Using z/OSMF Workflows to Configure …

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Agenda

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- Using Workflows to configure z/OSMF Incident Log
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  - Configuring z/OS Requirements for z/OSMF Incident Log using the z/OSMF Configuration Workflow
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Workflow Definition

- **Wikipedia**
  - A **workflow** consists of an orchestrated and repeatable pattern business activity enabled by the systematic organization of resources into processes that transform materials, provide services, or process information.
  - It can be depicted as a sequence of operations, declared as work of a person or group, an organization of staff, or one or more simple or complex mechanisms.
- **BusinessDictionary.com**
  - A **workflow** is a progression of steps (tasks, events, interactions) that comprise a work process, involve two or more persons, and create or add value to the organization's activities.
  - In a sequential workflow, each step is dependent on occurrence of the previous step; in a parallel workflow, two or more steps can occur concurrently.

z/OSMF Workflow Application

- **The z/OSMF Workflow application is a framework supports user (Workflow provider) to define a guided flow (workflow) through steps to accomplish a task.**

- **Step is the basic unit of workflow:**
  - Steps may instruct the user to perform a task via documentation or invoke wizards that guide the user through performing the task
    - Wizards can update and submit jobs, execute shell scripts and run REXX EXECs
  - Steps may define dependencies on other steps
  - Steps may be assigned to an individual or a specific role, such as
    - “systems programmer”
    - “security administrator”
  - Steps may be performed manually or automatically

User Scenario (Product Configuration)

- **The system programmer installs a product's code that provides a z/OSMF Workflow for its configuration.**
- **The person that will configure the product logs on to z/OSMF and creates a new workflow from file provided by the product.**
  - z/OSMF prompts the user to provide the fully qualified location
  - z/OSMF reads in the metadata file(s).
    - Once loaded, the original metadata file(s) is no longer used.
  - This will create a workflow instance

  That person becomes the workflow owner
- **The owner can then start by opening the workflow instance**
  - The owner can now view and assign tasks to either individual SAF users or a role (group of users)
- **Assignees will then get notified that tasks are assigned to them**
- **Each assignee then accepts the tasks and can perform the steps when they are ready.**
- **Everyone can track the progress of the workflow and view what steps have been completed, what steps are ready, and what steps are waiting**

z/OSMF Workflow Application

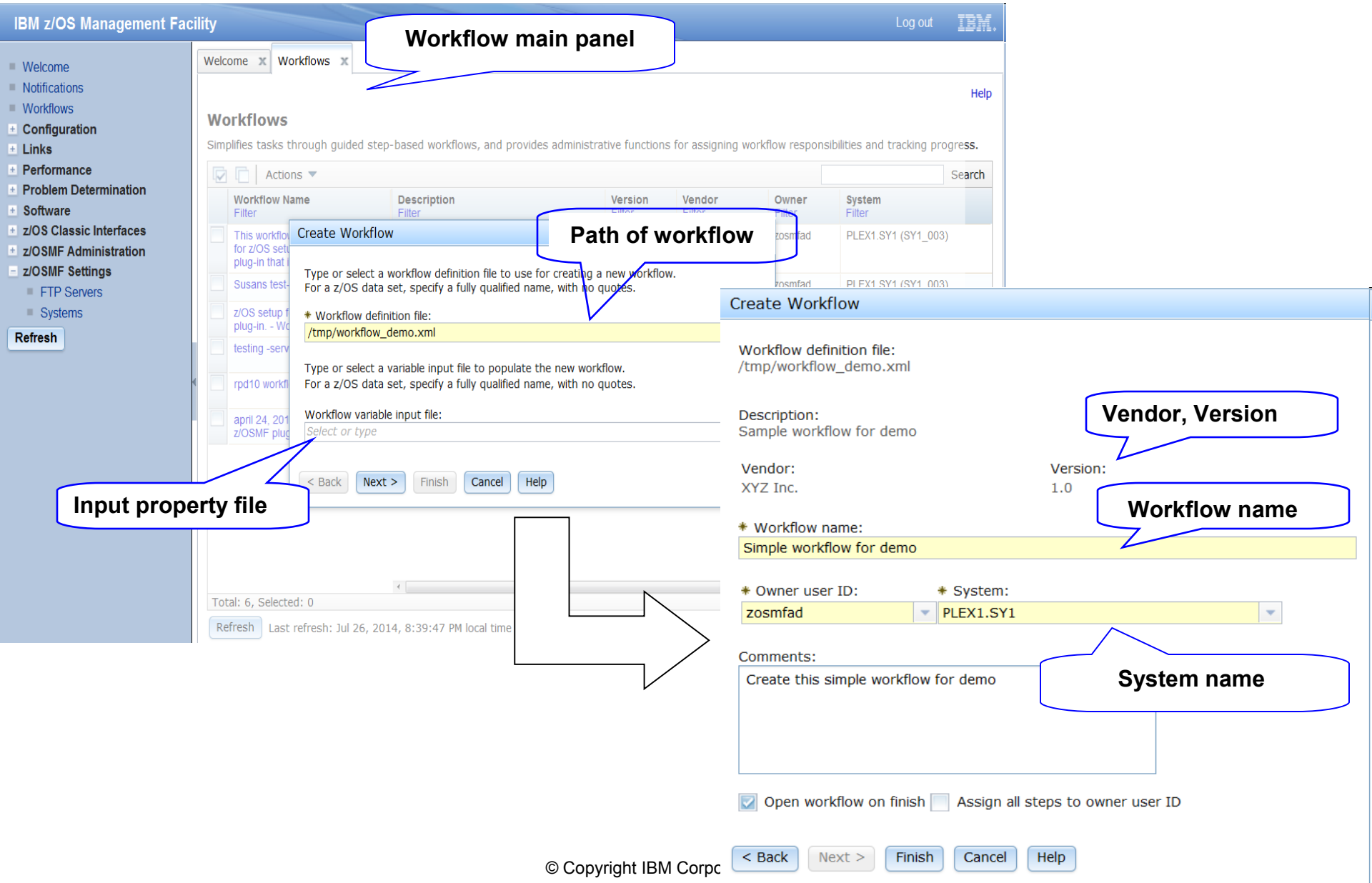
- **The z/OSMF Workflow application is useful to:**
  - Assist people unfamiliar with how to perform a given task, or a task that they perform rarely
  - Ensure that all tasks are performed in the right order and only when their dependencies have been met
  - Ensure that all steps are completed
    - Even if many of the tasks have been delegated to a number of different colleagues
  - Monitor and track progress toward the completion of the task
  - Provide a history (audit trail) of the steps performed for a task
  - Perform the same tasks on multiple systems
    - Enabling a function (e.g. zEDC)
    - Migrating a new release of software (e.g., z/OS)

Demo of a simple workflow

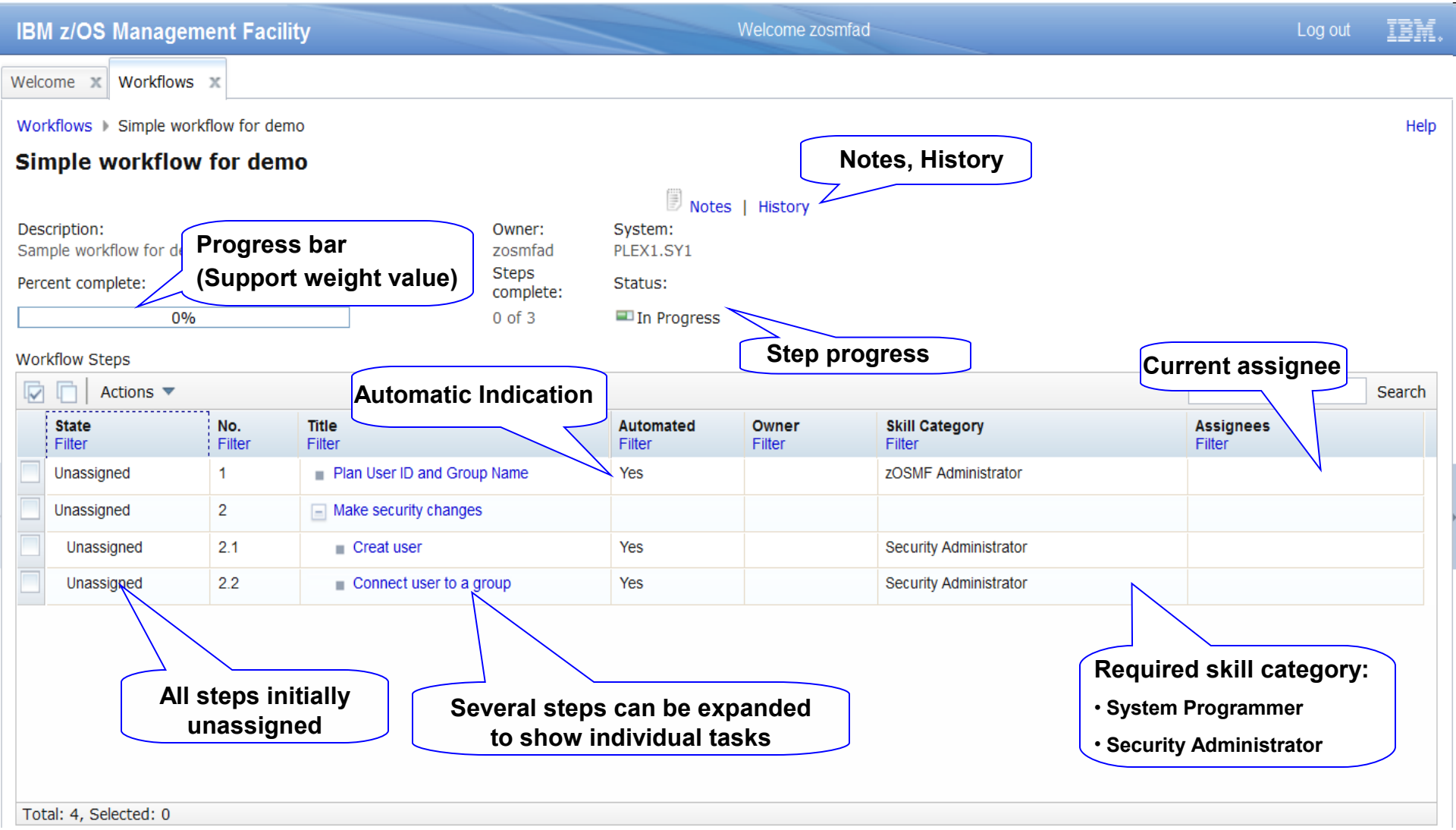
- **Purpose of this workflow:**
  - z/OSMF Administrator plans user name to be created and the group to connect
  - Security Administrator does the actual security changes

- Process:
  - Create the workflow instance
  - Be familiar with the workflow instance
  - Workflow owner assign steps to the right person
  - Assignee accepts steps
  - Assignee check if steps are ready for perform
  - Assignee “z/OSMF Administrator” plans user name & group name
  - Assignee “Security Administrator” creates user and connects it to group
  - Review History

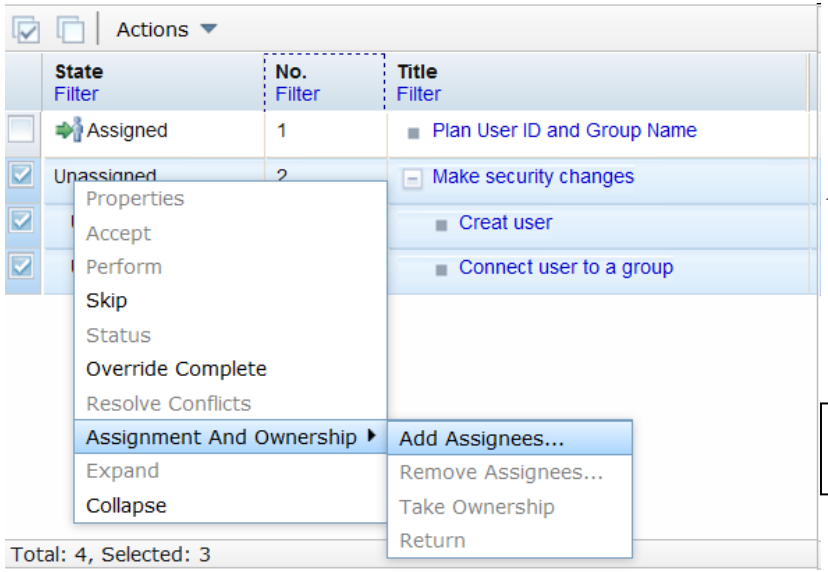
Create the workflow instance



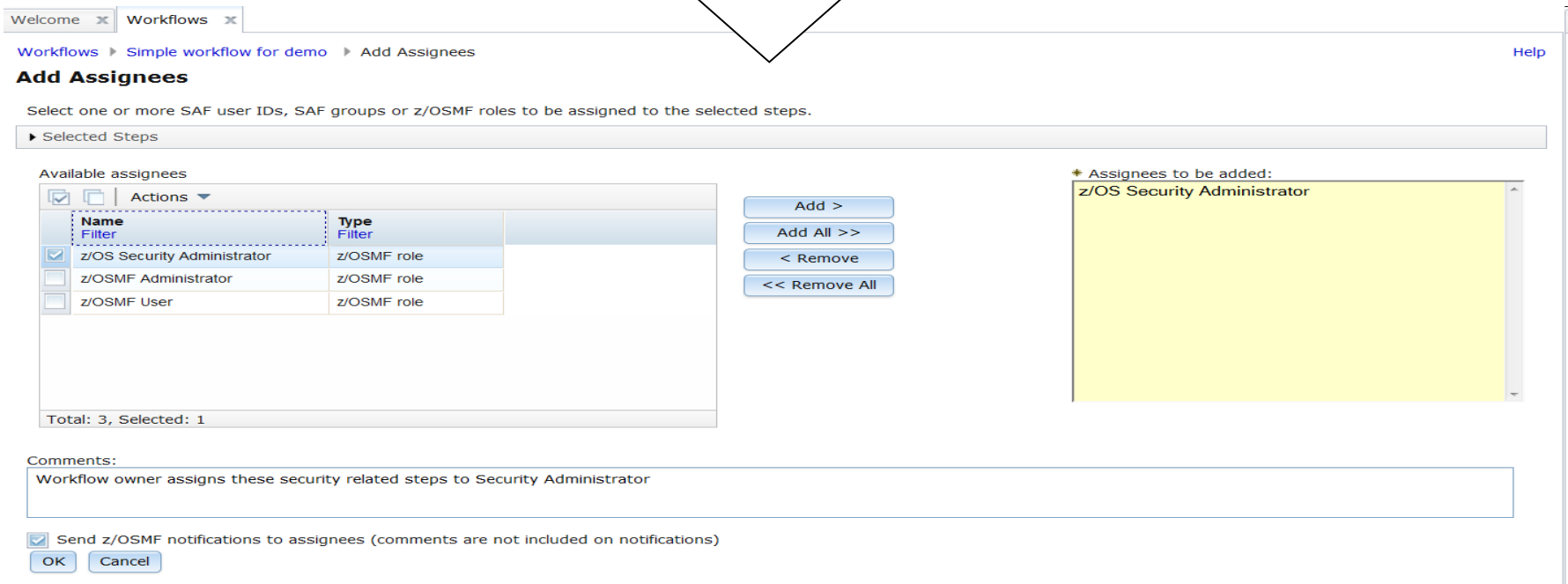
Be familiar with the workflow instance



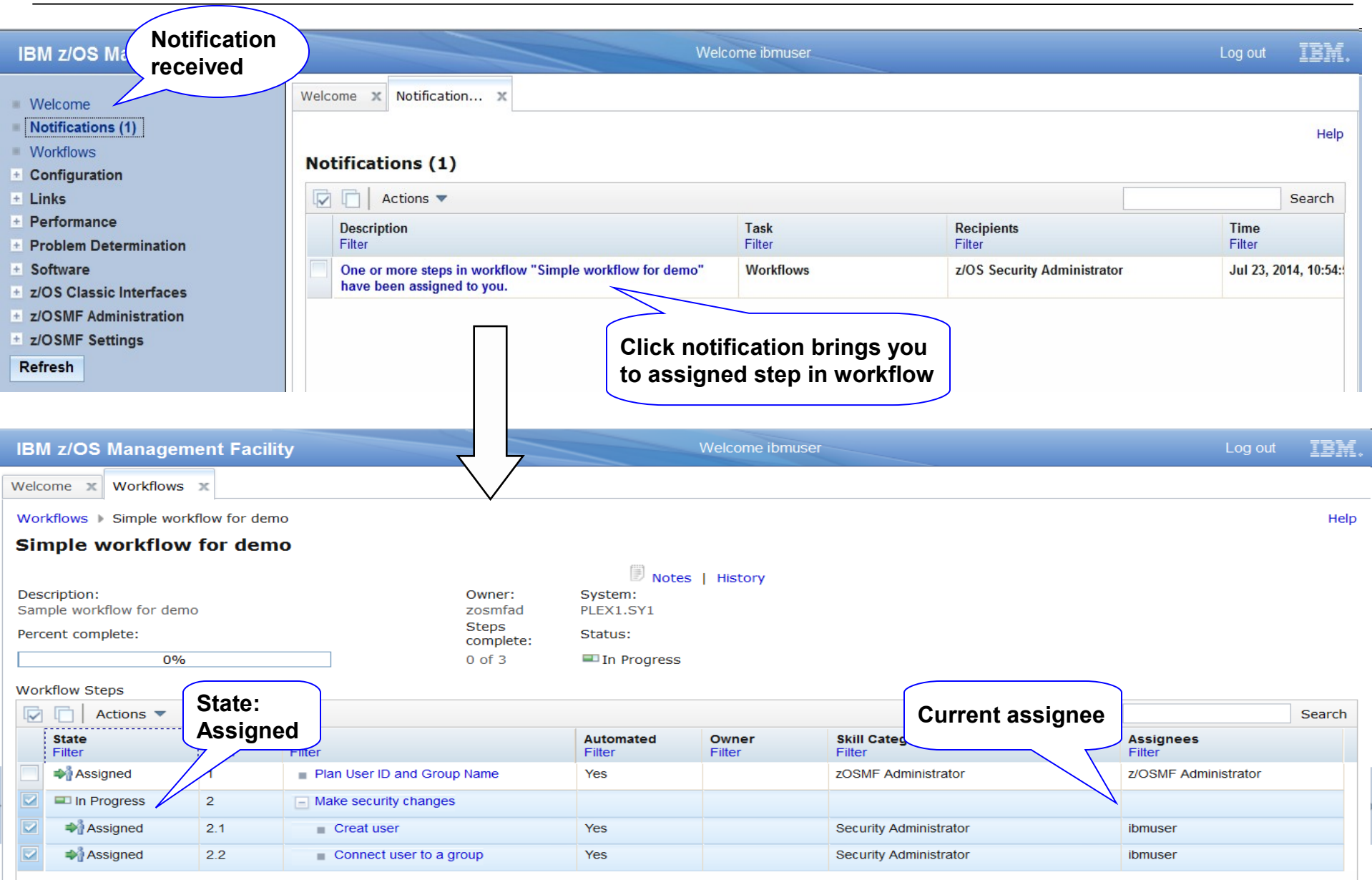
Workflow owner assign steps to the right person (Collaboration support I)



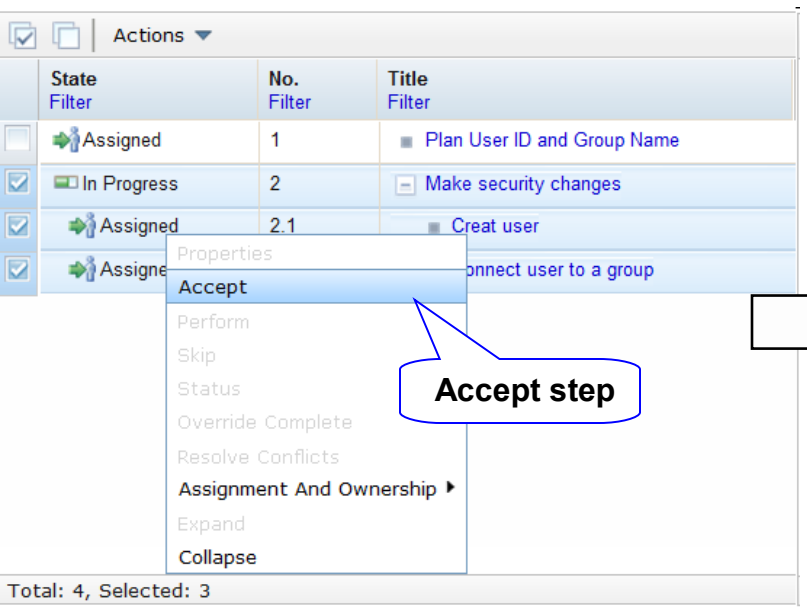
Assign security related steps to Security Administrator

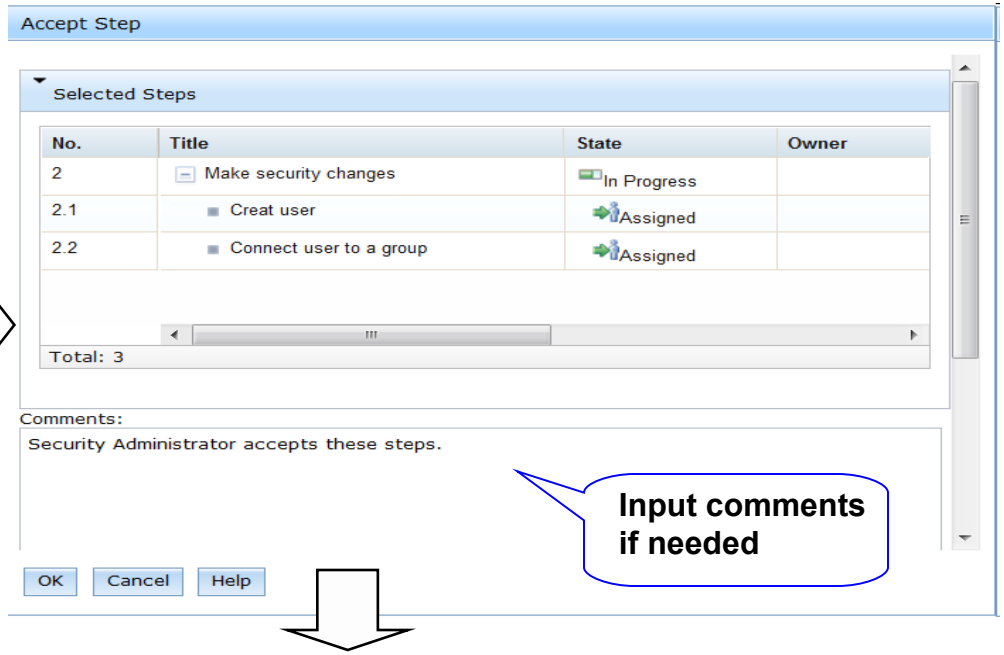


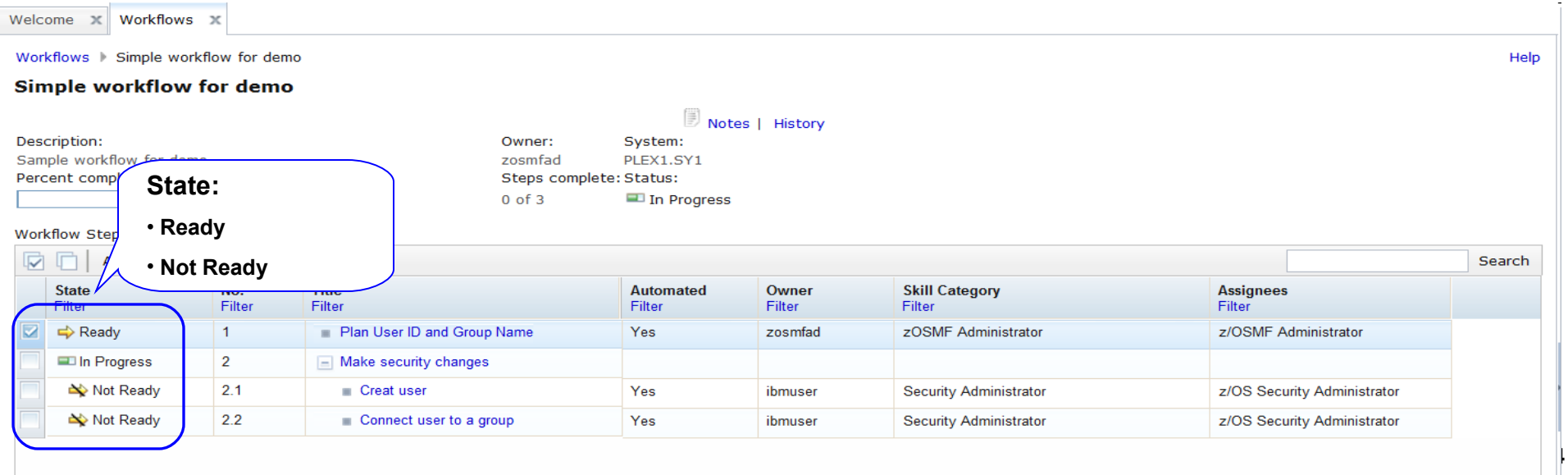
Workflow owner assign steps to the right person (Collaboration support II)



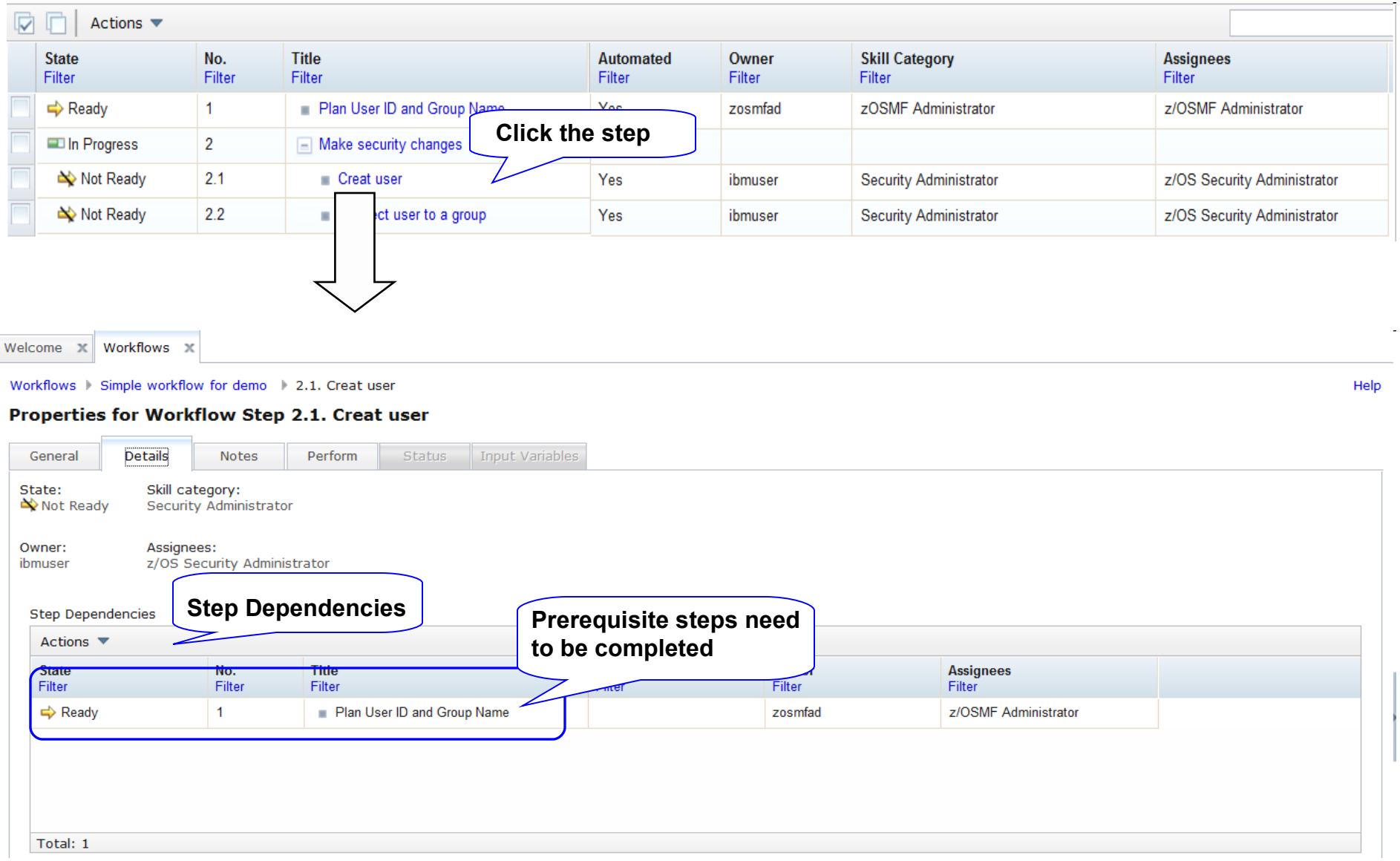
Assignee accepts steps (Collaboration support III)



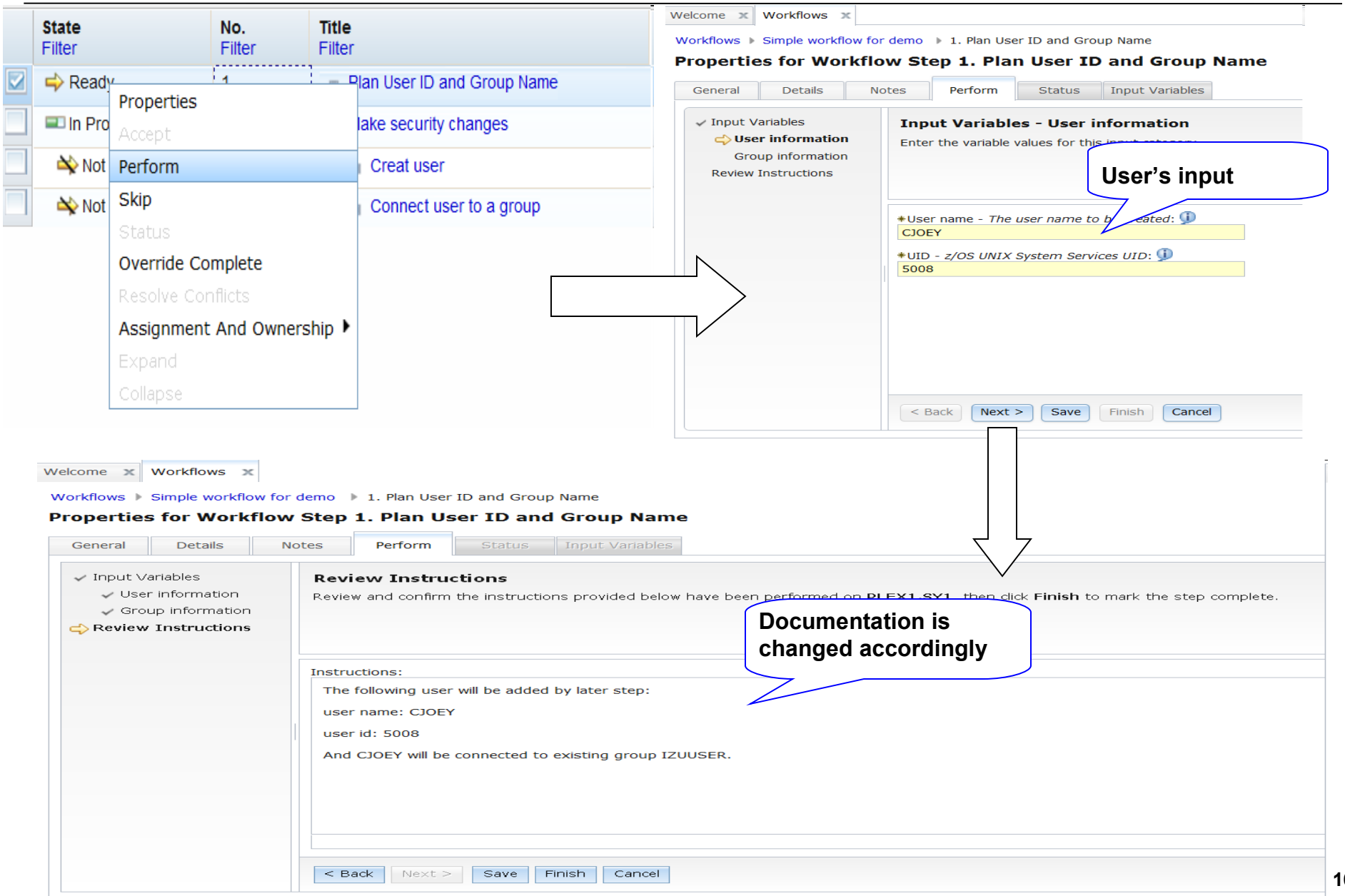




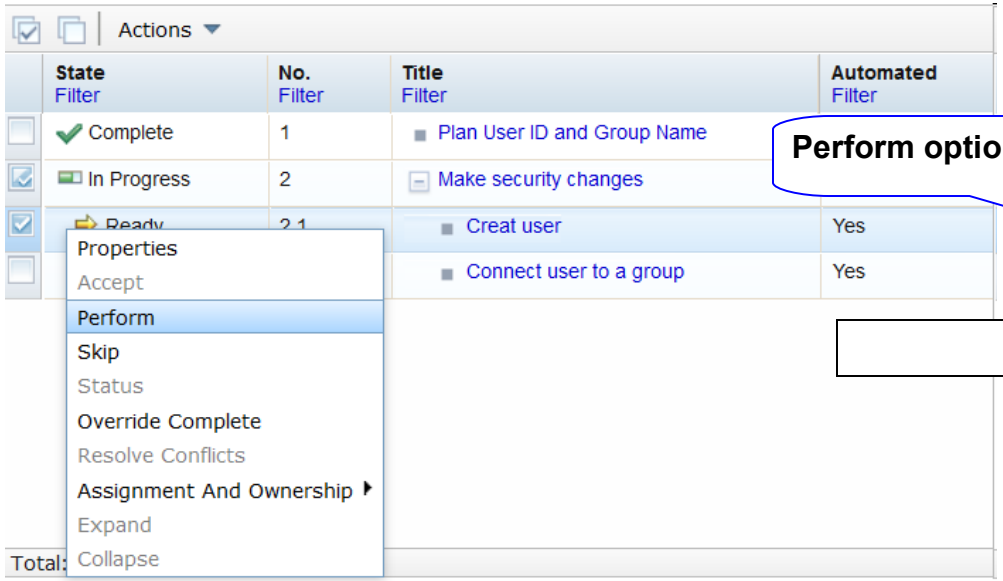
Assignee check if steps are ready for perform
(Dependency checking)



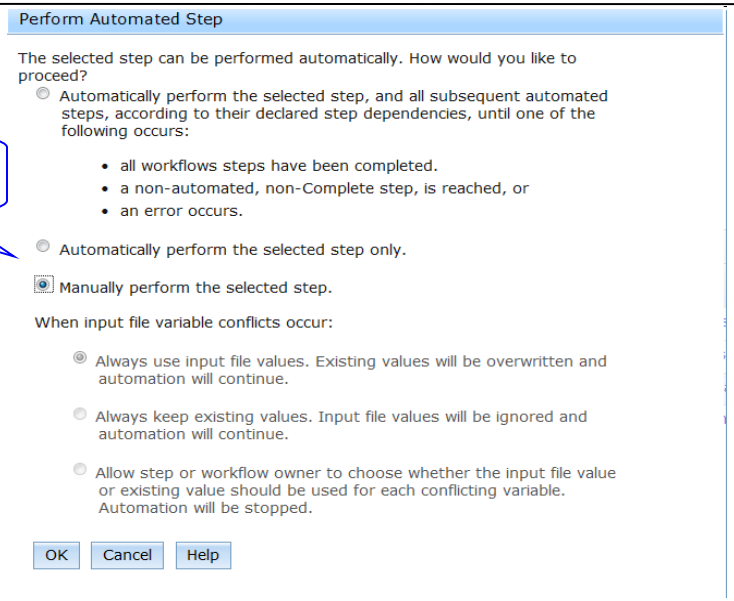
Assignee plans user name & group name (Instruct user via documentation)

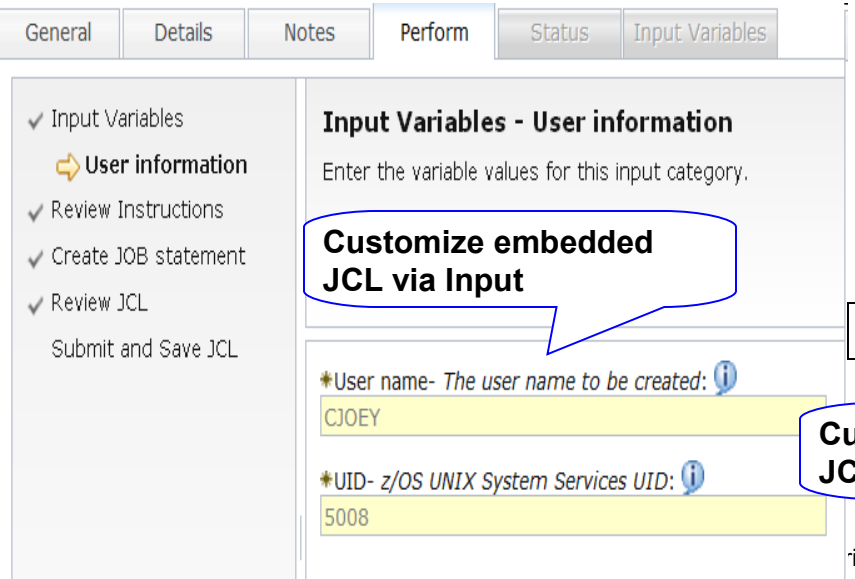


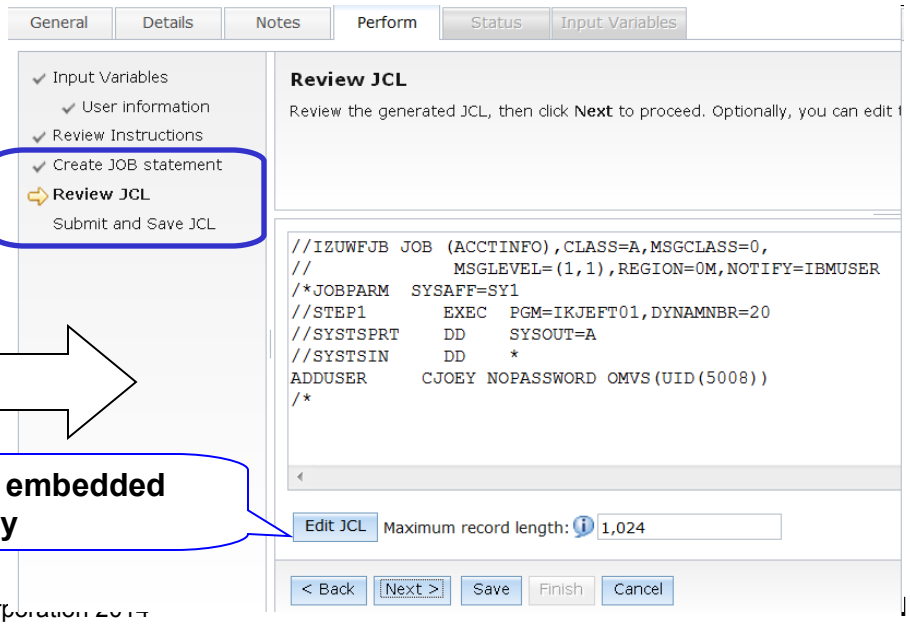
Assignee creates user and connects it to a group (JCL/REXX/SHELL support)



Perform options

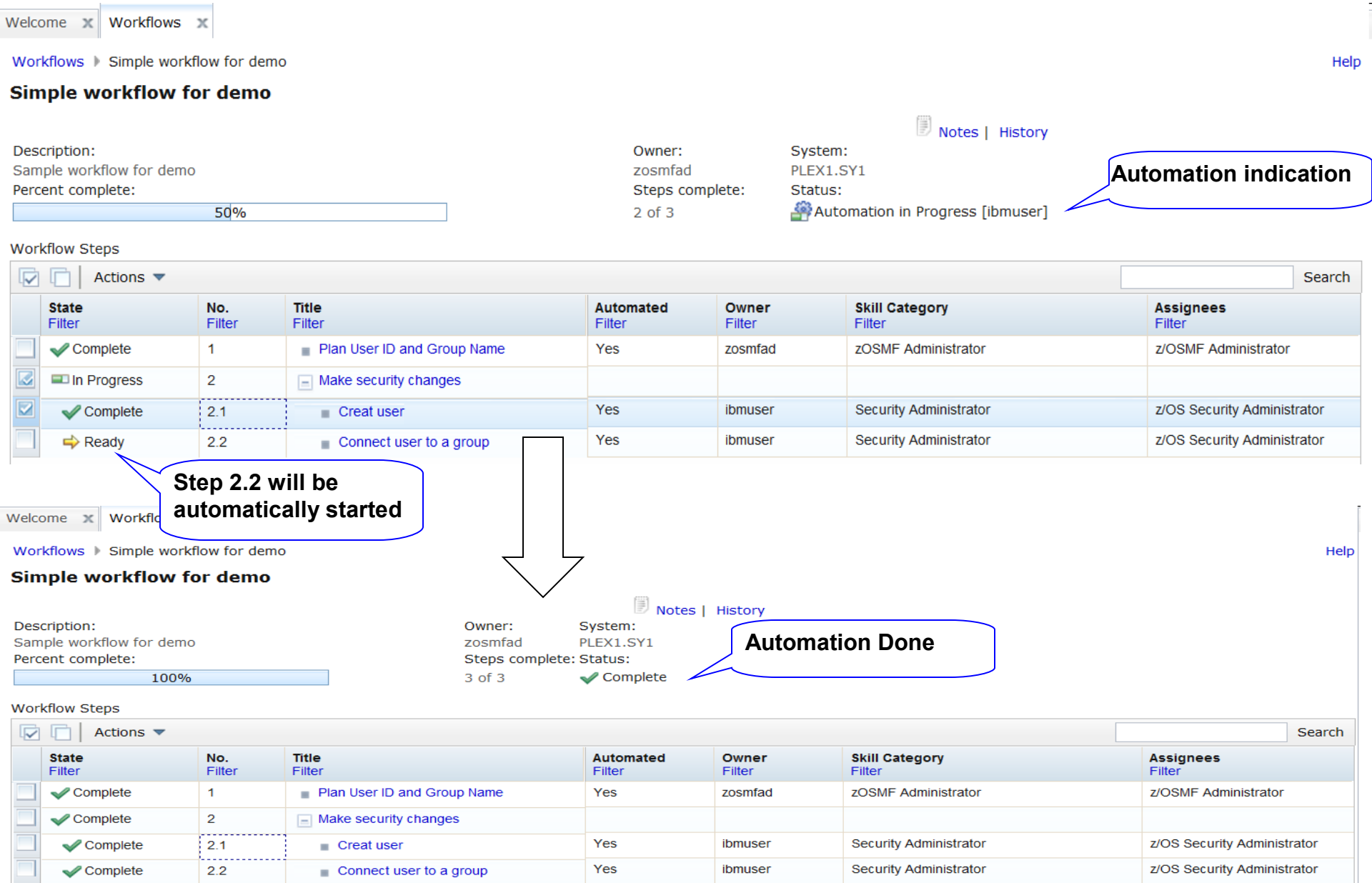






Customize embedded JCL directly

Assignee creates user and connects it to a group (Automation Support)



Review History

Welcome | Workflows

Workflows ▸ Simple workflow for demo ▸ History

History for Simple workflow for demo

Actions

Date and Time (GMT) Filter	Action Filter	Messages [More | Less] Filter	User ID Filter	Comments [More | Less] Filter
Jul 23, 2014, 2:37:19 PM	Workflow Created	IZUWF0020I:The workflow name is set to "Simple workflow for demo" . IZUWF0021I:The workflow owner is set to "zosmfad" . IZUWF0022I:The workflow system is set to "SY1" . [More]	zosmfad	
Jul 23, 2014, 2:44:21 PM	Step Assigned	IZUWF0025I:The following users have been assigned to step "Plan User ID and Group Name" : Users: "z/OSMF Administrator" IZUWF0026I:Step "Plan User ID and Group Name" has changed to state "Assigned" .	zosmfad	
Jul 23, 2014, 2:54:57 PM	Step Assigned	IZUWF0025I:The following users have been assigned to step "Creat user" : Users: "z/OS Security Administrator" IZUWF0026I:Step "Creat user" has changed to state "Assigned" . [More]	zosmfad	Workflow owner assigns these security related steps to Security Administrator.
Jul 23, 2014, 3:07:12 PM	Step Accepted	IZUWF0045I:User "ibmuser" has accepted step "Creat user" . This user is now the step owner. IZUWF0026I:Step "Creat user" has changed to state "Not Ready" . IZUWF0045I:User "ibmuser" has accepted step "Connect user to a group" . This user is now the step [More]	ibmuser	Security Administrator accepts these steps.
Jul 23, 2014, 3:10:42 PM	Step Accepted	IZUWF0045I:User "zosmfad" has accepted step "Plan User ID and Group Name" . This user is now the step owner. IZUWF0026I:Step "Plan User ID and Group Name" has changed to state "Ready" .	zosmfad	z/OSMF admin accepts this step to plan the user name to be created.
Jul 23, 2014, 3:30:55 PM	Step Completed	IZUWF0026I:Step "Plan User ID and Group Name" has changed to state "Complete" . IZUWF0026I:Step "Creat user" has changed to state "Ready" .	zosmfad	
Jul 23, 2014, 3:38:56 PM	Automation Started	IZUWF0160I:The automation processing for workflow "Simple workflow for demo" has been started by user "ibmuser" from step "Creat user" .	ibmuser	
Jul 23, 2014, 3:38:56 PM	Submitted	IZUWF0026I:Step "Creat user" has changed to state "Submitted" .	ibmuser	
Jul 23, 2014, 3:38:57 PM	Step Completed	IZUWF0026I:Step "Creat user" has changed to state "Complete" . IZUWF0026I:Step "Connect user to a group" has changed to state "Ready" .	ibmuser	
Jul 23, 2014, 3:38:59 PM	Automate Step Complete	IZUWF0164I:Automation processing for step "Creat user" is complete.	ibmuser	
Jul 23, 2014, 3:38:59 PM	Submitted	IZUWF0026I:Step "Connect user to a group" has changed to state "Submitted"	ibmuser	

Total: 15, Selected: 0

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z/OSMF Problem Determination – Incident Log

- **Auto-capture basic diagnostic materials, triggered when the dump is written to a data set**
  - Diagnostic data “snapshots” for transient data: Snapshots of 30 min OPERLOG or SYSLOG, 1 hr LOGREC detail, and 4-hour LOGREC summary
    - Incident Log will also support the creation of diagnostic log snapshots based on the SYSLOG and LOGREC data sets, as well as the OPERLOG and LOGREC sysplex log streams
  - View, sort, and act on abend related incidents (identified by subsystem)
  - Package dump and log data for transmission in minutes

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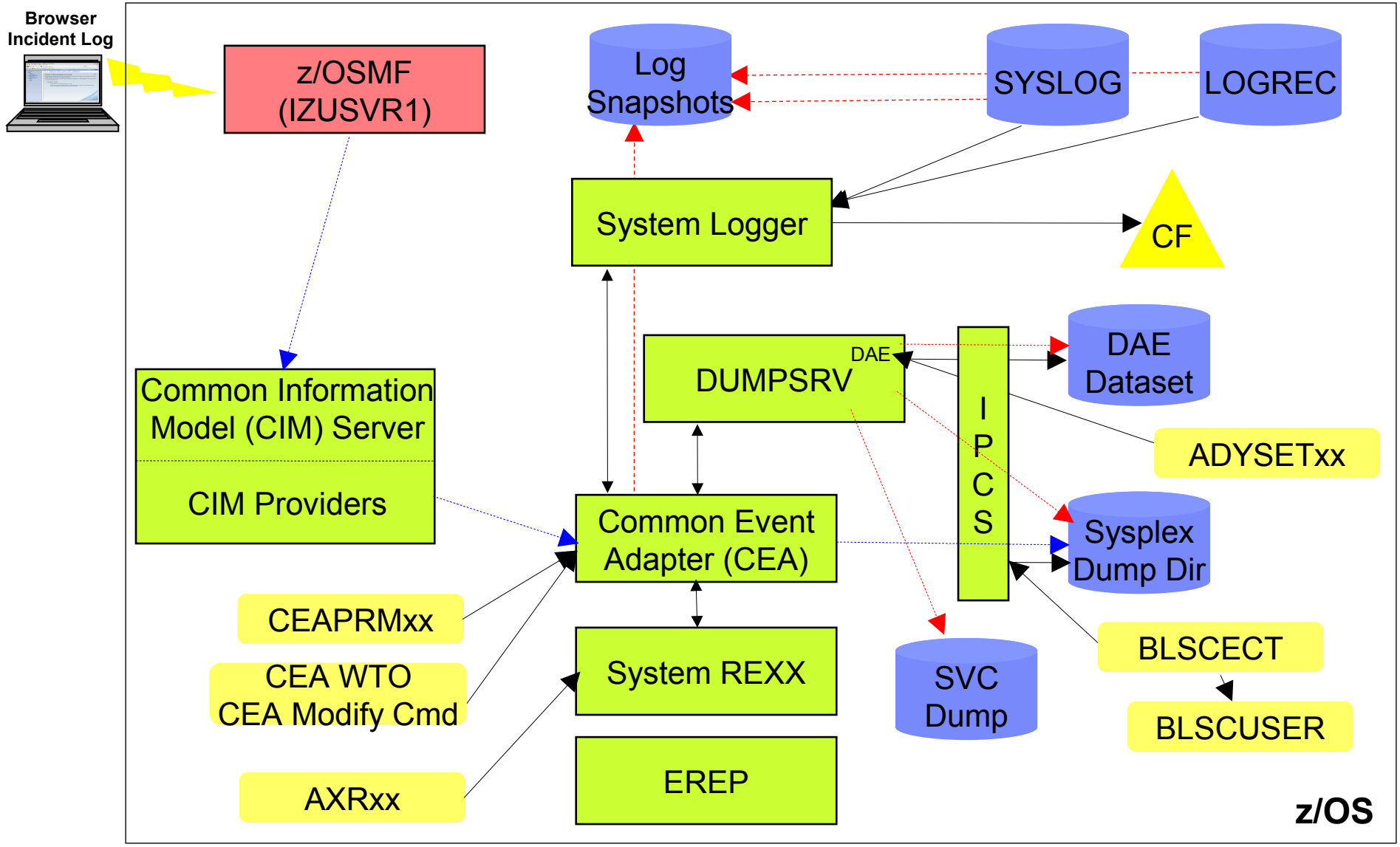
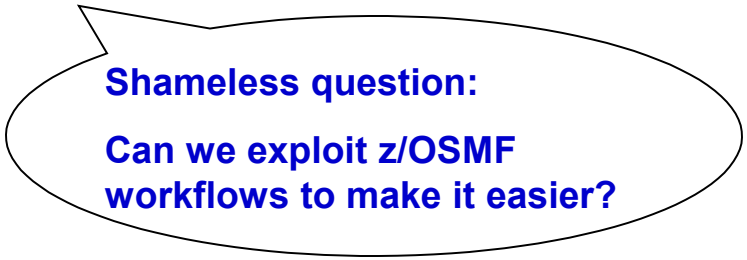
z/OS Infrastructure for Full Incident Log Functionality



Configure z/OS for Full Incident Log Functionality

- **z/OSMF's Incident Log exploits existing best practices for data management for problem determination**.
  1. Ensure that the Common Information Model (CIM) server is configured on your system, including security authorizations and file system customization.
  2. Optional: Use of System Logger for SYSLOG (OPERLOG) and LOGREC
  3. Enable error and message log snapshots on the host system, or optionally on a sysplex-wide basis.
  4. Automatic Dump Data Set Allocation
  5. Dump analysis and elimination (DAE) is active and its symptom data set is available
  6. Sysplex Dump Directory (required)
  7. Ensure that the common event adapter (CEA) component is configured on your system, including security authorizations.
  8. Ensure that System REXX (SYSREXX) is set up and active on your system.
  9. If your installation has chosen to rename a dump data set, ensure that the data set name in the sysplex dump directory is correct.



Configure z/OS for Full Incident Log Functionality …

- (1) **CIM server setup**
  - Incident Log task requires that the Common Information Model (CIM) server be setup and running
  - CIM includes jobs to help you perform these tasks (CFZSEC and CFZRCUST). See the chapter on CIM server quick setup and verification in *z/OS Common Information Model User's Guide*, SC33-7998.
  - When configuring Incident Log plug-in or the Workload Management plug-in, the z/OSMF administrator user must have the proper level of access to the CIM server resources
  - Ensure that the CIM server is active on the system before continuing to the –finish step of configuring z/OSMF.
    - You can verify that the CIM server is started by entering a command like the following: D A,CFZCIM

Configure z/OS for Full Incident Log Functionality …

- (2) **Use of System Logger for SYSLOG (OPERLOG) and LOGREC**
  - OPERLOG and LOGREC are important z/OS diagnostic logs that provide a recording of system activity.
  - The OPERLOG and LOGREC log streams capture message and error log information from all systems in the sysplex, and writes that information to log streams managed by the system logger component of z/OS.
  - The log streams should be written to coupling facility structures (in non-monoplex environments) and are ultimately backed up to system managed storage (SMS)-DASD data sets.
  - The OPERLOG and LOGREC log streams have been the strategic method for capturing sysplex-scope log data for many years.
  - In the z/OSMF's Incident Log, the log streams are used to automate the gathering of diagnostic data (log snapshots) associated with an SVC dump.
  - Sample jobs are documented in the z/OSMF Configuration Guide.
  - Additional information documented in the August 2009 Hot Topics Newsletter

Notes:

1. Recommended for multi-system Parallel Sysplex environments
2. As of V1.12, SYSLOG and LOGREC datasets can be used instead to capture snapshots on DASD shared between the systems.

Configure z/OS for Full Incident Log Functionality …

- (4) **Automatic Dump Data Set Allocation**
  - SVC dump processing supports automatic allocation of dump data sets at the time the system writes the dump to DASD. Automatically allocated dumps will be written using the system-determined block size. The dump data sets can be allocated as SMS-managed or non-SMS-managed, depending on the VOLSER or SMS classes defined on the DUMPDS ADD command. When the system captures a dump, it allocates a data set of the correct size from the resources you specify.
    - Using Extended Format Sequential data sets, the maximum size of the dump can exceed the size allowed for non-SMS managed data sets.
    - If automatic allocation fails, pre-allocated dump data sets are used. If no pre-allocated SYS1.DUMPnn data sets are available, message IEA793A is issued, and the dump remains in virtual storage. SVC Dump periodically retries both automatic allocation and writing to a pre-allocated dump dataset until successful or until the captured dump is deleted either by operator intervention or by the expiration of the CHNGDUMP MSGTIME parameter governing message IEA793A.
      - If you set the MSGTIME value to 0, the system will not issue the message, and it deletes the captured dump immediately.
  - If you rename the dump data set, or copy it to another data set, you must include a batch job to update the dump data set name in the sysplex dump directory.
    - Doing so will allow Incident prepare and send to locate the dump.
    - See the z/OSMF Configuration Guide for more info.
  - Instructions on setting up automatic dump data set allocation is documented in the z/OSMF Configuration Guide.

Configure z/OS for Full Incident Log Functionality …

- (5) **Dump analysis and elimination (DAE)**
  - Dump analysis and elimination (DAE) allows an installation to suppress SVC dumps and SYSMDUMP ABEND dumps that are not needed because they duplicate previously written dumps. To identify the cause of previous and requested dumps, DAE uses symptom strings, which contain data that describes a problem. DAE stores these symptom strings in a DAE data set that you provide.
  - You can use the DAE data set in a single-system environment, or the systems in a sysplex can share a single DAE data set.
    - IBM suggests that you provide a name other than SYS1.DAE for the DAE data set to be shared in the sysplex.
  - z/OSMF uses a shared DAE data set to allow the user to enable future dumps that occur on any system in the sysplex to be captured (not suppressed)
  - Instructions on setting up the a shared DAE environment is documented in the z/OSMF Configuration Guide.

Configure z/OS for Full Incident Log Functionality …

- (6) **Sysplex Dump Directory**
  - The sysplex dump directory describes the SVC dumps generated by a sysplex in a central, compact, and manageable place. If you have write access, you can add source descriptions for other unformatted dumps that IPCS can format and for trace data sets.
  - When setting up the sysplex dump directory, arrange for all systems in the sysplex to share it:
    - Use the default name of SYS1.DDIR for the sysplex dump directory or specify the same name for it in the SYSDDIR statement in the BLSCUSER PARMLIB member.
    - Place the data set for the sysplex dump directory on a DASD shared by all systems in the sysplex.
    - When a system that has access to a sysplex dump directory generates an SVC dump, the system automatically records the source description for it in the sysplex dump directory. IPCS adds the source description without initializing the dump, which takes time.
  - Authorized users can access the sysplex dump directory and edit it.
  - Do not access the sysplex dump directory via a ISPF IPCS session
    - Doing so will lockout DUMPSRV and CEA, resulting in dumps not being recorded in the directory, and not appearing in the Incident Log summary
  - z/OSMF Incident Log uses the sysplex dump directory to get the dump data set name and display Summary and Detail information of incidents
  - Instructions on setting up the sysplex dump directory is documented in the z/OSMF Configuration Guide.

Configure z/OS for Full Incident Log Functionality …

(7) **Customizing CEA**

- Common event adapter (CEA) is a component of the BCP that provides the ability to deliver z/OS events to C-language clients, such as the z/OS CIM server. A CEA address space is started automatically during initialization of every z/OS system.
- CEA has two modes of operation:
  - ***Full function mode***. In this mode, both internal z/OS components and clients such as CIM providers can use CEA indication functions.
  - ***Minimum mode***. In this mode, only internal z/OS components can use CEA indication functions.
- Incident Log requires CEA in full function mode.
- To start CEA in full function mode, perform the following customization:
  - Define user ID CEA to the security product
    - The CEA sample job CEASEC can be used as a model
  - Give user ID CEA read access to the profile protecting SYS1.PARMLIB:
  - The user ID CEA needs write and execute access to the z/OS UNIX directory, /SYSTEM/var
- If CEA is running in minimum mode, you can change to full function mode by:
  - Making the security definitions above,
  - Stopping CEA (P CEA), and restarting it (S CEA).
- Other customization that you might have to perform for CEA is the following:
  - If your system will run with multilevel security, allow CEA to perform multilevel security file accesses you'll need additional security definitions
  - If your MAXCAD setting in PARMLIB member IEASYS*xx* is inadequate to accommodate the data space created by CEA, raise the setting.

z/OS Functionality for Incident Log - Summary

z/OS Function	z/OSMF Incident Log capability if enabled	z/OSMF Incident Log capability if NOT enabled
Sysplex Dump Directory	**z/OSMF can display summary and details of incidents**	**None – function required**
OPERLOG and LOGREC use of System Logger	**Log snapshots are gathered for the entire sysplex**	**Log snapshots gathered for the specific system**
Shared dump analysis and elimination (DAE)	**z/OSMF can make DAE let future dumps be captured on any system in the sysplex**	**z/OSMF can NOT make DAE let future dumps be captured on other systems in the sysplex**
Automatic Dump Data Set Allocation	**Dump included in diagnostic data gathered and sent**	**Dump NOT included in diagnostic data gathered and sent[1]**
AMATERSE program is enabled	**Dump included in diagnostic data gathered and sent**	**Can NOT prepare or send any diagnostic data**
CIM, CEA, and SYSREXX enabled and active	**z/OSMF can display incidents**	**None – function required**
Problem Documentation Upload Utility	**Supports parallel encrypted FTP to IBM[2]**	**Dump not encrypted nor broken into multiple data sets**
Keep IBM default name in IEAVTSEL - Post Dump Exit	**z/OSMF can display summary and details of incidents**	**None – function required**

1 – Depending on how you archive and reuse your dumps, some capabilities may exist to send dumps as part of diagnostic data
2 – z/OS V1.12 requires the Problem Documentation Upload Utility to be downloaded and installed. In z/OS V1.13 and z/OSMF V2.1 the Problem Documentation Upload Utility is included

Agenda

- Overview of z/OSMF Workflows
- **Using Workflows to configure z/OSMF Incident Log**
  - Overview
  - Configuring z/OS Requirements for z/OSMF Incident Log (manual process)
  - **Configuring z/OS Requirements for z/OSMF Incident Log using the z/OSMF Configuration Workflow ****
- Using Workflows to configure zEDC
  - Overview
  - Configuring z/OS Requirements for zEDC (manual process)
  - Configuring z/OS Requirements for zEDC using the zEDC Workflow

** Latest updates are available for z/OSMF V2.1 with APAR PI20091

Configure z/OS for z/OSMF Incident Log using workflow

- Process is implemented to several steps in one workflow:
  - Create workflow instance 
  - Be familiar with the workflow
  - Assign steps to corresponding people for execution
  - Check if steps are ready to be performed
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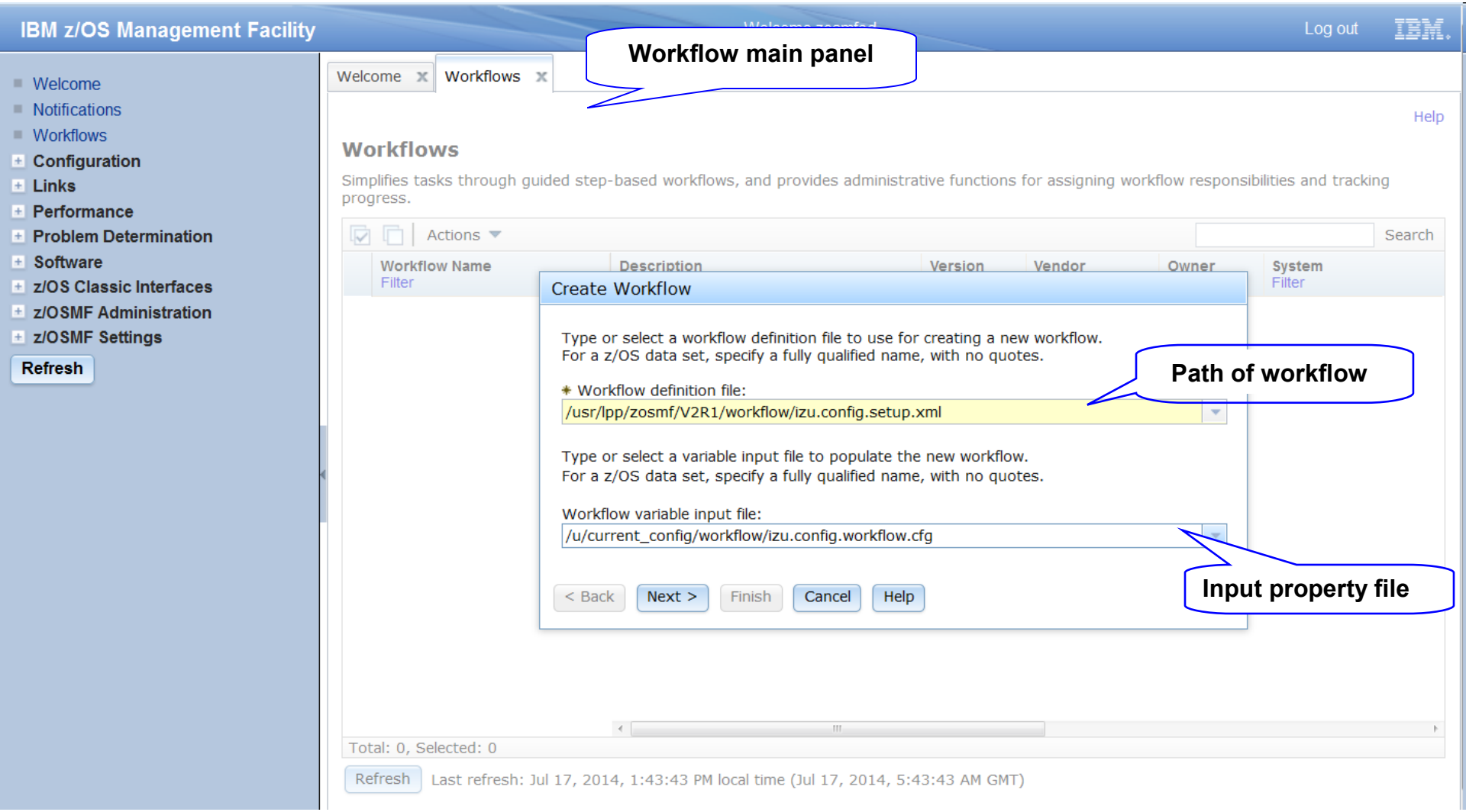
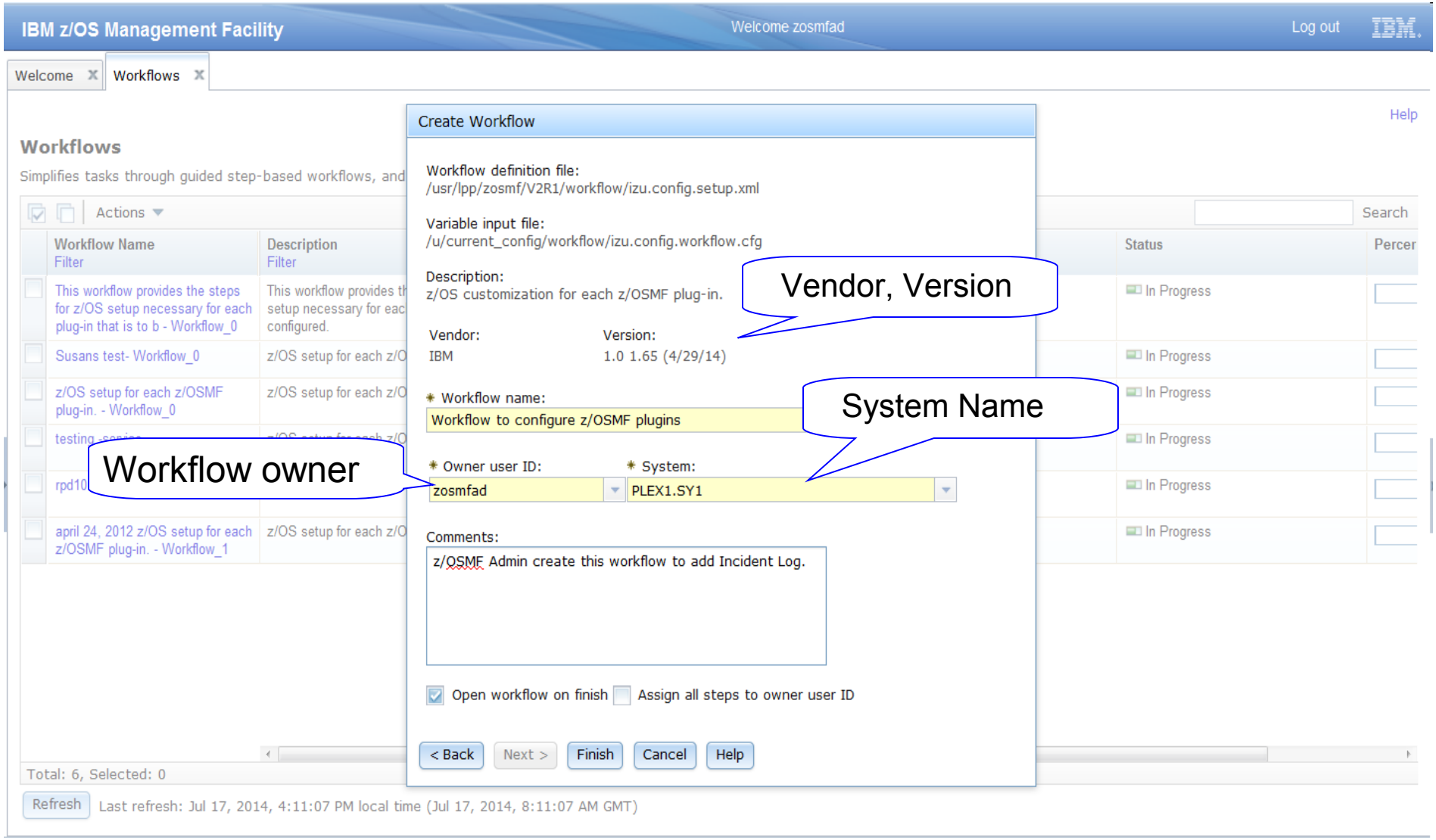
    - Configure Log snapshot
    - Enable Sysplex Dump Directory
    - Configure DAE
    - Enable automatic dump data set allocation
    - Configure CEA
    - Ensure SYSREXX is setup and active
  - Add Incident Log plugin

Create workflow instance I



Create workflow instance II



Configure z/OS for z/OSMF Incident Log using workflow

- Process is implemented to several steps in one workflow:
  - Create workflow instance (Ignored)
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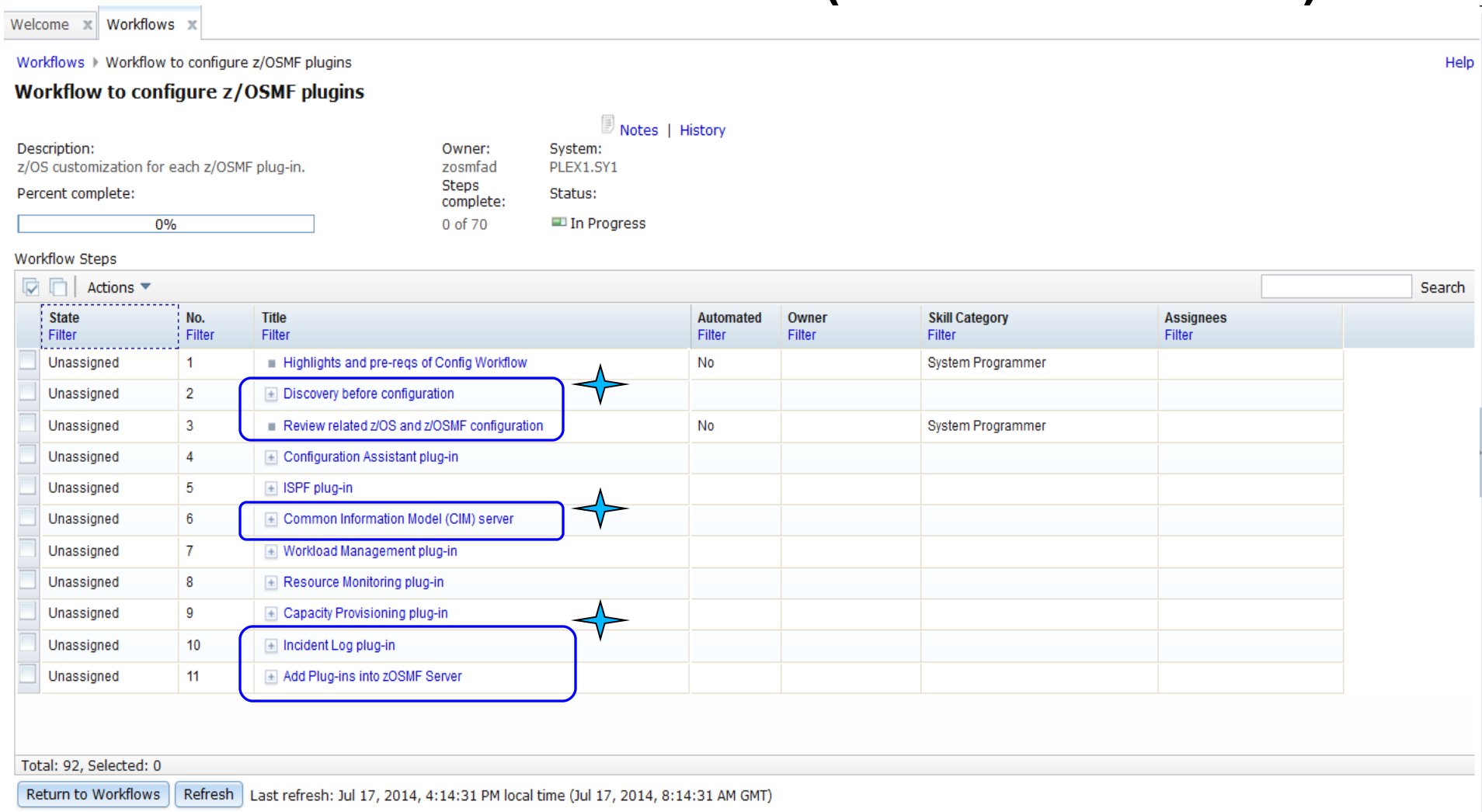
Support of embedded JCL/REXX

Support of embedded JCL/REXX

Be familiar with the workflow (Streamline tasks)



Steps needed for Incident Log

Configure z/OS for z/OSMF Incident Log using workflow

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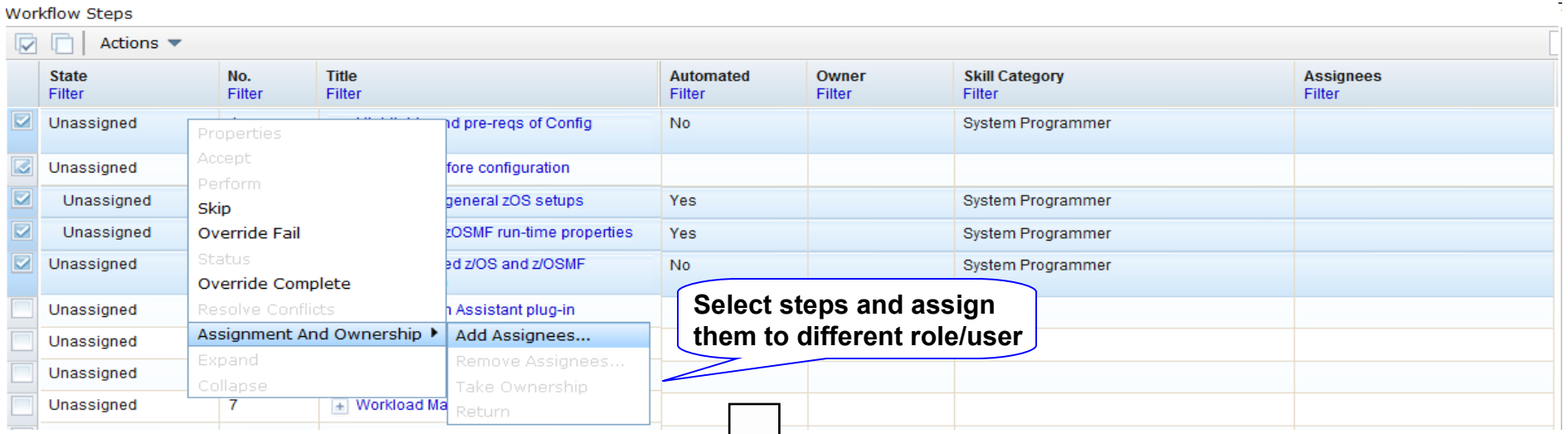
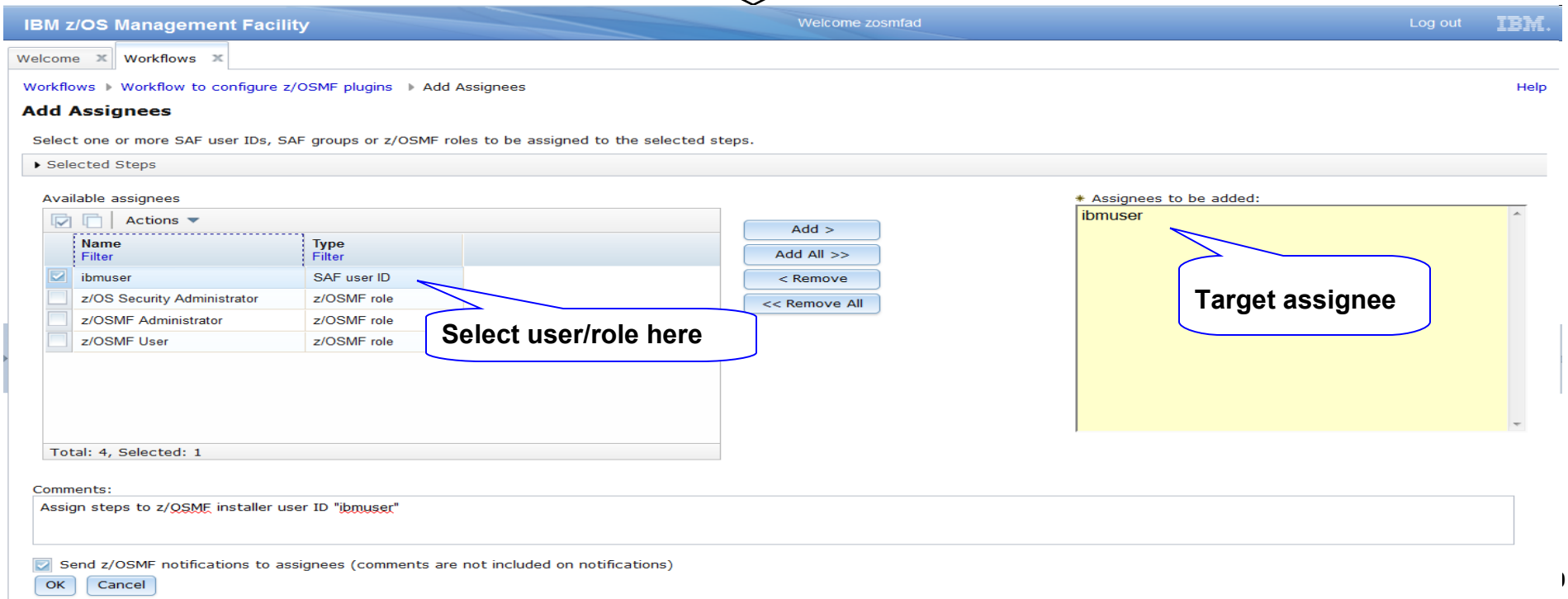
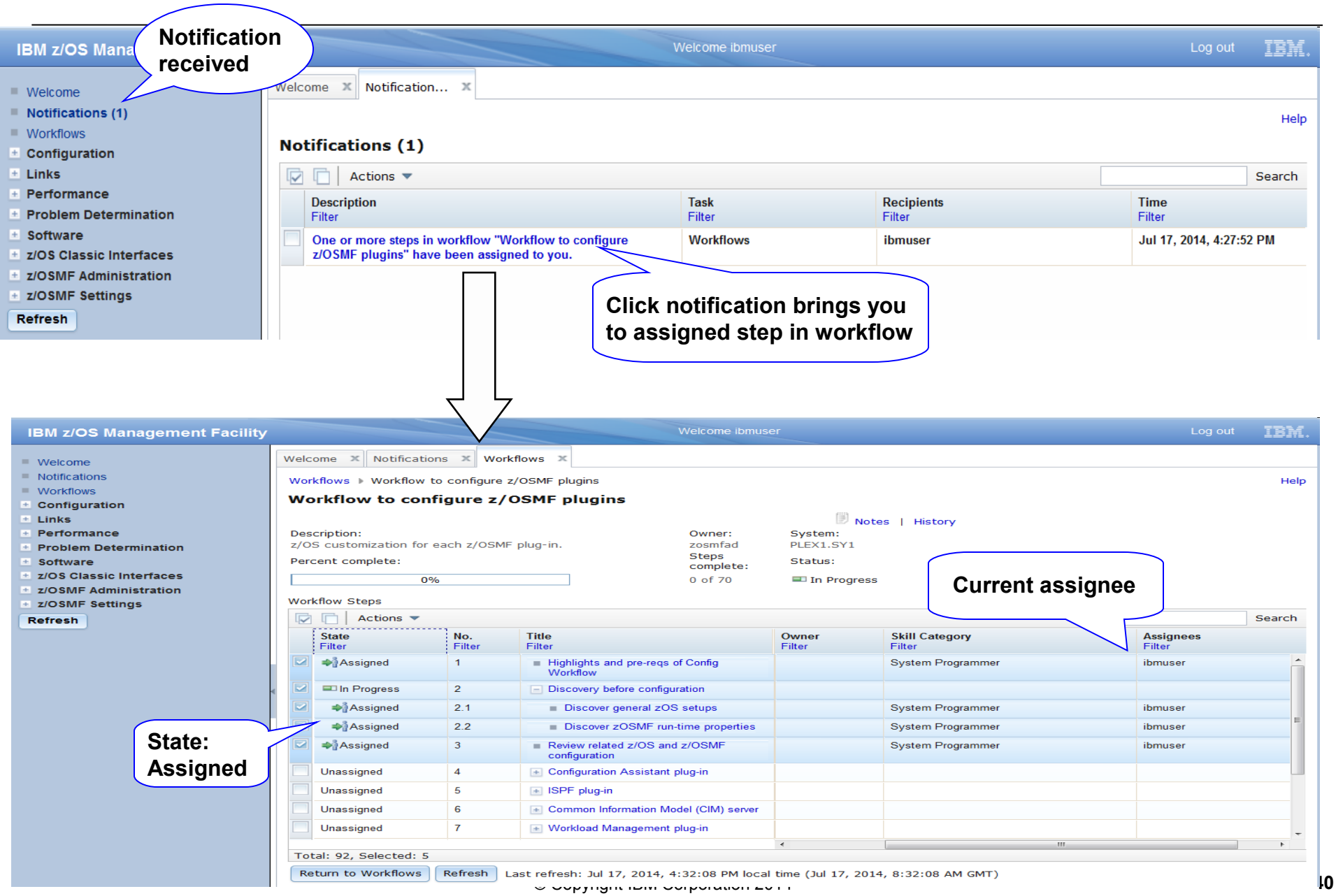
Assign steps (Collaboration support)

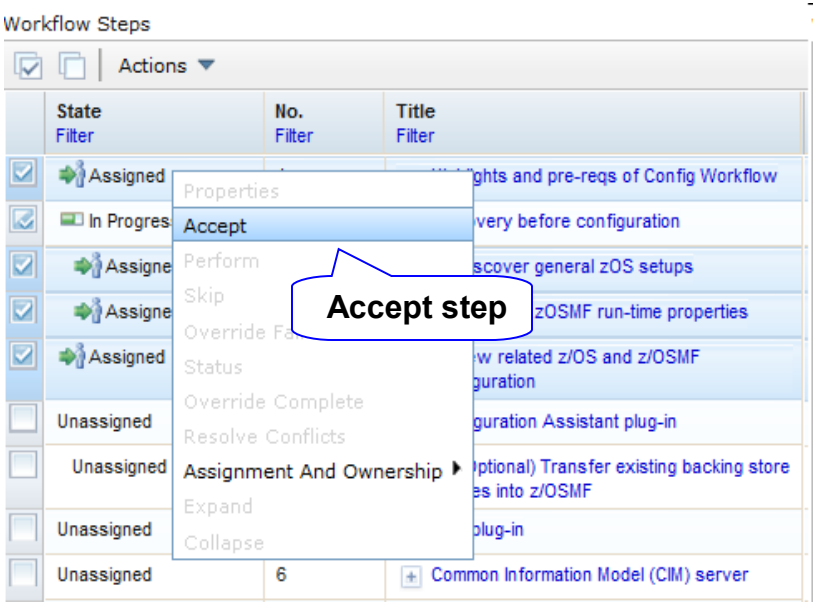


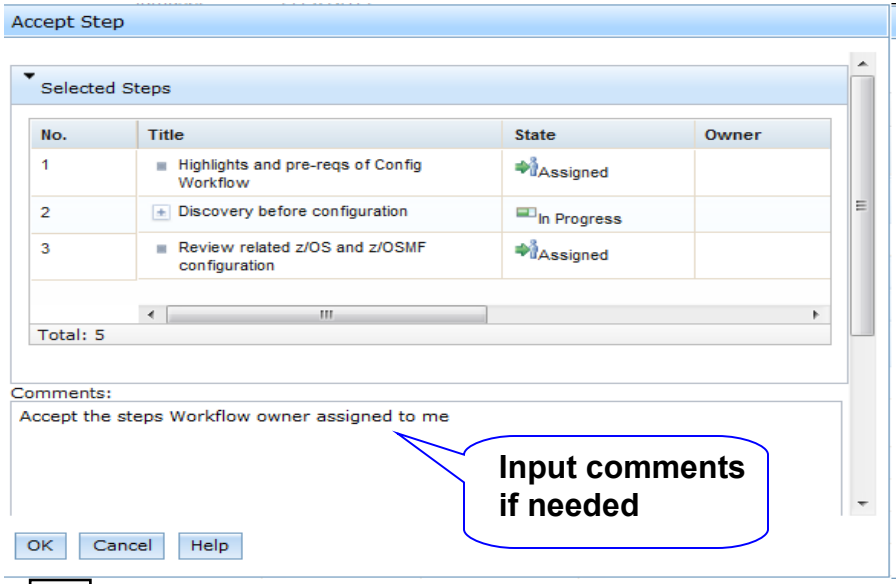


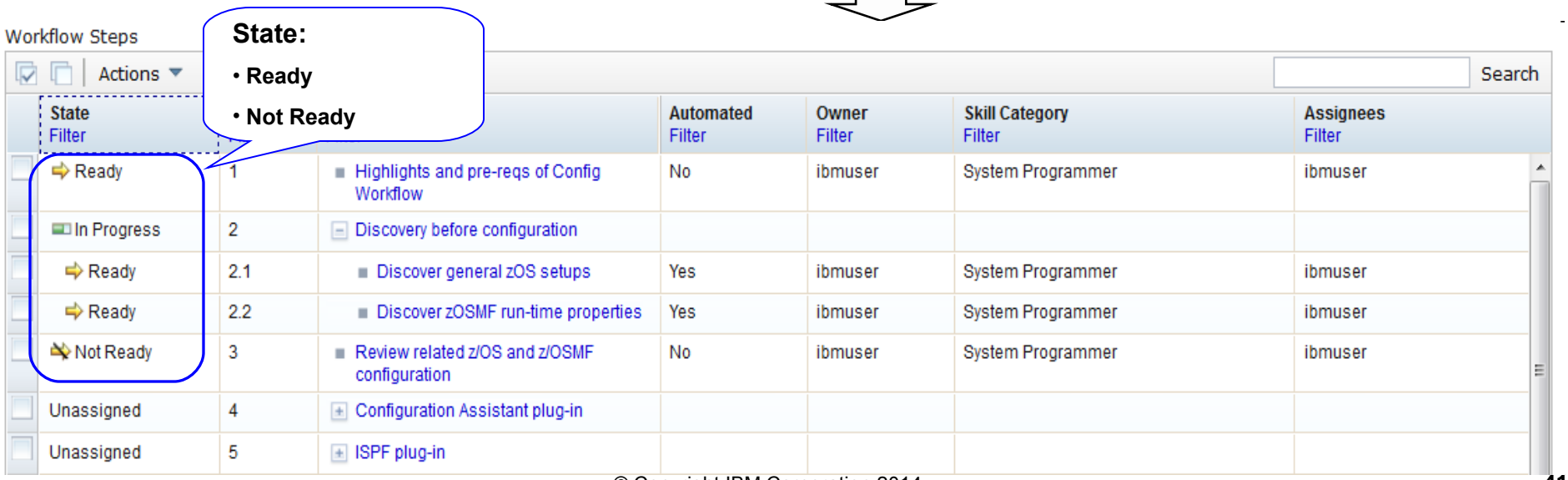
Assignee receives the notification (Collaboration support)



Assignee accept the assigned steps (Collaboration support)







Configure z/OS for z/OSMF Incident Log using workflow

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    - Configure CEA
    - Ensure SYSREXX is setup and active
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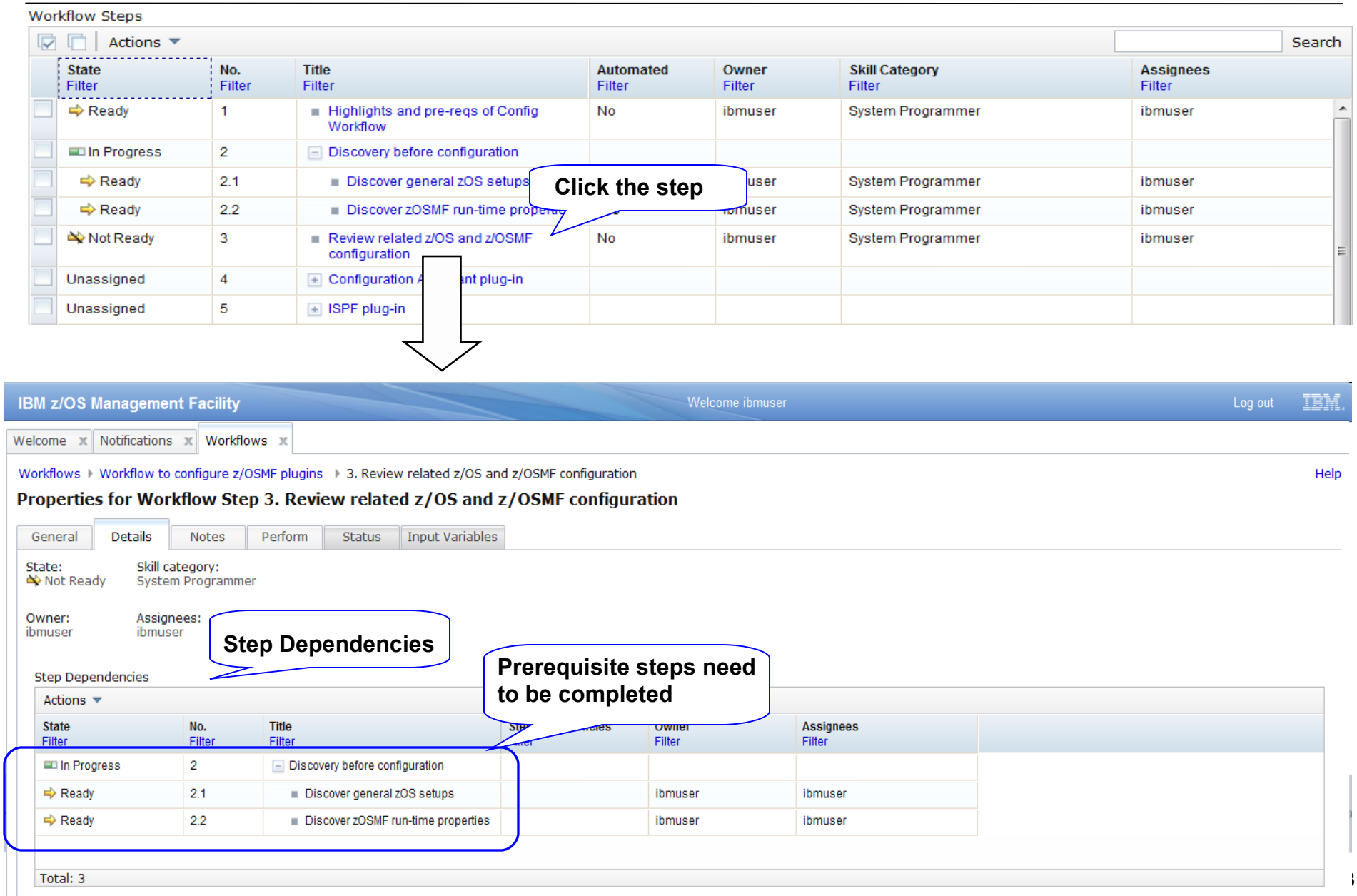
Check if steps are ready to be performed (Dependency checking)



Check the activities we have done (Support History)

Configure z/OS for z/OSMF Incident Log using workflow

- Process is implemented to several steps in one workflow:
  - Create workflow instance (Ignored)
  - Be familiar with the workflow
  - Assign steps to corresponding people for execution (Ignored)
  - Check if steps are ready to be performed (Ignored)
  - Check current z/OS and z/OSMF configuration for planning 
  - Customize z/OS for Incident Log (Discover → Review → Customization)
    - Configure CIM
    - Configure Log snapshot
    - Enable Sysplex Dump Directory
    - Configure DAE
    - Enable automatic dump data set allocation
    - Configure CEA
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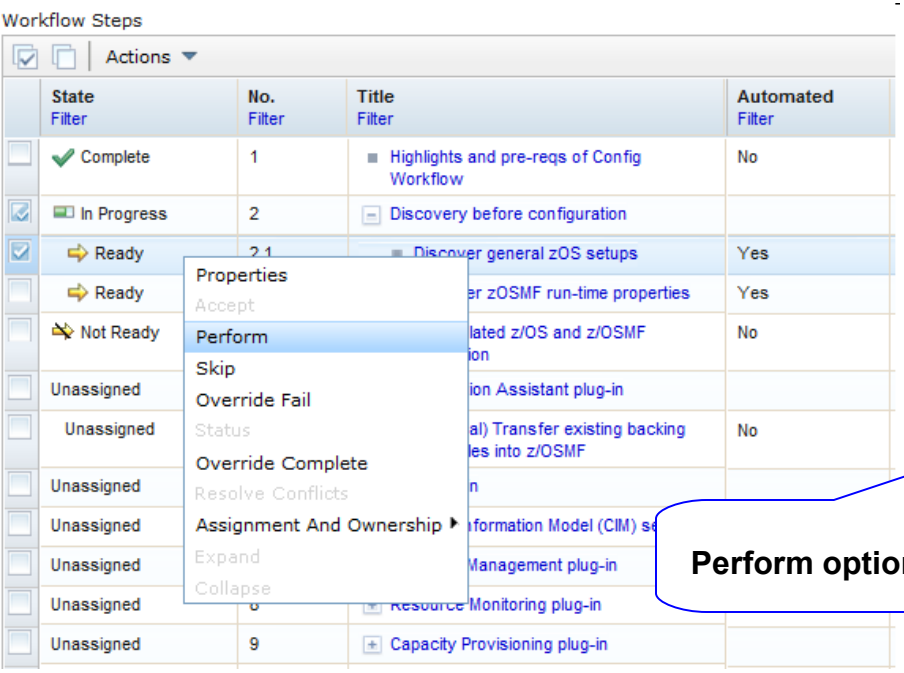
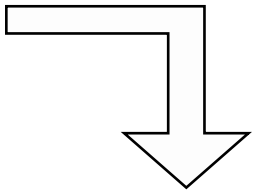
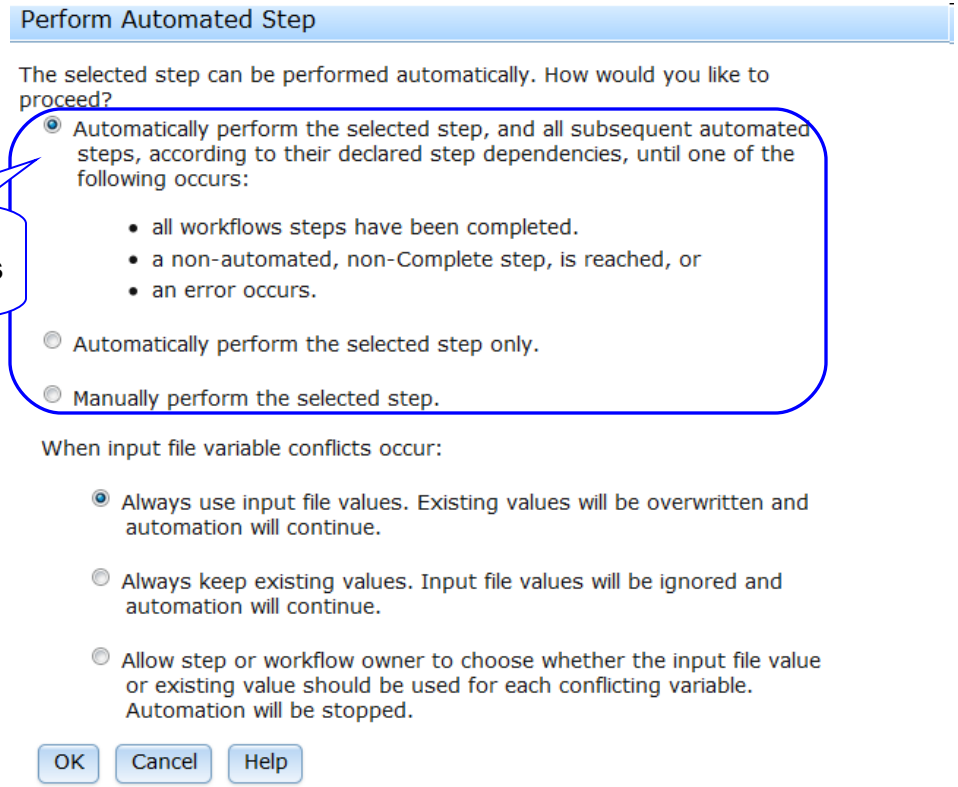
Check current z/OS and z/OSMF configuration

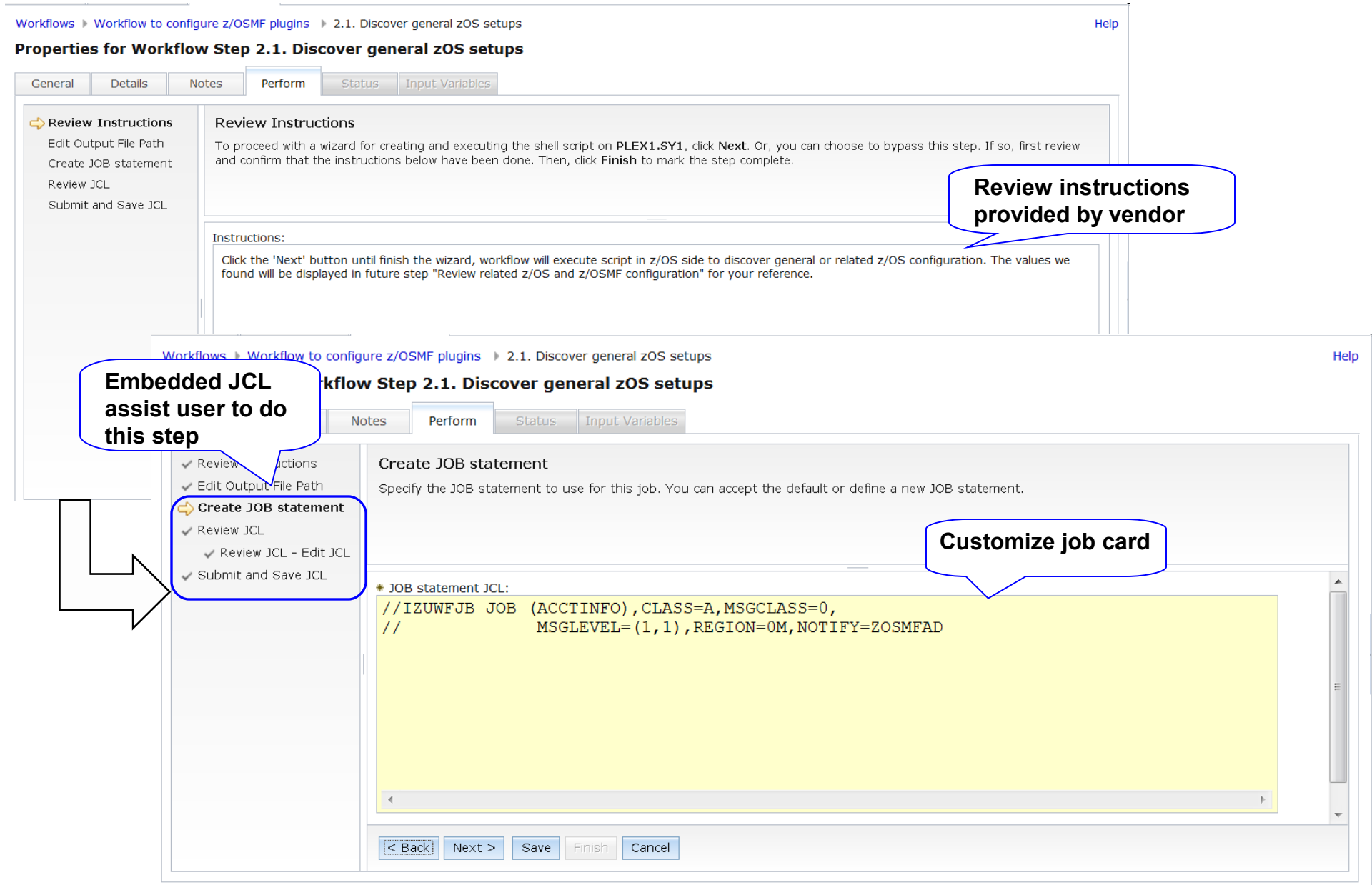




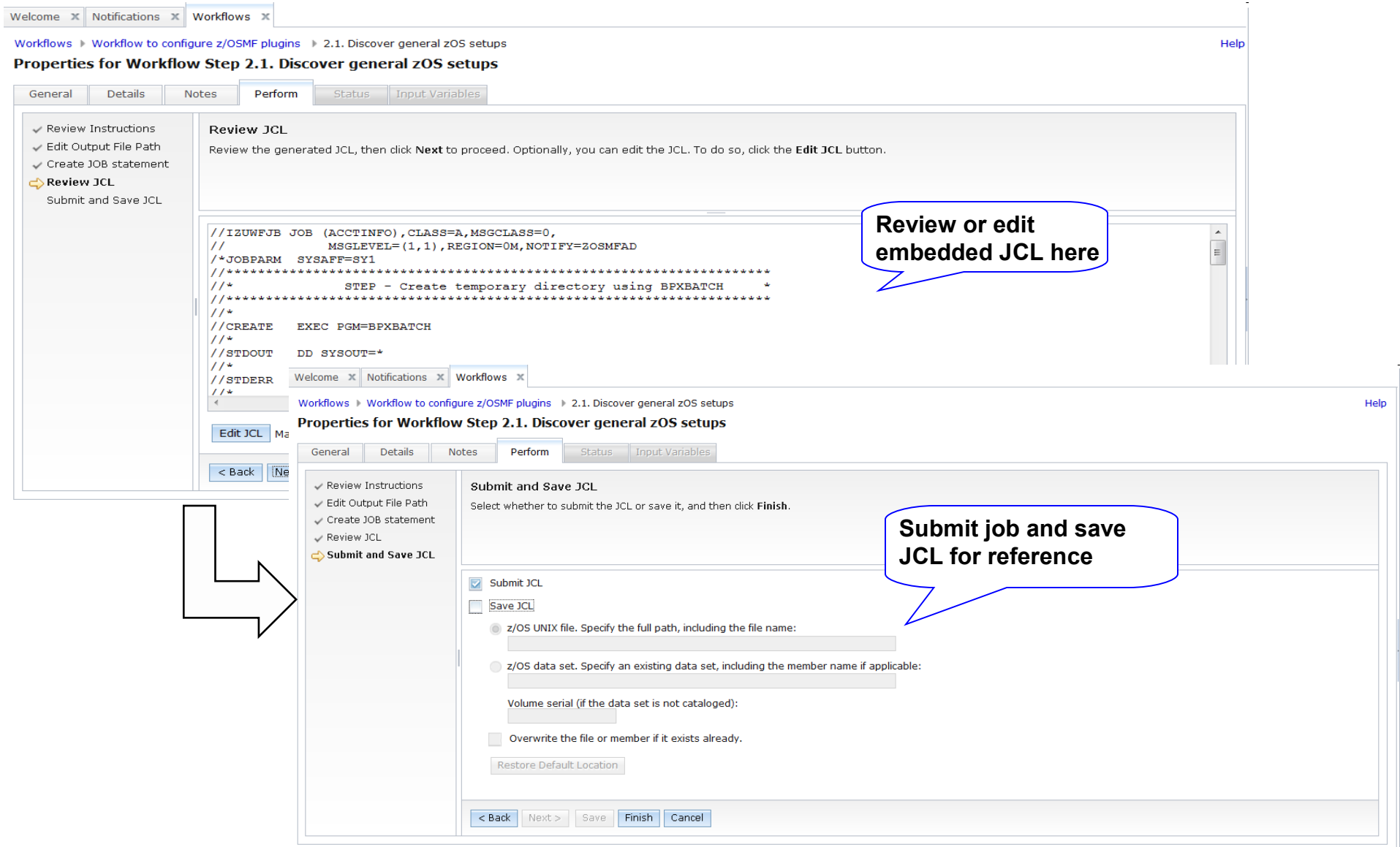


Perform options

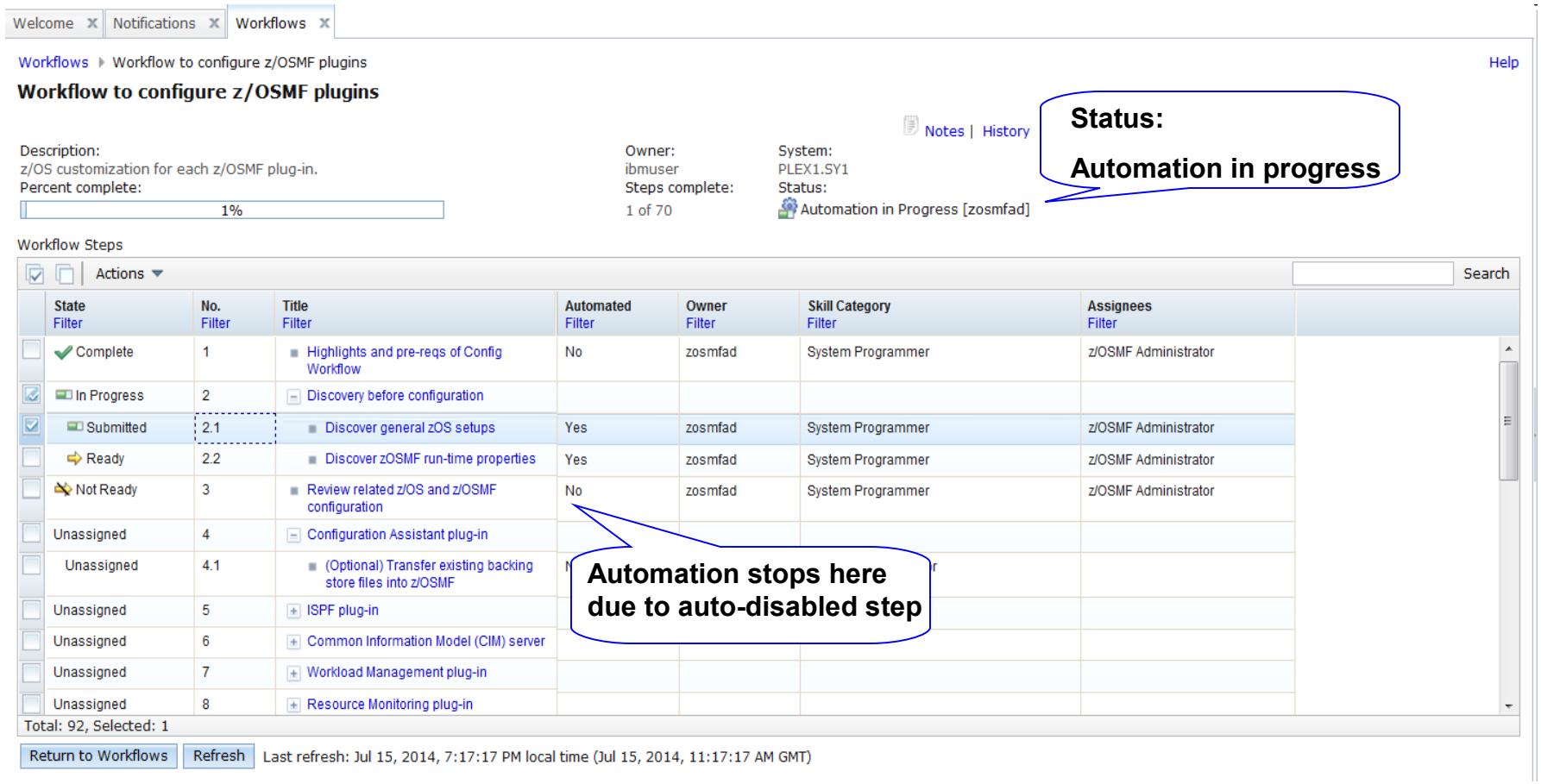
Manually perform the step I (JCL/REXX/Shell support)



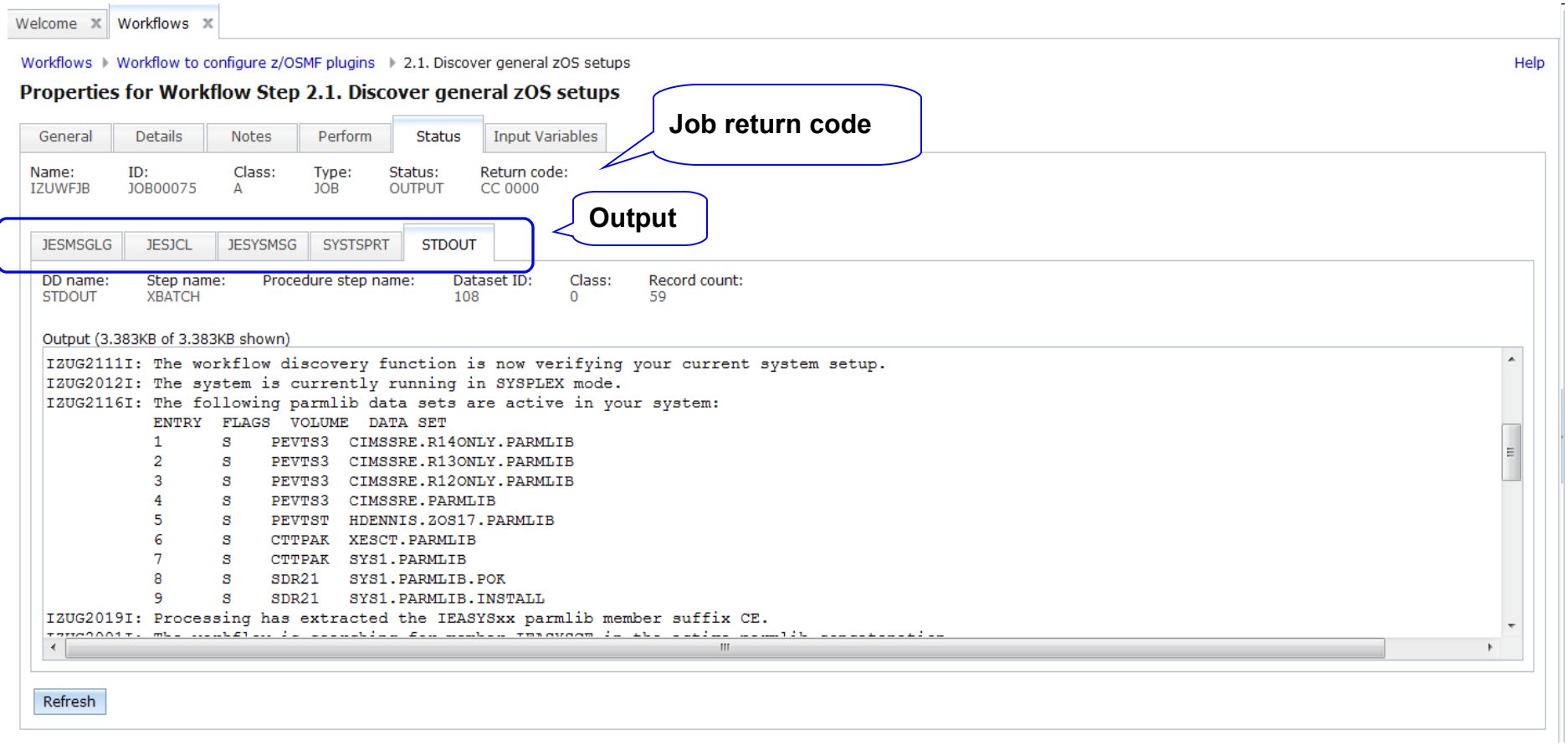
Manually perform the step II (JCL/REXX/Shell support)



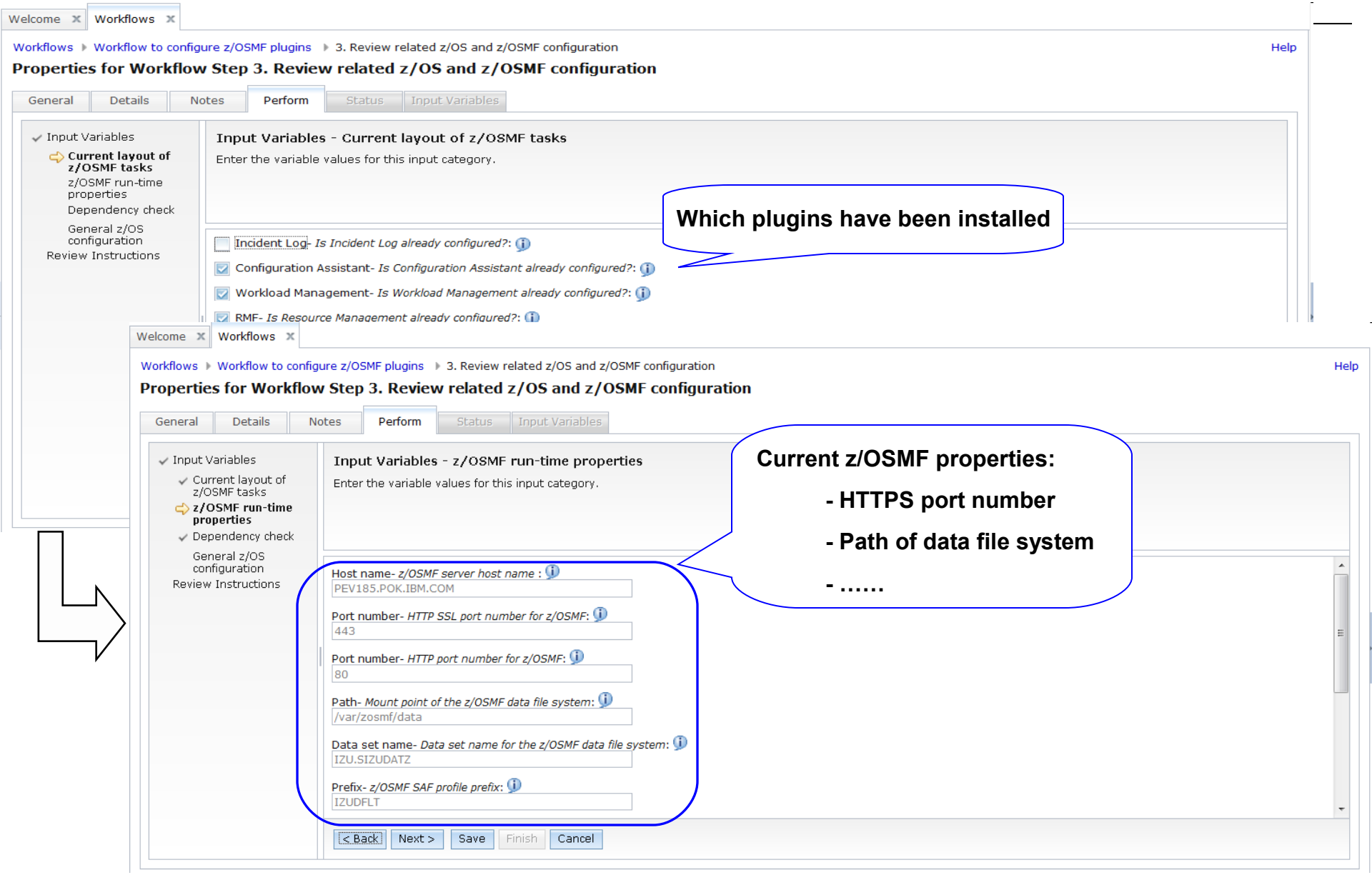
Automatically perform steps



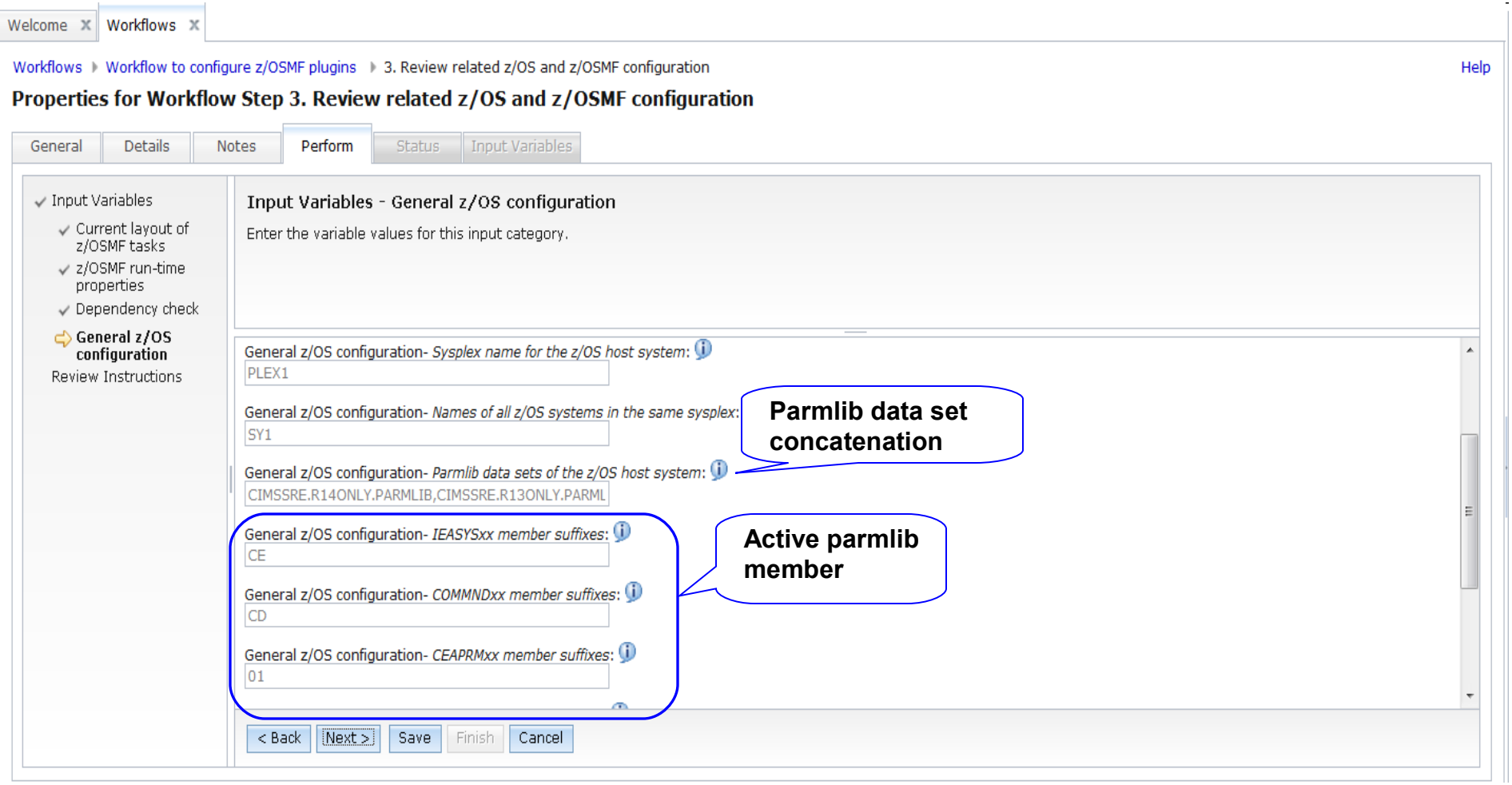
Review result of each step (JCL/REXX/Shell support)



Review current z/OS and z/OSMF configuration I (Discovered by embedded job of prior step)



Review current z/OS and z/OSMF configuration II (Discovered by embedded job of prior step)



Configure z/OS for z/OSMF Incident Log using workflow

- Process is implemented to several steps in one workflow:
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    - Ensure SYSREXX is setup and active
  - Add Incident Log plugin

Review what z/OS customization need to be done for Incident Log

Workflow Steps

Actions

State Filter	No. Filter	Title Filter
In Progress	9	Capacity Provisioning plug-in
In Progress	10	Incident Log plug-in
Complete (Override)	10.1	Ensure that the CIM server is configured
Complete	10.2	Ensure log snapshots is configured properly
In Progress	10.3	Set up a sysplex dump directory
In Progress	10.4	(Optional) Configure dump analysis and elimination (DAE)
In Progress	10.5	Configuring automatic dump data set allocation
In Progress	10.6	Ensure that CEA is configured
In Progress	10.7	Ensure that SYSREXX is config
In Progress	10.8	Authorizing the data set for AM

Several areas need to be configured

Workflow Steps

Actions

State Filter	No. Filter	Title Filter	Automated Filter
In Progress	10	Incident Log plug-in	
Complete (Override)	10.1	Ensure that the CIM server is configured	
Complete	10.2	Ensure log snapshots is configured properly	No
In Progress	10.3	Set up a sysplex dump directory	
Ready	10.3.1	Discover sysplex dump directory	Yes
Not Ready	10.3.2	Review whether dump directory is already set up	No
Not Ready	10.3.3	Create a sysplex dump directory data set	Yes
Not Ready	10.3.4	Update BLSCUSER with the name of created sysplex dump directory	Yes
Not Ready	10.3.5	Recycle the dump services address space	Yes
Not Ready	10.3.6	Register the sysplex dump directory with IPCS	Yes
In Progress	10.4	(Optional) Configure dump analysis and elimination (DAE)	

Each area follows similar structure

Configure z/OS for z/OSMF Incident Log using workflow

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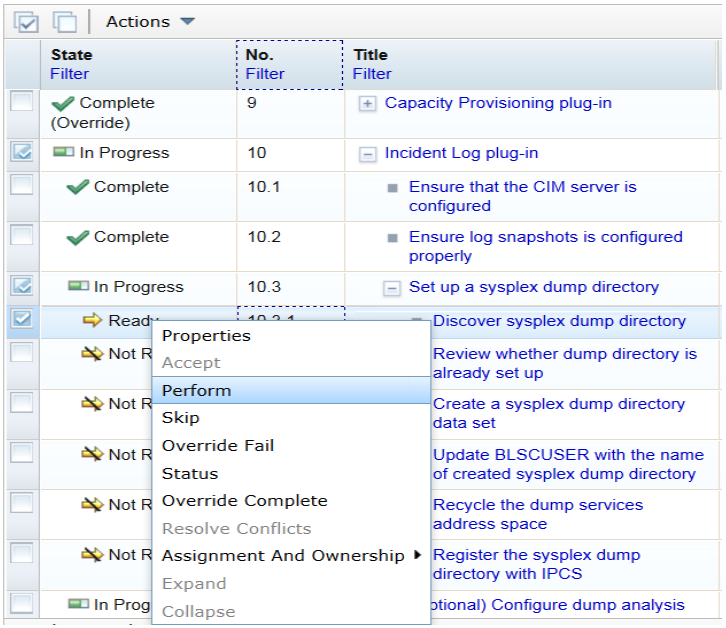
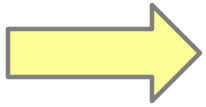
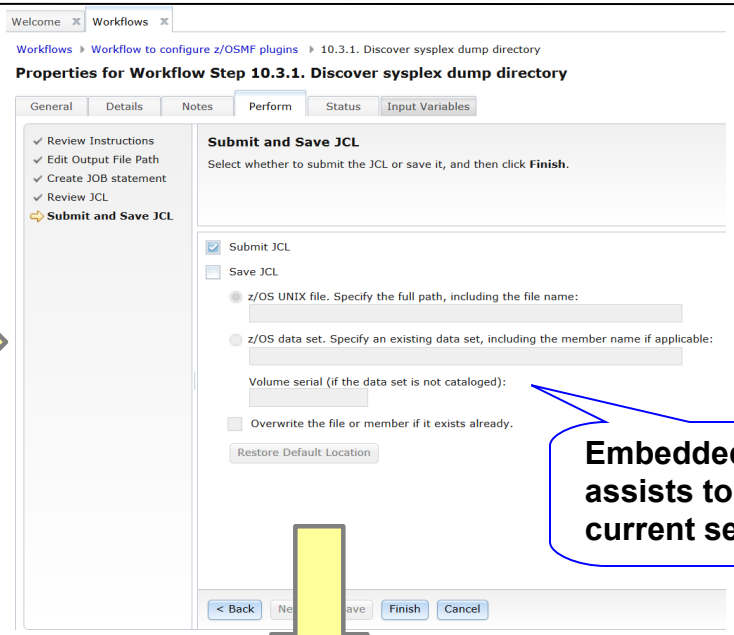
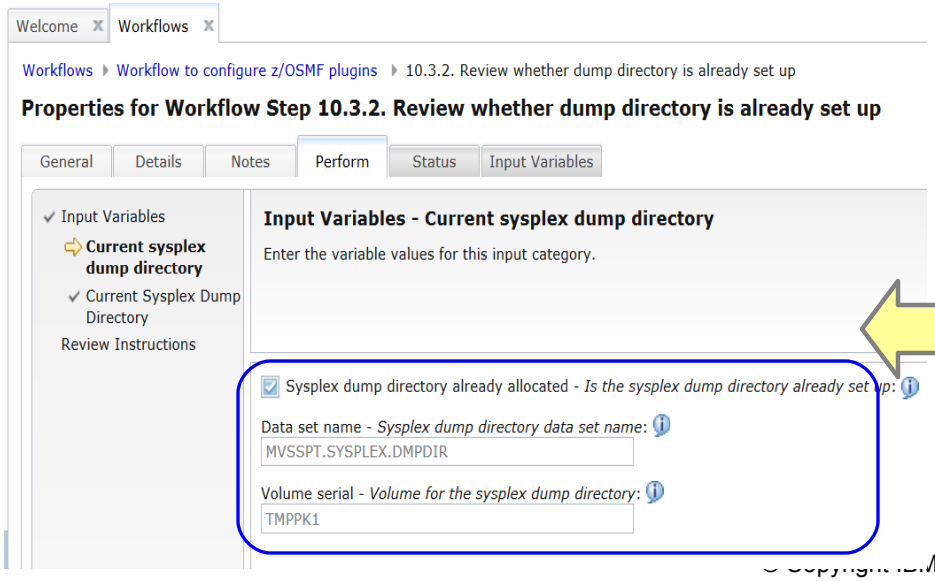
Configure Sysplex Dump Directory - Discover and Review current settings

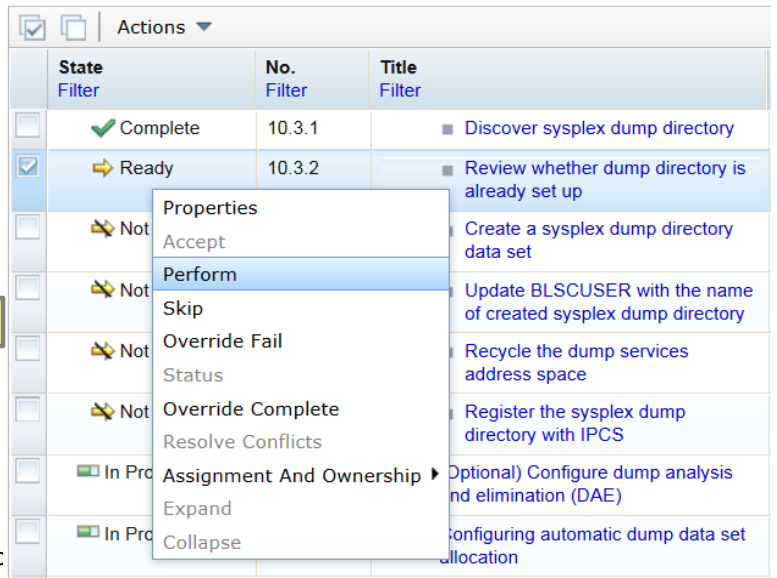




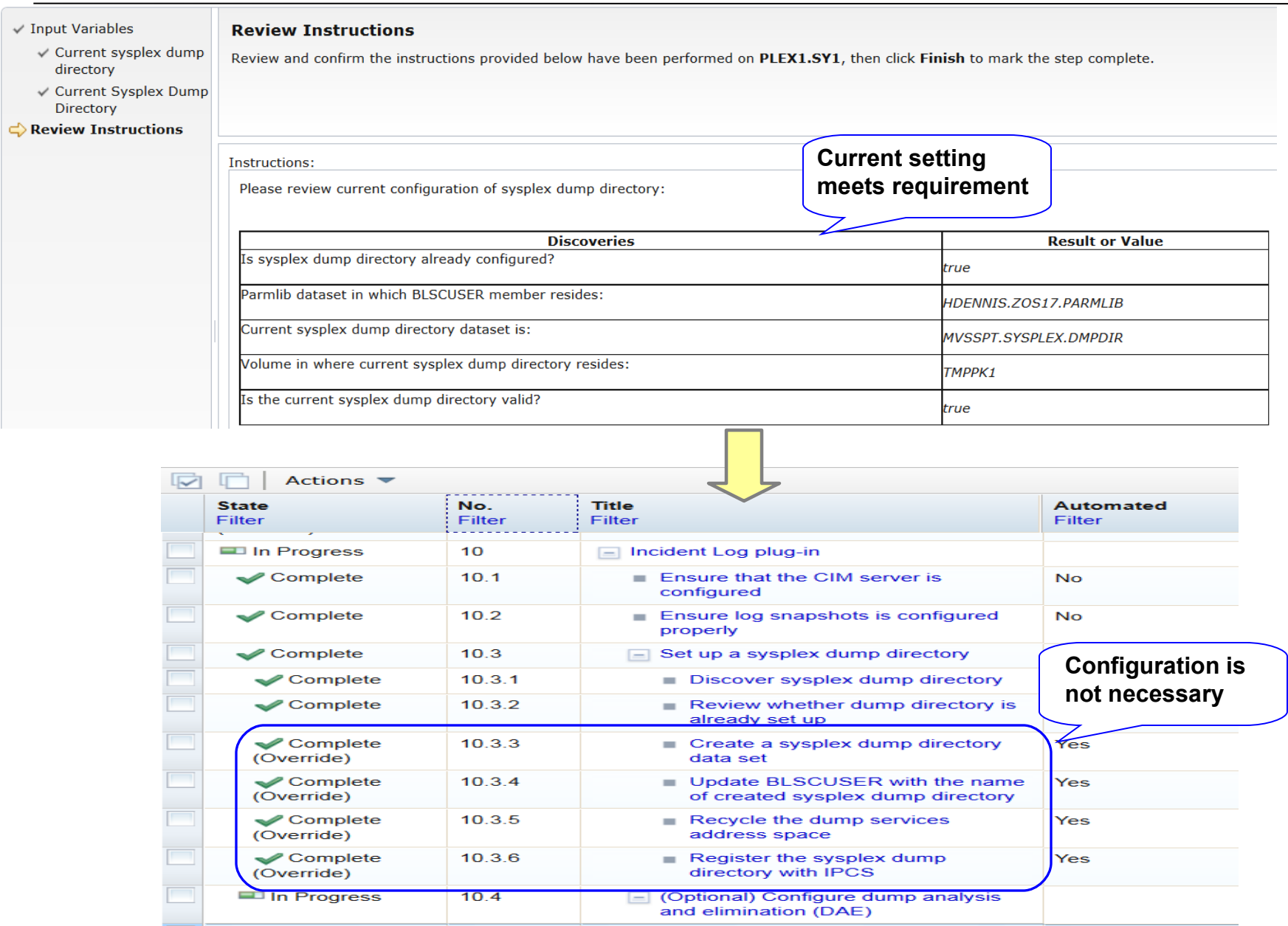


Embedded job assists to detect current setting





Configure Sysplex Dump Directory - Using current dump directory



Configure z/OS for z/OSMF Incident Log using workflow

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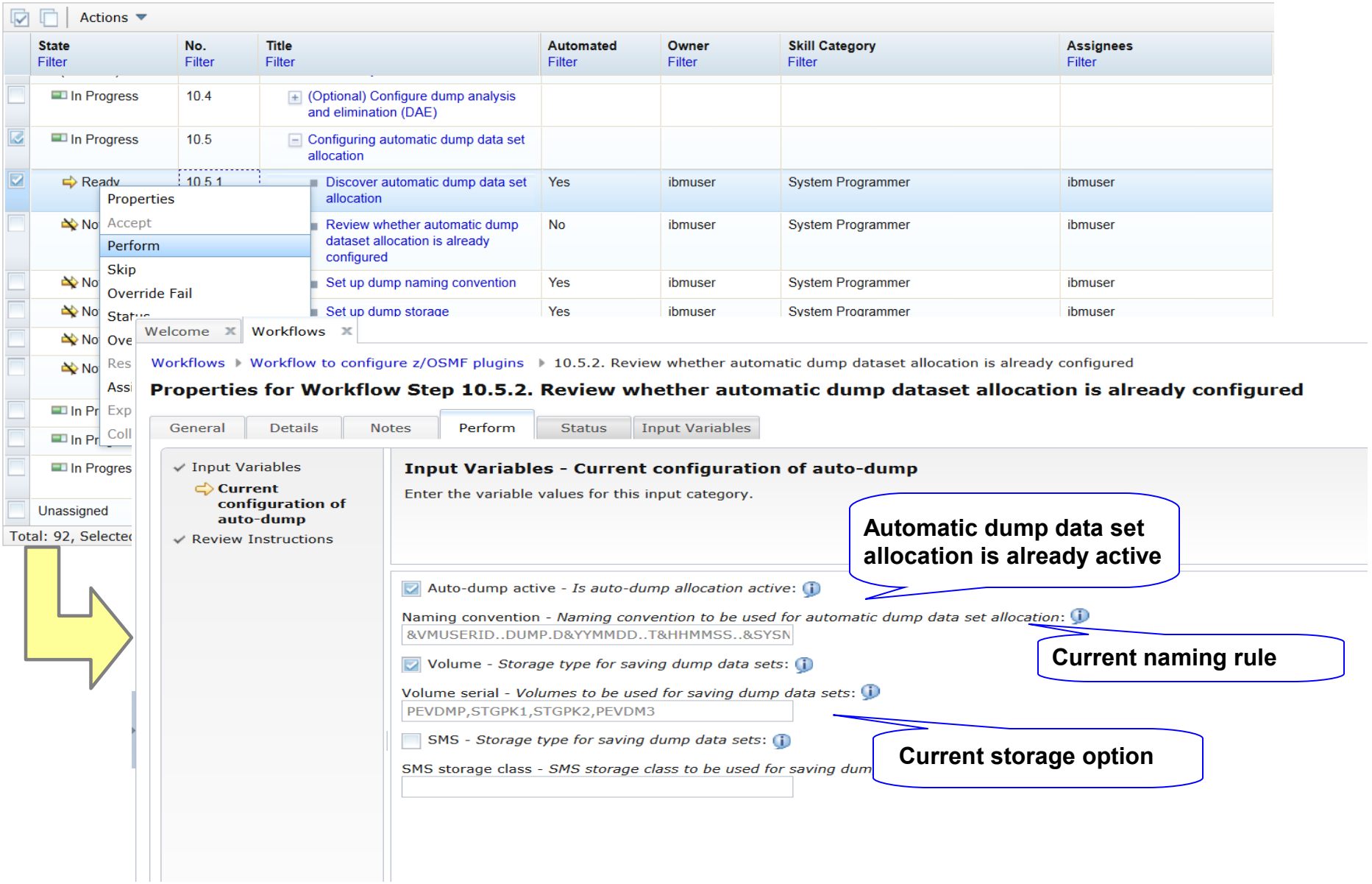
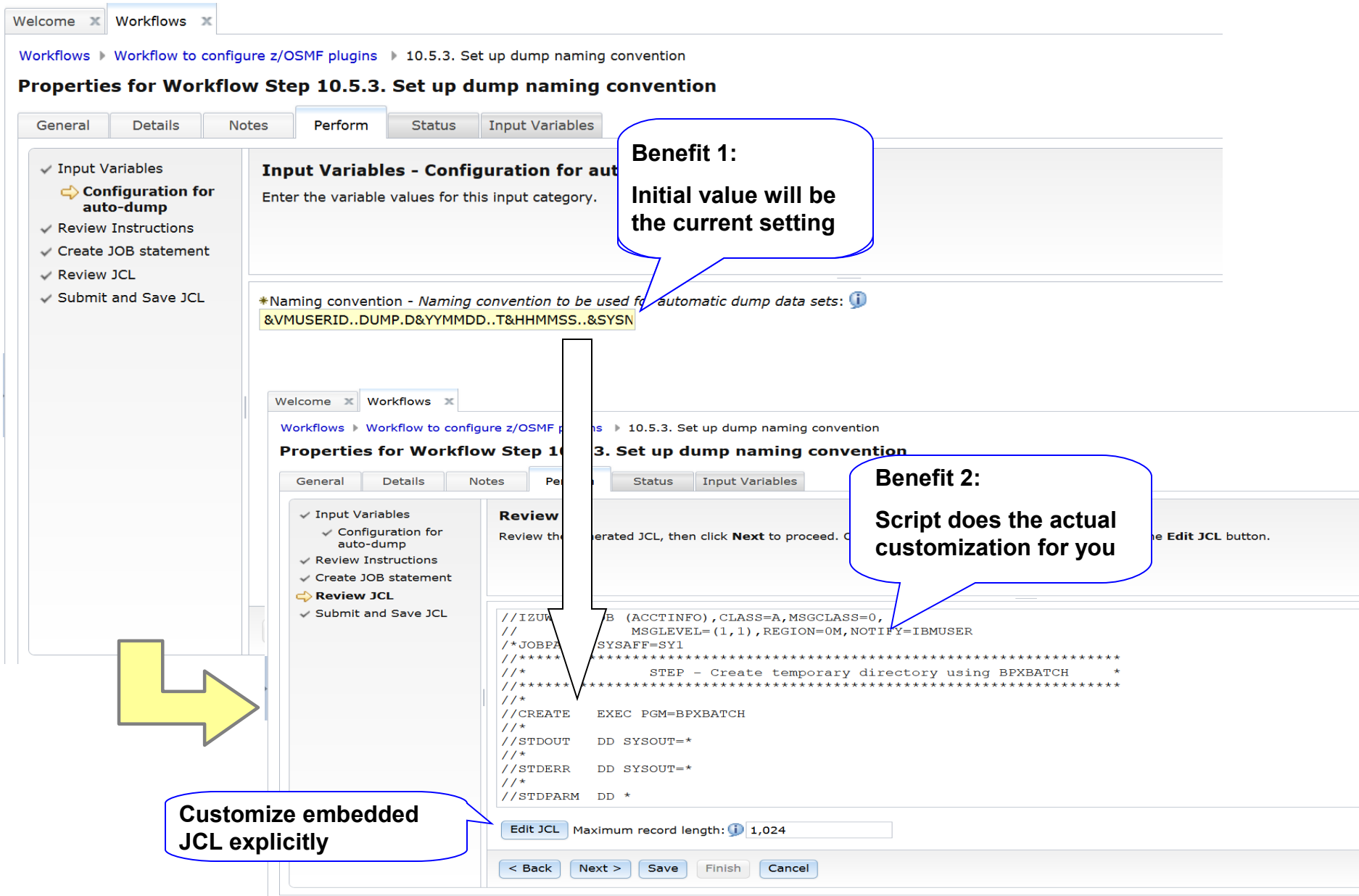
Enable automatic dump data set allocation - Discover and review current settings



Enable automatic dump data set allocation - Change naming rule



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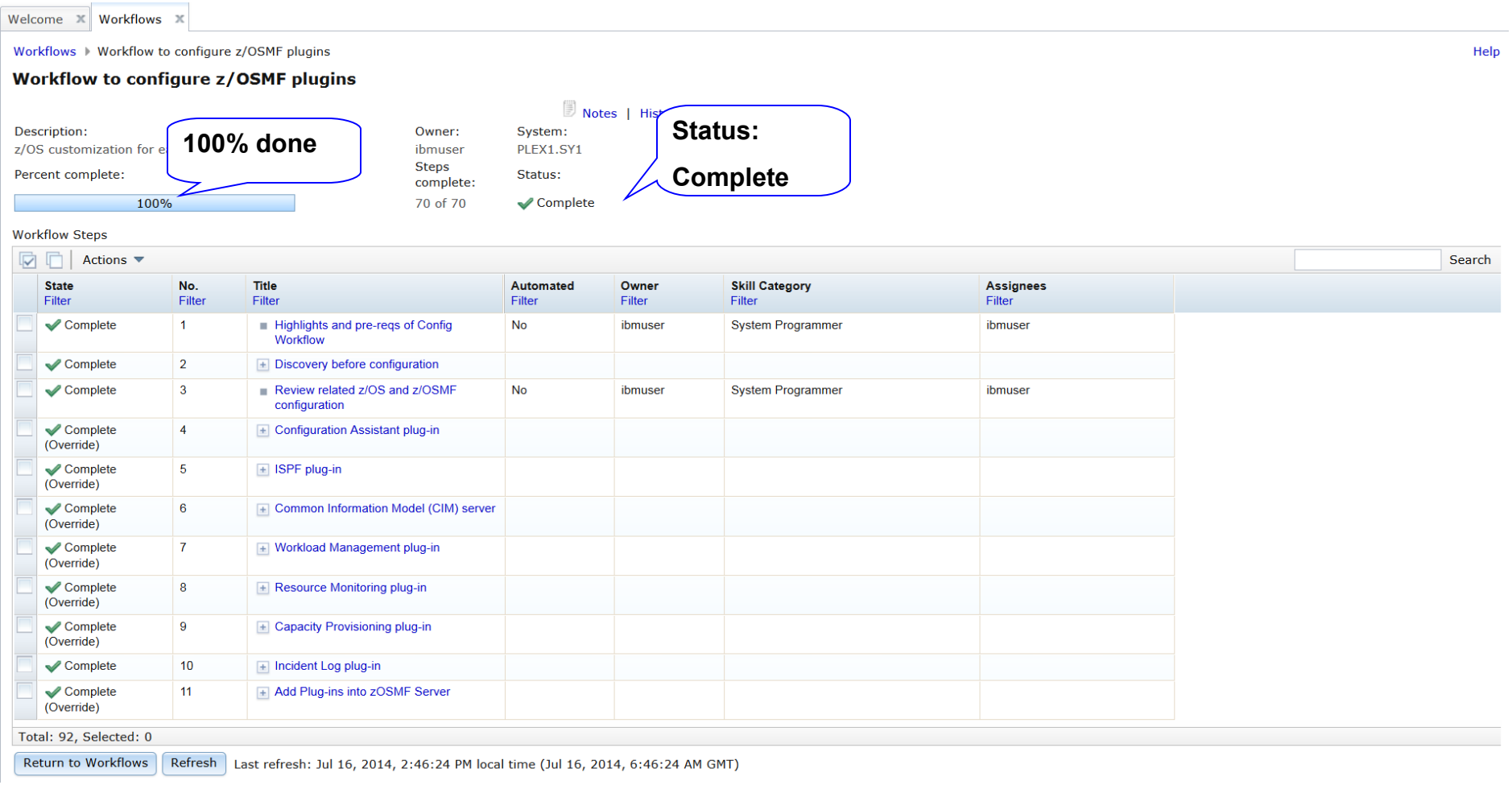
Follow the guide of workflow until finish configuration for Incident Log



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- Overview of z/OSMF Workflows
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- **Using Workflows to configure zEDC**
  - **Overview**
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  - Configuring z/OS Requirements for zEDC using the zEDC Workflow

zEDC Express feature

- **IBM Enterprise Data Compression (zEDC) is a new capability of z/OS V2.1**
  - IBM zEnterprise Data Compression (zEDC) offers a compression acceleration solution designed for high performance, low latency compression with little additional overhead.
- **Designed to support high performance data serving by providing:**
  - A tenfold increase in data compression rates with much lower CP consumption than using software compression, including software compression that exploits the System z Compression Call instruction (System z hardware data compression)
  - A reduction in storage capacity required (creation of storage “white space”) that in turn reduces the cost of storage acquisition, deployment, operation, and management
- **Configuration:**
  - One compression accelerator per PCIe I/O feature card
  - Supports concurrent requests from up to 15 LPARs
  - Sustained aggregate 1 GBps compression rate when given large block inputs
  - Up to 8 features supported by zBC12 or zEC12
  - **Minimum two feature configuration recommended**

zEDC Express Feature

- **Exploitation and Compatibility**
  - **z/OS V2.1**
    - SMF logger
    - DFSMS BSAM/QSAM extended format data sets
    - DFSMSdss and DFSMShsm plans to exploit zEDC by the end of the 3Q14
    - Notes:
      - z/OS V1.13 and V1.12 - Software support for decompression only, no hardware compression/decompression acceleration support
      - z/VM V6.3 support for z/OS V2.1 guest: June 27, 2014
  - **IBM 31-bit and 64-bit SDK71 for z/OS Java Version 7 Release 1 and higher, IBM 31-bit and 64-bit SDK7 for z/OS SR7 and higher**
  - **IBM Encryption Facility for z/OS V1.2**
  - **IBM Sterling Connect:Direct for z/OS V5.2**
  - **IBM Security zSecure V2.1**
  - **IBM WebSphere MQ for z/OS V8**
    - COMPMSG(ZLIBFAST)

IBM zEnterprise Data Compression

Improved Management of Data with zEDC Compression

New! Additional compression capabilities extend the reach of zEDC Express

- IBM Encryption Facility for z/OS can help you to reduce encryption time by using hardware compression (zlib-based, industry-standard)
- Save disk and reduce CPU requirements with new zEDC capabilities for sequential data set compression and support for Java™ Technology Edition, Version 7 Release 1

BSAM/QSAM*

*Compress data up to 4X, with up to 80% reduced CPU **

zBNA tool ***helps analyze SMF records to identify candidates for compression***

www.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/PRS5132

Java 7**

Up to 90% reduction in CPU time with up to 74% reduction in elapsed time vs. using zlib software

New! IBM Sterling Connect:Direct for z/OS Standard Edition V5.2

- Facilitates high-speed data transfer across the enterprise
- Optimized for high-volume, secure file delivery between System z and distributed systems
- Data transfer at channel speed; Supports DS8000® series, EAV large volumes
- zEDC compression can help you save more data
  - Helps meet compliance needs
  - Helps with more current data for analysis

Managed File Transfer - Sterling Connect :Direct for z/OS 5.2 **

Achieve up to 80% reduction in elapsed time for managed z/OS to z/OS file transfers

*These results are based on projections and measurements completed in a controlled environment. Results may vary by customer based on individual workload, configuration and software levels

**Exploited through standard Java APIs java.util.zip in the latest releases of Java 7.0.0, and Java V7R1

*** Achieve up to up 80% reduction in elapsed time for z/OS to z/OS file transfers with minimal CPU increase. Results vary by data set type and characteristics of the data

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  - Configuring z/OS Requirements for zEDC using the zEDC Workflow

Configuring z/OS Requirements for zEDC (manual process)

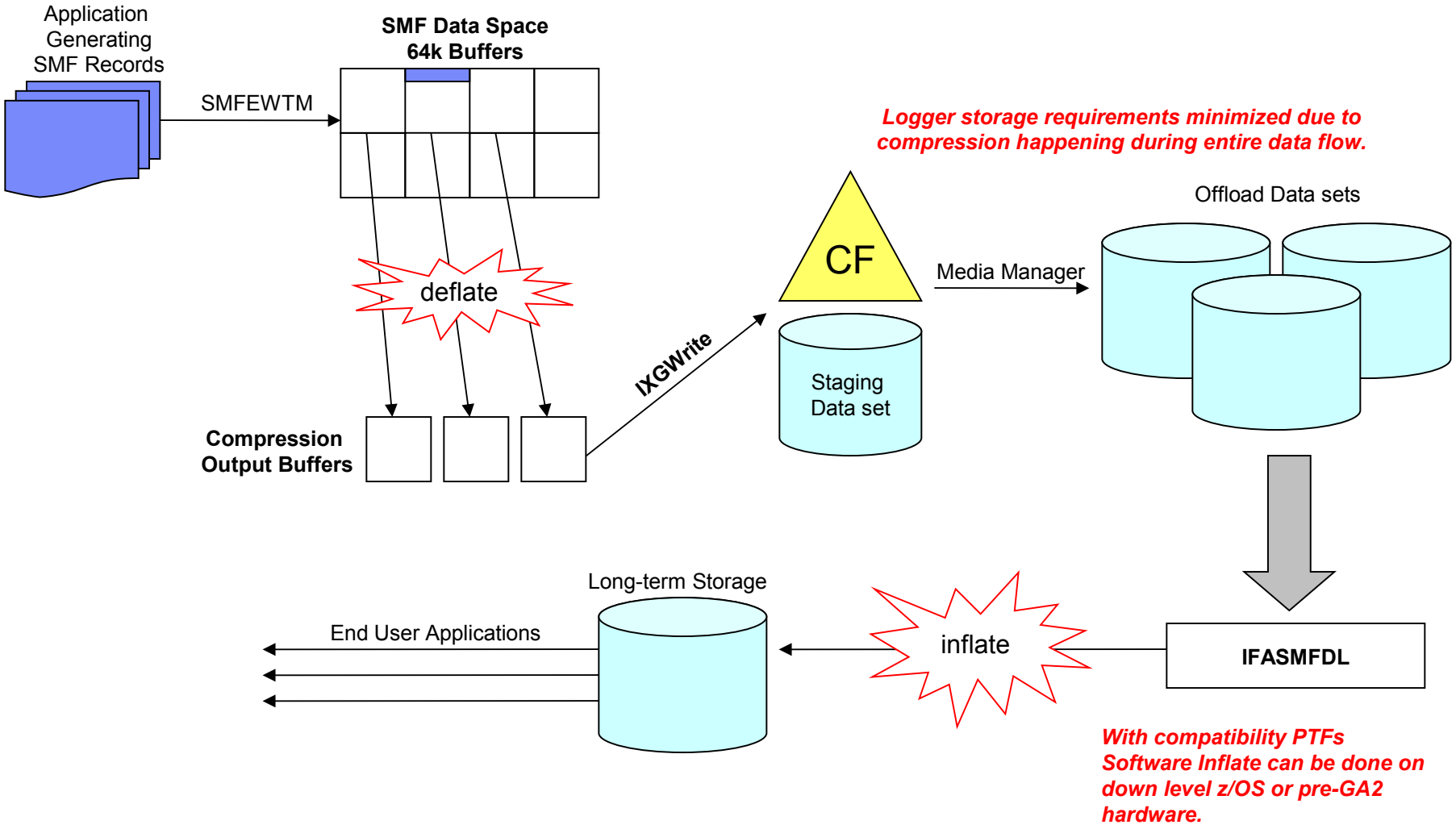
- Order hardware feature
- License software feature
- Define FUNCTION definition in IOCP (defined by HCD or HCM)
  - A PCIe function is defined by a unique identifier, the function ID (FID).
  - Each function specifies a function type (ROCE or ZEDC-EXPRESS) and a physical channel identifier PCHID.
  - Multiple functions may be specified to the same PCHID value provided that each of these functions defines a unique virtual function (VF) number.
  - Select the LPARs that should be entitled to access the function.
  - Activate the new IODF with zEDC Express devices defined.
  - Use the D PCIE and D PCIE,PFID=xxxx command to verify that the zEDC Express devices are available to z/OS.
- Enable the z/OS V2.1 zEDC software feature (this must be done prior to IPL)
  - Specified in IFAPRDxx member of PARMLIB

```
PRODUCT OWNER('IBM CORP')
   NAME('z/OS')
   ID(5650-ZOS)
   FEATURENAME(ZEDC)
   VERSION(*) RELEASE(*) MOD(*)
   STATE(ENABLED)
```

Configuring z/OS Requirements for zEDC (manual process)

- Exploit zlib data compression in applications
  - A modified version of the zlib compression library is used by zEDC.
  - The IBM-provided zlib compatible C library provides a set of wrapper functions that use zEDC compression when appropriate and when zEDC is not appropriate, software-based compression services are used.
  1. Link or re-link applications to use the IBM-provided zlib.
  2. Protect and authorize the use of zlib
     - Access to zEDC is protected by the SAF FACILITY resource class FPZ.ACCELERATOR.COMPRESSION.
     - Give READ access to FPZ.ACCELERATOR.COMPRESSION to the identity of the address space(s) that the zlib task will run in.
  3. Verify (and adjust if necessary) the input buffer size
     - Ensure that adequately sized input buffers are available.
       - If the input buffer size falls below the minimum threshold, data compression occurs using zlib software compression and not zEDC.
       - This threshold can be controlled at a system level using the PARMLIB member IQPPRMxx.

SMF Data Flow Overview



Configuring z/OS Requirements for zEDC (manual process)

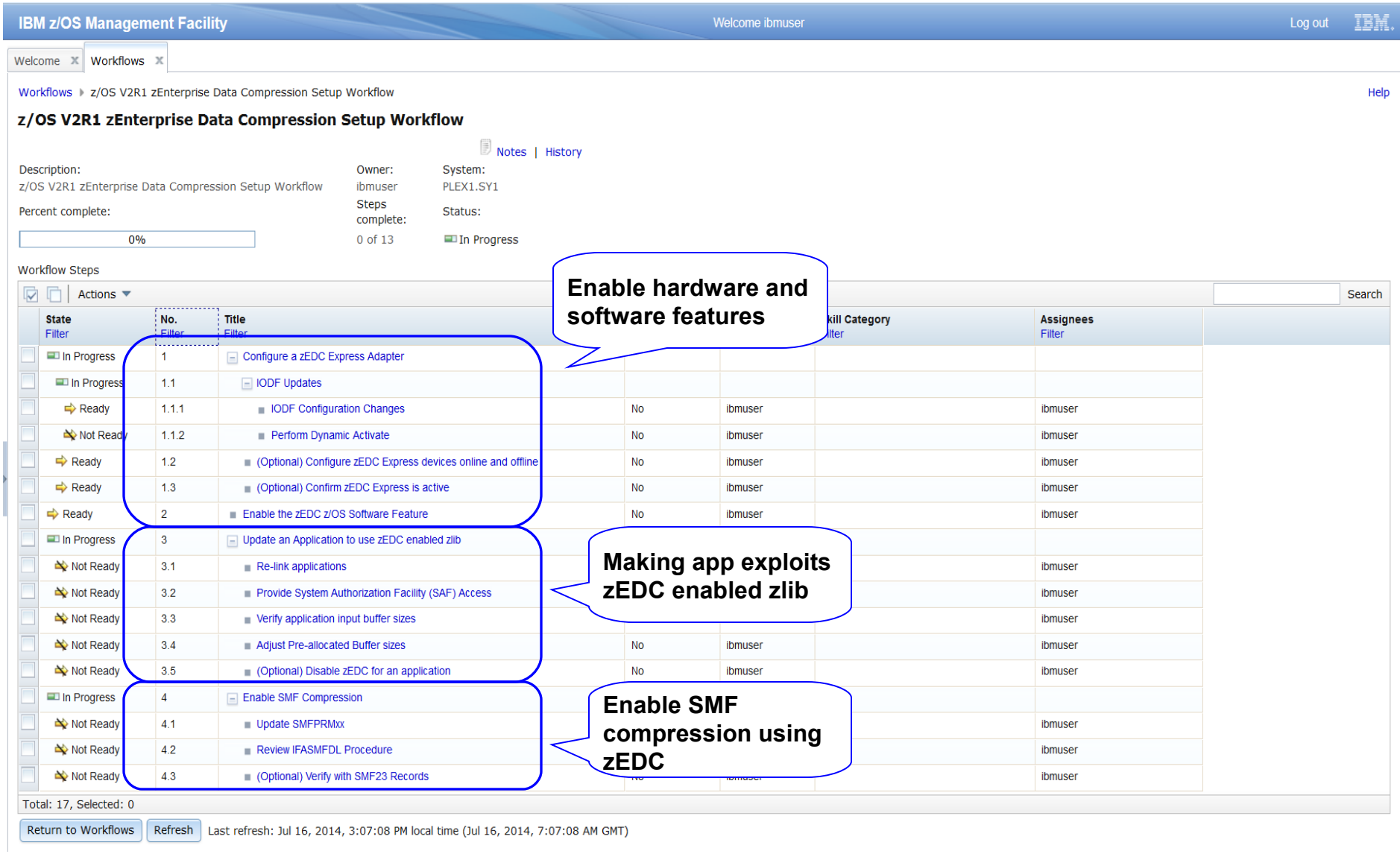
Enable SMF use of zEDC

- SMF records must be directed to a CF or DASD log stream
- Specify the new COMPRESS option on one or more log stream definitions (LSNAME) or DEFAULTLSNAME
  - Option to specify amount of memory to permanently fix for performance
  - Note: For testing purposes, the same SMF record can be directed to multiple log streams and compression can be enabled on one of them.
- IFASMFDL requirements
  - No changes required if zEDC devices are available; they will be used automatically
  - Specify the SOFTINFLATE option to process compressed data when there are no zEDC devices available
    - Requires z/OS PTF to provide software inflate (decompression) capability for z/OS 1.12 and 1.13 systems
  - If the SOFTINFLATE option is not specified on a system without zEDC devices an error will occur and no records will be deleted from the SMF logstream
- Enable the following SMF records to collect performance information:
  - SMF 23 – SMF buffer usage, number of records written etc.
  - SMF 88 - System logger log stream size, frequency of offlload

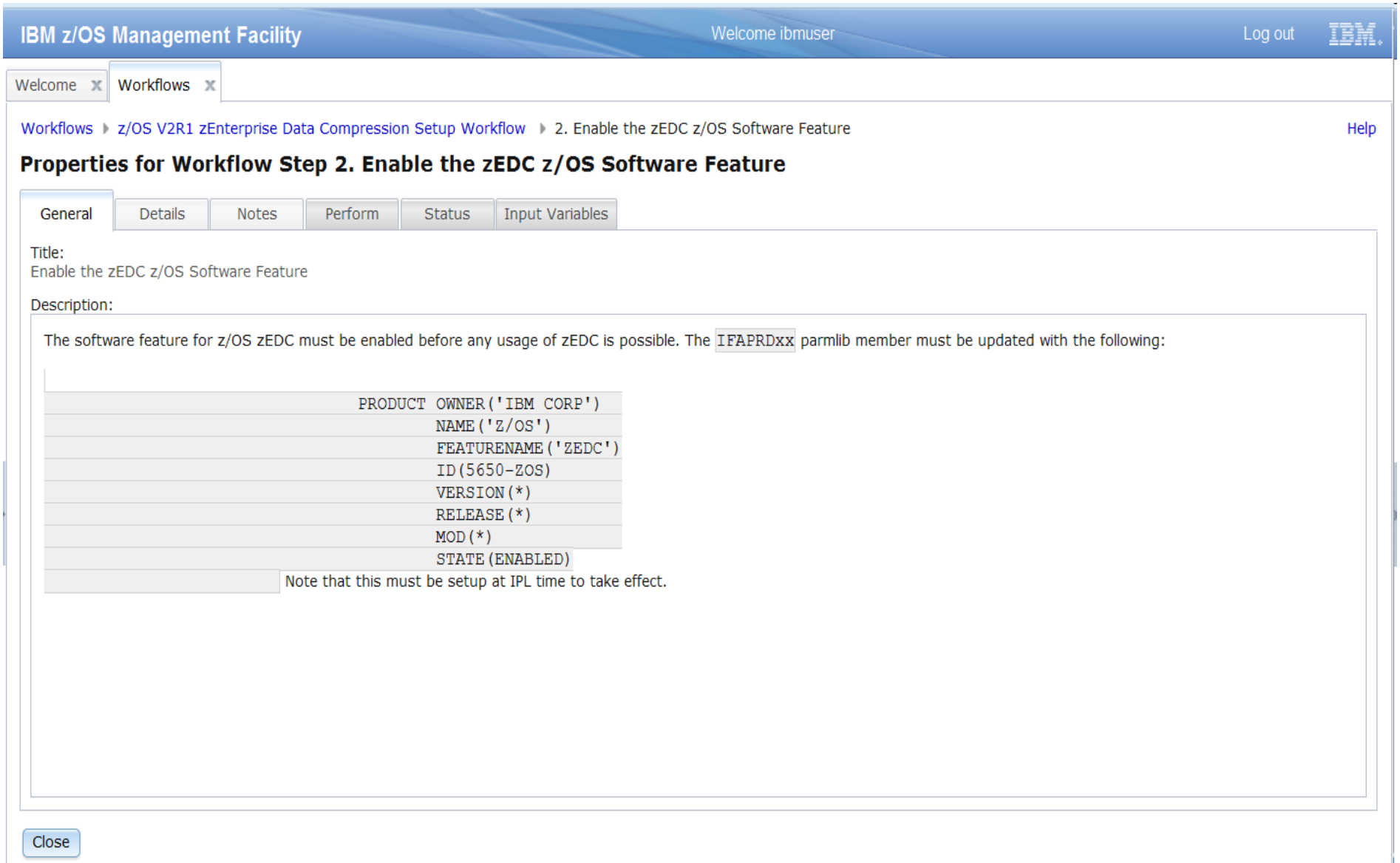
Agenda

- Overview of z/OSMF Workflows
- Using Workflows to configure z/OSMF Incident Log
  - Overview
  - Configuring z/OS Requirements for z/OSMF Incident Log (manual process)
  - Configuring z/OS Requirements for z/OSMF Incident Log using the z/OSMF Configuration Workflow
- **Using Workflows to configure zEDC**
  - Overview
  - Configuring z/OS Requirements for zEDC (manual process)
  - **Configuring z/OS Requirements for zEDC using the zEDC Workflow**

Structure of zEDC workflow



Guided steps



Summary (1 of 2): z/OSMF Workflow Application

- **The z/OSMF Workflow application is a framework supports user (Workflow provider) to define a guided flow (workflow) through steps to accomplish a task.**

- **The z/OSMF Workflow application is useful to:**
  - Assist people unfamiliar with how to perform a given task, or a task that they perform rarely
  - Ensure that all tasks are performed in the right order and only when their dependencies have been met
  - Ensure that all steps are completed
    - Even if many of the tasks have been delegated to a number of different colleagues
  - Monitor and track progress toward the completion of the task
  - Provide a history (audit trail) of the steps performed for a task
  - Perform the same tasks on multiple systems
    - Enabling a function (e.g. zEDC)
    - Migrating a new release of software (e.g., z/OS)

Summary (2 of 2): z/OSMF Workflow Samples

- Simple workflow to create user and connect it to a group
- z/OSMF Configuration Setup
  - A number of steps are required to verify or setup the prerequisites for z/OSMF plug-ins (applications)
    - IBM provides a workflow to assist in the verification and setup of the z/OS prerequisites as well as adding the plug-ins to z/OSMF
    - In this session you saw how to use z/OSMF Workflow to configure the z/OS requirements for z/OSMF Incident Log
- zEDC Configuration Setup
  - IBM provides an as-is workflow that can be used to assist in configuring z/OS requirements for enabling zEDC

Advertisements

- **Session 15605: z/OSMF Roundtable**
  (Thursday, August 7, 2014: 12:25 PM-1:15 PM, Room 310)
- **Hands-On lab sessions:**
  Session 15815: z/OSMF Hands-On Labs - Choose Your Own - II
  (Thursday, August 7, 2014: 1:30 PM-2:30 PM, Room 301)
  Session 15814: z/OSMF Hands-On Labs - Choose Your Own - I
  (Friday, August 8, 2014: 11:15 AM-12:30 PM, Room 301)

  - **z/OS SDSF using z/OSMF**
  - **z/OSMF Incident Log**
  - **z/OSMF Resource Monitoring**
  - **z/OSMF Software Deployment**
  - **z/OSMF Software Management**
  - **z/OSMF Workflows (Using z/OSMF for a z/OS V2.1 Migration)**
  - **z/OSMF Workload Management**

Thank You