading	EXCP Count	EXCP Count Extended Precision

Here is an example of the TEP IMS Address Spaces workspace showing the new 64-bit EXCP count:
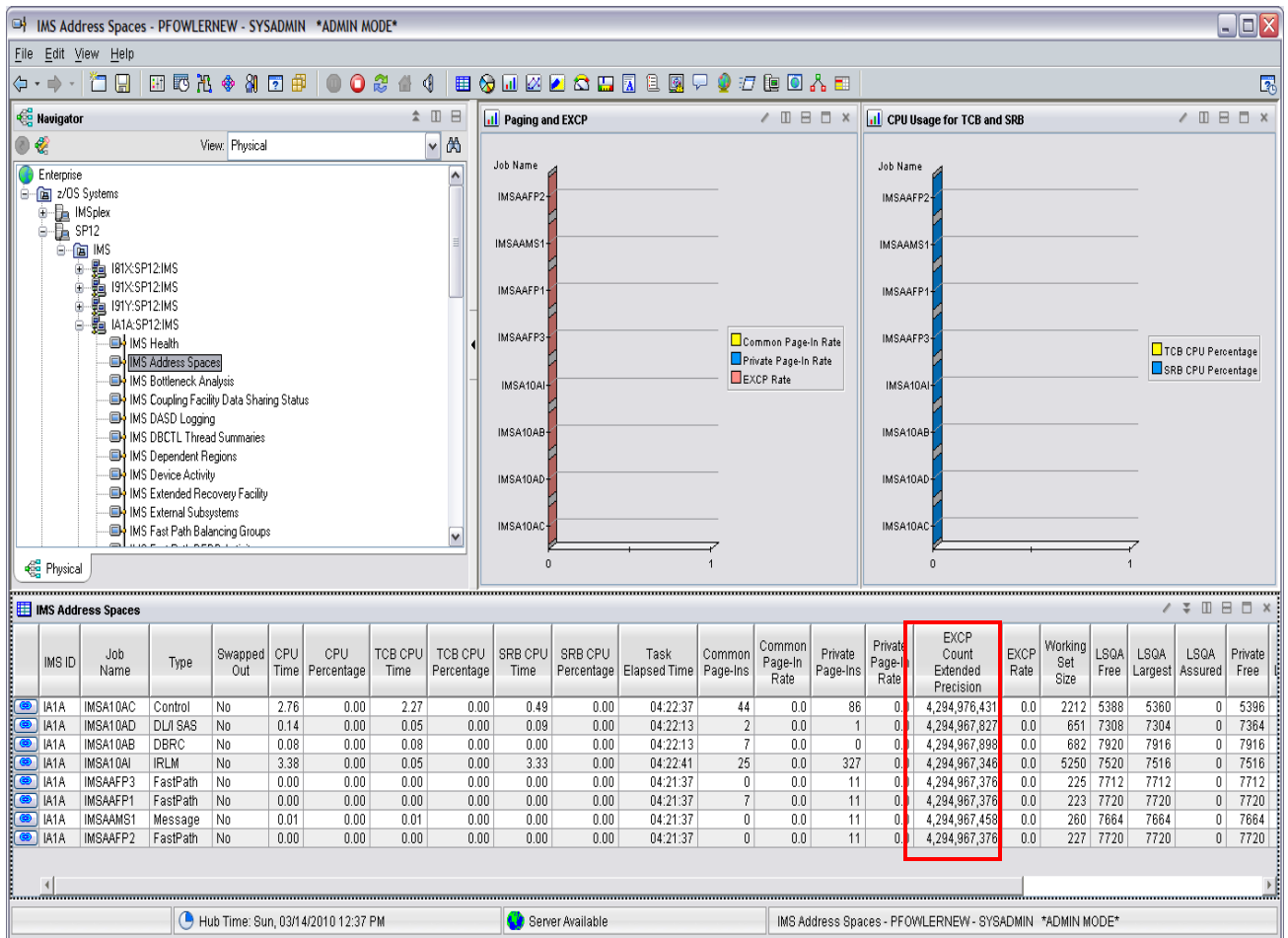
Chapter 10. New Messages

This chapter contains new messages added by IF2.

| KI2TR800I | NO TRF RECORDS FOUND ON INPUT LOG DATASET(S) |

Explanation: In batch mode, the TRF Extractor reads the IMS SLDS datasets and extracts both IMS and TRF log records. If the SLDS does not contain TRF log records, the TRF Extractor ends the job step with a condition code of 0 (zero). Most customers use an automated job scheduling process that checks return codes for each job. A return code of zero implies that all is well, although missing TRF records might indicate a problem.

System Action: None. This message is informational only.

User Response: You can use the NOTRF parameter to set the condition code of the TRF Extract job step when no TRF records are found on the IMS logs. The NOTRF parameter specifies a value from 0 to 99, with 0 as the default value.

| NTH5010E | NTH ERROR RECOVERY ENTERED |

Explanation: NTH encountered a program check.

System action: NTH writes diagnostic information.

User response: Contact IBM Software Support.

| NTH5030E | NTH DIAGNOSTIC INFORMATION BEING WRITTEN |

Explanation: NTH encountered a program check.

System action: NTH writes diagnostic information.

User response: Contact IBM Software Support.

| NTH5040E | NTH DISPATCHER ABENDED |

Explanation: NTH encountered a program check it decided was unrecoverable.

System action:	NTH terminates.
User response:	Contact IBM Software Support

NTH5050E   **NEAR TERM HISTORY FACILITY WILL TERMINATE**

Explanation:	NTH encountered a program check it decided was unrecoverable.
System action:	NTH terminates.
User response:	Contact IBM Software Support

OIJ490   **SWITCH FROM data-set-name**

Explanation:	This message and message OIJ491 are issued during disk archival when switching VSAM data sets.
System action:	These messages are information only and output when the ARCHAUTO parameter in member KOIJLF00 is set to YES.
User response:	None.

OIJ491   **SWITCH TO data-set-name**

Explanation:	This message and message OIJ490 are issued during disk archival when switching VSAM data sets.
System action:	These messages are information only and output when the ARCHAUTO parameter in member KOIJLF00 is set to YES.
User response:	None.

OTR055   **"NOTRF=" VALUE INVALID, MUST BE 0-99**

Explanation:	This message is issued by batch TRF when the NOTRF JCL parameter is invalid. The NOTRF value must be a number between 0 and 99.
System Action:	If this error is issued, the batch TRF terminates.
User Response:	Correct this error and resubmit the batch TRF job.

PWAI027   **INSUFFICIENT MEMORY FOR DBCTL THREAD SUMMARY WORK AREA INITIALIZATION**

Explanation: OMEGAMON does not have enough memory to initialize the DBCTH summary work area for this session.

System Action: None

User Response: Increase the region size. If the problem persists contact IBM