

# Agenda

z/OSMF Guild Meeting 16 - March 15<sup>th</sup>, 2023

## z/OS Operator Consoles

Xiao Zhen (Joey) Zhu

STSM - z/OSMF Development, IBM

## Software Management Automation with the z/OSMF Ansible Collection

Kurt Quackenbush

z/OS Install Lead, IBM

Taylor Digilio

z/OSMF SW Management Development, IBM



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# NOTICE



This is a public conversation and is NOT protected by any non-disclosure agreement.

Please keep all topics publicly available.

If you would like more information about joining sponsor user programs please reach out to the steering committee.

Includes planned future deliverables

# z/OSMF Guild Team



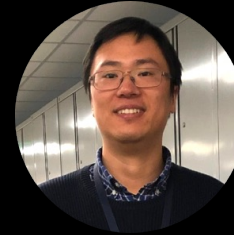
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z/OSMF Design Research

Please reach out to us  
with any questions or  
concerns.

# Guild Session 16 Website

<https://ibm.biz/zOSMFGuild16>

## Meeting Details

- Agenda
- Recordings
- Discussion Forum
- Presentation
- Poll
- Additional Resources

z/OSMF Community Guild - Meeting No. 16

## z/OS Operator Consoles & Software Management Automation with the z/OSMF Ansible Collection

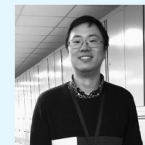
Join our upcoming Guild session featuring Xiao Zhen (Joey) Zhu, Kurt Quackenbush and Taylor Digilio of IBM.

Joey will be providing a detailed overview on how to configure and use the z/OS Operator Consoles plugin.

Kurt and Taylor will introduce the new Software Management automation capabilities introduced in the new z/OSMF Ansible Collection 1.3.



### Featured Speakers



Xiao Zhen (Joey) Zhu  
STSM - z/OSMF Development, IBM



Kurt Quackenbush  
z/OS Install Lead, IBM



Taylor Digilio  
SW Management Dev, IBM

March 15<sup>th</sup>, 10:00 to 11:00 AM EST

[ibm.biz/zOSMFGuildHome](https://ibm.biz/zOSMFGuildHome)

Statements regarding IBM future direction and intent are subject to change or withdrawal, and represent goals and objectives only

# z/OS 3.1 Preview

z/OSMF highlights include:

- z/OSMF Desktop enhancements
- Security Configuration Assistant enhancements
- z/OSMF Workflow enhancements
- z/OSMF WLM support for WLM Policy advisor
- z/OSMF WLM removal of CIM
- z/OS Management Services Catalog enhancements & new sample services
- IBM z/OS Change Tracker as a z/OSMF plugin
- Software Management enhancements
- ....and more! Read [the full announce](#) for details.

## Preview: IBM z/OS 3.1, an AI-infused operating system for the next generation of computing

IBM United States Software Announcement 223-013  
February 28, 2023

ENUS223-013.PDF

### Table of contents

• Overview	• Description
• Key requirements	• Regional availability
• Planned availability date	

### At a glance

IBM® z/OS® 3.1 marks a new era in operating system intelligence. The new version of z/OS is planned to provide a framework for infusing AI throughout the system, enabling intelligent systems administration guidance and automation that learns and improves. With z/OS 3.1 as the foundation of a hybrid cloud strategy, enterprises can deploy and co-locate Linux®-based applications together with core business workloads and enjoy the unique value propositions of both environments. Built on over 50 years of continuous innovation, research, and development, z/OS is the core computing platform for the world's top financial institutions, insurers, retailers, utilities, governments and more. Designed for high availability with quantum-safe technologies, the new z/OS 3.1 will be a resilient platform for the future of industry's most critical workloads.

Created collaboratively with key enterprises across industries, the new version of z/OS combines world-leading and scientifically pioneering capabilities and is planned to deliver revolutionary function, helping clients to do the following:

- Scale the value of data and drive digital transformation powered by AI and intelligent automation, including support for a new AI Framework for system operations, and a certified Ansible® collection for automation.
- Manage and optimize technology infrastructure with industry-popular interfaces for system programmers of all experience levels, including a new priced feature called IBM z/OS Change Tracker.
- Protect and thrive with exceptional security and resilience capabilities, including a new Authorized Code Monitor to guard against potential vulnerabilities, expanded System Recovery Boost solutions, and new interfaces for runtime diagnostics and resource monitoring.
- Build new and modernize existing applications and workloads with a flexible hybrid cloud strategy based on modern APIs and DevOps platforms, including continued enhancements to z/OS Container Extensions (zCX), NoSQL interfaces to z/OS data sets, and Cloud Data Access to cloud object storage from core business z/OS applications.
- Nurture their investment in critical core business applications with new and enhanced functions that enforce the availability, scalability, and efficiency of the operating system clients have known and trusted for decades, including enhancements to Parallel Sysplex®, JES2, Catalog, and many more.

IBM intends for z/OS Version 3 to be the basis for an AI-infused, hybrid cloud operating system, and z/OS 3.1 will be the first release in that journey. Continuing the success of our continuous delivery strategy, IBM plans to work collaboratively with clients to design, develop, and release new functions in these areas over time. Join us, and let's create a world-leading operating system for the future of business around the globe.

transparent access to data in a secure and consistent manner.

- Enhanced COBOL-Java™ interoperability for 31-bit COBOL applications plans to be extended to call 64-bit Java programs using the IBM Semeru Runtime Certified Edition for z/OS, Version 11 (Java).

# Preview: z/OS 3.1 *webinar*

Be sure to attend the upcoming **z/OS 3.1 Preview webinar**, which will provide an overview of the new version and review many of the new features and enhancements planned for z/OS 3.1.

- **When:** Tuesday, March 21, 12:00pm EST  
*(registration also grants access to the recording)*
- **Register here:** <https://ibm.biz/zOS-Webinar>

## Speakers



**Gary Puchkoff**

z/OS New Technology Software Architect  
IBM

# 2023 z/OSMF Survey: Your responses will help guide our strategy this year!

We need to be clear on our product's top priorities as we continue our efforts to make your experience with z/OSMF better each year.

That's why we are sharing this survey to Guild members like you:  
[ibm.biz/zosmfsurvey2023](https://ibm.biz/zosmfsurvey2023)

Please take 5-10 minutes to complete the survey by March 31, 2023.

If you took the survey last year:

- The questions are the same as last year's survey for the most part. This is intentional so that we can identify any patterns over time.
- The plugin adoption matrix question was removed and was replaced by a new question about plugin adoption state for simplification.

The screenshot shows the IBM z/OS Management Facility 2023 Survey form. It contains five numbered questions with radio button and checkbox options, and text input fields for open-ended responses.

**IBM z/OS Management Facility 2023 Survey**

1. What is your primary job role? \*

- ☐ z/OS System Programmer
- ☐ z/OS Security Administrator
- ☐ Application Developer
- ☐ Other - Write In (Required)

2. How long have you been in your current role? \*

- ☐ 1-5 years
- ☐ 6-10 years
- ☐ 10-15 years
- ☐ 15+ years

3. What is the most current release of z/OS you are running in your enterprise? \*

- ☐ z/OS 2.5
- ☐ z/OS 2.4
- ☐ z/OS 2.3
- ☐ Other - Write In (Required)
- ☐ I don't know

4. Which of the following resources have you leveraged to help you better understand how z/OSMF can help you perform your role? \*

- ☐ Request for Announcements (RFA quarterly)
- ☐ z/OSMF Community (blogs & videos)
- ☐ z/OSMF Guild
- ☐ z/OSMF MarketPlace
- ☐ z/OSMF One Stop Hub
- ☐ z/OSMF Value Proposition chart
- ☐ z/Trial of z/OSMF
- ☐ None of the above

5. Are any of your systems running z/OSMF? \*

- ☐ Yes
- ☐ No
- ☐ I don't know

# What's Next!

z/OSMF Guild Session No. 17

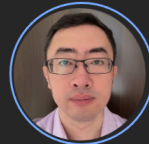
## Incident Log z/OSMF Plugin

📅 April 19, 2023  
10:00 to 11:00 AM EST



[ibm.biz/zOSMFGuildHome](https://ibm.biz/zOSMFGuildHome)

Featured Speaker



Qi Li

z/OSMF Product Owner &  
Master Inventor, IBM

[ibm.biz/zOSMFGuildHome](https://ibm.biz/zOSMFGuildHome)  
Guild Home Page for access to all  
materials presented during the Guild

[ibm.biz/zOSMFCommunity](https://ibm.biz/zOSMFCommunity)  
Join our Community page for updates  
and new content





# Question of the Month

The logo features the word "ask" in white, followed by "z/OSMF" in blue, and "anything" in white. A white speech bubble outline is positioned to the left of the text.

[ibm.biz/askzsmf](http://ibm.biz/askzsmf)

Q.

I confirmed during the last z/OSMF Guild Session that the z/OSMF Ansible Collection doesn't require Python SDK and ZOAU prerequisites.

I'm testing Ansible on z, Collections are working fine in the sandbox where I have Python and ZOAU mounted but I'm getting this error running in the other environment where I don't have it installed. Please Help.

A. Hiren Shah

**A.**

z/OSMF Ansible collection does not require Python or zOAU installed on z/OS system. But, in order to run a playbook with z/OSMF roles or modules,

- Ansible must be installed on the system, called “Ansible control node”
- Ansible control node can be installed and run in Linux on IBM Z but not in native z/OS.
- Ansible requires python.

# z/OS Operator Consoles

Xiao Zhen (Joey) Zhu

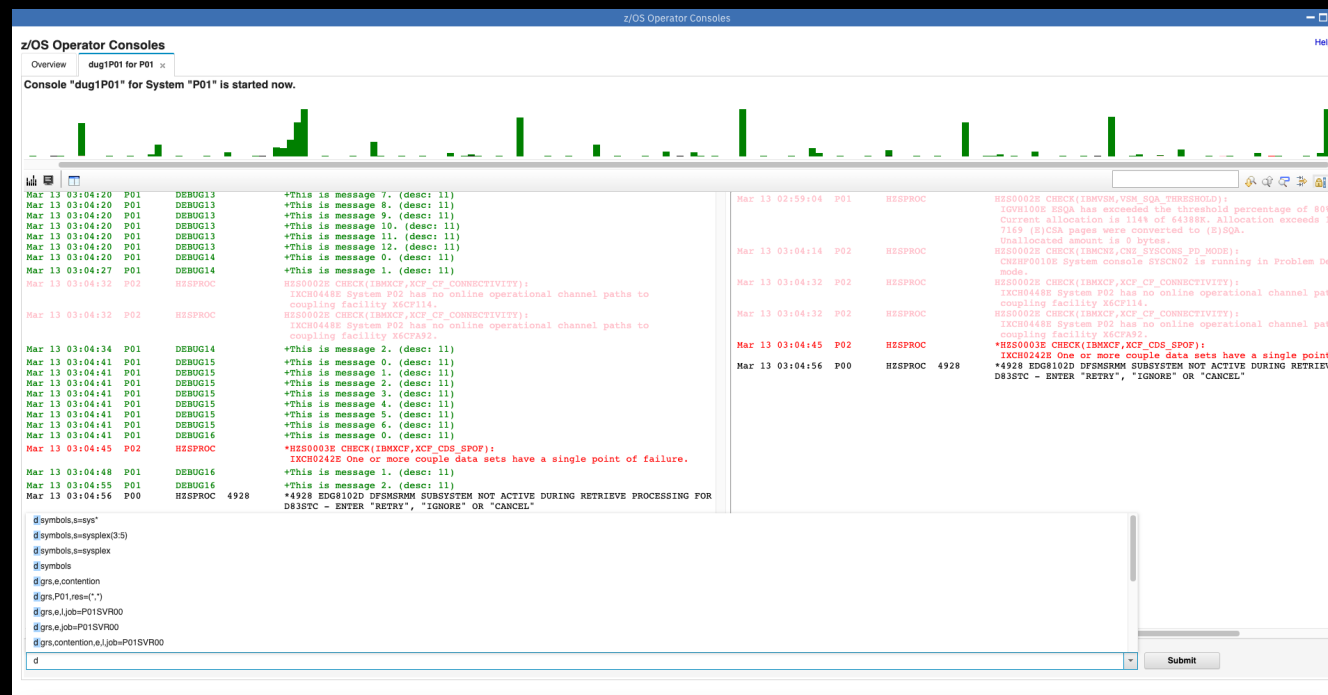
# Agenda

- What is z/OS Operator Consoles
- Web UI based z/OS Operator Consoles
- REST APIs for console automation
- How to enable z/OS Operator Consoles in z/OSMF

# What is z/OS Operator Consoles

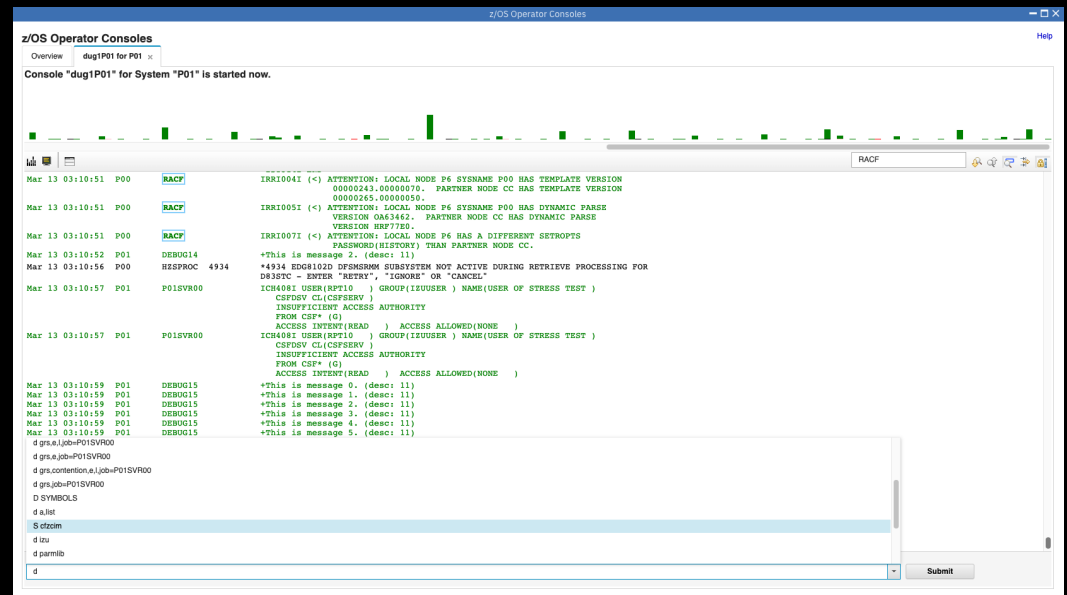
A z/OSMF plugin which provides

- **Web UI** based z/OS Operator Consoles
- **REST APIs** to drive z/OS Operator Console actions



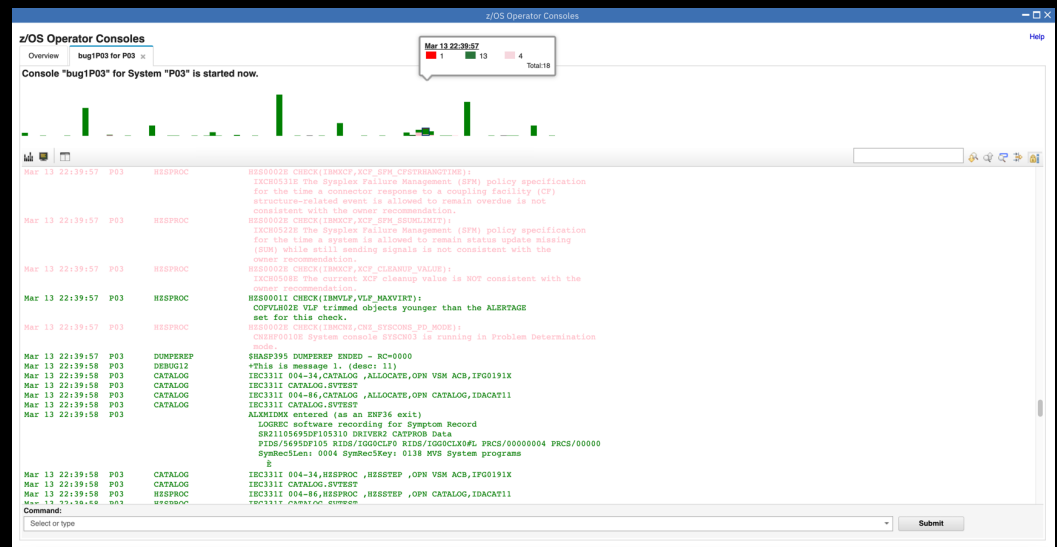
# Web UI based z/OS Operator Consoles

- Duplex mode console ←
- Auto refresh of messages
- Scrollable console view
- Issue command
- Association between message bars and messages
- Separate window for WTOR and HOLD messages
- Retrieve historic messages from SYSLOG/OPERLOG
- Up to 200 historic commands are saved
- Search keywords
- Filter messages via customized criterias
- Automatic message help



# Web UI based z/OS Operator Consoles

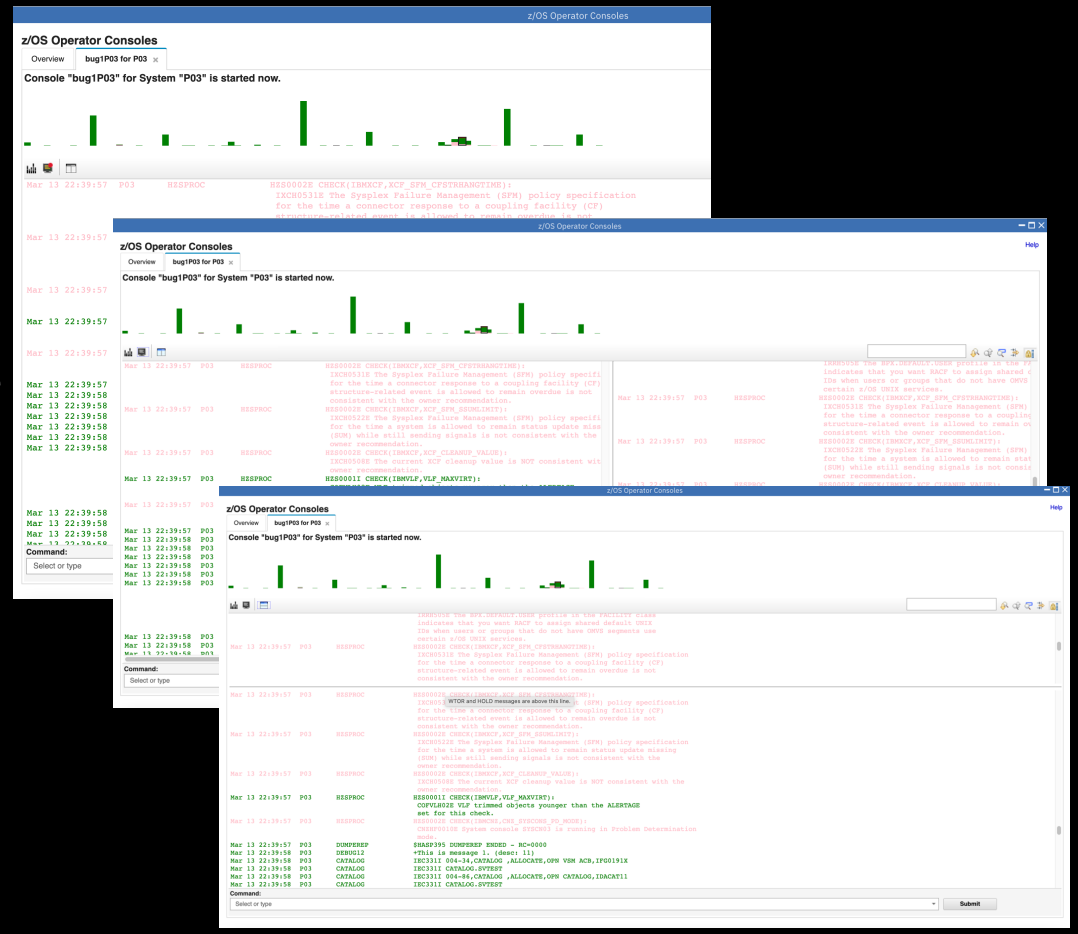
- Duplex mode console
- Association between message bars and messages ←
- Hoverover message bar to display statistics for a specific time point
- Clicking on message bar automatically scrolls console view to the first message of corresponding time
- Clicking on message timestamp automatically selects the associated message bar
- Separate window for WTOR and HOLD messages
- Retrieve historic messages from SYSLOG/OPERLOG
- Up to 200 historic commands are saved
- Search keywords
- Filter messages via customized criterias
- Automatic message help





# Web UI based z/OS Operator Consoles

- Duplex mode console
- Association between message bars and messages
- Separate window for WTOR and HOLD messages ←
  - Scrollable window for WTOR and HOLD messages
  - Flexible layout
  - Red flashing indication when new messages come in and this window is hidden
  - Support deletion of messages from UI
- Retrieve historic messages from SYSLOG/OPERLOG
- Up to 200 historic commands are saved
- Search keywords
- Filter messages via customized criterias
- Automatic message help



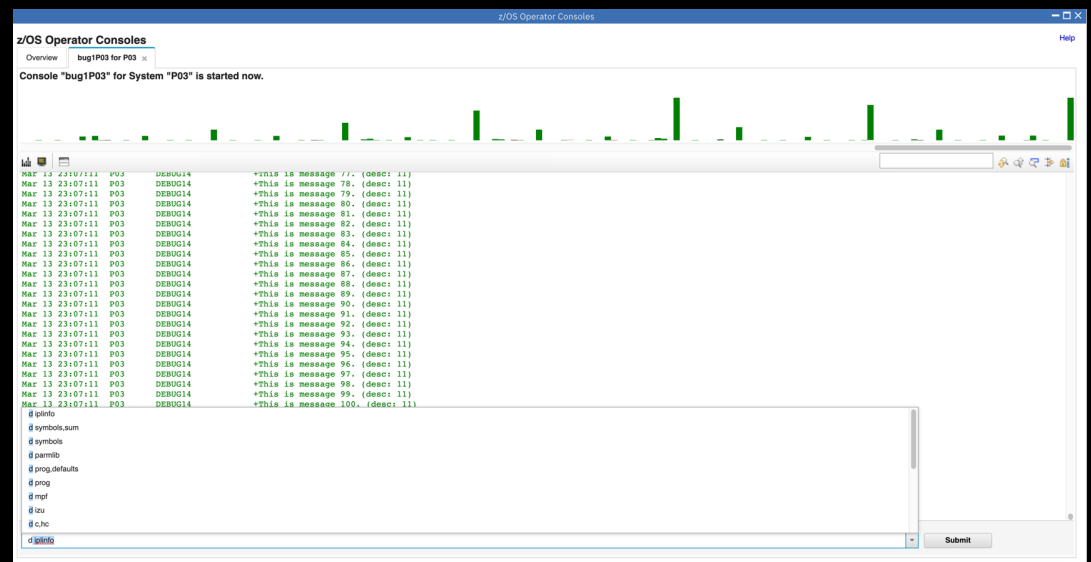
# Web UI based z/OS Operator Consoles

- Duplex mode console
- Association between message bars and messages
- Separate window for WTOR and HOLD messages
- Retrieve historic messages from SYSLOG/OPERLOG
  - Auto detect if SYSLOG or OPERLOG is used
  - Keep a window that can contain up to 5000 historic messages
  - When you hit 5000 historic messages, next retrieve action will clear the 200 messages on the bottom to make room for next batch of messages.
- Up to 200 historic commands are saved
- Search keywords
- Filter messages via customized criterias
- Automatic message help

The screenshot displays the 'z/OS Operator Consoles' web interface. At the top, there's a tab labeled 'bug1P03 for P03'. Below it, a message states 'Console "bug1P03" for System "P03" is started now.' A green bar chart visualizes message activity over time. A blue box highlights the text 'This is the point when you started this console' with an arrow pointing to a specific point on the bar chart. Below the chart, a list of messages is shown, including timestamps, console names (P03, P01), and message types (DEBUG17, DEBUG18). A blue box highlights the text 'Earlier messages can be retrieved from SYSLOG or OPERLOG' with an arrow pointing to a 'Retrieve earlier messages from OPERLOG.' button. The bottom section shows a command prompt with the command 'SELECT OR TYPE' and a list of messages, including a detailed log entry for a user named CAROL.

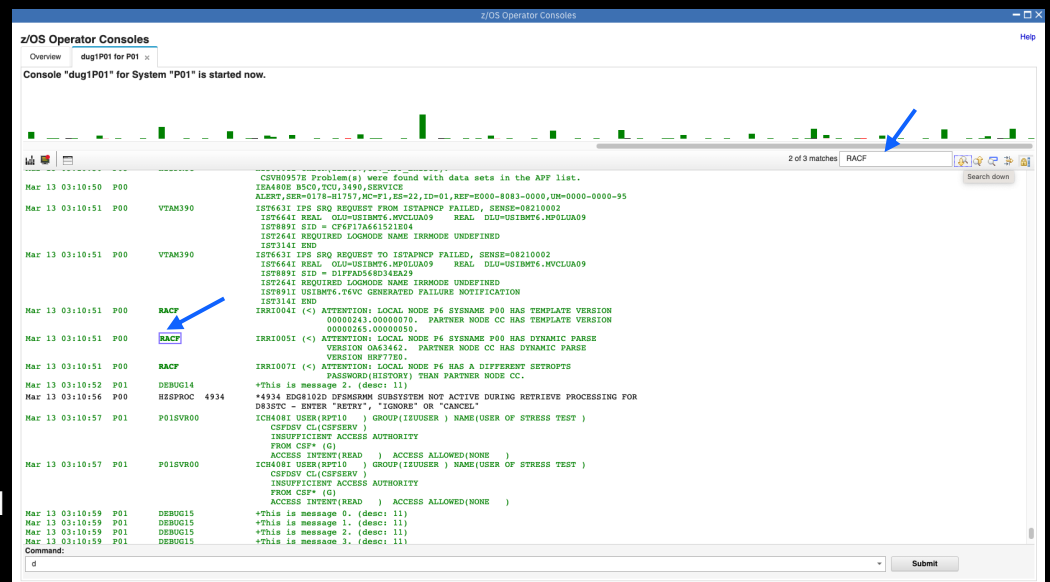
# Web UI based z/OS Operator Consoles

- Duplex mode console
- Association between message bars and messages
- Separate window for WTOR and HOLD messages
- Retrieve historic messages from SYSLOG/OPERLOG
- Up to 200 historic commands are saved ←
  - 200 historic commands per user
  - Support type association
- Search keywords
- Filter messages via customized criterias
- Automatic message help



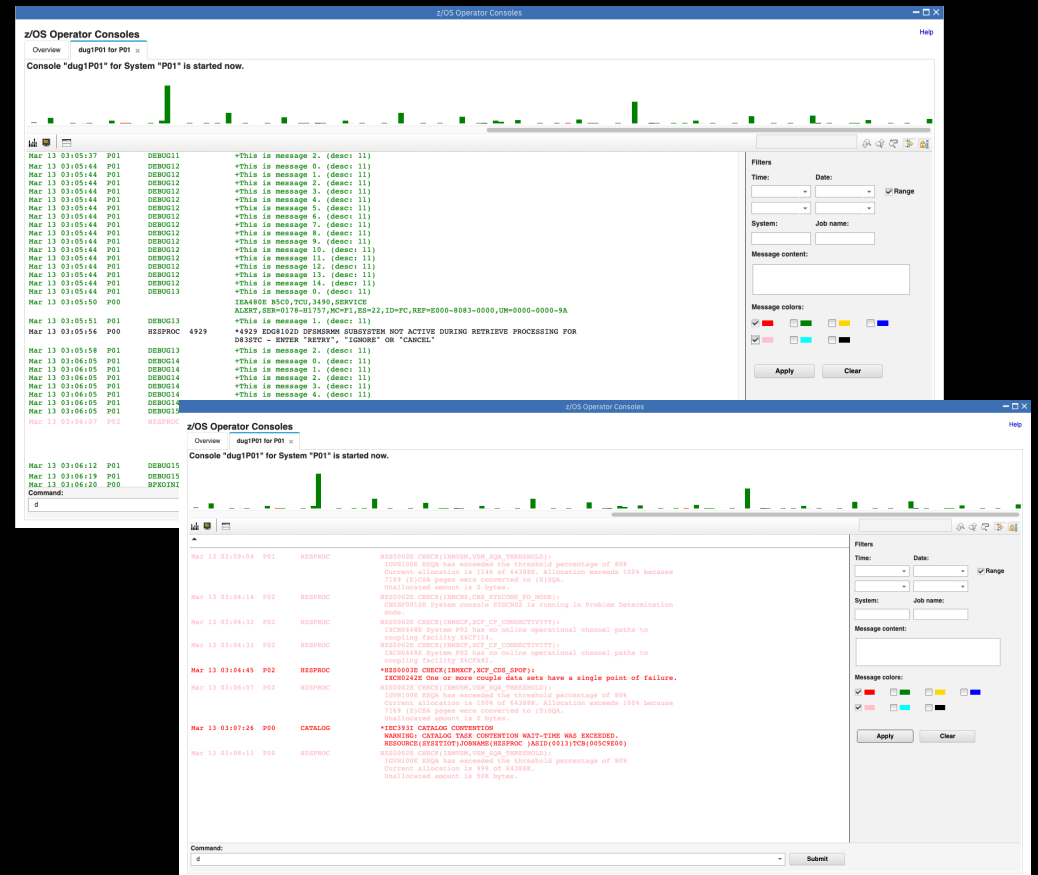
# Web UI based z/OS Operator Consoles

- Duplex mode console
- Association between message bars and messages
- Separate window for WTOR and HOLD messages
- Retrieve historic messages from SYSLOG/OPERLOG
- Up to 200 historic commands are saved
- Search keywords
  - Support search up/down and highlight all
  - When you search keywords, the console UI will be locked to help you focus on target messages (The backend is still receiving messages. When you resume the console UI, the messages will be pulled back)
- Filter messages via customized criterias
- Automatic message help



# Web UI based z/OS Operator Consoles

- Duplex mode console
- Association between message bars and messages
- Separate window for WTOR and HOLD messages
- Retrieve historic messages from SYSLOG/OPERLOG
- Up to 200 historic commands are saved
- Search keywords
- Filter messages via customized criterias
- Automatic message help



# Web UI based z/OS Operator Consoles

- Duplex mode console
- Association between message bars and messages
- Separate window for WTOR and HOLD messages
- Retrieve historic messages from SYSLOG/OPERLOG
- Up to 200 historic commands are saved
- Search keywords
- Filter messages via customized criterias
- Automatic message help ←
  - When you hover over a message id, the message help will be automatically popped up.
- Requires KC4z

is started now.

The screenshot displays a web-based operator console interface. A message help popup is visible, titled "IEE251I hh.mm.ss PARMLIB DISPLAY I PARMLIB, ERROR[ text". The popup contains the following text:

Explanation  
Where text is:  
PARMLIB DATA SETS SPECIFIED [error]  
[AT IPL I AT hr.mm.ss ON mm/dd/yyyy]  
[LOADxx DATA SET = dsname I  
PARMLIB CONCATENATION VOLUME=vol I CATALOG]

ENTRY	FLAGS	VOLUME	DATA SET
nn	f	parmv1	parmdsn
?	?	?	?
X	D	defvol	SYS1.PARMLIB

\* [NO ERRORS IN PARMLIB CONCATENATION]  
\* [MASTER PROCESSING USING THE FOLLOWING PARMLIBS]

ENTRY	FLAGS	VOLUME	DATA SET
nn	f	parmv1	parmdn1
?	?	?	?

U> PARMLIB

IEE251I 04.04.35 PARMLIB DISPLAY 239  
PARMLIB DATA SETS SPECIFIED  
AT IPL

ENTRY	FLAGS	VOLUME	DATA SET
1	S	CMNST1	USER.PIX6.TFIX.PARMLIB
2	S	CMNST1	USER.V2R5.PARMLIB
3	S	CMNST1	USER.PIX6.PARMLIB
4	S	CMNST1	SVT.COMMON.PARMLIB
5	S	CMNSTC	SYS1.PARMLIB

On the right side of the console, there is a list of messages:

TUP	OWT	A0
	NSW	S
VDGNPP	OWT	S
MVSEX	OWT	S0
CP	OWT	A0
EP1	OWT	S0
TUP	OWT	A0
SMF	IN	S0
TUP	OWT	A0
EP1	IN	S0

# REST APIs for console automation

- Issue command ←
  - Support both Async mode and Sync mode
  - Support detecting keywords from both command response and unsolicited messages
  - Sysplex scope (via ROUTE command)
- Get messages from HARDCOPY log
  - Support both OPERLOG and SYSLOG
  - Support remote systems in the same sysplex in which z/OSMF is running when SYSLOG is used
  - Easy to use via 3 parameters
    - Timestamp – Where to start with  
2021-01-26T03:33:18.065Z OR milliseconds since 1970-01-01 UTC
    - Direction – Backwards or Forwards
    - Time Range – How long for the logs to be retrieved

Console Services APIs		Show/Hide	List Operations	Expand Operations
PUT	/zosmf/restconsoles/consoles/{consoleName}	Issue a command by using a system console		
GET	/zosmf/restconsoles/consoles/{consoleName}/detections/{detection-key}	Get the detect result for unsolicited messages		
GET	/zosmf/restconsoles/consoles/{consoleName}/solmsgs/{cmd-response-key}	Get a command response		
GET	/zosmf/restconsoles/v1/log	Get system log		

```
curl -X PUT -H 'Content-Type: application/json' -H 'Accept: application/json' -d '{ \
  "cmd": "d a,i", \
  "sol-key": "JES" \
}' https://pkstp03.pok.stglabs.ibm.com:1035/zosmf/restconsoles/consoles/defcn'
```

Request URL

https://pkstp03.pok.stglabs.ibm.com:1035/zosmf/restconsoles/consoles/defcn

Response Body

```
{
  "cmd-response-key": "C3912822",
  "cmd-response-url": "https://pkstp03.pok.stglabs.ibm.com:1035/zosmf/restconsoles/consoles/defcn/solmsgs/C3912822",
  "IPCM5G0BYTES": "2147483647",
  "consoleRoute": "NONE",
  "consoleScope": "ALL",
  "consoleAuto": "NO",
  "cmd-response-uri": "/zosmf/restconsoles/consoles/defcn/solmsgs/C3912822",
  "cmd-response": "CH241051 23.46.14 DISPLAY ACTIVITY 230 J0BS M/S TS USERS SYSAS INITS ACTIVE/MAX",
  "consoleStorage": "1024",
  "consoleAuth": "INFO",
  "sol-key-detected": true
}
```

CH241051	23.46.14	DISPLAY	ACTIVITY	230	J0BS	M/S	TS	USERS	SYSAS	INITS	ACTIVE/MAX	VTAM	OAS
00020	00034	00004	00045	00250	00003/03500						00045		
APPC	APPC	APPC	NSW	S	ASCH	ASCH	ASCH	NSW	S				
VLF	VLF	VLF	NSW	S	LLA	LLA	LLA	NSW	S				
DLF	DLF	DLF	NSW	S	XCMD	XCMD	IEFPROC	NSW	S				
CTTX	CTTX	CTTX	NSW	S	XTTX	XTTX	XTTX	NSW	S				
ZTTX	ZTTX	ZTTX	NSW	S	VTAM390	VTAM390	VTAM390	NSW	S				
EZBTPRC	EZBTPRC	TN270	NSW	S0	SDSF	SDSF	SDSF	NSW	S				
JMON	JMON	JMON	NSW	S	S0FV324	S0FV324	S0FV324	OWT	S				
TCPIP	TCPIP	TCPIP	NSW	S0	TCP344	TCP344	TCPIP	NSW	S0				
BPZACM	BPZACM	GOSTEP	NSW	S	CSFR1	CSFR1	S1	NSW	S				
HZR	HZR	IEFPROC	NSW	S	IGVDGNPP	IGVDGNPP	IGVDGNPP	OWT	S				
IEAVEGRT	IEAVEGRT	IEAVEGRT	OWT	S	IEAVEGRT	IEAVEGRT	IEAVEGRT	OWT	S				
RMF	RMF	ERBMFMFC	NSW	S	JES2	JES2	IEFPROC	NSW	S				
RACF	RACF	RACFAS	NSW	S0	TSO	TSO	TSO	OWT	S				
SDSFAUX	SDSFAUX	SDSFAUX	NSW	S0	SYSLOGD	STEP1	SETUP	NSW	A0				
ETCRC1	STEP1	SETUP	OWT	A0	SNTPD	STEP1	SETUP	OWT	A0				

# REST APIs for console automation

- Issue command
  - Support both Async mode and Sync mode
  - Support detecting keywords from both command response and unsolicited messages
  - Sysplex scope (via ROUTE command)
- Get messages from HARDCOPY log ←
  - Support both OPERLOG and SYSLOG
  - Support remote systems in the same sysplex in which z/OSMF is running when SYSLOG is used
  - Easy to use via 3 parameters
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2021-01-26T03:33:18.065Z OR milliseconds since 1970-01-01 UTC
    - Direction – Backwards or Forwards
    - Time Range – How long for the logs to be retrieved

```
Curl
curl -X GET --header 'Accept: application/json' 'https://pkstp03.pok.stglabs.ibm.com:1035/zosmf/restconsoles/v1/log?timeRange=10m&direction=backward'

Request URL
https://pkstp03.pok.stglabs.ibm.com:1035/zosmf/restconsoles/v1/log?timeRange=10m&direction=backward

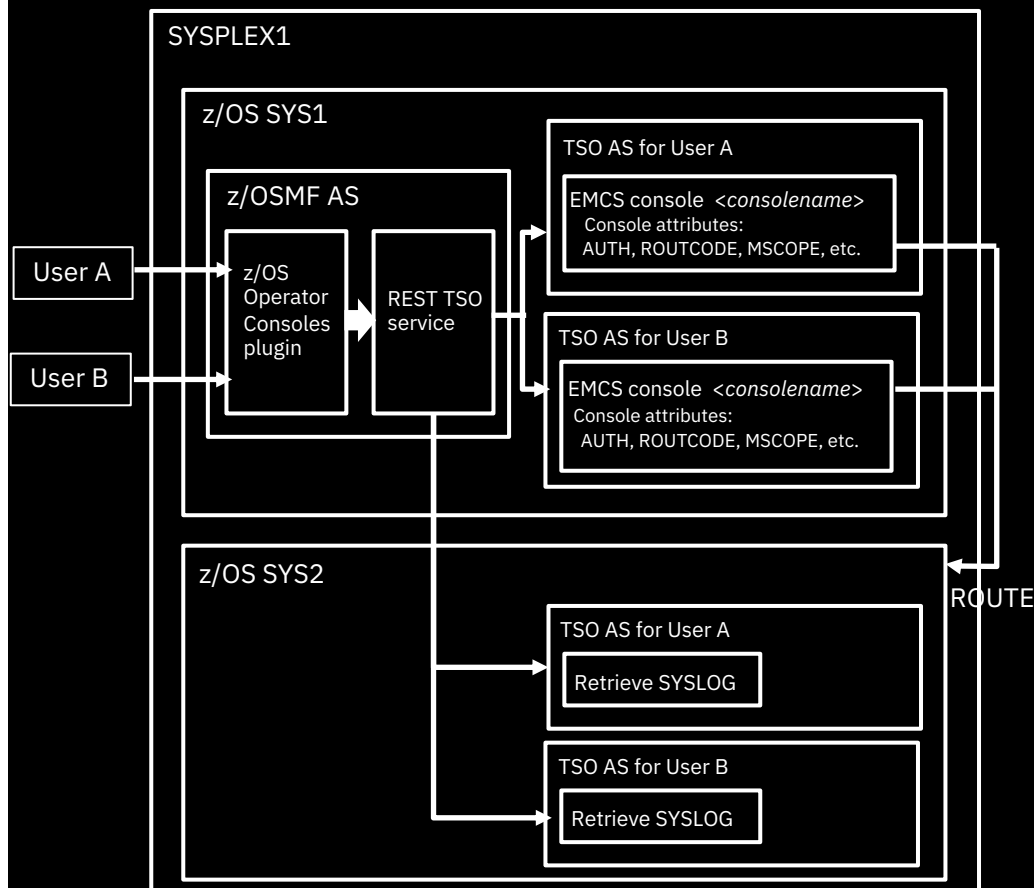
Response Body
{
  "timestamp": -4,
  "nextTimestamp": 1678782996220,
  "source": "OPERLOG",
  "totalItems": 886,
  "items": [
    {
      "jobName": "      ",
      "system": "P00      ",
      "color": "green",
      "replyId": "0",
      "messageId": "871208362736",
      "subType": "NULL",
      "time": "Tue Mar 14 08:36:46 GMT 2023",
      "message": " CNZ2606I System has automatically replied:\r RETRY\r to the following WTOR:\r 6381 04.35.45 2023073 EDG8102D DFSMSRMM SUBSYSTEM NO",
      "type": "HARDCOPY",
      "cart": "0",
      "timestamp": 1678783006480
    },
    {
      "jobName": "      ",
      "system": "P00      ",
      "color": "green",
      "replyId": "0",
      "messageId": "871208362992",
      "subType": "HARDCOPY",
      "time": "Tue Mar 14 08:36:46 GMT 2023",
      "message": " CNZ2606I System has automatically replied:\r RETRY\r to the following WTOR:\r 6381 04.35.45 2023073 EDG8102D DFSMSRMM SUBSYSTEM NO",
      "type": "HARDCOPY",
      "cart": "0",
      "timestamp": 1678783006480
    }
  ]
}

Response Code
200
```



# How to enable z/OS Operator Consoles in z/OSMF

## Overall stack of z/OS Operator Consoles



The steps to enable z/OS Operator Consoles is primarily about security configuration

- Allow user to start EMCS console with specified console name  
console CLASS(TSOAUTH) ACCESS(READ)  
mvs.mcsoper.<console name> CLASS(OPERCMD5) ACCESS(READ)
- Allow user to access the plugin from z/OSMF UI  
IZUDFLT.ZOSMF.CONSOLES.ZOSOPER CLASS(ZMFAPLA) ACCESS(READ)
- Allow user to customize the console attributes  
From UI/API (Easier way):  
CONOPER CLASS(TSOAUTH) ACCESS(READ)  
From pre-defined setup in SAF:  
ADDUSER <console name> OPERPARM(AUTH(MASTER)  
ROUTCODE(<route code>) MSCOPE(<sysname>))
- Allow user to route command to remote system  
MVS.ROUTE.CMD.<sysname> CLASS(OPERCMD5) ACCESS(READ)
- Allow user to retrieve SYSLOG or OPERLOG  
<sysname>.+MASTER+.SYSLOG.\* CLASS(JESSPOOL) ACCESS(READ)  
CEA.CEATSO.FLOW.\* CLASS(SERVAUTH) ACCESS(READ)  
SYSPLEX.OPERLOG CLASS(LOGSTRM) ACCESS(READ)
- Allow the plugin to determine what console attributes and time zone are used for initialization  
MVS.DISPLAY.EMCS CLASS(OPERCMD5) ACCESS(READ)  
MVS.DISPLAY.TIMEDATE CLASS(OPERCMD5) ACCESS(READ)  
MVS.DISPLAY.OMVS CLASS(OPERCMD5) ACCESS(READ)
- Allow user to drive REST TSO services  
<proc> CLASS(TSOPROC) ACCESS(READ)  
<account> CLASS(ACCTNUM) ACCESS(READ)  
CEA.CEATSO.\* CLASS(SERVAUTH) ACCESS(READ)

## z/OS Operator Consoles trial is also available

### **IBM z/OS® Management Facility (z/OSMF Plug-ins)**

z/OSMF Plug-ins provide additional solutions for various z/OS management areas. They can be enabled separately based on your needs. Learn how to:

- Manage Workload Manager service definitions and service policies.
- Use the z/OSMF Security Configuration Assistant.
- Explore incident log.
- **Work with the z/OS Operator Console.**
- Use the Web ISPF.

→ [Register for the trial](#)

→ [Explore the product first](#)

# Software Management Automation with the z/OSMF Ansible Collection

Kurt Quackenbush, Taylor Digilio

# Software Management Maintenance Reports

To enable automation of software maintenance analysis, Software Management provides

1. **REST APIs**, and
2. **Ansible roles**

for the following Software Management application actions:

1. SWI > Maintenance Reports > **Missing Critical Service**
  - Missing Critical Updates API
2. SWI > Maintenance Reports > **Missing FIXCAT SYSMODs**
  - Missing FIXCAT Updates API
3. SWI > Maintenance Reports > **SYSMOD Search**
  - Software Update Search API

# Software Management, Missing Critical Service

On the Software  
Instances page:

Click Actions,  
Maintenance Reports,  
**Missing Critical Service**

Software Management

Software Management > Software Instances

**Software Instances**

Actions ▾

✈ No filter applied

<input type="checkbox"/>	Name Filter	System Filter	Messages Filter	Description Filter	Activity Filter	Global Zone CSI Filter	Target Zones Filter
<input checked="" type="checkbox"/>	swi4hold	swi474				IBMUSR6.SWI4HOLD.CSI	ZOS24T
<input type="checkbox"/>	swi4swu				Being deployed	IBMUSR6.SWI4SWU.CSI	TGT
<input type="checkbox"/>	swi4swu4					IBMUSR6.SWI4SWU4.CSI	TGT
<input type="checkbox"/>	swidsmt				Being deployed	IBMUSR6.CB.OS12345.GLOBAL.CSI	JES2T, TGT
<input type="checkbox"/>	unxDS3					IBMUSR6.UNXDS3.GLOBAL.CSI	TGT

- View
- Modify
- Copy...
- Open Deployments
- Perform Workflows
- Export as Portable Software Instance
- Remove...
- Retrieve Product, Feature, and FMID Information
- Delete Temporary Catalog Aliases
- Maintenance Reports
  - End of Service
  - Software Instance Validation
  - Missing Critical Service**
  - Missing FIXCAT SYSMODs
  - SYSMOD Search
  - Software Instance Comparison...

# Software Management, Missing Critical Service

## Displays:

- Date of most recent ERROR HOLDDATA
- Reason ID (APAR) for unresolved ERROR HOLDS
- Resolving SYSMODs if known

Software Management

Software Management > Software Instances > Maintenance Reports

Maintenance Reports

Missing Critical Service

Review the list of critical service and determine which service are critical for your installation. Use SMP/E to apply the resolving service to the corresponding target zone.

Actions	Table view: Tree								
No filter applied									
Software Instance / FMID / Held SYSMOD / Missing APAR	System Filter	HOLDDATA Received (GMT) Filter	Target Zones Filter	Resolving SYSMODs Received in Global Zone Filter	Resolving SYSMODs Not in Global Zone Filter	Hold Class Filter	Hold Symptom Filter	FMID Description Filter	
<input type="checkbox"/> swi4hold	pev171	July 15, 2022 'at' 12:24:08							
<input type="checkbox"/> HCOMMON								Common component	
<input type="checkbox"/> HCOMMON									
<input type="checkbox"/> AC00001			ZOS24T		UC00001	HIPER	FUL		
<input type="checkbox"/> HHOLD01								Anvil Manager Base 1.0	
<input type="checkbox"/> UH00001									
<input type="checkbox"/> UH10003									
<input type="checkbox"/> AH00002			ZOS241	UH10005, UH10006		PE	FUL_UH0H		

# Software Management, Missing Critical Updates API

- REST API: **Missing Critical Updates**

Helps determine if software instances are missing software updates to resolve PE PTFs, HIPER fixes, or other exception SYSMODs identified by ERROR HOLDDATA, and helps identify the SYSMODs that will resolve those exceptions.

- HTTP POST method

- **URL:** /zosmf/swmgmt/swi/<system-nickname>/<swi-name>/missingcriticalupdates

```
{
  "status": "complete",
  "lastholdrecvddate": "2022-02-11T19:15:34Z",
  "missingcriticalupdates": [
    {
      "name": "CA61368",
      "holdclass": "HIPER",
      "holdsymptom": "FUL",
      "heldsysmod": "HBB77C0",
      "fmid": "HBB77C0",
      "fmiddesc": "BCP Base",
      "resolvers": [
        {
          "name": "UJ07031",
          "received": true
        }
      ],
      "tgtzones": ["TGT24"]
    },
    {
      "name": "CA62658",
      "holdclass": "PE",
      "holdsymptom": null,
      "heldsysmod": "UJ00132",
      "fmid": "HBB77C0",
      "fmiddesc": "BCP Base",
      "resolvers": null,
      "tgtzones": ["TGT24"]
    }
  ]
}
```

# Software Management, Missing FIXCAT SYSMODs

On the Software  
Instances page:

Click Actions,  
Maintenance Reports,  
**Missing FIXCAT  
SYSMODs**

Software Management

Software Management > Software Instances

**Software Instances**

Actions ▾

No filter applied

Name Filter	System Filter	Messages Filter	Description Filter	Activity Filter	Global Zone CSI Filter	Target Zones Filter
<input checked="" type="checkbox"/> swi4hold	new171				IBMUSR6.SWI4HOLD.CSI	ZOS24T
<input type="checkbox"/> swi4swu				Being deployed	IBMUSR6.SWI4SWU.CSI	TGT
<input type="checkbox"/> swi4swu4					IBMUSR6.SWI4SWU4.CSI	TGT
<input type="checkbox"/> swidsmt				Being deployed	IBMUSR6.CB.OS12345.GLOBAL.CSI	JES2T, TGT
<input type="checkbox"/> unixDS3					IBMUSR6.UNXDS3.GLOBAL.CSI	TGT

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  - Software Instance Validation
  - Missing Critical Service
  - Missing FIXCAT SYSMODs**
  - SYSMOD Search
  - Software Instance Comparison...



# Software Management, Missing FIXCAT SYSMODs

## Displays:

- Date of most recent FIXCAT HOLDDATA
- Fix Categories
- Reason ID (APAR) for unresolved FIXCAT HOLDDs
- Resolving SYSMODs if known

Software Management							
Software Management > Software Instances > Maintenance Reports							
Maintenance Reports							
Missing Critical Service x Missing FIXCAT SYSMODs x							
Review the list of fix categories and determine which APARs are critical for your installation. Use SMP/E to apply the resolving SYSMODs to the corresponding target zone.							
Actions Table view: Tree							
No filter applied							
Software Instance / Fix Category / FMID / Missing APAR	System Filter	HOLDDATA Received (GMT) Filter	Target Zones Filter	Resolving SYSMODs Received in Global Zone Filter	Resolving SYSMODs Not in Global Zone Filter	FMID Description Filter	
<input type="checkbox"/> swi4hold	pev171	July 15, 2022 'at' 12:24:08					
<input type="checkbox"/> IBM.AnotherCategory.ForShirley							
<input type="checkbox"/> IBM.Coexistence.z/OS.V2R3							
<input type="checkbox"/> IBM.Coexistence.z/OS.V2R4							
<input type="checkbox"/> HHOLD01						Anvil Manager Base 1.0	
<input type="checkbox"/> AF10004			ZOS24T	UF10004			
<input type="checkbox"/> IBM.Coexistence.z/OS.V2R5							
<input type="checkbox"/> IBM.Device.JustAnyOldDevice							
<input type="checkbox"/> IBM.ProductInstall-RequiredService							
<input type="checkbox"/> IBM.device.z16							

# Software Management, Missing FIXCAT Updates API

- REST API: **Missing FIXCAT Updates**

Helps identify missing updates for fix categories that might be applicable to the software instance, and it identifies the SYSMODs that can resolve the missing updates.

- HTTP POST method

- URL: /zosmf/swmgmt/swi/<system-nickname>/<swi-name>/missingfixcatupdates

```
{
  "status": "complete",
  "lastholdrecvdate": "2022-02-11T19:15:34Z",
  "missingfixcatupdates": [
    {
      "name": "CA61368",
      "fixcats": ["IBM.ProductInstall-RequiredService"],
      "fmid": "HBB77C0",
      "fmiddesc": "BCP Base",
      "resolvers": [
        {
          "name": "UJ07031",
          "received": true
        }
      ],
      "tgtzones": ["TGT24"]
    },
    {
      "name": "CA62202",
      "fixcats": ["IBM.ProductInstall-RequiredService"],
      "fmid": "HBB77C0",
      "fmiddesc": "BCP Base",
      "resolvers": [
        {
          "name": "UJ07520",
          "received": true
        }
      ],
      "tgtzones": ["TGT24"]
    }
  ]
}
```

# Software Management, SYSMOD Search

On the Software  
Instances page:

Click Actions,  
Maintenance Reports,  
**SYSMOD Search**

Software Management

Software Management > Software Instances

**Software Instances**

Actions ▾

✚ No filter applied

<input type="checkbox"/>	Name Filter	System Filter	Messages Filter	Description Filter	Activity Filter	Global Zone CSI Filter	Target Zones Filter
<input checked="" type="checkbox"/>	swi4hold	swi474				IBMUSR6.SWI4HOLD.CSI	ZOS24T
<input type="checkbox"/>	swi4s				Being deployed	IBMUSR6.SWI4SWU.CSI	TGT
<input type="checkbox"/>	swi4s					IBMUSR6.SWI4SWU4.CSI	TGT
<input type="checkbox"/>	swids				Being deployed	IBMUSR6.CB.OS12345.GLOBAL.CSI	JES2T, TGT
<input type="checkbox"/>	unixD					IBMUSR6.UNXDS3.GLOBAL.CSI	TGT

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  - SYSMOD Search**
  - Software Instance Comparison...

# Software Management, SYSMOD Search

Displays:

- SYSMODs to search
- Each zone in the SWI
- For each zone, SYSMODs searched
- For each zone, SYSMODs' status

Software Management

Software Management > Software Instances > Maintenance Reports

### Maintenance Reports

Missing Critical Service x Missing FIXCAT SYSMODs x **SYSMOD Search x**

Use this page to search the selected software instances for one or more SYSMODs.

**SYSMOD search list**

HHOLD01 UH10005

Search Results

Actions Table view: Tree

No filter applied

<input type="checkbox"/>	Software Instance / Zone Name / SYSMOD Filter	System Filter	Type Filter	FMID Filter	Status Filter	Installed Filter
<input type="checkbox"/>	swi4hold	pev171				
<input type="checkbox"/>	GLOBAL					
<input type="checkbox"/>	HHOLD01		FUNCTION		Received	July 15, 2022 'at' 12:23:57
<input type="checkbox"/>	UH10005		PTF	HHOLD01	Received	July 15, 2022 'at' 12:24:00
<input type="checkbox"/>	ZOS24D					
<input type="checkbox"/>	ZOS24T					
<input type="checkbox"/>	HHOLD01		FUNCTION	HHOLD01	Applied	July 15, 2022 'at' 12:24:17
<input type="checkbox"/>	UH10005				Not Found	

# Software Management, Missing FIXCAT Updates API

- REST API: **Software Update Search**

Allows you to search a software instance for one or more software updates. This is helpful when you need to complete a task that requires you to determine if a software instance is installed or needs to be installed.

- HTTP POST method

- URL: /zosmf/swmgmt/swi/<system-nickname>/<swi-name>/softwareupdatesearch

```
{ "status": "complete",
  "updates": [
    { "name": "HBB77C0",
      "type": "FUNCTION",
      "fmid": "HBB77C0",
      "zones": [
        { "zone": "DLB24", "status": "Accepted", "installed": "2022-02-11T19:15:34Z" },
        { "zone": "GLOBAL", "status": "Not Found", "installed": null },
        { "zone": "TGT24", "status": "Applied", "installed": "2022-02-11T19:15:34Z" }
      ]
    },
    { "name": "UJ00132",
      "type": "PTF",
      "fmid": "HBB77C0",
      "zones": [
        { "zone": "DLB24", "status": "Not Found", "installed": null },
        { "zone": "GLOBAL", "status": "Received", "installed": "2022-02-11T18:34:56Z" },
        { "zone": "TGT24", "status": "Applied", "installed": "2022-02-11T19:15:34Z" }
      ]
    },
    { "name": "CA57408",
      "type": null,
      "fmid": null,
      "zones": [
        { "zone": "DLB24", "status": "Not Found", "installed": null },
        { "zone": "GLOBAL", "status": "Not Found", "installed": null },
        { "zone": "TGT24", "status": "Superseded by UJ00132", "installed": null }
      ]
    }
  ]
}
```

# Software Management Ansible Roles

Red Hat Ansible Certified Content for IBM Z

[https://ibm.github.io/z\\_ansible\\_collections\\_doc/index.html](https://ibm.github.io/z_ansible_collections_doc/index.html)

- Identify Missing Critical Software Updates for a Software Instance
- Identify Missing Fixcat Software Updates for a Software Instance
- Search a Software Instance for Software Updates

# 2023 z/OSMF Survey

<https://ibm.biz/zosmfsurvey2023>





# Thank You!

