

Modernize your IMS Connect Systems using Automation

IMS Virtual Users Group

June 2015

Jim Martin
IMS Connect Extensions Architect

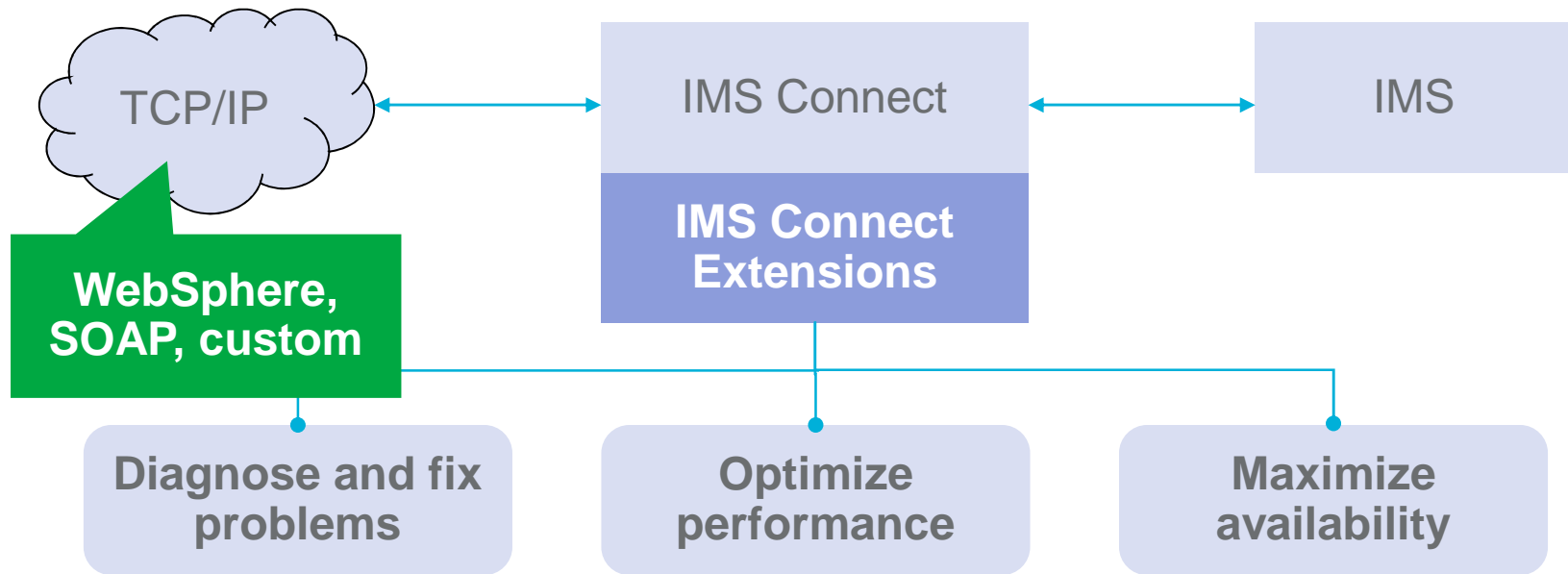


Overview

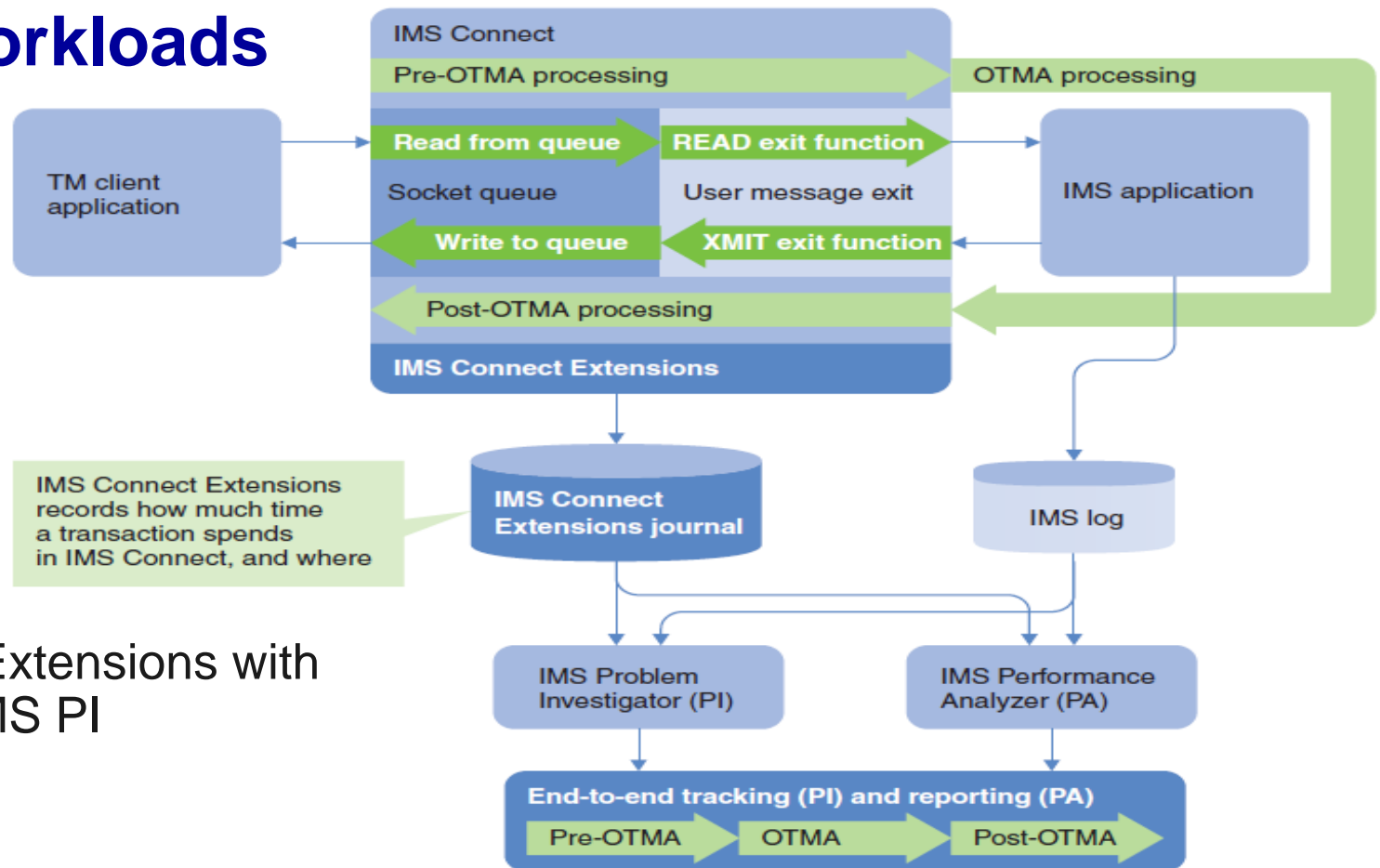
- IMS Connect Extensions at a glance
- Operating IMS Connect without using VIEWHWS
- Recorder trace not needed
- New features in CEX V240
- Cloud Support using Routing
- Automation capabilities using CEX
- Security
- Client session management



IMS Connect Extensions at a Glance

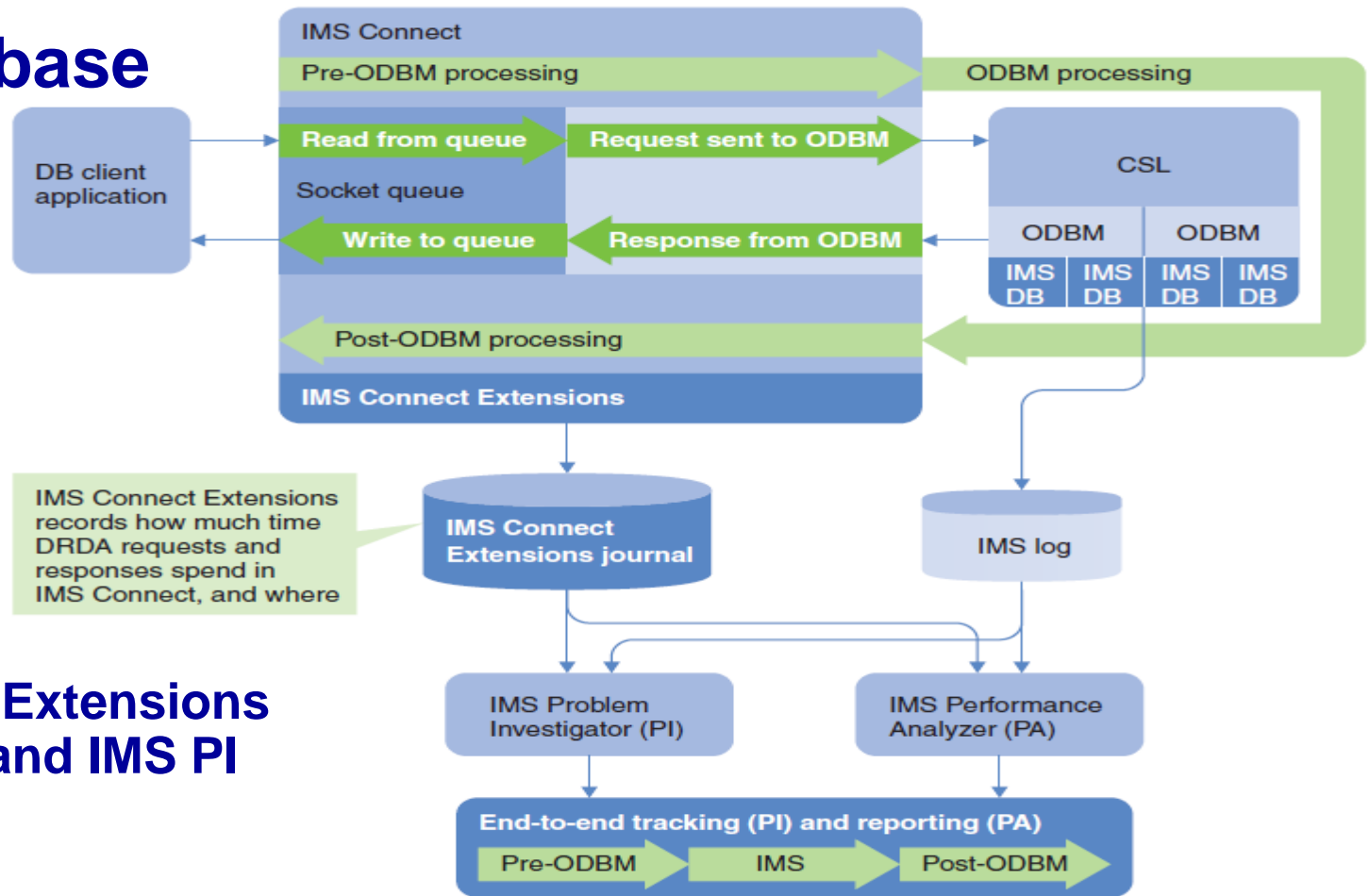


OTMA Workloads



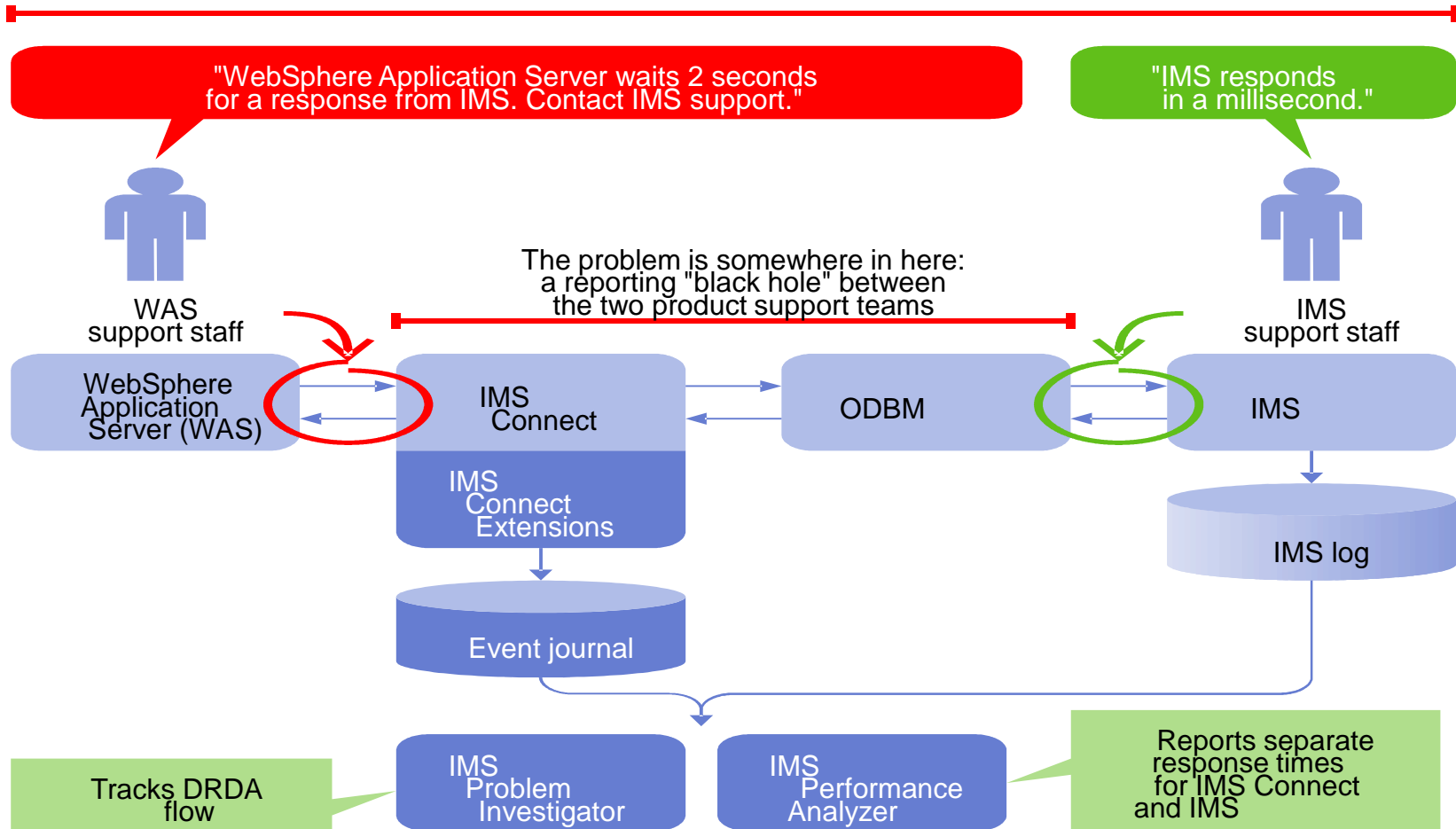
IMS Connect Extensions with
IMS PA and IMS PI

Open Database Workloads



IMS Connect Extensions with IMS PA and IMS PI

Response times over 2 seconds!



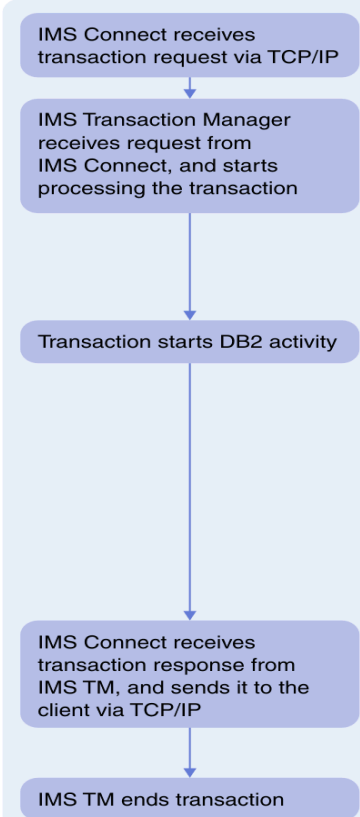
IMS Problem Investigator ISPF dialog

File Menu Edit Mode Navigate Filter Time Labels Options Help

BROWSE CEX000.QAAUTO.COMBLOG.ICONPT.D071205 Record 00145076 More: < >
 Command ==>> Scroll ==>> CSR
 Forwards / Backwards . . 00.00.00.000100 Time of Day . . 14.41.55.532866
 Code Description Date 2007-12-05 Wednesday Time (Relative)

Code	Description	Date	Time (Relative)
A03C	Prepare READ Socket		-0.001009
A049	READ Socket		-0.000942
A03D	Message Exit called for READ		-0.000923
A03E	Message Exit returned from READ TranCode=CEXTNONC		-0.000888
A041	Message sent to OTMA Dastore=XCFMI9DE		-0.000607
01	Input Message TranCode=CEXTNONC Source=Connect	14.41.55.803770	
35	Input Message Enqueue TranCode=CEXTNONC		+0.003398
31	DLI GU TranCode=CEXTNONC Region=0001		+0.020757
5616	Start of protected UOW Region=0001		+0.021560
5E	SB Handler requests Image Capture Region=0001		+0.021636
50	Database Update Database=DI21PART Region=0001		+0.025143
50	Database Update Database=DI21PART Region=0001		+0.025983
50	Database Update Database=DI21PART Region=0001		+0.026027
50	Database Update Database=DI21PART Region=0001		+0.026695
50	Database Update Database=DI21PART Region=0001		+0.026756
5600	Sign-on to ESAF Region=0001 SSID=DB2P		+0.027700
0020	DB2 Unit of Recovery Control - Begin UR		+0.028763
0020	DB2 Update In-Place in a Data Page		+0.028779
0010	DB2 Savepoint		+0.028987
0020	DB2 Delete from a Data Page		+0.029067
0020	DB2 Insert into a Data Page		+0.029291
03	Output Message Response LTerm=3835 Source=Connect		+2.029659
31	DLI GU TranCode=CEXTNONC Region=0001		+2.029682
33	Free Message		+2.029777
5610	Start Phase 1 Syncpoint Region=0001		+2.029809
5600	Commit Prepare starting Region=0001 SSID=DB2P		+2.029836
A042	Message received from OTMA Dastore=XCFMI9DE		+2.030109
0020	DB2 Unit of Recovery Control - End Commit Phase 1		+2.040235
37	Syncpoint Region=0001		+2.043131
33	Free Message		+2.051761
0020	DB2 Unit of Recovery Control - Begin Commit Phase 2		+2.052187
A042	Message received from OTMA Dastore=XCFMI9DE		+2.052401
A03D	Message Exit called for XMIT		+2.052601
A03E	Message Exit returned from XMIT		+2.052636
A04A	WRITE Socket		+2.052891
A00C	Begin CLOSE Socket		+2.052922
A00D	End CLOSE Socket		+2.053526
A048	Trigger Event		+2.053557
0020	DB2 Unit of Recovery Control - End Commit Phase 2		+2.054395
5600	Commit Continue completed Region=0001 SSID=DB2P		+2.054540
5612	End of Phase 2 Syncpoint Program=CEXTPGM		+2.054550
07	Application Terminate TranCode=CEXTNONC Region=0001		+2.443742

***** Bottom of Data *****



IMS Connect events

IMS events

DB2 events

IMS Connect
IMS Connect Extensions



Sudden jump in elapsed time indicates DB2 Insert took over 2 seconds! Select event to view details and begin analysis.

New in IMS Connect Extensions V2.4

New in V2.4

- Operations Console eclipse plugin for IBM Explorer for z/OS® (or other shells).
- IMS Connect Extensions host command environment for REXX
- Routing Plans
- Support for qualifying rules-based routing by transaction code
- Support for routing by alternate transaction code
- Pre-routing user exit for rules based routing
- Datastore Drain/Resume feature
- Session drain command
- New Session Message Limit option enables Automatic Session Rebalancing in session distribution environments
- Update commands
- OTMA Global Flood Warning support
- Support for IMS V13
- Support for dynamically added IMS Connect ports
- Support for dynamically added IMS Connect datastores
- zIIP offload support



You don't need to use VIEWHWS

VIEWHWS

- Output in system-specific joblogs.
- Output is cluttered and fills spool.
- Difficult to filter, search, sort, summarize and export.
- Displays don't provide leads to command actions.

```
R 212,VIEWHWS
PORT=4181 STATUS=ACTIVE KEEPAV=0 NUMSOC=7 EDIT= TIMEOUT=
CLIENTID USERID TRANCODE DATASTORE STATUS SECOND CLNTPORT IP-A
DUDCLA01 CEX001 IMSB CONN 58 17555 172.01
DUDCLL02 CEX001 IMSA CONN 58 17554 172.01
DUDCLI01 CEX001 IMSA CONN 58 17553 172.01
LXNTR01 CEX001 IVPREXX IMSA CONN 59 17551 172.01
MSG0001 CEX001 PART IMSA REC VFCM 59 17549 172.01
MSG0001 CEX001 PART IMSA REC V 59 17547 172.01
TOTAL CLIENTS=6 RECV=2 READ=0 CONN=4 XMIT=0 OTHER=0
PORT=4182 STATUS=ACTIVE KEEPAV=0 NUMSOC=3 EDIT= TIMEOUT=
CLIENTID USERID TRANCODE DATASTORE STATUS SECOND CLNTPORT IP-A
DUDCLW01 CEX002 IMSA CONN 58 17557 172.01
DUDCLA02 CEX002 IMSA CONN 58 17556 172.01
TOTAL CLIENTS=2 RECV=0 READ=0 CONN=2 XMIT=0 OTHER=0
```

IMS Connect Extensions

- Consolidated output from multiple systems.
- Output is tabulated.
- Built-in filtering and sorting.
- Instant export to spreadsheet applications.
- Context actions:

The screenshot shows the IMS Connect Extensions interface with a table of connections. A green arrow points from the VIEWHWS output to this interface. Below the interface, a Microsoft Excel spreadsheet is shown with the following data:

	F	G	H	
Routing Status	CWR	Waiting Reply	Imp	
Normal	1	0		
Normal	1	0		
Normal	10	0		
Normal	30	0		
AutoResume	1	0		
Normal	1	0		
Normal	1	0		
Normal	10	0		
Normal	1	0		
Normal	1	0		
Normal	10	0		
Normal	30	0		
Normal	1	0		
Normal	1	0		
Normal	10	0		
Normal	30	0		

IMS Connect Extensions - Demo Systems - IBM Explorer for z/OS - C:\Users\alawal01\zosexplorer

File Edit Navigate Search Project Sessions Run Window Help

Quick Access

Still using /VIEWHWS ?

Navigation

Enter search value

<All Source Types>

Navigation

- All Sources
 - IMS Connect
 - HWSOPGS1 :
 - HWSOPGS2 :
 - HWSOPGS3 :
 - Demo Systems
 - IMS Connect

Demo Systems

Session wait time (seconds): 0 Include persistent sockets Dis

All Sessions	OTMA Sessions	ODBM Sessions	MSC Sessions	
System	Session Type	Port	Socket	Event Key
HWSOPGS1	OTMA	4101	5	CDCC1FE58B9992
HWSOPGS1	OTMA	4101	6	CDCC1FE58BA384
HWSOPGS1	OTMA	4101	7	CDCC1FE59BCDE1
HWSOPGS1	OTMA	4101	8	CDCC1FE5EA185E9
HWSOPGS1	OTMA	4101	9	CDCC1FE5F0A165E9
HWSOPGS2	OTMA	4101	10	CDCC1FE5F0A165E9
HWSOPGS2	OTMA	4101	11	CDCC1FE5F0A165E9
HWSOPGS2	OTMA	4101	12	CDCC1FE5F0A165E9
HWSOPGS2	OTMA	4101	13	CDCC1FE5F0A165E9
HWSOPGS2	OTMA	4101	14	CDCC1FE5F0A165E9
HWSOPGS2	OTMA	4101	15	CDCC1FE5F0A165E9
HWSOPGS2	OTMA	4101	16	CDCC1FE5F0A165E9
HWSOPGS2	OTMA	4101	17	CDCC1FE5F0A165E9
HWSOPGS2	OTMA	4101	18	CDCC1FE5F0A165E9
HWSOPGS2	OTMA	4101	19	CDCC1FE5F0A165E9
HWSOPGS2	OTMA	4101	20	CDCC1FE5F0A165E9

Properties

Property	Value
Client	
Client Family	IPv4
Client IP	172.17.69.32
Client Port	4484
Event record trace	
Trace Back Events	41 Message sent to OTMA3E Message E...
IMS Connect	
Client Id	DUDCLI01
Event Key	CDCC1FE58BA38404
Exit Defined	Yes
IRM Timer	81
Last Trace Time	2014-09-23 09.44.34.557877
Port	4101
Session Type	OTMA
Socket	6
Start Time	2014-09-23 09.44.34.554424
Trigger Type	
User Id	CEX001
Wait Time	0-00.00.38.415112
Misc	
AltTxnCode	
AltTxnLength	
AltTxnOffset	
AltTxnUsed	No
Commit Mode	0
In Ims Conversation	No
Predicted Session Status	P002 - Waiting for reply from datastore...
Res. TPIPE	Active
Socket Type	Transaction
Synch Level	Confirm
System	HWSOPGS1
OTMA Read Exit	

Properties view...

Network Status

- Stop Selected Sessions
- Hide all-Zero Value Columns
- Hide Blank Columns
- Manage list layout
- Reset List to Default Layout
- Show all Columns
- Summarize/Group ...
- Properties
- Manage/Define List Filters
- Find the Value After Current Position

The sessions view provides you with:

- Context actions to cancel sessions and get network status.
- Sortable, searchable and filterable Sysplex view of sessions.
- Ability to summarize, save and export the session list as a CSV file.
- Auto update highlighting any criteria.
- Many more session attributes.

Still using /VIEWHWS ?

The Status Monitor view provides you with:

- Tabbed views of each resource type.
- Context actions against resource instances like drain, stop and start.
- Sortable, searchable and filterable sysplex view of resources.
- Summarise, save and export the session list as a CSV file.
- Auto update and highlighting any criteria.
- Many more session attributes.

Status	System	Name	TMember	Super Member	Connect Status	IMS Status	Routing Status	Waiting Reply	CWR	Input Count	Ac
Active	HWSOPGS1	IMSA	XCFMICDA	MEM1	Active	MemberFloodSevr	Unavailable	0	1	205	
Active	HWSOPGS1	IMSB	XCFMICDA	MEM1	Active	GlobalFloodWarn	Degraded	0	1	0	
Active	HWSOPGS1	IMSC	XCFMICDB	MEMA	Active	Normal	Normal	0	0	0	
Active	HWSOPGS1	IMSD	XCFMICDB	MEMA	Active	Normal	Normal	0	30	0	
Discon	HWSOPGS1	TESTDS	XCFMIZZZ	MEMA	Discon		AutoResume	0	1	0	
Active	HWSOPGS2	IMSA	XCFMICDA	MEM2	Active	GlobalFloodWarn	Degraded	0	1	7	
Active	HWSOPGS2	IMSB	XCFMICDA	MEM2	Active	GlobalFloodWarn	Degraded	0	1	7	
Active	HWSOPGS2	IMSC	XCFMICDB		Active	Normal	Normal				
Active	HWSOPGS2				Active	Normal	Normal				

You don't need to use the Recorder Trace

Recorder Trace

- Tracing is non-specific.
- Recorder trace and BPE trace records are produced in separate log datasets.
- There are no mechanisms to correlate recorder trace records with other log sources.

IMS Connect Extensions

- Conditional trace record generation may be based on a variety of criteria.
- Trace records are contained in existing journals.
- Trace records contain detailed IRM, RSM, CSM and RXML sections for both READ and XMIT.
- Trace records have correlation tokens that allow transaction tracking and reporting in IMS Problem Investigator and IMS Performance Analyzer.
- The journal can be merged with IMS logs to give an end-to-end view of a transaction initiated by a distributed client.
- Invoke via GUI, ISPF and REXX (batch).



Still using the Recorder Trace?

Conditional Trace
Can be invoked from the context menu for any IMS Connect.

IMS Connects	Ports	Exits	Datstores	Datstore Groups	ODBMs	Aliases	MSCs	Remote ICONs
Name	Status	System	Super Member	Accepted Count	Reject...	Ignore Count	ACK Cour	
HWSOPGS1	P02	HWSOPGS1	MEMA	117	0	0		
HWSOPGS2	P02	HWSOPGS2		3	0	0		

Activating the IMS Connect Extensions trace produces additional trace records in the Journals when the criteria is met.

- Switch Journal
- Start Recorder Trace
- Stop Recorder Trace
- Start Conditional Trace ...

Enter Criteria for a new Conditional Trace

Reactivate Tracing after System Restart

Level: 2

Port: *

Enter One Additional Filter Criterion (Optional):

Client name:

Transaction:

Message exit:

User ID: CEX001

LTERM:

IP address:

Tracing is currently active.

Start Trace Cancel

```

0000 .EVNTLOG(TRT0001A) Record 0000
H.MM.SS.THMIJU Time of Day . . 2
Date 2014-02-13 Thursday

0049 READ Socket
00A4 Event Collection IRM Trace
003D Message Exit called for READ
00A3 Event Collection OTMA Trace
003E Message Exit returned from READ TranCode=COOLTRAN
00A3 Event Collection OTMA Trace
0041 Message sent to OTMA Type=Transaction
00A3 Event Collection OTMA Trace
0042 Message received from OTMA Type=Data
00A3 Event Collection OTMA Trace
0042 Message received from OTMA Type=Commit confirm
00A3 Event Collection OTMA Trace
003D Message Exit called for XMIT
00A6 Event Recording EXIT Output Message Trace
    
```

```

+0.007000
+0.007016
+0.007077
+0.007084
+0.007099
    
```



Rules-based routing

New in V2.4

- Routing Plans
- Qualified Routing
- Alternate trans codes
- Pre-routing user exit

- The simplest way to gain the benefits of IMS Connect Extensions' routing
- Create rules that, for a given DESTID, determine a primary and fallback collection of candidate datastores
- IMS Connect Extensions will balance workload between the datastores in the primary collection
- If none of the datastores in the primary collection are available or if all datastores in that collection are in flood, then IMS Connect Extensions spreads workload between the fallback collection
- Works for transactional messages, Send Only, Resume TPIPE, Synchronous callout, and Asynchronous callout
 - Rule must match IMS Configuration capabilities
- Routing plans provide the ability to logically group routing rules and to dynamically swap between different plans.
- Benefits: improved performance, redundancy, better capacity management



OTMA Workload routing automation

New in V2.4

- Routing Plans
- Qualified Routing
- Alternate trans codes
- Pre-routing user exit



```

File  Menu  Settings  Help
EDIT                                     OTM
Command ===> _____

Name . . . . . : OTMARULE
Description . . : Routing for DestID 'PROD'

Apply rule to:
1 1. System . . . . . HWSOPGS1 +
2. Group . . . . . _____ +
3. All systems

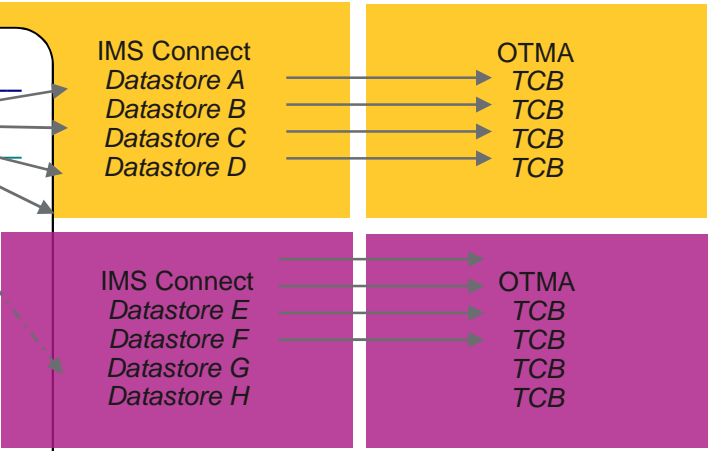
Rule is active when:
Routing Plan . . PEAK +
Rules with no plan are always active

Condition:
Original Datastore . PROD (IRM_IMSDestId)
Additional qualifier TRANSACTION +
List name . . . . . PAYROL +

----- Routing lists -----
Target + Fallback +
TARGLST1 + FBCKLST1
TARGLST1 + FBCKLST1
_____
_____
_____
_____

```

Use Original IMS DestID and optionally Transaction Code to determine candidates



Simple setup and configuration



OTMA Routing – Qualified Routing

New in V2.4

```
File Menu Settings Help
-----
EDIT                               OTMA Routing Rule
Command ==> _____

Name . . . . . : OTMARULE
Description . . : Routing for DestID 'PROD'

Apply rule to:
1 1. System . . . . . HWSOPGS1 + Routing Plan . . PEAK +
   2. Group . . . . . _____ +
   3. All systems

Condition:
Original Datastore . PROD (IRM_IMSDestId)
Additional qualifier TRANSACTION +
List name . . . . . PAYROL +
```

Optionally use Additional Qualifier and a List Name to specify additional conditions for the OTMA Routing Rule.

Optionally define the transaction with an offset to an Alternate Transaction code.

```
/ Mess
Y Send
Y Send
- Resu
- Synd
- Synd

EDIT Transaction Name List
Command ==> _____

Name . . . . . : PAYROL
Description . . : Payroll Transactions

Enter "/" to select action

Transaction
- DEDTP*
- PAY0*
- PAY12
- PAY14
- PAYB03
```

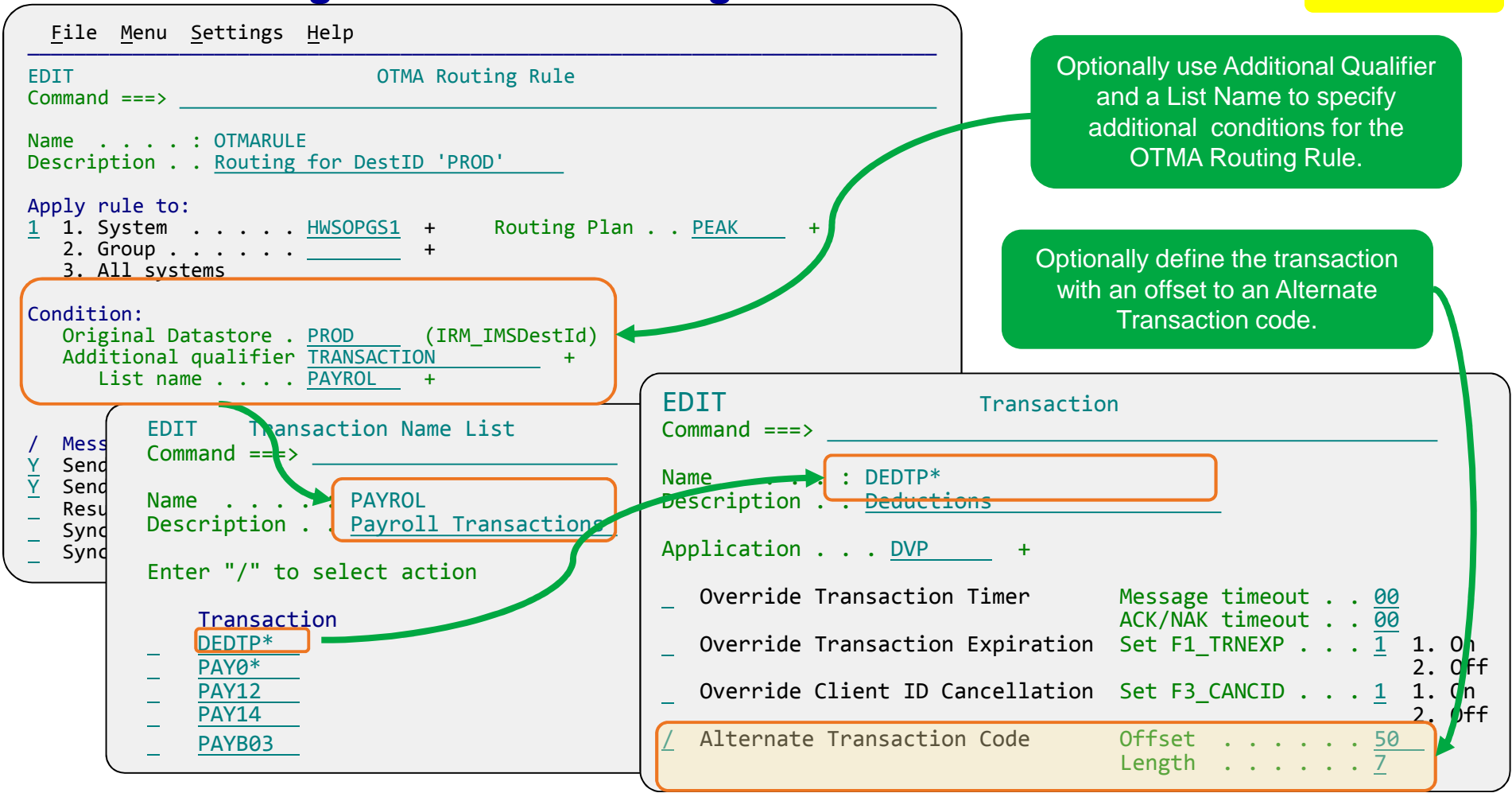
```
EDIT Transaction
Command ==> _____

Name . . . . . : DEDTP*
Description . . : Deductions

Application . . . DVP +

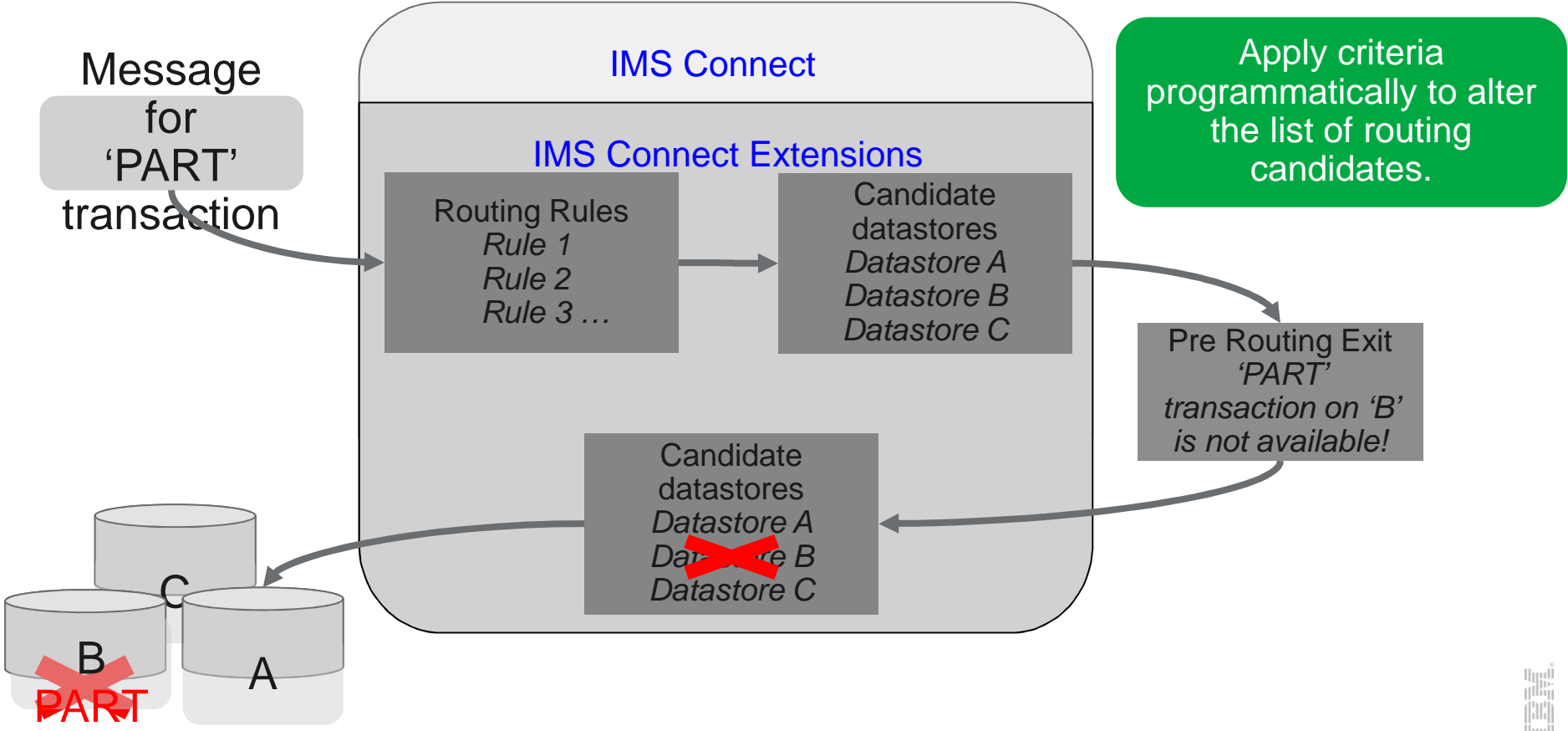
- Override Transaction Timer      Message timeout . . 00
-                               ACK/NAK timeout . . 00
- Override Transaction Expiration Set F1_TRNEXP . . . 1 1. On
-                               2. Off
- Override Client ID Cancellation Set F3 CancID . . . 1 1. On
-                               2. Off

/ Alternate Transaction Code      Offset . . . . . 50
                                   Length . . . . . 7
```



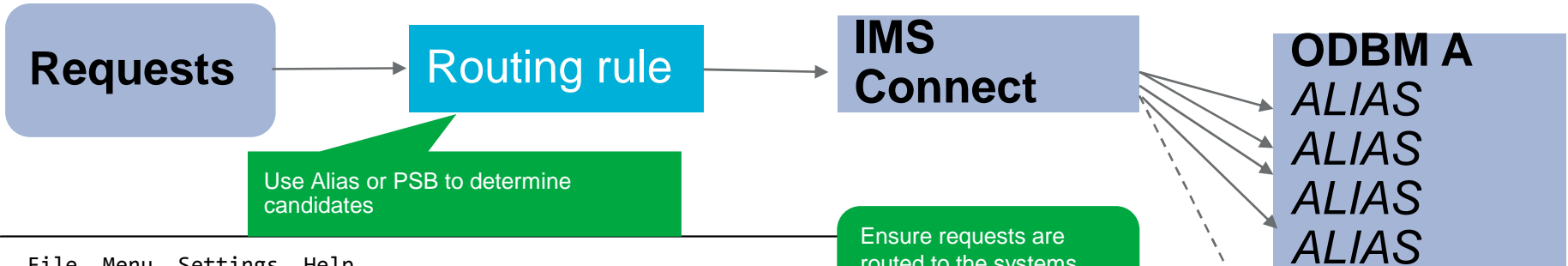
New in V2.4

OTMA Pre-Routing Exit (CEXRBUXT)



Open database workload automation

New in V2.4
- Routing Plans



Use Alias or PSB to determine candidates

Ensure requests are routed to the systems that have the right databases
Gain control and shape open database traffic
Provide fallback and redundancy

```

File  Menu  Settings  Help
-----
EDIT                                ODBM Routing Rule
Command ==> _____

Name . . . . . : DFSTRULE
Description . . : Rule for PROD DFS* PSBs access

Apply rule to:                      Rule is active when:
1. System . . . . . HWSOPGS1 +      Routing Plan . . PEAK
2. Group . . . . . _____ +    Rules with no plan are always active
3. All systems

Condition:
Input Alias . . . . . PROD
PSB name list . . . DFSPSBS +

/ Request types
Y DRDA Requests

----- Routing lists -----
Target + Fallback +
DFSLIST _____
  
```



Routing Plans (OTMA and ODBM Rules)

New in V2.4

Pre-defined Routing Rules

Rule#	Plan Name
R1	{no plan}
R2	PEAK
R3	WEEKEND

Routing plans allow swapping between sets of rules that are intended to operate at the same time.

- Rules can be pre-configured for known periods of demand or maintenance.
- Plan Name is SET using a command (GUI, ISPF, Batch).

No plan set

Rule#	Plan Name
R1	{no plan}

Plan set to PEAK

Rule#	Plan Name
R1	{no plan}
R2	PEAK

Plan set to WEEKEND

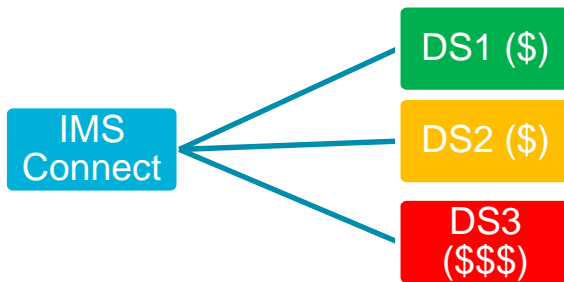
Rule#	Plan Name
R1	{no plan}
R3	WEEKEND



Balance processing costs

Workload balancing or Routing Plan

New in V2.4
Update CWR:
- GUI or Batch
- Zero CWR



- Change transaction distribution by time
 - Alter preferred datastores (Capacity weights)
 - Use different Routing Plan
- Use low cost machine for low demand periods



Update Commands – Datastores

New in V2.4
Update CWR:
- GUI or Batch
- Zero CWR

The screenshot shows the IMS Datastores GUI. The main table lists datastores with columns: Status, System, Name, Member, TMember, XCF Group, Connect Status, IMS Status, Routing Status, Waiting Reply, CWR, and S. A context menu is open over the table, with 'Update Capacity Weight ...' selected. Two dialog boxes are shown: 'Update Selected Datastores' and 'Confirm Changes'.

Name	System	Old Value	New Value
IMSC	HWSOPGS1	0	25
IMSD	HWSOPGS1	30	25

Dynamically change workload balancing weightings.
or
Schedule REXX job to make changes at specific times.

Datastore monitor

- Datastore specific view that includes: IMS Connect Status, IMS/OTMA status and IMS Connect Extensions routing status.
- Monitor datastore usage (Messages waiting reply).
- Highlight datastores under stress.
- Control datastores - Stop/Start/Drain/Resume.
- Datastore information available via ISPF "Status Monitor" view or using Operations Console "Datastore" Tab.

```

File  Menu  Help
-----
                                Datastore Monitor
Command ==> _____
System . . : HWSOPGS1
Enter "/" to select action

Name      ICON      IMS      Routing      Super      CWR      Waiting
/  IMSA   Status   Status      Status      Member     CWR      Reply
Active    MemberFloodSevr Unavailable  SM01        1         231
Active    GlobalFloodWarn Degraded    1         193
Active    Normal        Normal      100         0
Active    Normal        SusAutoRes  9           0
Discon    AutoRes       1
***** Bottom of data *****
  
```

```

Datastore . . : IMSA

Select by number or action code then press Enter
— 1. Start datastore (T)
   2. Stop datastore (P)
   3. Drain with AUTORESUME (DA)
   4. Drain without AUTORESUME (D)
   5. Resume (R)
  
```



Flood-warning and routing

Filtering can be used to highlight when flood conditions occur

Status	System	Name	TMember	Super Member	Connect Status	IMS Status	Routing Status
Active	HWSOPGS1	IMSA	XCFMICDA	MEM1	Active	MemberFloodSevr	Unavailable
Active	HWSOPGS1	IMSB	XCFMICDA	MEM1	Active	GlobalFloodWarn	Degraded
Active	HWSOPGS1	IMSC	XCFMICDB	MEMA	Active	Normal	Normal
Active	HWSOPGS1	IMSD	XCFMICDB	MEMA	Active	Normal	Normal
Discon	HWSOPGS1	TESTDS	XCFMIZZZ	MEMA	Discon	AutoResume	AutoResume
Active	HWSOPGS2	IMSA	XCFMICDA	MEM2	Active	GlobalFloodWarn	Degraded
Active	HWSOPGS2	IMSB	XCFMICDA	MEM2	Active	GlobalFloodWarn	Degraded
Active	HWSOPGS2	IMSC	XCFMICDB	MEMA	Active	Normal	Normal
Active	HWSOPGS2	IMSD	XCFMICDB	MEMA	Active	Normal	Normal

Degraded Performance Global Warn Support

- IMS Global Degraded performance does not support 'Global Fail'
- New option to treat 'Global Warn' as 'Global Fail'

All forms of routing in IMS Connect Extensions use Flood Warning to help determine the best datastore for processing a message. Datastores in flood warn state are never used unless there are no other datastores (which are not themselves in flood warn state) available.

```

***** ***** Top of Data *****
000001 * CEXCTLIN Routing options
000002 *-----
000003 CEXROUTE INELIGIBLEIF=GLOBALFLOODWARNING|GLOBALFLOODSEVERE
***** ***** Bottom of Data *****
    
```

Datastore Drain

Gives users ability to take datastores offline without potentially disrupting clients with active sessions

- Mark the datastore as requiring a drain
- Status changed to suspended:
 - No new requests will be routed to this system
 - Responses to outstanding transactions still returned to the client
 - Option to auto-resume when datastore is detected as available

The screenshot displays a management console interface with a 'Datastores' table. The table has columns for Status, System, Name, TMember, Super Member, Connect Status, IMS Status, Routing Status, Waiting Reply, and CWR. The 'Datastores' tab is highlighted in orange. A context menu is open over the 'SusAutoRes' value in the 'Routing Status' column of the second row (IMS B). The menu options are: Route Drain, Route Drain with AUTORESUME (highlighted), Route Resume, Stop, and Update Capacity Weight ...

IMS Connects	Ports	Exits	Datastores	Datastore Groups	ODBMs	Aliases	MSCs	Remote Connects		
Status	System	Name	TMember	Super Member	Connect Status	IMS Status	Routing Status	Waiting Reply	CWR	
●	HWSOPGS1	IMSA	XCFMICDA	MEM1	Active	Normal	Normal	6	1	
●	HWSOPGS1	IMSB	XCFMICDA	MEM1	Active	Normal	SusAutoRes	3	1	
●	HWSOPGS1	IMSC	XCFMICDB	MEMA	Active	Normal	Normal	0	10	
●	HWSOPGS1	IMSD	XCFMICDB	MEMA	Active	Normal	Normal	0	30	



Restart the datastore (IMS)

- Click to stop the datastore
- Perform maintenance
- Click to start the datastore

New in V2.4 - REXX samples

- Allow automatic drain in batch
- Drain a datastore or list of datastores
- For Single or Multiple IMS Connects
- Automatically stop IMS

The screenshot shows three sequential states of the IMS Datastore management interface. The top table shows all datastores in an 'Active' state. The middle table shows the 'IMS B' datastore in an 'Inactive' state, with a 'Start' button highlighted. The bottom table shows all datastores back in an 'Active' state.

IMS Connects	Ports	Exits	Datastores	Datastore Groups	ODBMs	Aliases	MSCs	Remote Connects	
Status	System	Name	TMember	Super Member	Connect Status	IMS Status	Routing Status	Waiting Reply	CWR
●	HWSOPGS1	IMSA	XCFMICDA	MEM1	Active	Normal	Normal	4	1
●	HWSOPGS1	IMSB	XCFMICDA	MEM1	Active	Normal	SusAutoRes	0	1
●	HWSOPGS1	IMSC	XCFMICDB	MEMA	Active	Normal	Normal	0	10
●	HWSOPGS1	IMSD	XCFMICDB	MEMA	Active	Normal	Normal	0	30

IMS Connects	Ports	Exits	Datastores	Datastore Groups	ODBMs	Aliases	MSCs	Remote Connects	
Status	System	Name	TMember	Super Member	Connect Status	IMS Status	Routing Status	Waiting Reply	CWR
●	HWSOPGS1	IMSA	XCFMICDA	MEM1	Active	Normal	Normal	4	1
■	HWSOPGS1	IMSB	XCFMICDA	MEM1	Inactive	Normal	AutoResume	0	1
●	HWSOPGS1	IMSC	XCFMICDB	MEMA	Active	Normal	Normal	0	10
●	HWSOPGS1	IMSD	XCFMICDB	MEMA	Active	Normal	Normal	0	30

IMS Connects	Ports	Exits	Datastores	Datastore Groups	ODBMs	Aliases	MSCs	Remote Connects	
Status	System	Name	TMember	Super Member	Connect Status	IMS Status	Routing Status	Waiting Reply	CWR
●	HWSOPGS1	IMSA	XCFMICDA	MEM1	Active	Normal	Normal	4	1
●	HWSOPGS1	IMSB	XCFMICDA	MEM1	Active	Normal	Normal	0	1
●	HWSOPGS1	IMSC	XCFMICDB	MEMA	Active	Normal	Normal	0	10
●	HWSOPGS1	IMSD	XCFMICDB	MEMA	Active	Normal	Normal	0	30

Contextual menus and annotations:

- Top menu: Route Drain, Route Drain with AUTORESUME, Route Resume, Stop, Update Capacity Weight ...
- Green callout: No sessions waiting – datastore drained
- Bottom menu: Route Drain, Route Drain with AUTORESUME, Route Resume, Start, Update Capacity Weight ...

Update Commands – IMS Connect

New in V2.4

The screenshot displays the 'IMS Connects' tab in the Status Monitor. A table lists two sessions, HWSOPGS1 and HWSOPGS2, with their respective status, start times, systems, and super members. A context menu is open over the table, with the 'Update' option highlighted. A sub-menu is also open, showing options for 'Event Collection Level ...', 'Session Message Limit ...', 'ODBM Routing Plan ...', and 'OTMA Routing Plan ...'. A green callout box explains that these settings can be dynamically changed or scheduled via REXX jobs.

Name	Status	Start Time	System	Super Member	OTMA Routing Plan	ODBM Routing Plan	Event Coll. Level	Msg. Limit	Limit Threshold
HWSOPGS1	P01	2014-09-23 09.43.37	HWSOPGS1	MEMA	PEAK		4	Active	50
HWSOPGS2	P01	2014-09-23 09.43.37	HWSOPGS2		PEAK	WEEKENDS	4	Inactive	0

Update

- Event Collection Level ...
- Session Message Limit ...
- ODBM Routing Plan ...
- OTMA Routing Plan ...

Dynamically change

- OTMA/ODBM Routing Plans
- Event Collection Level
- Message Limits
- Single or multiple systems

or

Schedule REXX job to make changes at specific times.



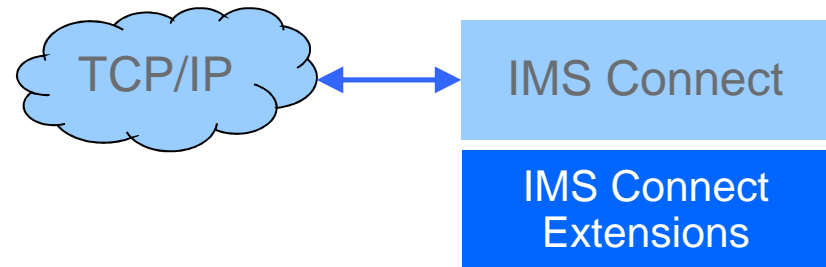
Security and validation

- Extends IMS Connect authentication and authorization to improve flexibility, performance, and security
- Authorize users based on:
 - The IMS Connect system they are connecting through
 - The IP address they are connecting from:
 - White list: only allow certain IP addresses access through IMS Connect
 - Black list: reject access from certain IP addresses or address ranges
 - The ports that users are connecting to

New in V2.4

- ACEE Cache Statistics
- Clear ACEE Cache from GUI and Batch

- Routing itself ensures enhanced security by allowing you to reject messages that don't have certain basic characteristics
- ACEE caching for all supported versions of IMS Connect



Is the user at that IP address authorized to access the requested IMS Connect, via this port?

CEX. IPV4. ICONname . nnn . nnn . nnn . nnn . ZZZZZ

CEX. IPV6. ICONname . xxxx . xxxx . xxxx . xxxx . xxxx . xxxx . xxxx . xxxx . ZZZZZ



SYSPLEX Session Re-balancing

New in V2.4
- Update options from GUI and Batch

Session Message Limit Option:

- New option allows user to set limit on input messages for a persistent session.
- Allows session balance across IMS Connect systems to be maintained in Sysplex Distributor environments.

```
File Menu Settings Help
-----
EDIT                               System Definition
Command ===> _____
Name . . . . : ICOND00
Description . . Workshop demo system1
                                           More:  - +
/  Activate Advanced Features
-  Activate Pacing
   Interval count . . . . 3
   Warning threshold . . 0
   Reject threshold . . . 0
/  Activate Session Message Limit   Limit threshold . . . 300
```

When the number of sessions on a persistent socket reaches this threshold, the persistent socket is closed.



Session Drain

New in V2.4
Drain from ISPF, GUI or Batch

Command to drain persistent Sessions:

- From GUI, ISPF or REXX.
- Safer than cancelling a persistent session.
- Works on the same principle as Session Re-balancing.
- More immediate than Session Re-balancing

```
Active Sessions
/ System Type Port Socket Event
/ HWSOPGS1 OTMA 4101 8 Message sent to OTMA
H .----- Line Actions -----
H | Select by number or action code then press Enter.
H | 4 1. Display session information... (S)
H | 2. Display network information... (N)
H | 3. Cancel session (P)
H | 4. Drain session (D)
H | 5. View message log... (L)
H | .-----
```

V2.4 includes a REXX sample that allows you to drain all persistent sessions based on a various criteria.

When the Drain command is issued against a persistent session the socket is automatically closed on the completion of the next transaction on the socket. This allows for a safe and controlled termination of the socket so that the client can re-establish a connection elsewhere.



IMS Connect Extensions host command environment for REXX

New in V2.4

- Includes most IMS Connect Extensions commands.
- Improves options for automated solutions
- allows flexible and tightly integrated automation
- Key benefits:
 - Flexibility of REXX language
 - Single REXX able to communicate with multiple IMS Connect systems
 - Scripts can also address other host environments
eg. IMS SPOC, SDSF, MVS Console, ISPF



IMS Connect Extensions host command environment for REXX

New in V2.4

- Many samples are included. These all work out of the box or can be modified to address your own needs:
 - **CEXRXC01/02** - Journal Switching / OLDS switch.
 - **CEXRXC11** - Control IMS Connect Extensions OTMA/ODBM Trace
 - **CEXRXC21/22/23** - Various samples to drain and shutdown IMS systems.
 - **CEXRXC26** - Drain persistent sessions based on criteria (eg All, port, trans, IPAddress).
 - **CEXRXC31** - Set routing plans.
 - **CEXRXC40** - Shell - Issue commands to IMS Connect or to IMS (Type 1).
 - **CEXRXC42/44/45** - Query (Sessions, ACEE Cache, Trace options).
 - **CEXRXC51** - Clear ACEE cache.
 - **CEXRXC61** - Update Capacity Weights for datastores or a open database targets.
 - **CEXRXC62** - Update a systems Journaling options – Event Collection level
 - **CEXRXC63** - Update a systems Session Message Limit options.
 - **CEXRXC71** - Add a datastore.



IMS Connect Extensions Operations Console

- Eclipse Plug-in
 - Installed under the IBM Explorer for z/OS® shell.
 - Can be installed in other eclipse shells.
 - Integration with other tools (eg. IMS Configuration Manager, Transaction Analysis Workbench).

- Import/export facility
 - Simplifies GUI setup by export of 'Standard' configuration file

- IMS Commands Support
 - Issuing IMS Type-1 commands
 - Issuing new IMS Connect commands
 - IMS Configuration Manager V2.1 provides 'auto-discovery' and OM commands.

- Improvements in V2.4
 - Improved connection and credential management
 - Tabbed status monitor and tabbed active sessions displays
 - Improved filters and filter management
 - Improved list layout management
 - Summarize/Group options
 - Numerous navigation and usability improvements
 - Saved displays and Comparator wizard



Operations Console: Summary

Summarize is available on all editors and all tabs

1. Summarize option

2. Select one or more criteria to summarize session data

3. To see specific records select from the summary and press 'Apply'

The screenshot shows the Operations Console interface with a session list and a summary dialog box. The session list has columns for Client Id, Read Exit Orig DS, User Id, Predicted Session Status, Wait Time, Session Type, Port, and Sc. The summary dialog box is titled "List Summary for All Sessions" and has two steps: "1. Select one or more fields to group by, then press Summarize;" and "2. Select a summary group to expand, then press Apply:". The dialog box shows a list of fields to group by, including System, Client Id, Read Exit Orig DS, User Id, Predicted Session Status, and Wait Time. The "Read Exit Orig DS" field is selected. Below the list, there is a "Summarize" button. The second step shows a table with columns for System, Read Exit Orig DS, and Total. The table has the following data:

System	Read Exit Orig DS	Total
HWSOPGS1		2
HWSOPGS1	PROD	12
HWSOPGS2		1
HWSOPGS2	IMSA	5
HWSOPGS2	IMSB	2

At the bottom of the dialog box, there is a "Use case sensitive groupings" checkbox, a question mark icon, and buttons for "Apply", "Clear Grouping", and "Close". The "Apply" button is highlighted with a mouse cursor. The session list in the background shows 12 records, with the first 11 records having a "Wait Time" of 0-00.00.21.701670 and the last record having a "Wait Time" of 0-00.00.10.455837. The "Session Type" for all records is "OTMA". The "Port" for all records is "4101". The "Sc" column is empty. The dialog box is open over the session list, and the "Apply" button is being clicked. The "1 of 12" indicator is visible in the bottom right corner of the session list.

Operations Console: Highlight Filters

Filter Wizard

System	Read Exit Orig DS	Read Exit Tgt DS	Client Id	User Id	Predicted Session Status			
HWSOPGS1	PROD	IMSA	DUDCLI07	CEX003	P002 - Waiting for reply from			
HWSOPGS1	PROD	IMSB	DUDCLI09	CEX003	P002 - Waiting for reply from			
HWSOPGS2	IMSA	IMSA	DUDCLI07	CEX003	P002 - Waiting for reply from			
HWSOPGS2	IMSD	IMSD	DUDCLI09	CEX003	P002 - Waiting for reply from			
HWSOPGS1	PROD	IMSA	DUDCLA02	CEX002	P002 - Waiting for reply from datastor			
HWSOPGS1	PROD	IMSB	DUDCLN01	CEX002	P002 - Waiting for reply from datastore=IMSB	OTMA	410	
HWSOPGS2	IMSA	IMSA	DUDCLA02	CEX002	P002 - Waiting for reply from datastore=IMSA	OTMA	411	
HWSOPGS2	IMSA	IMSA	DUDCLN01	CEX002	P002 - Waiting for reply from datastore=IMSA	OTMA	411	
HWSOPGS1	PROD	IMSA	UXNTR01	CEX001	P002 - Waiting for reply from datastore=IMSA	OTMA	410	
HWSOPGS1	PROD	IMSA	MSG0002	CEX001	P003 - Waiting for ACK/NAK from remote client	OTMA	410	
HWSOPGS1	PROD	IMSA	DUDCLI07	CEX003	P002 - Waiting for reply from datastore=IMSA	OTMA	410	
HWSOPGS1	PROD	IMSB	DUDCLI09	CEX003	P002 - Waiting for reply from datastore=IMSB	OTMA	410	
HWSOPGS1	PROD	IMSA	DUDCLI07	CEX003	P002 - Waiting for reply from datastore=IMSA	OTMA	410	
HWSOPGS1	PROD	IMSB	DUDCLI09	CEX003	P002 - Waiting for reply from datastore=IMSB	OTMA	410	
HWSOPGS1	PROD	IMSA	DUDCLA02	CEX002	P002 - Waiting in read prepare process	OTMA	410	
HWSOPGS1	PROD	IMSB	DUDCLN01	CEX002	P002 - Waiting for reply from datastore=IMSB	OTMA	410	
HWSOPGS1	PROD	IMSA	UXNTR01	CEX001	P002 - Waiting for reply from datastore=IMSA	OTMA	410	
HWSOPGS1	PROD	IMSA	MSG0002	CEX001	P003 - Waiting for ACK/NAK from remote client	OTMA	410	
HWSOPGS1	PROD	IMSA	DUDCLI07	CEX003	P002 - Waiting for reply from datastore=IMSA	OTMA	410	
HWSOPGS1	PROD	IMSB	DUDCLI09	CEX003	P002 - Waiting for reply from datastore=IMSB	OTMA	410	
HWSOPGS1	PROD	IMSA	DUDCLA02	CEX002	P002 - Waiting for reply from datastore=IMSA	OTMA	410	
HWSOPGS1	PROD	IMSB	DUDCLN01	CEX002	P002 - Waiting for reply from datastore=IMSB	OTMA	410	
HWSOPGS1	PROD	IMSA	UXNTR01	CEX001	P002 - Waiting for reply from datastore=IMSA	OTMA	410	
HWSOPGS1	PROD	IMSA	MSG0002	CEX001	P003 - Waiting for ACK/NAK from remote client	OTMA	410	

Manage List Filters

Active?	Filter Description
<input checked="" type="checkbox"/>	Inappropriate DESTIDs
<input type="checkbox"/>	Sessions for userid=CEX009
<input type="checkbox"/>	Sessions with IPA=133.22.124.8

Conditions for Inappropriate DESTIDs

Field	Operator	Value	Highlight?	Case Sensiti
Read Exit Orig DS	not in	PROD	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

OK Cancel

In this example we are highlighting any session that is not using the generic DESTID of 'PROD'

Questions?



Resources

IMS Connect Extensions for z/OS V2.3 User Guide

<http://publib.boulder.ibm.com/epubs/pdf/cexugb31.pdf?noframes=true>

IMS Performance Solution Pack: Overview and Customization V1.2

<https://publib.boulder.ibm.com/infocenter/dzichelp/v2r2/topic/com.ibm.imstools.funoc.doc.oc/funoca20.pdf?noframes=true>

Technotes

http://www-947.ibm.com/support/entry/portal/documentation_expanded_list/information_management/ims_connect_extensions_for_z~os

James Martin
Fundi Software
james_martin@fundi.com.au

Jim Martin
Fundi Software
jim_martin@fundi.com.au



Thank you

