

z/OS 3.2 IBM Education Assistant

Solution Name: Software Update REST API

Solution Element(s): z/OSMF Software Management

July 2025



Agenda

- Trademarks
- Objectives
- Overview
- Usage & Invocation
- Interactions & Dependencies
- Upgrade & Coexistence Considerations
- Installation & Configuration
- Summary
- Appendix

Trademarks

- See url <http://www.ibm.com/legal/copytrade.shtml> for a list of trademarks.
- Additional Trademarks:
 - If you need to list any that aren't included on the website above, please do so here. If not, remove the text in this bullet and just say “None”.

Objectives

- Enable automation of z/OS system administrator tasks
 - Create new APIs to install software updates (PTFs).
 - Enable automation of common z/OS system administrator tasks.
 - The API drives the software update processes managed by the z/OSMF Software Update application.
 - A step toward hands free update installation.

Overview

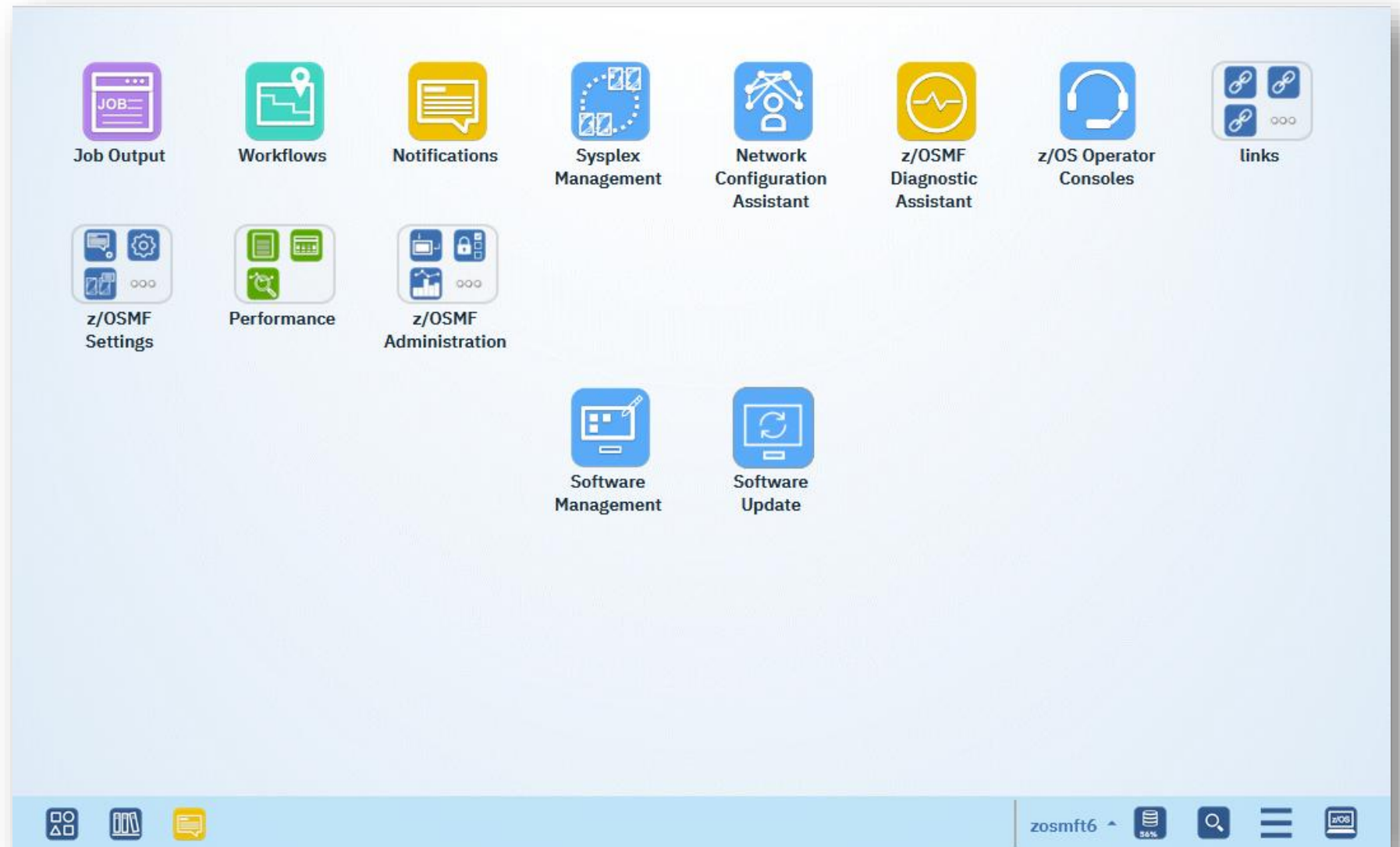
- Who (Audience)
 - z/OS system administrators
- What (Solution)
 - A new set of APIs to perform software update installation via the z/OSMF Software Update application.
 - Start a software update process
 - Retrieve the status of a software update process
 - Resume a suspended software update process
 - Cancel an in-progress software update process
 - Copy the saved output for a software update process
- Wow (Benefit / Value, Need Addressed)
 - Enables automation of common z/OS system administrator tasks.

Usage and Invocation

- To understand the new Software Update REST API, we must start with a short review of the Software Update application.

z/OSMF

The z/OSMF desktop.

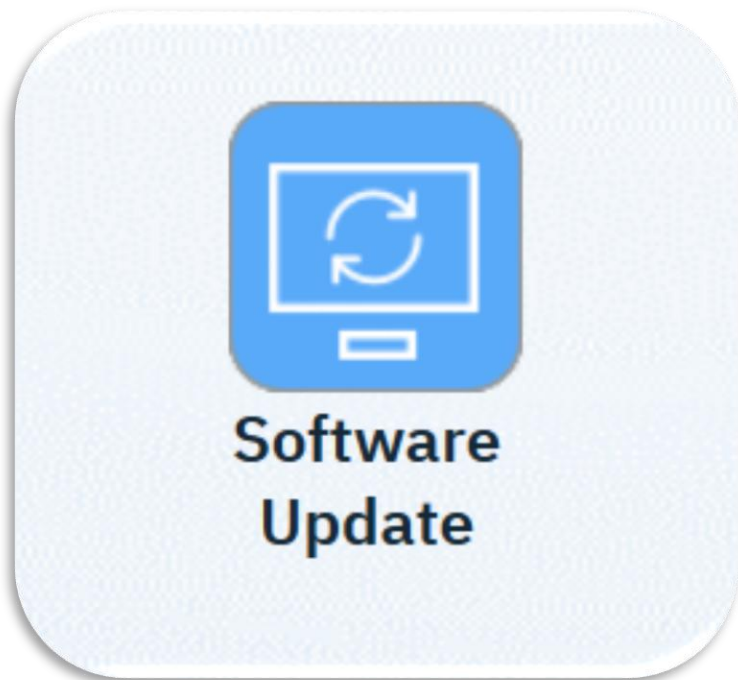


z/OSMF Software Management



- Software Management is a z/OSMF application to install and manage z/OS platform software.
- Installed software is known to z/OSMF as a **software instance**.
- The Software Management application allows you to:
 - View data sets that compose a software instance.
 - View Product, Feature, FMID content of software instances.
 - Identify software products that are approaching, or have reached, end of service support.
 - Validate the SMP/E structure and content of a software instance.
 - Identify missing HIPER and PE fixes, and fixes associated with fix categories.
 - Determine if specific fixes are installed.
 - Compare functional and service content of two software instances to aid in migration planning or debugging.
 - Install and Deploy software instances.
 - Launch workflows defined for a software instance to perform setup and configuration tasks.

z/OSMF Software Update



- Software Update is a z/OSMF application to simplify installing SMP/E managed software updates (aka PTFs).
- Target users are early tenure z/OS system administrators and system programmers.
- Codifies best practices for installing software updates.
- Installed software is known to z/OSMF as a **software instance**.
- The Software Update application installs software updates on a software instance.

Software Update

A software update is a generic term for a PTF.

There are 3 actions for installing software updates:

Install By Name

- Install individual software updates.
- z/OSMF displays the installable software updates and you select which updates to install.
- If you know the name (ID) for updates you want to install, perhaps to correct a specific problem, then use this action.
- Formerly called the “Install Corrective Updates” action.

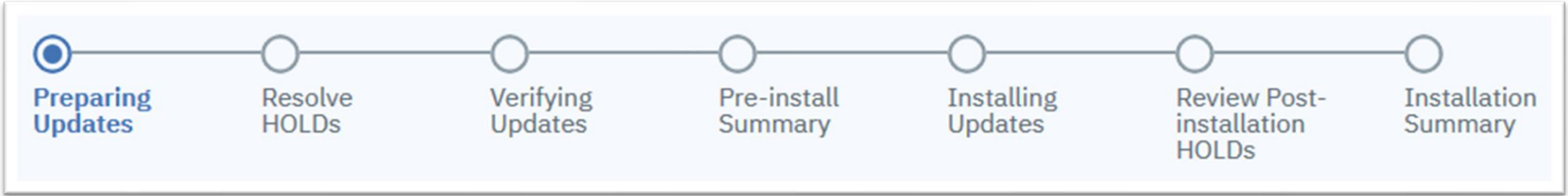
Install By Source ID

- Install groups of software updates by selecting source IDs.
- Source IDs identify groups of updates and may indicate whether updates are recommended by the vendor and when, from where or how updates were acquired, or other update categories.
- z/OSMF displays source IDs assigned to installable updates and you select source IDs to install the associated updates.
- Use this action to install vendor-recommended updates.
- Formerly called the “Install Recommended Updates” action.

Install by Fix Category

- Install groups of software updates by selecting fix categories.
- Fix categories identify updates which support new hardware, software, or functions.
- z/OSMF displays fix categories for installable updates and you select categories to install the associated updates.
- Use this action to install updates supporting new server devices or software releases.
- Formerly called the “Install Functional Updates” action.

Software Update Process Steps



After identifying which updates to install, Software Update guides you through the following steps:

Step	Action
Preparing updates	z/OSMF performs APPLY CHECK to identify HOLDs to review and ensure no missing requisites
Resolve HOLDs	User reviews and resolves each HOLD, either bypass the HOLD or exclude the update
Verifying updates	z/OSMF performs APPLY CHECK to validate the HOLD resolution choices
Pre-installation summary	User reviews the list of updates that will be installed.
Installing updates	z/OSMF performs APPLY
Review post-installation HOLDs	User reviews any HOLDs that need action after the APPLY

The Software Update Desktop

The list of
Software
Instances is
displayed.

Software Update

Settings

Help

Start New Software Update

View Updates in Progress

Show completed updates

Software Instances and Zones

Select a software instance and target zone, then choose an install action. Not sure which action to choose? [Learn more...](#)

	Name		System	Description	Status	Global Zone CSI	Categories	Created	Created by
▼	ForKevin		pev171		Ready	IBMUSR6.SWI4HOLD.CSI		Mar 22, 2024 11:53:12 AM	ZOSMFT6
▼	mvsbuild		pev171		Ready	IBMUSR6.MVSBUILD.CSI		Feb 13, 2024 12:11:44 PM	ZOSMFT6
▼	swi4swu		pev171		Ready	IBMUSR6.SWI4SWU.CSI		Mar 27, 2024 8:40:27 AM	ZOSMFT6
▼	swi4swu6		pev171		Ready	IBMUSR6.SWI4SWU6.CSI		May 29, 2024 4:54:52 PM	ZOSMFT6
▼	swi4swuWithWF		pev171		Being deployed	IBMUSR6.SWI4SWU.CSI		Apr 25, 2024 3:21:58 PM	ZOSMFT6
▼	swi4swut		pev171		Ready	IBMUSR6.SWI4SWUT.CSI		Feb 23, 2024 11:57:01 AM	ZOSMFT6
▼	swi4wf		pev171		Ready	IBMUSR6.SWI4WF.GLOBAL.CSI		Mar 21, 2024 10:10:14 AM	ZOSMFT6
▼	swi4wf2		pev171		Being deployed	IBMUSR6.SWI4WF2.CSI		Apr 5, 2024 11:23:11 AM	ZOSMFT6
▼	swi4wf2-2		pev171		Being deployed	IBMUSR6.SWI4WF2.CSI		May 20, 2024 3:27:50 PM	ZOSMFT6
▼	swi4wf3		pev171		Being deployed	IBMUSR6.SWI4WF3.CSI		May 22, 2024 6:07:49 PM	ZOSMFT6

Items per page: 10

1-10 of 19 items

1 of 2 pages

Install Updates by Name

- Select a software instance and the target zone to be updated.
- Click “Install by Name”

Software Update

Settings

Help

Start New Software Update

View Updates in Progress

Software Update ⓘ

Software Instances and Zones

Select a software instance and target zone, then choose an install action. Not sure which action to choose? [Learn more...](#)

Name	System	Description	Status	Global Zone CSI	Categories	Created	Created by
^ mvsbuild	pev171		Ready	IBMUSR6.MVSBUILD.CSI		Feb 13, 2024 12:11:44 PM	ZOSMFT6
Zone							
<input checked="" type="radio"/> TGT31							
▼ swi4swu6	pev171		Ready	IBMUSR6.SWI4SWU6.CSI		May 29, 2024 4:54:52 PM	ZOSMFT6
▼ swi4swuWithWF	pev171		Being deployed	IBMUSR6.SWI4SWU.CSI		Apr 25, 2024 3:21:58 PM	ZOSMFT6
▼ swi4swut	pev171		Ready	IBMUSR6.SWI4SWUT.CSI		Feb 23, 2024 11:57:01 AM	ZOSMFT6
▼ swi4wf	pev171		Ready	IBMUSR6.SWI4WF.GLOBAL.CSI		Mar 21, 2024 10:10:14 AM	ZOSMFT6
▼ swidsmt	pev171		Ready	IBMUSR6.DSMTST.GLOBAL.CSI		Feb 9, 2024 4:57:23 PM	ZOSMFT6

Items per page: 10

1-6 of 6 items

1 of 1 page

Refresh

Install by Name

Install by Source ID

Install by Fix Category

Selecting the Software Updates (1)

Updates are displayed if they are:

- PTF, APAR, or USERMOD type SYSMODs
- Received in the global zone
- Applicable to the target zone
- Not already applied in the target zone

Software Update

Software Update / Software Updates

Help

Software Updates

Select software updates to install.

Software Instance

Zone

mvsbuild

TGT31

<input type="checkbox"/>	Update Name	SYSMOD Type	FMID	FMID Description	Source IDs	Rework	SYSTEM HOLDS	SYSMOD Description	Receive Date	
<input type="checkbox"/>	UI97191	PTF	HLE77E0	Language Environment Base	ORD00016, SMCCOR	2024159	ENH, DOC		Jun 11, 2024 1:37:36 PM	:
<input type="checkbox"/>	UJ95370	PTF	HCKR310	IBM Security zSecure Base	HIPER, IBM.ProductInstall-RequiredService, ORD00016, SMCCOR	2024158	ACTION		Jun 11, 2024 1:33:36 PM	:
<input type="checkbox"/>	UI97002	PTF	HQX77E0	SDSF Base	ORD00016, SMCCOR	2024157			Jun 11, 2024 1:37:35 PM	:
<input type="checkbox"/>	UJ95278	PTF	HDZ3310	Data Facility System Managed Storage Base & ENU	HIPER, IBM.ProductInstall-RequiredService, ORD00016, SMCCOR	2024157	IPL		Jun 11, 2024 1:33:29 PM	:
<input type="checkbox"/>	UJ95351	PTF	HCKR310	IBM Security zSecure Base	ORD00016, SMCCOR	2024157			Jun 11, 2024 1:33:35 PM	:
<input type="checkbox"/>	UJ95357	PTF	HCR77E0	Cryptographic Support - ICSF	ORD00016, SMCCOR	2024157	RESTART		Jun 11, 2024 1:33:35 PM	:
<input type="checkbox"/>	UI96516	PTF	HIP6310	Communications Server IP	ORD00016, SMCCOR	2024156			Jun 11, 2024 1:34:22 PM	:

Selecting the Software Updates (2)

- Enter a search string to filter the list of updates.
- Select the updates (PTFs) you want to install.
- Click **“Start Install Process”**

The screenshot shows the 'Software Update' application window. The title bar is 'Software Update'. Below the title bar, there is a breadcrumb 'Software Update / Software Updates' and a 'Help' icon. The main heading is 'Software Updates' with the instruction 'Select software updates to install.' Below this, there is a table with two columns: 'Software Instance' and 'Zone'. The 'Software Instance' column contains 'mvsbuild' and the 'Zone' column contains 'TGT31'. Below this table is a search bar with the text 'hmp' and a red box around it. Below the search bar is a table with the following columns: 'Update Name', 'SYSMOD Type', 'FMID', 'FMID Description', 'Source IDs', 'Rework', 'SYSTEM HOLDS', 'SYSMOD Description', and 'Receive Date'. The table contains three rows of data. The first row is selected with a checkbox. The second row is also selected with a checkbox. The third row is not selected. Below the table, it says '2 items selected'. At the bottom right, there are two buttons: 'Cancel' and 'Start Install Process'. A red arrow points to the 'Start Install Process' button.

Update Name	SYSMOD Type	FMID	FMID Description	Source IDs	Rework	SYSTEM HOLDS	SYSMOD Description	Receive Date
U090066	PTF	HMP1K00	SMP/E Base	ORD00016, PUT2405, SMCCOR	2024149			Jun 11, 2024 1:31:21 PM
U090065	PTF	HMP1K00	SMP/E Base	ORD00016, PUT2405, SMCCOR	2024135			Jun 11, 2024 1:31:21 PM
U090054	PTF	HMP1K00	SMP/E Base	IBM.DrivingSystem-RequiredService, ORD00010, PUT2402, SMCCOR	2024037			Feb 27, 2024 9:24:24 AM

Preparing Updates

- The overview on top indicates the current step in the wizard.
- A first pass APPLY CHECK identifies all relevant HOLDS and ensures requisites are found.

The screenshot shows a 'Software Update' window with a progress bar at the top. The progress bar has seven steps: 'Preparing Updates' (selected with a blue dot), 'Resolve HOLDS', 'Verifying Updates', 'Pre-install Summary', 'Installing Updates', 'Review Post-installation HOLDS', and 'Installation Summary'. Below the progress bar, there is a table with three columns: 'Software Instance', 'Zone', and 'Notes'. The table has one row with the instance 'mvsbuild' and zone 'TGT31'. The 'Notes' column contains the text 'Use a maximum of 140 characters per note.' and an 'Edit Notes' button. Below the table, there is a 'Process' section with a table showing the current process 'Preparing Updates' and its status 'Working' (indicated by a blue circle with a dot). At the bottom right, there are three buttons: 'Cancel', 'Save and Exit', and 'Next'.

Software Instance	Zone	Notes
mvsbuild	TGT31	Use a maximum of 140 characters per note. Edit Notes

Process	Status
Preparing Updates	Working

Cancel Save and Exit Next

z/OSMF Programming Interfaces (REST APIs)

z/OSMF Programming Interfaces

- Many z/OSMF applications provide program interfaces to work with their resources and actions.
- Implemented as **Representational State Transfer (REST) APIs**.
- Invoked by an **HTTP** client program running on the local z/OS, a remote z/OS, or on another platform.
- Software Management provides the following REST APIs:
 - Software Instance List, Add, Read, Modify, Delete, List data sets, Export, Load products/features/FMIDs, Report Missing Critical Updates, Report Missing FIXCAT Updates, Update Search.
 - Portable Software Instance List, Add, Read, Delete.
 - Deployment Add, Delete.
 - Get z/OS System UUID
 - Query an SMP/E CSI
 - **Software Update Start, Read, Resume, Cancel**
- See the z/OSMF Programming Guide for more information
<https://www.ibm.com/docs/en/zos/3.1.0?topic=services-software-management>



New for
z/OS 3.2

Software Update APIs

1. **Start** a software update process. Identify the following:
 - Software instance and target zone to update
 - Software updates to install
 - HOLDs to automatically resolve
 - Process steps on which to suspend
2. **Retrieve** the status of a software update process
3. **Resume** a suspended software update process. Identify the following:
 - HOLDs to resolve
 - Process steps on which to suspend
4. **Cancel** a software update process
5. **Copy** the output for a completed software update process

A process started by the API is accessible by the application (UI), and vice versa

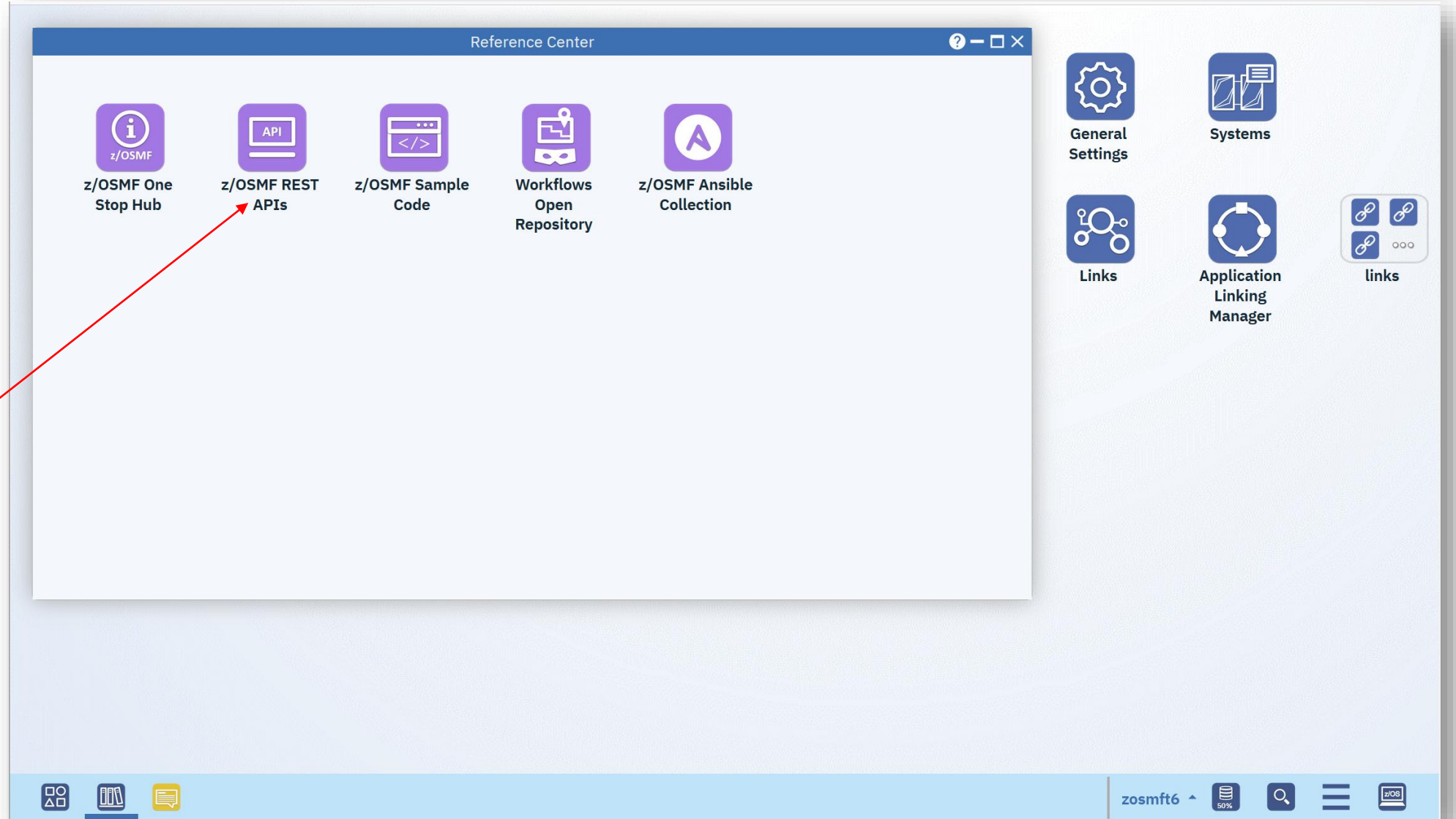
z/OSMF APIs (1)

Open the
“**Reference Center**”
folder.



z/OSMF APIs (2)

Click the
“**z/OSMF REST
APIs**” icon.



z/OSMF APIs (3)

The API Explorer uses supplied OpenAPI definitions to display the z/OSMF application REST APIs.

Provides both documentation and an interface to experiment with REST APIs.

Click “**Software Management APIs**”

IBM

all

Filter

Liberty REST APIs

Discover REST APIs available within Liberty

AMS APIs ¹	Show/Hide	List Operations	Expand Operations
Authentication APIs	Show/Hide	List Operations	Expand Operations
Compliance APIs ¹	Show/Hide	List Operations	Expand Operations
Console Services APIs	Show/Hide	List Operations	Expand Operations
Dataset APIs ¹	Show/Hide	List Operations	Expand Operations
File APIs ¹	Show/Hide	List Operations	Expand Operations
Filesystem APIs ¹	Show/Hide	List Operations	Expand Operations
Information APIs	Show/Hide	List Operations	Expand Operations
Jobs APIs ¹	Show/Hide	List Operations	Expand Operations
Notifications APIs	Show/Hide	List Operations	Expand Operations
Published Software Catalog	Show/Hide	List Operations	Expand Operations
Resource Management	Show/Hide	List Operations	Expand Operations
Security Configuration Assistant APIs	Show/Hide	List Operations	Expand Operations
Software Management APIs	Show/Hide	List Operations	Expand Operations
Software Service Instance Names	Show/Hide	List Operations	Expand Operations
Software Services Catalog	Show/Hide	List Operations	Expand Operations
Software Services Registry	Show/Hide	List Operations	Expand Operations
Storage Management APIs ¹	Show/Hide	List Operations	Expand Operations
Sysplex Management APIs	Show/Hide	List Operations	Expand Operations
System Validation APIs	Show/Hide	List Operations	Expand Operations

z/OSMF APIs (4)

Click “**Start a software update for a software instance**”



POST	/zosmf/swmgmt/swi/{system-nickname}/{swi-name}/deltempcatalogias	Delete the temporary catalog aliases for a software instance
POST	/zosmf/swmgmt/swi/{system-nickname}/{swi-name}/export	Export a software instance
POST	/zosmf/swmgmt/swi/{system-nickname}/{swi-name}/missingcriticalupdates	Determine missing critical software updates for a software instance
POST	/zosmf/swmgmt/swi/{system-nickname}/{swi-name}/missingfixcatupdates	Determine missing fixcat software updates for a software instance
PUT	/zosmf/swmgmt/swi/{system-nickname}/{swi-name}/products	Load the products, features, and FMIDs for a software instance
POST	/zosmf/swmgmt/swi/{system-nickname}/{swi-name}/softwareupdatesearch	Search a software instance for software updates
GET	/zosmf/swmgmt/swi/{system-nickname}/{swi-name}/swupdate	Retrieve the status of a software update process on a software instance
POST	/zosmf/swmgmt/swi/{system-nickname}/{swi-name}/swupdate	Start a software update for a software instance
GET	/zosmf/swmgmt/swi/{system-nickname}/{swi-name}/swupdate/all	Retrieve the status of all software update processes on a software instance
POST	/zosmf/swmgmt/swi/{system-nickname}/{swi-name}/swupdate/cancel	Cancel a software update for a software instance
POST	/zosmf/swmgmt/swi/{system-nickname}/{swi-name}/swupdate/resume	Resume a software update for a software instance
PUT	/zosmf/swmgmt/swi/{system-nickname}/{swi-name}/swupdate?dir={directory}	Copy software update output for a software instance
POST	/zosmf/swmgmt/swupdate/cancel/{processid}	Cancel a software update for a software instance
POST	/zosmf/swmgmt/swupdate/resume/{processid}	Resume a software update for a software instance
GET	/zosmf/swmgmt/swupdate/{processid}	Retrieve the status of a software update process
PUT	/zosmf/swmgmt/swupdate/{processid}?dir={directory}	Copy software update output
POST	/zosmf/swmgmt/system/uuid	Retrieve the z/OS host system UUID
POST	/zosmf/swmgmt/system/uuid/{system-nickname}	Retrieve the z/OS system UUID

Start a Software Update Process (1)

- The z/OSMF server starts a new update process.
- The URL identifies the software instance to update.
- In the request content specify the following:
 - Target zone to update
 - Software update selection criteria, one of:
 - Update names
 - Source IDs
 - Fix Categories
 - Optional, HOLDS to *automatically* resolve
 - HOLD type (SYSTEM, ERROR, USER)
 - HOLD reason (IPL, RESTART, DOC, ACTION, ENH, ...)
 - Held SYSMOD
 - For example, automatically resolve all SYSTEM HOLDS for IPL and RESTART
 - Optional, suspend step:
 - Resolve-Holds
 - Pre-Installation-Summary
 - Optional, SMP/E user ID

Start a Software Update Process (2)

HTTP **POST** method

URLs :

/zosmf/swmgmt/swi/<system-nickname>/<swi-name>/swupdate

/zosmf/swmgmt/swi/<swi-uuid>/swupdate

Request content:

```
{
  "targetzone": "TGT",
  "sourceids": ["RSU2412"],
  "resolve-holds": [
    {"type": "SYSTEM", "reason": "IPL"},
    {"type": "SYSTEM", "reason": "RESTART"}
  ],
  "notes": "Install RSU updates"
}
```

- Install updates in zone “TGT”
- Install all updates assigned to source ID “RSU2412”
- Automatically resolve all SYSTEM HOLDs for IPL and RESTART

Software Update Process Steps...

- Like the Software Update application UI, a process started by the API has several steps.
- A process may run from start to completion without interruption, or it may suspend and can be resumed or cancelled.
- A started software update process progresses through the following steps:

Step	Action
Preparing updates	Perform APPLY CHECK based on the Start input (selected updates, source IDs, or fix categories) to identify updates to be installed and HOLDs that must be resolved.
Resolve HOLDs	<ul style="list-style-type: none">• Are there any HOLDs to resolve? If yes, automatically resolve HOLDs based on the input to Start. If any HOLDs remain unresolved then Suspend the process.• If the input to Start requested suspend, then Suspend the process to allow the HOLDs to be reviewed.
Verifying updates	Perform APPLY CHECK to validate the HOLD resolutions (BYPASS or EXCLUDE).
Pre-installation summary	If the input to Start or Resume requested suspend, then Suspend the process to allow the list of updates that will be installed to be reviewed.
Installing updates	Perform APPLY.
Complete	The update process is complete.

Start a Software Update (1)

Enter:

- z/OSMF host system name
- Software instance name
- Software update request
 - Target zone
 - Source IDs
 - Resolve Holds
 - SMP/E userid

Click “Try it out!”

POST /zosmf/swmgt/swi/{system-nickname}/{swi-name}/swupdate

Start a software update for a software instance

Implementation Notes

The Start Software Update REST API allows you to install specified software updates on a software instance and zone.

Response Class (Status 202)

Success. The process ID is returned.

Model Example Value

```
{
  "processid": "processid"
}
```

Response Content Type application/json

Parameters

Parameter	Value	Description	Parameter Type	Data Type
system-nickname	pev171	Nickname of the z/OSMF host system that has access to the volumes and data sets where the software instance resides. The (system-nickname) and (swi-name) uniquely identify a software instance. To obtain information about the specified system, you can use the z/OSMF topology services. For more details, see Topology services.	path	string
swi-name	zOS31	Indicates the specific software instance to be processed. The (swi-name) and (system-nickname) uniquely identifies a software instance.	path	string
body	<pre>{ "targetzone": "TGT", "sourceids": ["RSU2412"], "resolve-holds": [{ "type": "SYSTEM", "reason": "IPL" }, { "type": "SYSTEM", "reason": "RESTART" }], "notes": "Install RSU PTFs" }</pre>	The request content is required, but some properties are optional. For example, if the software instance does not reside in the same sysplex as the primary z/OSMF instance, you might be required to authenticate with the secondary z/OSMF instance that is running in the sysplex where the software instance resides. In addition, if the primary z/OSMF instance must navigate an HTTP proxy server to connect with the secondary z/OSMF instance, you might also be required to authenticate with that HTTP proxy server. Therefore, you may need to specify the remote z/OSMF userid, password, and proxy userid and password.	body	Model Example Value

Parameter content type: application/json

```
{
  "targetzone": "zone-name",
  "updates": [
    {
      "update-name"
    }
  ],
  "sourceids": [
    "sourceID"
  ],
  "fixcats": [
    "fixcategory"
  ]
}
```

Response Messages

HTTP Status Code	Reason	Response Model	Headers
400	The request contained incorrect parameters.		
403	The submitter of the request did not authenticate to z/OSMF or the server rejected the request.		
404	The target of the request was not found.		
409	The request could not be completed because there is a conflict with the current state of the resource.		
500	The server encountered an error that prevented it from completing the request.		
503	The server is currently unavailable to process the request.		

Try it out!

Hide Response

Start a Software Update (2)

The HTTP request is sent to the server.

The update process is started and runs asynchronously, so the response returns the **process ID** for the update process, to get the results later.

[Try it out!](#) [Hide Response](#)

Curl

```
curl -X POST --header 'Content-Type: application/json' --header 'Accept: application/json' -d '{ "targetzone": "TGT", \
  "sourceids": ["RSU2412"], \
  "resolve-holds": [ \
    {"type":"SYSTEM", "reason":"IPL"}, \
    {"type":"SYSTEM", "reason":"RESTART"} \
  ], \
  "notes": "Install RSU PTFs" }' 'https://pev171.pok.ibm.com:443/zosmf/swmgmt/swi/pev171/zOS31/swupdate'
```

Request URL

```
https://pev171.pok.ibm.com:443/zosmf/swmgmt/swi/pev171/zOS31/swupdate
```

Response Body

```
{
  "processid": "2212"
}
```

Response Code

```
202
```

Retrieve the Status for a Software Update Process (1)

HTTP **GET** method

URLs

/zosmf/swmgmt/swupdate/<process-id>

/zosmf/swmgmt/swi/<system-nickname>/<swi-name>/swupdate

/zosmf/swmgmt/swi/<swi-uuid>/swupdate

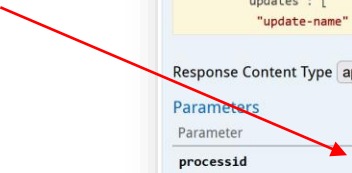
Response content:

```
{
  ...
  "processid": "processid",
  "started": "start-date",
  "lastmodified": "last-modified",
  "completed": "date-completed",
  "status": "status",
  "step": "current-step",
  "holds": [{
    "name": "update-name",
    "holdStatus": "hold-status",
    "fmid": "fmid-name",
    "holdType": "hold-type",
    "holdClass": "hold-class",
    "holdReason": "hold-reason"
  }],
  "updates": [{
    "name": "update-name",
    "fmid": "fmid-name",
    "selectStatus": "selection-status"
  }]
  ...
}
```

Retrieve the Status for a Software Update Process (2)

Retrieve the status of the software update process.

Enter the process ID returned from the Start.



GET

/zosmf/swmgmt/swupdate/{processid}

Retrieve the status of a software update process

Implementation Notes

The Retrieve the status of a Software Update REST API allows you to track the progress of a software update process.

Response Class (Status 200)

Success. JSON document returned containing information about the software update process.

Model

Example Value

```
{
  "name": "swi-name",
  "system": "system-nickname",
  "uuid": "swi-uuid",
  "update-processes": [
    {
      "targetzone": "target-zone",
      "selection": {
        "updates": [
          "update-name"
        ]
      }
    }
  ]
}
```

Response Content Type

application/json

Parameters

Parameter	Value	Description	Parameter Type	Data Type
processid	<input type="text" value="2212"/>	Indicates the status for the software update process with the specified process id should be returned.	path	string

Response Messages

HTTP Status Code	Reason	Response Model	Headers
404	The target of the request was not found.		

Try it out!

[Hide Response](#)

Retrieve the Status for a Software Update Process (3)

The Response Body contains the status for the update process, in json format.

- This process is suspended at the RESOLVE_HOLDS step.
- A DOC HOLD is an unresolved.
- An IPL HOLD is automatically resolved, based on the input for the Start.

Try it out! [Hide Response](#)

Curl

```
curl -X GET --header 'Accept: application/json' 'https://pev171.pok.ibm.com:443/zosmf/swmgmt/swupdate/2212'
```

Request URL

```
https://pev171.pok.ibm.com:443/zosmf/swmgmt/swupdate/2212
```

Response Body

```
{
  "started": "2025-02-21T21:04:33Z",
  "lastmodified": "2025-02-21T21:05:03Z",
  "status": "SUSPENDED",
  "step": "RESOLVE_HOLDS",
  "holds": [
    {
      "fmid": "HSWUPD1",
      "holdStatus": "Unresolved",
      "name": "UA00009",
      "holdReason": "DOC",
      "holdType": "SYSTEM",
      "holdClass": null
    },
    {
      "fmid": "HSWUPD1",
      "holdStatus": "Resolved",
      "name": "UA00011",
      "holdReason": "IPL",
      "holdType": "SYSTEM",
      "holdClass": null
    }
  ]
}
```

Response Code

```
200
```

Resolved and Unresolved HOLDS

- The Retrieve API response indicates the resolved and unresolved HOLDS for the updates being installed.
- The response does not contain the HOLDDATA (the text).
- To programmatically get the HOLDDATA for review, use the **Query CSI REST API** to get the desired HOLDDATA from the global zone.

Get the DOC HOLD (Query the CSI)

Use the Query CSI REST API to get the HOLD entry.

Enter:

- z/OSMF host system
- Software instance name
- Query:
 - Global zone
 - HOLDDATA entry
 - Return the HOLDDATA subentry
 - Filter to get only the HOLD DOC

Click “Try it out!”

POST /zosmf/swmgmt/swi/{system-nickname}/{swi-name}/csiquery

Query the SMP/E CSI data set included in a software instance

Implementation Notes

The SMP/E CSI Query service allows you to query entries defined in SMP/E CSI data sets associated with software instances. Refer to <https://www.ibm.com/docs/en/zos/3.1.0?topic=reference-smpe-csi-application-programming-interface> for more information.

Response Class (Status 202)

Success. The status url is returned.

Model Example Value

```
{
  "statusurl": "https://sys123.yourco.com/zosmf/swmgmt/statusmonitor/csiquery/1602082447854"
}
```

Response Content Type application/json

Parameters

Parameter	Value	Description	Parameter Type	Data Type
system-nickname	pev171	Nickname of the z/OSMF host system that has access to the volumes and data sets where the software instance resides.	path	string
swi-name	mvbuild	Name of the software instance.	path	string
body	<pre>{ "zones": ["GLOBAL"], "entries": ["HOLDDATA"], "subentries": ["HOLDDATA"], "filter": "ENAME='UA000009'&HOLDREASON='DOC'" }</pre>	Request body. Include the JSON object in the request only if you are required to authenticate with a secondary z/OSMF instance or an HTTP proxy server. Otherwise, omit the JSON object.	body	Model Example Value

Parameter content type: application/json

Response Messages

HTTP Status Code	Reason	Response Model	Headers
400	The request contained incorrect parameters.		
403	The submitter of the request did not authenticate to z/OSMF or the server rejected the request.		
404	The target of the request was not found.		
409	The request could not be completed because there is a conflict with the current state of the resource.		
500	The server encountered an error that prevented it from completing the request.		
503	The server is currently unavailable to process the request.		

Try it out!

Get the DOC HOLD (Query the CSI)...

The response contains the requested HOLDDATA entry.

Try it out! [Hide Response](#)

Curl

```
curl -X GET --header 'Accept: application/json' 'https://pev171.pok.ibm.com:443/zosmf/swmgmt/statusmonitor/csiquery/1740161929171'
```

Request URL

```
https://pev171.pok.ibm.com:443/zosmf/swmgmt/statusmonitor/csiquery/1740161929171
```

Response Body

```
{
  "status": "complete",
  "entries": [
    {
      "entryname": "UA00009",
      "entrytype": "HOLDDATA",
      "zonename": "GLOBAL",
      "subentries": [
        {
          "HOLDDATA": [
            "++HOLD(UA00009) SYSTEM FMID(HSWUPD1) REASON(DOC)",
            "  COMMENT(",
            "    *****",
            "    * Function Affected:                (0A57432) *",
            "    *   OPENSSE FOR ZOS                  *",
            "    *****",
            "    * Description:                      *",
            "    *   Documentation updates           *",
            "    *****",
            "    * Time:                             *"
          ]
        }
      ]
    }
  ]
}
```

Response Code

```
200
```

Resume a Suspended Software Update Process (1)

- The z/OSMF server resumes a suspended update process, allowing it to progress to the next steps.
- The URL identifies the software update process to resume.
- In the request content specify the following:
 - Optional, HOLDS to resolve
 - HOLD type (SYSTEM, ERROR, USER)
 - HOLD reason (IPL, RESTART, DOC, ACTION, ENH, ...)
 - Held SYSMOD
 - For example, resolve all SYSTEM HOLDS for IPL, RESTART, and DOC
 - Optional, updates to exclude
 - Optional, suspend step:
 - Resolve-Holds
 - Pre-Installation-Summary

Resume a Suspended Software Update Process (2)

HTTP **POST** method

URLs

/zosmf/swmgmt/swupdate/resume/<process-id>

/zosmf/swmgmt/swi/<system-nickname>/<swi-name>/swupdate/resume

/zosmf/swmgmt/swi/<swi-uuid>/swupdate/resume

Request content:

```
{
  "resolve-holds": [
    {"type": "SYSTEM", "reason": "IPL"},
    {"type": "SYSTEM", "reason": "RESTART"},
    {"type": "SYSTEM", "reason": "DOC"}
  ]
}
```

- Resume the update process
- Resolve all SYSTEM HOLDs for IPL, RESTART, and DOC

Resume a Suspended Software Update Process (3)

Enter:

- Process ID
- Resolve HOLDS, including DOC to resolve all of the HOLDS

POST /zosmf/swmgt/swupdate/resume/{processid}

Resume a software update for a software instance

Implementation Notes

The Resume Software Update REST API allows you to resume a software update process on a software instance that has been suspended, such as for resolving HOLDS.

Response Class (Status 202)

Success. The process ID is returned.

Model

Example Value

```
{
  "processid": "processid"
}
```

Response Content Type

application/json

Parameters

Parameter	Value	Description	Parameter Type	Data Type
processid	2212	Indicates the software update process with the specified process id should be resumed.	path	string

body

```
{
  "resolve-holds": [
    {
      "type": "SYSTEM",
      "reason": "IPL"
    },
    {
      "type": "SYSTEM",
      "reason": "RESTART"
    },
    {
      "type": "SYSTEM",
      "reason": "DOC"
    }
  ]
}
```

Parameter content type: application/json

The request content is not required, and all properties are optional. For example, if the software instance does not reside in the same sysplex as the primary z/OSMF instance, you might be required to authenticate with the secondary z/OSMF instance that is running in the sysplex where the software instance resides. In addition, if the primary z/OSMF instance must navigate an HTTP proxy server to connect with the secondary z/OSMF instance, you might also be required to authenticate with that HTTP proxy server. Therefore, you may need to specify the remote z/OSMF userid, password, and proxy userid and password.

body

Model

Example Value

```
{
  "suspend-steps": [
    "step-name"
  ],
  "exclude-updates": [
    "exclude-update-name"
  ],
  "resolve-holds": [
    {
      "type": "hold-type",
      "reason": "hold-reason"
    }
  ]
}
```

Response Messages

HTTP Status Code	Reason	Response Model	Headers
400	The request contained incorrect parameters.		
403	The submitter of the request did not authenticate to z/OSMF or the server rejected the request.		
404	The target of the request was not found.		
409	The request could not be completed because there is a conflict with the current state of the resource.		
500	The server encountered an error that prevented it from completing the request.		
503	The server is currently unavailable to process the request.		

Try it out!

Retrieve the Status for a Software Update Process

The Response Body contains the status for the update process, in json format.

- This process is Completed.
- A DOC and IPL HOLDS are resolved.
- Three updates were installed.

Try it out! [Hide Response](#)

Curl

```
curl -X GET --header 'Accept: application/json' 'https://pev171.pok.ibm.com:443/zosmf/swmgmt/swupdate/2212'
```

Request URL

```
https://pev171.pok.ibm.com:443/zosmf/swmgmt/swupdate/2212
```

Response Body

```
{
  "started": "2025-02-21T21:04:33Z",
  "completed": "2025-02-21T21:26:51Z",
  "status": "COMPLETED",
  "step": "COMPLETE",
  "holds": [
    {
      "fmid": "HSWUPD1",
      "holdStatus": "Resolved",
      "name": "UA00009",
      "holdReason": "DOC",
      "holdType": "SYSTEM",
      "holdClass": null
    },
    {
      "fmid": "HSWUPD1",
      "holdStatus": "Resolved",
      "name": "UA00011",
      "holdReason": "IPL",
      "holdType": "SYSTEM",
      "holdClass": null
    }
  ]
}
```

Response Code

```
200
```

```
"updates": [
  {
    "fmid": "HSWUPD1",
    "selectStatus": "APPLIED",
    "name": "UA00009"
  },
  {
    "fmid": "HSWUPD1",
    "selectStatus": "APPLIED",
    "name": "UA00010"
  },
  {
    "fmid": "HSWUPD1",
    "selectStatus": "APPLIED",
    "name": "UA00011"
  }
]
```

Cancel a Software Update Process

- The z/OSMF server cancels a software update process.
- The URL identifies the software update process to cancel.
 - The process must not already be in the Installation step or completed.

HTTP **POST** method

URLs

```
/zosmf/swmgmt/swupdate/cancel/<process-id>
```

```
/zosmf/swmgmt/swi/<system-nickname>/<swi-name>/swupdate/cancel
```

```
/zosmf/swmgmt/swi/<swi-uuid>/swupdate/cancel
```

Copy Output for a Software Update Process

- The z/OSMF server copies the saved output for a software update process.
- The saved output includes:
 - All SMP/E output generated for all process steps, in a zip file.
 - File containing relevant SYSTEM ++HOLD statements for the installed updates.
- The URL identifies:
 - The software update process whose output file will be copied.
 - The UNIX directory into which the output files will be copied. The directory is on the primary z/OSMF server.

HTTP **PUT** method

URLs

```
/zosmf/swmgmt/swupdate/<process-id>?dir=<unix-directory>
```

```
/zosmf/swmgmt/swi/<system-nickname>/<swi-name>/swupdate?dir=<unix-directory>
```

```
/zosmf/swmgmt/swi/<swi-uuid>/swupdate?dir=<unix-directory>
```


z/OSMF Software Management Ansible Content

Red Hat Ansible Certified Content for IBM Z

Ansible is an open source automation engine.

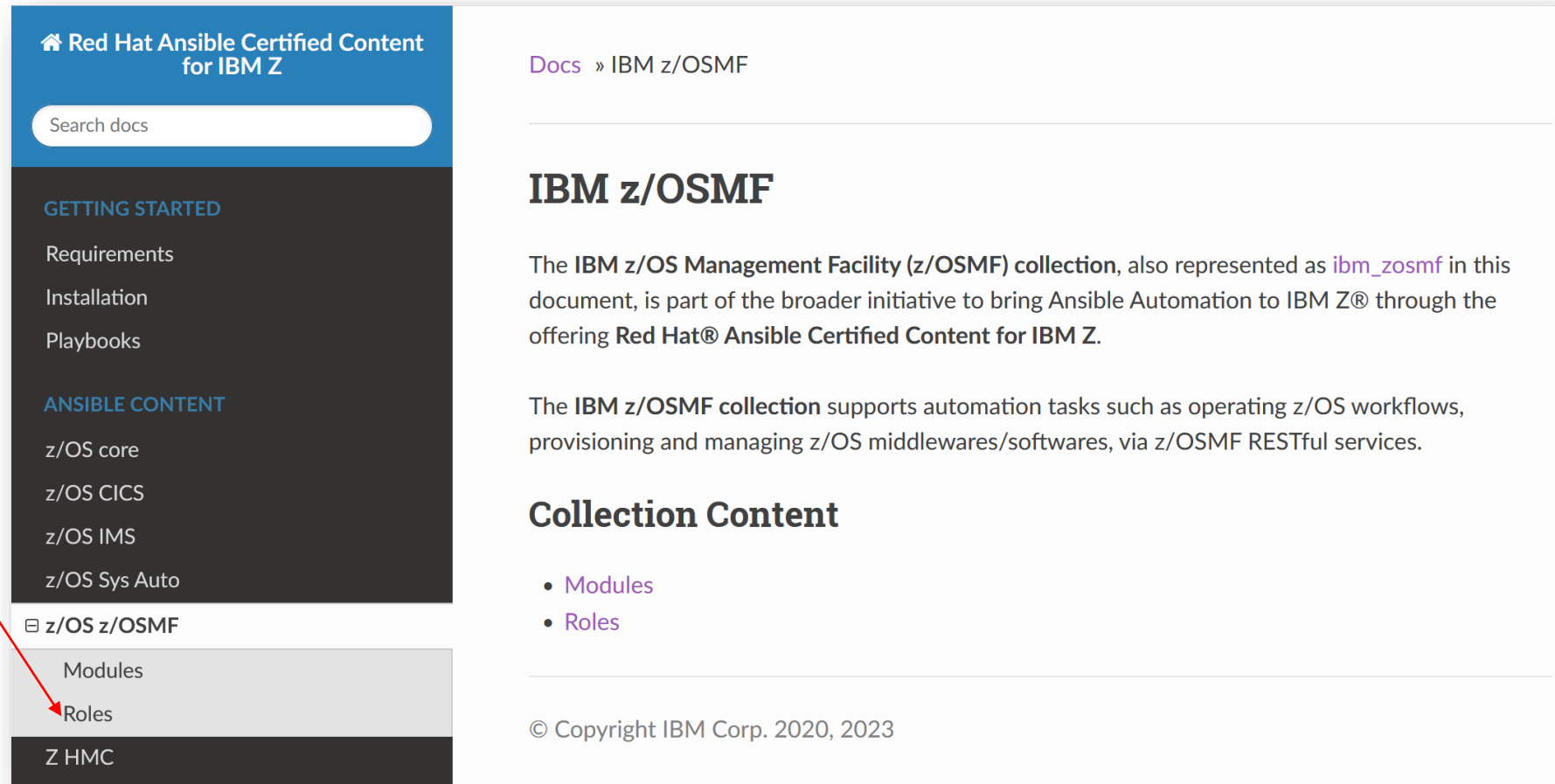
z/OSMF provides a collection of artifacts that enable Ansible to automate z/OSMF actions.

Click “z/OS z/OSMF”

https://ibm.github.io/z_ansible_collections_doc/

z/OSMF Ansible Collection

Click “**Roles**”



The screenshot shows the Red Hat Ansible Certified Content for IBM Z website. On the left is a navigation sidebar with a blue header containing the site name and a search bar. The sidebar lists sections: GETTING STARTED (Requirements, Installation, Playbooks), ANSIBLE CONTENT (z/OS core, z/OS CICS, z/OS IMS, z/OS Sys Auto), and a collapsed section for z/OS z/OSMF. The z/OS z/OSMF section is expanded, showing Modules, Roles (highlighted with a red arrow), and Z HMC. The main content area on the right has a breadcrumb 'Docs » IBM z/OSMF', a title 'IBM z/OSMF', an introductory paragraph about the collection, a paragraph about supported automation tasks, a 'Collection Content' section with links to Modules and Roles, and a copyright notice at the bottom.

Red Hat Ansible Certified Content for IBM Z

Search docs

GETTING STARTED

- Requirements
- Installation
- Playbooks

ANSIBLE CONTENT

- z/OS core
- z/OS CICS
- z/OS IMS
- z/OS Sys Auto

z/OS z/OSMF

- Modules
- Roles**
- Z HMC

Docs » IBM z/OSMF

IBM z/OSMF

The IBM z/OS Management Facility (z/OSMF) collection, also represented as `ibm_zosmf` in this document, is part of the broader initiative to bring Ansible Automation to IBM Z® through the offering Red Hat® Ansible Certified Content for IBM Z.

The IBM z/OSMF collection supports automation tasks such as operating z/OS workflows, provisioning and managing z/OS middlewares/software, via z/OSMF RESTful services.

Collection Content

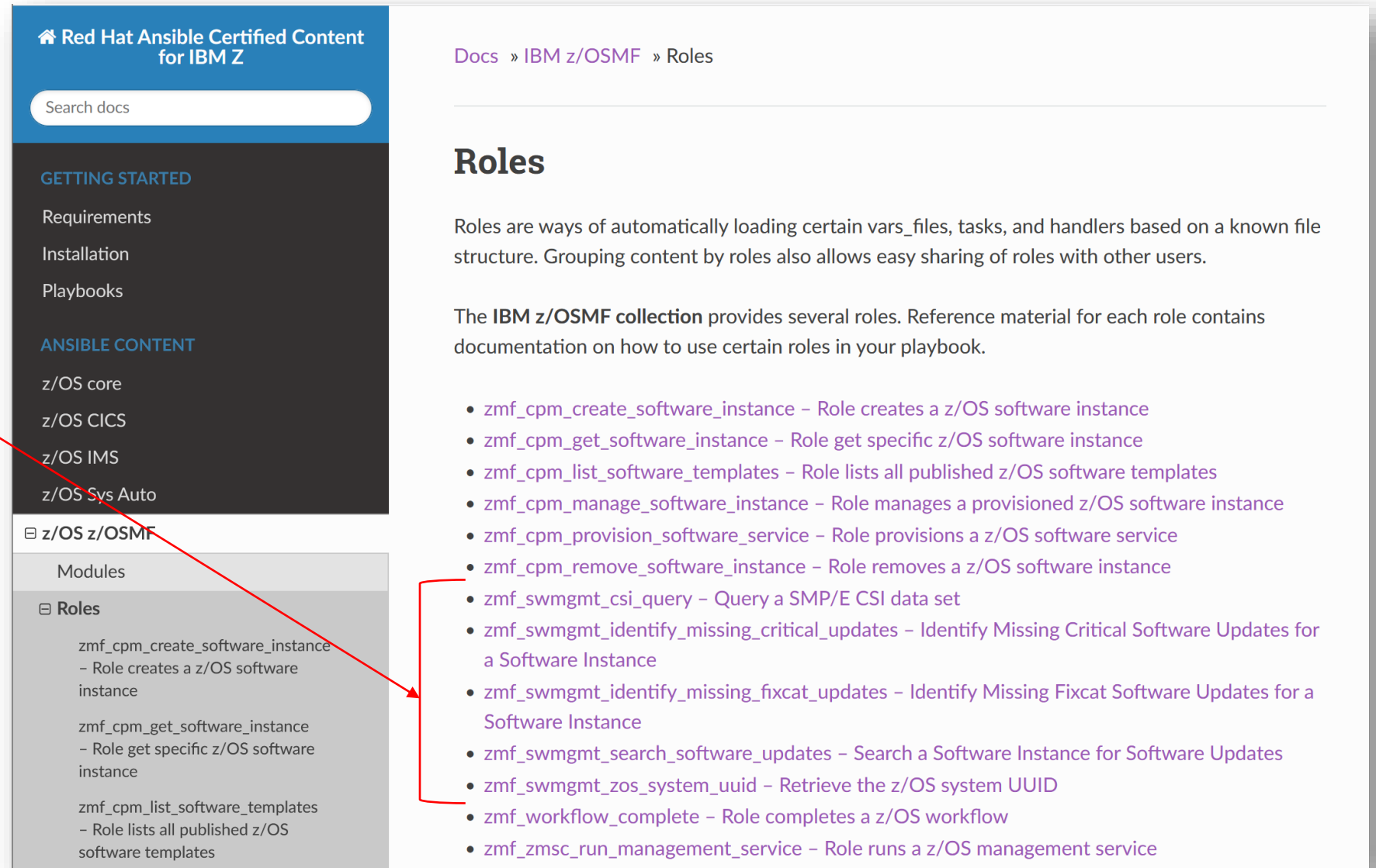
- [Modules](#)
- [Roles](#)

© Copyright IBM Corp. 2020, 2023

z/OSMF Ansible Collection...

Existing Software Management Roles

New for z/OS 3.2, roles to perform Software Update processes.



The screenshot shows the Red Hat Ansible Certified Content for IBM Z website. The left sidebar contains a search bar and navigation links under 'GETTING STARTED' (Requirements, Installation, Playbooks) and 'ANSIBLE CONTENT' (z/OS core, z/OS CICS, z/OS IMS, z/OS Sys Auto). The 'z/OS z/OSMF' section is expanded, showing 'Modules' and 'Roles'. The 'Roles' section lists several roles, with a red arrow pointing from the text 'New for z/OS 3.2, roles to perform Software Update processes.' to the 'zmf_swmgmt_identify_missing_fixcat_updates' role. The main content area shows the 'Roles' page for the IBM z/OSMF collection, including a description of roles and a list of roles.

Red Hat Ansible Certified Content for IBM Z

Search docs

GETTING STARTED

- Requirements
- Installation
- Playbooks

ANSIBLE CONTENT

- z/OS core
- z/OS CICS
- z/OS IMS
- z/OS Sys Auto

z/OS z/OSMF

- Modules
- Roles
 - zmf_cpm_create_software_instance – Role creates a z/OS software instance
 - zmf_cpm_get_software_instance – Role get specific z/OS software instance
 - zmf_cpm_list_software_templates – Role lists all published z/OS software templates

Docs » IBM z/OSMF » Roles

Roles

Roles are ways of automatically loading certain vars_files, tasks, and handlers based on a known file structure. Grouping content by roles also allows easy sharing of roles with other users.

The **IBM z/OSMF collection** provides several roles. Reference material for each role contains documentation on how to use certain roles in your playbook.

- **zmf_cpm_create_software_instance** – Role creates a z/OS software instance
- **zmf_cpm_get_software_instance** – Role get specific z/OS software instance
- **zmf_cpm_list_software_templates** – Role lists all published z/OS software templates
- **zmf_cpm_manage_software_instance** – Role manages a provisioned z/OS software instance
- **zmf_cpm_provision_software_service** – Role provisions a z/OS software service
- **zmf_cpm_remove_software_instance** – Role removes a z/OS software instance
- **zmf_swmgmt_csi_query** – Query a SMP/E CSI data set
- **zmf_swmgmt_identify_missing_critical_updates** – Identify Missing Critical Software Updates for a Software Instance
- **zmf_swmgmt_identify_missing_fixcat_updates** – Identify Missing Fixcat Software Updates for a Software Instance
- **zmf_swmgmt_search_software_updates** – Search a Software Instance for Software Updates
- **zmf_swmgmt_zos_system_uuid** – Retrieve the z/OS system UUID
- **zmf_workflow_complete** – Role completes a z/OS workflow
- **zmf_zmsc_run_management_service** – Role runs a z/OS management service

Software Management Ansible Roles

1. Query a CSI data set
 - Drives the Query a CSI data set REST API
2. Identify Missing Critical Updates
 - Drives the Missing Critical Updates REST API
 - Identifies missing HIPER, PE fixing, and SECINT fixes, like SMP/E REPORT ERRSYSMODS
3. Identify Missing Fixcat Updates
 - Drives the Missing Fixcat Updates REST API
 - Identifies missing fixes associated with fix categories, like SMP/E REPORT MISSINGFIX
4. Software Update Search
 - Drives the Software Update Search REST API
 - Queries the CSI for a software instance for specified SYSMODs
5. Retrieve z/OS System UUID
 - Drives the Get System UUID REST API
 - Queries z/OS for the UUID of software instance that represents the installed software for the IPL'd z/OS.
6. **Software Update Start, Read, Resume, Cancel, Copy**



New for
z/OS 3.2

Software Update Ansible Content

- Roles for each API: Start, Retrieve, Resume, Cancel, Copy
- Sample play books:

1. Install software updates, resolve all HOLDs automatically, no suspend.

- Input:
 - Software instance and target zone to update
 - Software updates to install
- Response:
 - List of installed updates
 - File containing ++HOLDs (text) for installed updates

2. Install software updates, identify HOLDs and suspend.

- Input:
 - Software instance and target zone to update
 - Software updates to install
 - HOLDs to resolve automatically, optional
- Response:
 - List of updates to be installed
 - List of resolved and unresolved HOLDs
 - File containing ++HOLDs (text) for updates to be installed

3. Resume suspended software update process.

- Input:
 - Software instance process to resume
 - HOLDs to resolve
- Response:
 - List of installed updates
 - File containing ++HOLDs (text) for installed updates

Interactions & Dependencies

- Software Dependencies
 - None
- Hardware Dependencies
 - None
- Exploiters
 - None

Upgrade & Coexistence Considerations

- To exploit this solution, all systems in the Plex are **NOT** required to be at the new z/OS level.
- Coexistence/toleration PTFs, were available in October 2023:
 - z/OS 3.1, UI93918
 - z/OS 2.5, UI93919
 - z/OS 2.4, UI93920
- No upgrade actions are required.
- This function is available on z/OS 3.1 and higher.

Installation & Configuration

- There are no new installation or configuration considerations for the z/OSMF Software Management application to use the new Software Update REST API.

Summary

- A new set of APIs are created to perform software update installation via the z/OSMF Software Update application
 - Start a software update process
 - Retrieve the status of a software update process
 - Resume a suspended software update process
 - Cancel an in-progress software update process
 - Copy the saved output for a software update process
- Ansible roles and sample playbooks are created to exploit the new Software Update APIs
- Helps to enable automation of common z/OS system administrator tasks

Appendix

- Current published content:
 - Red Hat Ansible Certified Content for IBM Z
https://ibm.github.io/z_ansible_collections_doc/
 - z/OSMF Programmers Guide, Software Management REST APIs, z/OS 3.1
<https://www.ibm.com/docs/en/zos/3.1.0?topic=services-software-management>