The New and Improved z/OSMF V2.1

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IBM z/OS Installation and Deployment Architect

Session 16643

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SHARE in Seattle 2015

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Agenda

- Overview of z/OS Simplification Efforts
  - The z/OS Management Facility (z/OSMF)
- What's New in z/OSMF V2.1
  - Use of the WebSphere Application Server Liberty profile
  - Workflows
  - Support for External Applications*
- z/OSMF Management Tasks
  - Configuration
  - Performance
  - Problem Determination
  - Software
  - z/OS Classic Interface: ISPF
- Other z/OSMF Capabilities
  - Security
  - System**
  - Programmatic Interface for z/OSMF

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What is z/OSMF?

- **IBM z/OS Management Facility (z/OSMF) delivers on IBM's strategy for mainframe simplification and modernization**
  - The IBM z/OS Management Facility is a separate product for z/OS that provides support for a modern, Web-browser based management console for z/OS.
  - It helps system programmers more easily manage and administer a mainframe system by simplifying day to day operations and administration of a z/OS system.
  - More than just a graphical user interface, the z/OS Management Facility is intelligent, addressing the needs of a diversified skilled workforce and maximizing their productivity.
    - Automated tasks can help reduce the learning curve and improve productivity.
    - Embedded active user assistance (such as wizards) guide you through tasks and helps provide simplified operations.
- **z/OSMF V2.1 has it's own product number 5610-A01 and must be separately ordered**
  - It can be ordered with z/OS in the same ServerPac
  - Can be ordered in a CBPDO (with or without other products)
    - Can also be ordered in a "Product" ServerPac
  - Service & Subscription program number is 5655-S29
    - This must be ordered for support

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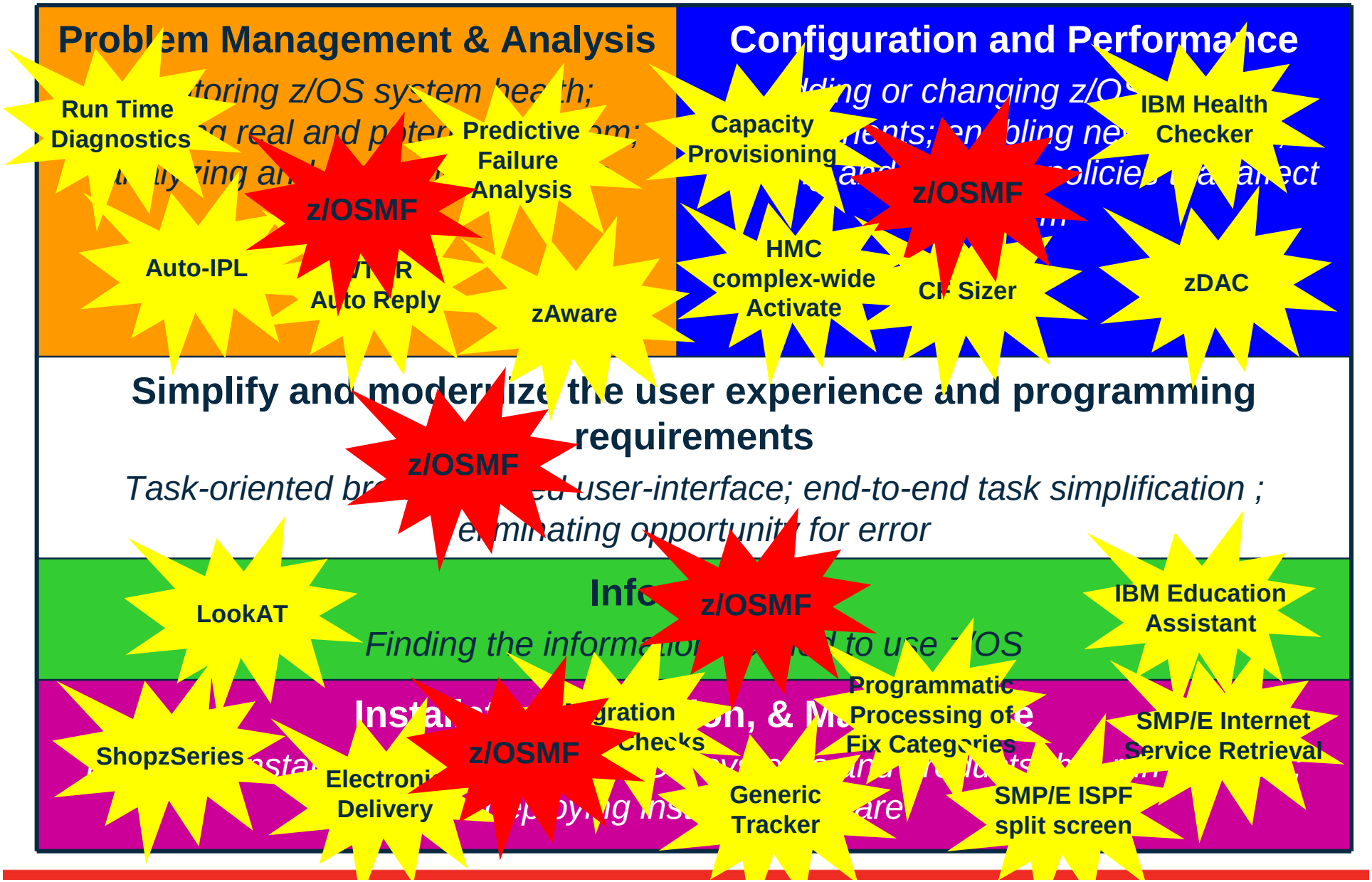
Focus Areas for Simplification



z/OS Management Facility

Problem Management & Analysis	Installation, Migration, & Maintenance	Configuration and Performance

Simplify and modernize the user experience and programming requirements

Incident Log (z/OSMF V1.11) provides a consolidated list of SVC Dump related problems, along with details and diagnostic data captured with each incident. It also facilitates sending the data for further diagnostics.

SDSF (z/OSMF V2.1 with PTF UI15294) provides a browser-based SDSF application designed to run in a z/OSMF environment that takes advantage of a graphical user interface.

Software Management (z/OSMF V1.13) provides a simple, structured approach to deploying SMP/E installed software, In addition, it allows for inspection of a software instance to view the product, feature, FMID content, SYSMODS, as well as the physical datasets that comprise a particular software instance. It also enables you to perform actions to analyze and report on software instances (such as identifying installed products with an announced end of service date).

z/OSMF Base Services:

- **Security integration with SAF (z/OSMF V1.13)**
- **ISPF Web UI (z/OSMF V1.13)**
- **REST API for Jobs (z/OSMF V1.13)**
- **REST API for Data Sets and Files (z/OSMF V2.1 with PTF UI16044)**
- **REST API for z/OSMF Information Retrieval (z/OSMF V2.1 with PTF UI90005)**
- **REST API for z/OSMF Systems (z/OSMF V2.1 with PTF for APAR PI32148)**
- **REST API for Software Management (z/OSMF V2.1 with PTF for APAR PI32158)**
- **REST API for z/OSMF Workflow (z/OSMF V2.1 with PTF for APAR PI32163)**
- **Notifications (z/OSMF V2.1)** View and act on the z/OSMF notifications that have been assigned to you
- **Workflow (z/OSMF V2.1)** Perform a guided set of steps, for example, to configure components or products in your installation. **With PTF UI90005,** A workflow step can use output from another workflow step; also a workflow step can be performed conditionally.
- The ability to add non-z/OSMF launch points and links to any category in the navigation tree allows a central tool for effective information and knowledge sharing.
- **Import Manager (z/OSMF V2.1 with PTF UI16044)** Import import plug-ins, event types, event handlers, and links into z/OSMF.
- **System Setting -** Discover the system definition that hosts the z/OSMF instance **(z/OSMF V2.1 with PTF UI90005)**

Configuration Assistant for z/OS Communications Server (z/OSMF V1.11) Simplified configuration and setup of TCP/IP policy-based networking functions

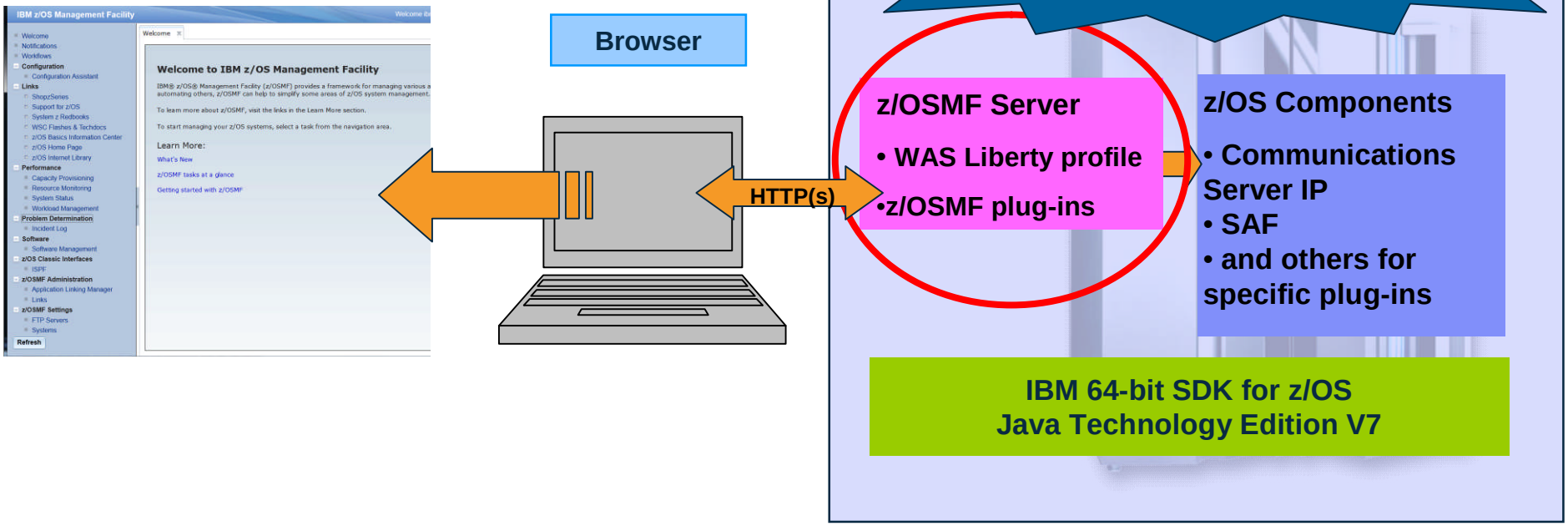
WLM Policy Editor (z/OSMF V1.12) Simplified management of WLM service definitions and policies. Facilitate the creation and editing of WLM service definitions, installation of WLM service definitions, and activation of WLM service policies

Resource Monitoring (z/OSMF V1.12) Provides dynamic real time metrics for system performance

Capacity Provisioning (z/OSMF V1.13) simplify the work of a z/OS CP administrator to manage connections to CPMs, view reports for domain status, active configuration and active policy.

IBM z/OS Management Facility
The Application Stack

Session 16654 z/OSMF V2.1
Configuration and Implementation



- The z/OS Management Facility applications run on the z/OS enabling you to manage z/OS from z/OS
  - Information is presented on a PC using a browser
- The z/OS Management Facility requires:
  - z/OS Communications Server
  - Security definitions (SAF)
  - Other components are required for specific z/OSMF plug-ins
  - IBM 64-bit SDK for z/OS Java Technology Edition V7

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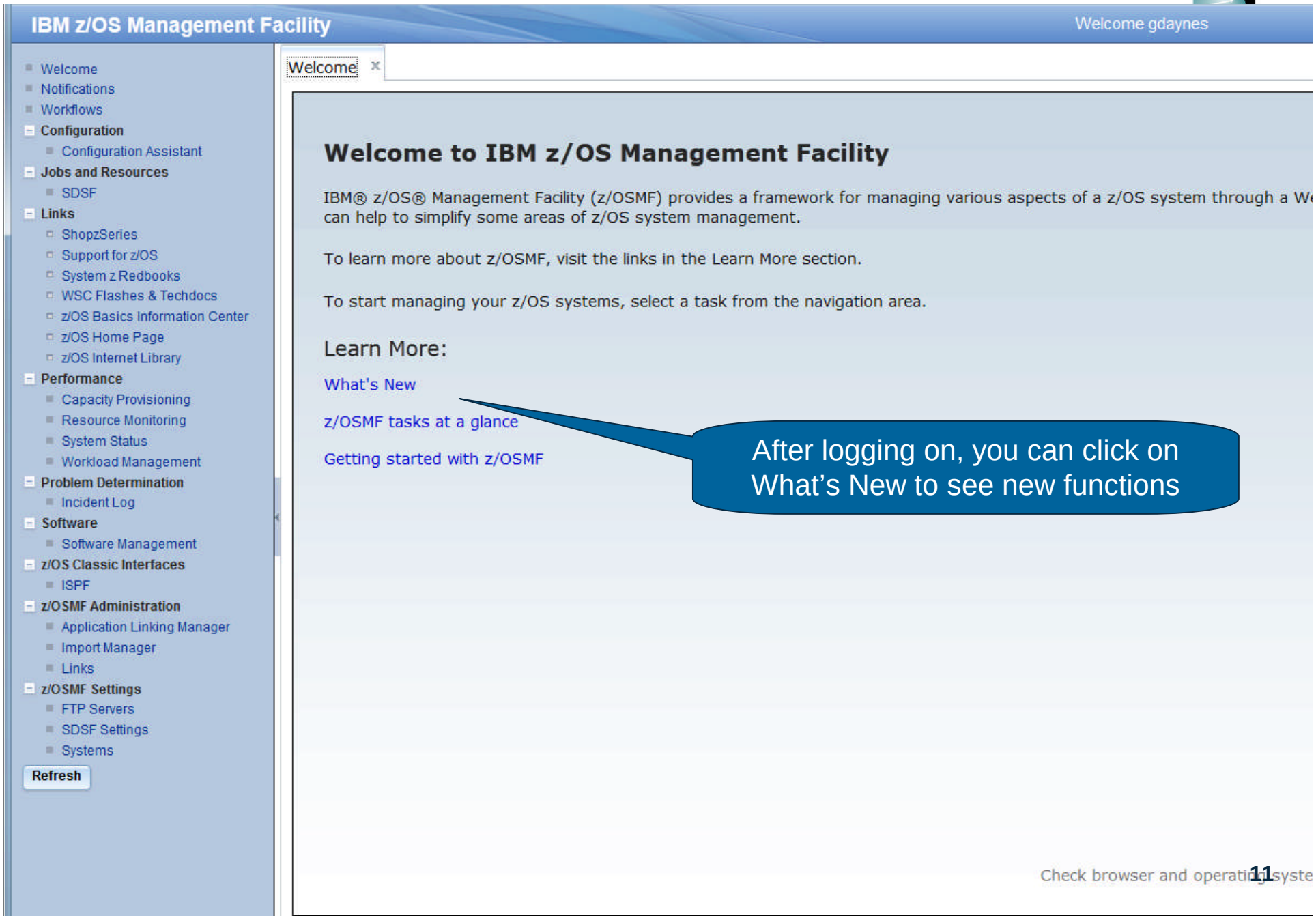
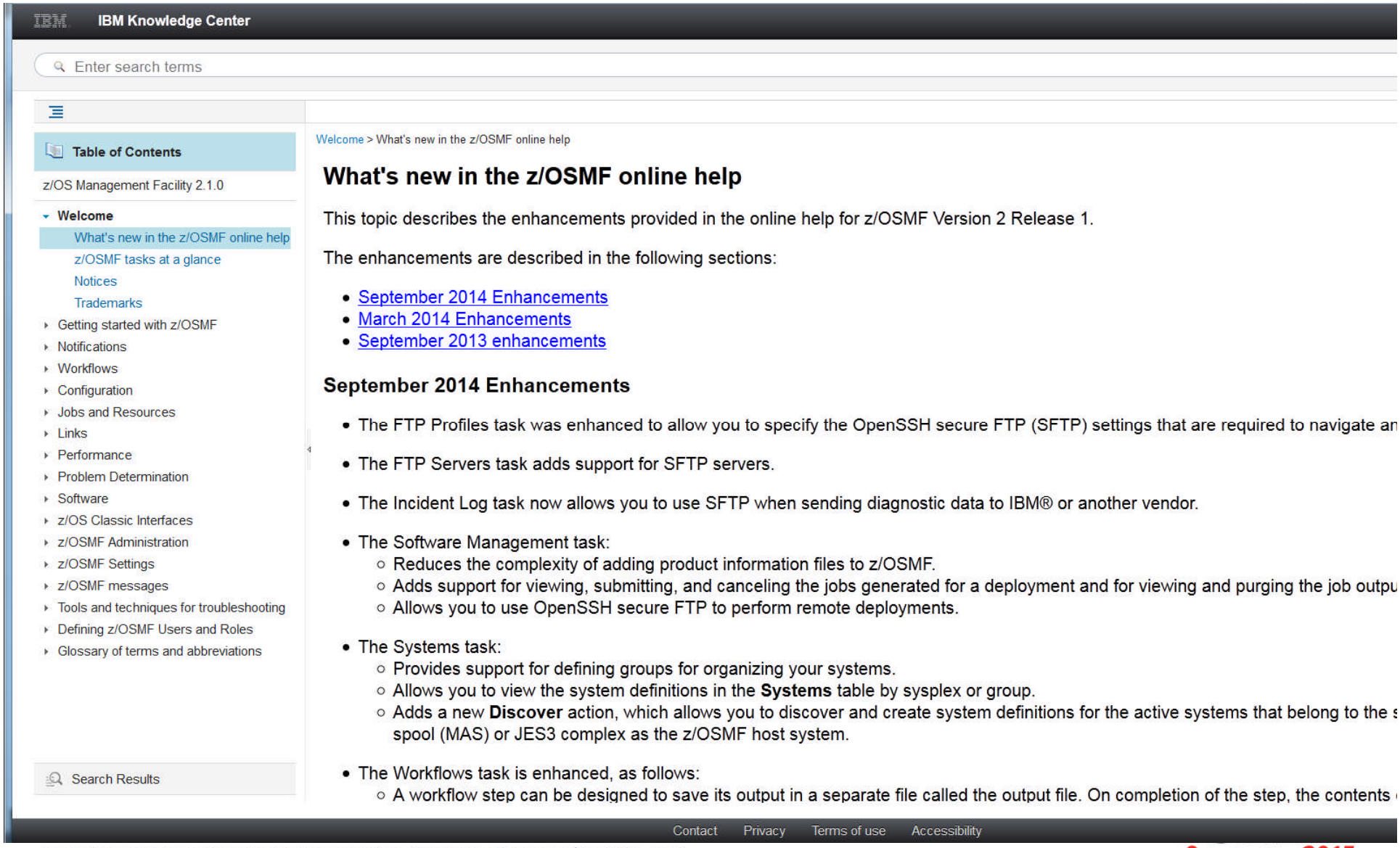
IBM z/OS Management Facility



IBM z/OS Management Facility – What's New



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Use of the WebSphere Application Server Liberty Profile

- **Runs on smaller configurations**
  - Requires available CPU resource equivalent to a processor with a processor capacity index (PCI) of at least 45.
    - See *z/OS Management Facility Resource Requirements* white paper on Techdocs
- **Initializes faster**
  - z/OSMF startup time varies considerably depending upon many factors.
    - These include CPU resource, z/OSMF Server configuration, number of starting applications, type of applications, etc.
    - In the laboratory, we have observed z/OSMF startup time to be approximately 30 seconds in a zEC12 LPAR consisting of one dedicated CPU
      - For the LPAR for the conference labs, startup time is about 10 seconds
      - However, the time was approximately 8 minutes with a minimally configured system.
- **Uses less CPU**
- **Uses less memory**
  - Requires one gigabyte (1 GB) of central storage.
    - This amount is in addition to your existing storage allocation for other applications running in the same z/OS system.
- **Installation of service is easier**
  - For normal service, you no longer have to run a script (izusetup –service)

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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.

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z/OSMF Workflow Application

- **The z/OSMF Workflow application enables a Workflow provider (vendor or user) to define a guided flow 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 to perform the task by:
      - Updating and submiting jobs,
      - Executing shell scripts, and
      - Running 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

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Workflow Recent Enhancements **

PTFs UI90005 and UI90014 (9/30/2014) enhance the Workflows task to enable:

- A workflow step to be designed to save its output in an *output file* which on completion of the step, the contents of the output file become available for use by subsequent steps in the workflow instance, or by other workflow instances. **
- A workflow step to be designed to be performed conditionally, based on whether a logical condition is satisfied on the z/OS system. **

** available for z/OSMF V2.1 with PTF UI90005 and its requisite PTFs

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Workflow's Upcoming Enhancements ***

The following new functions are planned to be made available by March 30 2015:

- **Provide a new REST services are added to allow you to create and manage a workflow programmatically.**
- **Enhance the Workflows XML schema to support workflow-to-workflow execution.**
  - That is, a workflow can be designed to invoke another workflow for execution.
    - The target workflow is referred to as a "called workflow"
- **Provide a scope option for customizing the JOB statement for a workflow.**
  - When you create the JOB statement for a step that runs a job, you can specify a scope for the JOB statement, so that it applies to other steps and workflows.

*** planned availability (March 30, 2015) with PTFs for APARs PI32148, PI32157, PI32158, and PI32163

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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) and creates 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**

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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. z/OSMF)
    - Migrating a new release of software (e.g., z/OS)

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z/OSMF Workflow Exploitation

Sessions 16655, 16940, or 16656
z/OSMF Hands-On Lab
Choose your Own

- **Exploitation of the z/OSMF Workflow Application**
  - z/OSMF V2.1 Configuration Assistant
    - Can create seven new workflows, and uses the Workflow engine to setup the policy agent and other daemons.
  - z/OSMF V2.1 Configuration Workflow
    - To assist in setting up the z/OS prerequisites for each of the z/OSMF plug-ins.
  - On the z/OSMF Downloads web page
    - A sample workflow that transforms the *z/OS Migration* book into a Workflow.
      - **Available to try as part of the z/OSMF Hands-On Labs**
    - z/OS V2R1 zEnterprise Data Compression Setup Workflow
    - z13 Migration/Upgrade Considerations Workflow
  - DB2 for z/OS Migration Workflow
  - z/OSMF V2.1 Sample Workflows
    - They are located at /usr/lpp/zosmf/V2R1/workflow

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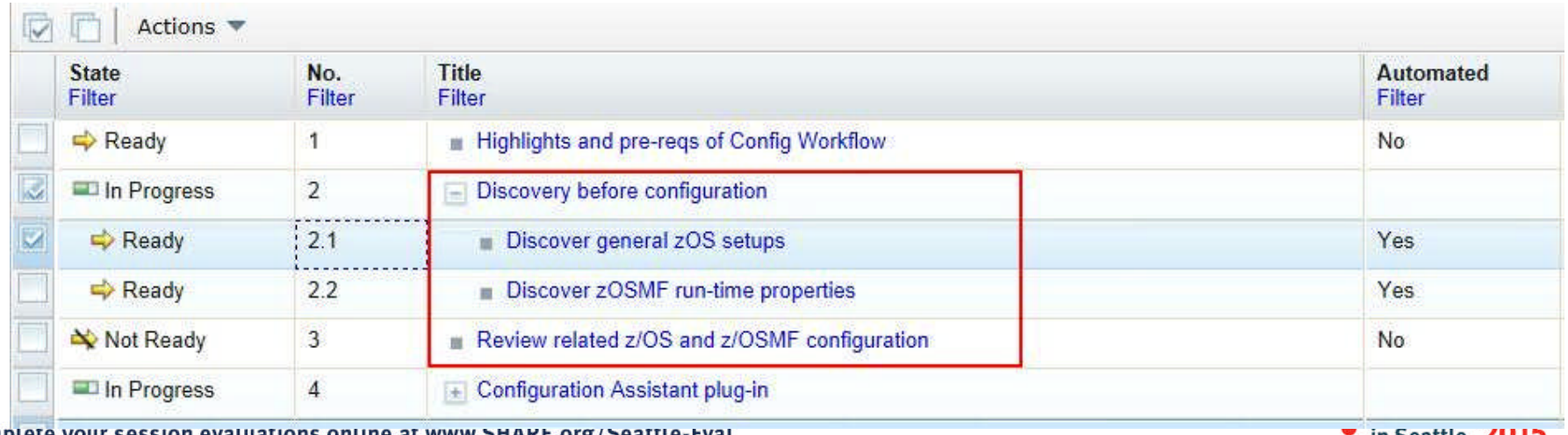
Configuration Workflow Ev

Session 16646 Using z/OSMF Workflows for Configuration

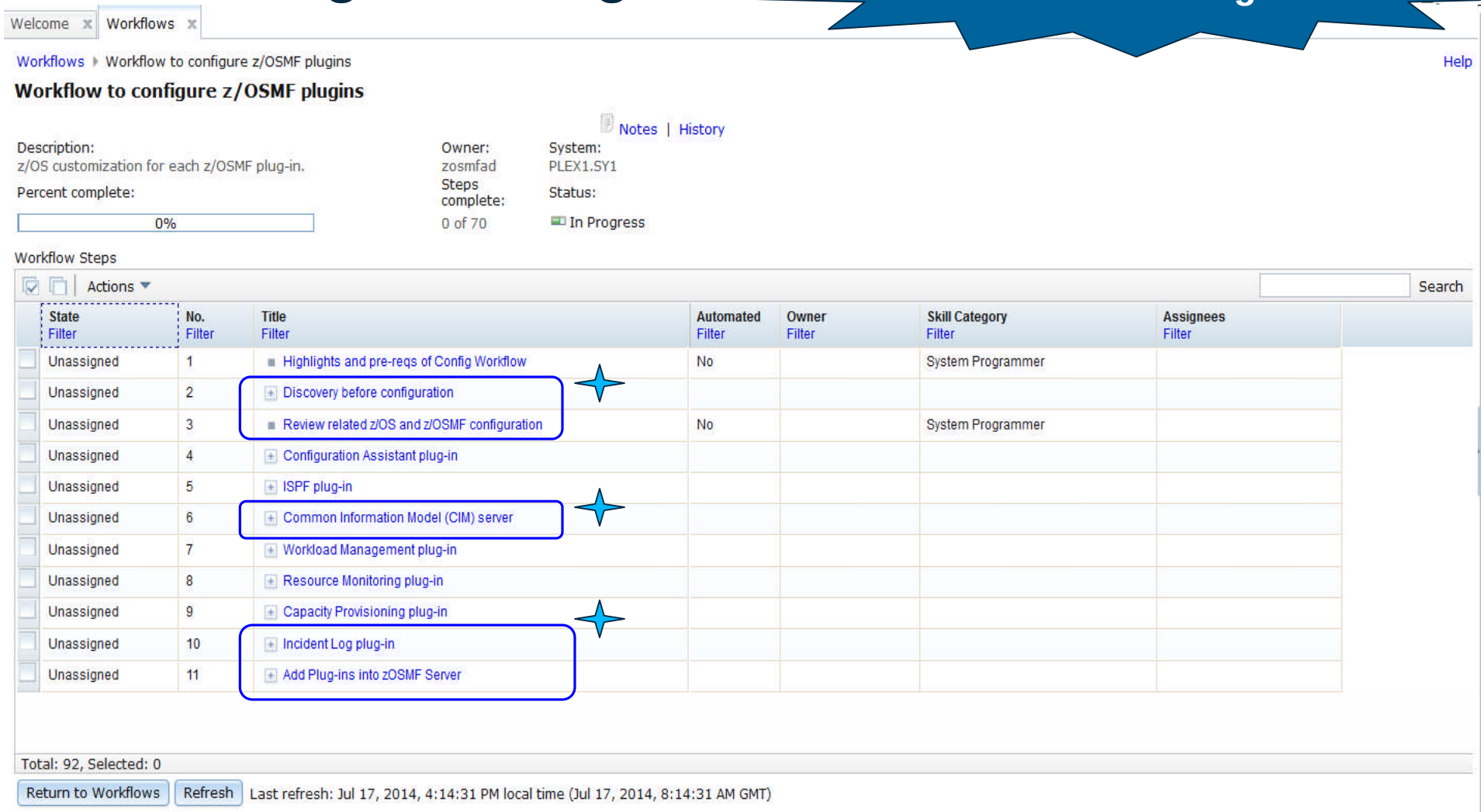
- z/OSMF V2.1 (GA), configuration workflow provided documentation that described instructions on how the tasks could be performed manually.
- z/OSMF V2.1 (PTF UI16044*), configuration workflow provided the a number of wizards to guide the user to implement the requisites for Incident log and configure z/OSMF to add plug-ins.
- z/OSMF V2.1 (PTF UI90005**), configuration workflow provides some discovery functions and utilizes the import function of z/OSMF configuration properties.
- z/OSMF V2.1 (PTF for APAR PI32148***), the configuration workflow is planned to exploit conditional execution to base the steps required to setup ISPF, WLM, Capacity Provisioning, or Incident Log based on the current system configuration.



*** planned availability (March 30, 2015) with PTFs for APARs PI32148

z/OSMF Plug-in Configuration

Session 16646 Using z/OSMF Workflows for Configuration



Steps needed for Incident Log

Complete your session evaluations online at www.SHARE.org/Seattle-Eval

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z/OSMF Plug-in Configuration

Session 16646 Using z/OSMF Workflows for Configuration

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 anal (DAE)
In Progress	10.5	Configuring automatic dump da
In Progress	10.6	Ensure that CEA is configured
In Progress	10.7	Ensure that SYSREXX is confi
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	
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

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External Application Support in z/OSMF*

- **External application support includes two major parts:**
  - A set of Restful services which are invoked by external application to retrieve or send data to associated z/OS back-end applications. Services include:
    - TSO/E Services,
    - Persistence services and
    - File Serving Services
  - Import Manager, task and application linking registration mechanism by properties files, externalized JavaScript logger and JavaScript callbacks.
    - The new Import Manager task under z/OSMF Administration provides the GUI interface to import the properties file and register the web application in the navigation

* available for z/OSMF V2.1 with PTF UI16044 and its requisite PTFs

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Import Manager*

- **The Import Manager task provides the following functions:**
  - Add plug-in to z/OSMF
  - Add application linking event types and handlers to z/OSMF.
  - Add links to z/OSMF
  - View the property file content before import.
  - View/Delete the import history records.
  - View the historical property file content of the import records.
  - Application linking from Links and Application Linking Manager tasks to Import Manager

- **Notes:**
  1. Existing Links task registers external links one at a time via GUI interface
     - User has to type in all the information on the GUI panel
  2. Existing Application linking manager still available for defining application linking events and handlers via a GUI one at a time required for other apps that are not hosted in z/OSMF

* available for z/OSMF V2.1 with PTF UI16044 and its requisite PTFs

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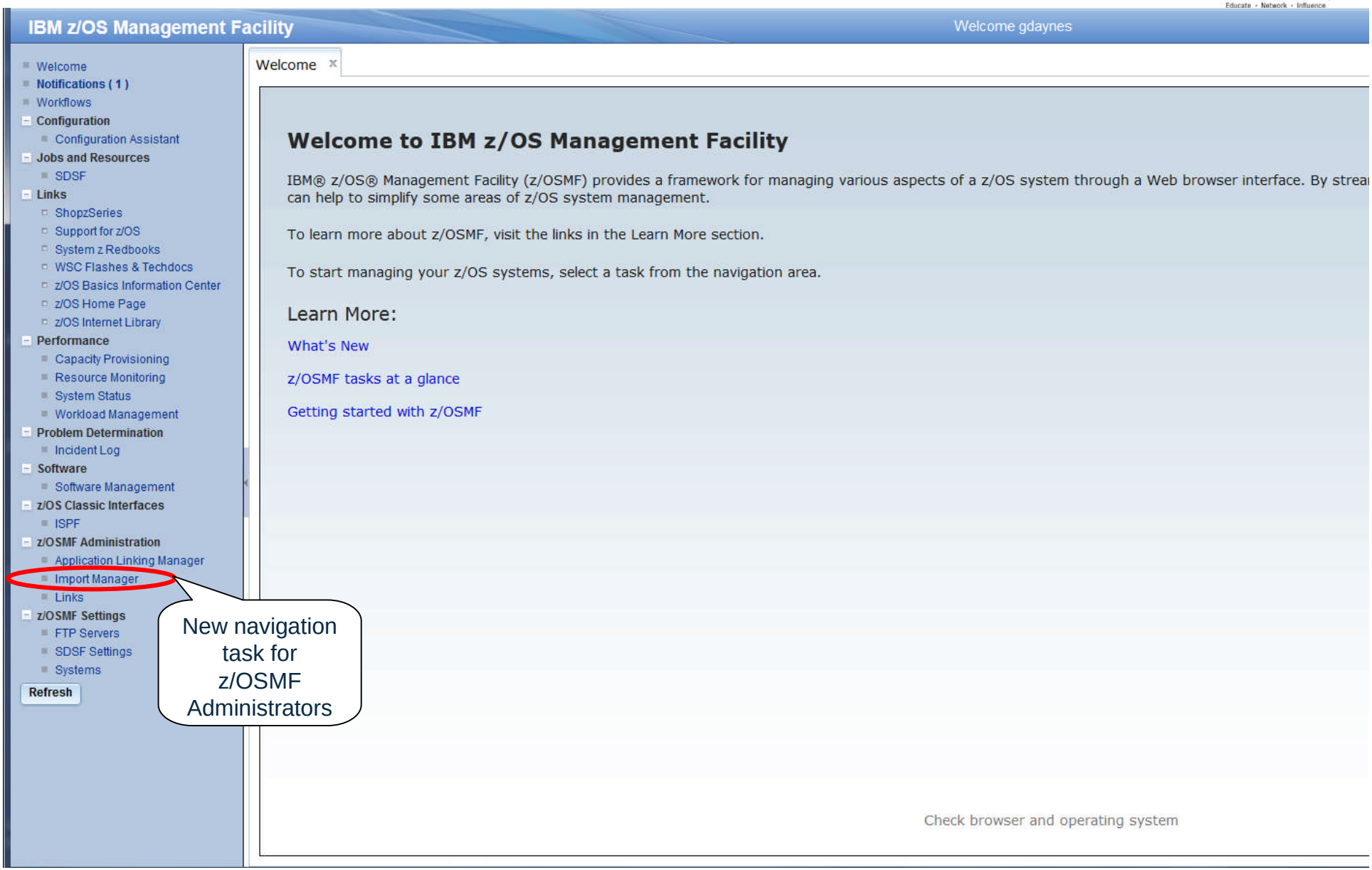
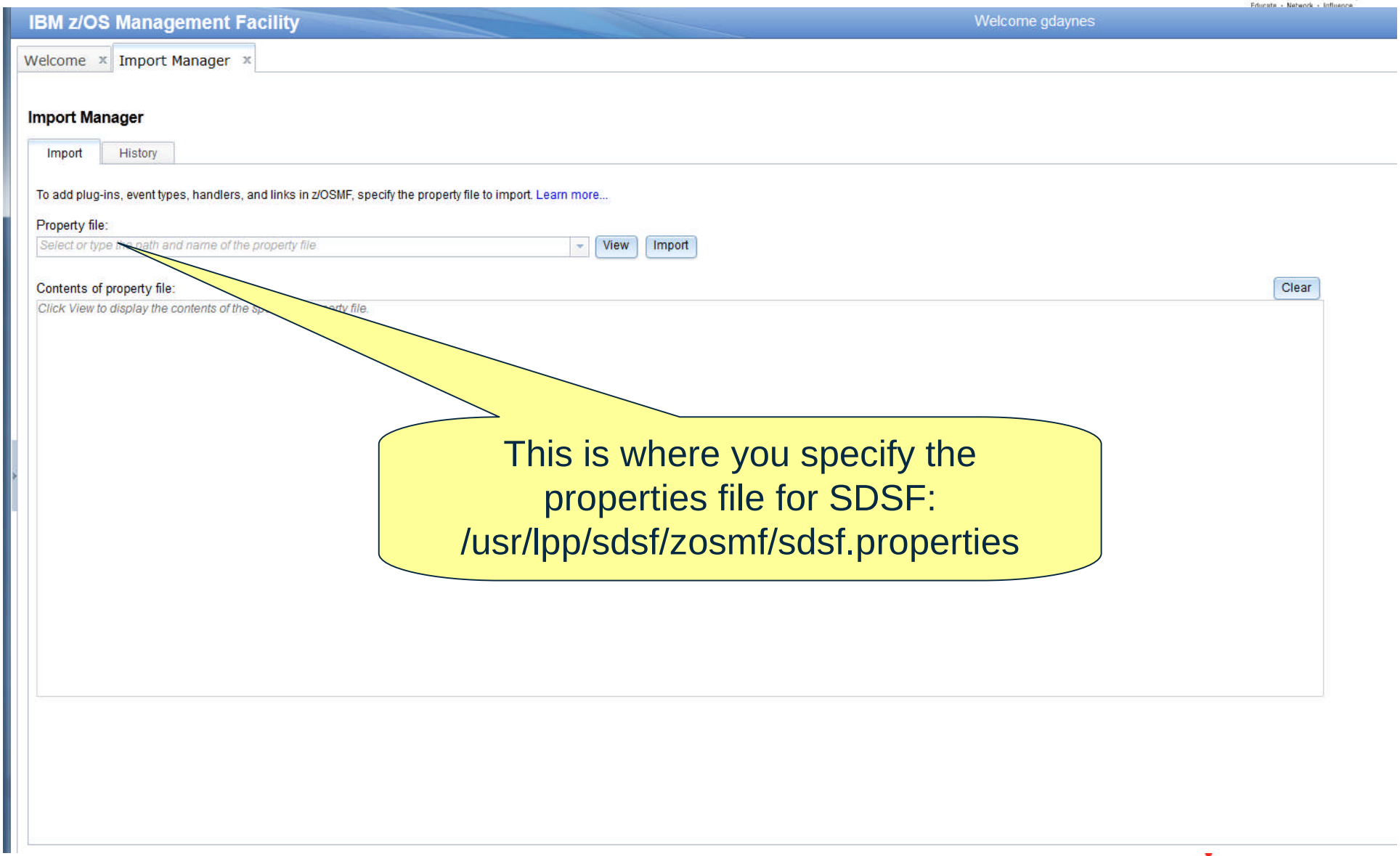
Import Manager*



z/OSMF Import Manager* ….



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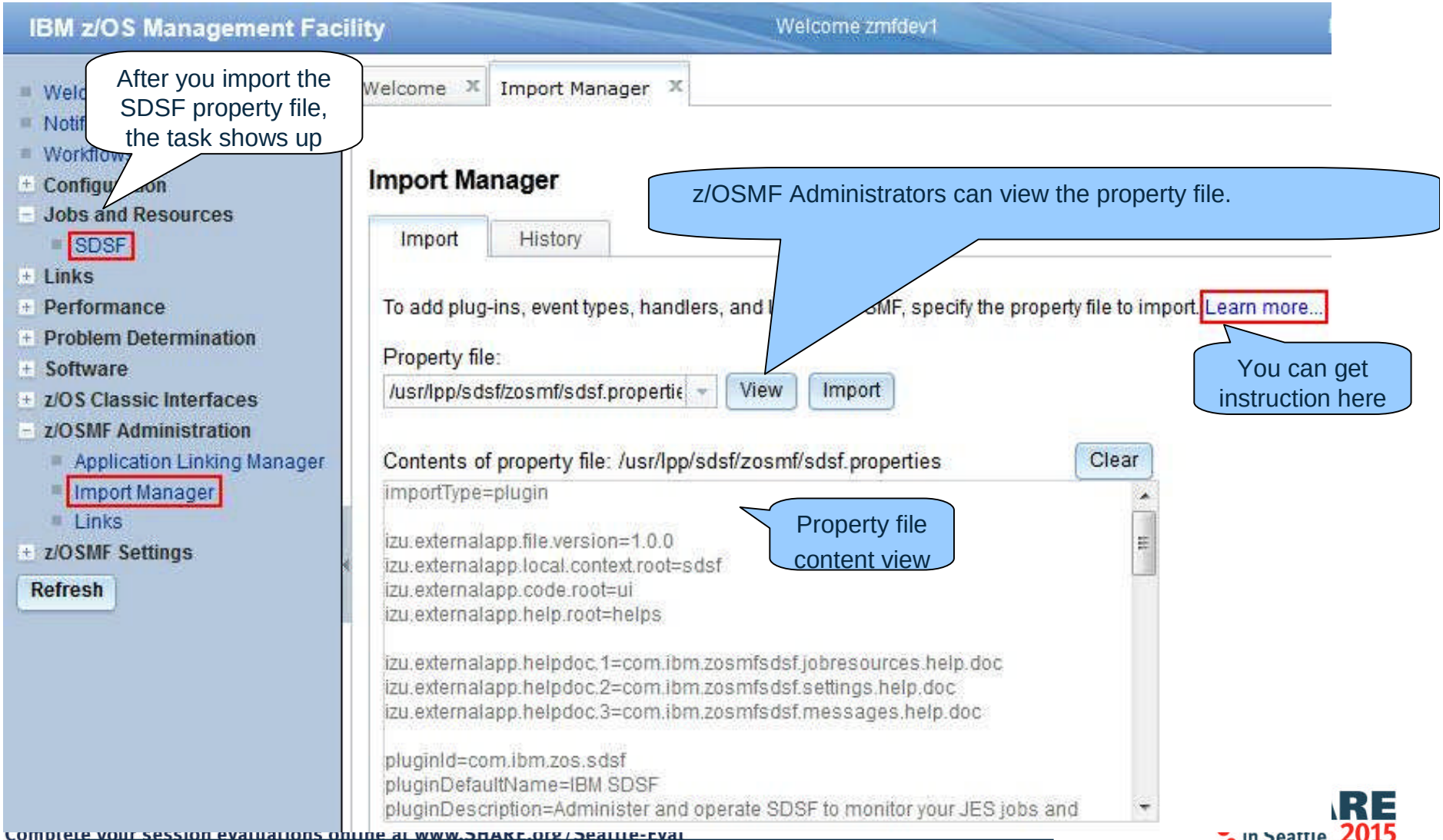
Import Manager – Import Tab*



* available for z/OSMF V2.1 with PTF UI16044 and its requisite PTFs

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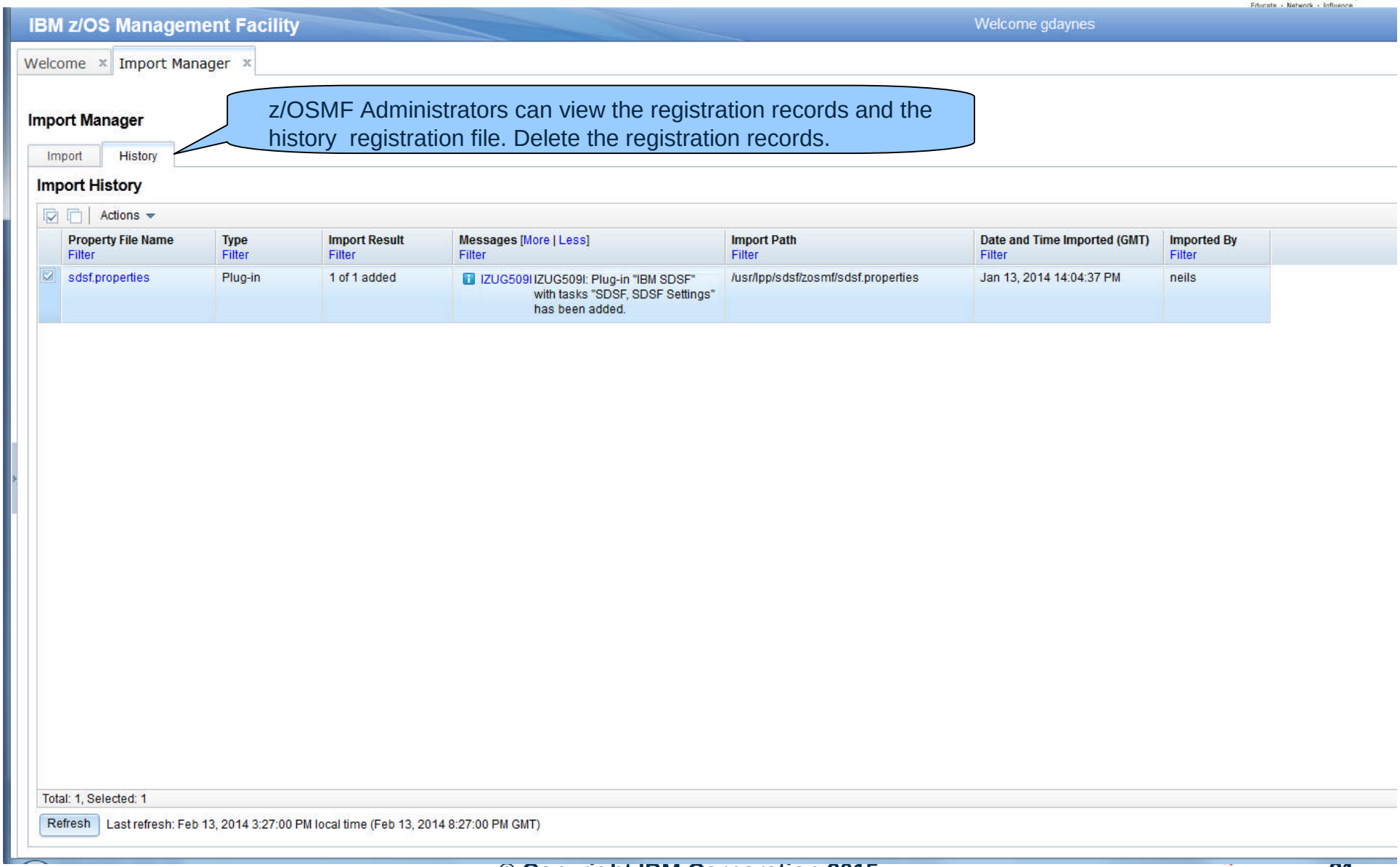
Import Manager – History Tab*



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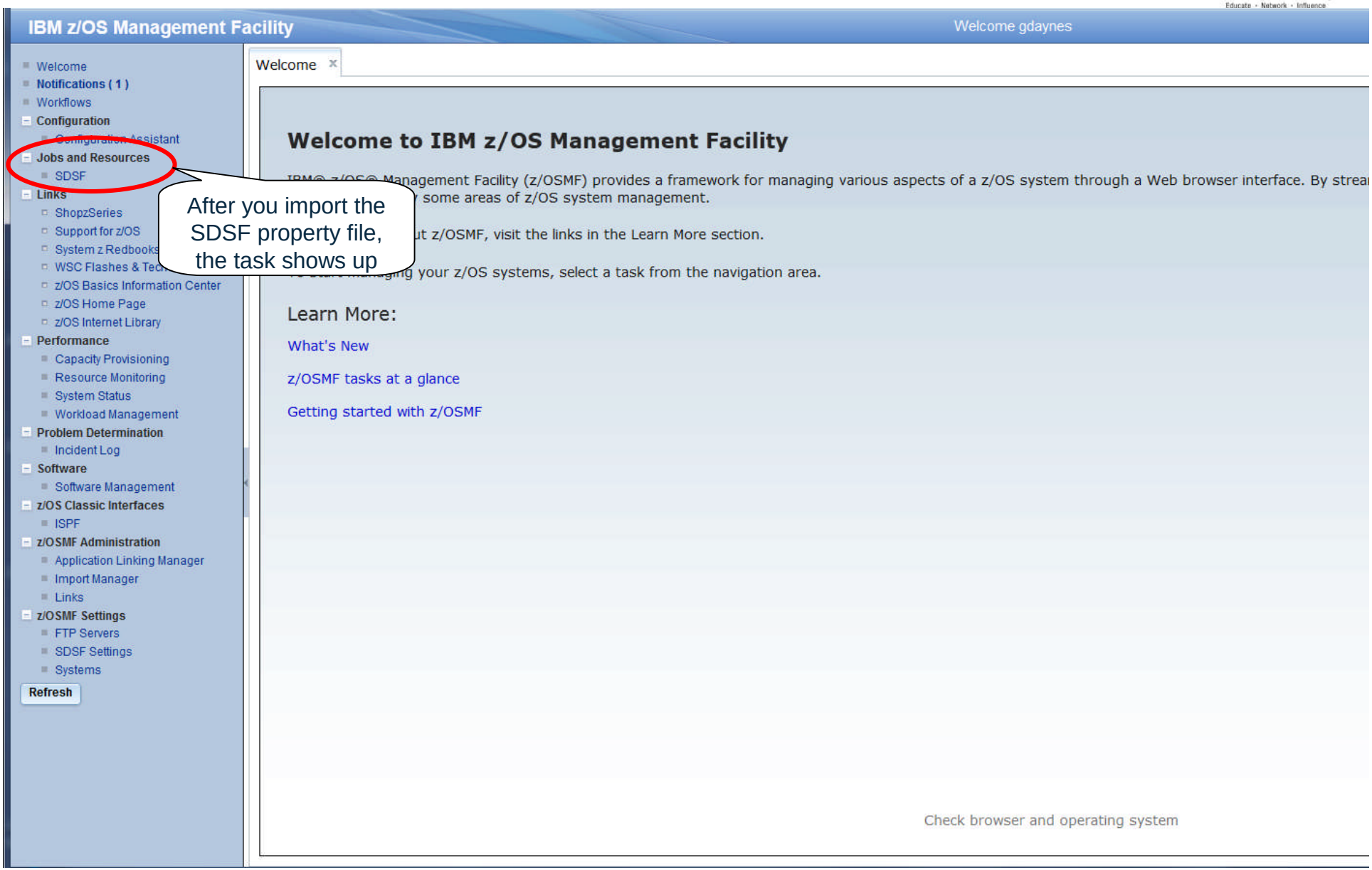
Import Manager*



SDSF Plug-in* Overview

Sessions 16655, 16940, or 16656
z/OSMF Hands-On Lab
Choose your Own

- The SDSF product provides a web interface through a z/OSMF SDSF Plug-in.
  - The Javascript UI calls RESTful web services to retrieve data and perform actions.
- This Plug-in can
  - Show graphic/textual overview about Processors, Spool, Health Checker
  - Display a table of Job list in different status/queue. The property column, filters, sort can be customized, and the table can be exported and printed.
  - Enable users to select a Job, view detailed properties, and perform actions such as Cancel, Edit, Submit, etc.
  - Issue system command and display output.
  - Display the User Session Log. Users can search and take notes.

* available with z/OS V2.1 SDSF PTF UI15294 and z/OSMF V2.1 with PTF UI16044

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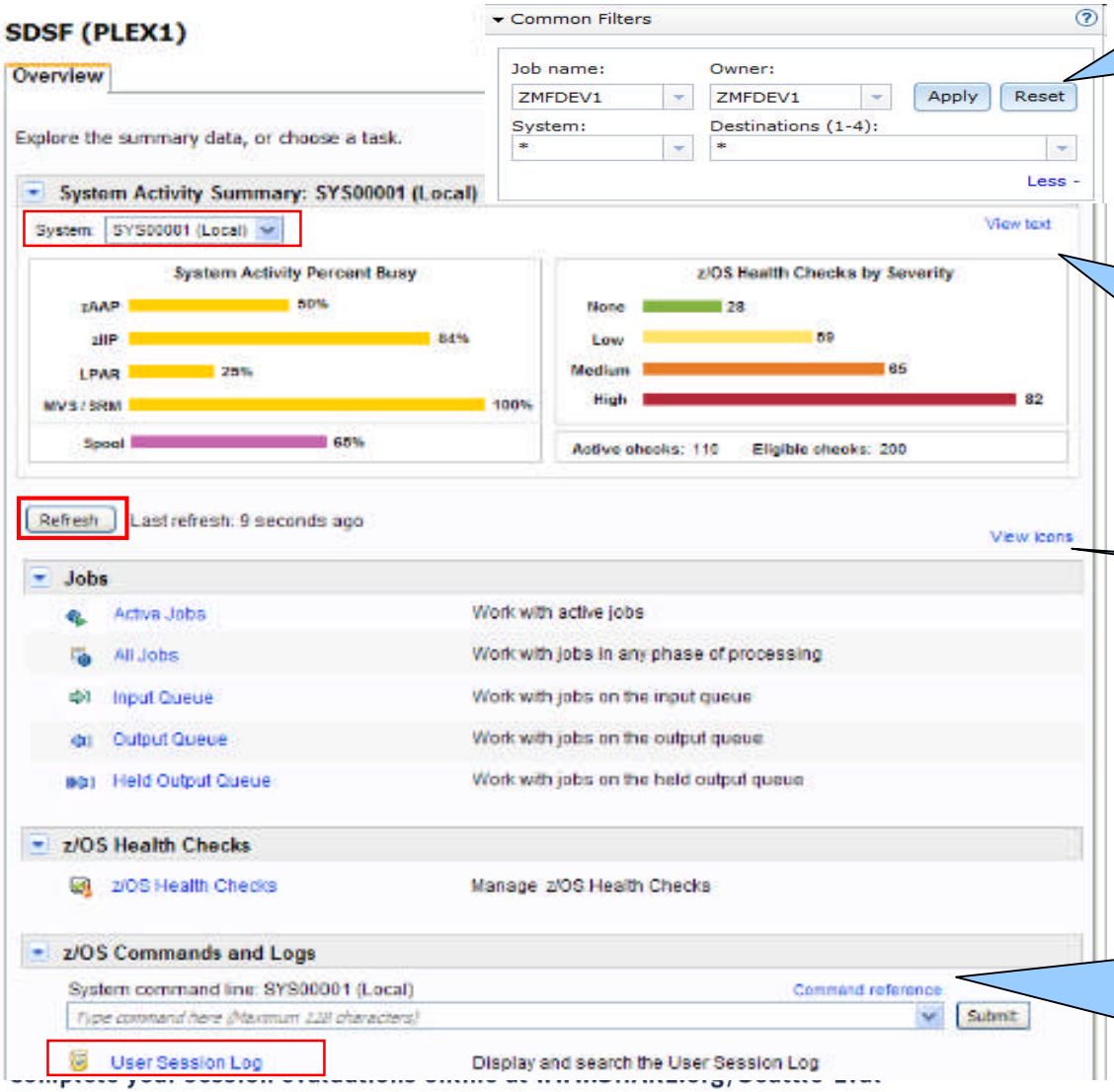
SDSF Overview*

Sessions 16655, 16940, or 16656
z/OSMF Hands-On Lab
Choose your Own



Different Common Filters can apply to different views : Active Jobs, All Jobs, Held Output Queue, Input Queue, Output Queue, Health Checks

View text can change the graphics to text view. **System** drop list or **Refresh** button can update the System Activity Summary. **Common Filters** don't apply to this view.

This link can change to more abbreviated icon view. Clicking each view link can open new tab

This link opens help related to starting words typed by users.

A command history of 30 commands will be saved in the combo box . Command responses are displayed in a pop-up window. The results also go to the User Session Log and can be seen there.

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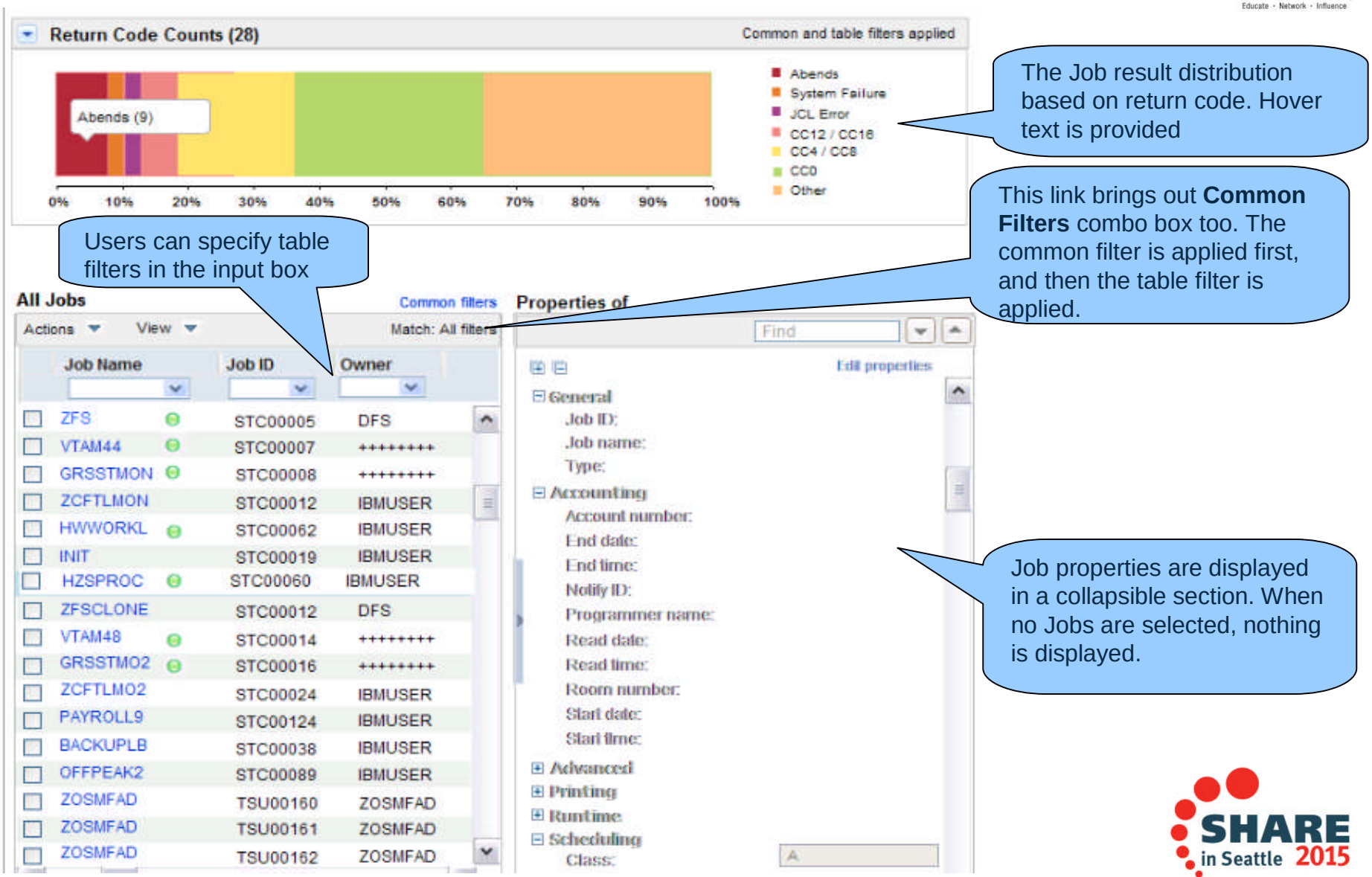
* available with z/OS V2.1 SDSF PTF UI15294 and z/OSMF V2.1 with PTF UI16044

All Jobs View *



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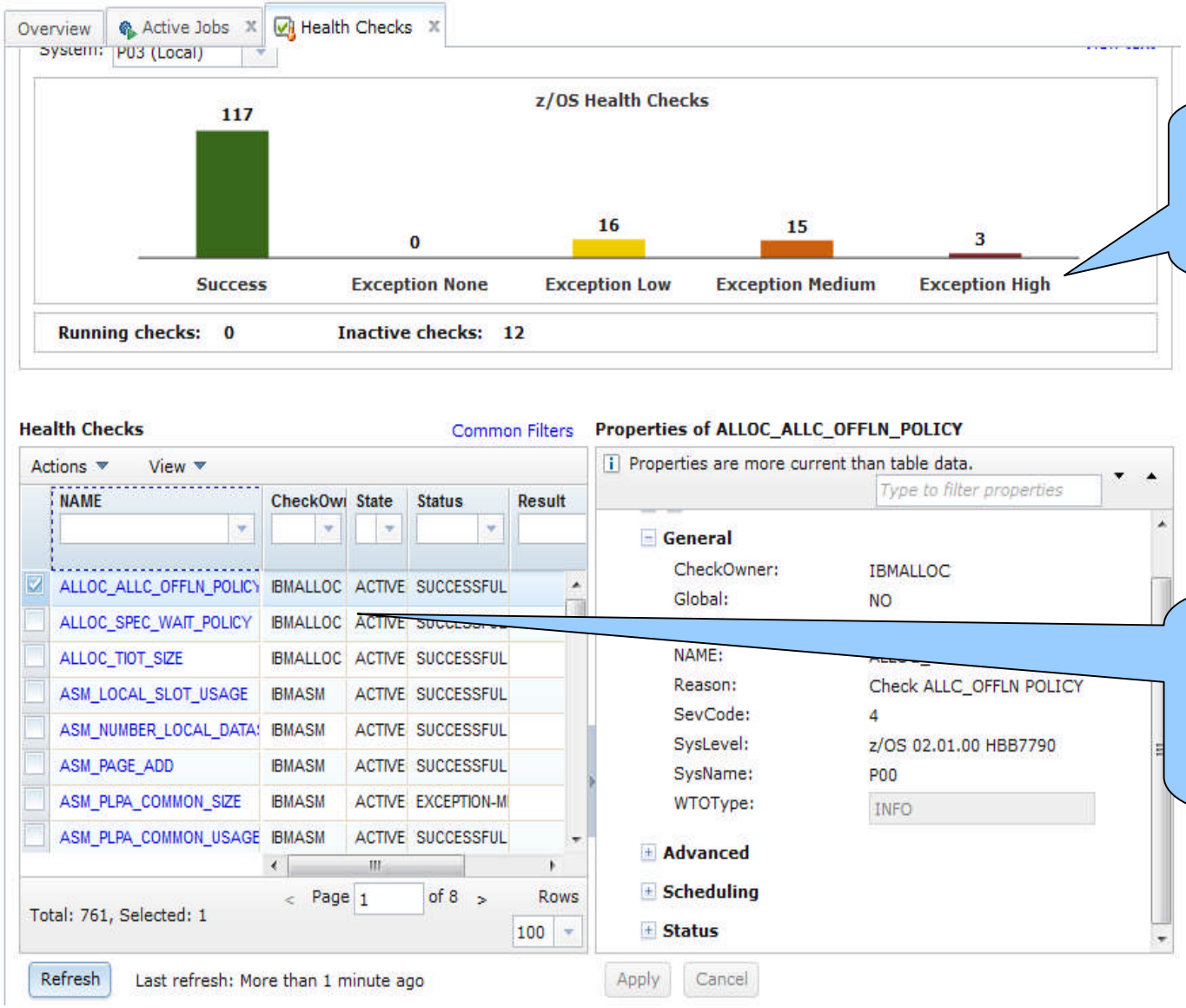
* available with z/OS V2.1 SDSF PTF UI15294 and z/OSMF V2.1 with PTF UI16044

z/OS Health Checks View*



Shows counts for checks by status, with exceptions grouped by severity, followed by counts of running checks and inactive checks.

To browse a check and see its history, click the check name, or use the **Browse** and **Display History** action. A new tab will popup. Users can perform other operations under **Actions** menu.

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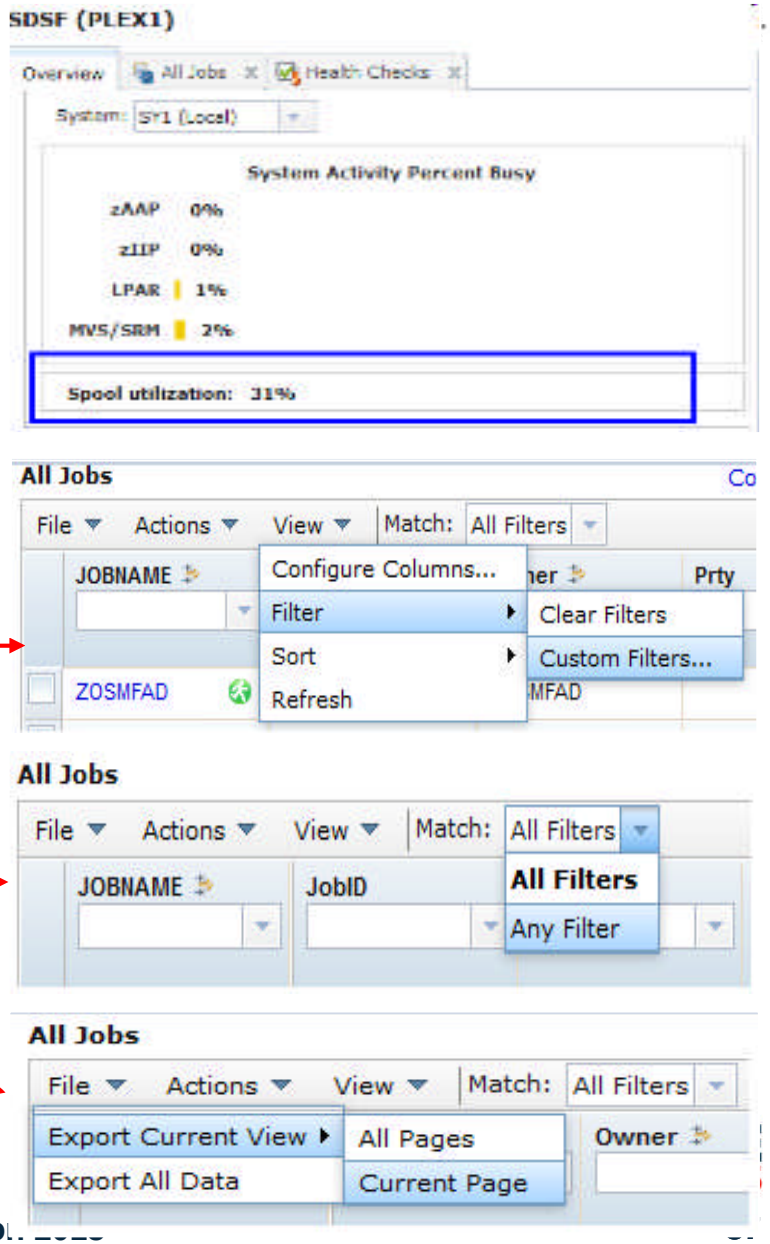
* available with z/OS V2.1 SDSF PTF UI15294 and z/OSMF V2.1 with PTF UI16044

SDSF –View Restructure **

- Remove the Spool utilization bar and add the value of the bar to the graph footer in text.
- Regardless of table selection, the More actions item under Actions pull-down will be always enabled so that the user can view SDSF actions without selecting any rows.
- Restructure the table View menu.
  - Filter and sort related actions are separated by groups.
  - The Filter Match selection is moved to table header. Default value is All Filters. Selection from this menu results in immediate change to the match value and table data.
  - Export Table Data actions are move to a new table pull-down named File.



** available for z/OSMF V2.1 with PTF UI90005 and z/OS SDSF PTF UI90004

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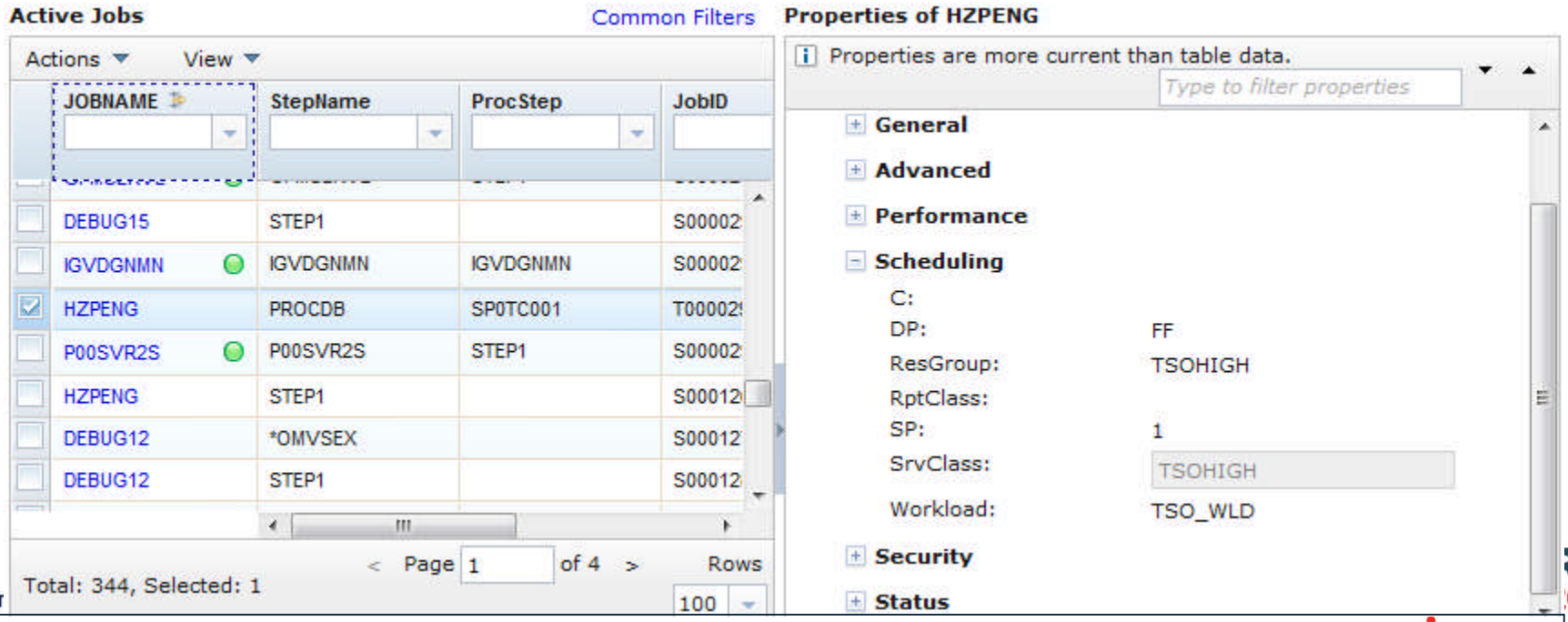
SDSF - Property Sheet Usability **

- Persist the real-time property sheet width as part of user customization cross sessions so that the property sheet will always be rendered in user-demanded width.
  - The width percentage is persisted by command, so different views have their own width percentage separately.
- If the property sheet is collapsed (hidden), the UI will suppress the properties loading, which improves the efficiency.



** available for z/OSMF V2.1 with PTF UI90005 and z/OS 2.2 SDSF PTF UI90004

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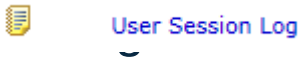
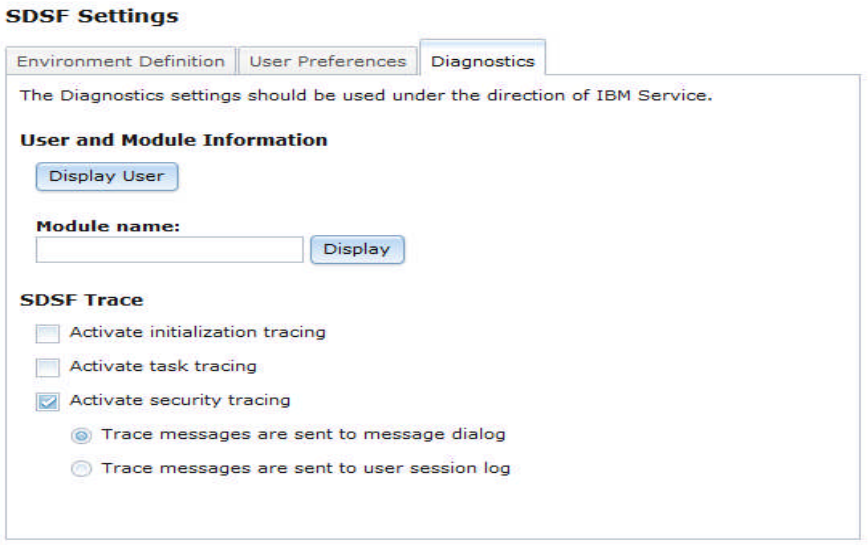
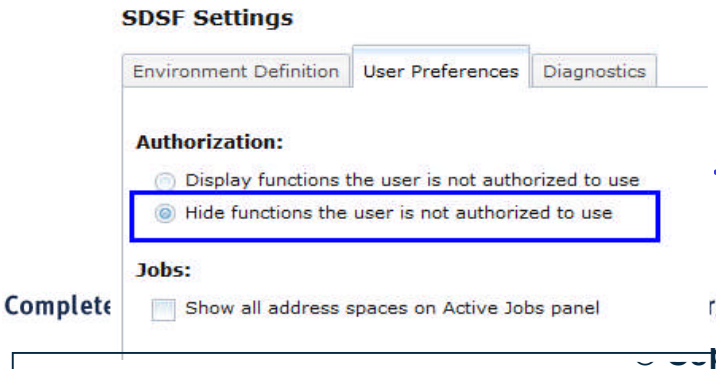
SDSF – Security **

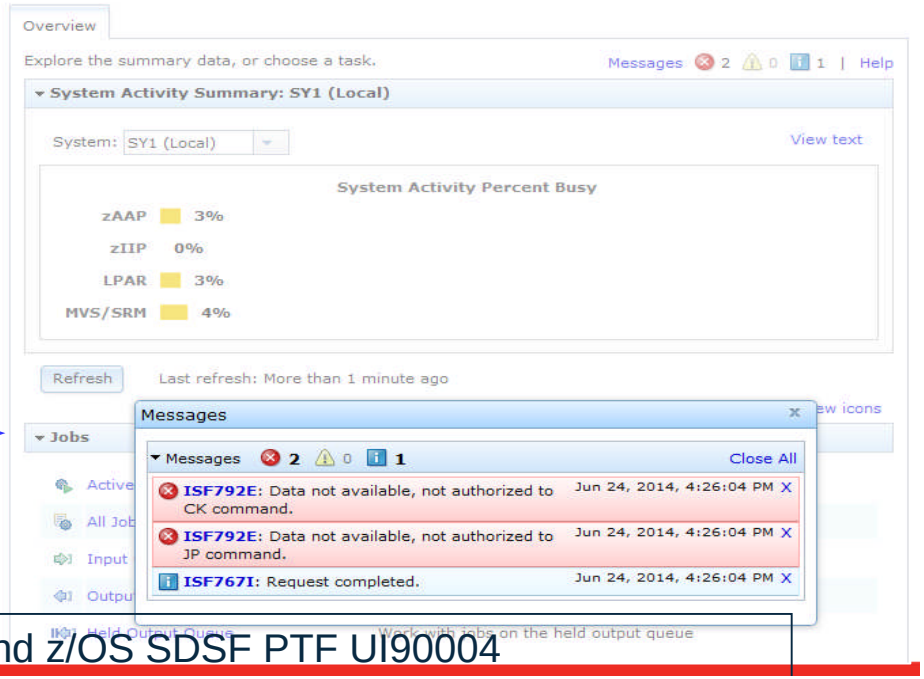
- New SDSF Settings panel layout. Add security tracing support:
  - Send trace messages to message dialog

  - Send trace messages to user sess 

- Give user control to show or hide UI elements including those the user is not authorized to use.
- The UI elements to be shown/hidden are graphic sections in both Overview panel and table views.







Complete rg/Seattle-Eval
pyright IBM Cor

** available for z/OSMF V2.1 with PTF UI90005 and z/OS SDSF PTF UI90004

z/OSMF Management Tasks

- **Configuration**
  - **Configuration Assistant for z/OS Communications Server**
- **Performance**
  - **Capacity Provisioning**
  - **Resource Monitoring and System Status**
  - **Workload Management**
- **Problem Determination**
  - **Incident Log**
- **Software**
  - **Management (originally called Deployment)**
- **z/OS Classic Interface**
  - **ISPF**

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Configuration Assistant for z/OS Communications Server

Sessions 16946 and 16947 z/OSMF Configuration Assistant for z/OS Communications Server 2.1 Hands-on Labs

- **A GUI for the z/OS Communications Server Policy Agent – it simplifies the configuration and setup of TCP/IP policy-based networking functions.**
  - **Supports the following technologies:**
    - **Application Transparent TLS (AT-TLS)**
    - **IP Security (IPSec) including filters and VPNs**
    - **Network Security Server(NSS)**
    - **Intrusion Detection Services (IDS)**
    - **Policy-based Routing (PBR)**
    - **Quality of Service (QoS)**
- Initially available as a Microsoft Windows Web download (since z/OS V1.7)
  - Was provided with z/OSMF (starting with z/OSMF V1.11)
  - z/OS V1.13 was the last release supported by the web download tool.
  - **With z/OS V2.1, users must migrate to z/OSMF**

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Configuration Assistant for z/OS Communications Server

- **Available with z/OSMF V1.11**
  - Configuration files can now be saved to local disk storage that is accessible to your z/OS system where the Configuration Assistant is running so FTP (from Windows) is not required
  - Can also import configuration text files in cases where users have already defined policies and would like to begin using the Configuration Assistant
- **Enhancements in z/OSMF V1.12**
  - Support for Internet Key Exchange (IKE) version 2
  - Support for FIPS-140 cryptographic mode for IPSec and IKE
  - Simpler AT-TLS rules
  - Support the configuration of certificate trust chains and certificate revocation lists.
- **Enhancements in z/OSMF V1.13**
  - Define policies once and use for multiple stacks,
  - Configure networks for both z/OS R12 and R13 mixed environments
  - Import existing stack settings
  - Improved Intrusion Detection function

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Configuration Assistant for z/OS Communications Server

Sessions 16946 and 16947 z/OSMF Configuration Assistant for z/OS Communications Server 2.1 Hands-on Labs

- **Enhancements in z/OSMF V2.1**
  - Provides a modern, intuitive interface that is consistent with other z/OSMF tasks.
    - Exploits the z/OSMF Workflow function for setting up Policy agent and other daemons.
  - Requires less z/OS CPU usage.
  - Allows you to configure z/OS V1.12, V1.13, and V2.1 Communications Server policy based definitions.
  - Adds AT-TLS support for the following RFCs:
    - Renegotiation options (RFC 5746)
    - Elliptic Curve Cryptography (RFC 4492 and RFC 5480)
    - TLSv1.2 (RFC 5246)
    - AES GCM Cipher Suites (RFC 5288)
    - Suite B Profile (RFC 5430)
    - ECC and AES GCM with SHA-256/384 (RFC 5289)
  - Adds Policy Based Routing (PBR) support for IPv6.

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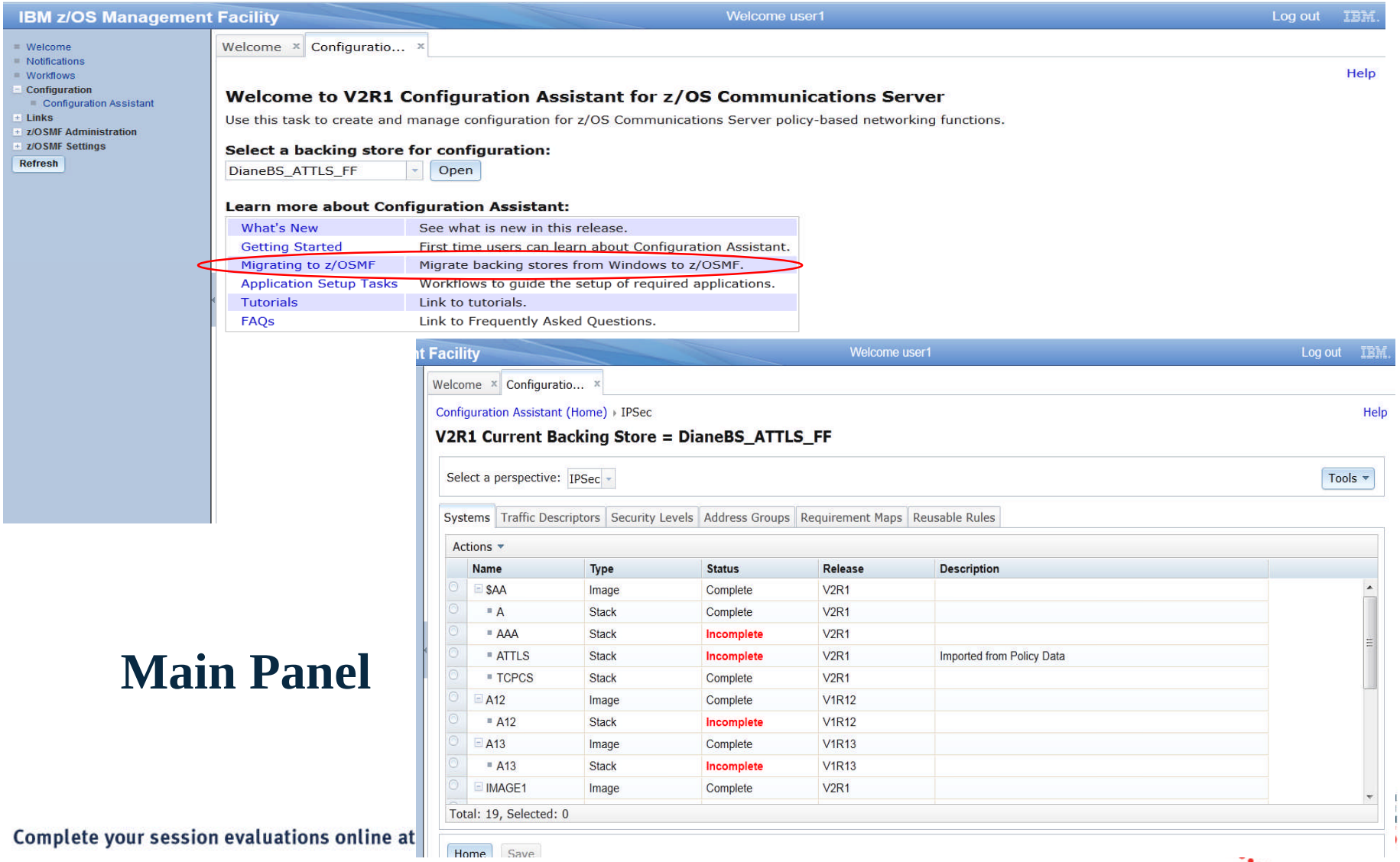
Configuration Assistant z/OSMF V2.1 Welcome Panel



Main Panel

Complete your session evaluations online at

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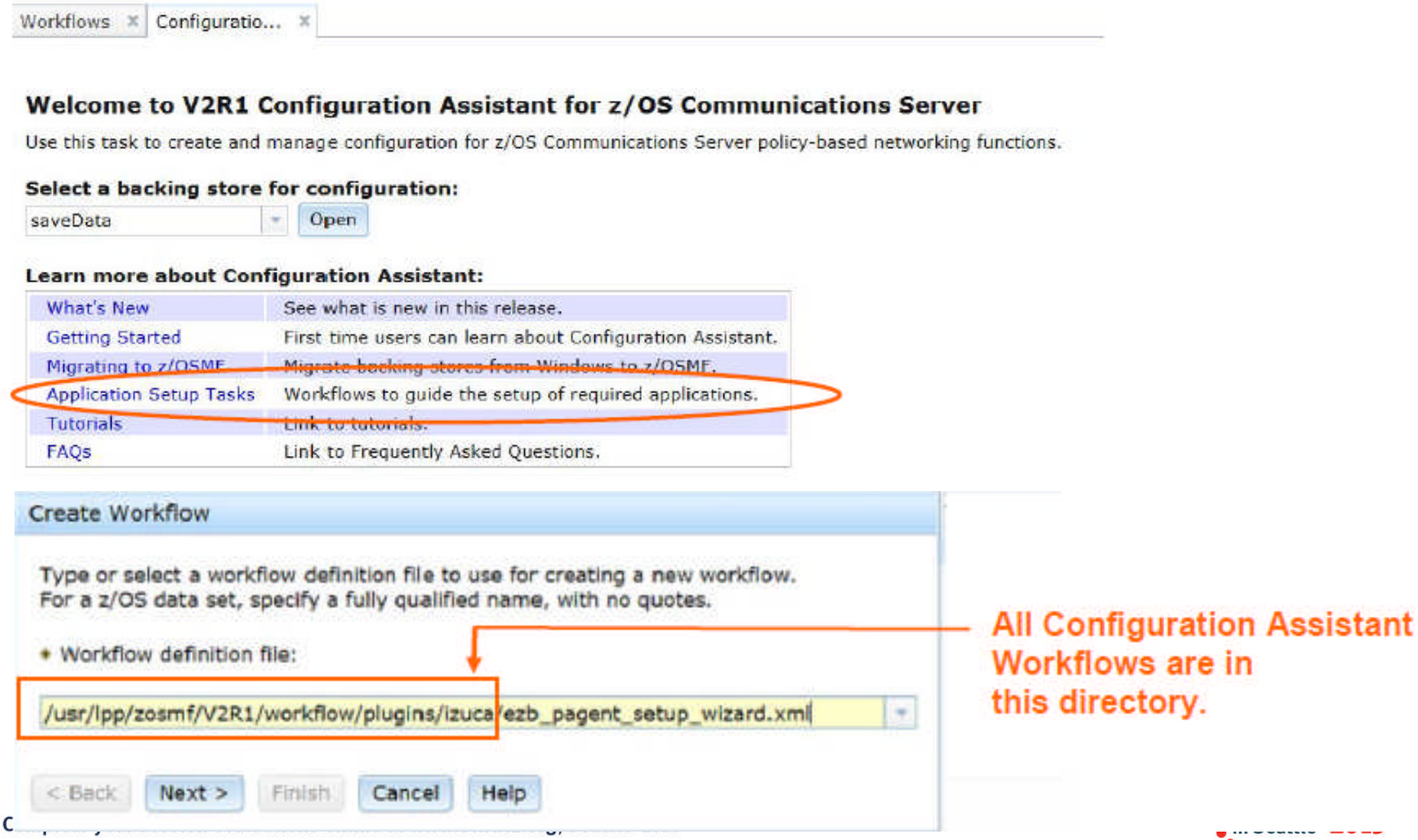
Configuration Assistant z/OSMF V2.1 Welcome Panel



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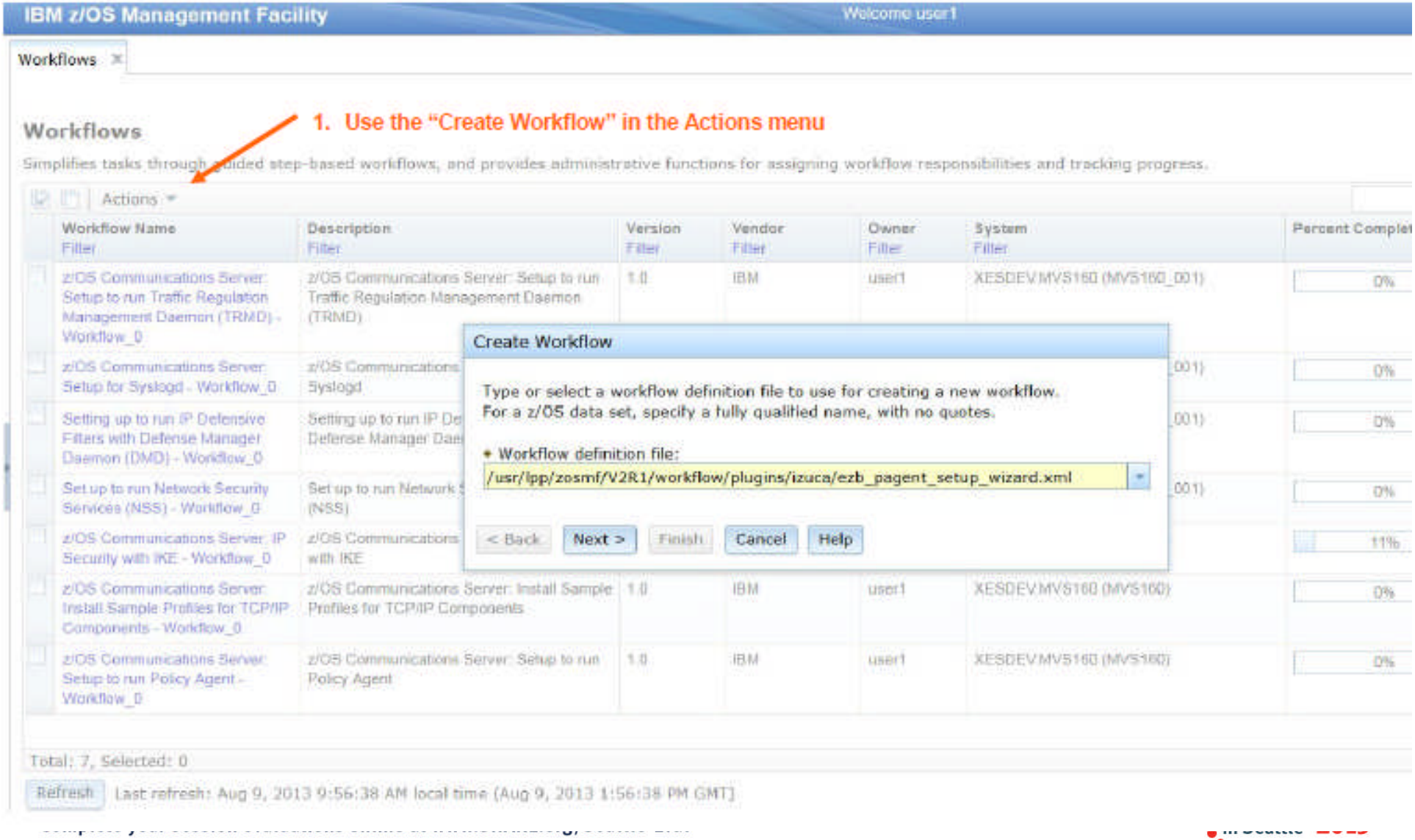
Configuration Assistant z/OSMF V2.1 Workflows



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z/OSMF Management Tasks

- Configuration
  - Configuration Assistant for z/OS Communications Server
- **Performance**
  - **Capacity Provisioning**
  - Resource Monitoring and System Status
  - Workload Management
- Problem Determination
  - Incident Log
- Software
  - Management (originally called Deployment)
- z/OS Classic Interface
  - ISPF

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z/OSMF Capacity Provisioning

- **z/OSMF Capacity Provisioning task**
  - Simplifies the **monitoring** of z/OS CP connections, domains, configurations, and policies
  - Initially a separate Windows-based tool required for z/OS CP **management** functions.
    - With z/OMSF APAR PM74519 the z/OSMF Capacity Provisioning application is enhanced to allow you to create, edit, and activate domain configurations and capacity provisioning policies.
      - With these new functions z/OSMF Capacity Provisioning supports all the functions available in the Microsoft Windows-based Capacity Provisioning Control Center (CPCC).
    - **z/OS V1.13 was the last release supported by Microsoft Windows-based CPCC.**
      - **With z/OS V2.1, users must migrate to z/OSMF**
- **z/OSMF Capacity Provisioning task (z/OSMF V2.1)**
  - Support is provided for Defined Capacity and Group Capacity.

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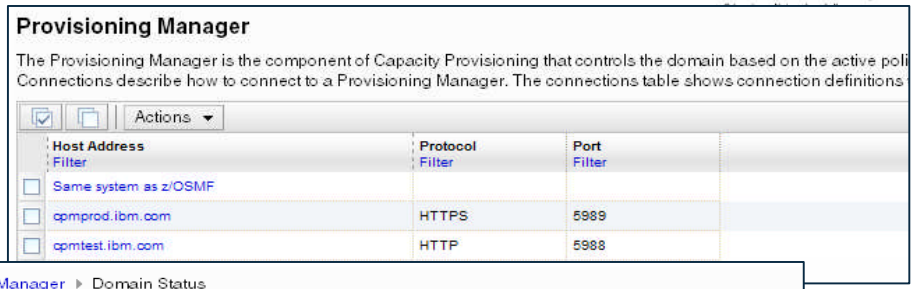
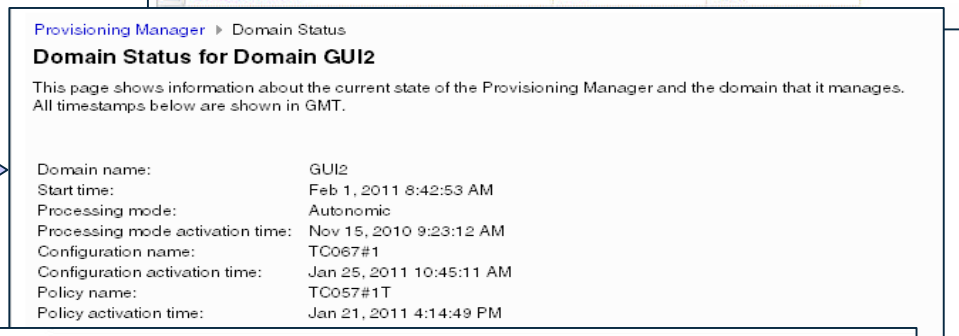
z/OSMF Capacity Provisioning

Manage CIM connections to access a Provisioning Managers



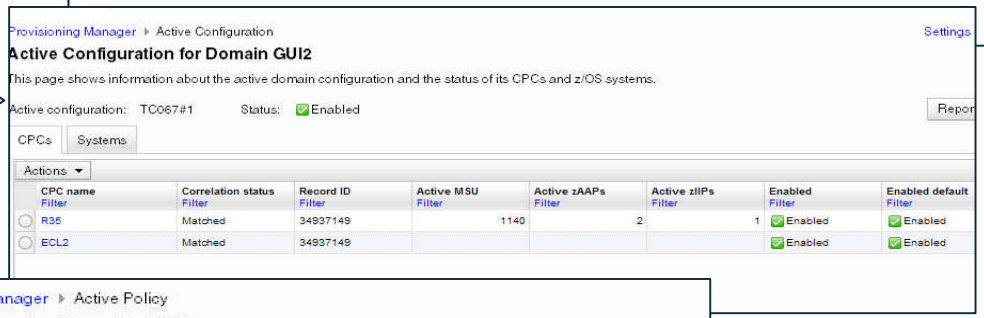
View detailed status about a domain

Quick switch between reports for same domain



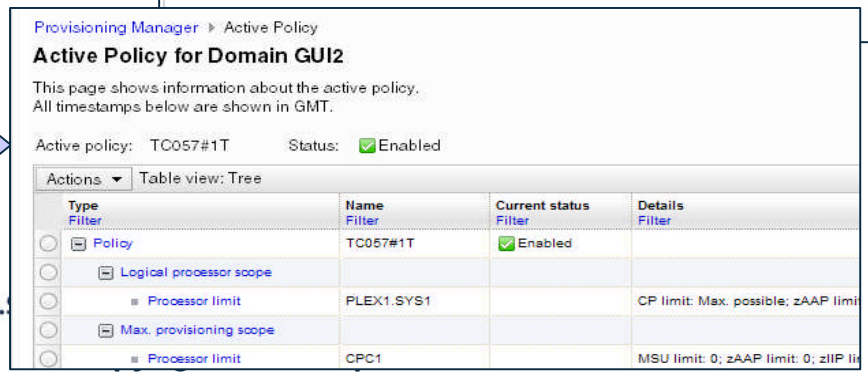
View information about the active configuration for a domain

•Drill down to CPC or system



View information about the active policy for a domain

Drill down to policy element



z/OSMF Management Tasks

- Configuration
  - Configuration Assistant for z/OS Communications Server
- **Performance**
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  - ISPF

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z/OSMF Resource Monitoring

Session 16801 Getting Started with z/OSMF Resource Monitoring - Hands-on Lab

- The z/OSMF Resource Monitoring application provides integrated performance monitoring in the customer's environment
- Supports z/OS sysplexes and Linux images (System z and Intel) in your installation
  - Requires the RMF z/OS Data server (DDS) on each sysplex being monitored and the Linux data gatherer (rmfpms) running on the Linux image that is being monitored.
- There are two z/OSMF tasks: *Resource Monitoring and System Status*
  - Resource Monitoring task:
    - Monitor most of the metrics supported by the Resource Measurement Facility (RMF) Monitor III
    - Create and save custom views of the metrics easily, and
    - Display real-time performance data as bar charts.
      - Predefined views provided for a quick start.
      - Advanced filtering features for focused monitoring
  - System Status task:
    - Quickly Assess the performance of the workloads running on the z/OS sysplexes in your environment.
    - The System Status task also provides a single location where you can define the z/OS sysplexes and Linux images to be monitored in the Monitoring Desktops task.

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z/OSMF Resource Monitoring

Session 16801 Getting Started with z/OSMF Resource Monitoring - Hands-on Lab

- **Enhancements in z/OSMF V1.13**
- With z/OS V1.13, RMF has new performance data gatherers for Linux on System z, Linux on System x, and AIX systems to provide a consistent monitoring solution for zEnterprise ensembles.
  - Application Linking between Resource Monitoring and WLM
- **Enhancements in z/OSMF 2.1**
  - The data gatherers for Windows system complexes (System x) are also integrated into z/OSMF to give you the ability to monitor those resources.
  - System Status expands the scope of monitoring to include Windows system complexes in your enterprise
  - Retrieve Historical Data*
    - New feature can retrieve historical performance data from Resource Monitoring DDS before a RM dashboard was started.
  - Export data collected in monitoring dashboards*

* available for z/OSMF V2.1 with PTF UI16044 and its requisite PTFs

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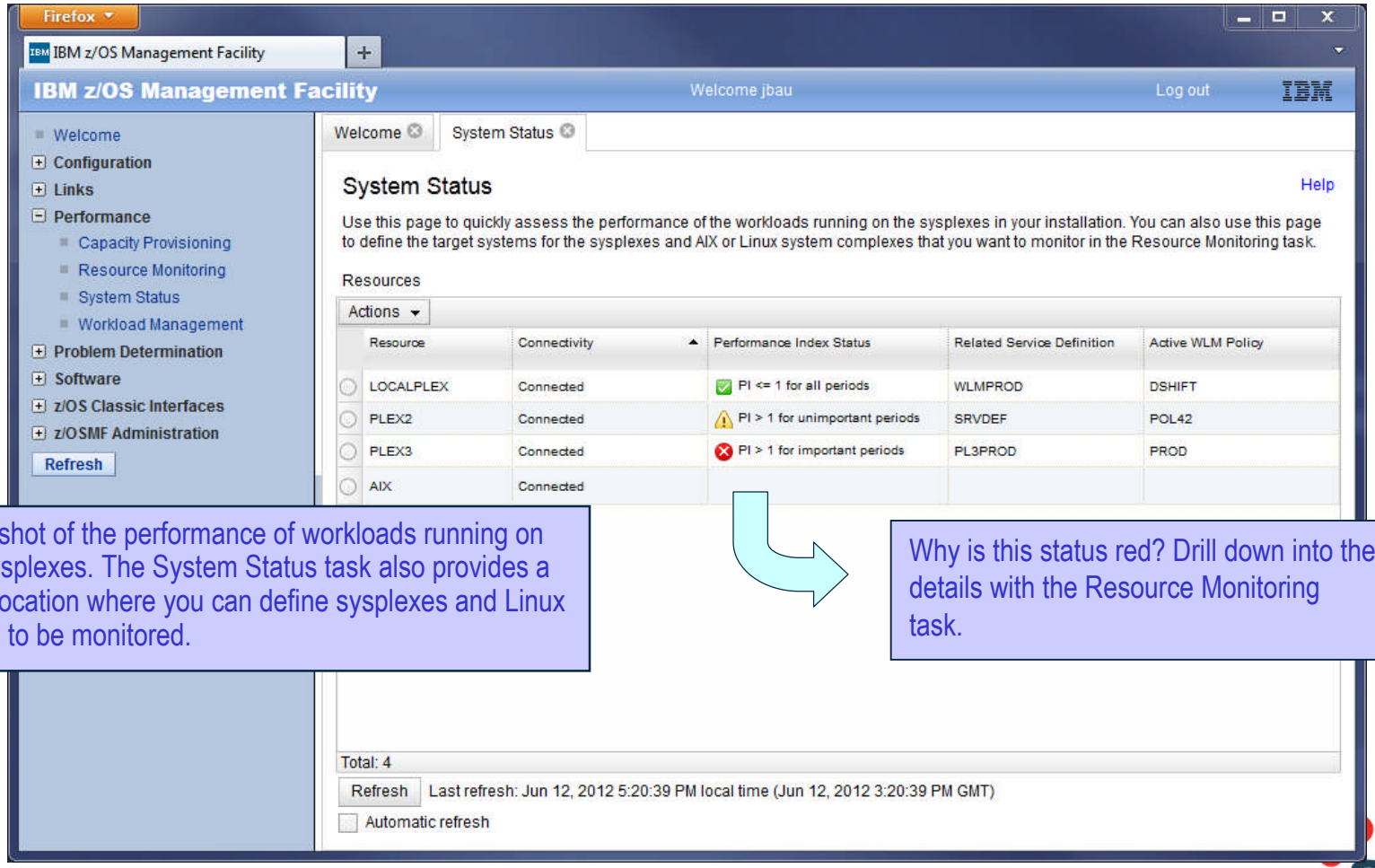
Resource Monitoring : System Status



A snapshot of the performance of workloads running on your sysplexes. The System Status task also provides a single location where you can define sysplexes and Linux images to be monitored.

Why is this status red? Drill down into the details with the Resource Monitoring task.

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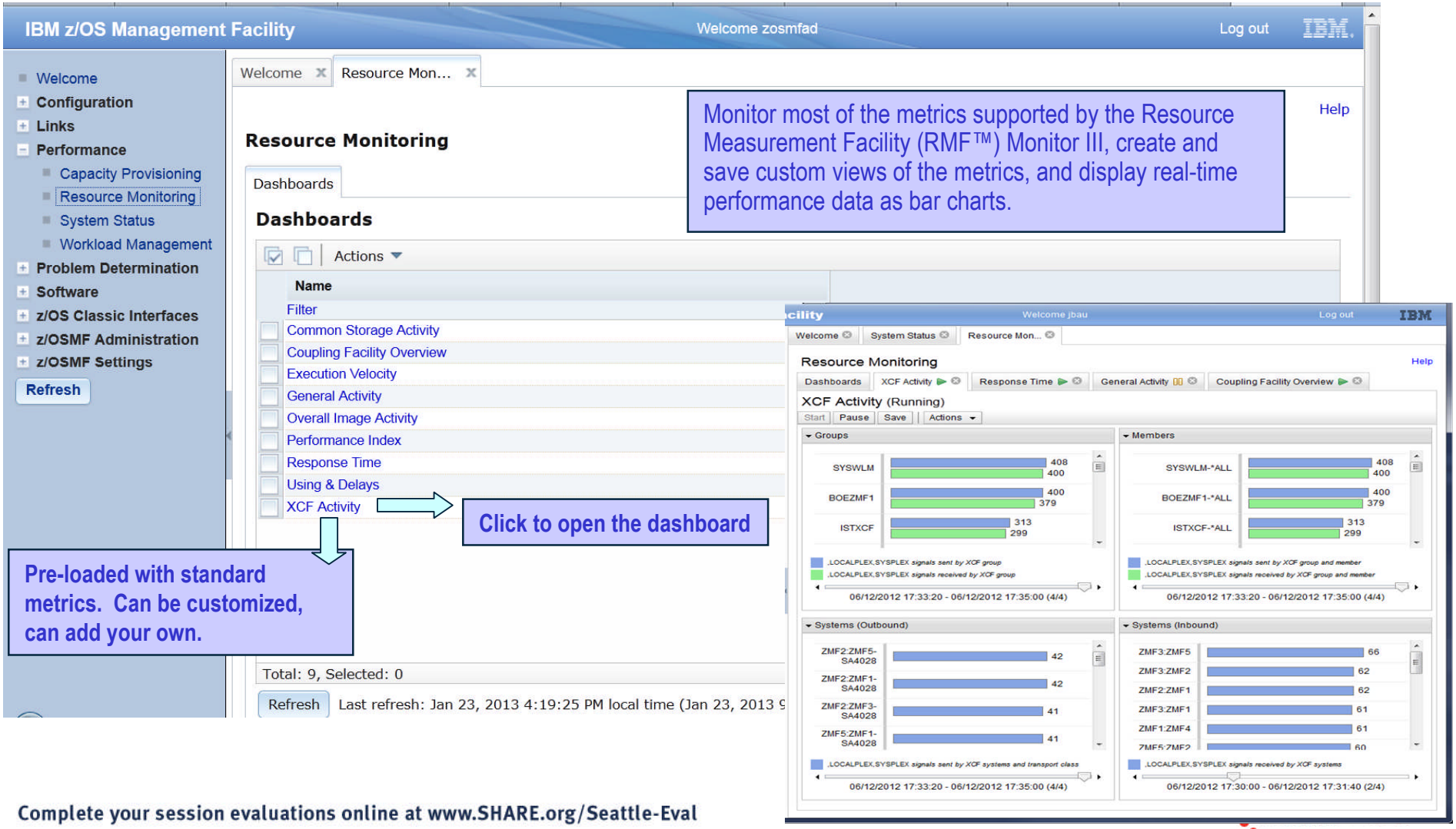
Resource Monitoring: Monitoring Dashboards



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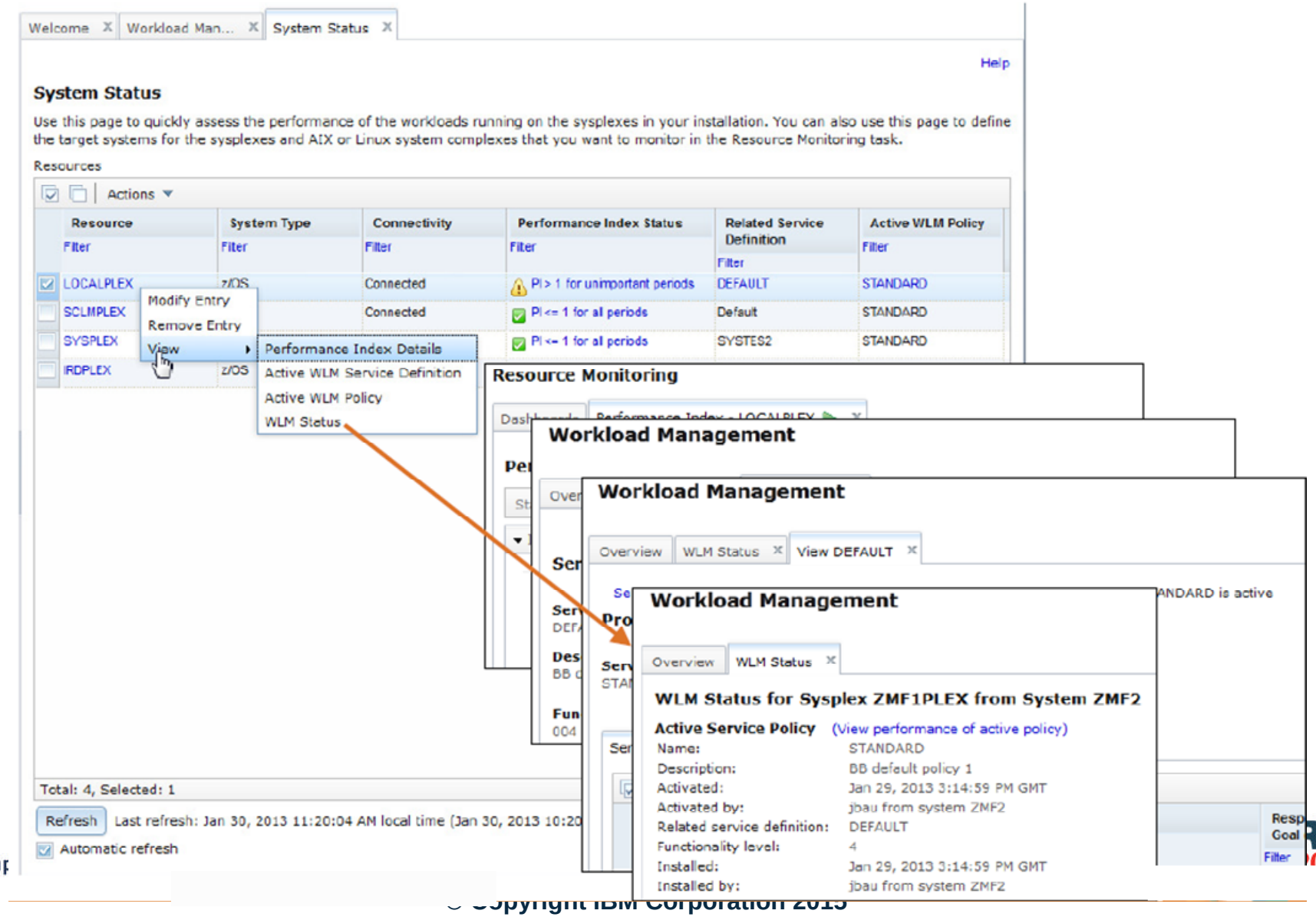
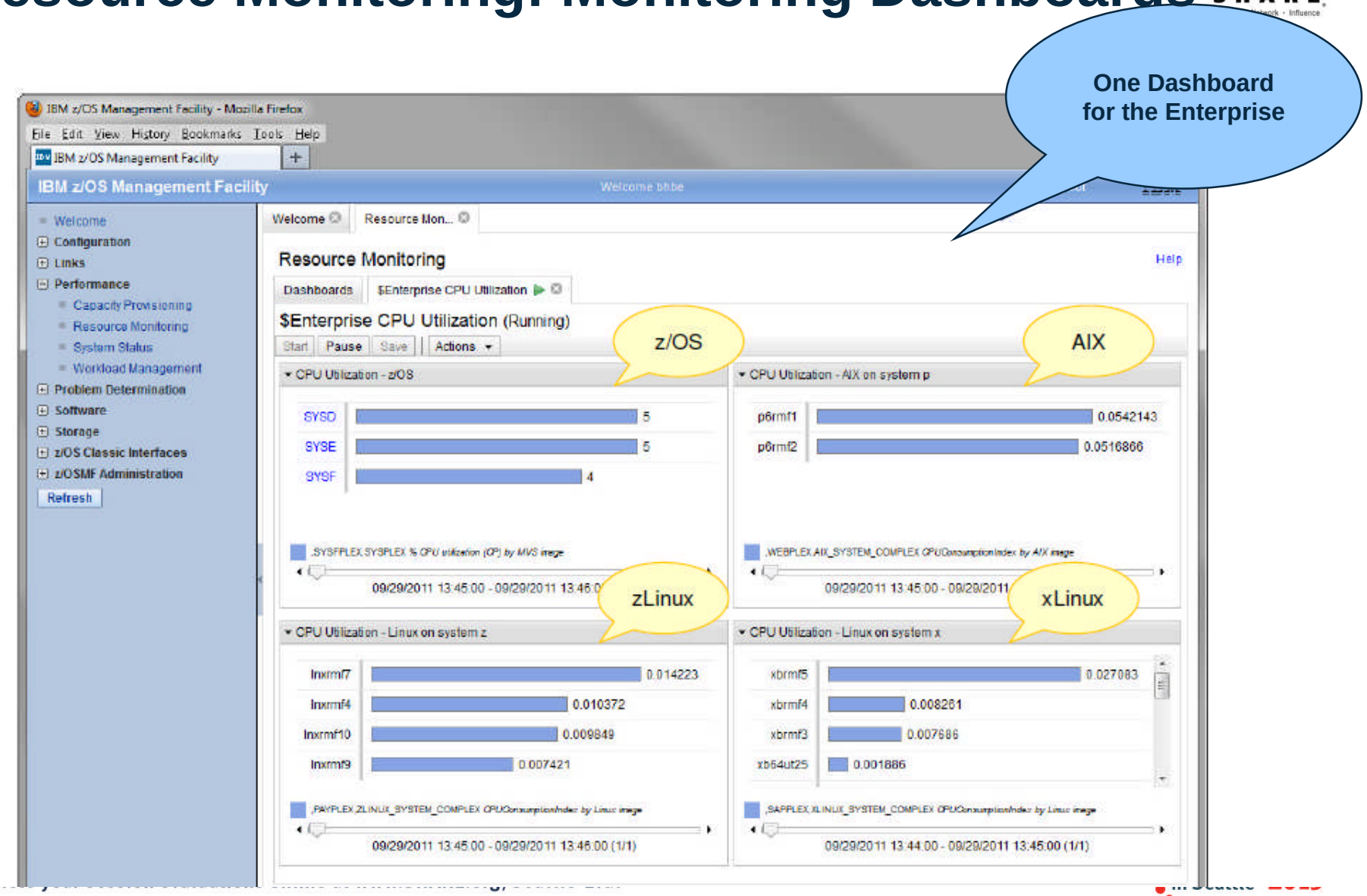
Application Linking: Resource Monitoring to WLM



Resource Monitoring: Monitoring Dashboards



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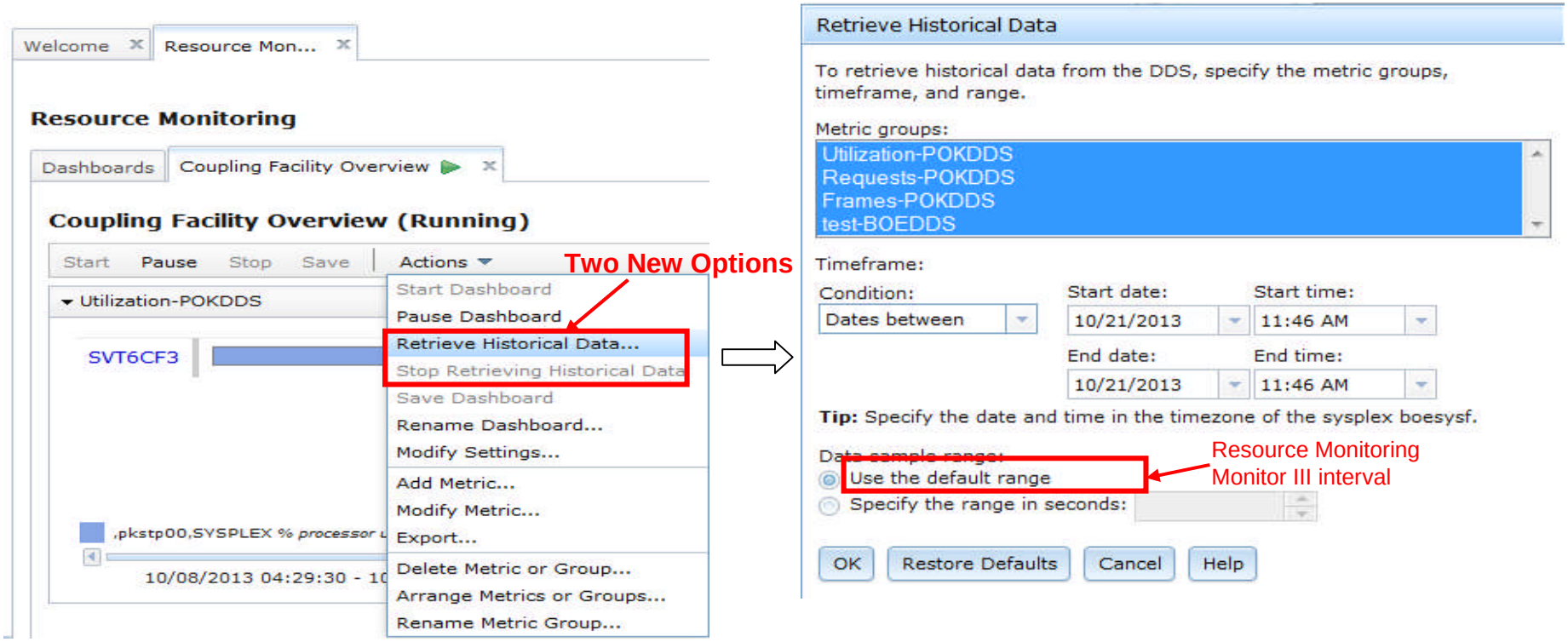
Retrieve Historical Data*



* available for z/OSMF V2.1 with PTF UI16044 and its requisite PTFs

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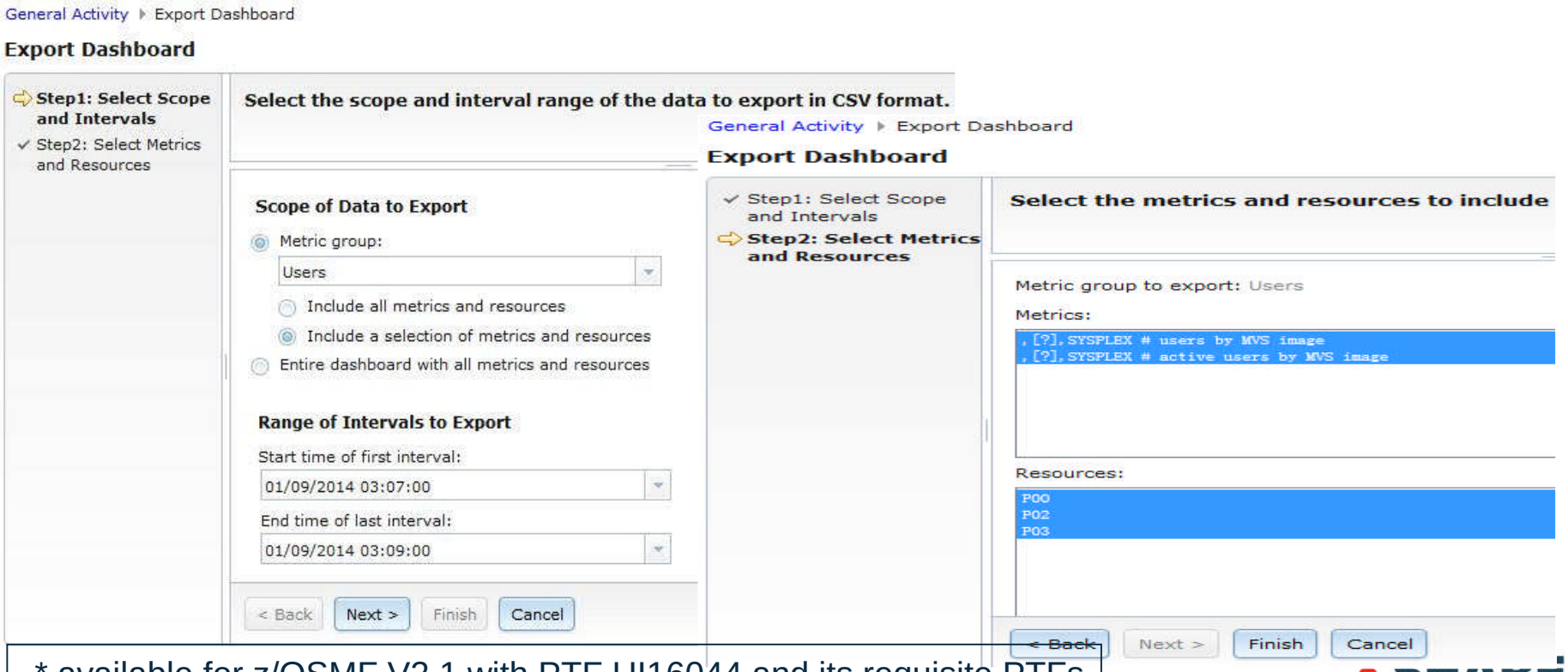
Resource Monitoring – Spreadsheet Export (1)*

- In Resource Monitoring task, Open a dashboard, click “Actions -> Export” can bring up Export Wizard.
- User can choose a metric group or the entire dashboard, and select a range of intervals to export. Specific metrics and resources can also be sorted out.



* available for z/OSMF V2.1 with PTF UI16044 and its requisite PTFs

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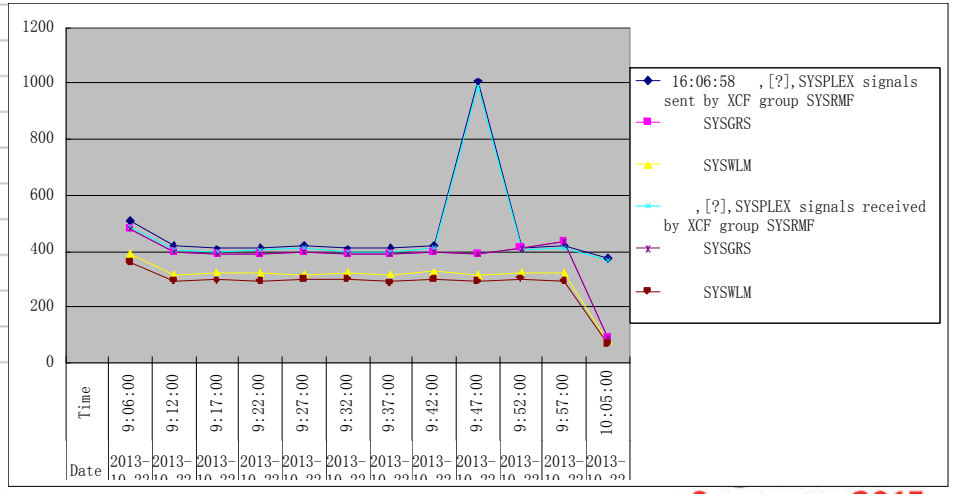
Resource Monitoring – Spreadsheet Export (2)*

- One CSV file is created for each metric group in the dashboard. Multiple metric groups data will generate a compressed zip file.
- If the CSV file covers multiple metrics and resources (list value), the resulting table sorts the table columns: 1) by metric and 2) by resource.
- The user can view the performance data in table/chart and analyze

z/OSMF Resource Monitoring					
Exported:	2013/10/24	11:02:38			
Dashboard:	Coupling Facility Overview				
Metric grou	Requests-POKDDS				
Metric:		,[?],SYSPLEX total request		,[?],SYSPLEX % total physical utilization (AAP) by partition	
Resource:		CF02	CF01	4255.VMC	4255.VMA
Date	Time				
2013/10/24	4:43:00	53.8	33.3	0.2	0.1
2013/10/24	4:44:00	56.8	32.3	0.2	0
2013/10/24	4:45:00	53.3	32.6	0.2	0.1
2013/10/24	4:46:00	53.3	32.6	0.2	0.2
2013/10/24	4:47:00	52.9	33	0.2	0.1
2013/10/24	4:48:00	53.2	32.6	0.2	0.1
2013/10/24	4:49:00	52.9	32	0.2	0.1
2013/10/24	4:50:00	53.2	32.6	0.2	0.1
2013/10/24	4:51:00	54	32.8	0.2	0.1
2013/10/24	4:52:00	54.1	33.2	0.2	0.1



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* available for z/OSMF V2.1 with PTF UI16044 and its requisite PTFs

z/OSMF Management Tasks

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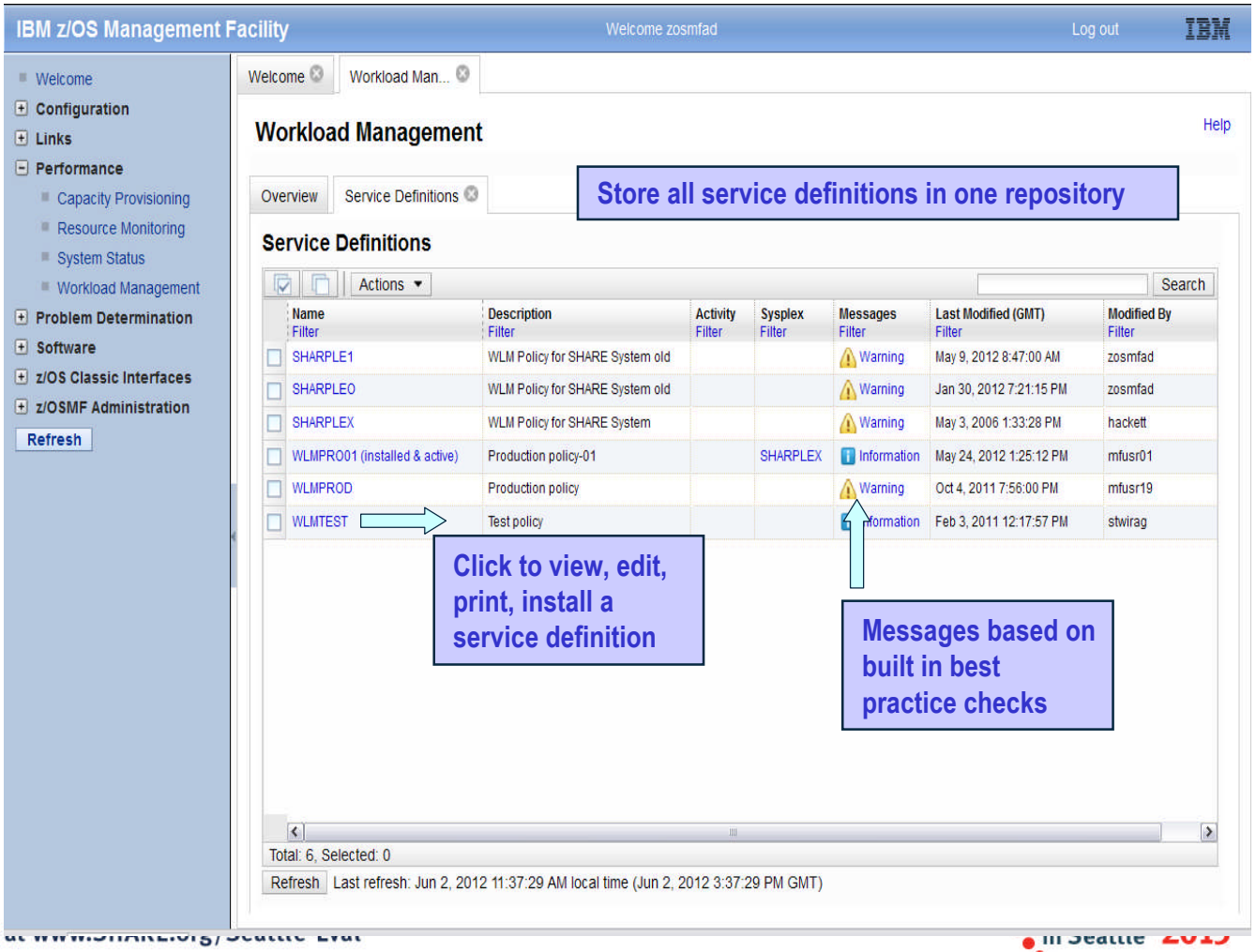
z/OSMF Workload Management

- WLM Policy Editor available on the z/OS Management Facility provides
  - All the same functions as in the 'as is' Web-download tool and many new features
  - Direct access to the WLM Couple Data Set to install/extract service definitions. No need to FTP WLM policy files!
  - Activation of service policies and monitoring of the WLM status in the sysplex
  - Enables you to manage WLM service definitions



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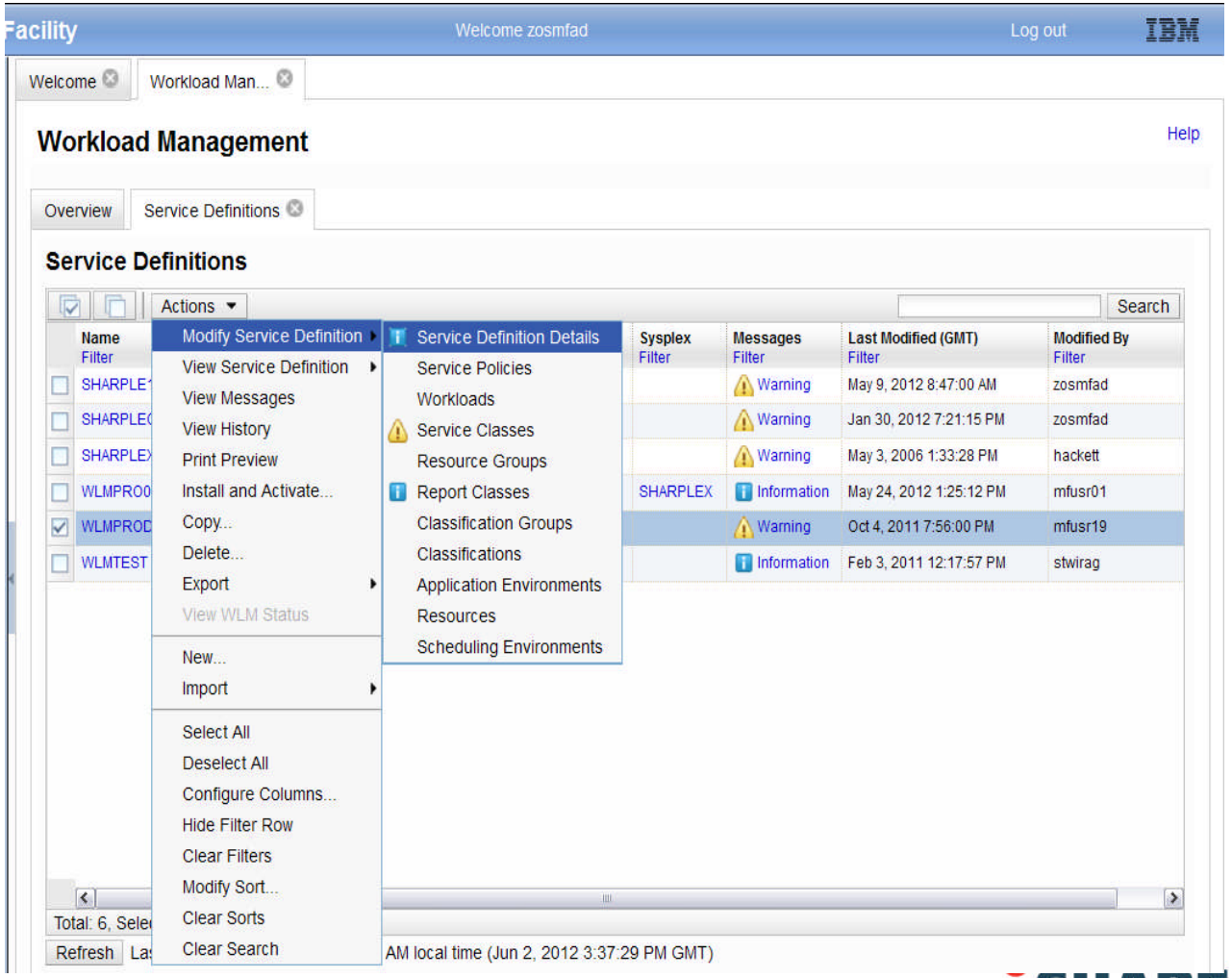
Sessions 16655, 16940, or 16656
z/OSMF Hands-On Lab
Choose your Own

z/OSMF Workload Management *functions*

- Integrates repository to store service definitions
- Import and export of service definitions in XML format
- Printing of service definitions
- Creation, editing, reviewing of service definitions in tabular format
- Direct navigation between policy elements during editing/viewing of service definitions
- Best-practice checking for service definitions
- Supports the installation of service definitions and the activation of service policies
- Displays WLM status of systems in sysplex
- Different authorization levels for viewing, modifying and installing service definition



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z/OSMF Workload Manager

Sessions 16655, 16940, or 16656
z/OSMF Hands-On Lab
Choose your Own

- **Enhancements in z/OSMF V1.13**
  - **Persists user settings.**
  - **Supports different authorization levels.**
  - **Allows you to view details about the performance of your active service policy, service classes, workloads, and so on.**
  - **Allows you to activate a service policy when viewing or modifying a service definition.**
  - **Application Linking between WLM and Resource Monitoring**
- **Enhancements in z/OSMF V2.1**
  - **Supports service definition functionality level LEVEL029**
  - **Support the addition of comments to the service definition history***

* available for z/OSMF V2.1 with PTF UI16044 and its requisite PTFs

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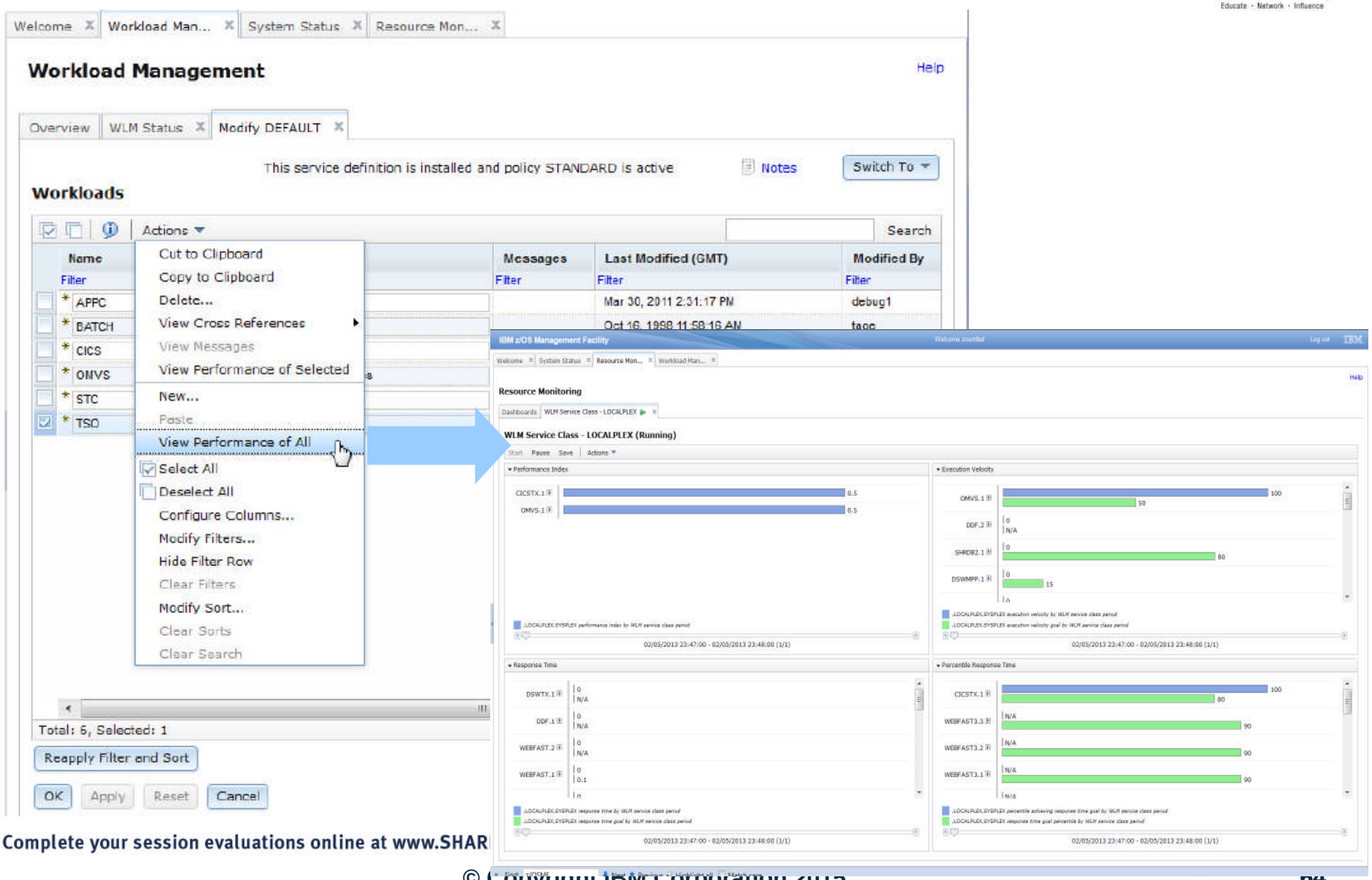
Application Linking: WLM to Resource Monitoring



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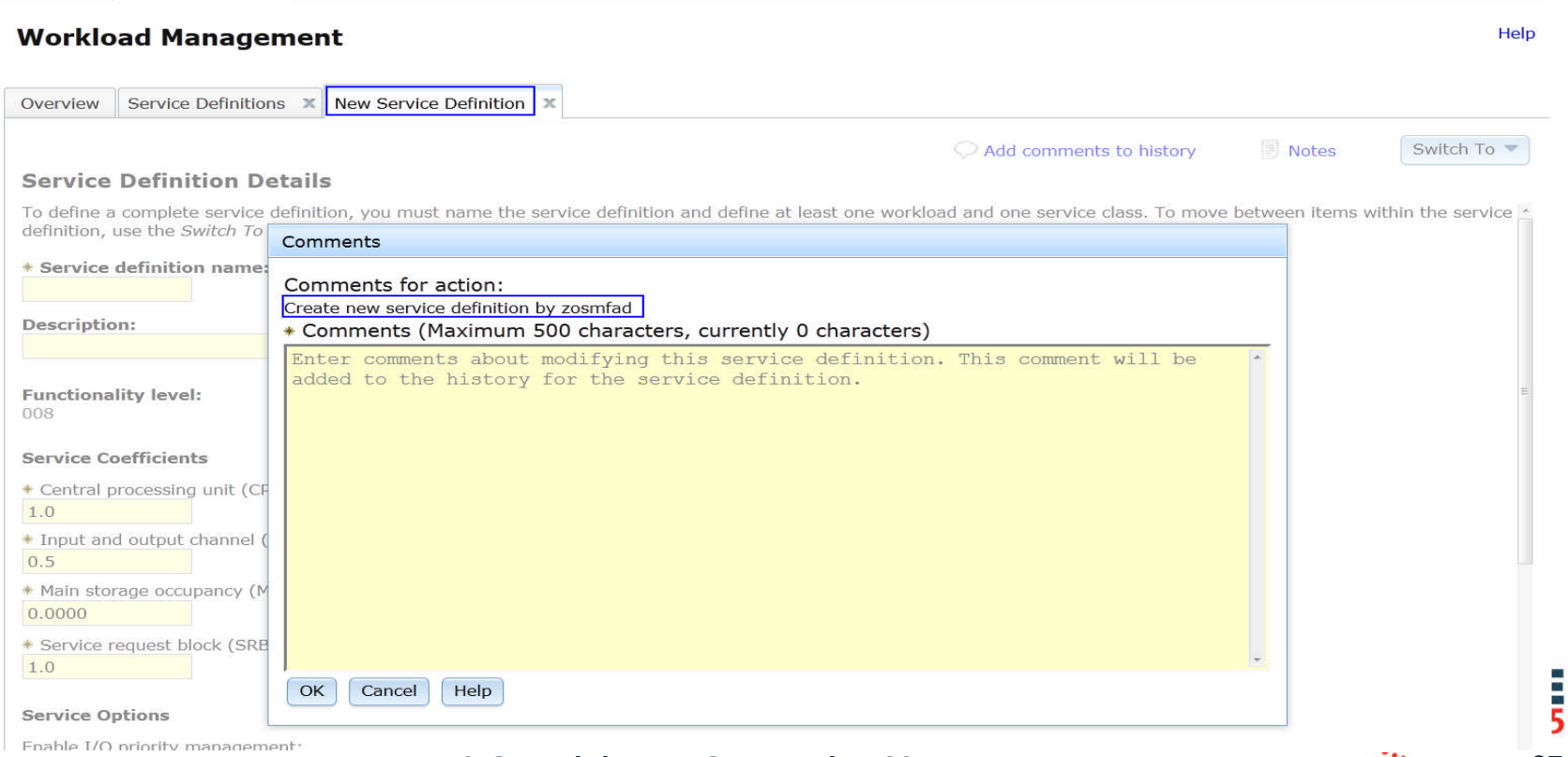
Workload Management – Add Comments*

- When users create, modify, import, export, install and activate service policy, they can add comments to describe the intention of each action.
- Comments are saved along with each action in history data, and the user can also add comments to specific history record later.



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* available for z/OSMF V2.1 with PTF UI16044 and its requisite PTFs

z/OSMF Management Tasks

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z/OSMF Problem Determina

Sessions 16655, 16940, or 16656
z/OSMF Hands-On Lab
Choose your Own

- **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/OSMF Problem Determination – Incident Log

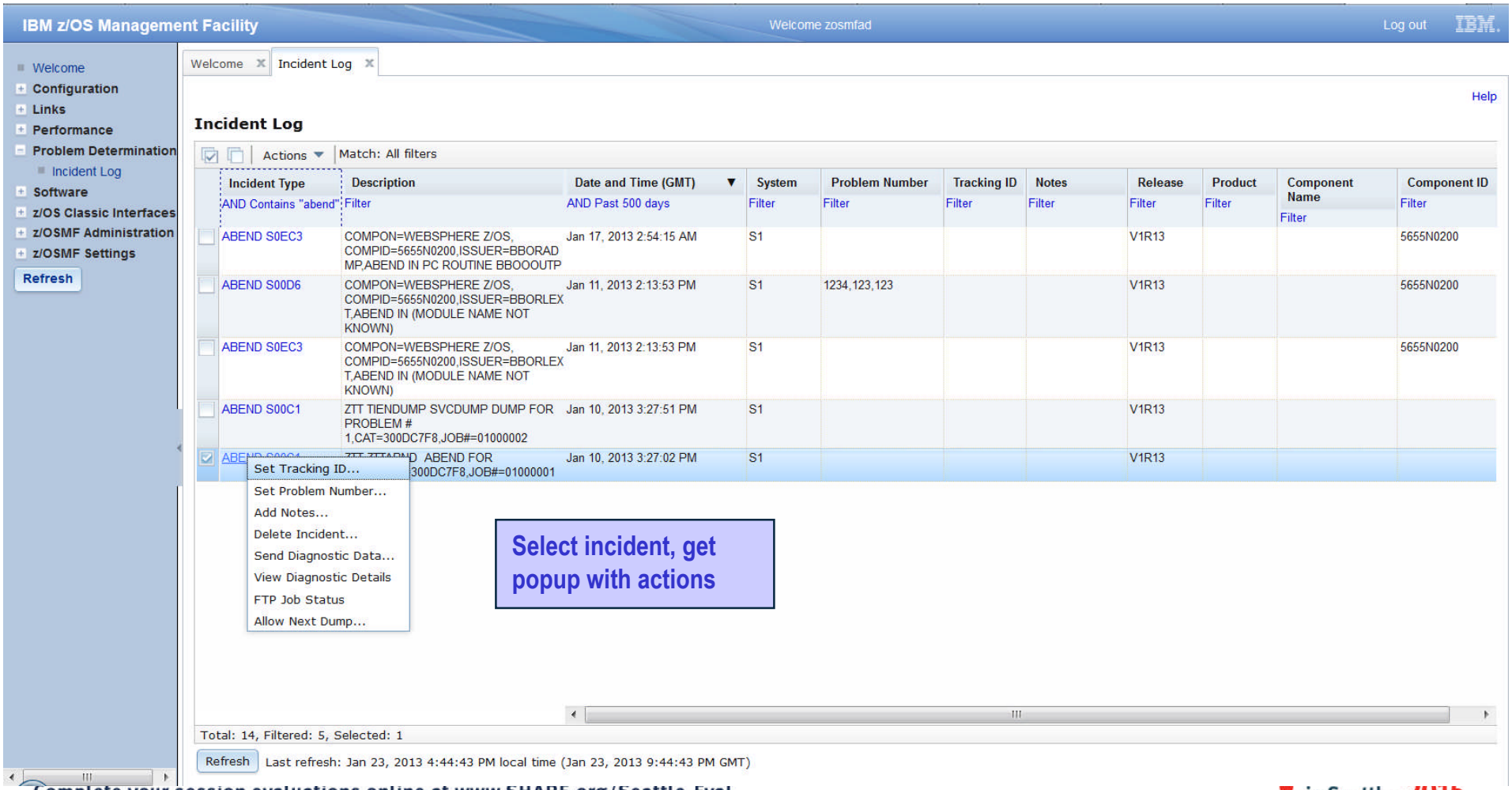
- Enhancements in z/OSMF V1.12
  - Add additional comments and diagnostic data
  - Encrypted parallel FTP of the incident files, to IBM .
    - Download from http://www14.software.ibm.com/webapp/set2/sas/f/zaids/pduf.html
  - Sending additional user-defined data with an incident
- Enhancements in z/OSMF V1.13
  - APAR search terms displayed
  - View error log (LOGREC) or operations log (SYSLOG) via ISPF application link
  - Utilizes new Problem Documentation Upload utility in base of z/OS V1.13
  - Handle migrated datasets (PTFs for APARs PM46302 and OA37149)
  - Manage the deletion of incidents using a batch job (CEATOOL) (PTFs for APARs OA38812 and UA65835
- Enhancements in z/OSMF V2.1
  - Increased the allowable length of the high-level qualifier for log snapshot data sets from four- to eight-characters*
  - Support a total of 256 characters for the FTP server host, FTP server port, and FTP.DATA file name when using the z/OS Problem Documentation Upload Utility (PDUU) transfer method.*
  - Enhance Incident Log to provide support for the use of SSH File Transfer Protocol (SFTP) for sending dumps and logs to IBM or another vendor.**

Comple

* available for z/OSMF V2.1 with PTF UI16044 and its requisite PTFs

** available for z/OSMF V2.1 with PTF UI90005 and its requisite PTFs

Incident Log – Manage Incidents



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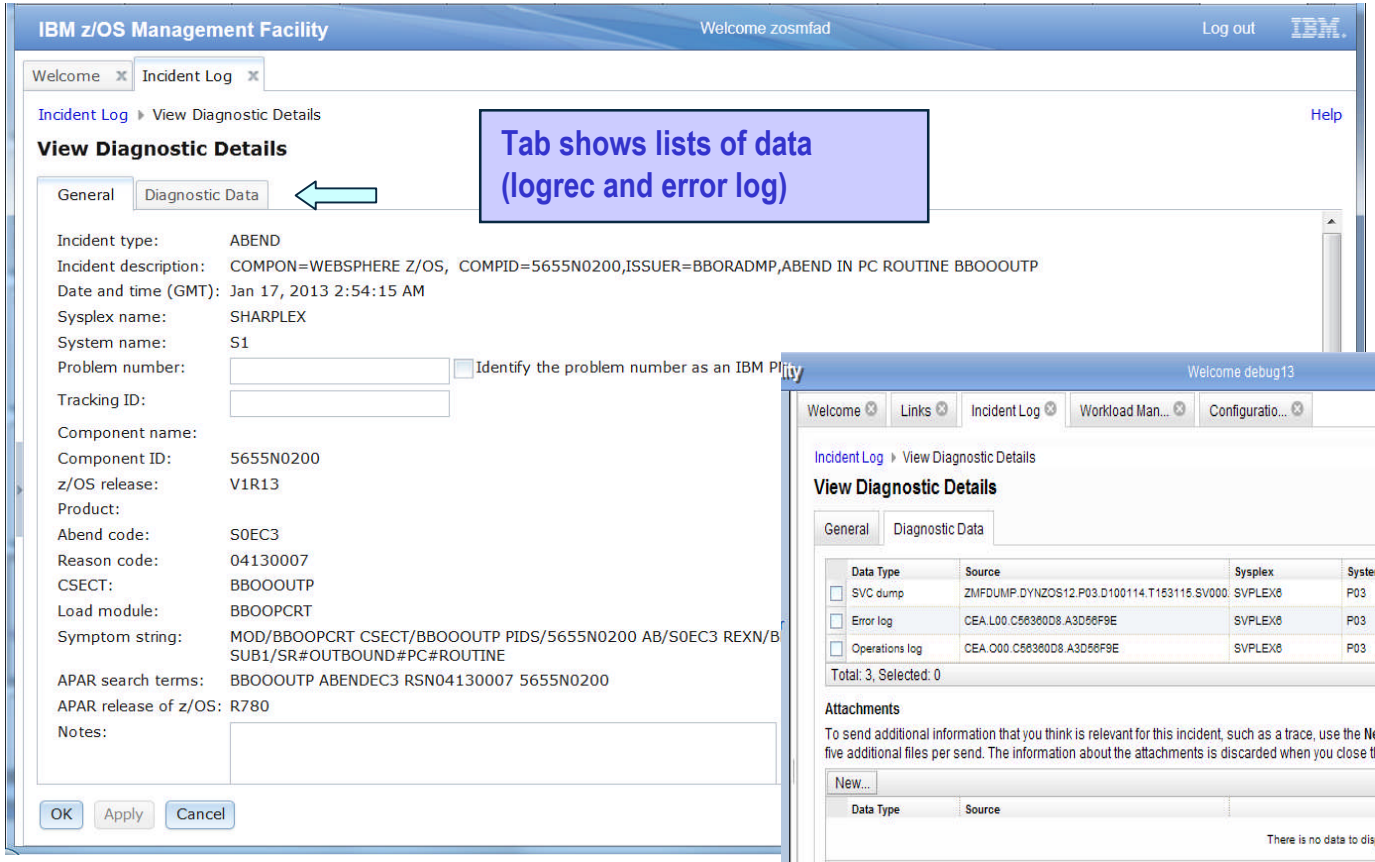
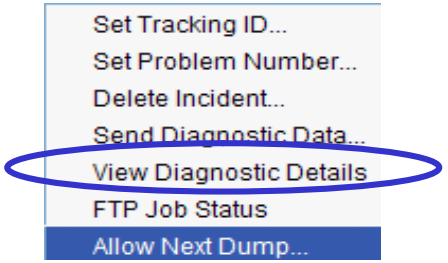
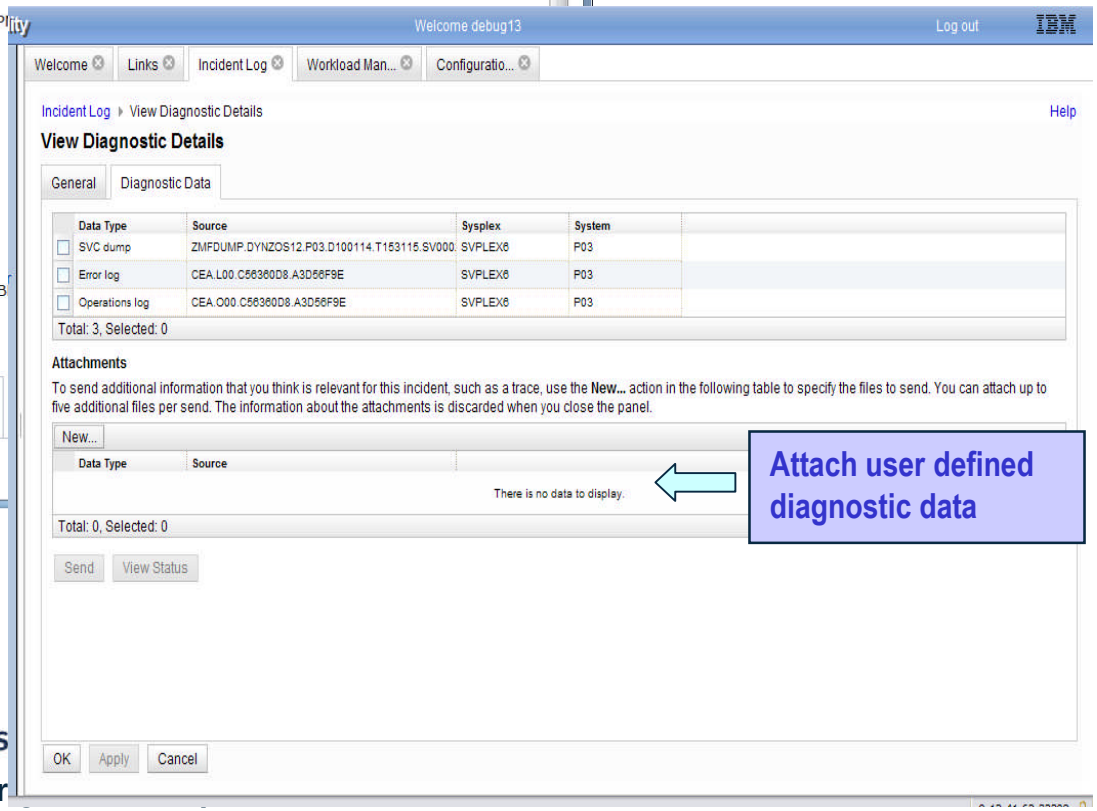
Incident Log – Incident Details







- View logs directly
- 8 char HLQ support for log snapshots
- Delete incidents via GUI or batch CEATOOL

Complete your session evaluations online at www.SHARE.org/S

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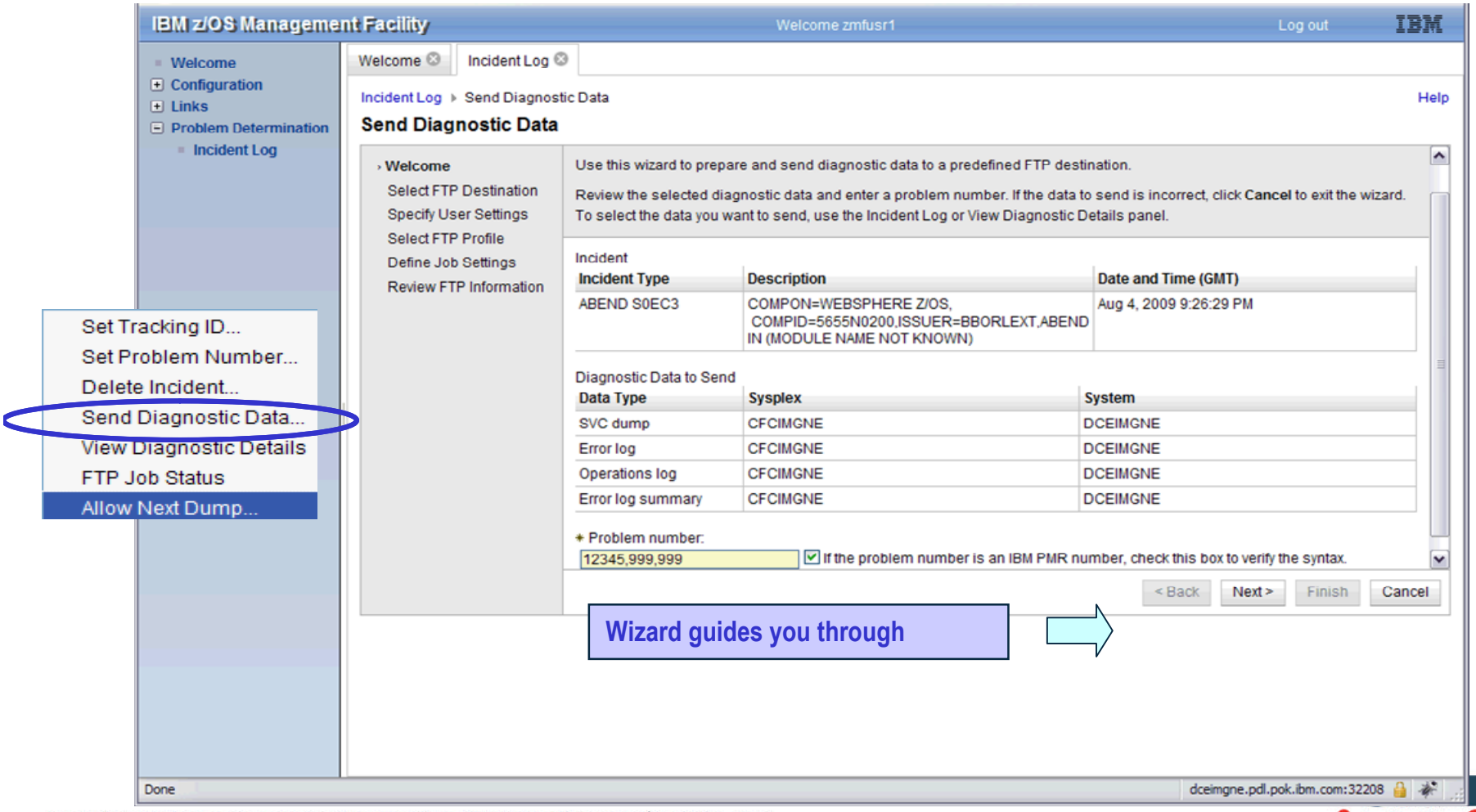
Incident Log – Send Diagnostic Data



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Incident Log – SFTP Support **

- Incident Log provides new functionality to support openSSH based SFTP tool. It includes both the SFTP client and server of the IBM USS Ported Tools and other openSSH based 3rd party tools.
- New IBM default SFTP server
  - Americas: *IBM-testcase-mvs-sftp* and *IBM-testcase-tivoli-sftp*.
  - Asia Pacific/Europe: *IBM-ecurep-mvs-sftp* and *IBM-ecurep-tivoli-sftp*.
- Incident Log allows customers to do SFTP authentication with server by public key or by user/password.
  - The user name is required when SFTP is used, but the password is optional.
    - If the password is specified, the user/password authentication will be used, otherwise, the public key authentication is used.
- z/OSMF omits the password when authenticating with the IBM-ecurep SFTP servers because these servers do not support password authentication.
  - For other SFTP servers that do not support password authentication, you must select the Specify a user ID and password option and leave the Password field blank. Otherwise, an error will occur.

Comple

** available for z/OSMF V2.1 with PTF UI90005 and its requisite PTFs

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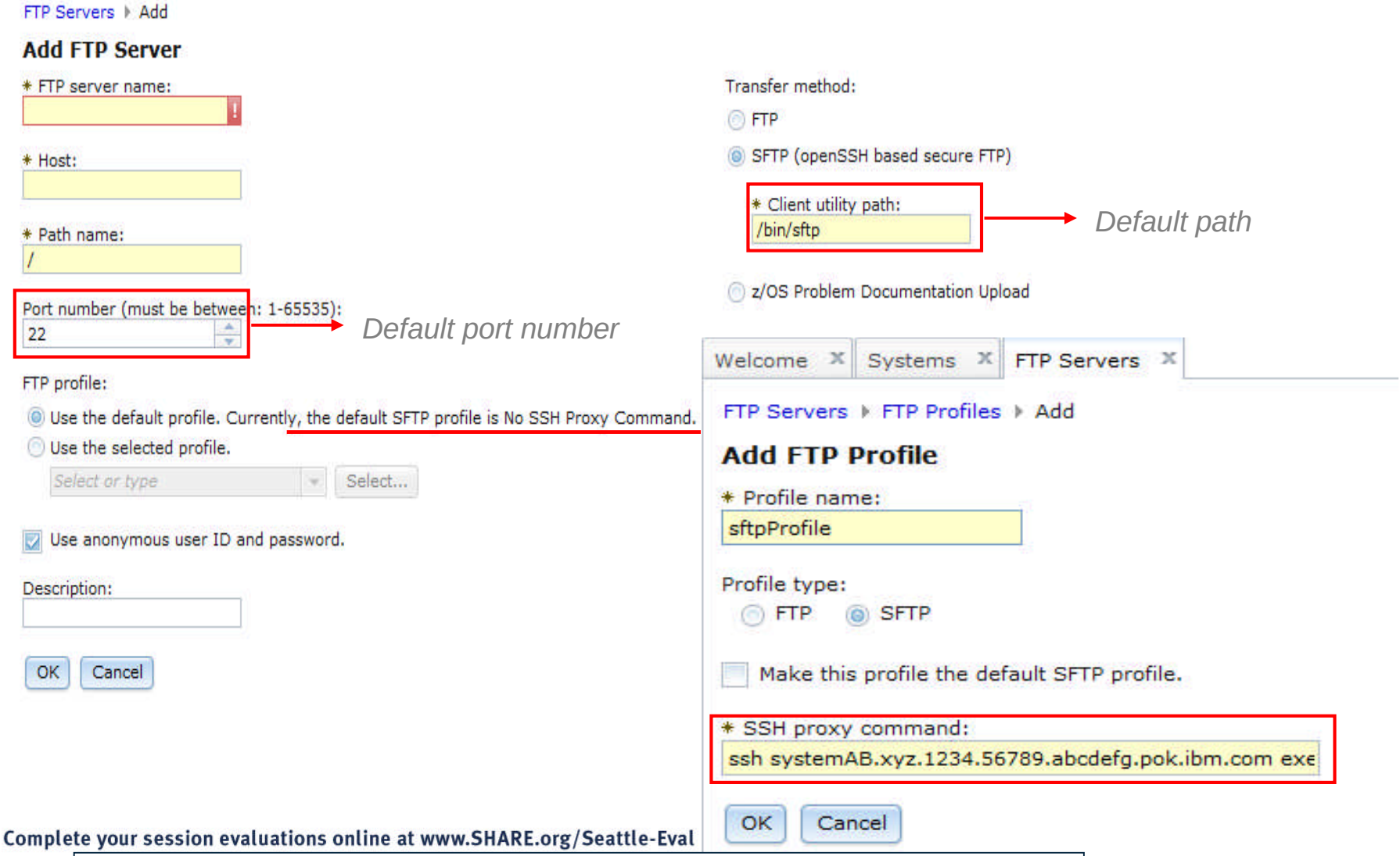
Incident Log – Add Server and Profile for SFTP **



** available for z/OSMF V2.1 with PTF UI90005 and its requisite PTFs

z/OSMF Management Tasks

- Configuration
  - Configuration Assistant for z/OS Communications Server
- Performance
  - Capacity Provisioning
  - Resource Monitoring and System Status
  - Workload Management
- Problem Determination
  - Incident Log
- **Software**
  - **Management (originally called Deployment)**
- z/OS Classic Interface
  - ISPF

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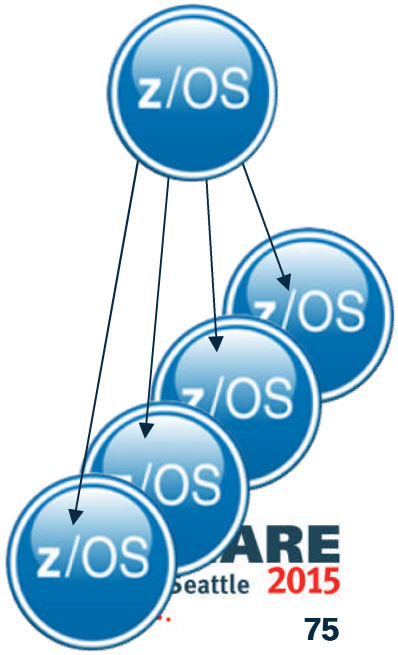
z/OSMF Software Management

Sessions 16655, 16940, or 16656
z/OSMF Hands-On Lab
Choose your Own

- z/OSMF Software Deployment will provide rigor in the deployment of SMP/E installed software.
- New task designed to make deployment of installed software simpler and safer.
  - Replaces manual and error prone procedures with a user friendly application
  - Incorporates IBM recommended best practices for software deployment.
- Software Deployment can clone software
  - Locally, either on a single system or system-to-system within a sysplex
  - Remotely, system-to-system across a network, even multiple sysplexes.
- Software Deployment can also:
  - Identify, modify, delete software instances
  - Generate jobs to copy a software instance
  - Verify cross-system and cross-product requisites, verify fixes
  - Copy ALL parts of the software (including SMP/E CSI inventory)
  - Helps identify actions including catalog, configuration, and security updates
- Software scope includes all SMP/E installed software:
  - IBM and ISV
  - z/OS, stack or individual products,
  - Service upgrades for all of the above (via complete replacement)



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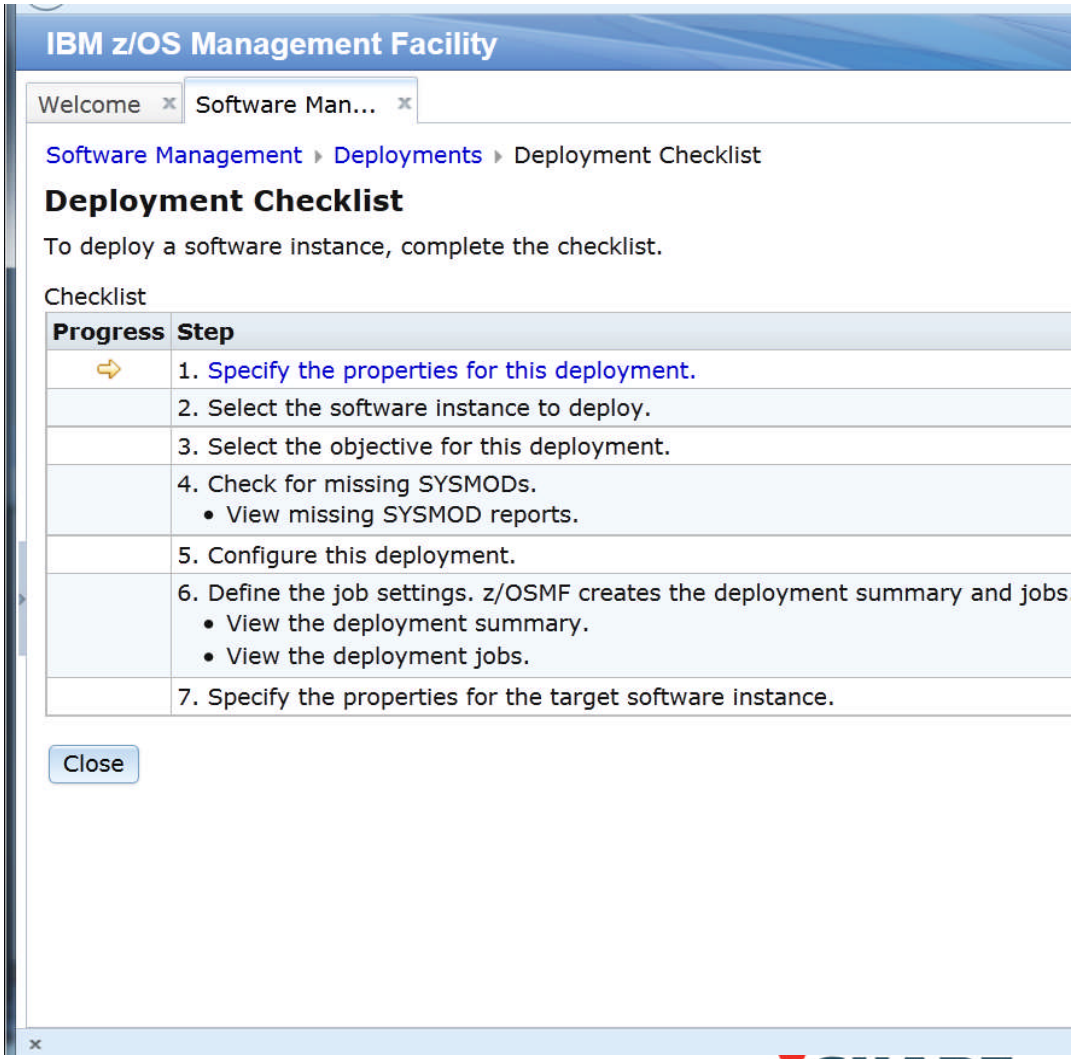
z/OSMF Software Management (Deployment)

- An intuitive checklist helps guide you though the z/OS and related software deployment process
  - Select the software to deploy (a software instance)
  - Select the deployment objective
  - Report missing requisites and possible regressions
  - Configure the target software instance
  - Validate the configuration against the target system, Summarize the deployment actions, and Generate the deployment jobs
  - Execute the deployment jobs



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Software Management (Deployment)

- **Enhancements in z/OSMF V2.1**
  - Make it easier to add non-SMP/E-managed data sets to a software instance.*
  - Offer a more convenient way to edit mount points for the z/OS UNIX System Services file system.*
    - Simplifies management of multiple mount points for z/OS UNIX file system data sets during a deployment operation.
  - Provide support for the use of SFTP for remote software deployments.**
  - Provide integrated management of the generated deployment jobs.**

* available for z/OSMF V2.1 with PTF UI16044 and its requisite PTFs
** available for z/OSMF V2.1 with PTF UI90005 and its requisite PTFs

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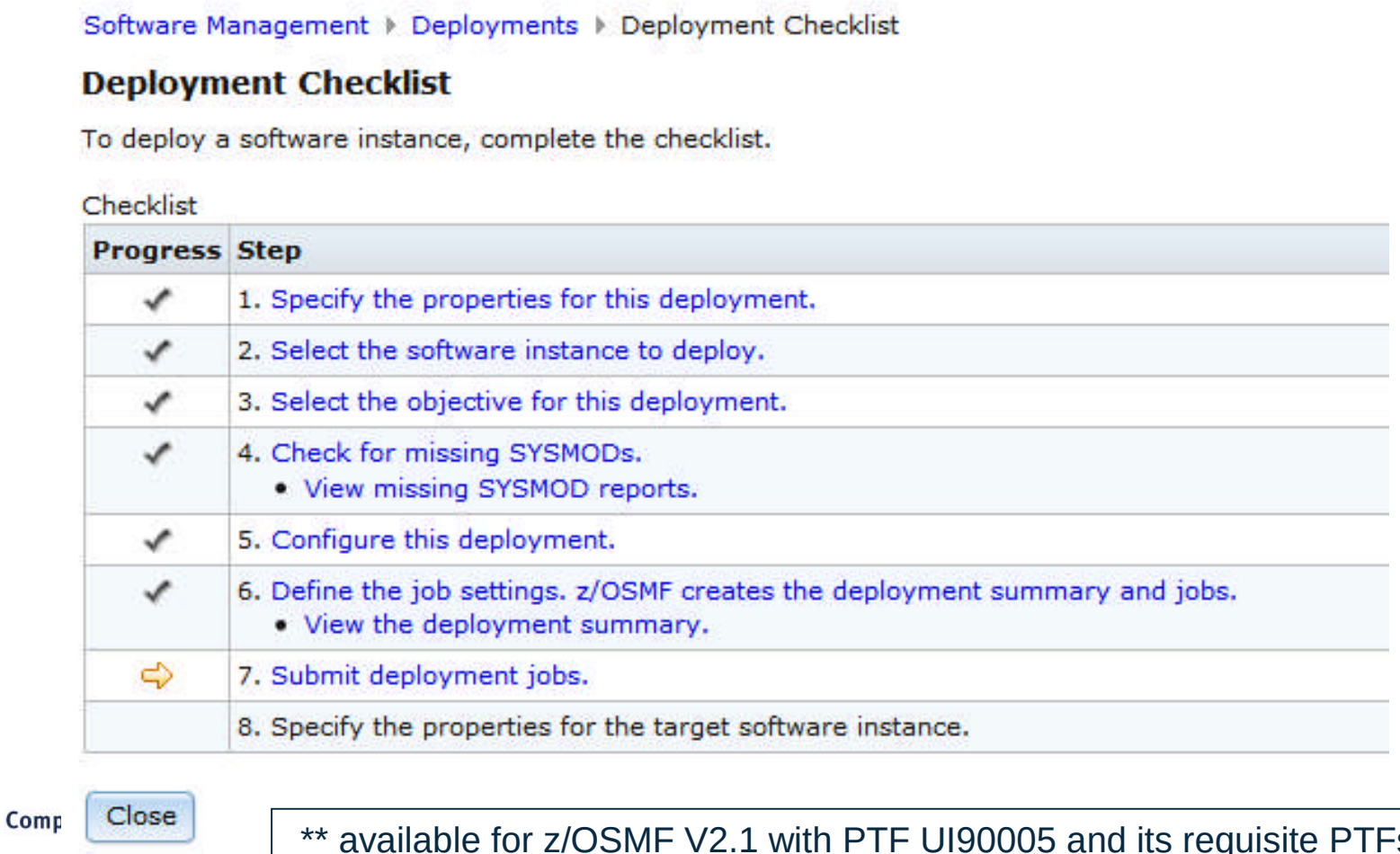
Software Management – "Submit deployment jobs" step **

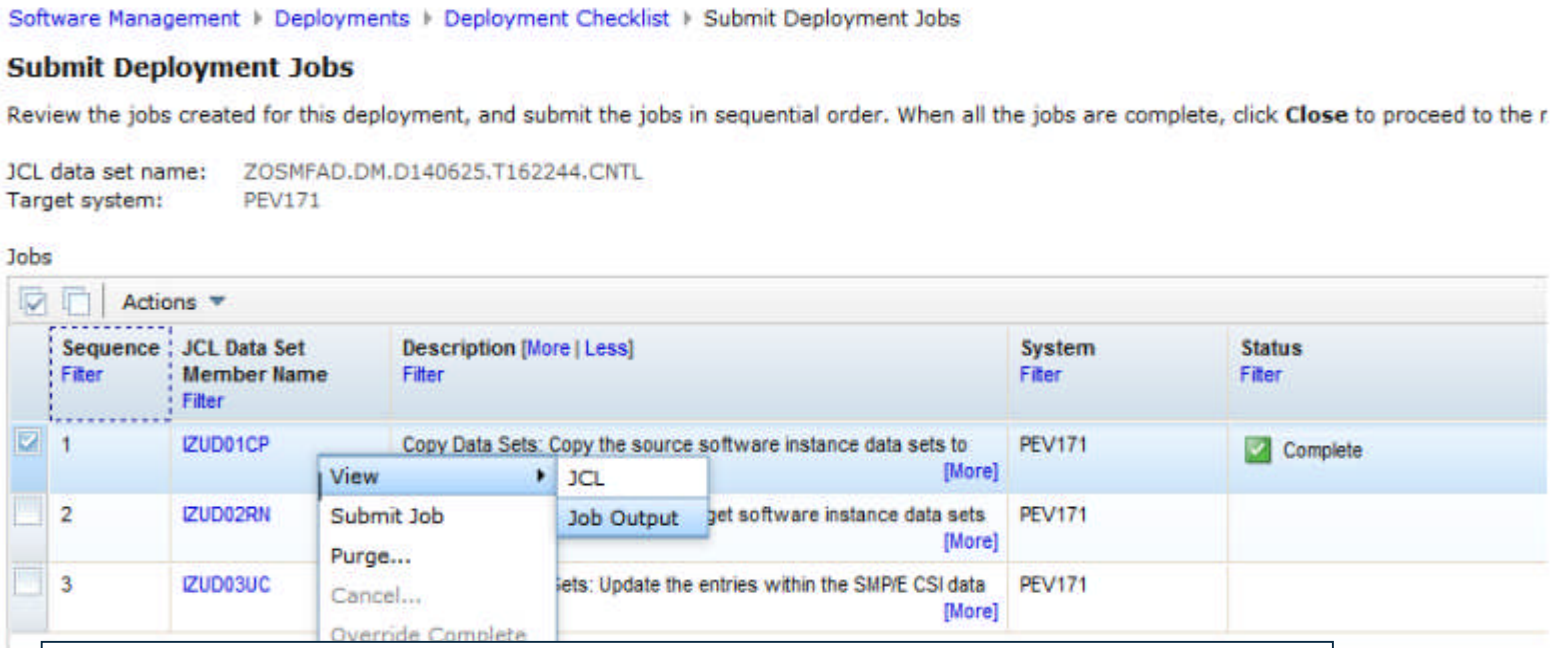
- A new step 'Submit deployment jobs' is added in Deployment Checklist, in which jobs can be submitted & managed by



** available for z/OSMF V2.1 with PTF UI90005 and its requisite PTFs

Software Management - Submit and manage jobs **

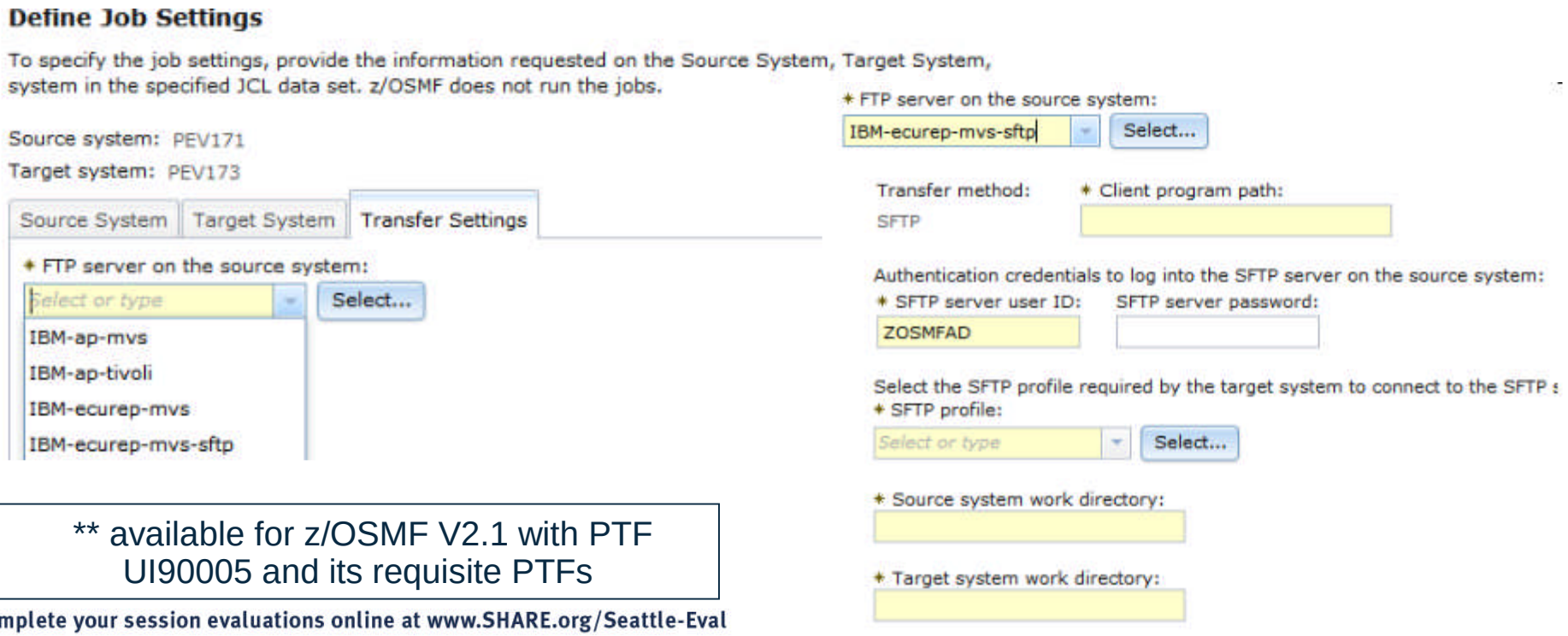
- Job management actions provided to allow user to browse, submit, view status and results of jobs. These actions include:
  - Submit Job : Jobs must be run in sequence
  - View JCL, Job Output : Single selection action
  - Cancel : Single selection action
  - Purge : Multiple selection action
  - Override Complete : Multiple selection action, mark the complete status



** available for z/OSMF V2.1 with PTF UI90005 and its requisite PTFs

Software Management – SFTP support **

- In Deployment Checklist for a remote deployment, the pane of 'Define Job Settings' has a new tab called 'Transfer Settings‘. User needs to select a FTP or SFTP server from the FTP server selector
- If user chooses an OpenSSH SFTP server, source software instance data sets must be copied into UNIX file. Generated deployment jobs add related processing automatically according to FTP choice.



** available for z/OSMF V2.1 with PTF UI90005 and its requisite PTFs

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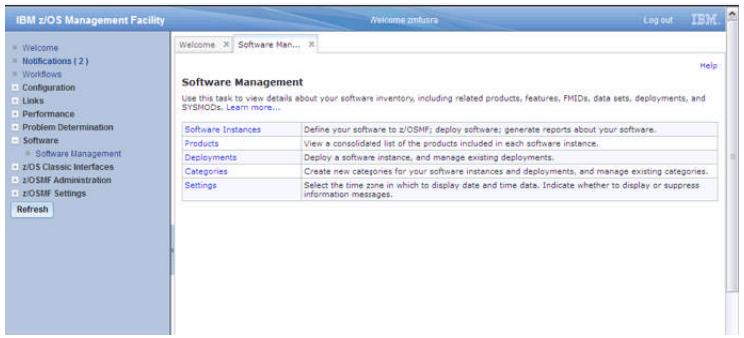
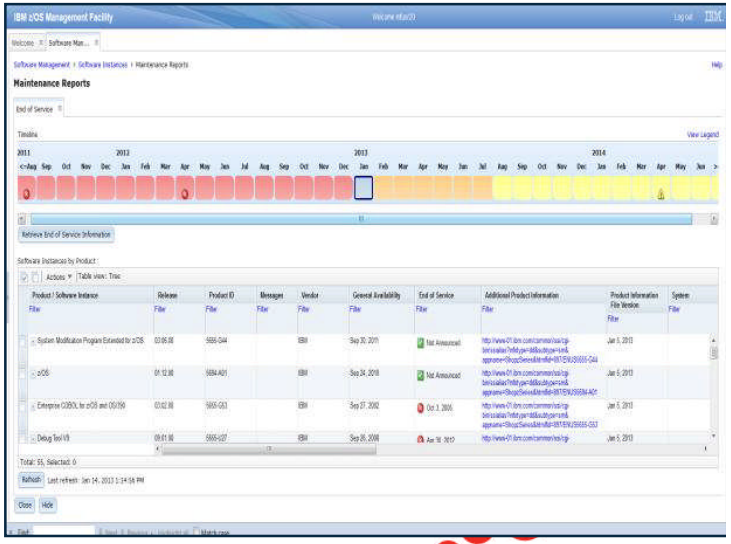
z/OSMF Software Management

Sessions 16655, 16940, or 16656
z/OSMF Hands-On Lab
Choose your Own

- In addition to deploying a software instance, the Software Management task allows you to:
  - Inspect a software instance to view the product, feature, and FMID content;
  - View the physical data sets that compose a software instance; and
  - Perform actions to analyze and report on software instances and installed products.
    - Identify software products that are approaching, or have reached, end of service support.
    - Validate the SMP/E structure and content of a software instance is correct.
    - Identify missing HIPER and PE fixes, and fixes associated with one or more fix categories
    - Determine if individual fixes are installed and in which software instances.
    - Compare the service and functional content of two software instances to aid in debugging or migration planning.





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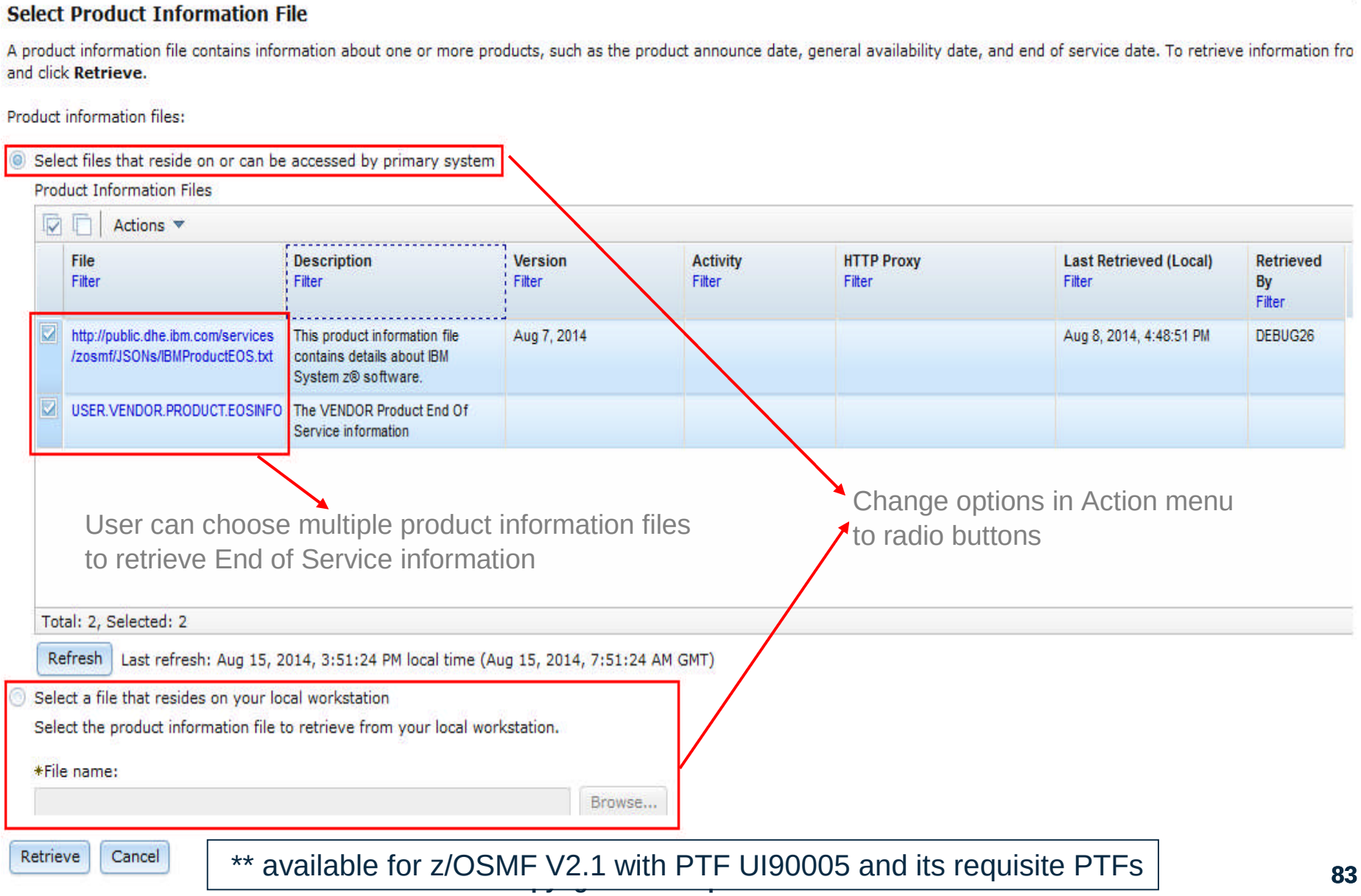
Software Management

Sessions 16655, 16940, or 16656
z/OSMF Hands-On Lab
Choose your Own

- **Enhancements in z/OSMF V2.1**
  - New in z/OSMF V2.1 you can print and export reports about your software and installed products.
    - Additional tables planned to be supported***
  - Make it easier to add non-SMP/E-managed data sets to a software instance.*
  - Add new tab to view SMP/E managed UNIX file system data sets and related UNIX directories can be viewed easily.*
  - Improved End of Service report**
    - User can choose multiple product information files to retrieve End of Service information
  - REST API planned to be added to allow a client application to interact with the z/OSMF Software Management task***. The new services allow a caller to:
    - List the software instances defined to z/OSMF
    - Retrieve the properties of a software instance
    - Add a new software instance.

* available for z/OSMF V2.1 with PTF UI16044 and its requisite PTFs
** available for z/OSMF V2.1 with PTF UI90005 and its requisite PTFs
*** planned availability (March 30, 2015) with PTFs for APARs PI32158 and requisite PTFs

Software Management – Improved EOS report **



** available for z/OSMF V2.1 with PTF UI90005 and its requisite PTFs

z/OSMF Management Tasks

- Configuration
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  - Workload Management
- Problem Determination
  - Incident Log
- Software
  - Management (originally called Deployment)
- **z/OS Classic Interface**
  - **ISPF**

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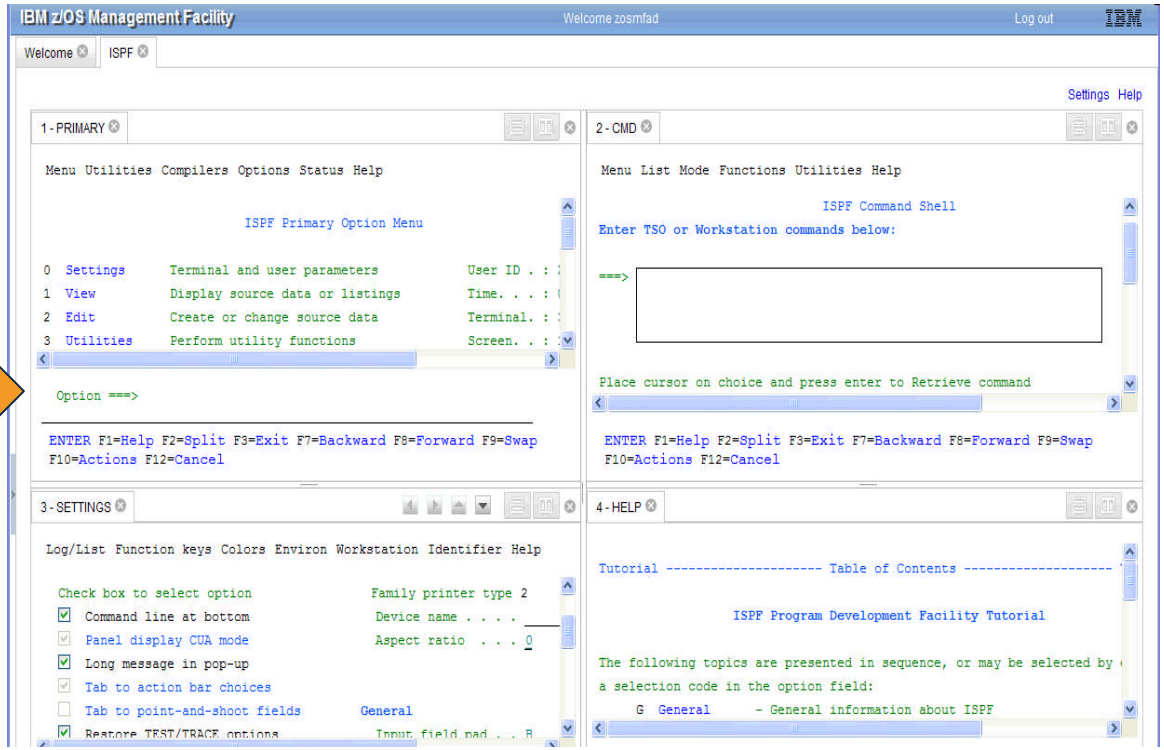
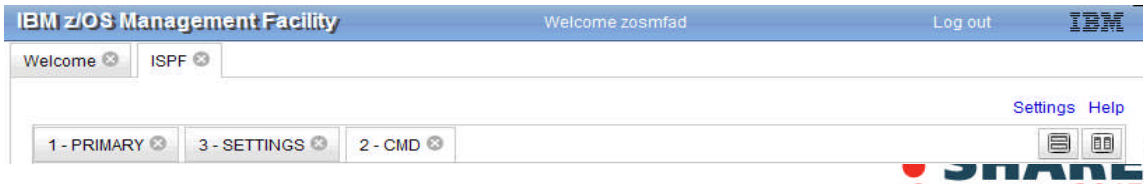
z/OSMF and ISPF
Work with existing interfaces

- Enables system programmer to perform tasks from one interface.
  - Also makes ISPF applications URL Web-accessible for linking and launching from other applications
- Up to 4 panes
  - Panes can be sized. Each pane can have multiple ISPF sessions, tabs can be moved between panes for a total of 8 tabs
  - Shows ISPF Menu bar, Command line, Function keys
- Also available in tabbed format





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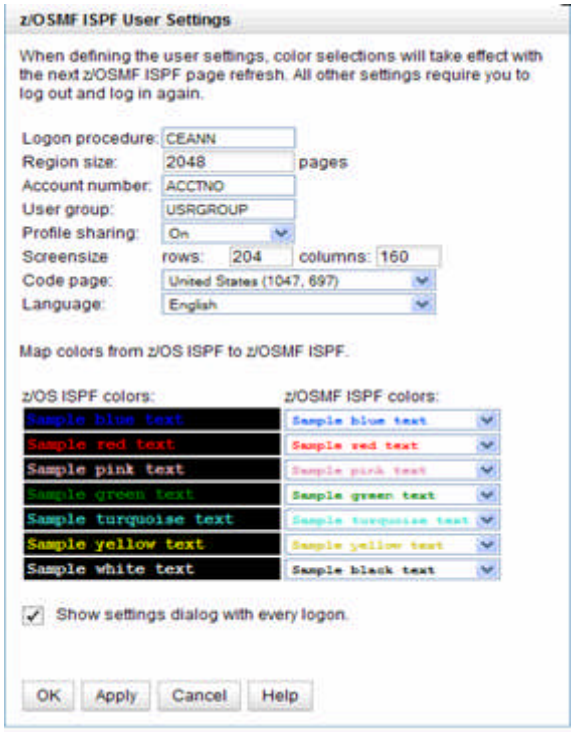
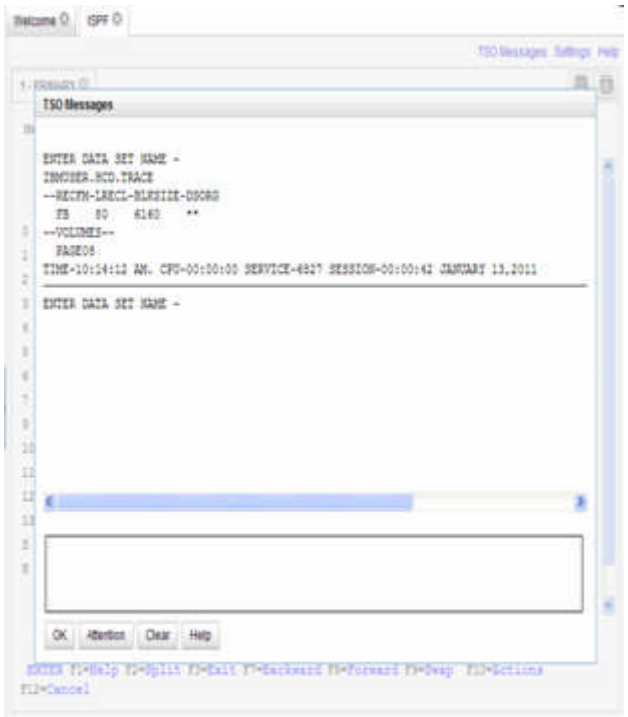
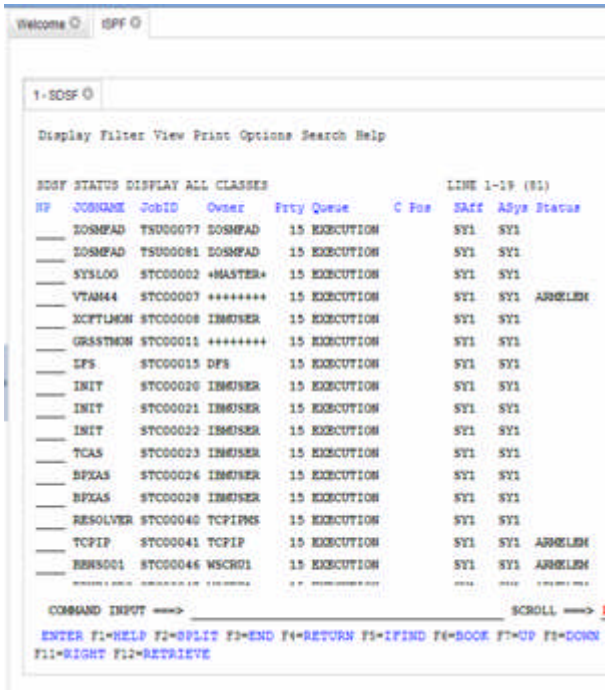
z/OSMF and ISPF
Additional screens



- Customize settings



- TSO messages have priority and pop up



- Example: SDSF status

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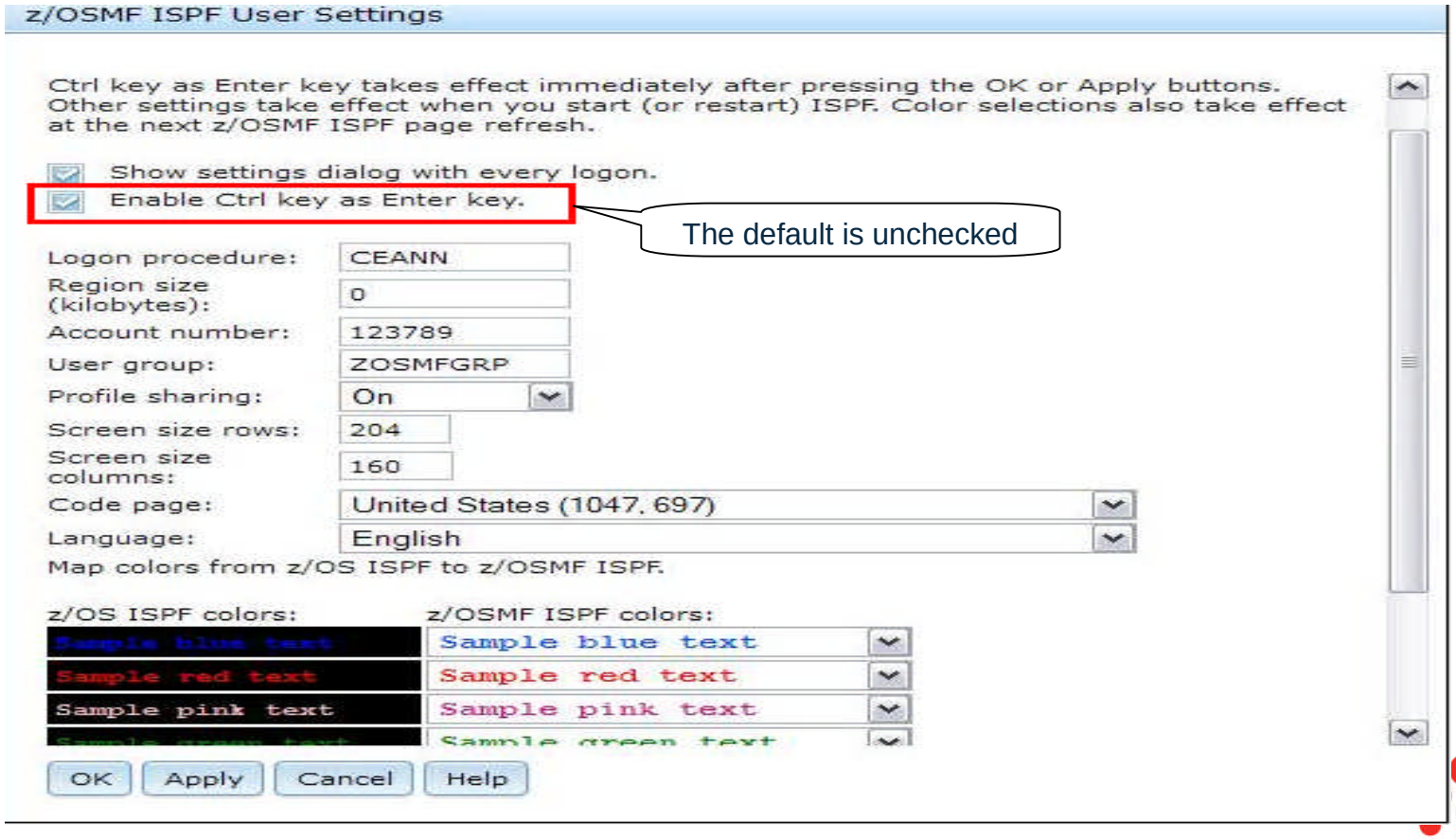
z/OSMF ISPF - Enable Ctrl key*

- User can use z/OSMF WebISPF Ctrl key as Enter key; This allows the user to submit requests in a way similar to 3270 z/OS ISPF.



* available for z/OSMF V2.1 with PTF UI16044 and its requisite PTFs

Agenda

- Overview of z/OS Simplification Efforts
  - The z/OS Management Facility (z/OSMF)
- What's New in z/OSMF V2.1
  - Use of the WebSphere Application Server Liberty profile
  - Workflows
  - Support for External Applications*
- z/OSMF Management Tasks
  - Configuration
  - Performance
  - Problem Determination
  - Software
  - z/OS Classic Interface: ISPF
- **Other z/OSMF Capabilities**
  - **Security**
  - System**
  - Programmatic Interface for z/OSMF

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z/OSMF Administration: SAF-Based Security

- **z/OSMF enhanced its authorization model to provide tighter integration with Enterprise Security Management products.**
  - New (z/OSMF V1.13) resource class pair for z/OSMF
    - ZMFAPLA resource class
    - GZMFAPLA grouping class
- Use of SAF groups to represent z/OSMF roles
  - connection of z/OSMF users to these new Groups
  - Resource names associated with all z/OSMF tasks and links.
  - Resource class profiles control authorization to z/OSMF managed resources.
- **Support for custom roles via creation of additional SAF groups at system programmer's discretion.**
- **Granularity of access determined by z/OSMF resource profile permissions for a given group.**
- **Exploitation of Resource Classes, profiles, and groups**
  - Plug-ins register resource names associated with each of their tasks
  - All task resource names associated with the ZMFAPLA resource class.
  - IBM reserved resources: ZOSMF.<plugin-name>.<task-name>.<action-control-qualifier>
    - The plug-in profile will be defined at deployment time.
    - For delayed deployment and activation of plug ins create profiles when plug-in is deployed
  - Definition of SAF Groups and connection of z/OSMF users to these new Groups
  - Groups permitted to z/OSMF resource profiles (in ZMFAPLA) to facilitate z/OSMF Role support

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z/OSMF Administration: SAF-Based Security …

- **Enhancements in z/OSMF V2.1**
  - Repository mode removed
    - SAF-based security, previously referred to as SAF Authorization Mode, is now the only supported means of creating and managing user authorizations in z/OSMF.
    - Related to this change, the Users task and Roles task in the z/OSMF Administration category are no longer needed, and are thus removed from the navigation area.
    - You have the ability to convert to SAF mode while on z/OSMF V1.13 or during the migration to z/OSMF V2.1
  - New Appendix A, “Security configuration requirements for z/OSMF”
    - This appendix describes the security configuration requirements for z/OSMF.

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Agenda

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  - Security
  - **System****
  - Programmatic Interface for z/OSMF

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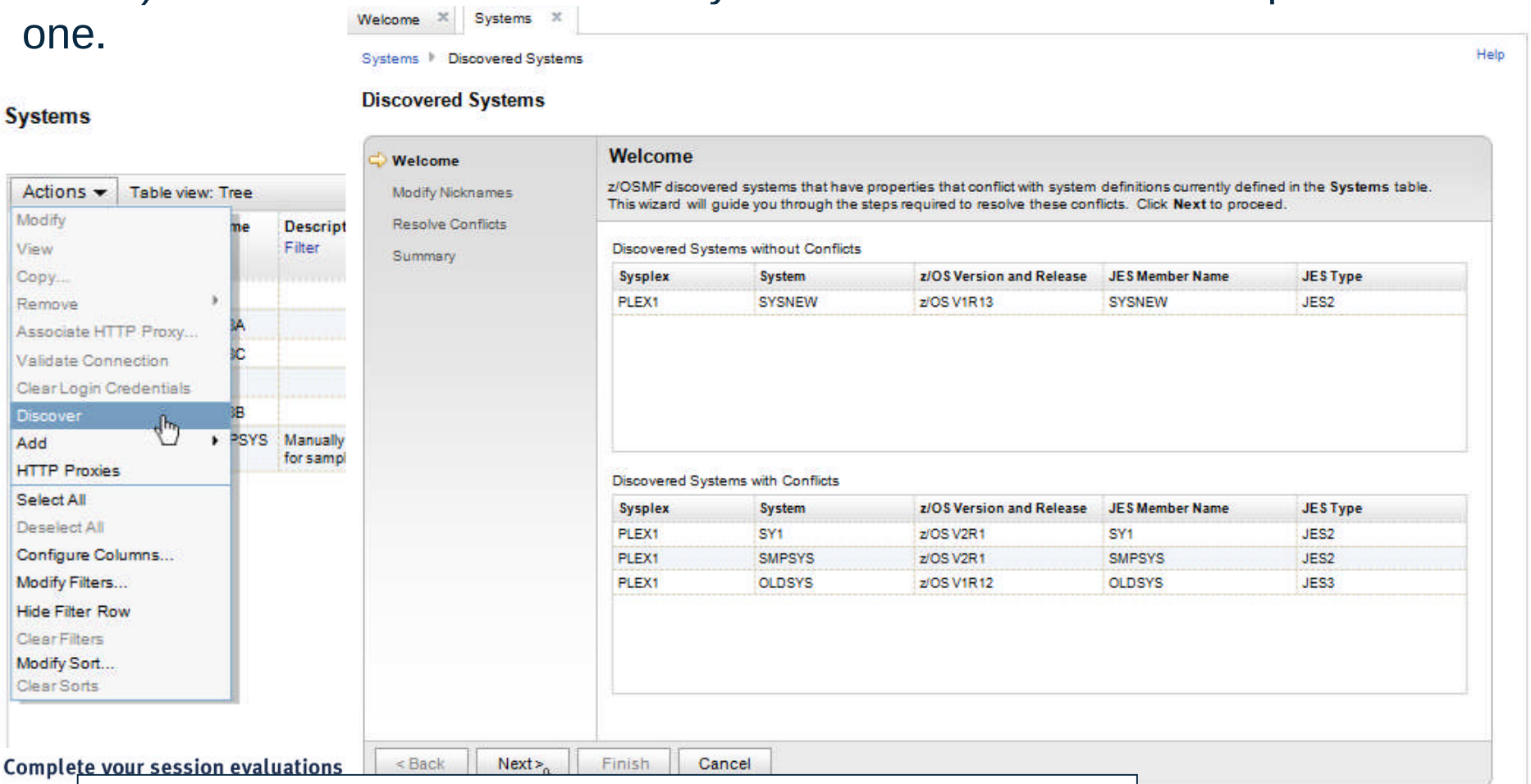
System setting – Discover **

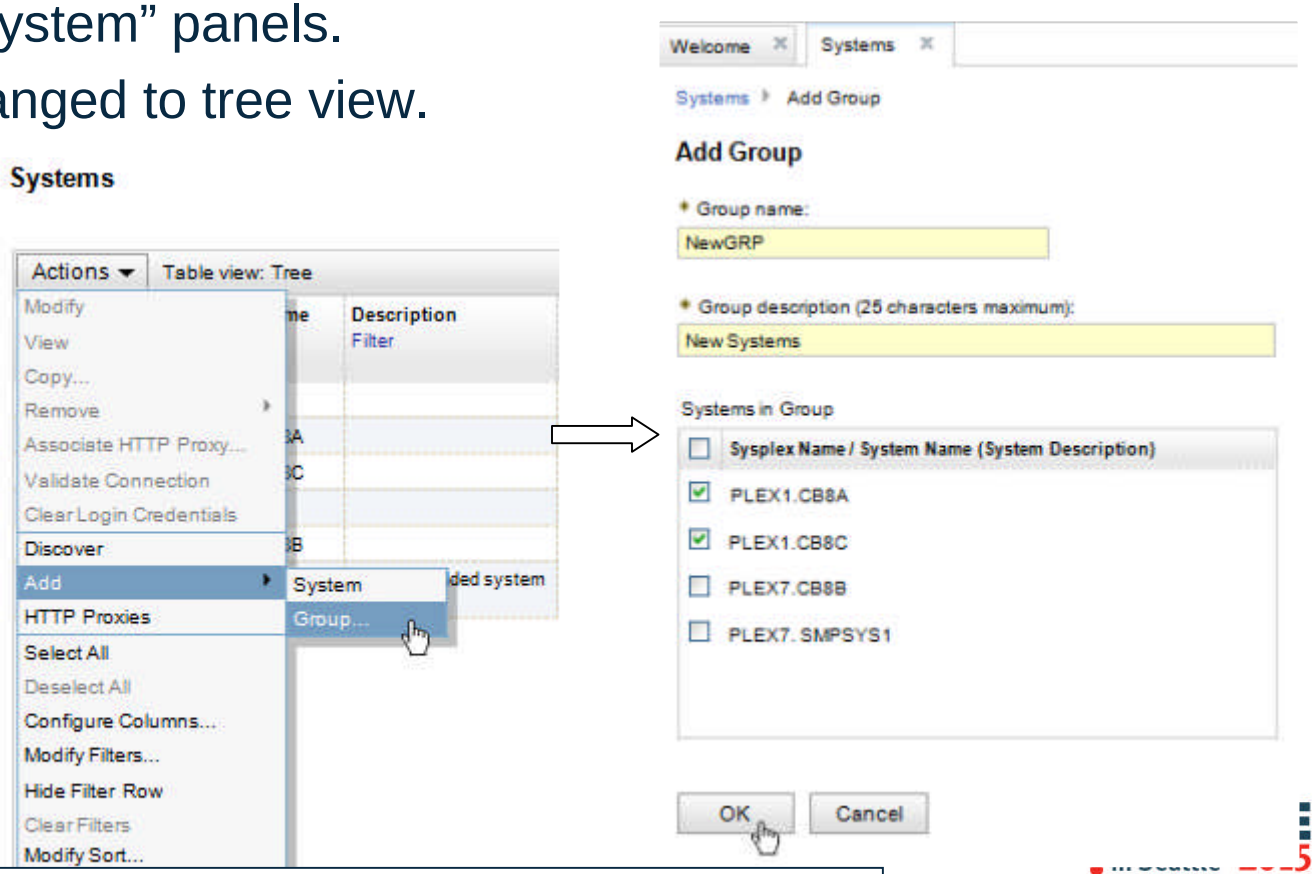
- Discover the system definition that hosts the z/OSMF instance automatically.
- When a conflict occurs (same sysplex and system name but other attributes differs) the user can add a new entry with another nickname or update the old one.



** available for z/OSMF V2.1 with PTF UI90005 and its requisite PTFs

System setting – Group **

- The group definition is introduced.
  - A group represents a logical list of system entries (which can be exploited by other plug-ins in the future)
- User can link systems to groups in “Add Group”, “Modify Group”, “Add System”, “Modify System” panels.
- System table is changed to tree view. Default view is by sysplex, can be changed to view by group



** available for z/OSMF V2.1 with PTF UI90005 and its requisite PTFs

UI and Currency **

- The header and footer of the Welcome page are now 256 characters wide
- Dojo version is upgraded from Dojo 1.7.2 to Dojo 1.9.1.
- KC CI 1.5 replaces KC Local 1.0 (Knowledge Center Help system)
- z/OSMF is enhanced to provide support for Firefox ESR 24 and IE 10

	Windows 7 32 bit	Windows 7 64 bit	Windows 8 Pro, Desktop
Internet Explorer 8.x	Yes	Yes	No
Internet Explorer 8.x (64)	No	Yes	No
Internet Explorer 9.x	Yes	Yes	No
Internet Explorer 9.x (64)	No	Yes	No
Internet Explorer 10.x	Yes	Yes	Yes
Internet Explorer 10.x (64)	No	Yes	Yes
Firefox ESR 24	Yes	Yes	Yes

** available for z/OSMF V2.1 with PTF UI90005 and its requisite PTFs

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Programmatic Interface for z/

- **REST API for Jobs (z/OSMF V1.13) for submitting and accessing batch job**
  - Enhancements in z/OSMF V2.1:
    - Support for JCL symbolics, use correlator instead of jobname/jobid, asynchronous notification on job completion
    - Support for submit job to secondary JES subsystem *
    - Support for hold & release a job *
    - Some REST services can be run synchronously, if coded to use the latest version of the service. **
- **REST API for Data Sets and Files to list the data sets or UNIX files and directories on a z/OS system. ***
  - List the members of a z/OS partitioned data set (PDS or PDSE)
  - Retrieve the contents of a sequential data set, or a member of a PDS or PDSE
  - Retrieve the contents of a z/OS UNIX file
  - Write data to a sequential data set or a member of a PDS or PDSE
  - Write data to a z/OS UNIX file.

* available for z/OSMF V2.1 with PTF UI16044 and its requisite PTFs
** available for z/OSMF V2.1 with PTF UI90005 and its requisite PTFs

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Programmatic Interface for z/

- **REST API for z/OSMF Information Retrieval (z/OSMF V2.1 with PTF UI90005) ** to obtain information about z/OSMF on the z/OS host system**
  - You can retrieve version, release, and service level. With this information, a program can determine which z/OSMF plug-ins and core functions are available for use on a given system.
- **REST API planned to be added to work with the groups, sysplexes, and systems that are defined to z/OSMF***.**
  - You can list: the systems defined to z/OSMF; the groups defined to z/OSMF; the systems included in a group; the sysplexes defined to z/OSMF; or the systems included in a sysplex.
- **REST API planned to be added to allow a client application to interact with the z/OSMF Software Management task***.**
  - You can: list the software instances defined to z/OSMF; retrieve the properties of a software instance; or add a new software instance.
- **REST API planned to be added to allow you to create and manage a workflow programmatically.*****

** available for z/OSMF V2.1 with PTF UI90005 and its requisite PTFs
*** planned availability (March 30, 2015) with PTFs for APARs PI32148 and requisite PTFs

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Summary - What's New in z/OSMF V2.1

- **z/OSMF V2.1 uses the WebSphere Application Server Liberty profile**
  - **Runs on smaller configurations**
    - Requires available CPU resource equivalent to a processor with a processor capacity index (PCI) of at least 45.
  - **Initializes faster**
  - **Uses less CPU**
  - **Uses less memory**
    - Requires one gigabyte (1 GB) of central storage.
      - This amount is in addition to your existing storage allocation for other applications running in the same z/OS system.
  - **Installation of service is easier**
    - You no longer have to run a script (izusetup –service)
- **z/OSMF V2.1 provides:**
  - **A new Workflow Application and Notifications**
  - **Enhancements to many z/OSMF applications (plug-ins)**

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PTF UI16044 (and its requisite PTFs) *

This PTF (and its requisite PTFs) introduce a new:

- **Import Manager** task in the z/OSMF Administration category.
  - Administrators can use the Import Manager task to import plug-ins, event types, event handlers, and links into z/OSMF.
    - **SDSF PTF UI15294** provides the descriptor to enable SDSF to be used as an external z/OSMF task
- **z/OS data set and file REST interface**
  - This API allows an HTTP client application to work with z/OS data sets and UNIX files on the z/OSMF host system.

Several existing z/OSMF functions are enhanced:

- The **Incident Log** task
- The **ISPF** task
- The **Resource Monitoring** task
- The **Software Management** task
- The **Workflows** task
- The **Workload Management** task
- The **z/OS jobs REST interface** services API

* available for z/OSMF V2.1 with PTF UI16044 and its requisite PTFs (March 2014)

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z/OSMF's Most Recent Enhancements **

The following new functions have been made available by PTFs UI90004, UI90005, UI90006, UI90007, UI90008, UI90009, UI90010, UI90011, UI90012, UI90013, and UI90014 (9/30/2014):

- Provide browser support for Mozilla Firefox ESR 24 and Microsoft Internet Explorer 10.
- Enhance Incident Log to provide support for the use of SSH File Transfer Protocol (SFTP) for sending dumps and logs to IBM or another vendor.
- Enhance the Software Deployment function of Software Management to:
  - Provide support for the use of SFTP for remote software deployments.
  - Provide integrated management of the generated deployment jobs.
- Enhance the Workflows task to enable:
  - A workflow step to be designed to save its output in an *output file* which on completion of the step, the contents of the output file become available for use by subsequent steps in the workflow instance, or by other workflow instances.
  - A workflow step to be designed to be performed conditionally, based on whether a logical condition is satisfied on the z/OS system.
- Enhance the configuration workflow through the discovery functions of z/OS and z/OSMF configuration settings to determine the status of the current setup.
- Provide z/OSMF REST services support for editing and browsing files and data sets
- A new REST service is added to allow a caller to obtain information about z/OSMF on the z/OS host system
- The 'Systems' task now provides support for defining groups for organizing your systems.
  - Allows users to view the system definitions in the Systems table by sysplex or group.
  - Adds a new Discover action, which allows users to discover and create system definitions for the active systems that belong to the same JES2 multi-access spool (MAS) or JES3 complex as the z/OSMF host system..

** available for z/OSMF V2.1 with PTF UI90005 and its requisite PTFs (September 2014)

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z/OSMF's Upcoming Enhancements ***

The following new functions are planned to be made available by March 30 2015:

- **Provide z13 support in Resource Monitoring**
- **Enhance the Systems task to:**
  - **Support for organizing the system definitions by CPC (central processor complex).**
  - **Support for establishing a secure single sign-on (SSO) environment using the Third Party Authentication (LTPA) security protocol in System task.**
- **Enhance the Workflows XML schema to support workflow-to-workflow execution.**
- **Provide a scope option for customizing the JOB statement for a workflow.**
- **Enhance the z/OSMF configuration workflow to figure out the status of the current setup to determine what steps are required complete the z/OS requirement setup for ISPF, WLM, Capacity Provisioning, or Incident Log.**
- **Enhance the z/OSMF topology REST API to work with the groups, sysplexes, and systems that are defined to z/OSMF.**
- **Provide a REST API to list the software instances defined to z/OSMF; retrieve the properties of a software instance; or add a new software instance.**
- **Provide a REST API to allow you to create and manage a workflow programmatically.**

*** planned availability (March 30, 2015) with PTFs for APARs PI32148, PI32157, PI32158, and PI32163

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Shameless Plugs

- **You can try some of these great functions THIS WEEK!!!**
  - Without having to install or configure z/OSMF
  - **Just attend one of the z/OSMF Hands-On Lab sessions**
    - **z/OS SDSF using z/OSMF**
    - **z/OSMF Incident Log**
    - **z/OSMF Software Deployment**
    - **z/OSMF Software Management**
    - **z/OSMF Workflows**
    - **z/OSMF Workload Management**
  - **Three opportunities on Wednesday, Thursday, and Friday**
    - You can follow self guided instructions on how to use a number of z/OSMF functions
    - You can perform multiple exercises and attend more than one lab session
- **Separate Labs for:**
    - **z/OSMF Configuration Assistant**
    - **z/OSMF Resource Monitoring**

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More Shameless Plugs …

- If you plan on installing z/OSMF V2.1 come hear how to configure z/OSMF by attending session 16654 z/OSMF V2.1 Implementation and Configuration Thursday 8:30 AM
- If you are interested in seeing how to use z/OSMF Workflows to configure z/OS functions/capabilities, attend session 16646: Using z/OSMF Workflows for Configuration on Wednesday 11:15 AM
- If you are interested in using z/OSMF's REST APIs attend session 16935: z/OSMF 2.1 Advanced Programming Thursday 1:45 PM

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Thank You

Complete your session evaluations online at www.SHARE.org/Seattle-Eval

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Additional information

- z/OS Management Facility website
  - http://www-03.ibm.com/systems/z/os/zos/features/zosmf/index.html
- IBM z/OS Management Facility Browser Compatibility
  - http://www-03.ibm.com/systems/z/os/zos/features/zosmf/browser_notes.html
- z/OS Management Facility Publications
  - http://www-03.ibm.com/systems/z/os/zos/features/zosmf/moreinfo/
    - Program Directory for z/OS Management Facility (GI11-9847)
    - IBM z/OS Management Facility Configuration Guide (SA38-0657)
    - IBM z/OS Management Facility Programming (SA32-1066)
- z/OS Management Facility Resource Requirements
  - http://www-03.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/WP101779
- z/OS Management Facility Downloads
  - http://www-03.ibm.com/systems/z/os/zos/features/zosmf/downloads/

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