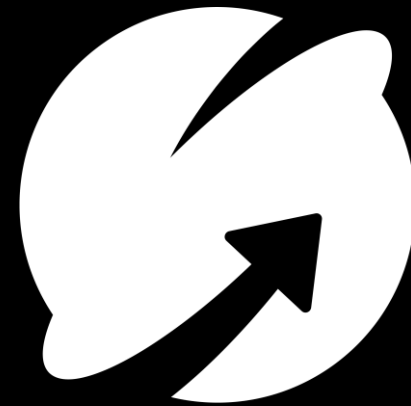


What's new in IMS Connect Extensions V3.1

James Martin

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Senior Solutions Advisor




IBM

IMS Tools

for z/OS

IMS Connect Extensions V3.1 new feature summary

Feature	Primary resource
Socket and journal usage in IMS Connect	https://www.ibm.com/support/knowledgecenter/SSAVHV_3.1.0/cexu-oc-statusmon-opening.html
New and improved REXX automation samples New REXX queries (journals, sockets, status and statistics).	https://www.ibm.com/support/knowledgecenter/SSAVHV_3.1.0/cexu-rexx-samples.html
IP address rules (security)	https://www.ibm.com/support/knowledgecenter/SSAVHV_3.1.0/cexu-ipaddr.html
PassTickets in IMS Open Database (APAR PH01608)	n/a
Wildcard in OTMA routing rules (APAR PI79483)	https://www.ibm.com/support/knowledgecenter/SSAVHV_3.1.0/cexu-defn-otma-rrule.html
Operations Console for z/OS Explorer direct download	https://developer.ibm.com/mainframe/products/ibm-ims-connect-extensions-z-os/
OTMA and ODBM rules-based routing – major documentation updates, new procedures and diagrams	https://www.ibm.com/support/knowledgecenter/SSAVHV_3.1.0/cexu-part-extend-tranproc.html
IMS Connect Extensions feed (analytics engines)	 https://developer.ibm.com/recipes/tutorials/forwarding-a-live-feed-of-ims-connect-events-to-splunk/



IBM IMS Connect Extensions for z/OS

Single point of control and monitoring via:

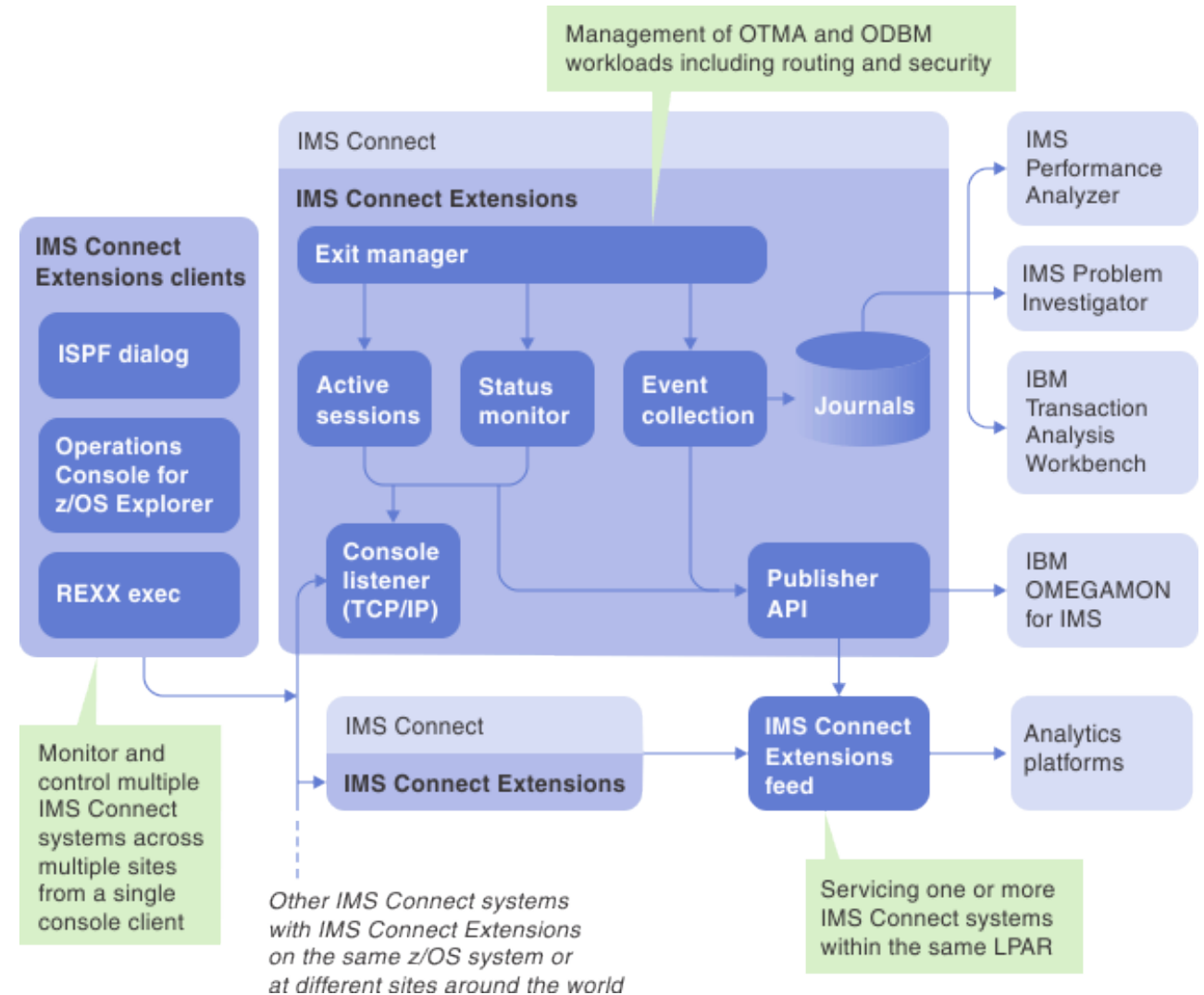
- ISPF
- Operations Console for z/OS Explorer
- REXX exec (automation!)

Delivers IMS Connect insights into:

- IMS Performance Analyzer (reporting)
- IMS Problem Investigator (journal browsing)
- IBM Transaction Analysis Workbench (journal browsing and analytics)
- IBM OMEGAMON for IMS (reporting)
- Analytics platforms (e.g. Splunk)

Builds on IMS Connect with:

- Workload routing and balancing
- Additional security features
- IP address rules

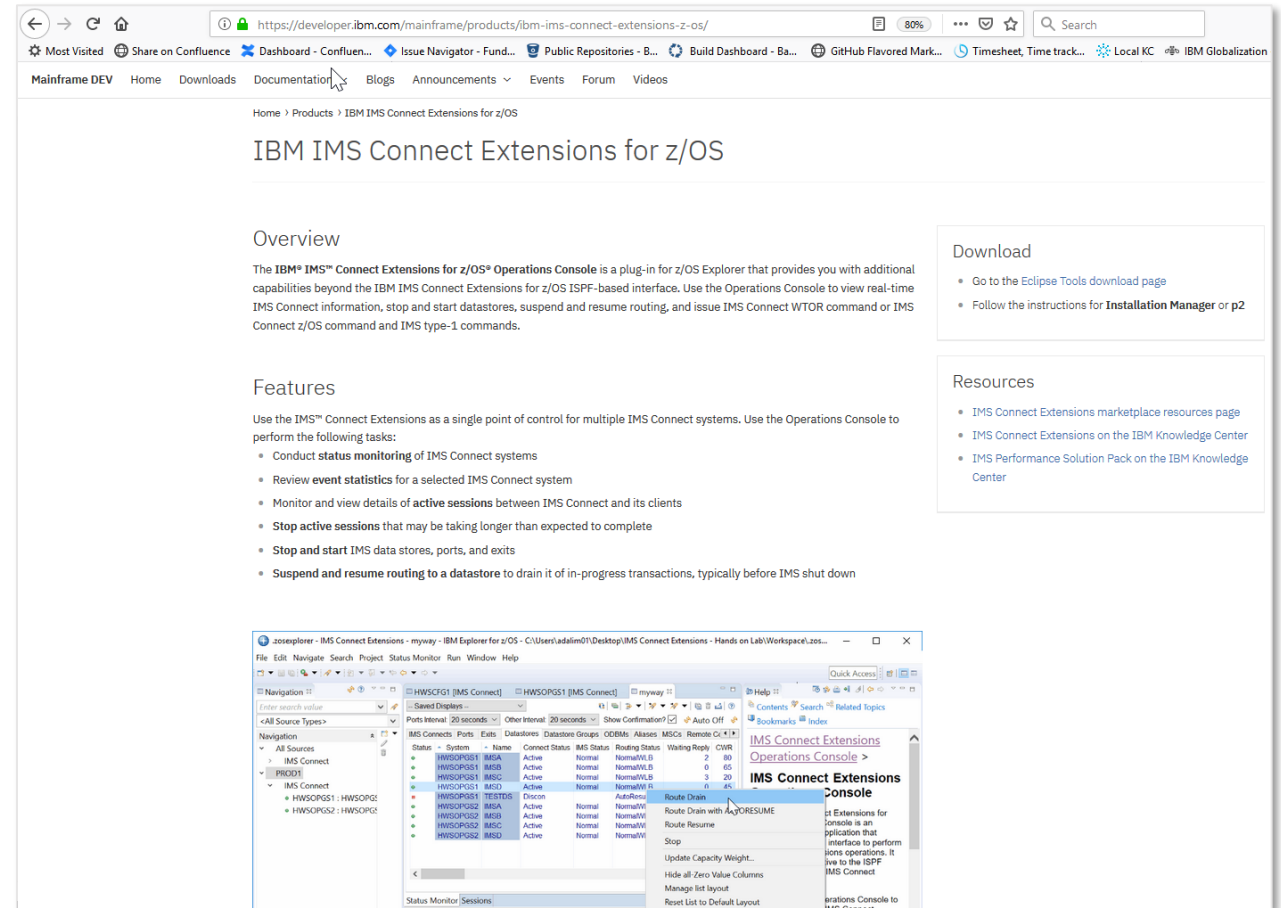
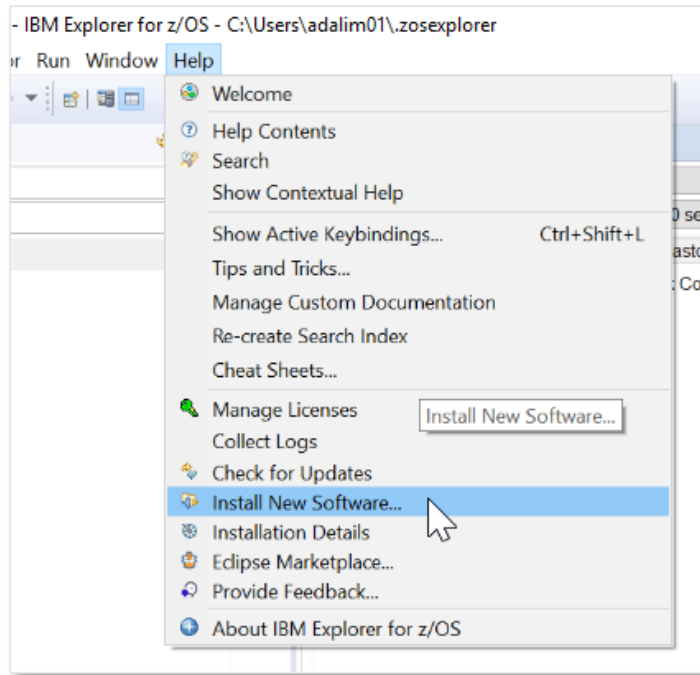


Operations Console



Download the Operations Console from IBM

In the past, you had to install it manually after transferring it off the mainframe. Now you can easily select it from within z/OS Explorer or go directly to the website for updates...



https://www.ibm.com/support/knowledgecenter/SSAVHV_3.1.0/cexu-oc-overview.html

<https://developer.ibm.com/mainframe/products/ibm-ims-connect-extensions-z-os/>

Navigation

Enter search value

<All Source Types>

Navigation

- > All Sources
- ▼ DEMO
 - ▼ IMS Connect
 - IMSCON1 : IMSCON1
 - > PROD
 - > TEST

Common Services Library Servers

Console Progress

z/OS

Journal and socket usage



Journal and socket usage in IMS Connect Extensions V3.1 clients

View statistics from multiple IMS Connect systems on a single screen

ISPF Operations dialog

Operations - Systems View Filter Mode: More
Command ==> _____ Scroll ==> PAGE

View . . . 2 1. Groups 2. Systems

Filter . . _____ Exclude inactive systems . . 2 1. Yes 2. No

System	Status	Events	Level	Coll.	Journal	Sockets	OTMA	ODBM
					Active Used	Used	Plan	Plan
RAPI03	ACTIVE	OFF	4					
RAPI04	ACTIVE	ON	4	P03	49%	89%	PEAK	
RAPI05	ACTIVE	ON	4	P03	2%	67%	PEAK	
RAPI06	ACTIVE	ON	4	P03	83%	5%		OFFPEAK

***** Bottom of data *****

https://www.ibm.com/support/knowledgecenter/SSAVHV_3.1.0/cexu-ops-dialog-system.html

Operations Console for z/OS Explorer

PROD

-- Saved Displays --

Ports Interval: 20 seconds Other Interval: 1 hour Show Confirmation? Auto Off

Name	Status	Start Time	System	Super Member	OTMA Routing Plan	Journal % Used	Sockets % Used	Accepted Count	OD
HWSOPGS1	P02	2018-10-30 11.54.58	HWSOPGS1	MEMA	PEAK	33	24	48090	
HWSOPGS2	P03	2018-10-30 11.55.00	HWSOPGS2		PEAK	88	17	21226	

Switch Journal

- ACEE Cache Statistics
- Clear ACEE Cache...
- Update >
- Start Conditional Trace...
- Stop Conditional Trace
- Start Recorder Trace
- Stop Recorder Trace
- Hide all-Zero Value Columns

https://www.ibm.com/support/knowledgecenter/SSAVHV_3.1.0/cexu-oc-statusmon-iconview.html

Suppress switching if journal has been recently switched or is about to be switched (CEXRXC03)

https://www.ibm.com/support/knowledgecenter/SSAVHV_3.1.0/cexu-rexx-samples.html

- REXX sample checks the active journal utilization for the given IMS Connect system and issues a SWITCH TYPE=JOURNAL command to switch the active journal if the observed active journal utilization falls within a specified range.
- **Process:**
 1. Query the current journal utilization for an IMS Connect system
 2. Switch the journal if utilization is within range
- **Host commands used:** OPTION, CONNECT, QUERY, SWITCH.
- **Example usage:**
 - Run an automatic journal switch at midnight, but don't perform the switch if a switch has just occurred or was about to occur.

https://www.ibm.com/support/knowledgecenter/SSAVHV_3.1.0/cexu-rexx-command-summary.html



Identify and optionally respond to the scenario where an IMS Connect system is approaching MAXSOC (CEXR81)

https://www.ibm.com/support/knowledgecenter/SSAVHV_3.1.0/cexu-rexx-samples.html

- REXX sample to help identify and optionally facilitate an automated response to resolve the scenario where an IMS Connect system is approaching MAXSOC (all available sockets in use).
- **Process:**
 1. Query the current socket utilization for an IMS Connect system
 2. If the system's current socket utilization is found to cross a specified threshold:
 - a. Identify (report) eligible persistent OTMA sessions that have been idle for longer than a specifiable session wait time threshold.
 - b. Cancel those sessions to free sockets (optional)
- **Host commands used:** OPTION, CONNECT, QUERY, DELAY, SHELL.
- **Example usage:**
 - Periodic check for better alerting, maximize time for analyst to respond and remedy

https://www.ibm.com/support/knowledgecenter/SSAVHV_3.1.0/cexu-rexx-command-summary.html



REXX automation samples (SCEXSAMP library)

https://www.ibm.com/support/knowledgecenter/SSAVHV_3.1.0/cexu-rexx-samples.html

- IMS Connect Extensions journal switching
 - **New: Suppress switching if journal has been recently switched or is about to be switched**
- IMS Connect Extensions trace
- Drain (suspend) routing to IMS data stores
 - **New: Suspend routing to a list of DATASTOREs (connections to IMS) and then issue IMS shutdown**
- Activating OTMA and ODBM routing plans
- Submitting IMS type-1 commands
- Query status information
 - **New (details on next slide):**
 - Status Monitor statistics
 - Journal utilization metrics
 - Socket utilization metrics
- ACEE cache management
- Workload balancing
 - **New: Incremental capacity weight rating adjustment for an IMS data store (dynamic workload shaping, respond to changing conditions!)**
- Socket usage
 - **New: Respond to IMS Connect MAXSOC condition**



New REXX host commands for IMS Connect Extensions

QUERY TYPE=JOURNAL

- Information about the active IMS Connect Extensions journal

QUERY TYPE=SOCKETS

- Information about IMS Connect socket usage

QUERY TYPE=STATUS_MONITOR

- Retrieves IMS Connect and IMS data store **status** and **statistics**. Retrieve information on TCP/IP ports, IMS Connect, DATASTORE connections to IMS, user exits, ODBM targets, IMS aliases, MSC link statistics, and remote IMS Connect system statistics.

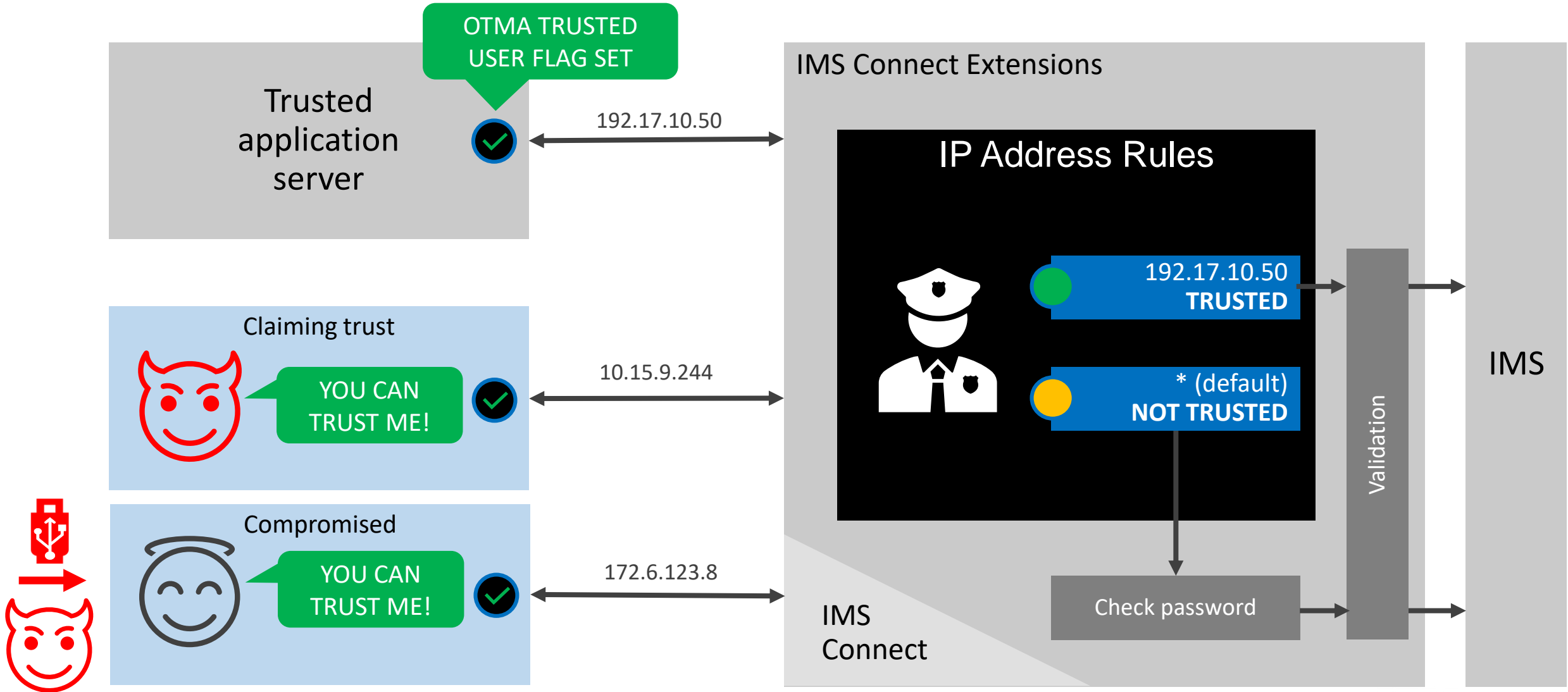
https://www.ibm.com/support/knowledgecenter/SSAVHV_3.1.0/cexu-rexx-query.html



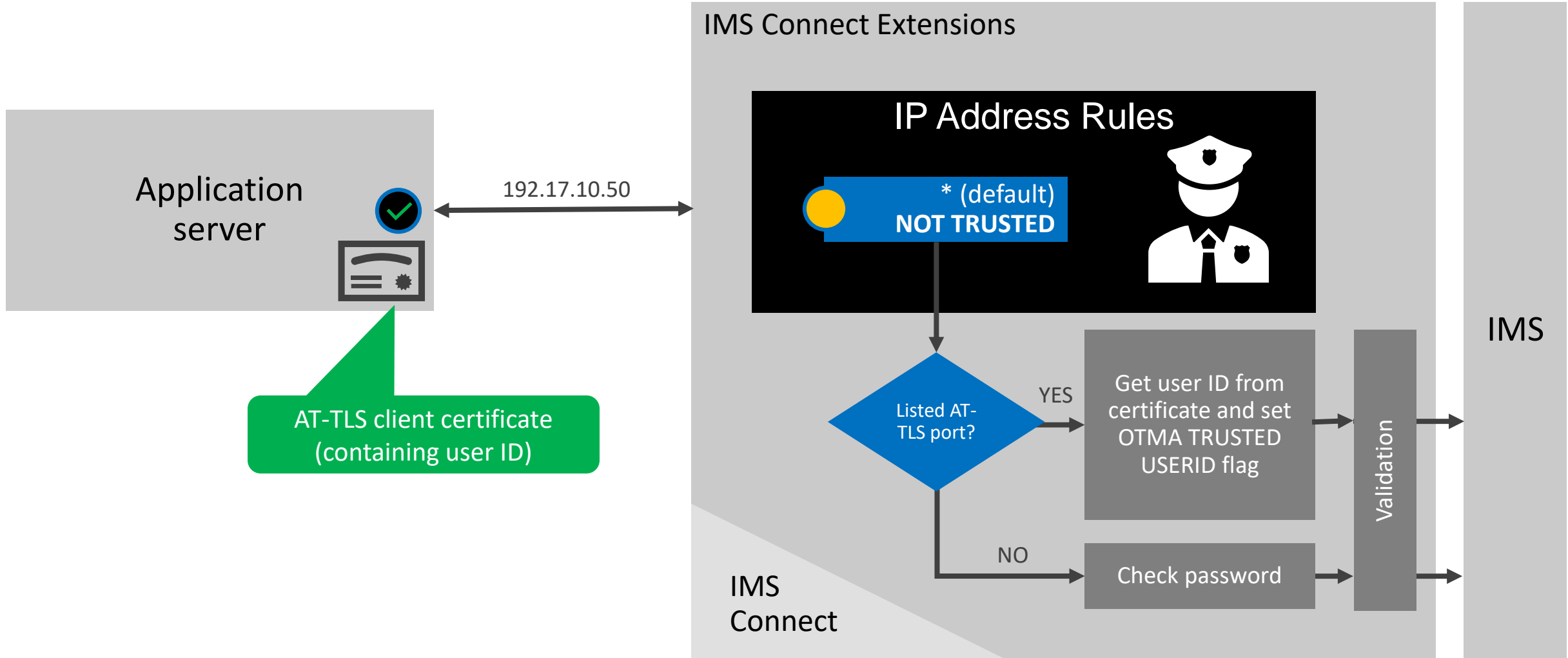
Security and IP address rules



Centralized management of trust based on IP address



Take the user ID from the client's digital certificate (AT-TLS)



Implementing OTMA and ODBM rules-based routing and workload balancing



Major documentation updates for IMS Connect workload management

- **Step by step procedures** for creating OTMA and ODBM workload rules
- Major routing scenarios described **visually**:
 - **Using a fallback IMS**
 - **Distributing workload across 2 or more IMS systems** (to balance workload, reduce single DATASTORE bottleneck)
 - **Shaping workload** (set the “capacity” of a DATASTORE or ODBM target)
- Making a routing plan (containing a set of routing rules)

The screenshot shows the IBM Knowledge Center interface. The left sidebar contains a table of contents for 'IMS Connect Extensions 3.1.0', with 'Managing IMS Connect workloads' and 'Routing to a list of fallback IMS data stores' highlighted in red. The main content area is titled 'About this task' and includes a diagram illustrating dynamic routing of OTMA workloads to a list of fallback IMS data stores.

Target

OTMA routing rule Name: RULE2
Original Datastore: IMSL

Target
OTMA routing list Name: GROUP1
Datastore: DSLOCAL → IMS

Fallback

OTMA routing list Name: GROUP2
Datastore: DSRMT01 → IMS
Datastore: DSRMT02 → IMS
Datastore: DSRMT03 → IMS

The diagram shows a flow starting from 'IRM_IMSDestID: IMSL' to a decision diamond 'Target available?'. If 'Yes', it routes to 'Datastore: DSLOCAL' (part of 'OTMA routing list Name: GROUP1') which connects to an 'IMS' system. If 'No', it routes to 'Select from fallback list', which then branches to three 'Datastore' boxes (DSRMT01, DSRMT02, DSRMT03) each connected to an 'IMS' system.

The following procedure shows you how to add a fallback OTMA routing list to an existing OTMA routing rule.

Procedure

1. Create an OTMA routing list definition for your fallback IMS data stores. For assistance with this task, see [Routing OTMA workload to one or more](#)

https://www.ibm.com/support/knowledgecenter/SSAVHV_3.1.0/cexu-part-extend-tranproc.html

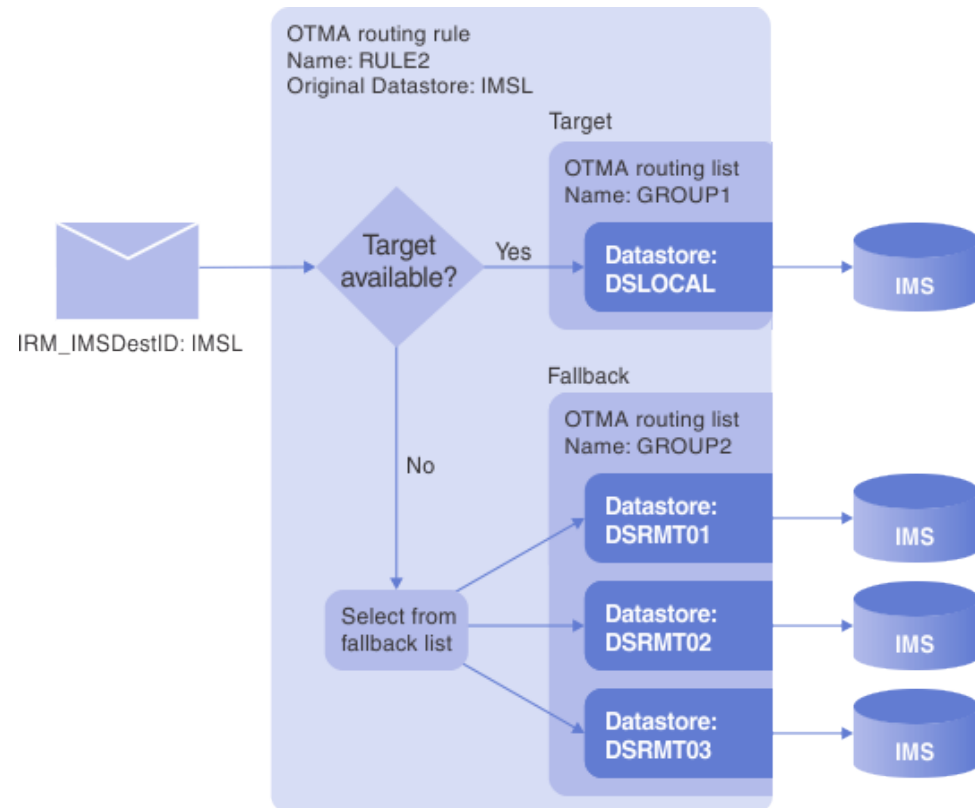


Detailed procedures for implementing classic OTMA routing scenarios in IMS Connect Extensions

https://www.ibm.com/support/knowledgecenter/SSAVHV_3.1.0/c_exu-part-extend-tranproc.html

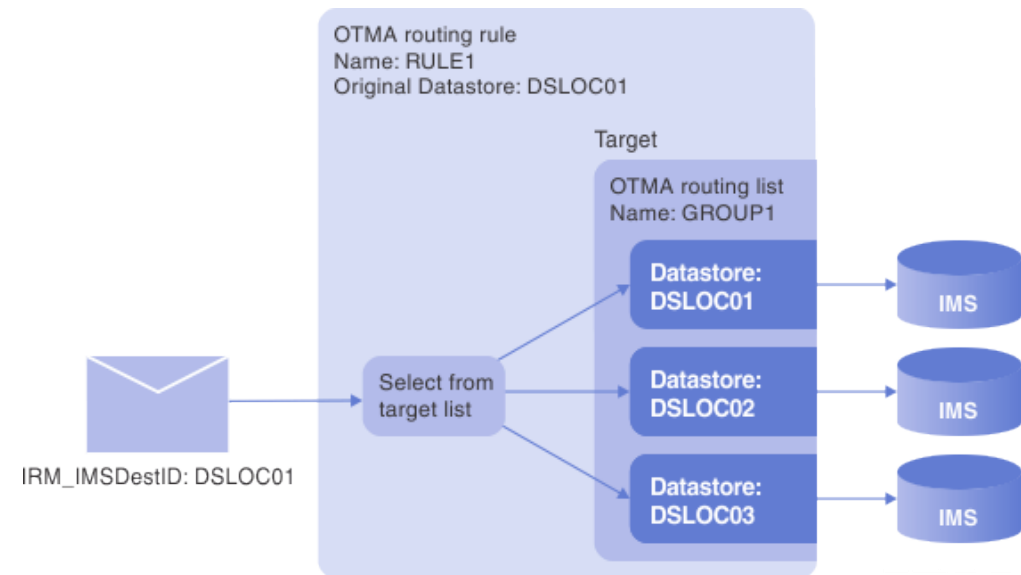
Primary and fallback IMS data stores

- Route to primary. If primary unavailable, use fallback(s)
- Useful for maintenance (planned/unplanned)



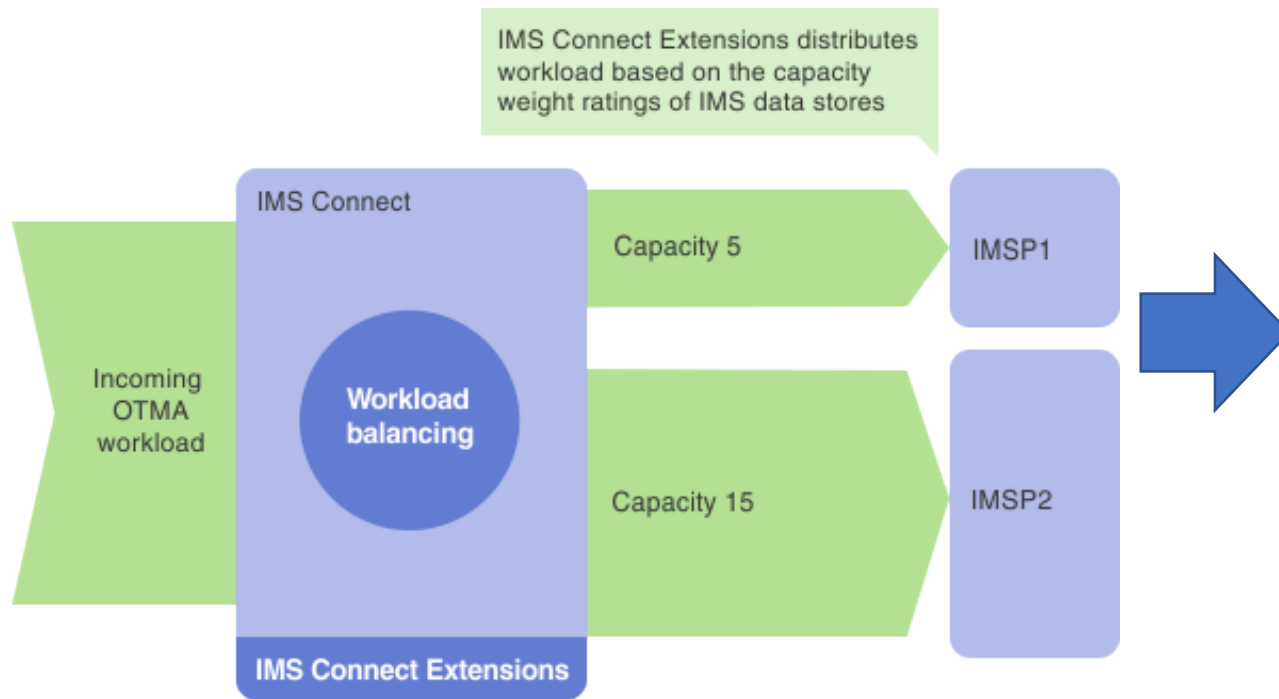
Route to any IMS data store in a predefined list

- Distribute requests across multiple
- Balances workload across systems
- Reduces chances of DATASTORE bottleneck



OTMA workload shaping in IMS Connect Extensions

Shift the work around (and use REXX to update it dynamically)



Setting the capacity of an IMS data store for OTMA workloads

- IMS Connect Extensions 3.1.0
 - Getting started
 - IMS Connect event collection, reporting, and forwarding
 - Managing IMS Connect systems
 - Managing IMS Connect workloads
 - OTMA workload routing
 - Principles of OTMA rules-based routing
 - Developing OTMA routing rules for IMS Connect
 - Routing to one or more IMS data stores
 - Routing to a list of fallback IMS data stores
 - Setting the capacity of an IMS data store
 - Assigning OTMA routing rules to a plan
 - Activating OTMA routing rules in IMS Connect
 - Reviewing the active OTMA routing rules
 - Controlling OTMA routing behavior via CEXCTLIN control options
 - OTMA operations management and tuning
 - ODBM workload routing
 - Principles of ODBM rules-based routing
 - Developing ODBM routing rules for IMS Connect
 - Activating ODBM routing rules in IMS Connect
 - Reviewing the active ODBM routing rules
 - Controlling ODBM routing behavior via CEXCTLIN control options
 - Enhancing IMS Connect security
 - Customizing IMS Connect message translation
 - Administering definitions
 - Administering definitions with the ISPF dialog
 - Definition list panels: common features
 - Definition edit panels: primary commands
 - Defining IMS Connect systems
 - Defining user exits

Before you begin

Create an OTMA routing rule that routes workload to multiple IMS data stores. See [Routing OTMA workload to one or more IMS data stores](#).

About this task

Workload balancing is accomplished using a weighted rotate algorithm that considers the processing capacity of an IMS data store. In IMS Connect Extensions, this processing capacity is realized by assigning a capacity weight rating (CWR) to each IMS data store. The capacity weight rating for an IMS data store is set in the IMS data store definition stored in the IMS Connect Extensions repository.

An IMS data store's capacity weight rating is relative to other IMS data stores that may be available for processing the incoming message. For example, if IMS data store IMSP1 has a capacity weight rating of 5 and data store IMSP2 has a rating of 15, IMSP2 should, on average, receive three times as many messages as IMSP1. This ratio of 5 to 15 means that IMSP1 receives an average of 25 percent of the workload and IMSP2 receives 75 percent.

Figure 1. IMS Connect and IMS Connect Extensions distributing an OTMA workload over two IMS data stores according to each data store's capacity weight rating

IMS Connect Extensions distributes workload based on the capacity weight ratings of IMS data stores

IMS Connect

Workload balancing

IMS Connect Extensions

Capacity 5

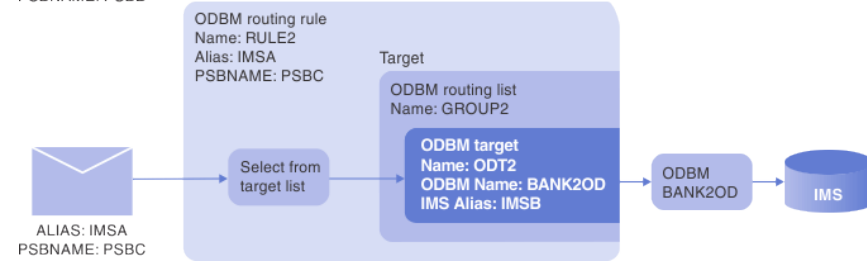
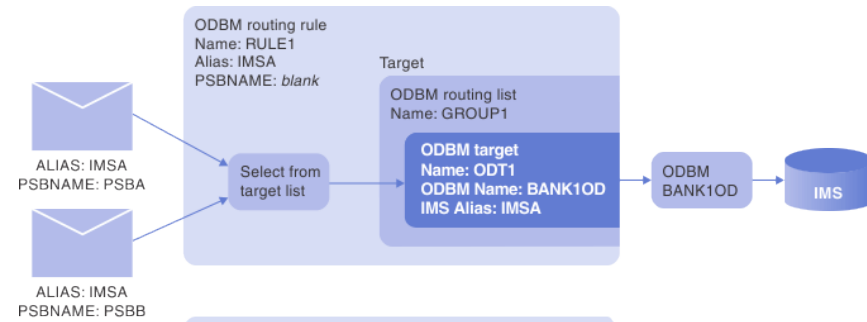
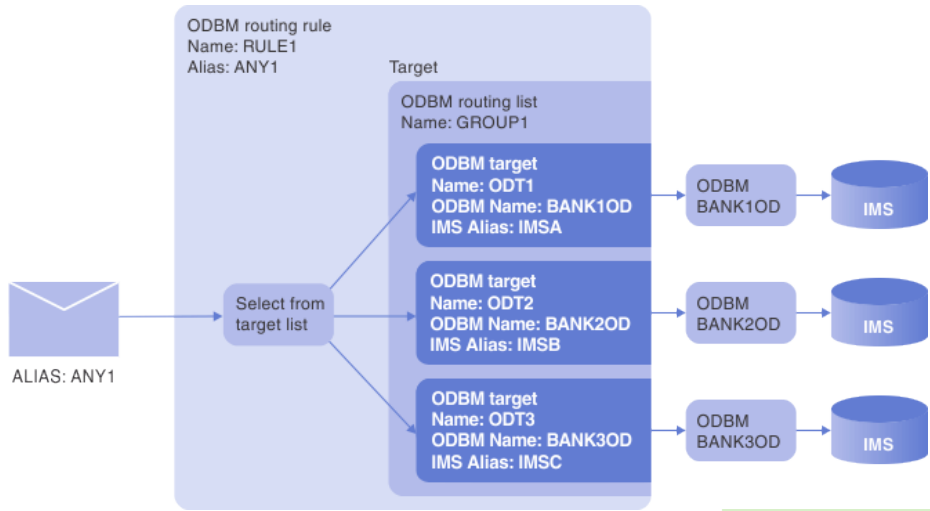
IMSP1

Capacity 15

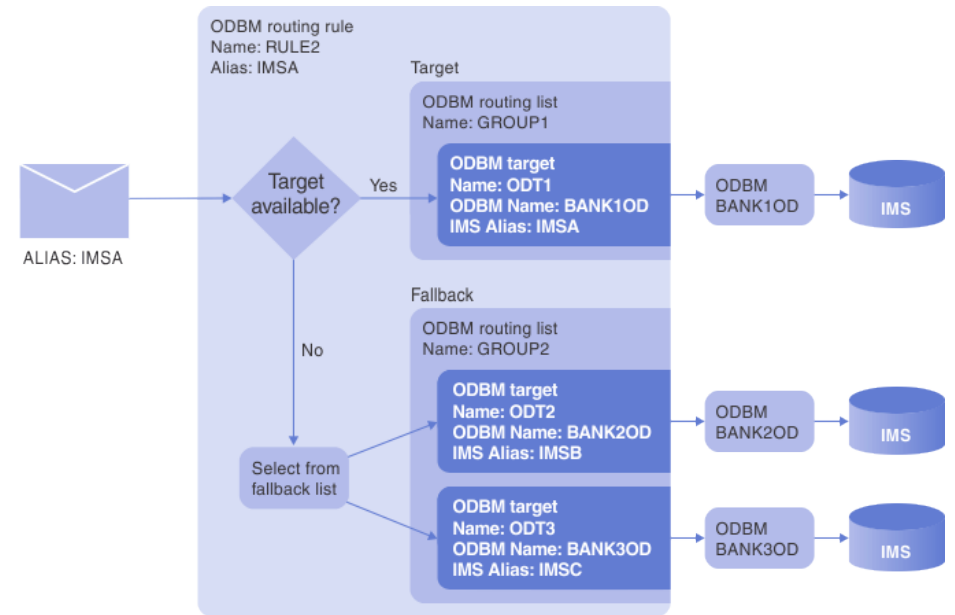
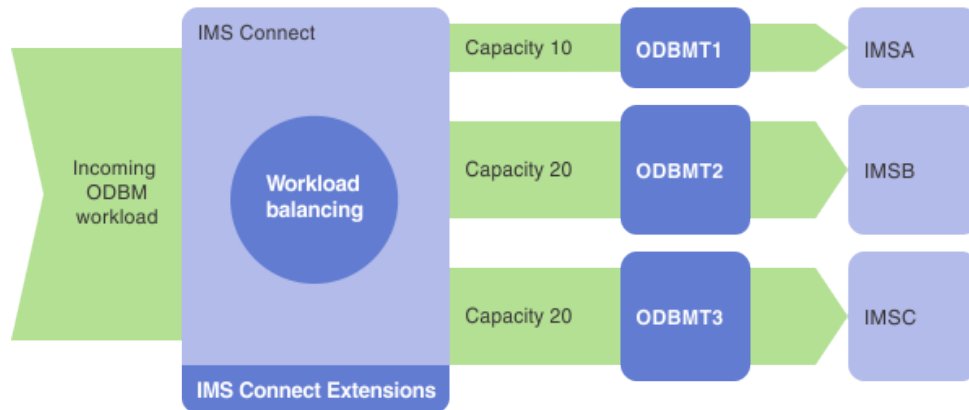
IMSP2

https://www.ibm.com/support/knowledgecenter/SSAVHV_3.1.0/cexu-otma-routing-workload.html

New routing scenarios and procedures for ODBM workloads...



IMS Connect Extensions distributes workload to IMS data stores based on the capacity weight ratings of the associated ODBM targets



https://www.ibm.com/support/knowledgecenter/SSAVHV_3.1.0/cexu-odbm-routing.html

IMS Connect Extensions feed for operations analytics



IMS Connect Extensions feed

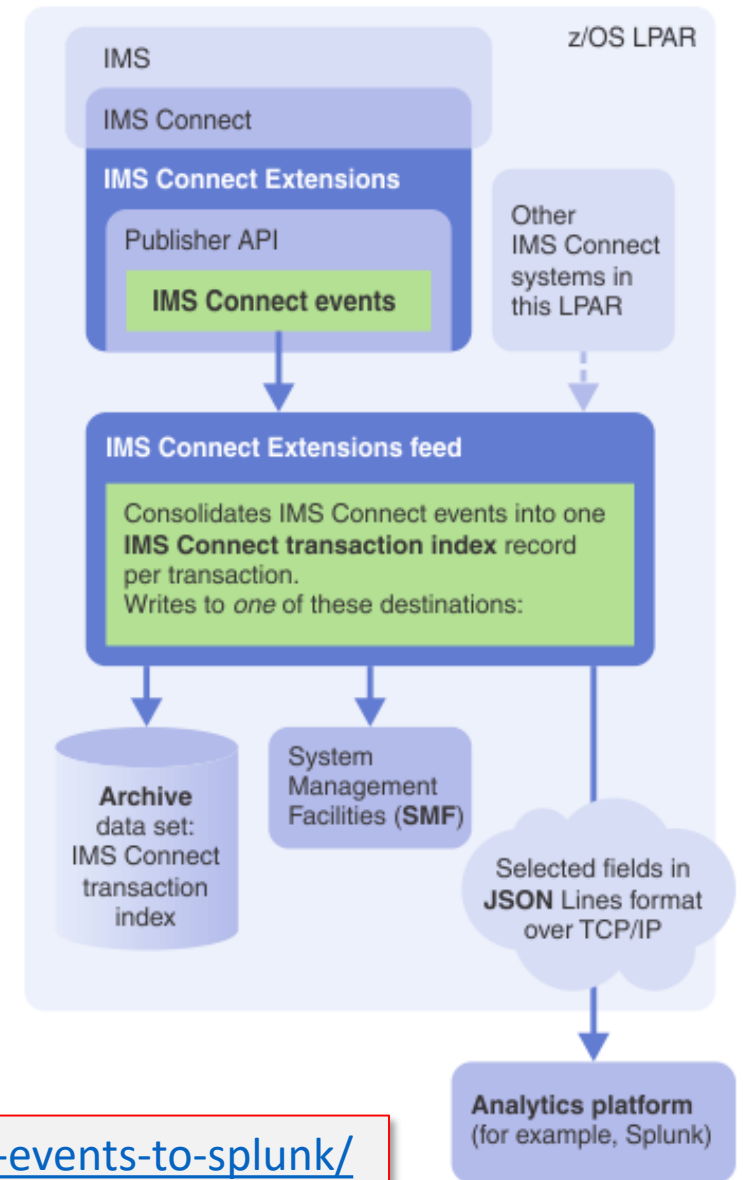
What is it?

- A near real time data feed of IMS Connect transaction activity in summary form.
- The feed uses the IMS Connect Extensions Publisher API.
- It processes event records from the IMS Connect Extensions Publisher API using the same process that is found in IMS Performance Analyzer to produce IMS Connect transaction index records (also known as CA20 records).

What can you do with it?

- Chart the data in analytics platforms
 - Splunk sample application: <https://splunkbase.splunk.com/app/4320/>
 - Forward as JSON Lines, or use SMF (Common Data Provider)
- Use the IMS Connect transaction index with IMS Performance Analyzer, IMS Problem Investigator, or IBM Transaction Analysis Workbench.

<https://developer.ibm.com/recipes/tutorials/forwarding-a-live-feed-of-ims-connect-events-to-splunk/>



IMS Connect transaction analysis app Overview dashboard



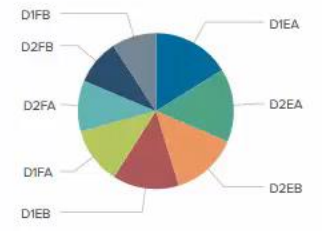
Overview

IMS Connect transactions grouped by your choice of identifier, showing the top 10 values by transaction count

Time range: Identifier: [Hide Filters](#)

Transaction count

IMS data store (target)



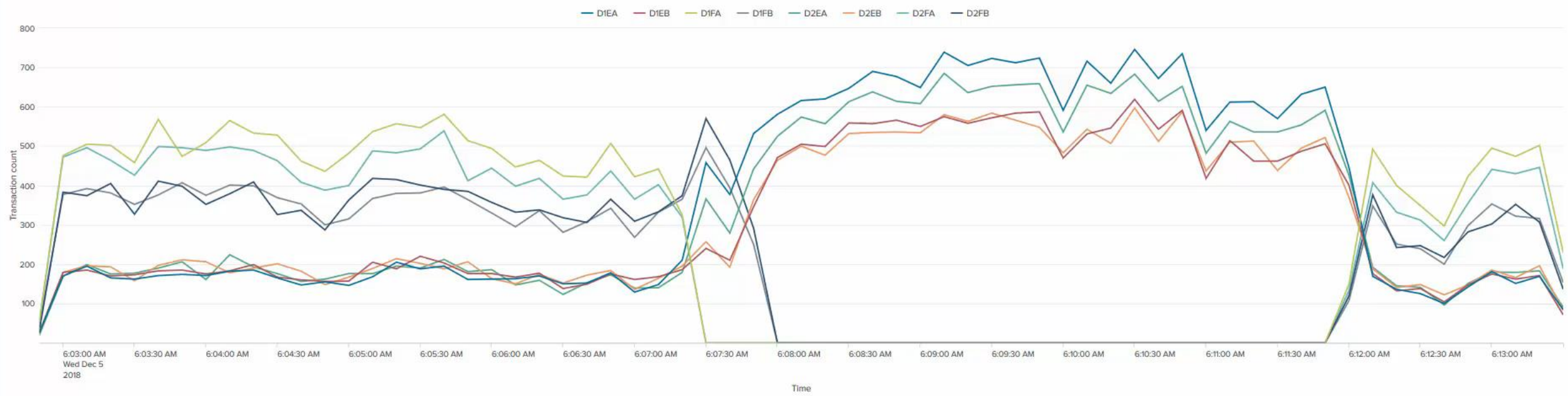
IMS data store (target)	Transaction count	Percentage
D1EA	23482	16.20%
D2EA	22059	15.22%
D2EB	20041	13.83%
D1EB	19992	13.79%
D1FA	17041	11.76%
D2FA	15282	10.54%
D2FB	13728	9.47%
D1FB	13311	9.18%

Average transactions per second



Transaction rate

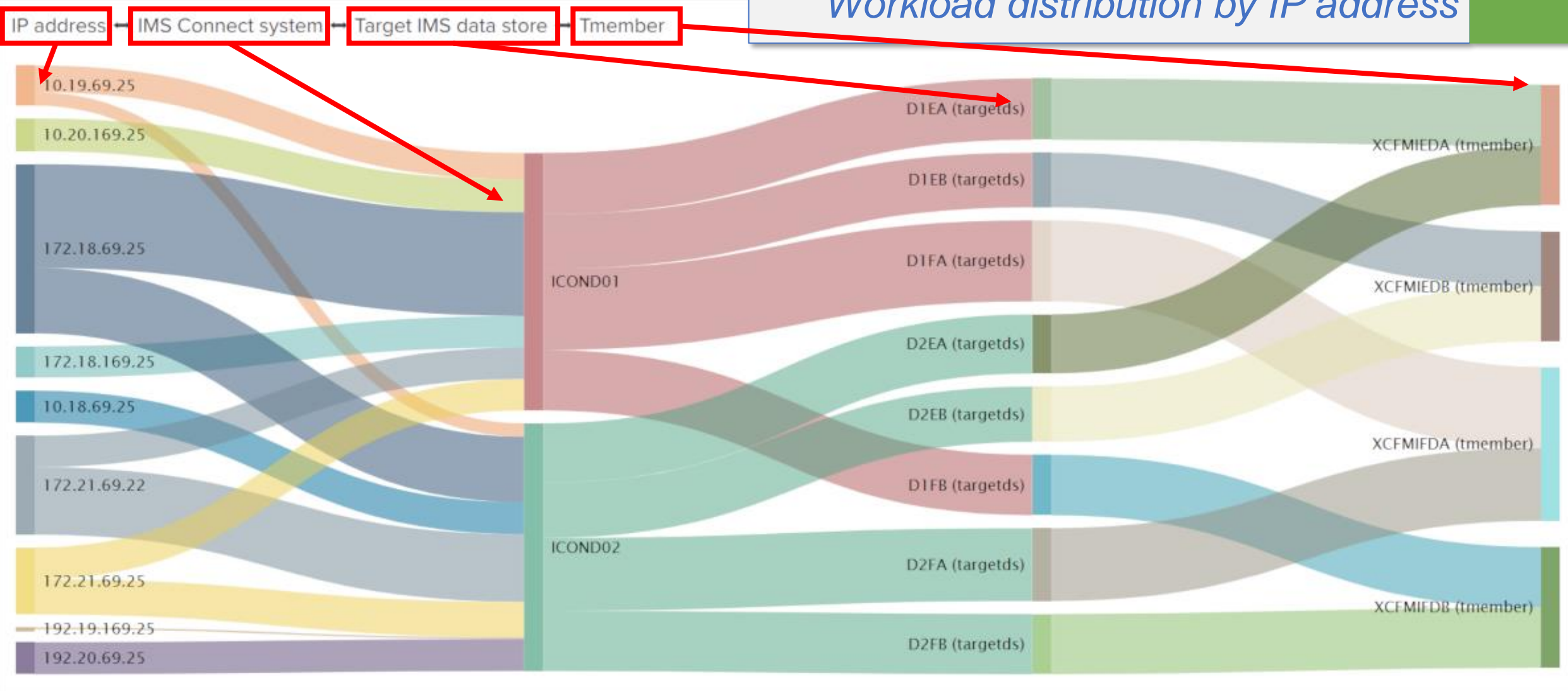
IMS data store (target)



IMS Connect transaction analysis app

Workload distribution by IP address

splunk>



Size of the ribbons and bars based on transaction count. See who's sending (IP address) and what IMS Connect systems, DATASTORES, and IMS systems are processing the most (and the path taken).

IMS Connect transaction analysis app

Workload mapping (OTMA routing rules in-effect)

Workload mapping

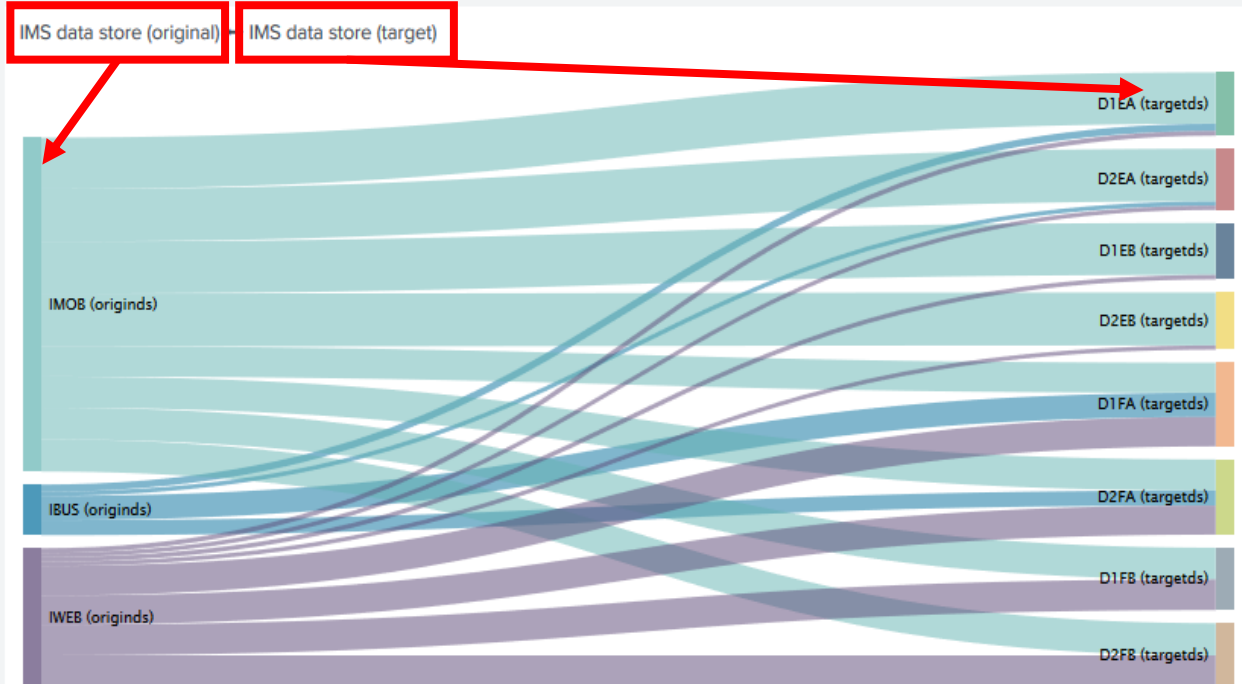
Relationships between two IMS Connect transaction identifiers. For example, selecting Original and Target IMS data stores highlights IMS Connect Extensions routing.

Time range: All time

First identifier: IMS data store (original)

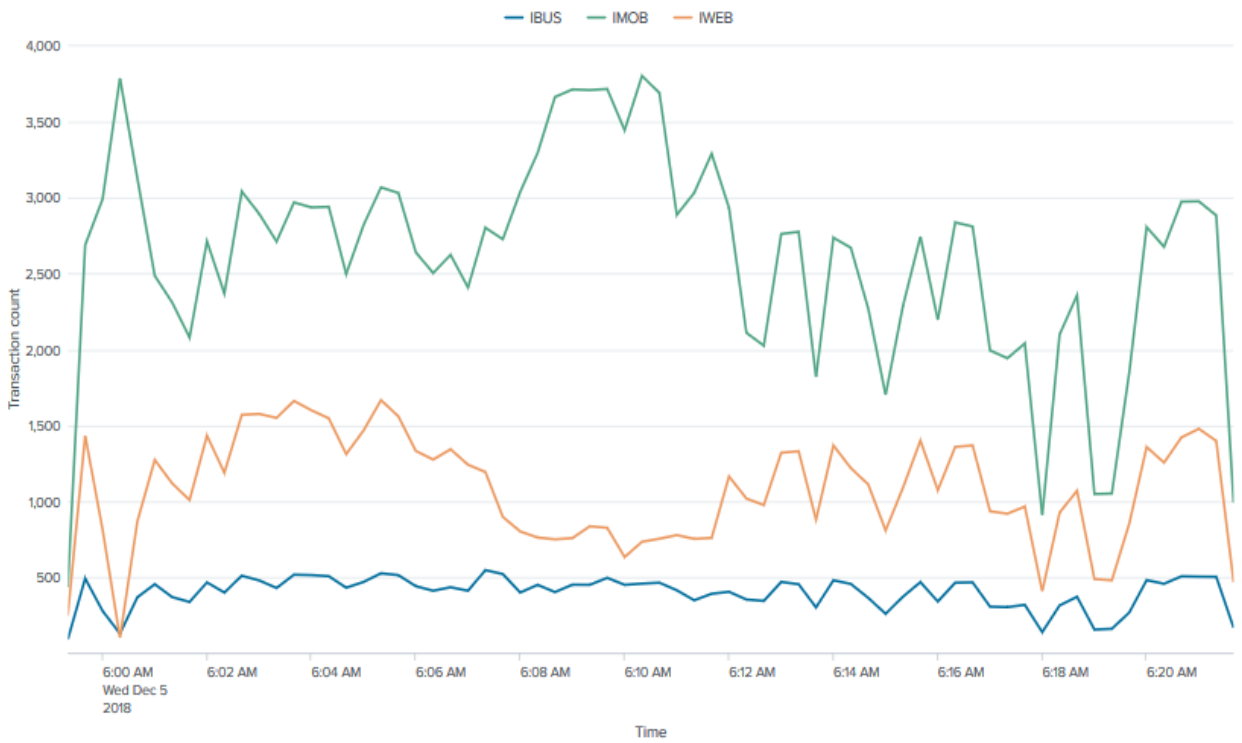
Second identifier: IMS data store (target)

Hide Filters



Transaction rate

IMS data store (original)

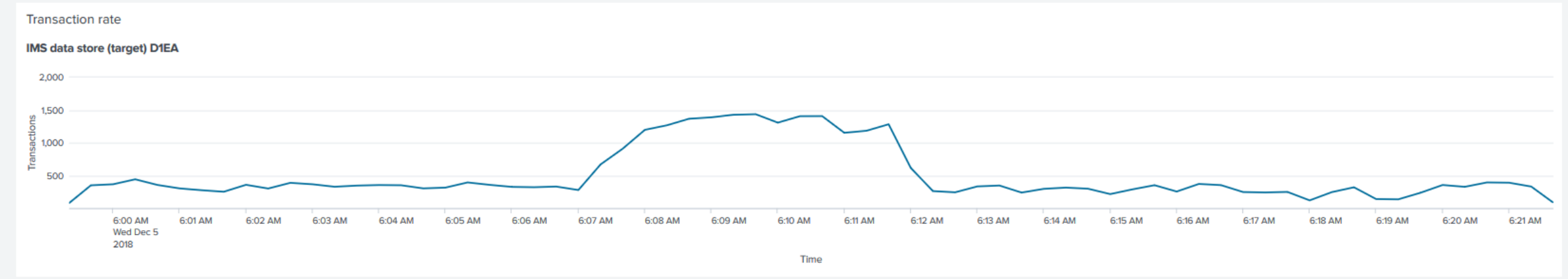


IMS Connect transaction analysis app
Response time, input time, SAF time, OTMA time,
and output time for IMS data store

Elapsed time components

IMS Connect transaction performance grouped by your choice of identifier, limited to one identifier value

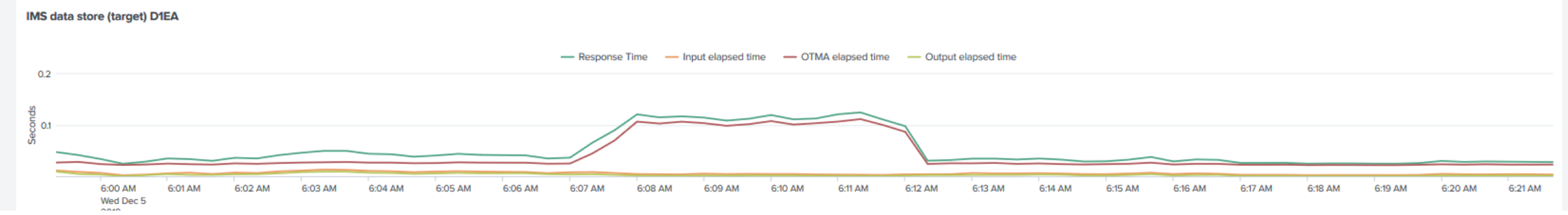
Time range: All time
 Identifier: IMS data store (target)
 IMS data store (target): D1EA
 Hide Filters



Transaction elapsed time components

Elapsed times

- Response time x
- Input elapsed time x
- OTMA elapsed time x
- Output elapsed time x

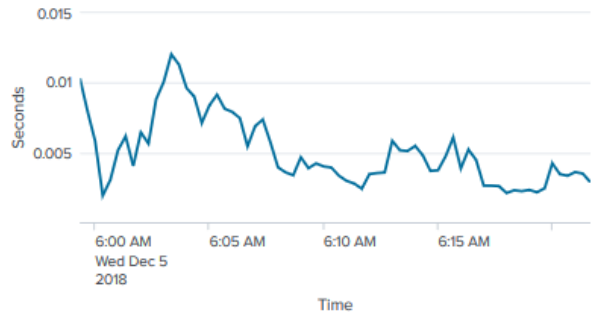


IMS Connect transaction analysis app

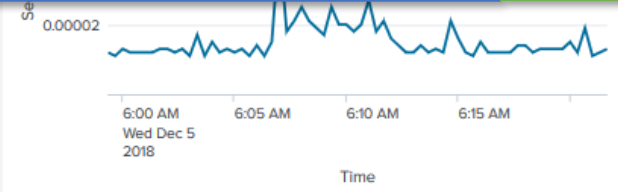
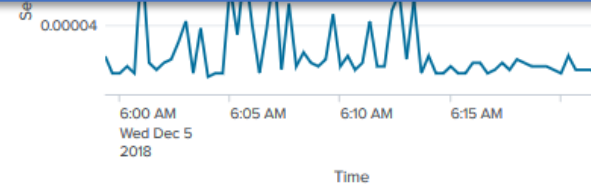
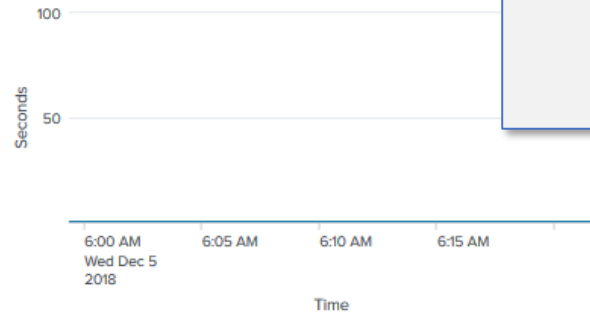
Transaction list



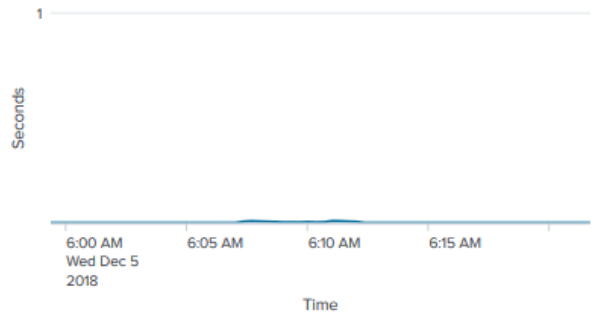
READ exit function elapsed time



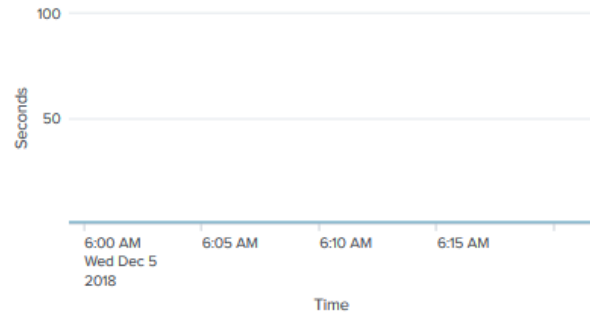
RXML exit function elapsed time



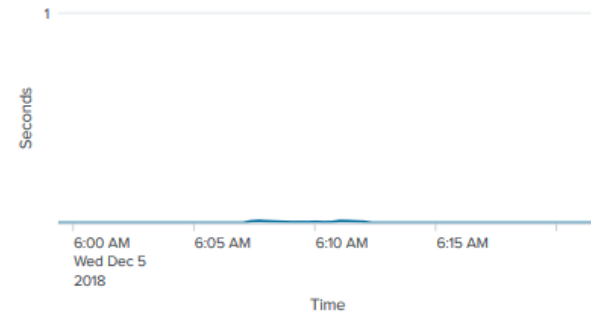
Elapsed time waiting for client ack



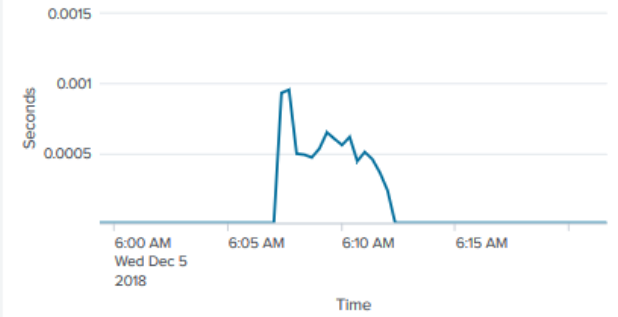
Resume tpipe elapsed time



Confirmation elapsed time



OTMA ACK elapsed time



IMS Connect transactions

i	_time	Logon token ↕	Client ID ↕	IMS Connect system ↕	IMS data store (original) ↕	IMS data store (target) ↕	IP address ↕	Port ↕	Read exit ↕	Transaction code ↕	Tmember ↕	Tpipe ↕	User ID ↕	Response time ↕	Input elapsed time
>	12/5/18 6:21:45.161 AM	D555055FA75EF541	OTDCL11	ICOND01	IMOB	D1EA	172.18.169.25	4141	HWSSMPL1	JLMTRAN1	XCFMIEDA	4141	CEX002	0.031572	0.001719
>	12/5/18 6:21:44.995 AM	D555058E69D10643	OTDCL13	ICOND01	IMOB	D1EA	172.18.69.25	4142	HWSSMPL1	JLMTRAN1	XCFMIEDA	4142	CEX001	0.047282	0.00312
>	12/5/18 6:21:44.966 AM	D5550564ED4C2144	OTDCL12	ICOND01	IMOB	D1EA	172.21.69.22	4141	HWSSMPL1	JLMTRAN1	XCFMIEDA	4141	CEX003	0.023697	0.00153
>	12/5/18 6:21:44.952 AM	D555058E69D10643	OTDCL13	ICOND01	IMOB	D1EA	172.18.69.25	4142	HWSSMPL1	JLMTRAN1	XCFMIEDA	4142	CEX001	0.022604	0.001421
>	12/5/18 6:21:44.909 AM	D555058E6A805143	OTDCL14	ICOND01	IMOB	D1EA	10.20.169.25	4143	HWSSMPL1	JLMTRAN1	XCFMIEDA	4143	CEX009	0.038195	0.013171
>	12/5/18 6:21:44.794	D555058E6A805143	OTDCL14	ICOND01	IMOB	D1EA	10.20.169.25	4143	HWSSMPL1	JLMTRAN1	XCFMIEDA	4143	CEX009	0.025151	0.00217

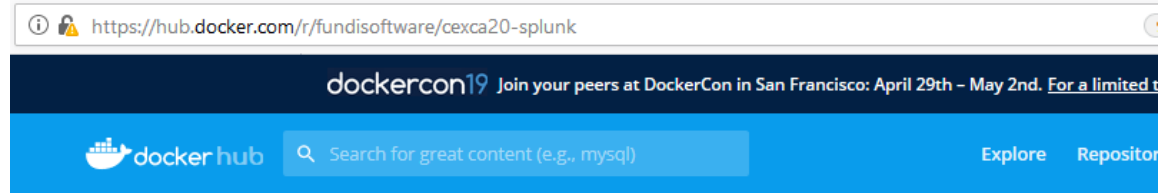
IMS Connect transaction analysis sample app

Download and install into Splunk from Splunkbase...

- Monitor transaction performance
- See the effect of IMS Connect Extensions OTMA workload routing rules
- Easy to configure, create your own charts in Splunk

<https://splunkbase.splunk.com/app/4320/>

The screenshot shows the Splunkbase interface for the 'IMS Connect transaction analysis' app. At the top, the Splunkbase logo is on the left, and a search bar and user account link are on the right. The app title is prominently displayed with a video thumbnail showing a dashboard with various charts and graphs. Below the title, there are five stars and a '0 rating' indicator, along with a 'Splunk Appinspect Passed' badge. The main content area is divided into 'Overview' and 'Details' tabs. The 'Overview' tab is active, showing a detailed description of the app's functionality: 'Analyze IMS Connect transaction performance data in Splunk using the IMS Connect transaction analysis application and the IMS Connect Extensions feed. The IMS Connect transaction analysis app is a fully-functional sample application that demonstrates the use of transaction summary data supplied by the IMS Connect Extensions feed. Splunk users can use the application to analyze several aspects of IMS Connect, including transaction counts and response times, OTMA elapsed time, input and output elapsed times, SAF time, and distribution of workload across IMS Connect systems to target IMS data stores.' To the right of the description, there are statistics for '11 Installs' and '57 Downloads', and a green 'LOGIN TO DOWNLOAD' button. Below the description, there is a 'Release Notes' section for 'Version 1.0.3' dated 'March 13, 2019', with a note that 'Dashboard visualizations now work as intended when using real-time windows.' On the far right, there are sections for 'VERSION' (1.0.3), 'BUILT BY' (Fund Analytics), 'SUPPORT' (Developer Supported, with links to contact the developer and Splunk Answers), and 'COMPATIBILITY' (Products: Splunk Enterprise, Splunk Versions: 7.2).



fundissoftware/cexca20-splunk ☆

By fundissoftware • Updated 17 days ago

IMS Connect transaction analysis app for Splunk with sample data from IMS Connect Extensions.

Container

Overview

Tags

IMS Connect transaction analysis app for Splunk demonstration image and sample data

The IMS Connect transaction analysis app for Splunk is a fully-functional sample application that demonstrates the use of transaction summary data supplied by the IMS Connect Extensions feed. Splunk users can use the application to analyze several aspects of IMS Connect, including transaction counts and response times, OTMA elapsed time, input and output elapsed times, SAF time, and distribution of workload across IMS Connect systems to target IMS data stores.

Try the app with our sample data

On this site you'll find a Docker image that contains Splunk Enterprise configured with the IMS Connect transaction analysis app and some sample data generated by the IMS Connect Extensions feed. Use this Docker image to try out the features of the IMS Connect transaction analysis app before setting up IMS Connect Extensions in your own z/OS environment.

To try this app, all you need to do is complete the following steps:

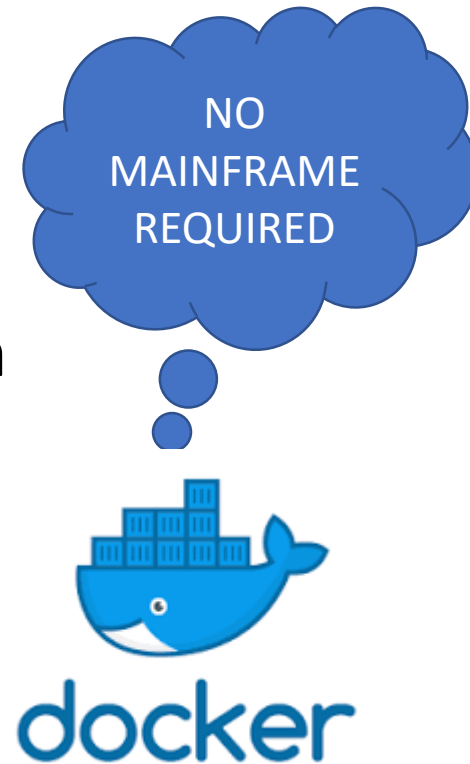
1. Install Docker on your PC.
2. Open a command prompt (such as PowerShell) and run the following command:

```
docker run -d -e "SPLUNK_PASSWORD=changeme" -e "SPLUNK_START_ARGS=--accept-license" -p 18000:8000 -p 18089
```

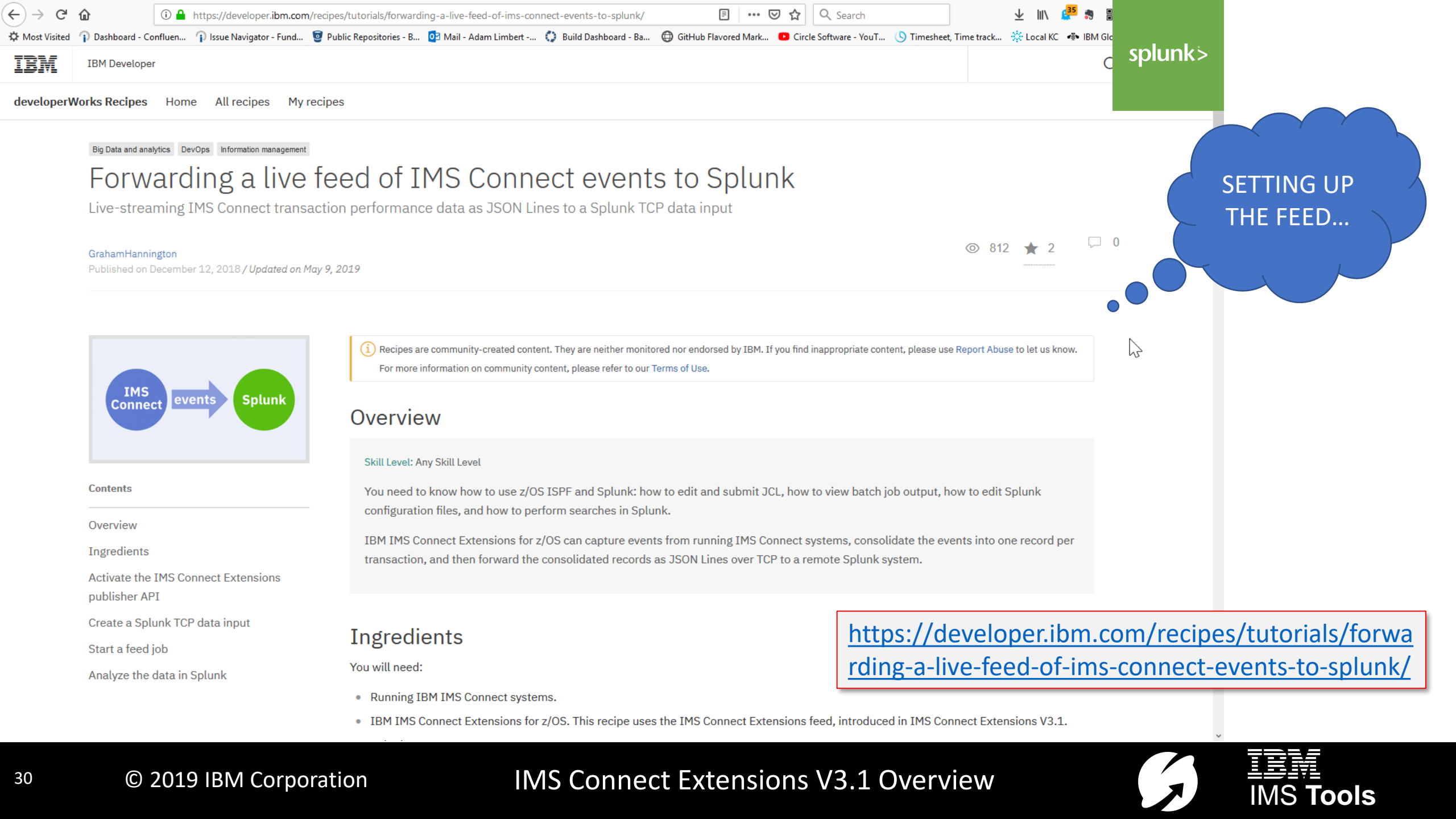
Try it: IMS Connect transaction analysis app for Splunk demonstration image and sample data

splunk>

1. Install Docker
2. Download and run the container
3. Open a browser and see for yourself



<https://hub.docker.com/r/fundissoftware/cexca20-splunk>



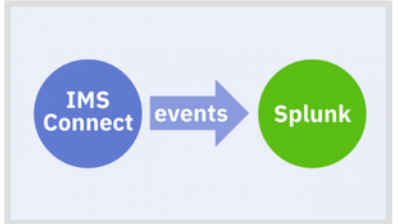
Big Data and analytics | DevOps | Information management

Forwarding a live feed of IMS Connect events to Splunk

Live-streaming IMS Connect transaction performance data as JSON Lines to a Splunk TCP data input

GrahamHannington
Published on December 12, 2018 / Updated on May 9, 2019

812 | 2 | 0



Recipes are community-created content. They are neither monitored nor endorsed by IBM. If you find inappropriate content, please use Report Abuse to let us know. For more information on community content, please refer to our Terms of Use.

Overview

Skill Level: Any Skill Level

You need to know how to use z/OS ISPF and Splunk: how to edit and submit JCL, how to view batch job output, how to edit Splunk configuration files, and how to perform searches in Splunk.

IBM IMS Connect Extensions for z/OS can capture events from running IMS Connect systems, consolidate the events into one record per transaction, and then forward the consolidated records as JSON Lines over TCP to a remote Splunk system.

Ingredients

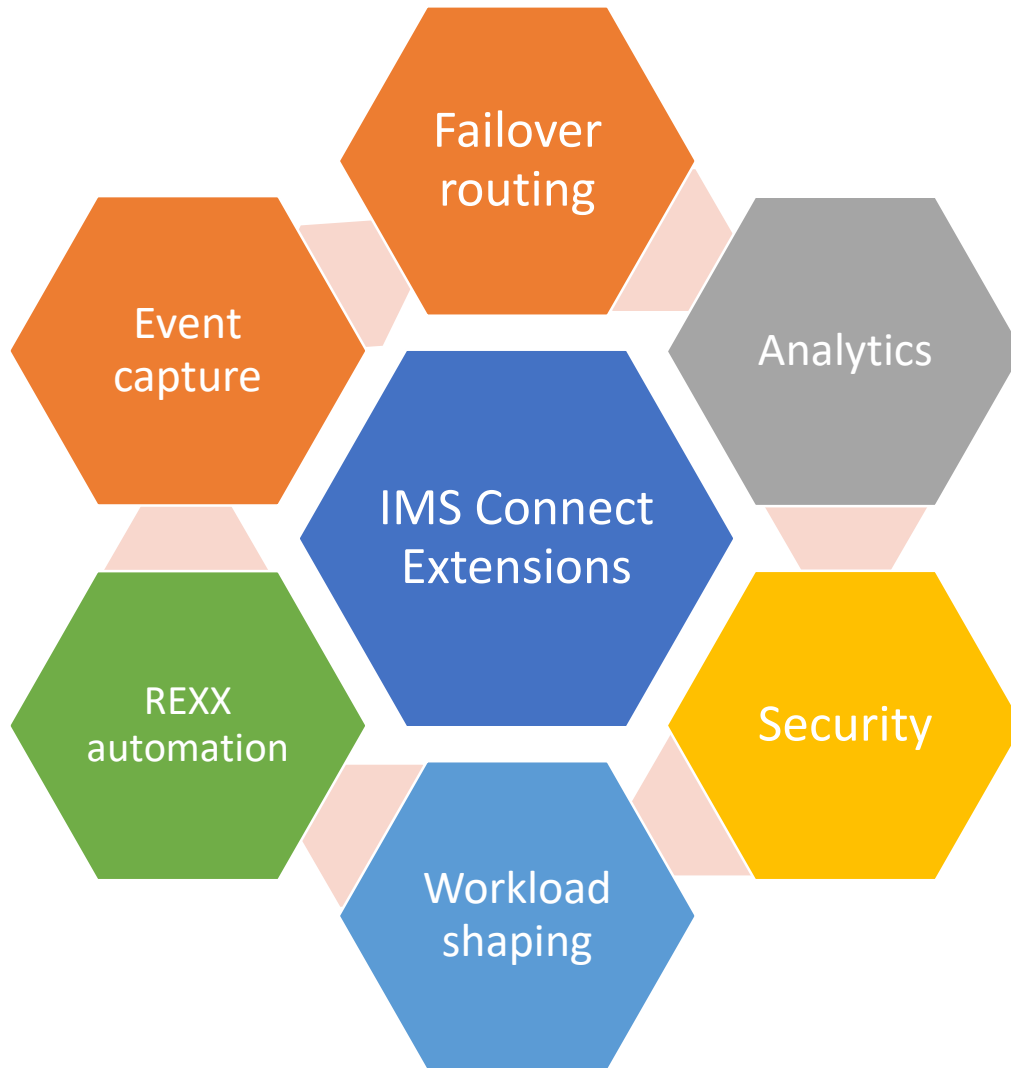
You will need:

- Running IBM IMS Connect systems.
- IBM IMS Connect Extensions for z/OS. This recipe uses the IMS Connect Extensions feed, introduced in IMS Connect Extensions V3.1.

<https://developer.ibm.com/recipes/tutorials/forwarding-a-live-feed-of-ims-connect-events-to-splunk/>










Key messages: IMS Connect Extensions



1. **IMS Connect** needs a lot of customisation if you want to do anything other than pass messages and requests.
2. Customizing **IMS Connect** is possible but very difficult - IMS Connect protocols are complex.
3. **IMS Connect Extensions** offers “out-of-the box” tried, tested workload management solutions that are well documented and fully supported by a team of experts.



Resource	Link
YouTube: Analyzing IMS Connect OTMA transactions in Splunk	https://youtu.be/wptRV2uz6pY 
YouTube: Routing OTMA workload to a fallback IMS with IMS Connect	https://youtu.be/9FEaVJy3TA0 
Docker: IMS Connect transaction analysis app for Splunk demonstration image and sample data	https://hub.docker.com/r/fundissoftware/cexca20-splunk 
Developer.ibm.com: Forwarding a live feed of IMS Connect events to Splunk	https://developer.ibm.com/recipes/tutorials/forwarding-a-live-feed-of-ims-connect-events-to-splunk/  
YouTube: Lifecycle of an IMS Connect transaction	https://www.youtube.com/watch?v=ygG9D6mfLDA 
Knowledge Center: IMS Connect Extensions V3.1 User's Guide	https://www.ibm.com/support/knowledgecenter/SSAVHV_3.1.0/cex-welcome.dita 
IMS Connect Extensions Workshop	Take IMS Connect Extensions for a test drive (contact me for details)...

धन्यवाद

Hindi

多謝

Traditional

감사합니다

Korean

Спасибо

Russian

Ndzi khense ngopfu

Tsonga

Gracias

Spanish

Thank You

English

Obrigado

Brazilian Portuguese

شكراً

Arabic

Grazie

Italian

Danke

German

多谢

Simplified Chinese

Merci

French

Ke a leboha

Tswana

நன்றி

Tamil

ありがとうございました

Japanese

ขอขอบคุณ

Thai

