Install an SMP/E PTF with a web browser? Yes, with z/OSMF!

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z/OS Installation and Upgrade

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Session 2BG

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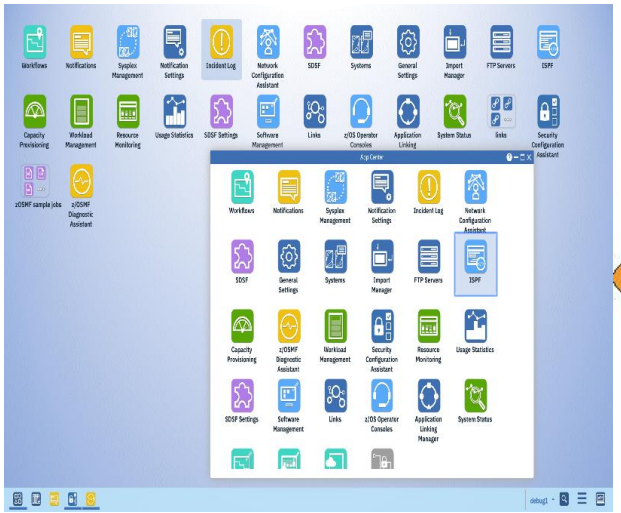
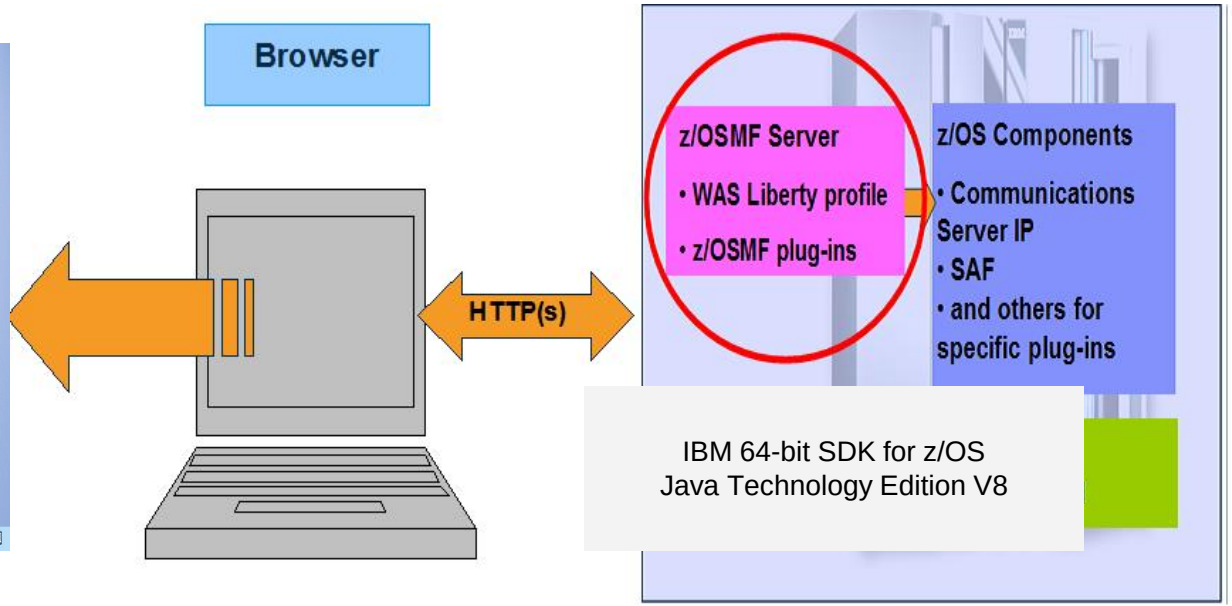
Thank you to Kurt Quackenbush, z/OSMF Software Management and SMP/E, for contributions.

Agenda

- z/OSMF overview
- z/OSMF Software Management and Software Update for install
- Intended users
- Set up
- z/OSMF Software Instance
- Use Cases:
  - Install corrective updates
  - Install recommended updates
  - Install functional updates
- Additional features

Overview z/OSMF





z/OS Management Facility provides a web interface to provide z/OS management applications

- Also, Provides RESTful services for z/OSMF and z/OS resources.

Delivered in the z/OS V2.2 base, and automatically started in V2.3

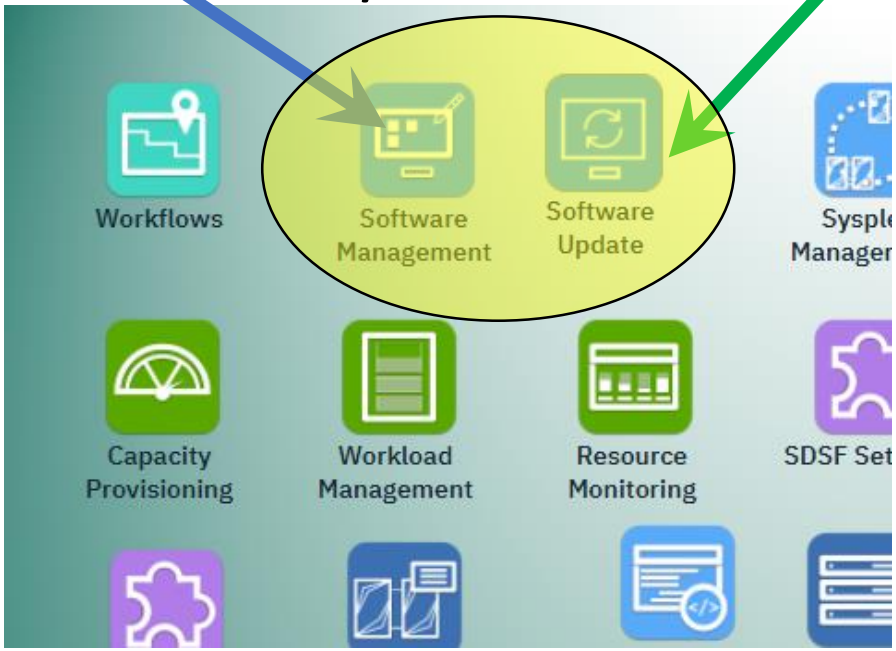
z/OSMF Software Management

z/OSMF Software Update

Product(s)

- Packaged as:
  - IBM = ServerPac as a Portable Software Instance (PSI)
  - ISVs = Portable Software Instance
- Required to install a PSI.
- Can also deploy previous installed packages (Software Instances)
- SMP/E, or non-SMP/E, or both.
- Non-SMP/E packaged PSIs can be updated using this path (= product replace).
- Myriad of reports about products, service, and much more…

z/OSMF



Fix(es)

- Only consumes SMP/E packaged PTFs
  - No PTF packaging changes necessary
- Supported use cases:
  - Corrective
  - Recommended
  - Functional
- Not required to be used to install SMP/E PTFs
  - Can still use traditional SMP/E batch job method (for RECEIVE, APPLY, ACCEPT)

Who is z/OSMF Software Update intended for?

The less experienced z/OS installer

- Needs helps from a more experienced installer, when installation exceptions occur.
- Wants a simple interface that is easy to use, and be guided through the process of installing fixes correctly.
- Isn't **as** familiar with z/OS-specific terms, JCL, or the intricacies of SMP/E, but is learning.

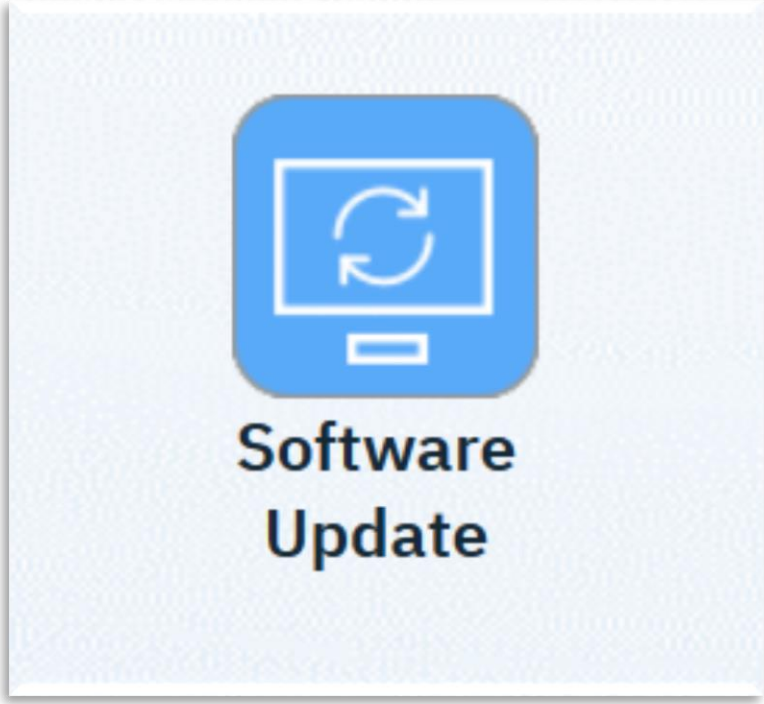
But wait! I've been installing SMP/E PTFs for decades! Can I use Software Update too?

Of course you can!

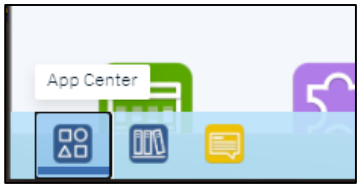
- The interface provides a nice capability for both types of users to see what is happening, and help each other.
- Make no mistake: you can still use SMP/E batch jobs to install SMP/E PTFs.
- The result is the same: PTFs will be put in target zones.
- It's just a matter on how you did that: via batch or z/OSMF.

Software Update Setup

Software Update is a new function in the Software Management plug-in.



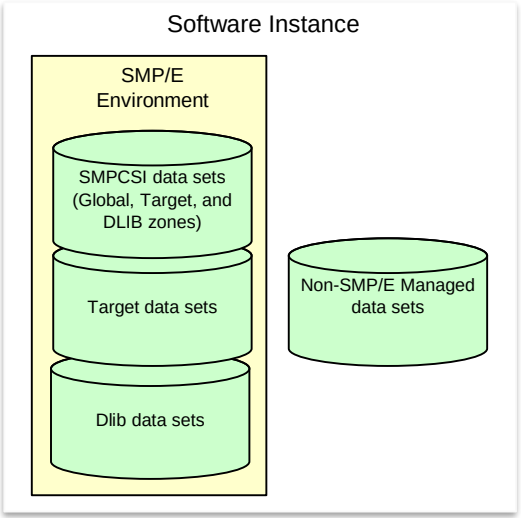
- ❑ Verify you have z/OSMF Software Management plug-in enabled in IZUPRMxx:
  - `PLUGINS(SOFTWARE_MGMT)`
- ❑ Install these PTFs
  - z/OS V2.4 UI72029
  - z/OS V2.3 UI72028
- ❑ Check your IKJTSOxx parmlib member:
  - `AUTHPGM NAMES(GIMSMP)`
  - Software Update runs from a TSO/E address space started from z/OSMF.
- ❑ Set up access:
  - Permit read access to *`IZUDFLT`*`.ZOSMF.SOFTWARE_DEPLOYMENT.SOFTWARE_MANAGEMENT.SWUPDATE` in class `ZMFAPLA`.
- ❑ Launch away, after restarting the server!
  - Check in your App Folder (lower left) on Desktop if you don’t see it.

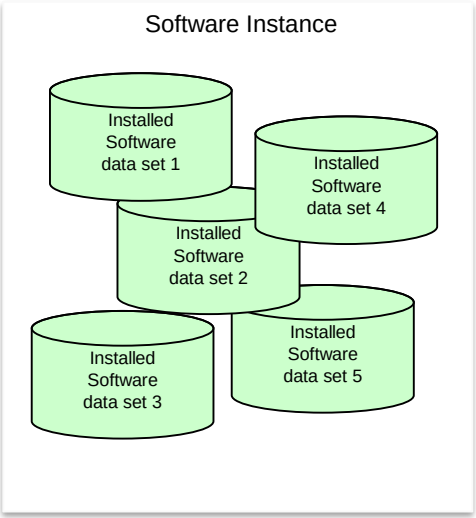


What is a Software Instance?

Software Update operates on a Software Instance, so you need to have those on your system

What is a Software Instance?

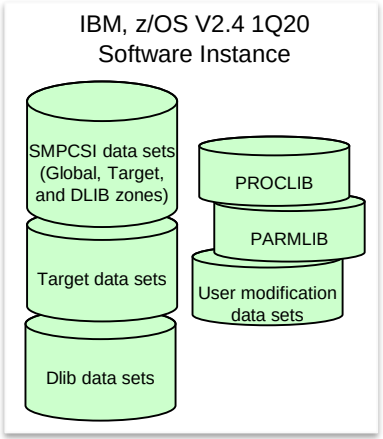


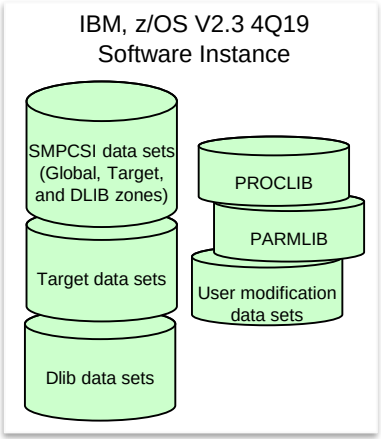


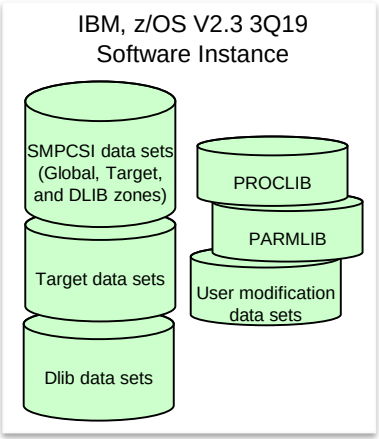
A software instance (SWI):

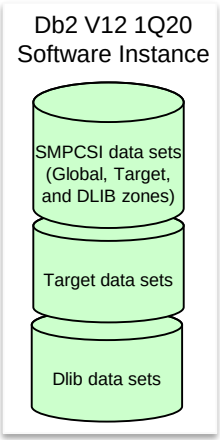
- Describes a deployable unit of installed software.
- Is a collection of data sets containing installed software
  - Sequential, PDS(E), VSAM, zFS, HFS.
- May include SMP/E managed target and distribution libraries, as well as the global, target, and distribution zone SMPCSI data sets.

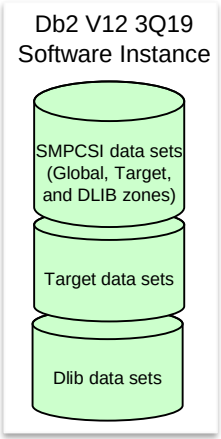
Examples of Software Instances

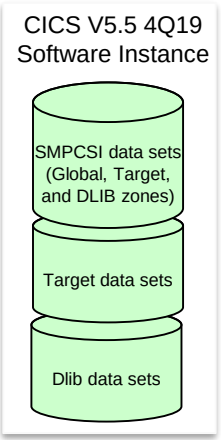


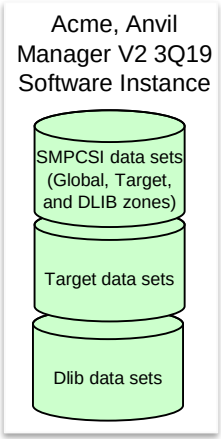


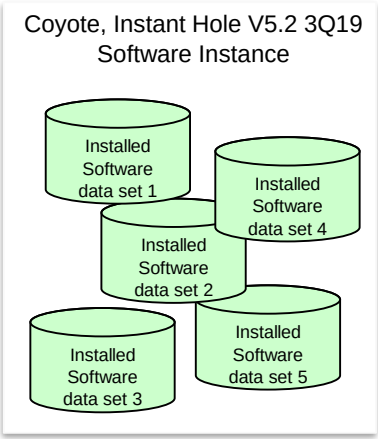










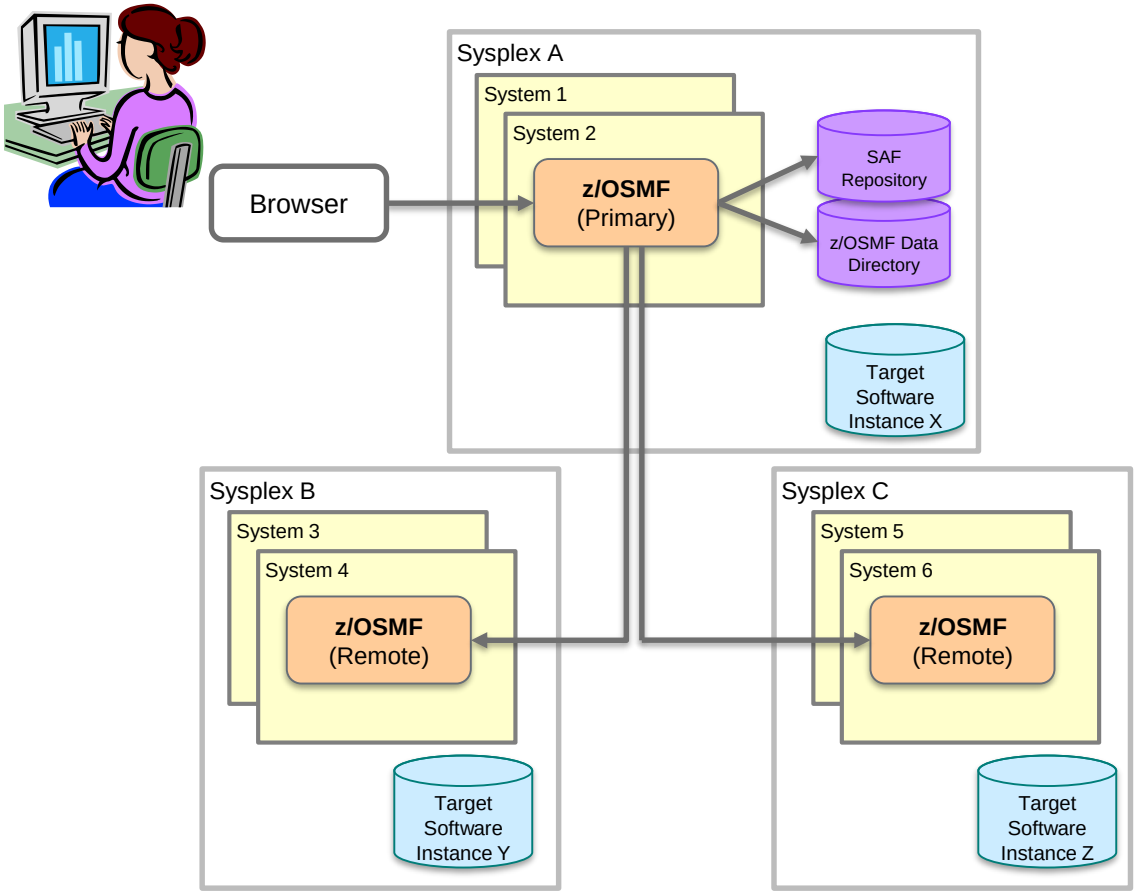


z/OSMF Software Update Topology

The **primary** z/OSMF server communicates with the **remote** z/OSMF servers.

A software instance is accessible to the z/OSMF server in its sysplex.

Therefore, Software Update can operate on “remote” Software Instances.



How to define a Software Instance

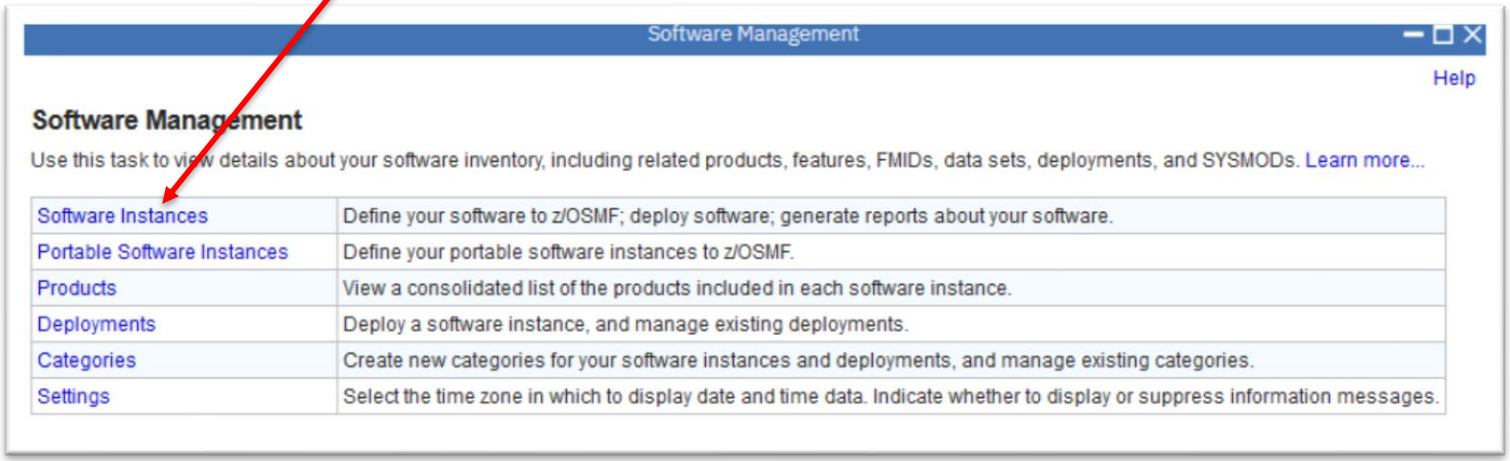
Two methods to define a software instance for **existing installed software**:

1. Interactively in the Software Management task.
2. Programmatically using the Add Software Instance REST API.

Or, install **new software** with a Portable Software Instance from a software provider.

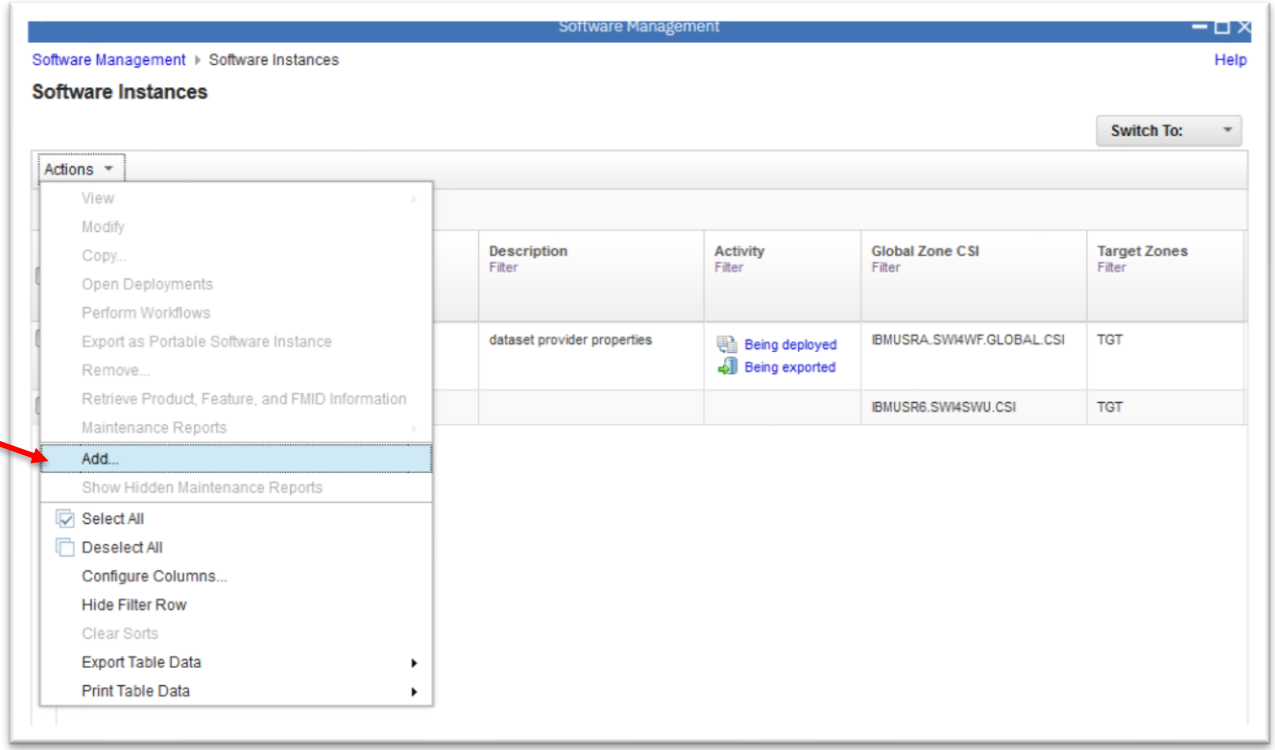
How to define a Software Instance Interactively in Software Management...

On the Software Management primary page, click “Software Instances”



How to define a Software Instance Interactively in Software Management...

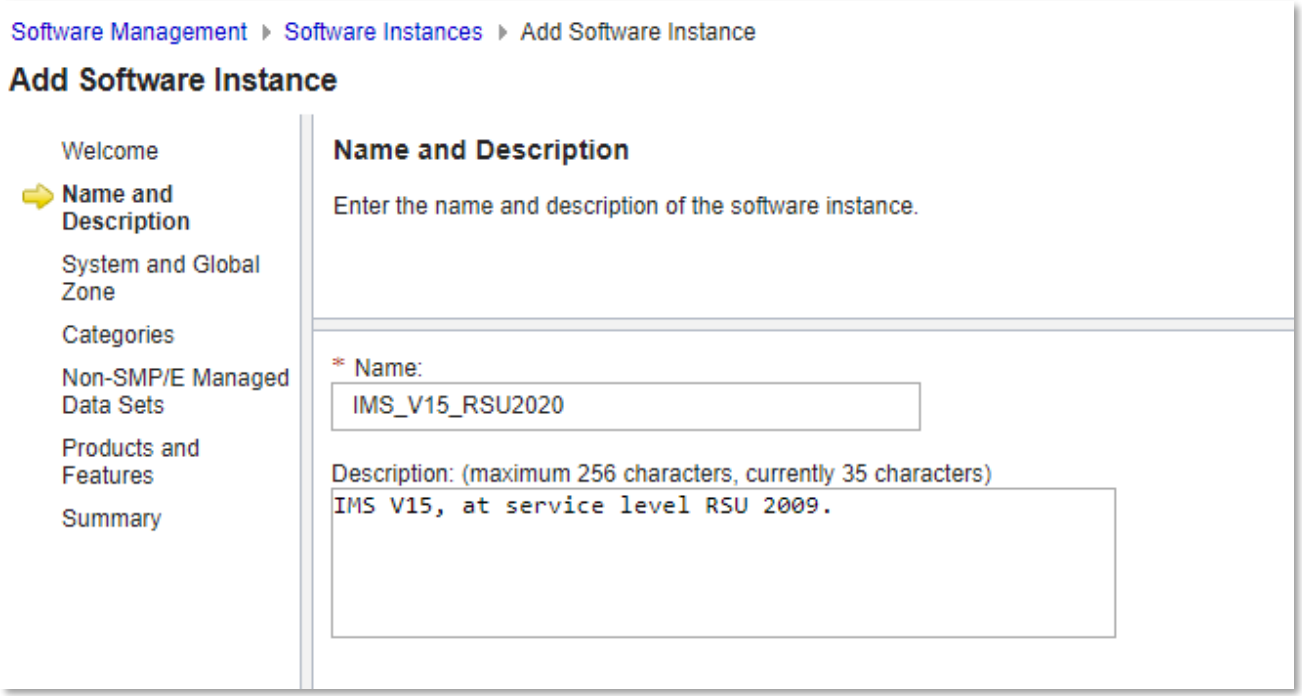
On the Software Instances page, click Actions → Add.



How to define a Software Instance Interactively in Software Management...

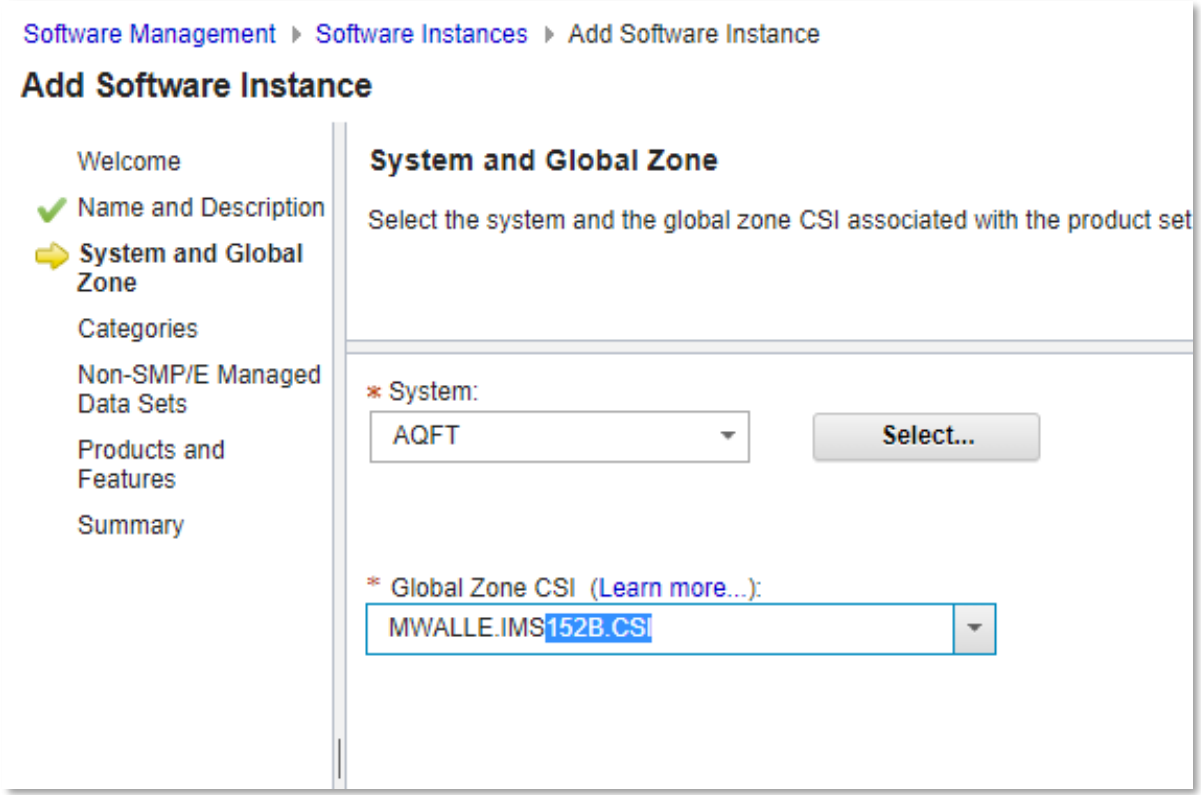
In the Add Software Instance wizard

- Enter a name and optional description for the software instance
- Click “Next”



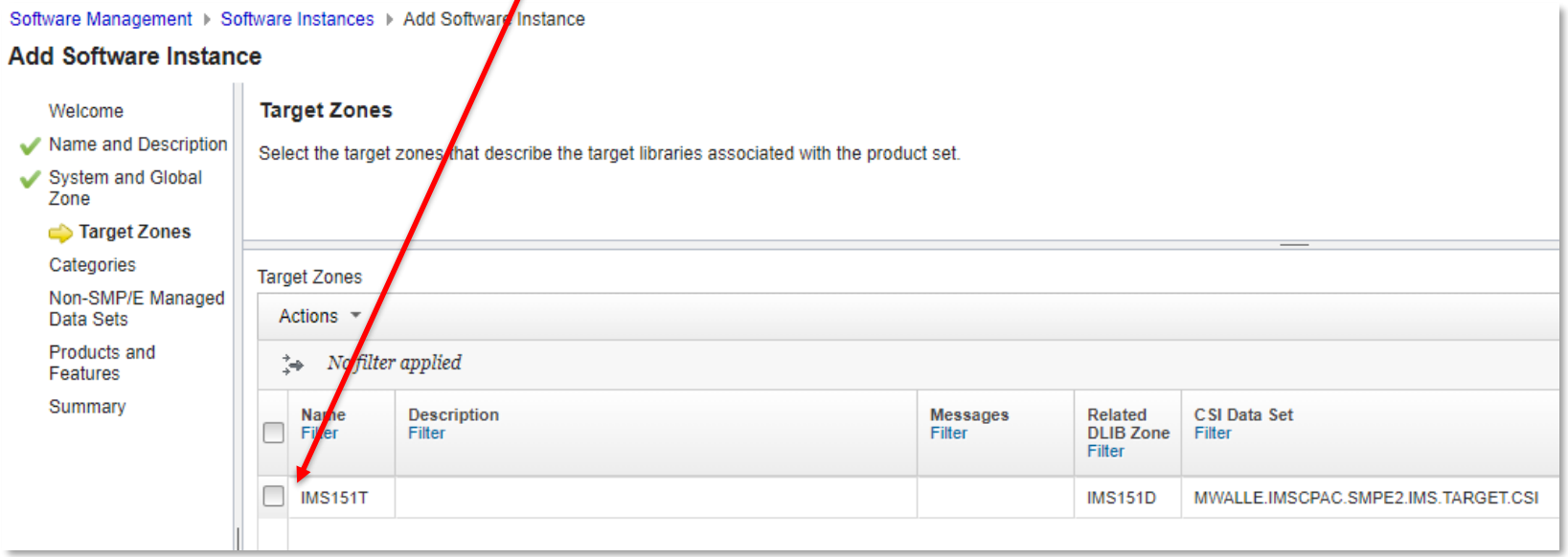
How to define a Software Instance Interactively in Software Management...

- Select the z/OSMF host system where the software resides. (refer to the topology page).
- Enter the global zone CSI data set name
  - With typeahead!
- Click “Next”



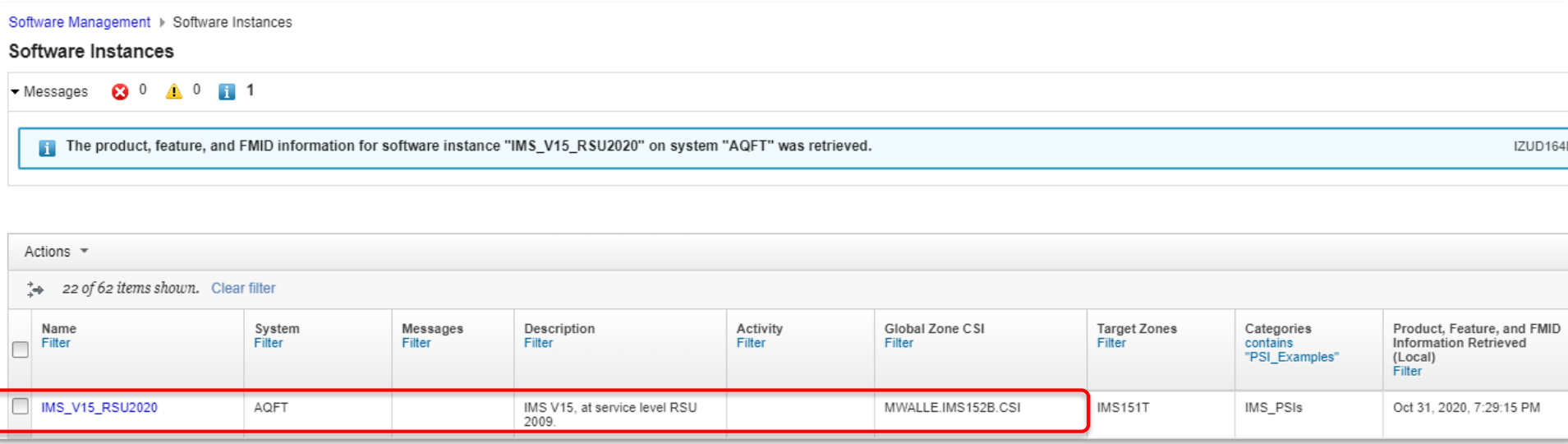
How to define a Software Instance Interactively in Software Management...

- Select one or more target zones.
- Click “Finish” (or click Next to add into a Category, or non-SMP/E data sets, ..)



How to define a Software Instance Interactively in Software Management...

That's it! The software instance is now defined and ready for action.



What exactly is a software update?

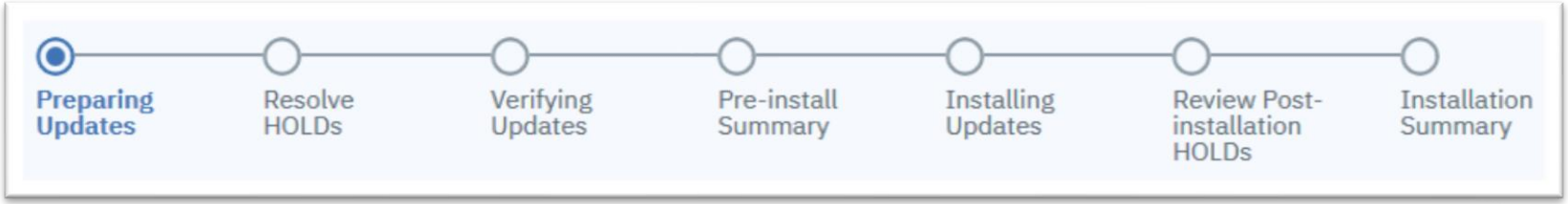
A **software update** is a generic term for an SMP/E PTF.

(Remember why we use more generic terms - for the intended user!)

Three actions for installing software updates with z/OSMF. You pick:

1. **Corrective**
   - Install updates to fix a specific problem.
   - Updates are identified by user specified name (ID).
2. **Recommended**
   - Install vendor recommended updates.
   - Updates are identified by vendor defined source IDs.
3. **Functional**
   - Install updates to support new function.
   - Updates are identified by selected fix categories.

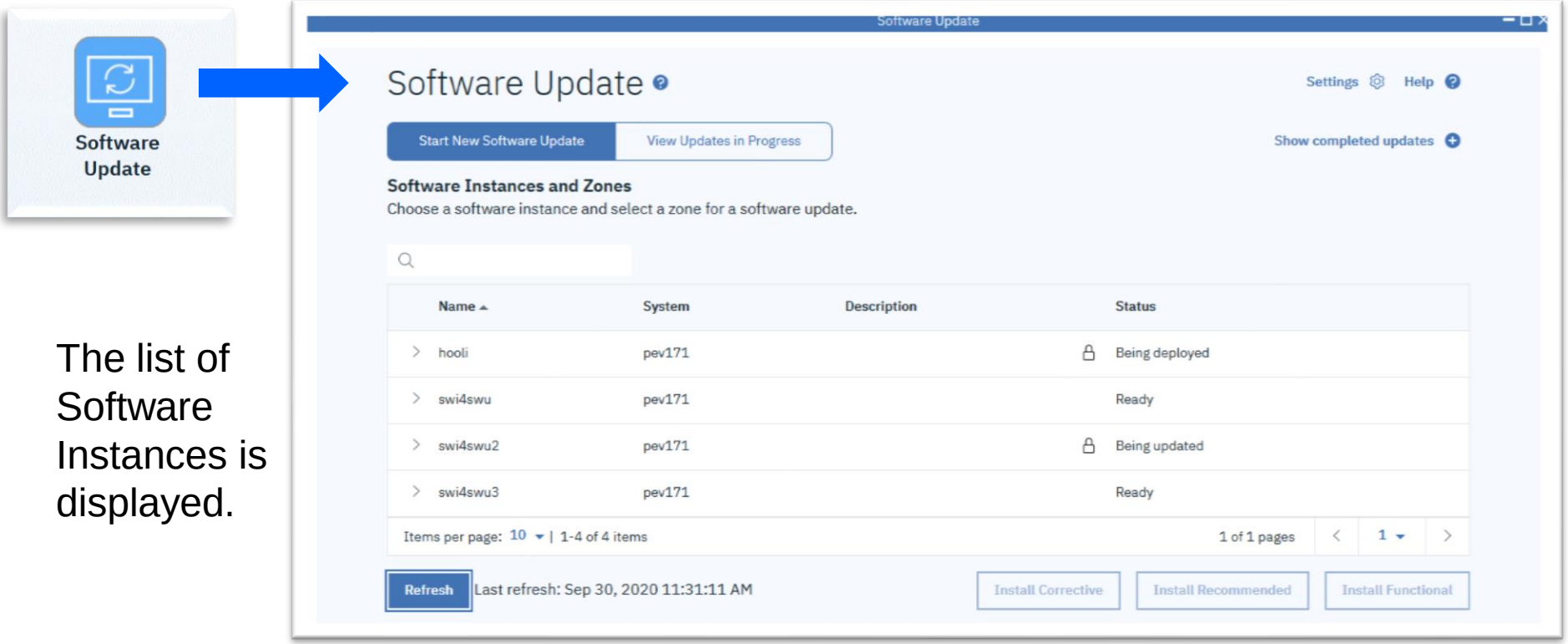
Software Update process steps for all kinds of updates



After identifying which kind of updates to install, Software Update guides the user 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

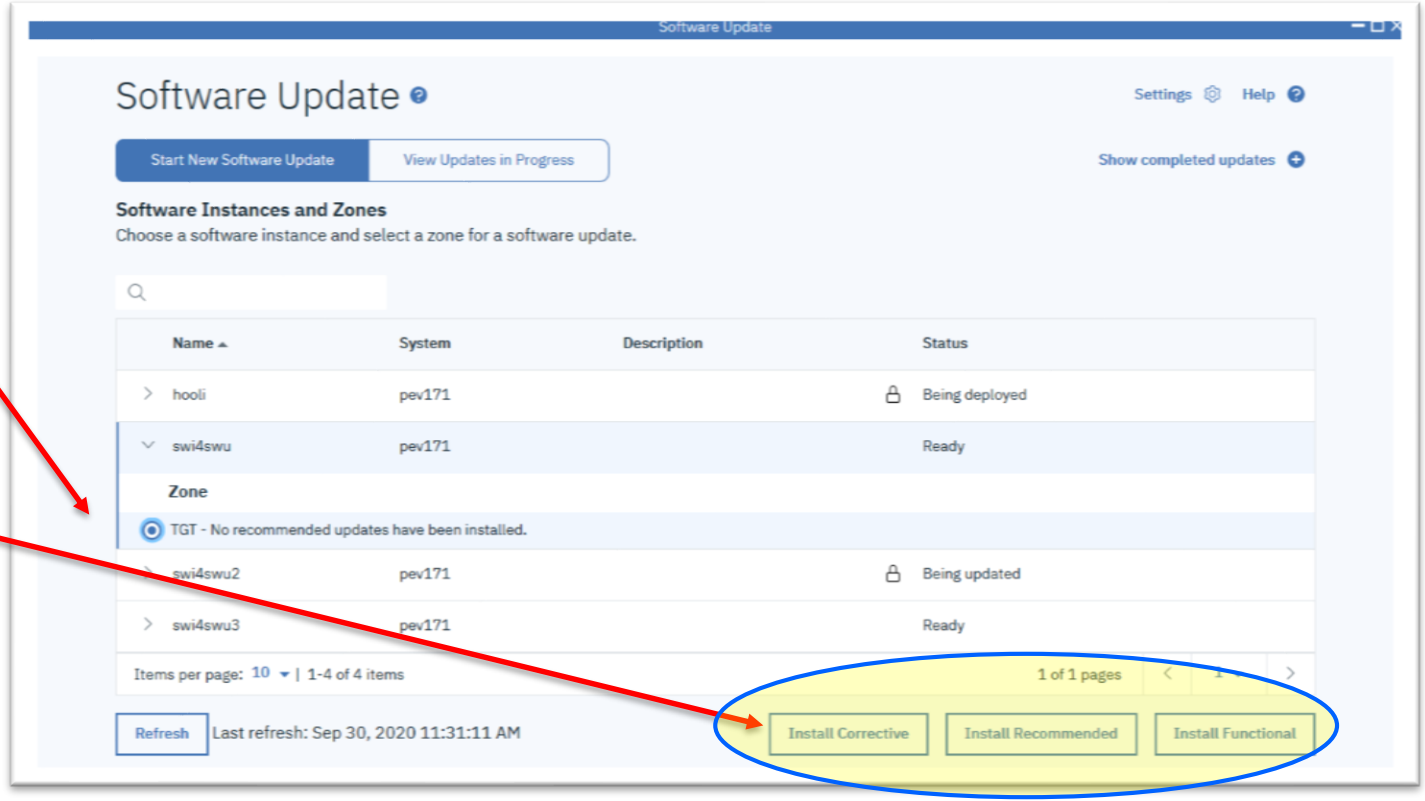
Install Corrective Updates
z/OSMF Software Update main page



The list of Software Instances is displayed.

Install Corrective Updates
z/OSMF Software Update main page...

1. Select a software instance and the desired target zone to be updated.
2. Click “Install Corrective”



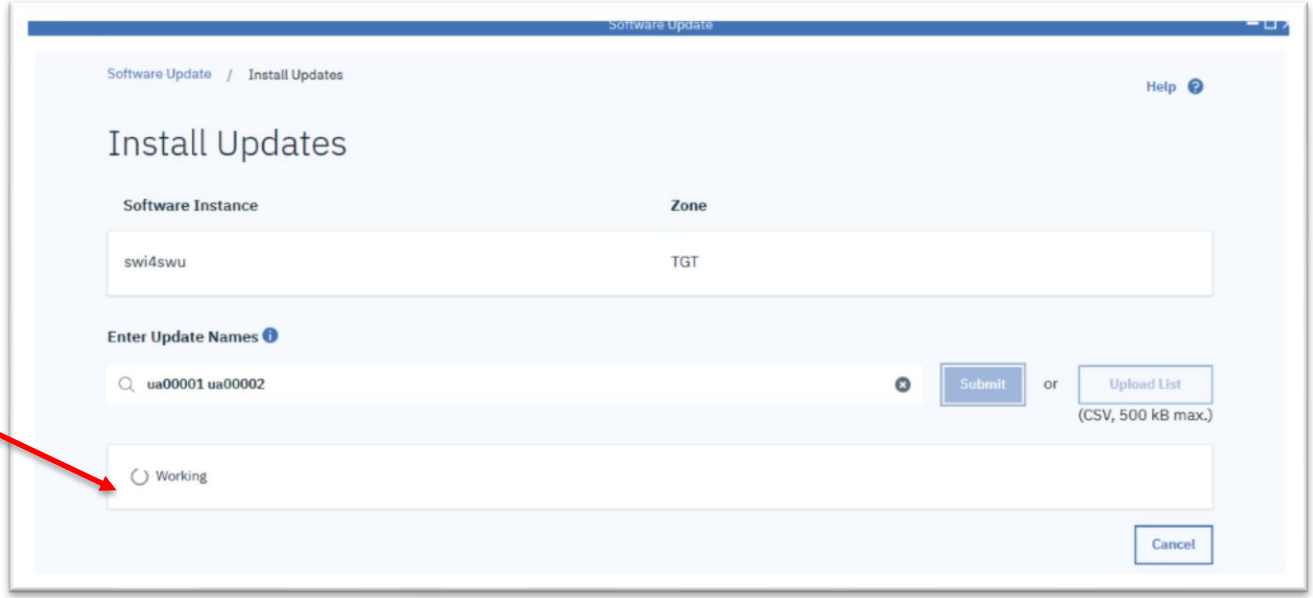
Install Corrective Updates
Identifying the software updates

- Enter the names for the updates (PTFs) you want to install.
- Click “Submit”

(you can upload a list if you want)

Install Corrective Updates
Identifying the software updates...

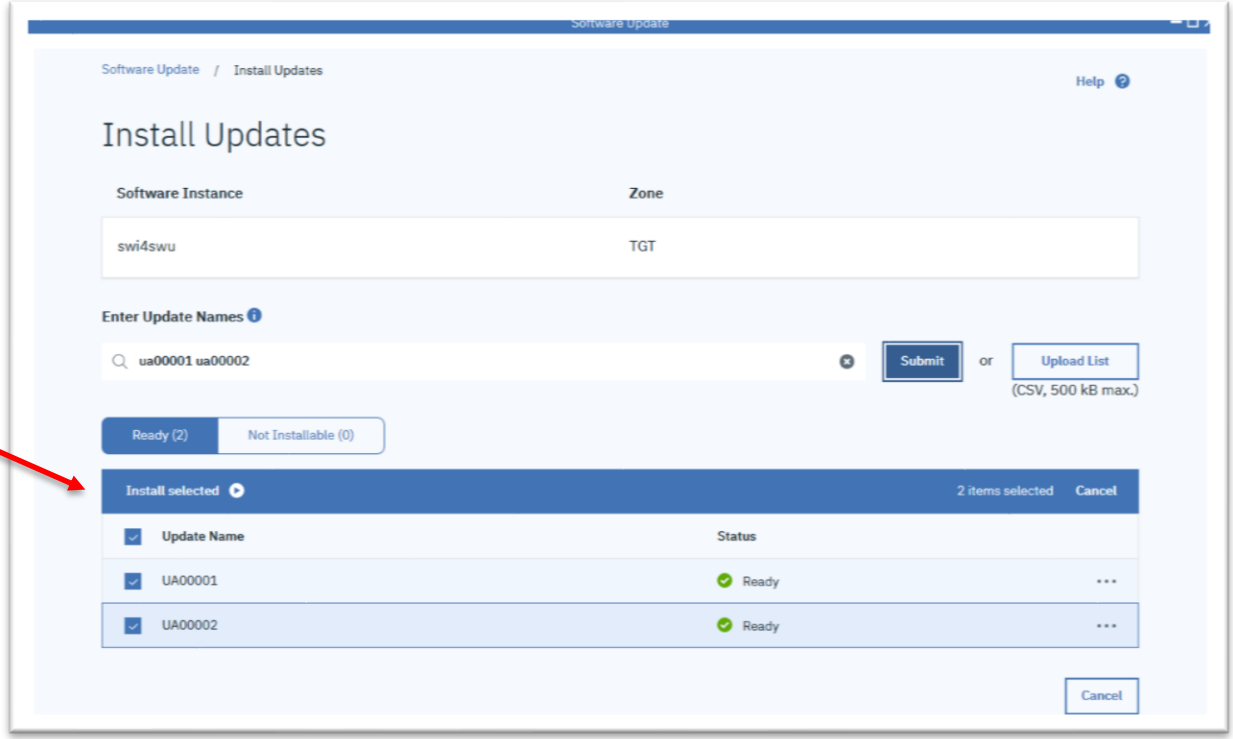
The global zone is analyzed to find the specified PTFs.



(Updates must be found (RECEIVEd) in the global zones. More on that later…)

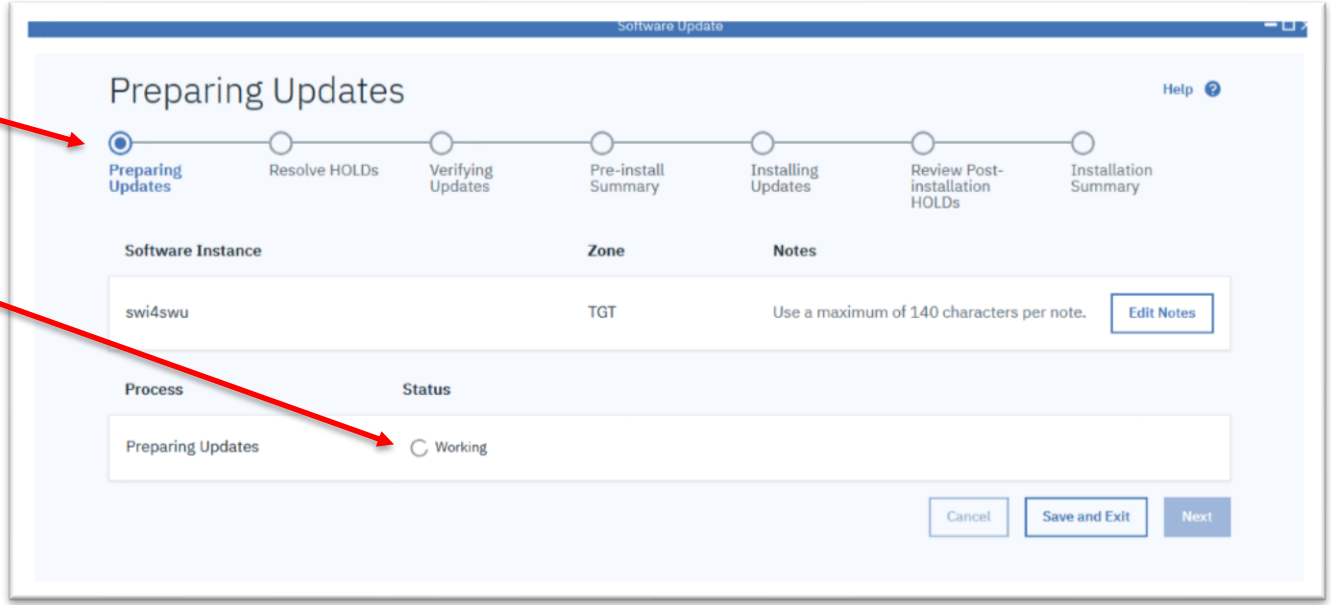
Install Corrective Updates
Identifying the software updates

- The updates are found in the global zone and they are ready to be installed.
- Click “Install selected”.



Install Corrective Updates
→ Preparing Updates

- The overview across the top indicates the current step in the process.
- A first pass APPLY CHECK identifies all relevant HOLDs and ensures requisites are found.



Install Corrective Updates
→ Preparing Updates

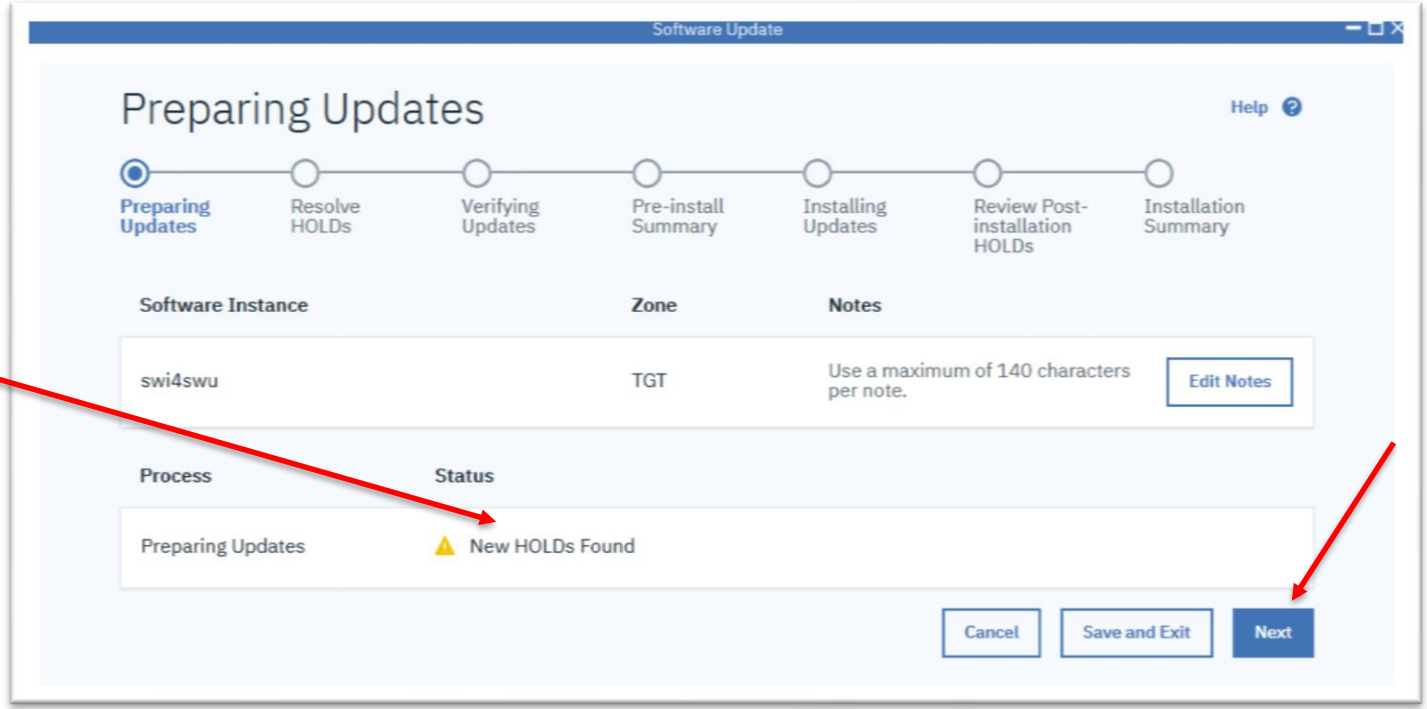
What is happening within z/OSMF Software Update

```
APPLY
SELECT(UA00001, UA00002)
GROUPEXTEND
BYPASS(HOLDSYSTEM)
CHECK.
```

- The **Install Corrective** action uses `GROUPEXTEND` on the `APPLY`.
- Ensures requisite updates are also installed.

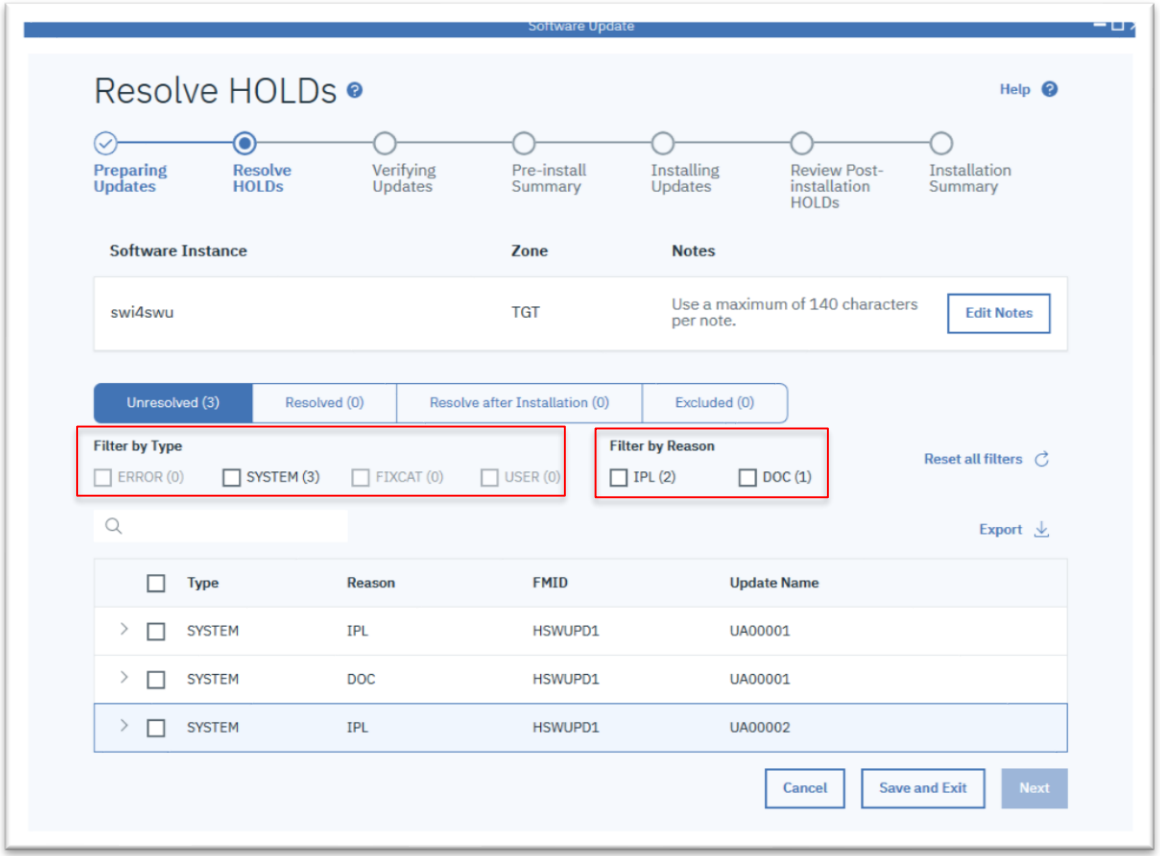
Install Corrective Updates
→ Preparing Updates

- APPLY CHECK completed.
- HOLDs that must be resolved are found in the APPLY CHECK results.
- Click “Next”



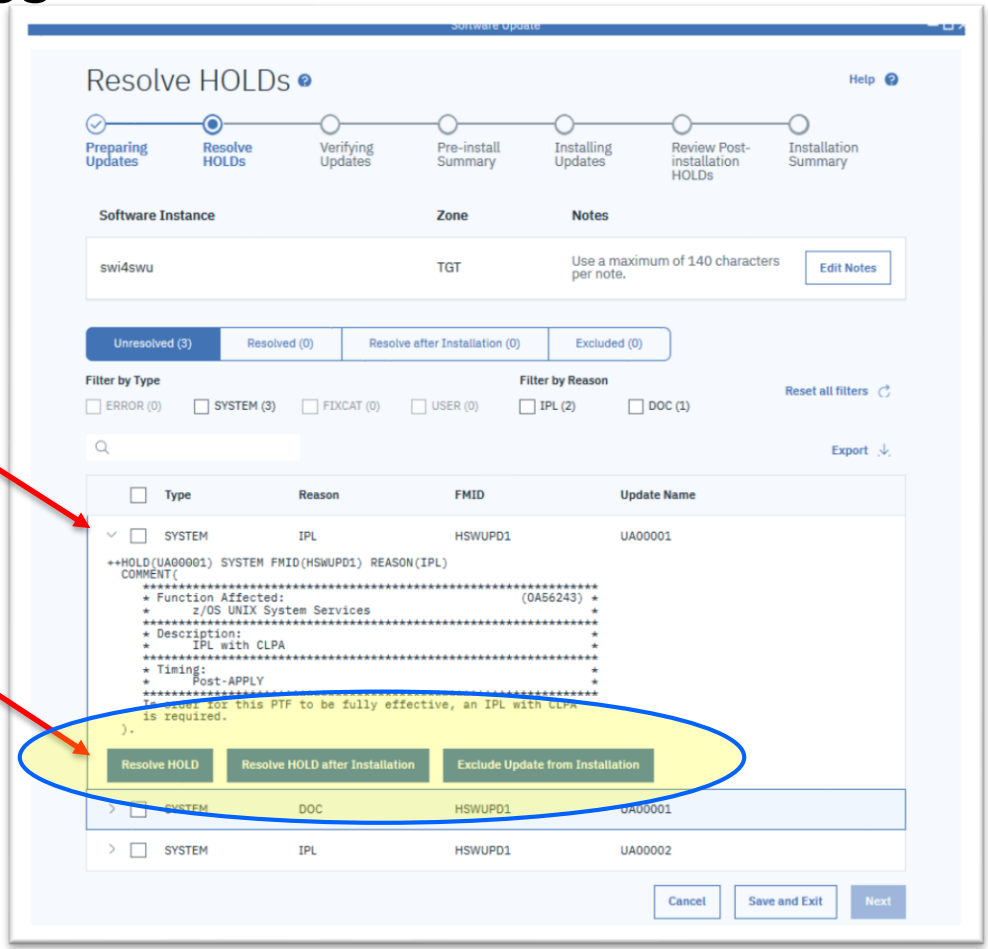
Install Corrective Updates
→ Resolve HOLDs

- HOLDs are presented for review and resolution.
- You can filter the view by HOLD Type or Reason



Install Corrective Updates → Resolve HOLDs

- Open and review each unresolved HOLD.
- For each HOLD click to:
  1. Resolve now
  2. Resolve and review later
  3. Exclude the update
- You can select and resolve one or more HOLDs at a time.



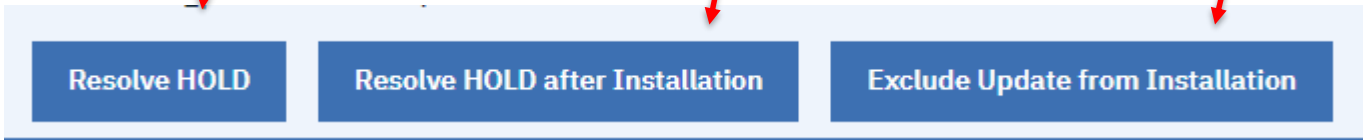
Install Corrective Updates
→ Resolve HOLDs

What your action means:

Resolve HOLD:
- I've read and understand the HOLD.
- I want the containing update to be installed.
- I've taken the appropriate action or know I can safely ignore the action.
- Do not show me this HOLD again during this operation.

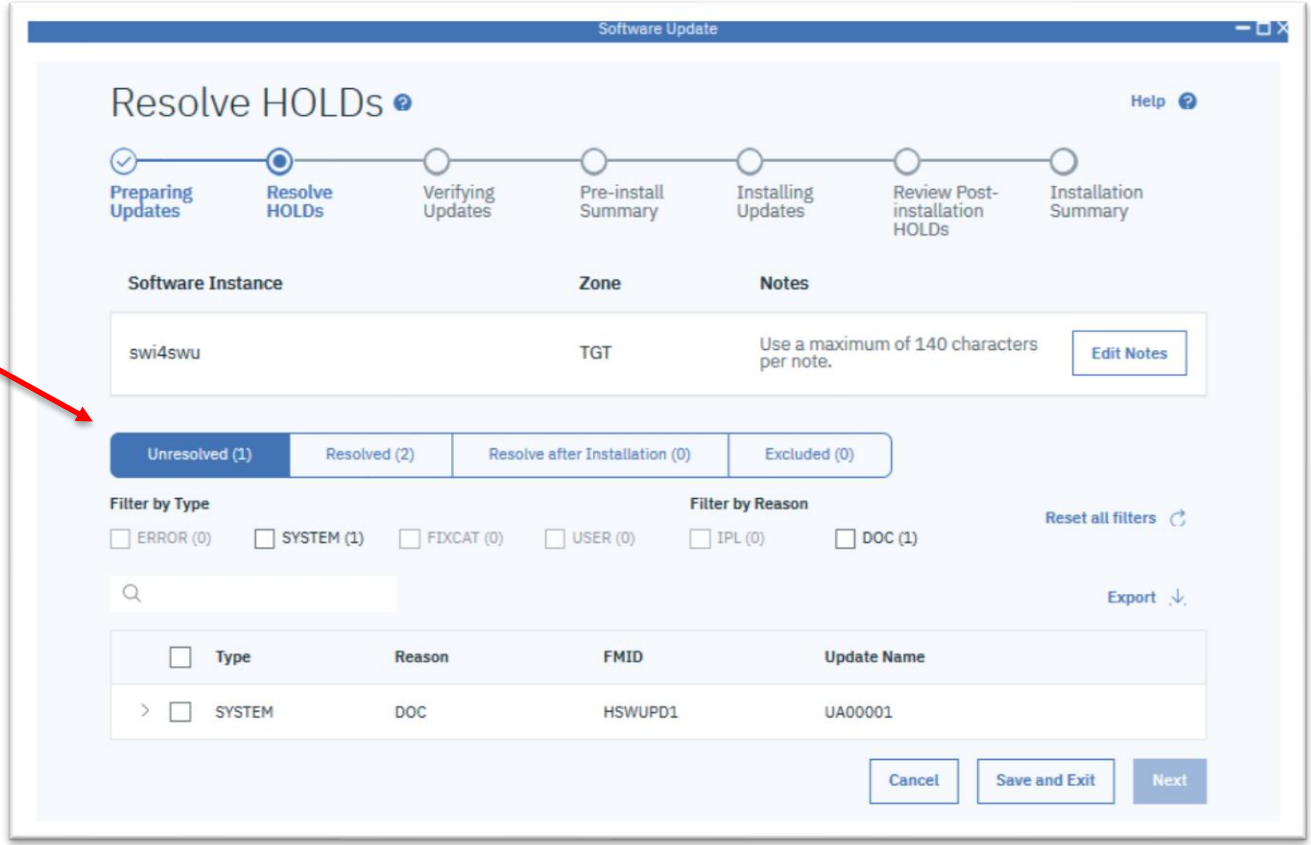
Resolve HOLD after installation:
- I've read and understand the HOLD.
- I want the containing update to be installed.
- I need to take the appropriate action later, after the update has been installed.
- Show me this HOLD later at the end of this operation.

Exclude update from installation:
- I've read and understand the HOLD.
- I cannot take the appropriate action at this time.
- I do **not** want the containing update to be installed.



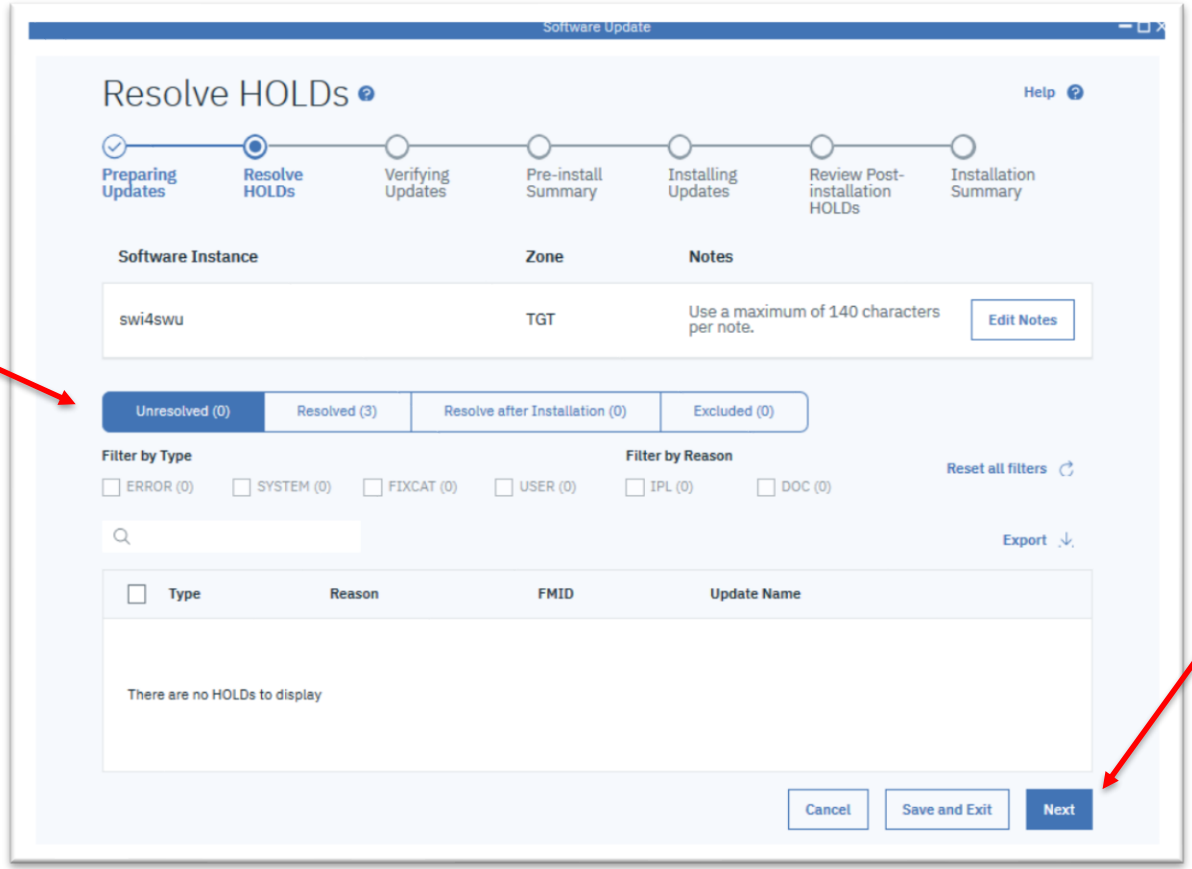
Install Corrective Updates
→ Resolve HOLDs

- Resolve all unresolved HOLDs before continuing.
- HOLDs change state as they are resolved.



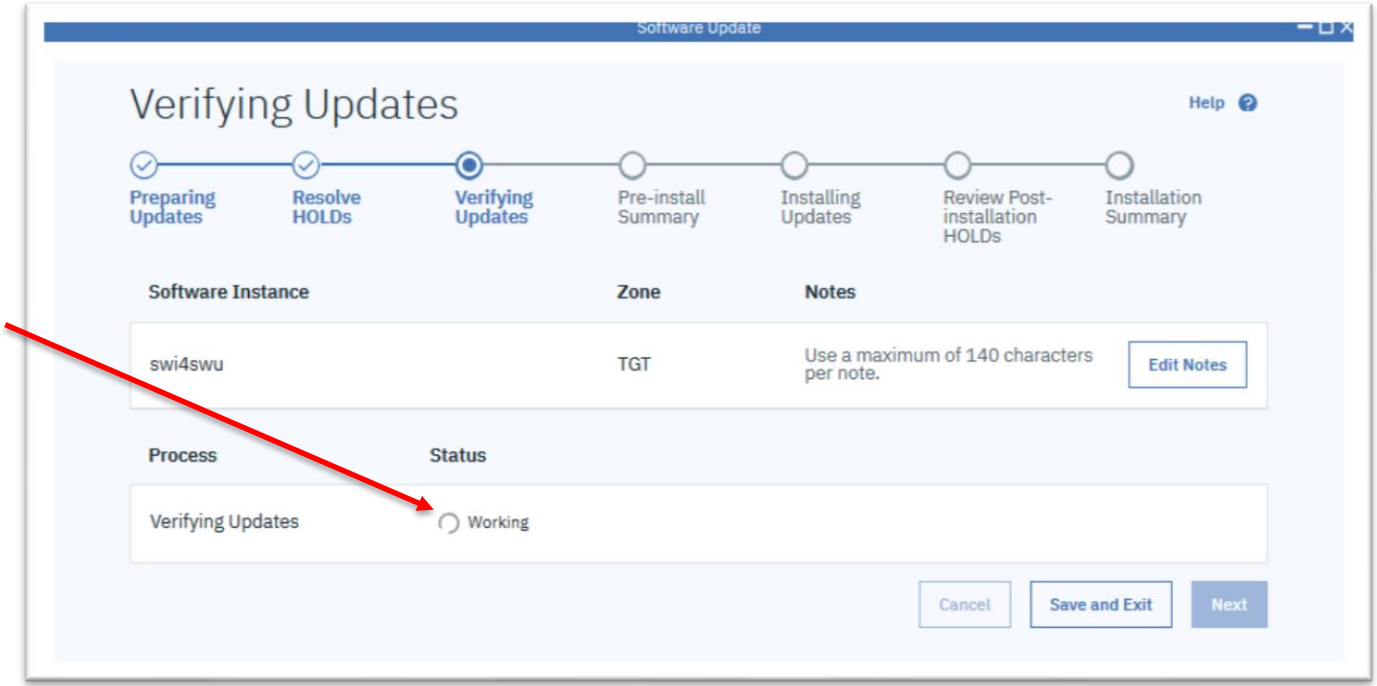
Install Corrective Updates
→ Resolve HOLDs

- Once all HOLDs are resolved.
- Click “Next”



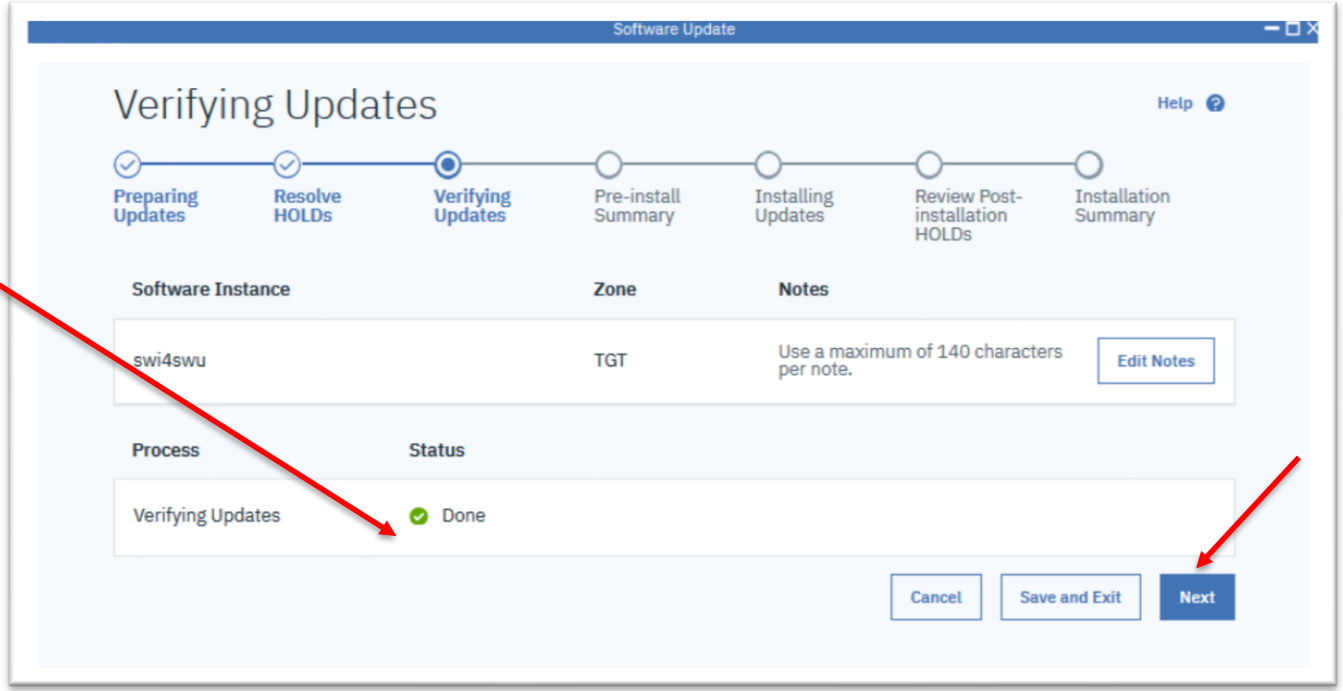
Install Corrective Updates
→ Verifying Updates

- Performing APPLY CHECK to verify your HOLD resolution and update exclusion choices.



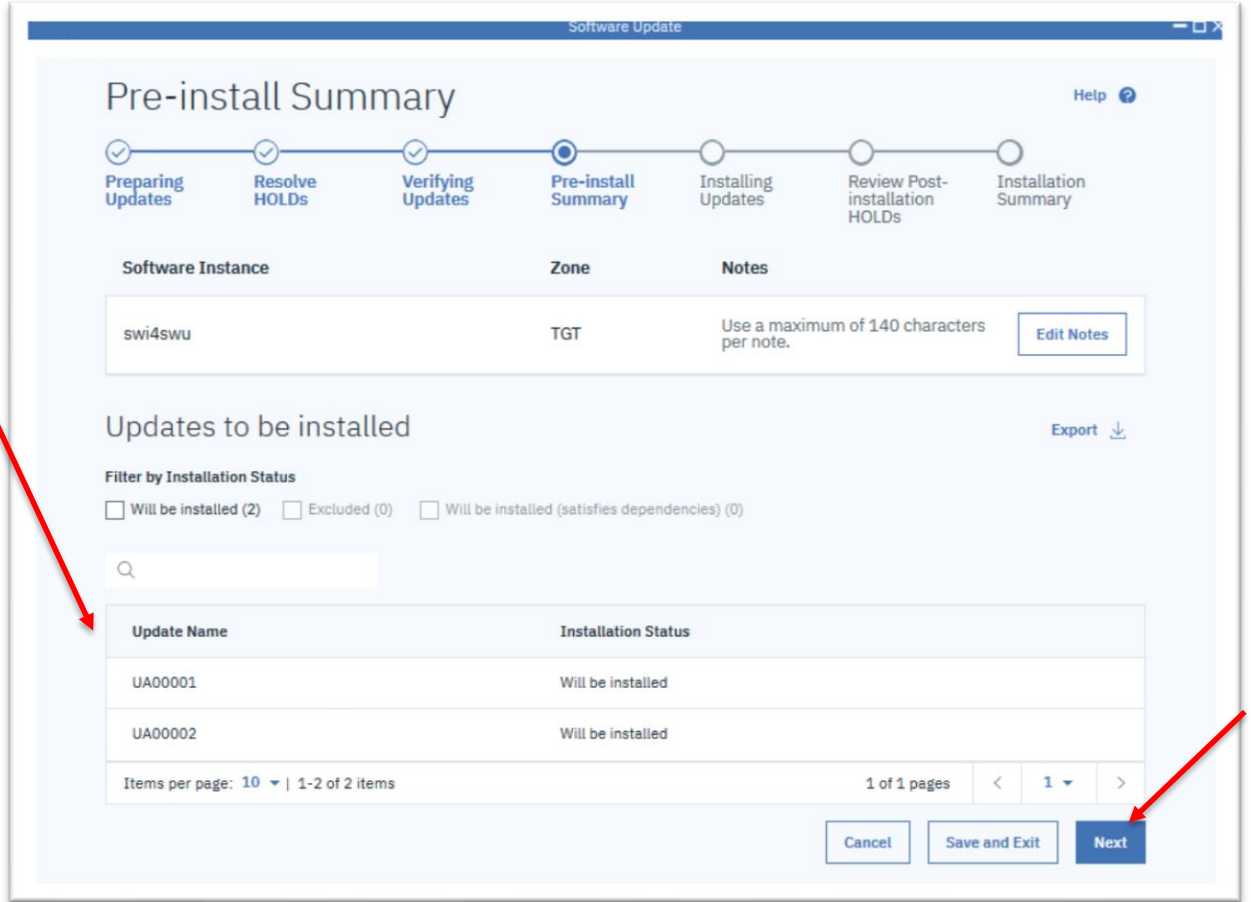
Install Corrective Updates
→ Verifying Updates

- APPLY CHECK is complete, all is well.
- Click “Next”.



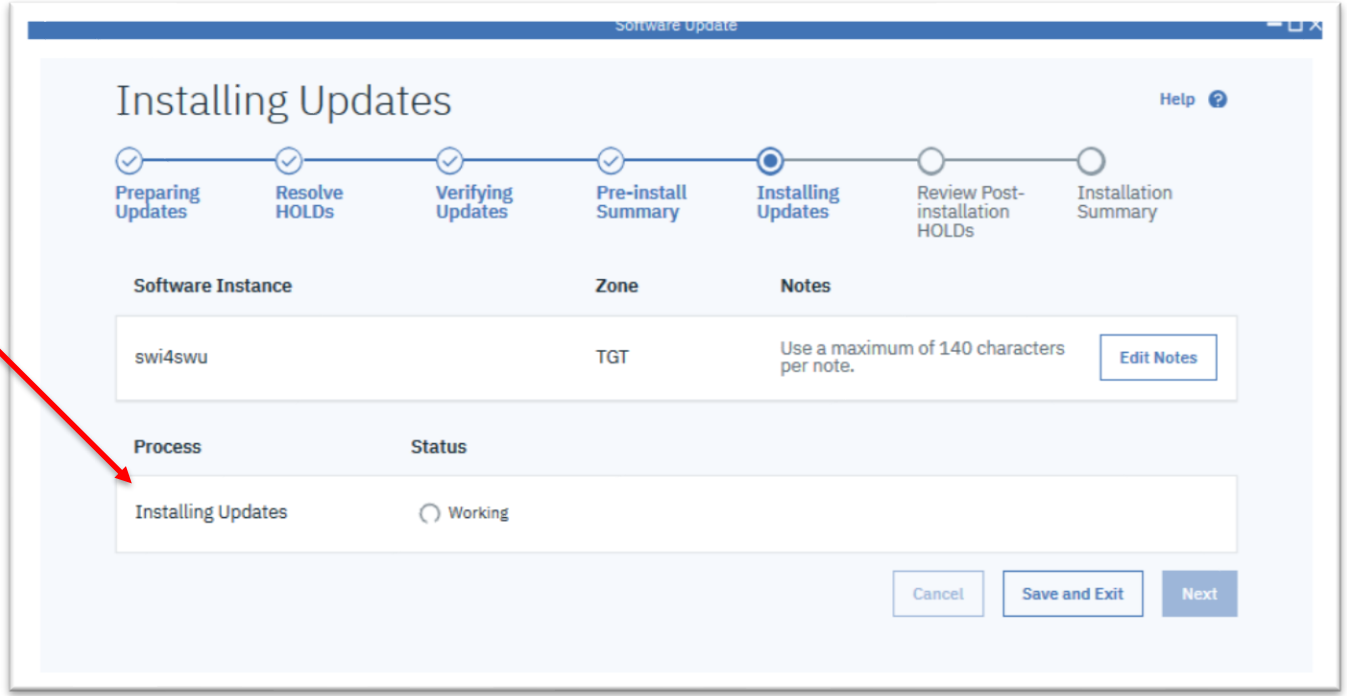
Install Corrective Updates
→ Pre-install Summary

- A summary of the updates to be installed is displayed.
- After reviewing the list of updates to be installed click “Next”.



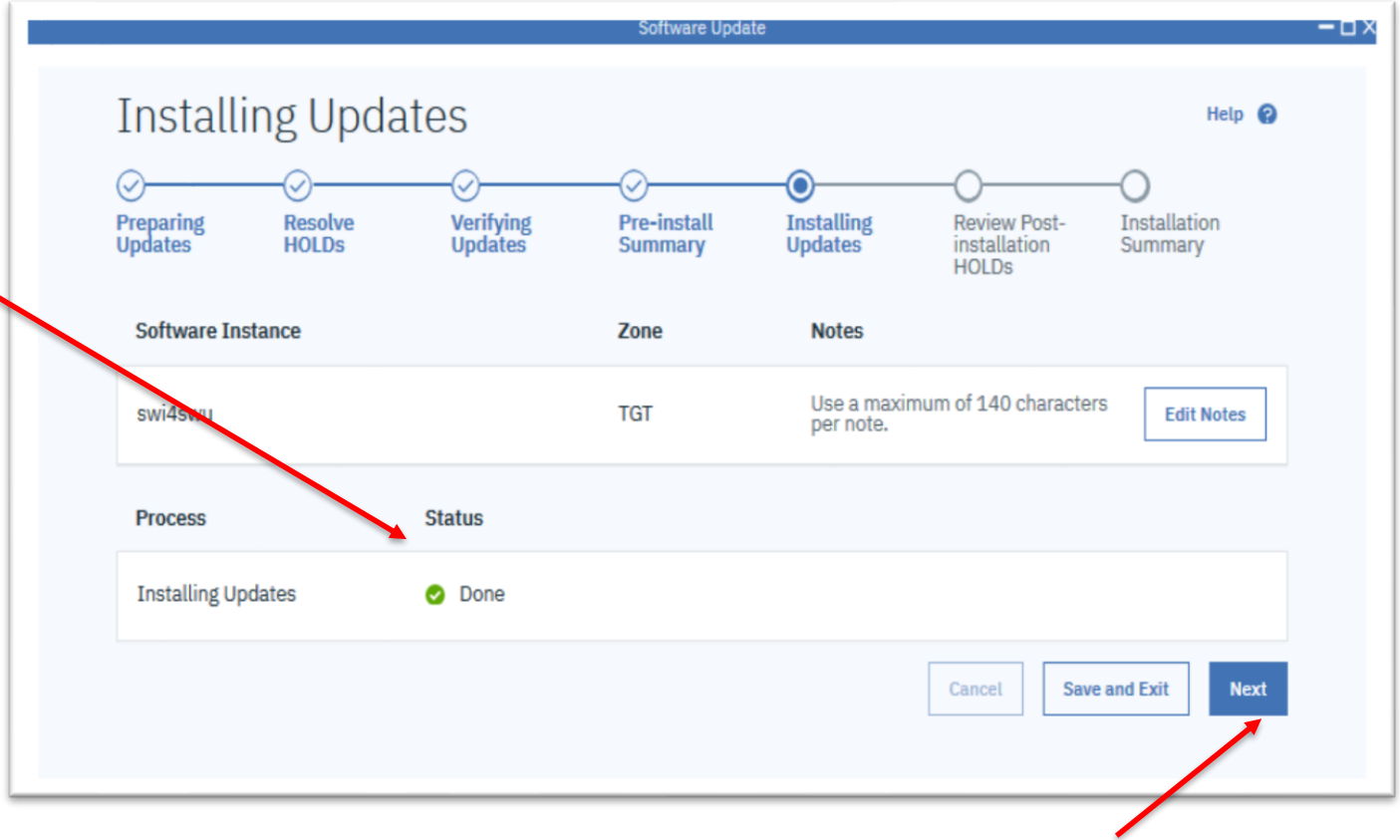
Install Corrective Updates
→ Installing Updates

- Performing APPLY to install the updates.



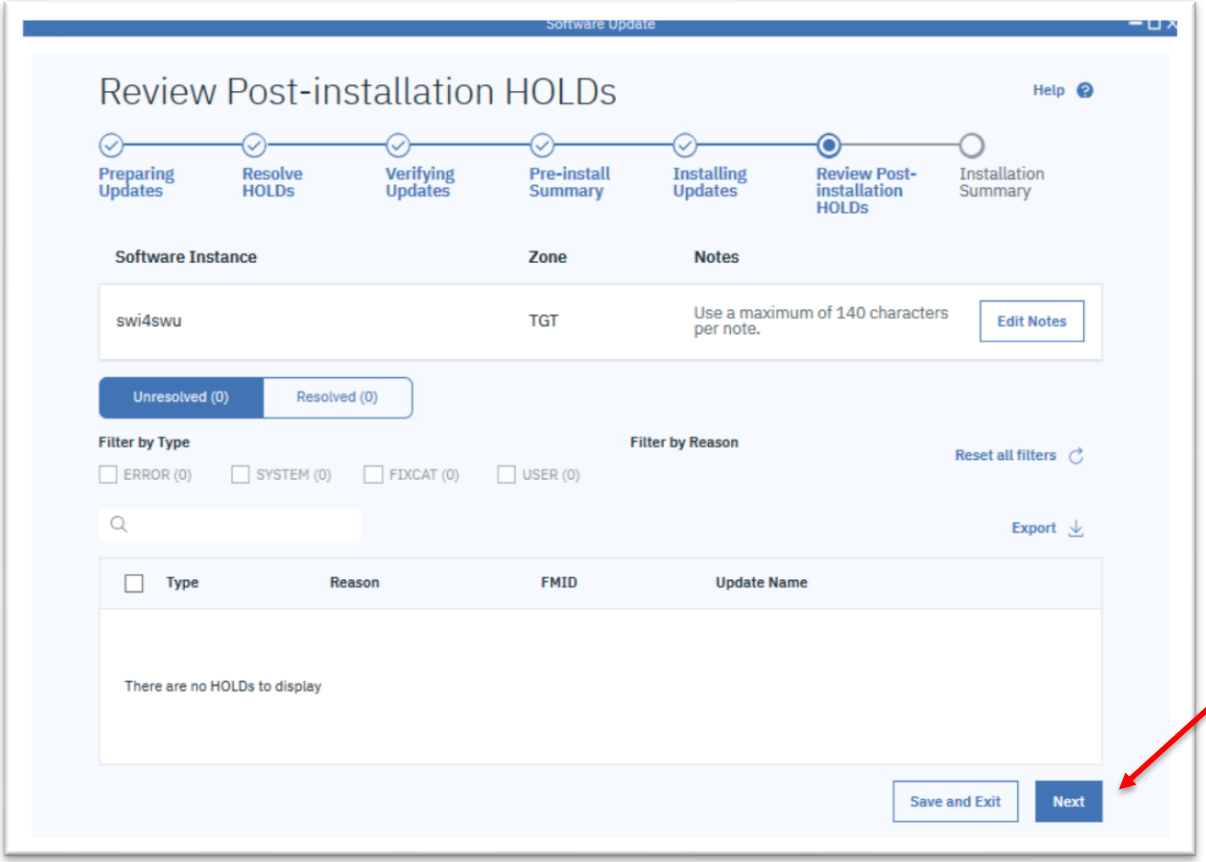
Install Corrective Updates
→ Installing Updates

- The APPLY is finished!
- Click “Next”.



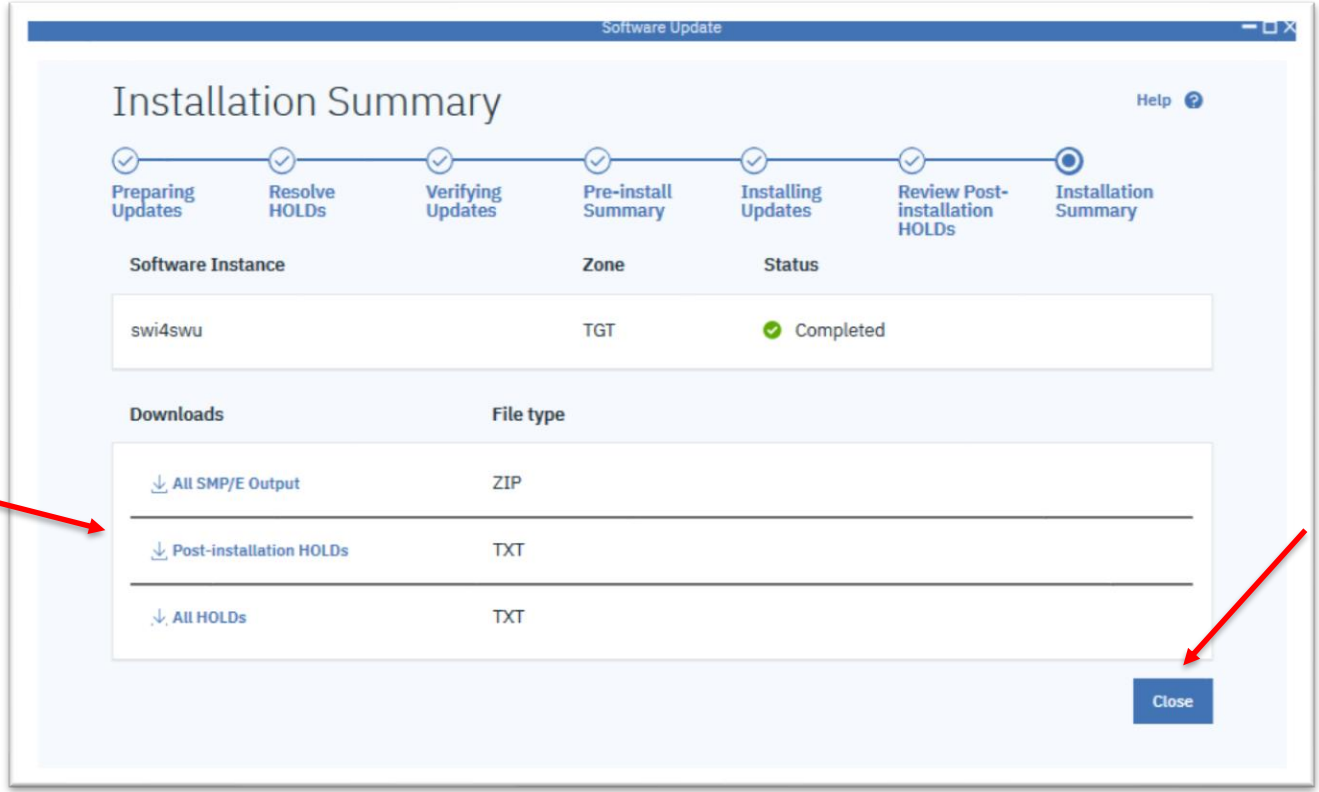
Install Corrective Updates
→ Review Post-Installation HOLDs

- If there are HOLDs to be resolved after the install, review and resolve them now.
- Click “Next”.



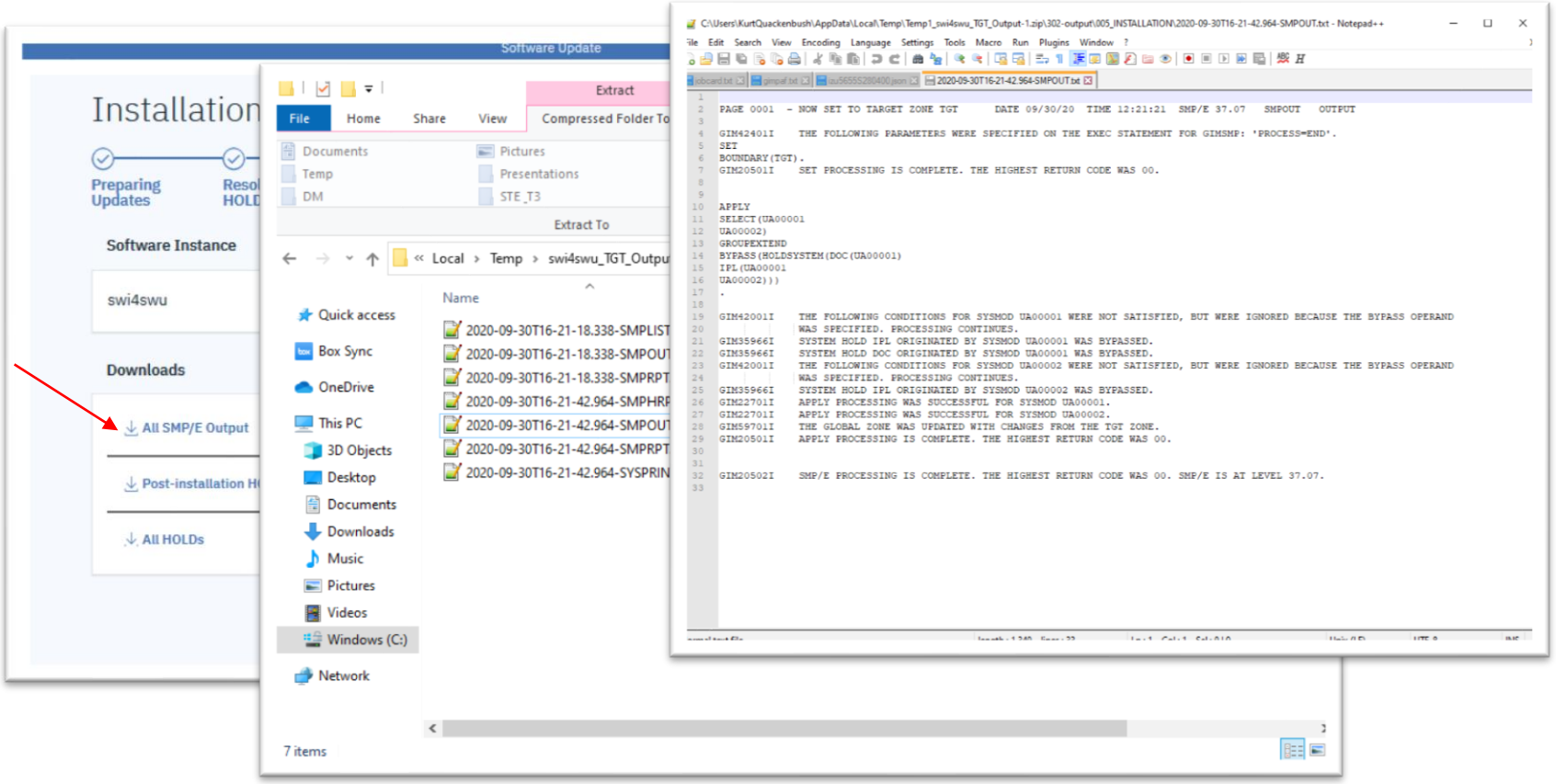
Install Corrective Updates
→ Installation Summary

- The Software Update operation is now finished!
- SMP/E output and text files containing HOLDs can be downloaded.
- Click “Close”

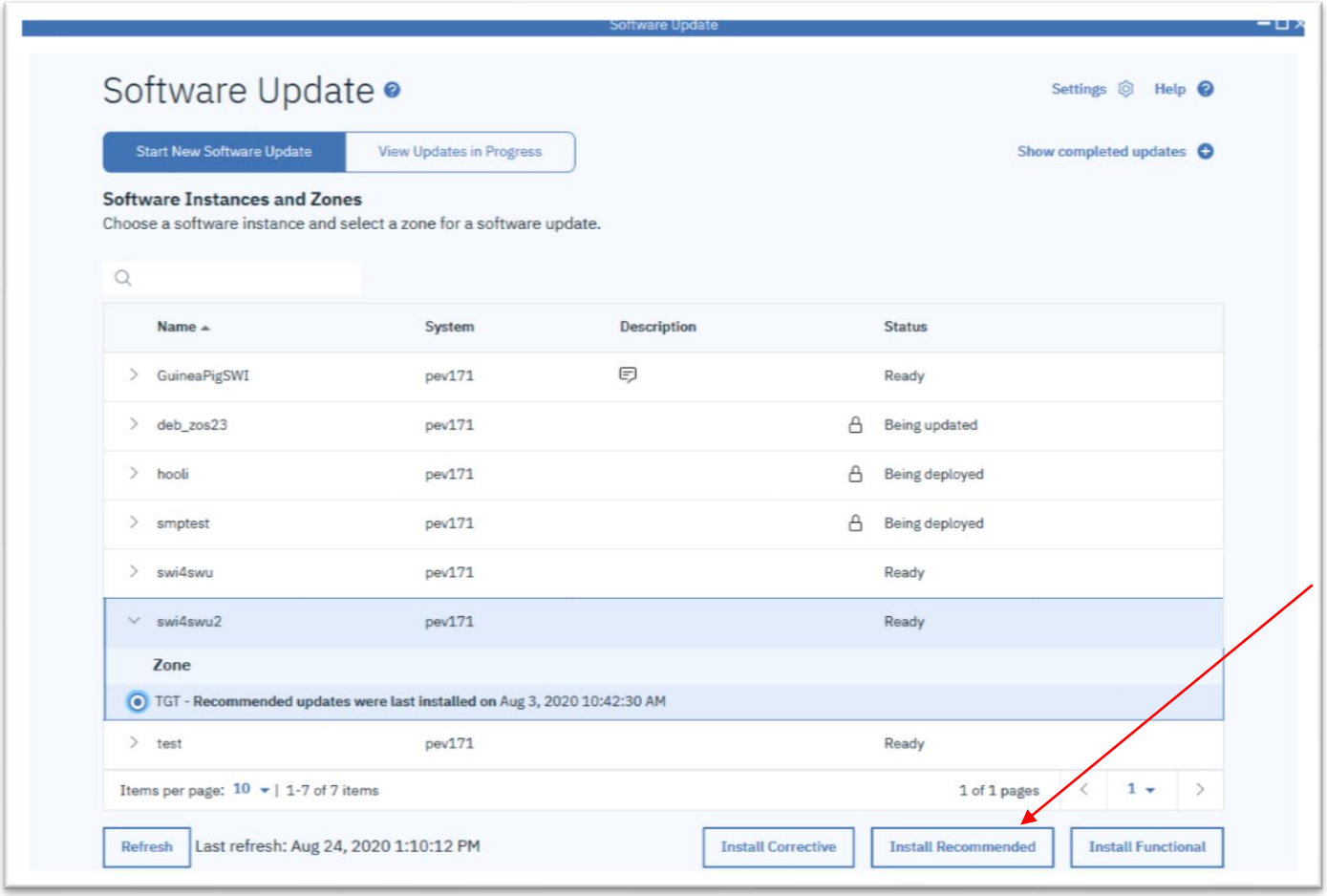


Install Corrective Updates
→ Installation Summary

Click and a zip file is downloaded to your workstation.



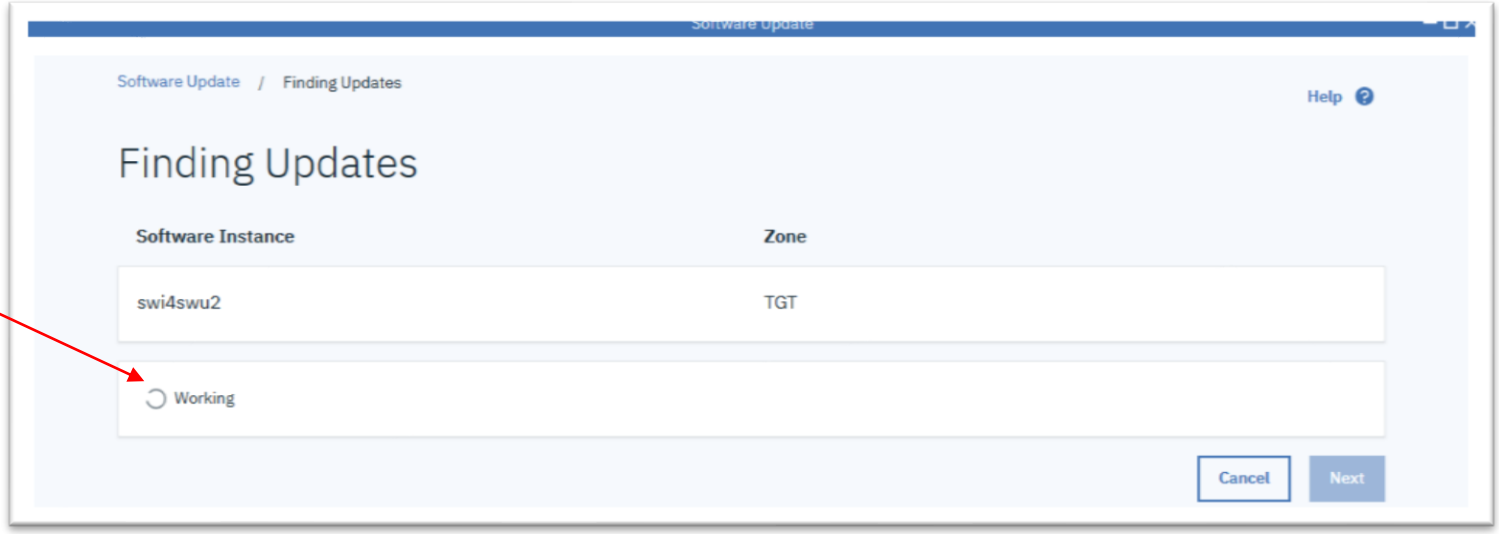
Another update scenario: **Install Recommended**



Install vendor-recommended updates

Install Recommended Updates

Performing APPLY CHECK SOURCEID to find recommended updates.



(Updates must be found (RECEIVEd) in the global zones. More on that later…)

Install Recommended Updates

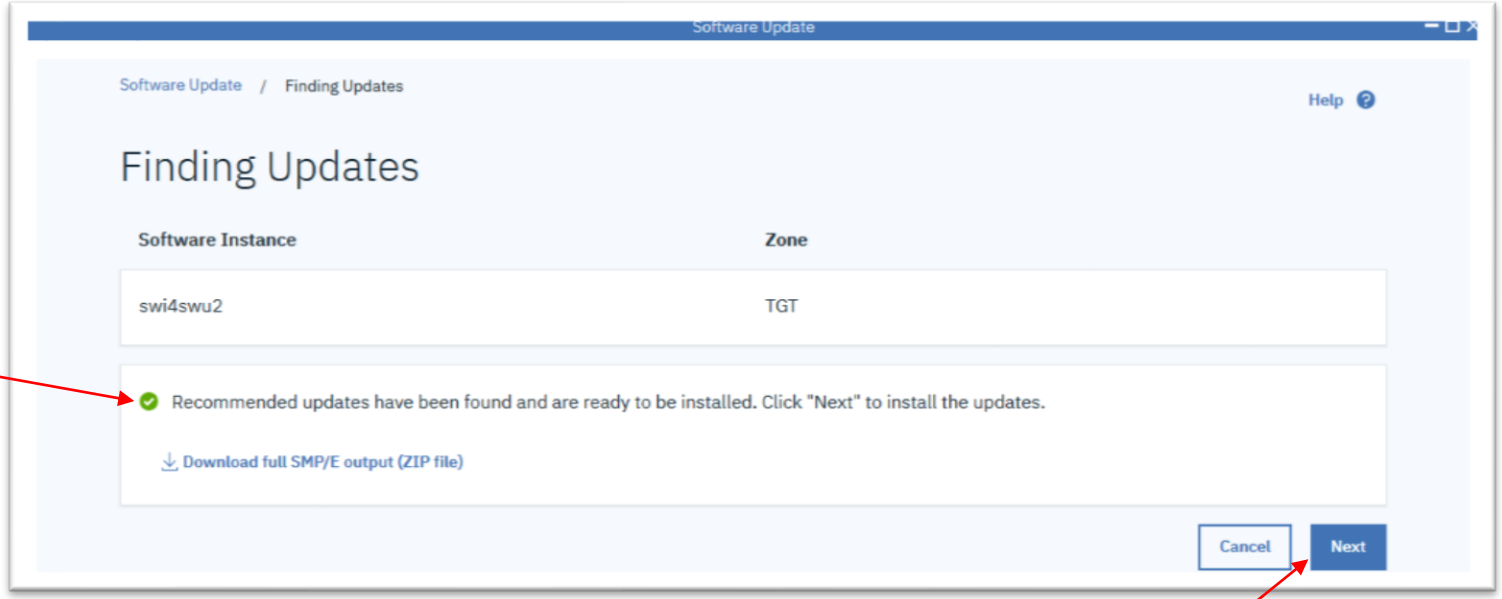
What is happening within z/OSMF Software Update

```
APPLY
SOURCEID(RSU*, HIPER, PRP, SECINT, CAR*, RSL*)
GROUP
BYPASS(HOLDUSER,HOLDSYSTEM,HOLDFIXCAT)
CHECK.
```

- Recommended updates are identified by vendor defined source IDs:
  - RSU*, HIPER, PRP, SECINT (IBM)
  - CAR*, HIPER, PRP (Broadcom)
  - RSL* (BMC)
- The list of source IDs is not user modifiable.
- Updates with an unresolved ERROR HOLD (PE PTFs) are **not** installed.
  - The ERROR HOLD is not displayed for the user to choose a resolution.
  - The PE PTF is **automatically** and **unconditionally** excluded.

Install Recommended Updates

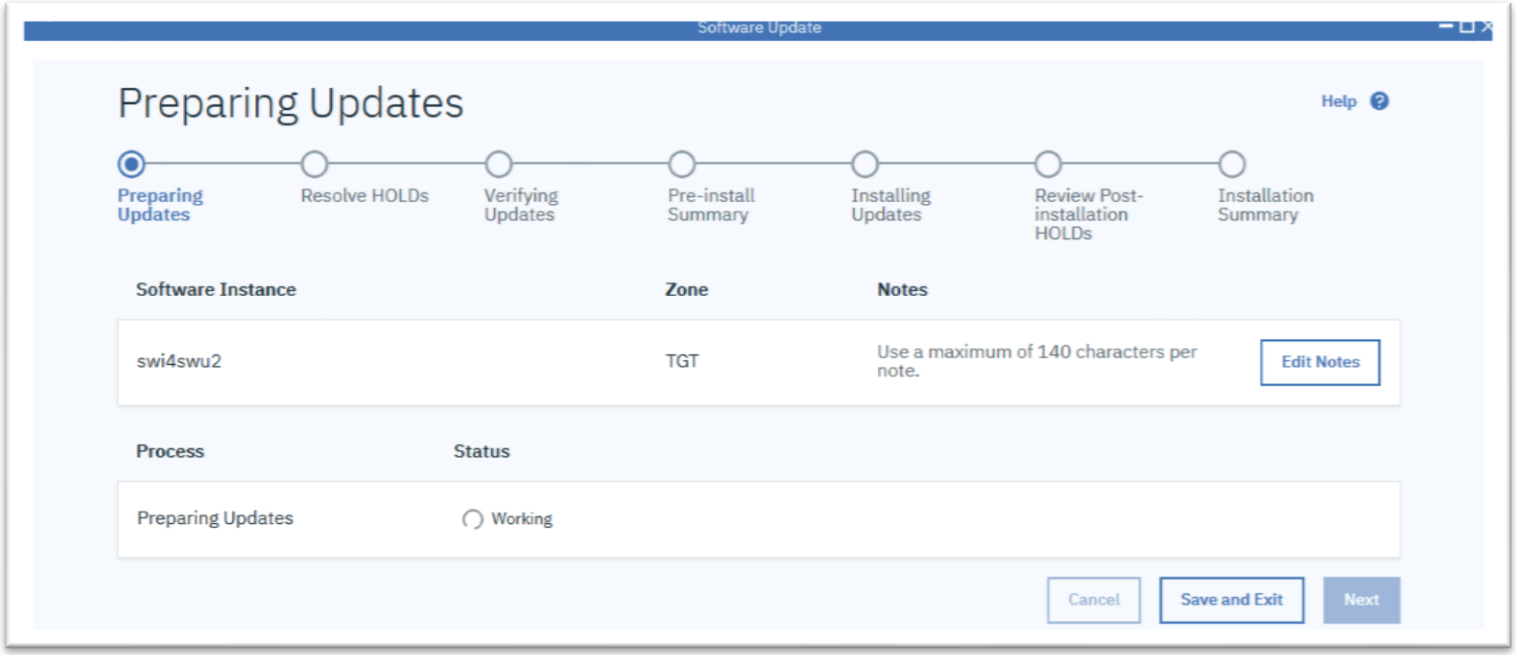
One or more recommended PTFs were found and can be installed.



Click “Next” starts the update process.

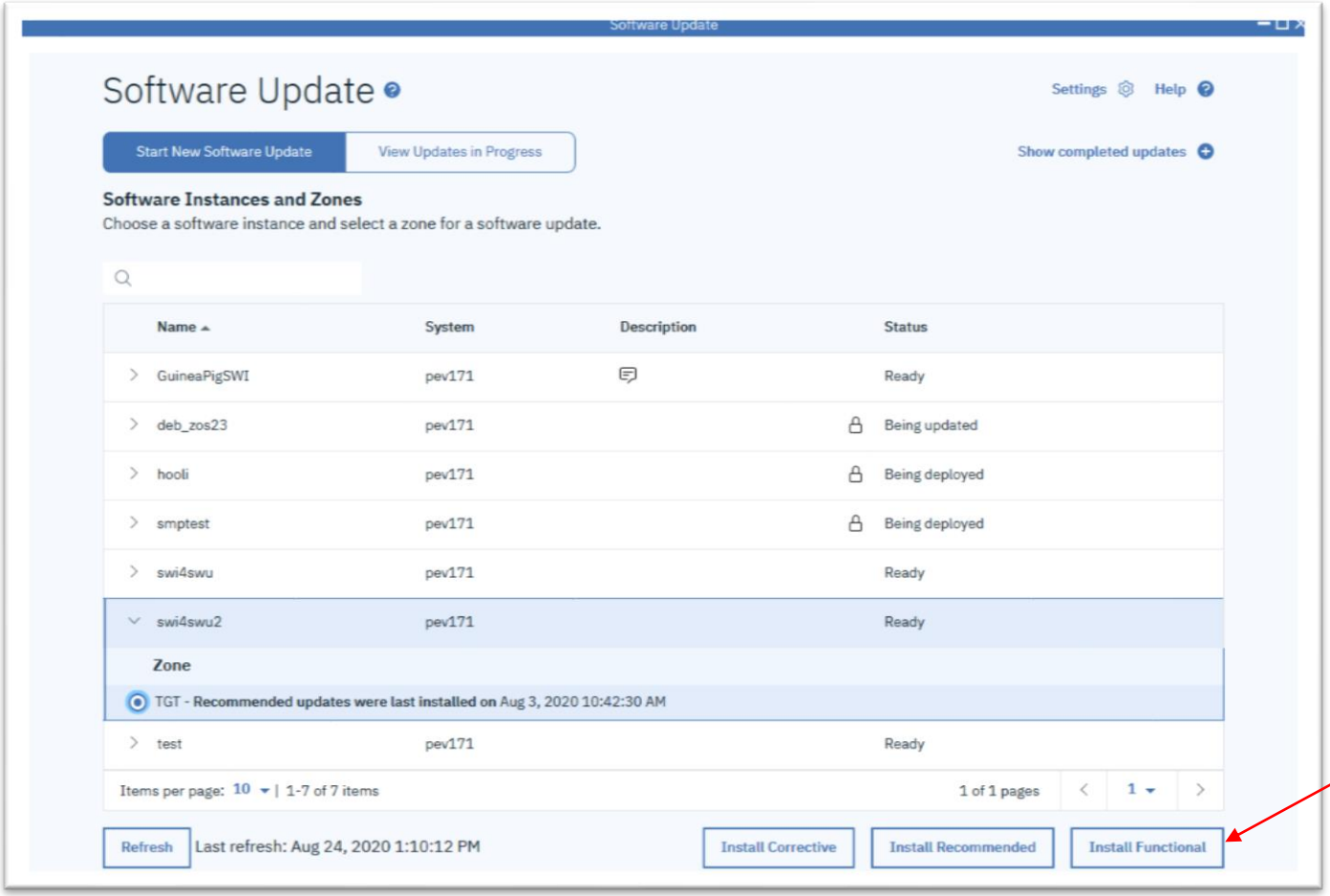
Install Recommended Updates
→ Preparing Updates

Performing APPLY CHECK to find missing requisites and HOLDs.



…and continues on the same path as **Install Corrective** we've just seen**…**

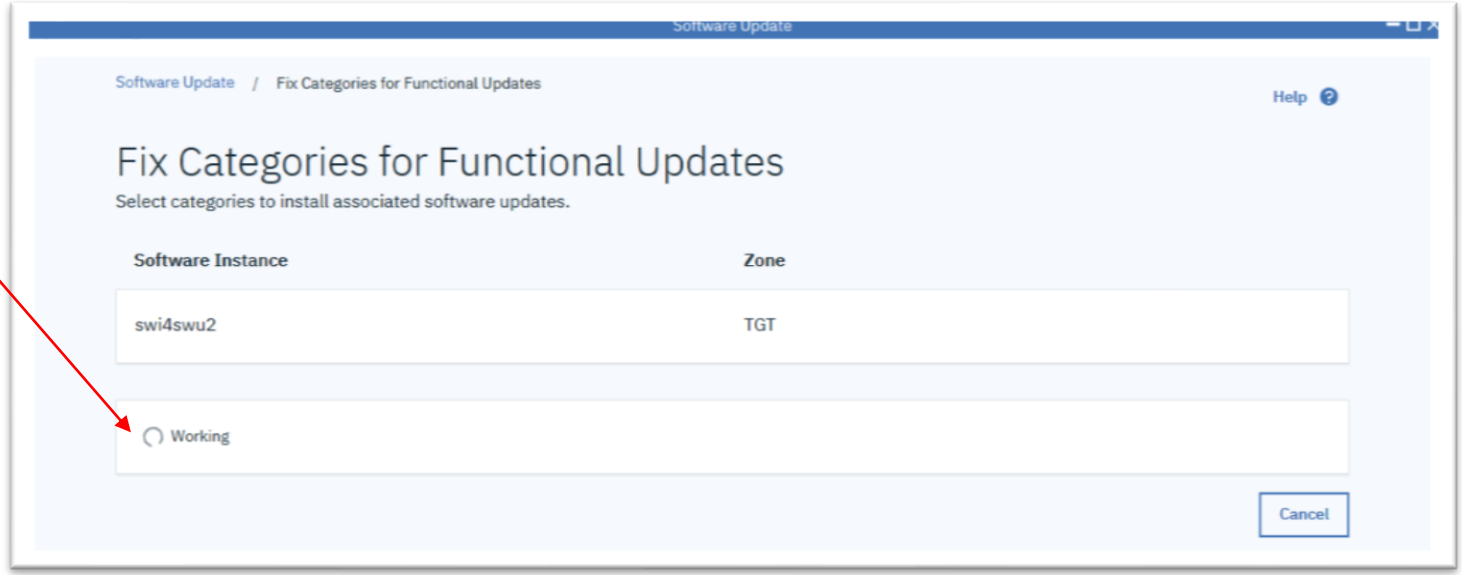
Another update scenario: **Install Functional**



Click to install updates for specific functions (FIXCATs)

Install Functional Updates

- Querying FIXCAT HOLDs to find missing updates.
- Just like SMP/E REPORT MISSINGFIX FIXCAT(*) processing.

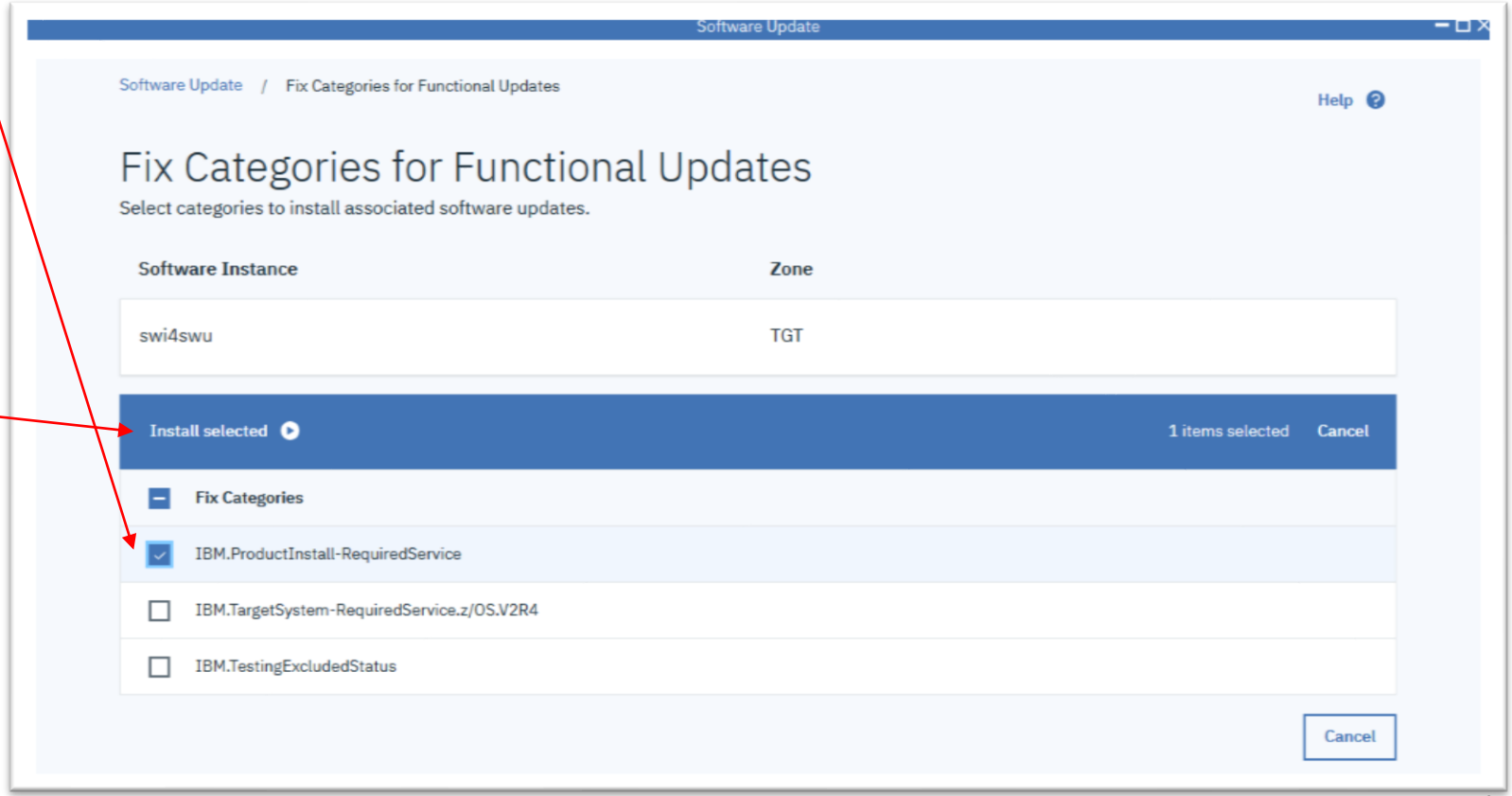


(Updates must be found (RECEIVEd) in the global zones. More on that later…)

Install Functional Updates

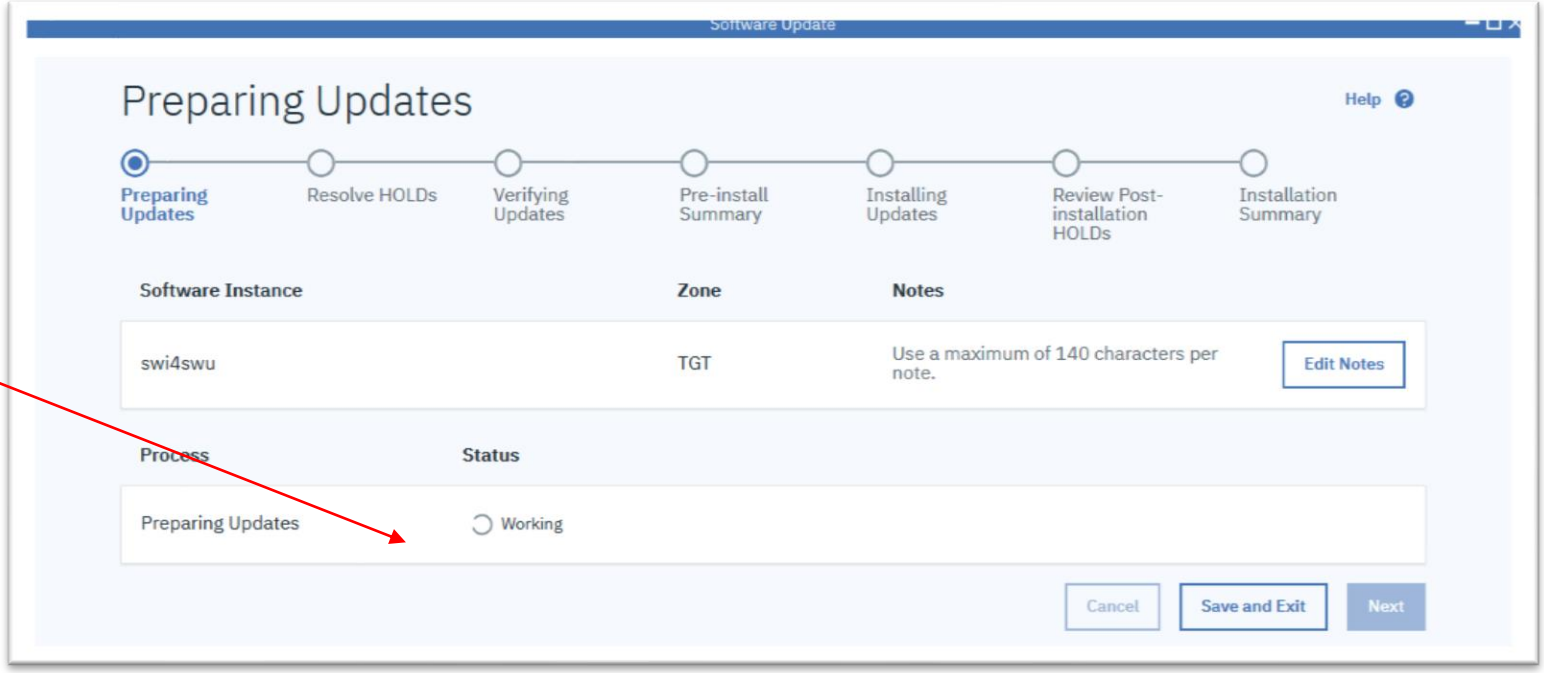
- Select the function updates (FIXCATs) you want to install
- Click “Install selected” starts the update process.
- All updates for the selected categories will be installed.

One or more fix categories were found with updates not yet installed.



Install Functional Updates...

Performing APPLY CHECK to find missing requisites and HOLDs.



…and continues on the same path as **Install Corrective** and **Install Recommended** we've just seen**…**

Install Functional Updates...

What is happening within z/OSMF Software Update

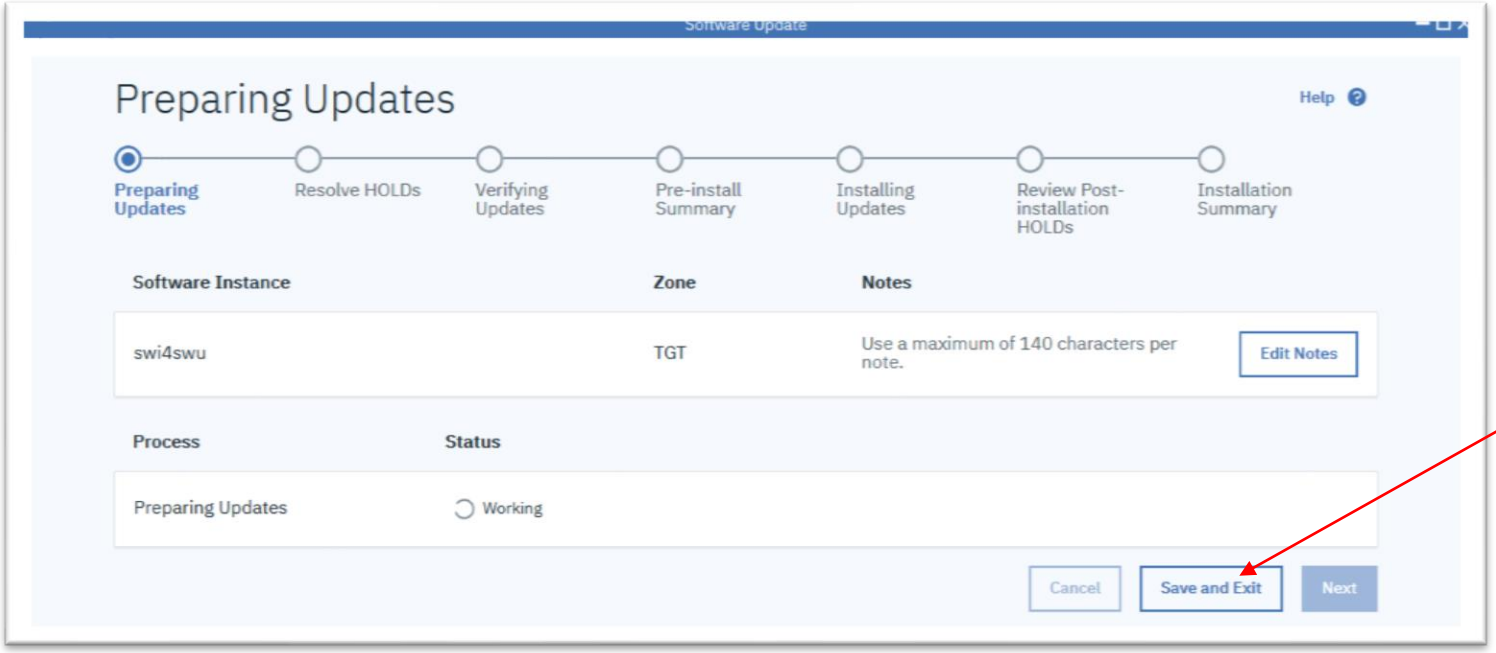
```
APPLY
SOURCEID(IBM.PRODUCTINSTALL-REQUIREDSERVICE)
GROUPEXTEND
BYPASS(HOLDSYSTEM)
CHECK.
```

- All PTFs with the selected Fix Category SOURCEID will be installed.
- GROUPEXTEND ensures requisite updates will also be installed.

- **Additional Features of z/OSMF Software Update**

-Save and Resume
-Completed and Cancelled
-Adding a description
-Settings

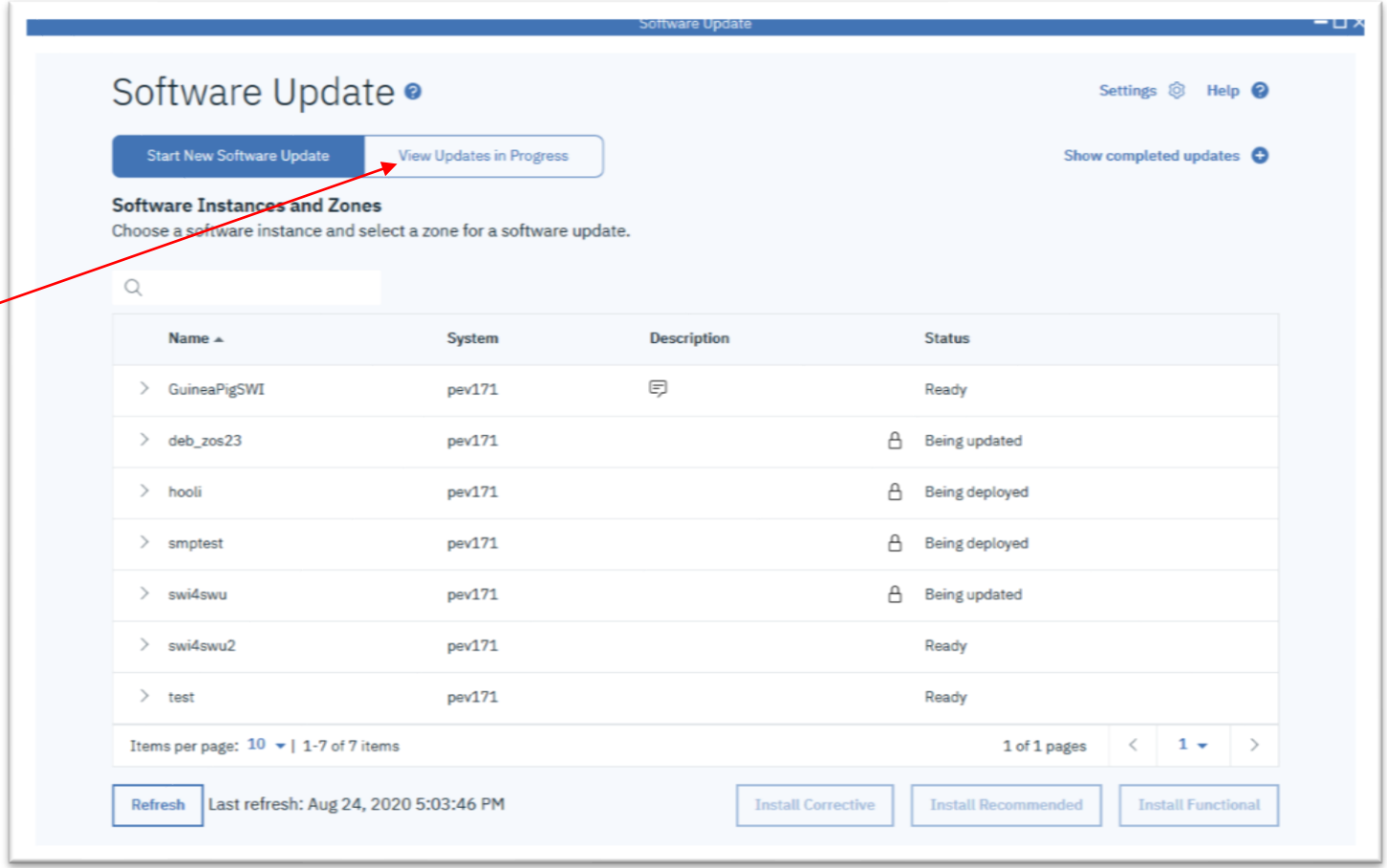
Save and Resume



- Most steps in the process allow you to pause and then resume later.
- Click the “**Save and Exit**” button.

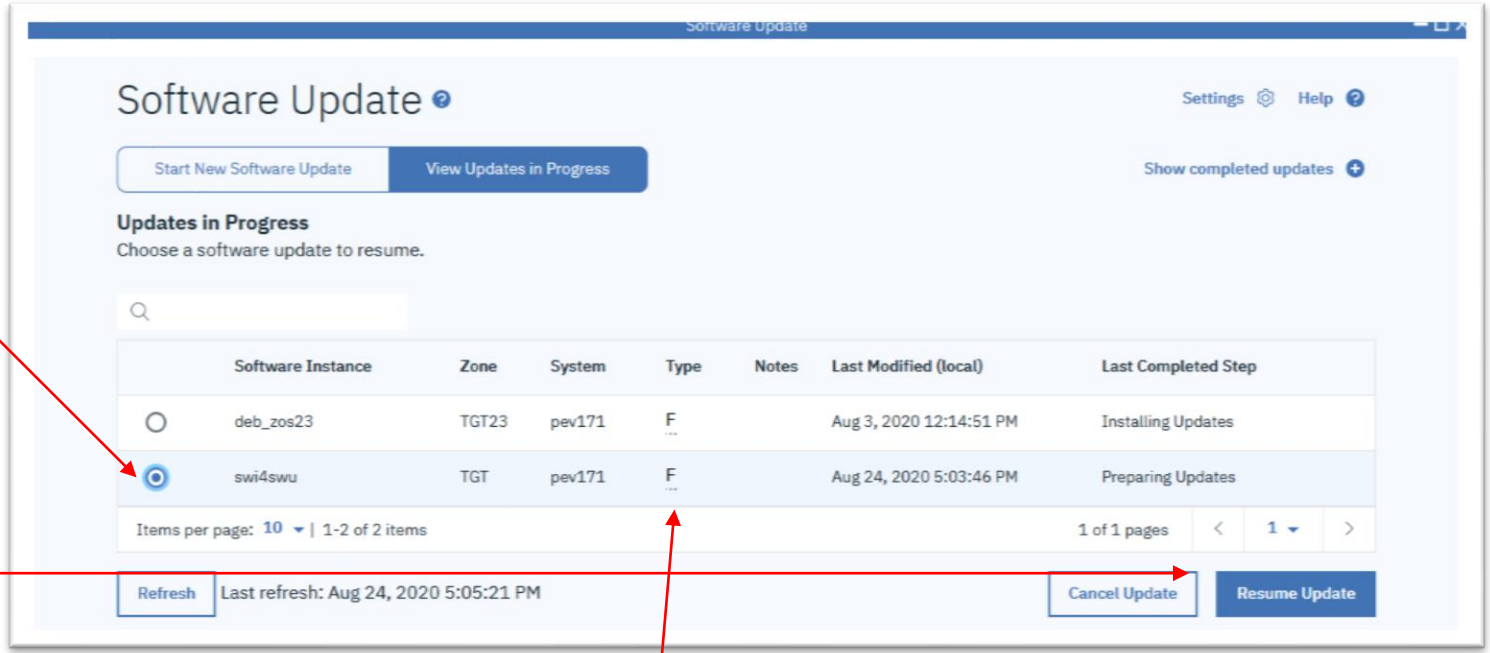
Save and Resume

On the Software Update main page click “**View Updates in Progress**” to see the saved update operations.



Save and Resume

Select the operation you want to resume.

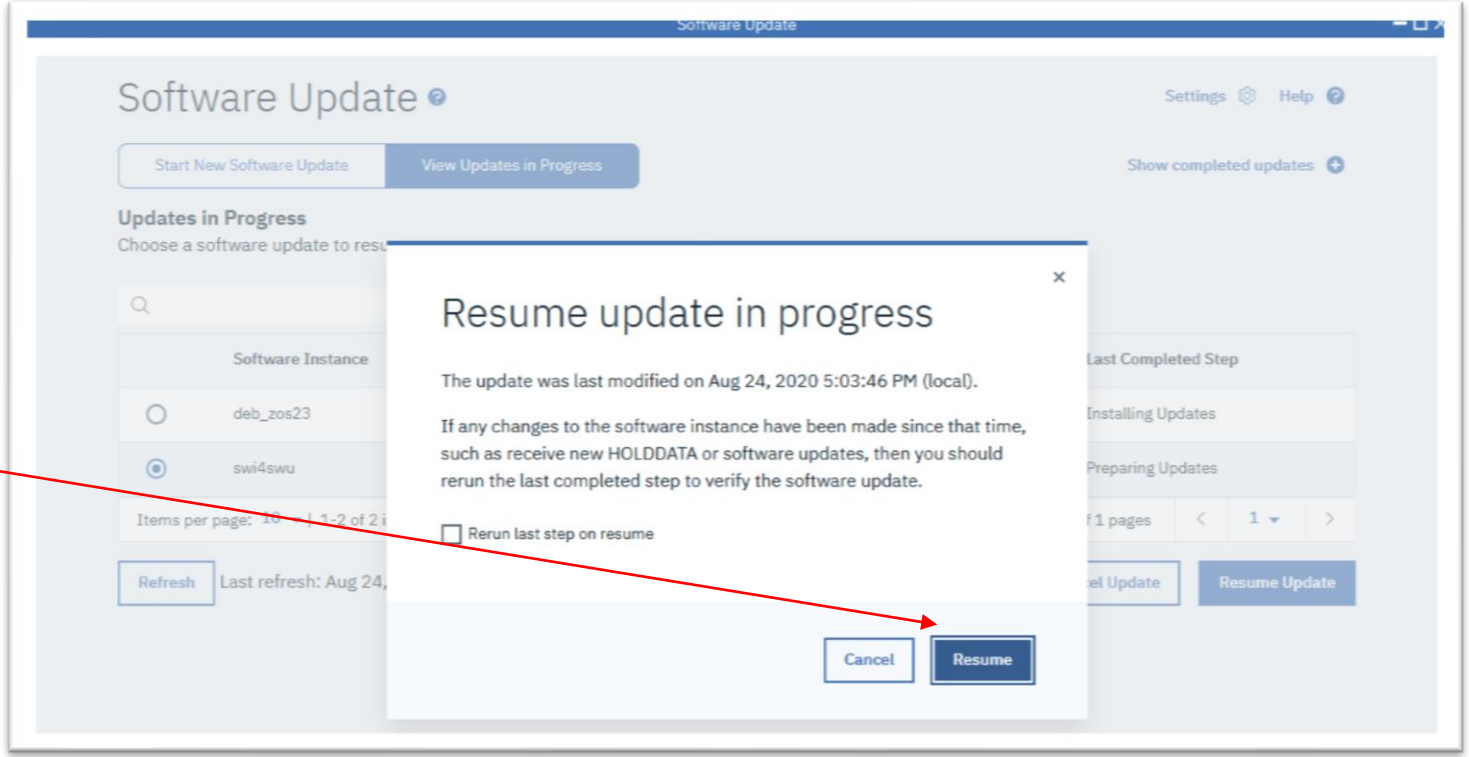


Click “Resume Update” to open and return to the saved step.

Type of update: Functional, Recommended, or Corrective

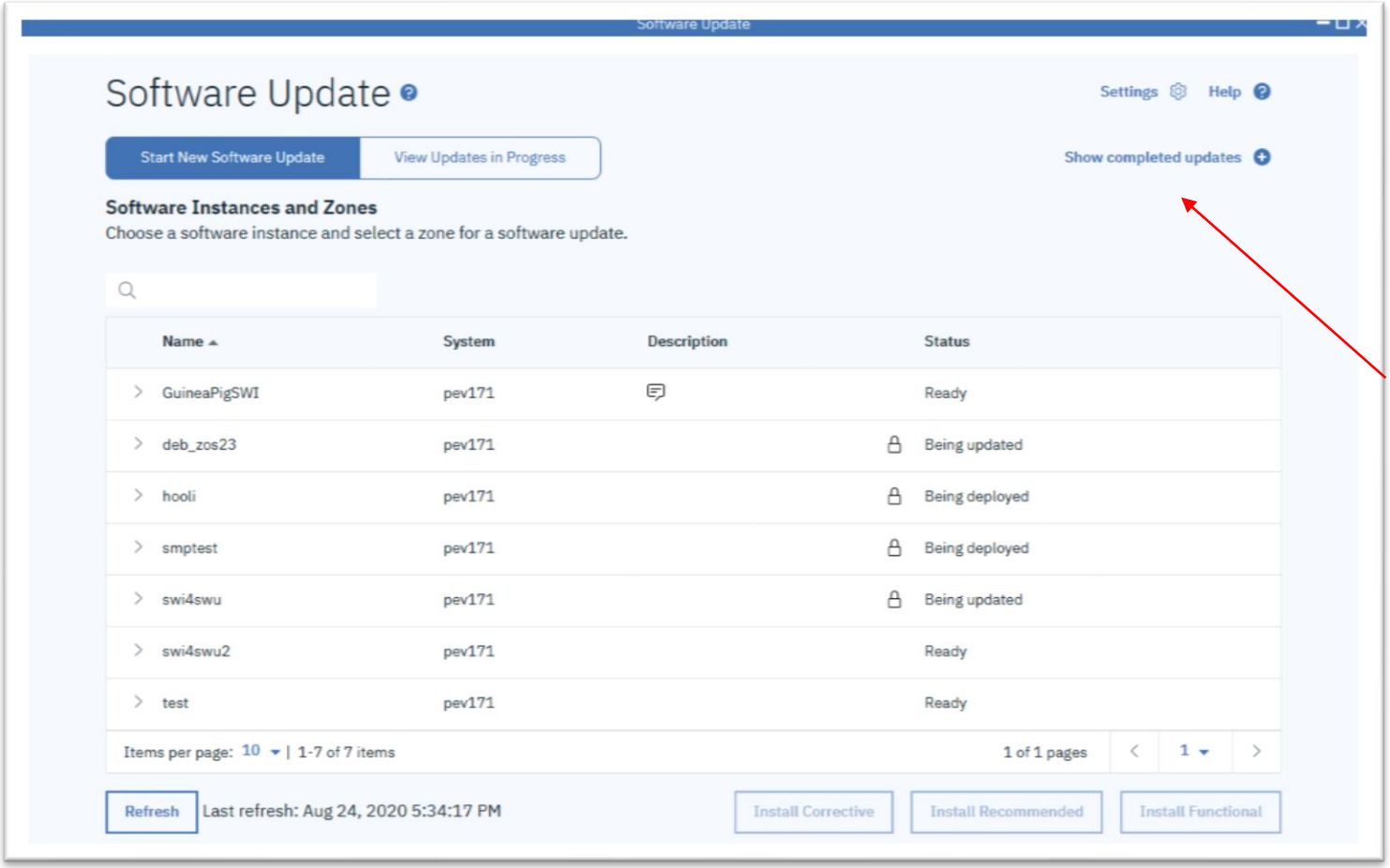
Save and Resume

Click “Resume” to open and return to the saved step.



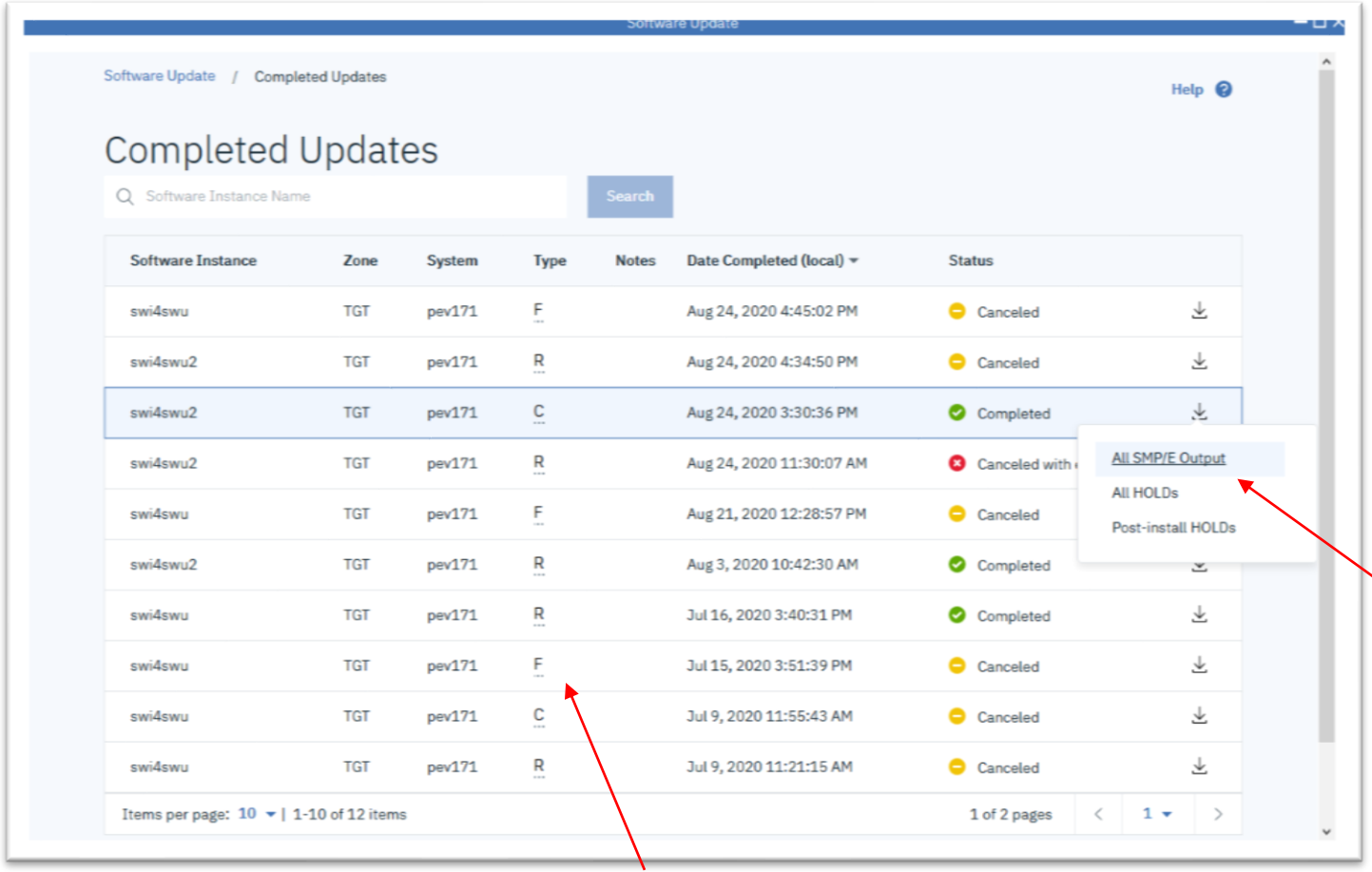
…Notice reminder if you wanted to rerun last step, in case you have updated HOLDDATA to consider…

Completed and Cancelled



On the Software Update main page click "**Show completed updates**" to view completed and cancelled update operations.

Completed and Cancelled

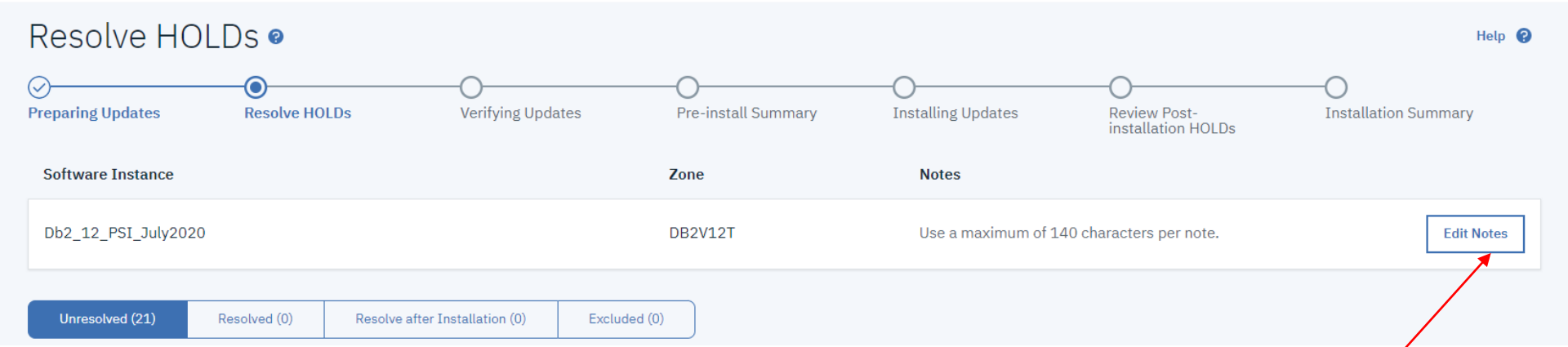


The list of completed update operations are displayed.

Click to download saved output.

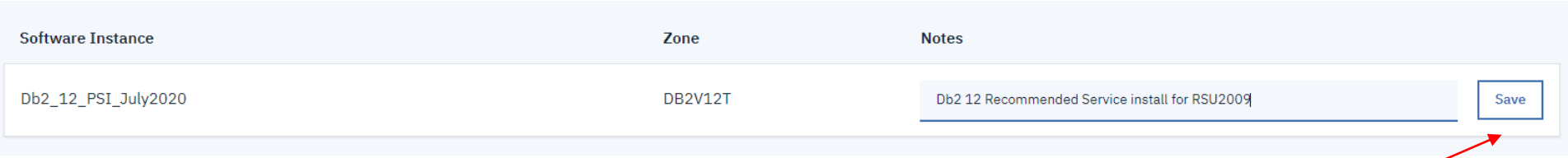
Type of update: Functional, Recommended, or Corrective

Adding a description

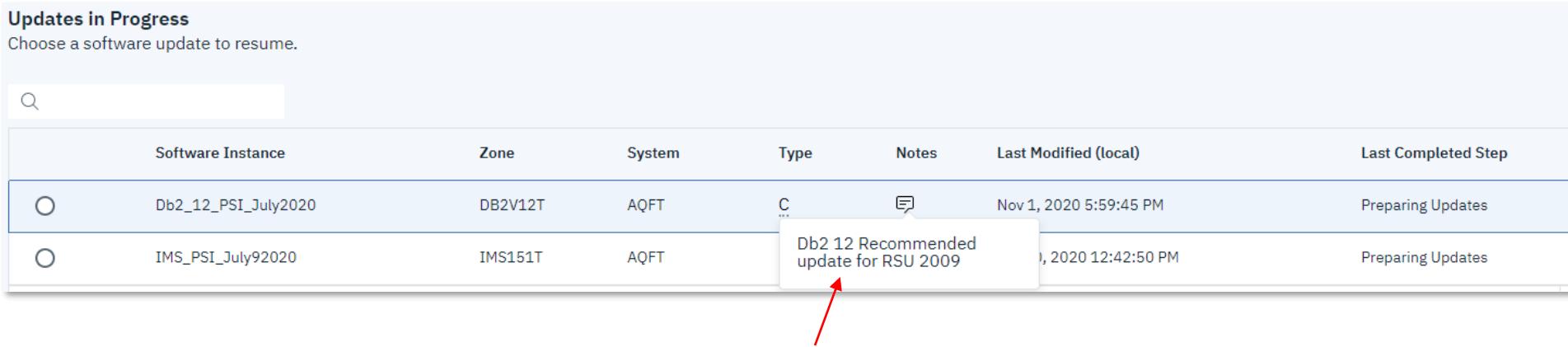


Notice **“Edit Notes”** on the Software Instance update. Click on it.

Adding a description

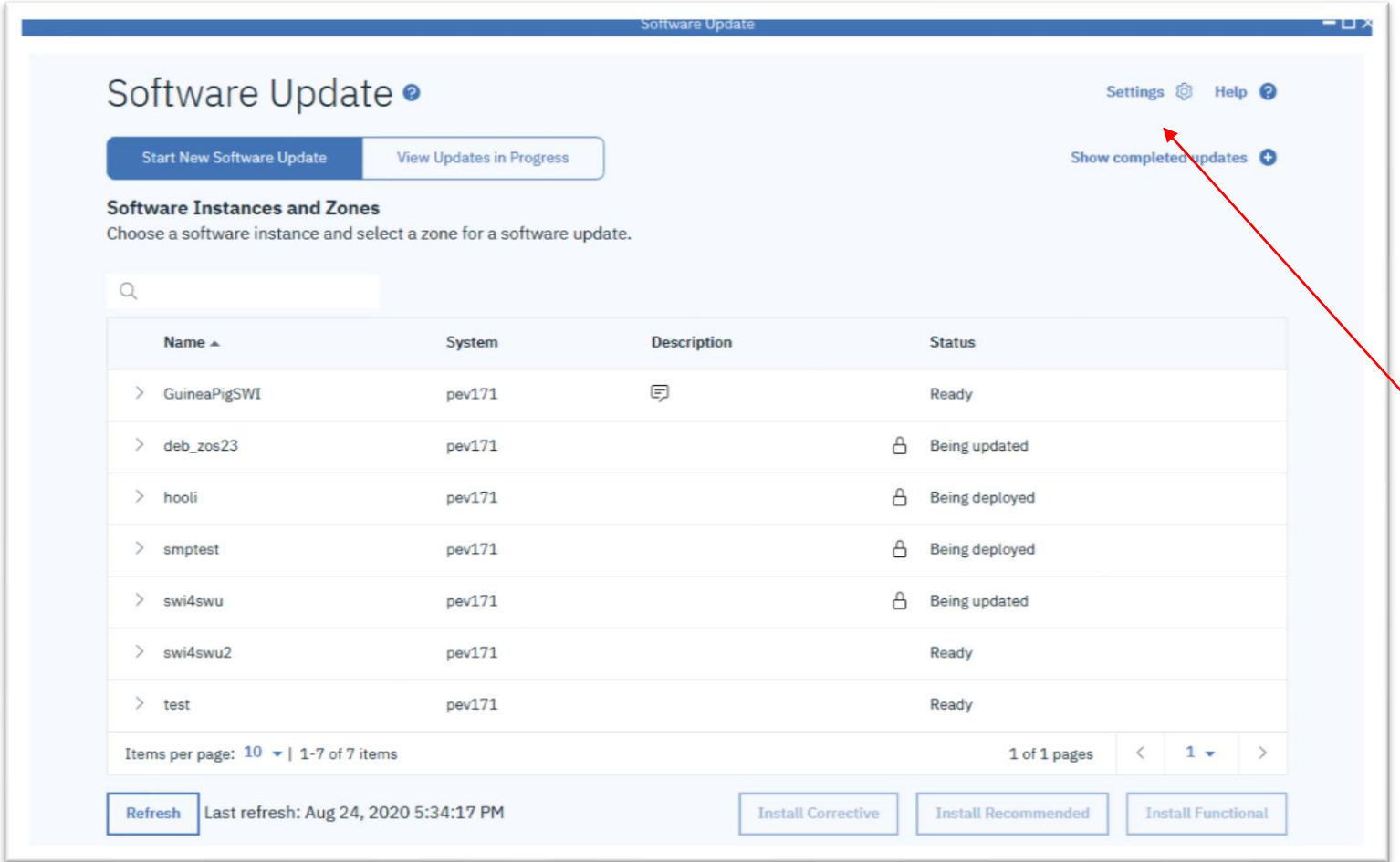


Fill in a good description, and **“SAVE”**.



Hover over later for a nice description

Settings

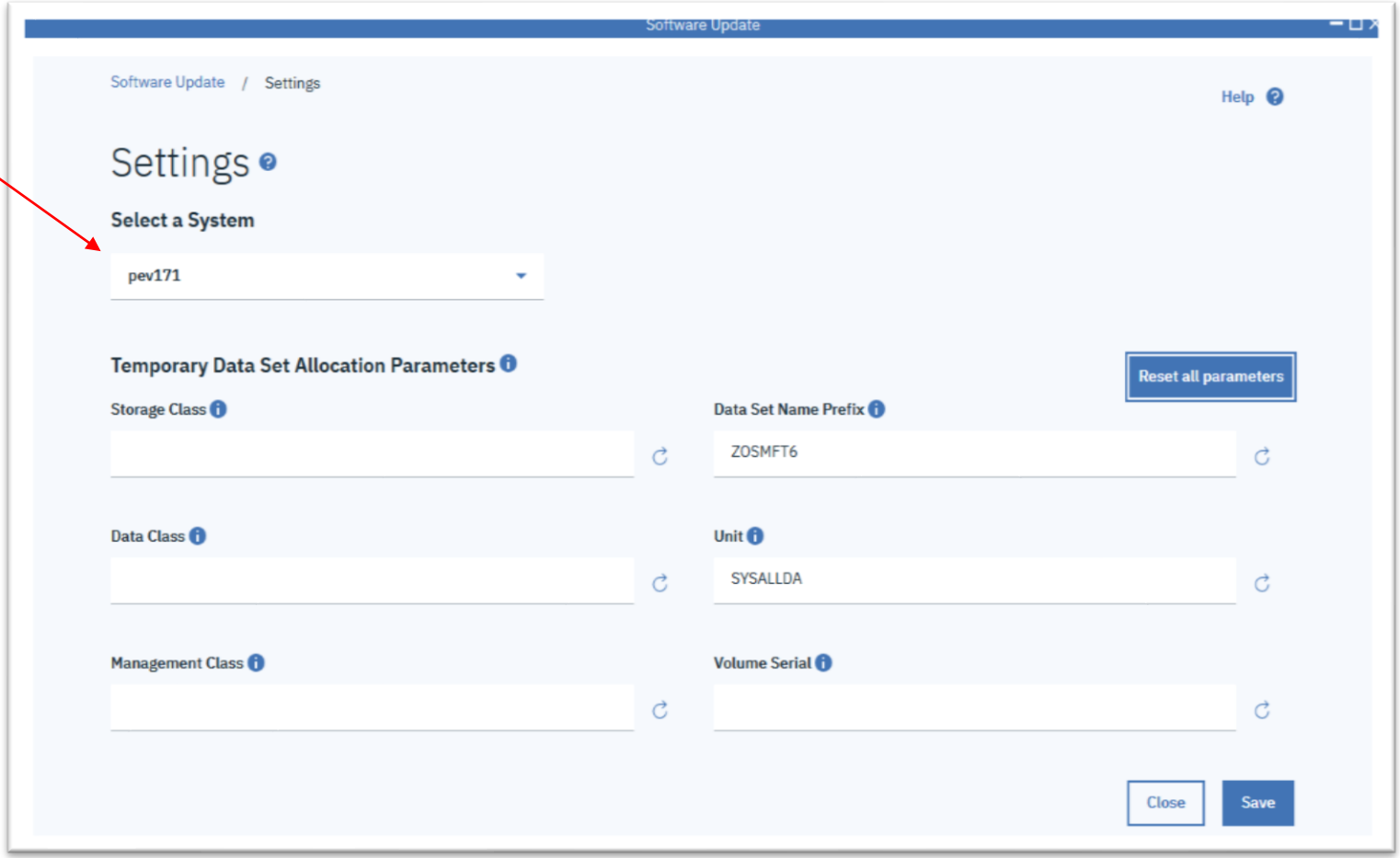


On the Software Update main page click "**Settings**"

Settings

Select a z/OSMF host system from the dropdown

Specify allocation parameters for the temporary SMP/E output data sets on the selected system: SMPOUT, SMPRPT, SMPHRPT, SMPLIST, SYSPRINT.

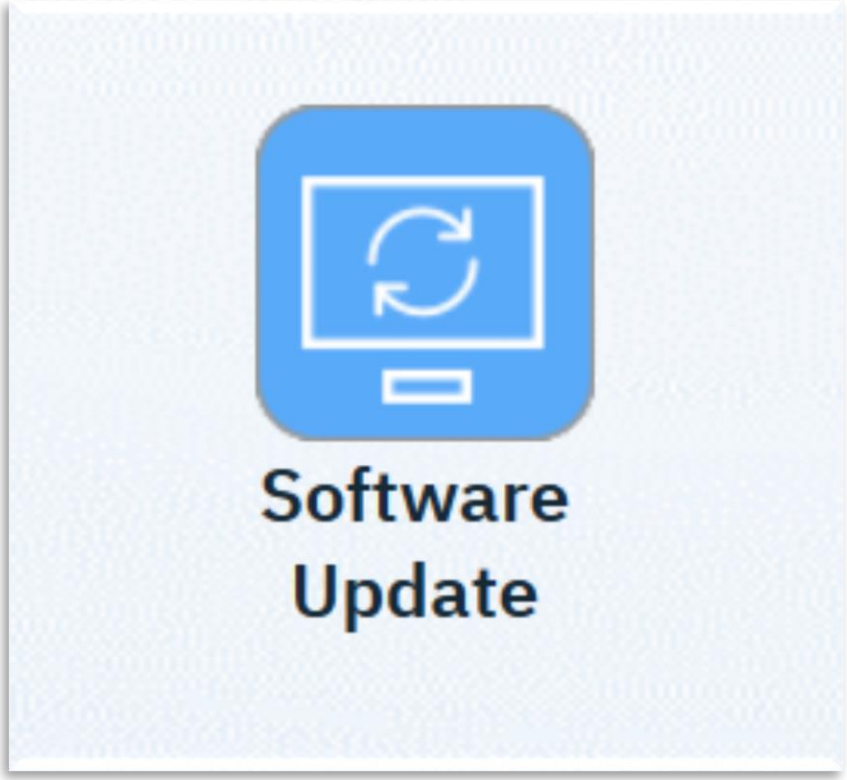


Temporary data sets are allocated for each SMP/E operation and are deleted upon completion of the operation

Acquisition of Updates
(RECEIVE into global zone)

- Software Update does **not** acquire software updates nor HOLDDATA.
- Updates must already be received into the global zone and SMPPTS.
- The **BEST PRACTICE** is to use **SMP/E RECEIVE ORDER**
  - Use a job scheduler to automate acquisition on a regular cadence
- The SMP/E RECEIVE ORDER command works with a server to
  - Build custom packages of PTFs
  - Download PTFs to your z/OS
  - Receive PTFs into the global zone and SMPPTS
- IBM and several leading z/OS software providers support SMP/E RECEIVE ORDER to acquire PTFs and HOLDDATA for their software products.

In Summary

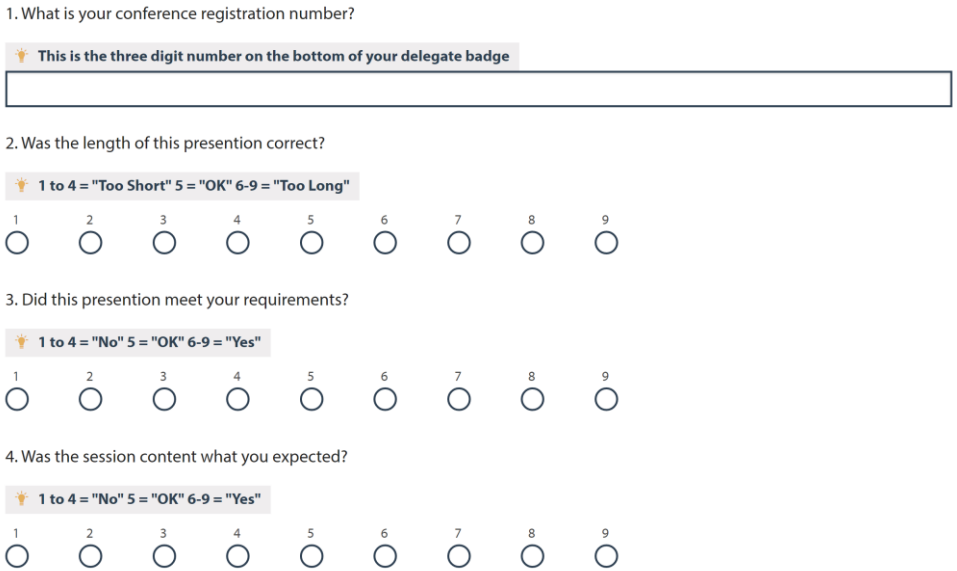


- z/OSMF Software Update simplifies installing SMP/E managed software updates (PTFs).
- Target users are less experienced z/OS installers
  - Early tenure z/OS system administrators and system programmers.
- New function for z/OS **V2.4** and **V2.3** with PTFs for APAR PH28412.
- For more information: https://www.ibm.com/support/z-content-solutions/software-update-zosmf/

Please submit your session feedback!

- Do it online at http://conferences.gse.org.uk/2020/feedback/2BG

- This session is 2BG



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