

The New and Improved z/OSMF V2.1

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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
  - Internet and Intranet Links
  - Programmatic Interface for z/OSMF
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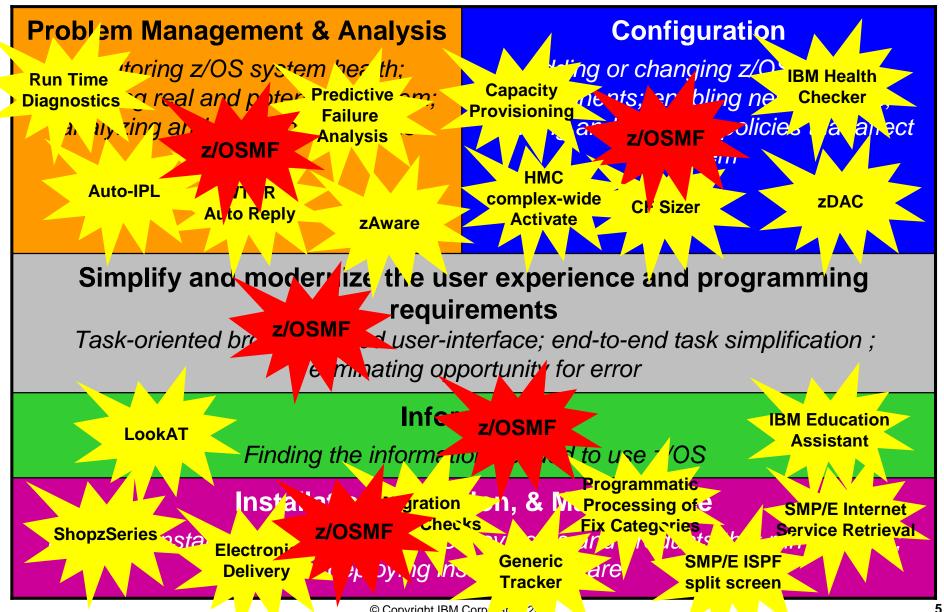
### **Agenda**



### Overview of z/OS Simplification Efforts

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## Focus Areas for Simplification



### 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

## z/OS Management Facility

**Problem Management & Analysis** 

Installation, Migration, & Maintenance

Configuration

#### 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 the richer display

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)

capabilities of a graphical user

interface.

- •REST API for Jobs (z/OSMF V1.13)
- •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
- •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.

### 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.

#### z/OSMF Statements of Direction\*

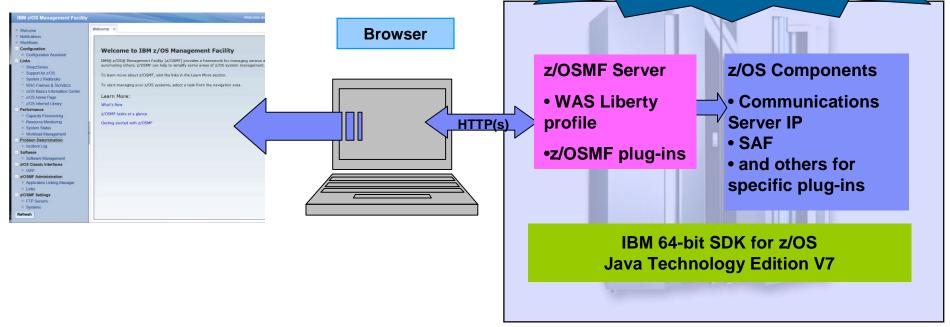
#### The following new functions are planned for z/OSMF (2H2014)\*:

- Provide support for the Microsoft<sup>™</sup> Internet Explorer 10 browser.
- 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.
- Provide z/OSMF REST services support for editing and browsing files and data sets.

IBM z/OS Management Facility

The Application Stack

Session 15592 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

### **Agenda**

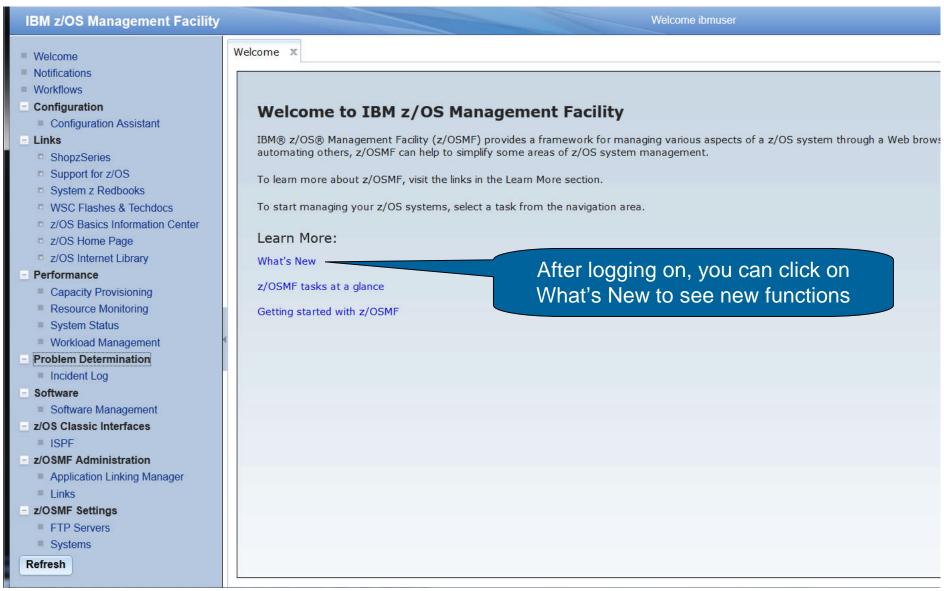
- Overview of z/OS Simplification Efforts
  - The z/OS Management Facility (z/OSMF)



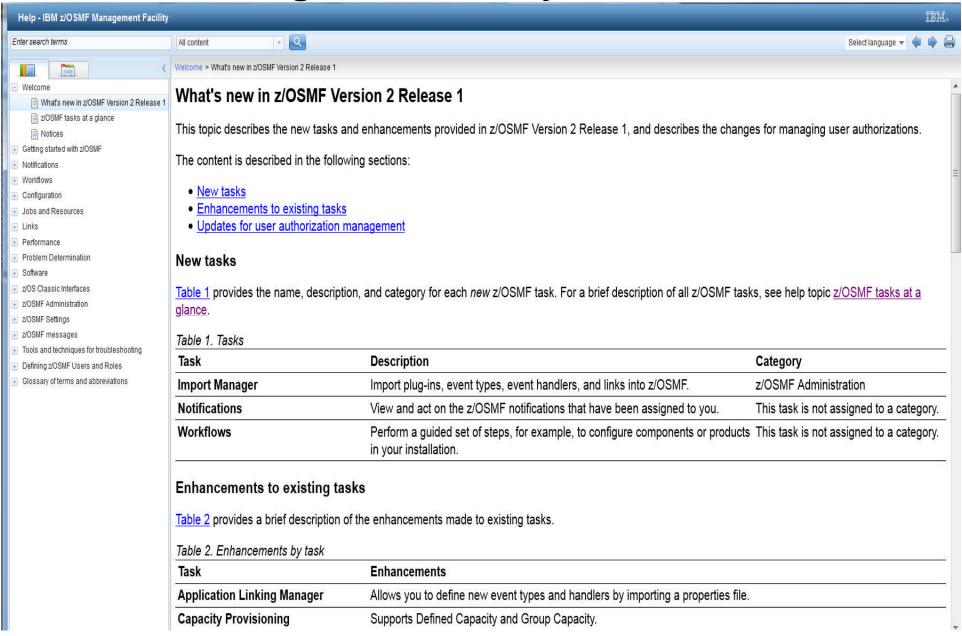
### What's New in z/OSMF V2.1

- Use of the WebSphere Application Server Liberty profile
- Workflows
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## **IBM z/OS Management Facility**



## IBM z/OS Management Facility - What's New

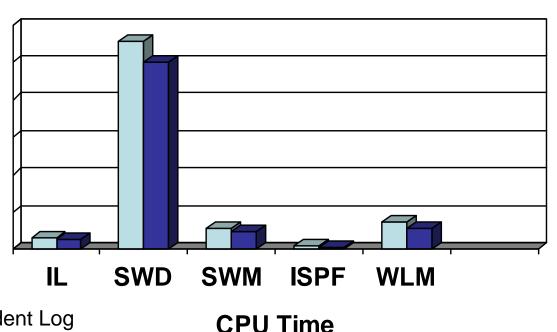


### Use of the WebSphere Application Server Liberty Profile

- Runs on smaller configurations
  - Requires available CPU resource equivalent to a processor with a processor capacity index (PCI) of at least 45.
- 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
  - You no longer have to run a script (izusetup –service)

### Use of the WebSphere Application Server Liberty profile

- z/OSMF V2.1 uses less CPU and memory resources than z/OSMF V1.13 (SPE).
- The differences vary by plug-in.
- The chart below depicts the average CPU savings for some representative plug-ins and/or scenarios. **Chart 1 Resource Comparison**<sup>1</sup>



**■ V1.13 ■ V2.1** 

Legend:

IL - Incident Log

SWD – Software Deployment

SWM – Software Management reports

<sup>1 -</sup> Based on laboratory results, your results may vary.

## z/OSMF Workflow Application

- This application is designed to allow exploiters to provide configuration assistance for functional setup tasks to simplify z/OS configuration.
- Workflow provides a guided flow through steps to accomplish a task
  - XML metadata file contains steps and details
  - Steps may be manual or invoke wizards
  - Wizards to update and submit jobs, execute shell scripts and REXX execs
  - Steps may define dependency on other steps
  - Steps go through various stages until complete
  - May be skipped or overridden
  - History maintained of all activities in the workflow task
- Workflows can route tasks to complete a workflow among a number of defined users or people assigned to specific roles, such as
  - "system programmer"
  - "security administrator"
- z/OSMF user notified of assigned workflow steps via Notification task

#### **Workflow characteristics**

- Exploiting products would provide their file(s) for the workflow task for configuring their product
- Templates are provided for:
  - Submitting jobs, running REXX EXECS, or running shell scripts
- Wizards are provided to automate common tasks to aid in configuring z/OS for the given product;
  - For example: JCL wizard to update and submit a job
- Tasks are presented to additional users as dependencies are met
- The workflow steps go through various stages until complete:
  - unassigned,
  - assigned,
  - accepted,
  - not ready,
  - ready,
  - in progress,
  - complete,
  - complete (override),
  - skipped

# User Scenario (Product Configur

Session 16079 Using z/OSMF to Configure ...

- 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.

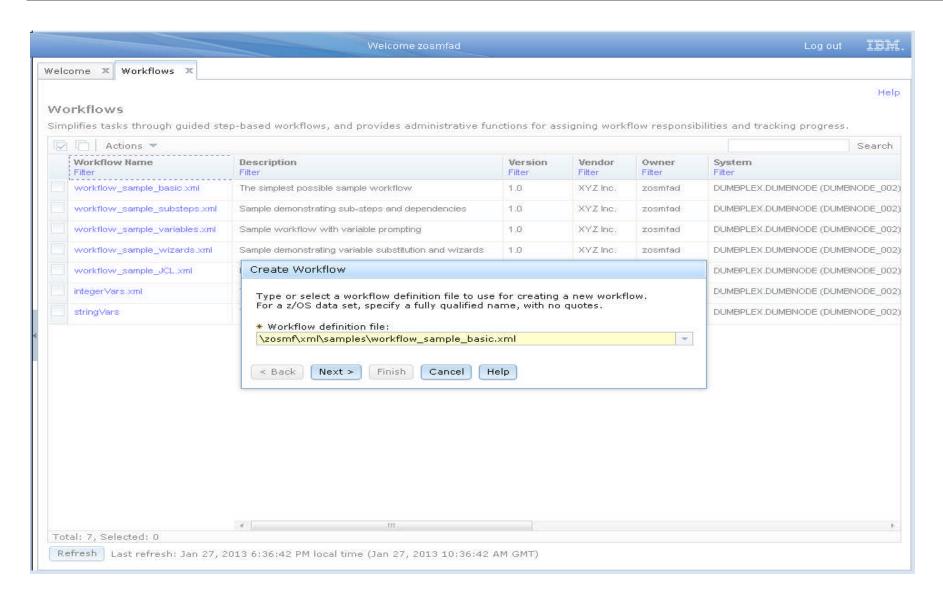
That person becomes the workflow owner

- The owner can then start by opening a workflow
  - This will create a 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

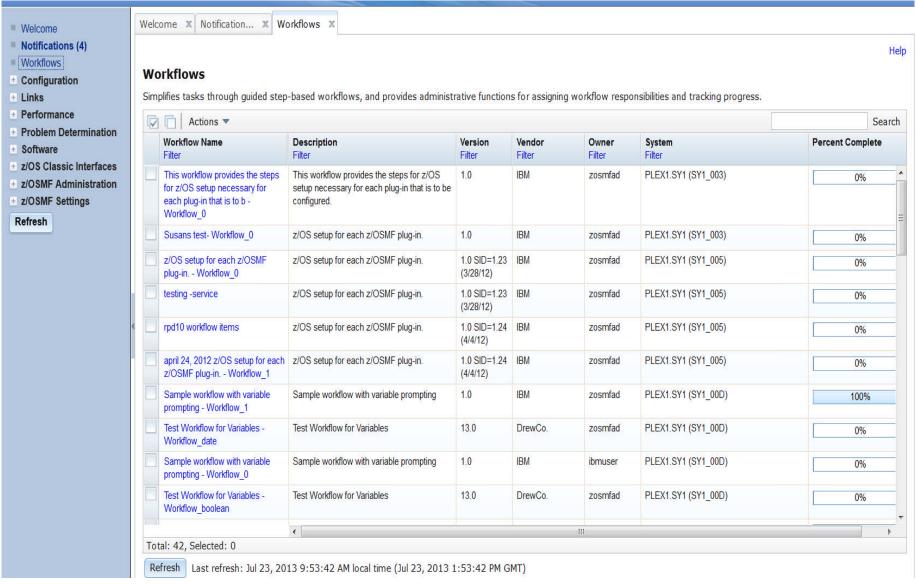
## z/OSMF Workflow Getting Started

- To get started with the Workflows task, you import a workflow definition file into z/OSMF.
  - To do so, you open the Workflows task and select the Create Workflow action provided in the Workflows table.
  - -Then, enter the name of the workload definition file.

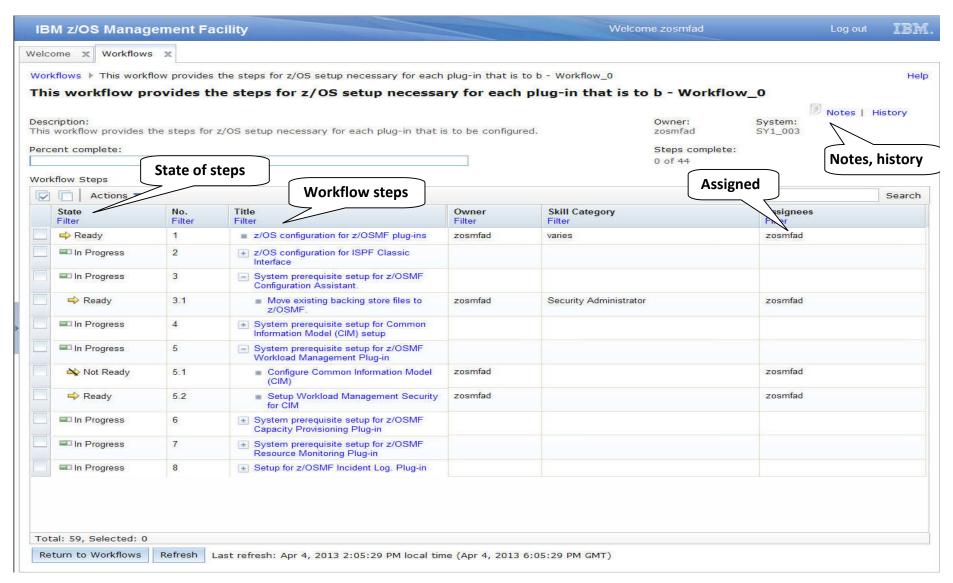
### z/OSMF Workflow – create instance



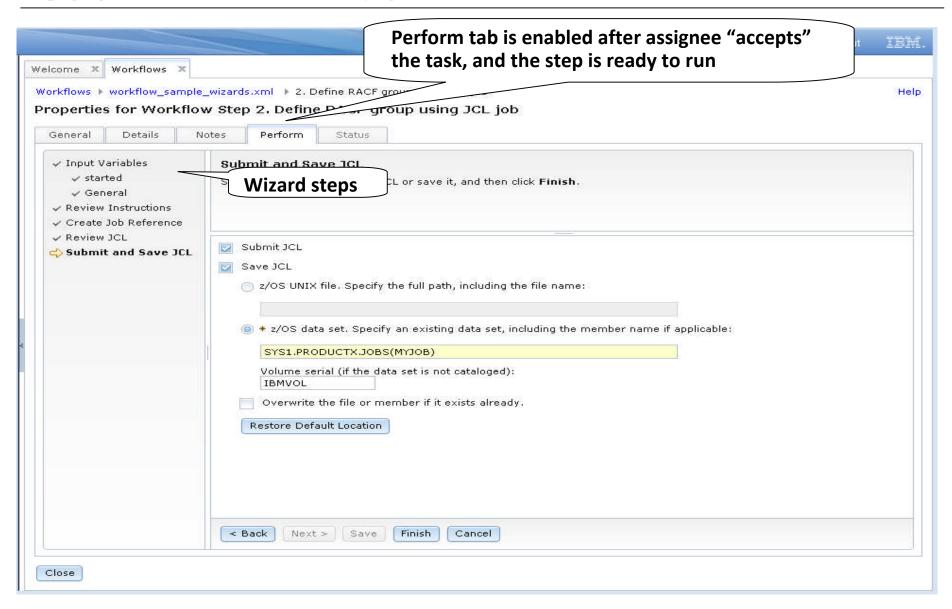
### Workflows



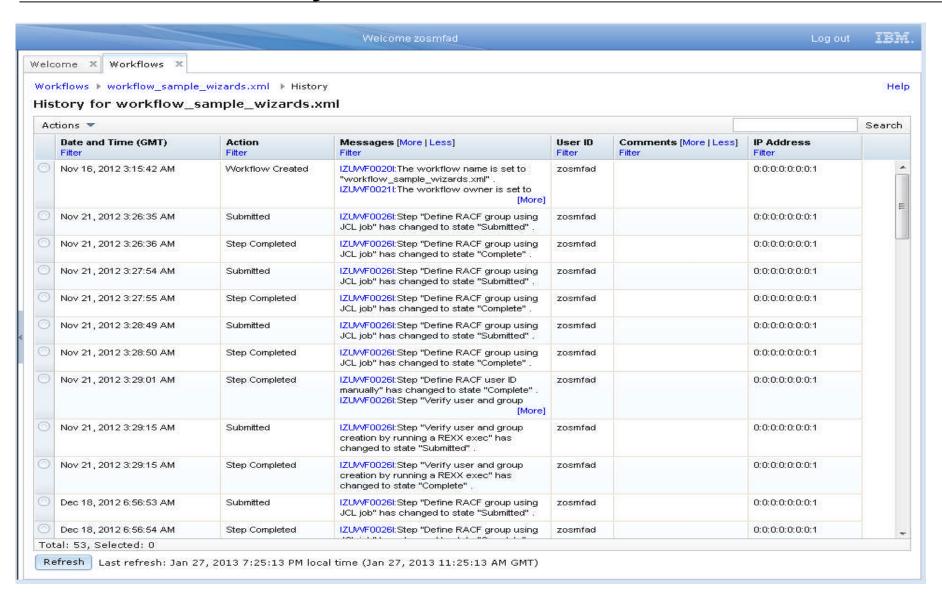
## z/OSMF configuration - Workflow example



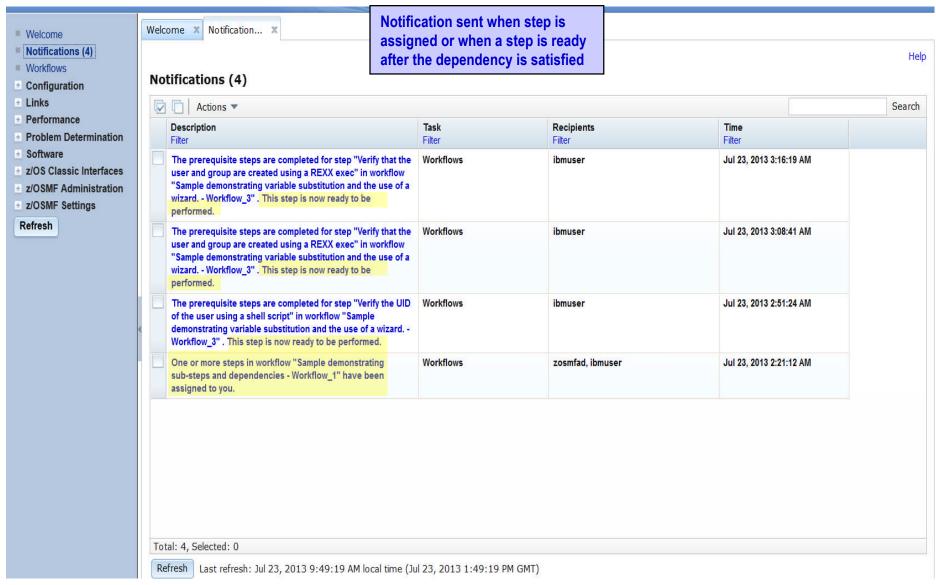
### z/OSMF Workflow JCL wizard



### **Workflow History**



#### **Notifications**



# Session 16079 Using z/OSMF to Configure ...

## z/OSMF Workflow Exploitation

- z/OSMF V2.1 has limited exploitation of the 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 with PTF UI16044 delivers stage 1 of the configuration workflow.
    - It is located at /usr/lpp/zosmf/V2R1/workflow/izu.config.setup.xml
    - Intent is to enhance it over time and add more capability
    - The configuration guide is still the complete source of information, although the workflow may be used to manage the steps required to setup the system pre requisites at a high level.
  - On the z/OS Downloads web page (http://www.ibm.com/systems/z/os/zos/tools/downloads/index.html) a sample workflow is available to evolve the z/OS Migration book into a z/OSMF z/OS V2R1 Migration Workflow.
  - z/OSMF V2.1 includes a number of sample workflow definition files
    - They are located at /usr/lpp/zosmf/V2R1/workflow
    - The samples include a workflow that identifies the z/OS system customization steps for each of the plug-ins.

### **External Application Support\*\***

- External application support enables non-z/OSMF web application – html and/or JavaScript applications to render their UI and run in the z/OSMF browser.
- The external applications can be added to z/OSMF navigation in a category selected by the user, and communicate with associated z/OS back-end components.
- Customers and vendors can create their own web applications and register to z/OSMF at runtime.
  - SDSF is the first exploiter (available with PTF UI15294).
- No special configuration is required to add the web application to the navigation.
- z/OS customization may be needed for backend z/OS component e.g. security setup, starting the z/OS function
  - Application specific z/OS setup should be defined by the application owner.

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

### 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 backend 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

### Process of plug-in registration\*\*

- Before adding a plug-in to z/OSMF, user should have one or more web applications ready, including the client side code and online help documentation in the z/OS UNIX file system.
- The z/OS application needs to provide a property file that describes the attributes for the web interface and defines all the required parameters for z/OSMF.
- The z/OSMF Administrator can register the web application by providing the path of the property file in the Import Manager.
- The Import Manager task will convert the parameters in property file into plug-in object and register the plug-in with tasks.
- With the successful registration and FileServingServlet, the navigation URLs of external plug-ins tasks could be accessed following the pattern of

"/zosmf/lzuUlCommon/externalfiles/relativefilepath".

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

### External application properties file\*\*

- In one property file only one type of definition can be specified
  - External plug-ins
  - Application linking handlers
  - Application linking events
  - External links
- A properties file may contain multiple definitions of any one type
  - multiple links, or multiple handlers or multiple plugins
- z/OSMF will provide format of properties file in the programming guide
- z/OSMF will provide services to integrate with the z/OSMF framework

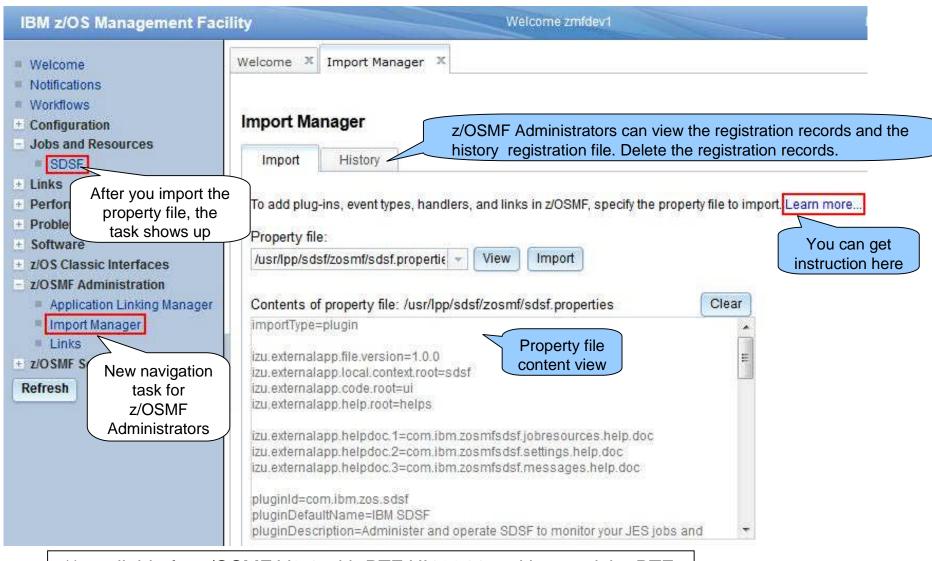
<sup>\*\*</sup> available for z/OSMF V2.1 with PTF UI16044 and its requisite PTFs

### 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
- Note: 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
- Note: 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

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

### Import Manager – Import Tab\*\*



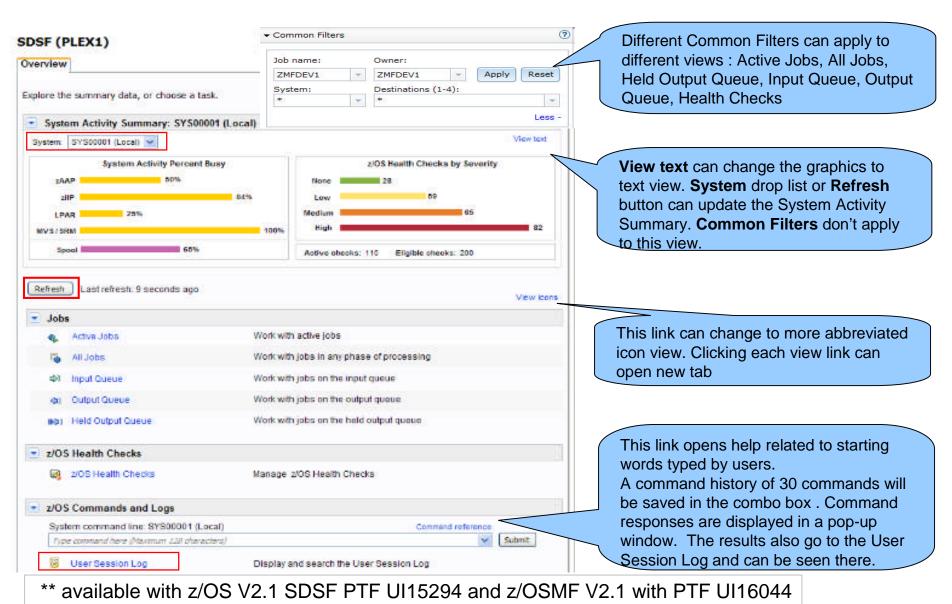
<sup>\*\*</sup> available for z/OSMF V2.1 with PTF UI16044 and its requisite PTFs

## **SDSF Plug-in\*\* Overview**

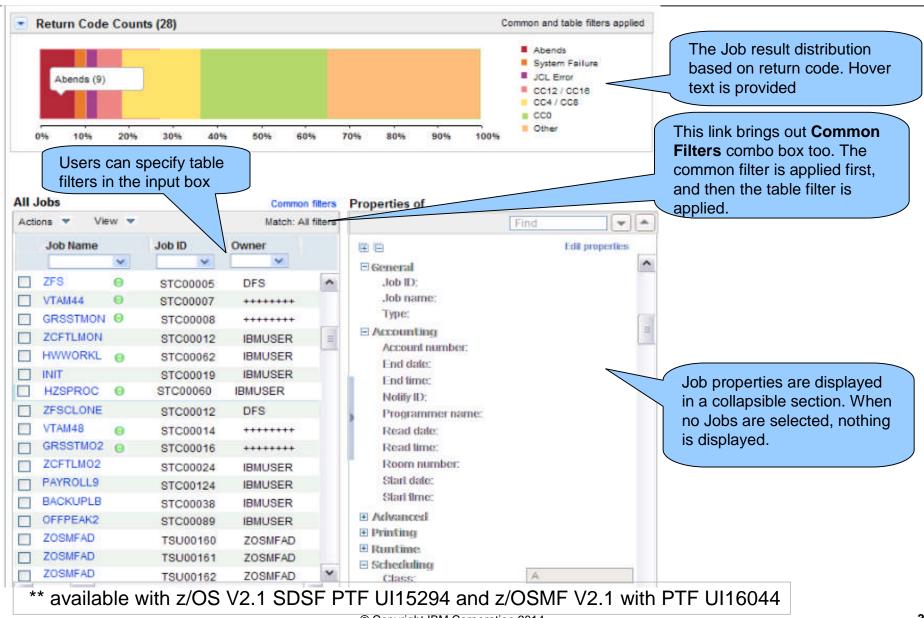
- The SDSF product provides a web interface through a z/OSMF SDSF Plug-in.
  - The Javascript UI calls RESTful web services to retrieve data and perform actions.
- This Plug-in can
  - Show graphic/textual overview about Processors, Spool, Health Checker
  - Display a table of Job list in different status/queue. 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.

<sup>\*\*</sup> available with z/OS V2.1 SDSF PTF UI15294 and z/OSMF V2.1 with PTF UI16044

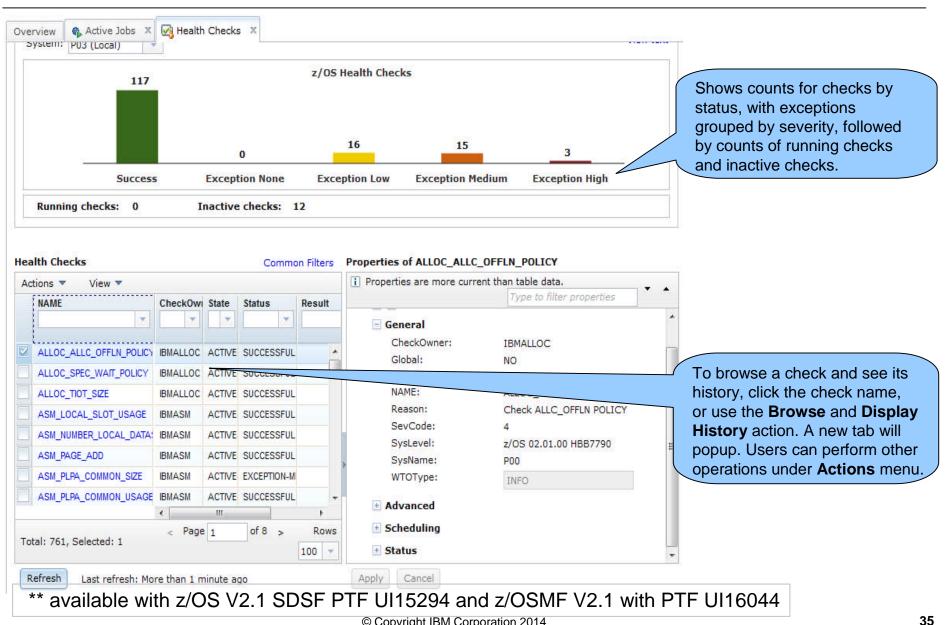
#### **SDSF Overview\*\***



### **All Jobs View \*\***



#### z/OS Health Checks View\*\*



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  - 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
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- Configuration
  - Configuration Assistant for z/OS Communications Server
- Performance
  - Capacity Provisioning
  - Resource Monitoring and System Status
  - Workload Management
- Problem Determination
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  - z/OS Classic Interface
    - ISPF



- A GUI for the z/OS Communications Server Policy Agent it simplifies the configuration and setup of TCP/IP policybased 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

### 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

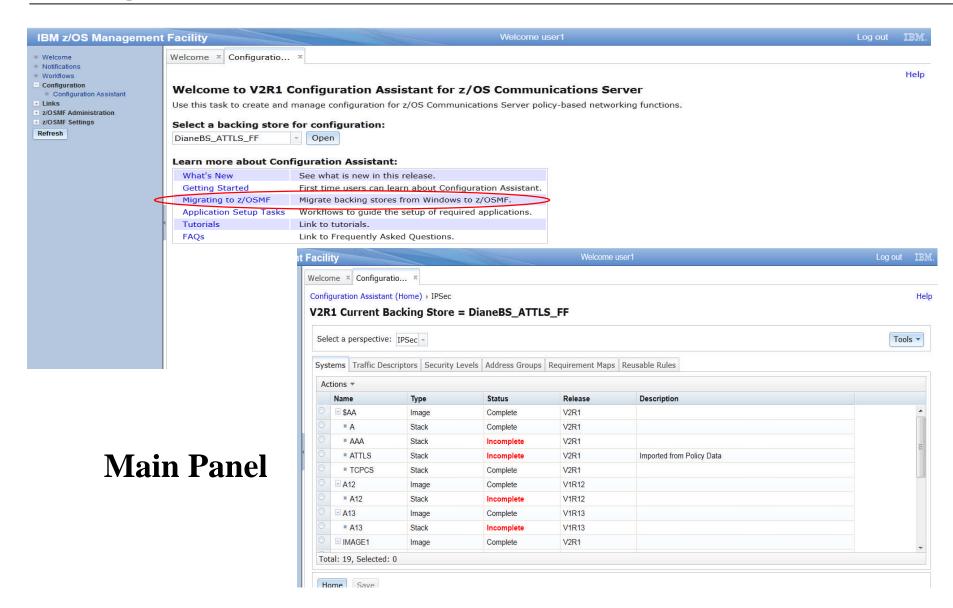
- Define policies once and use for multiple stacks,
- Configure networks for both z/OS R12 and R13 mixed environments
- Import existing stack settings
- Improved Intrusion Detection function

### Configuration Assistant for z/OS Communications Server

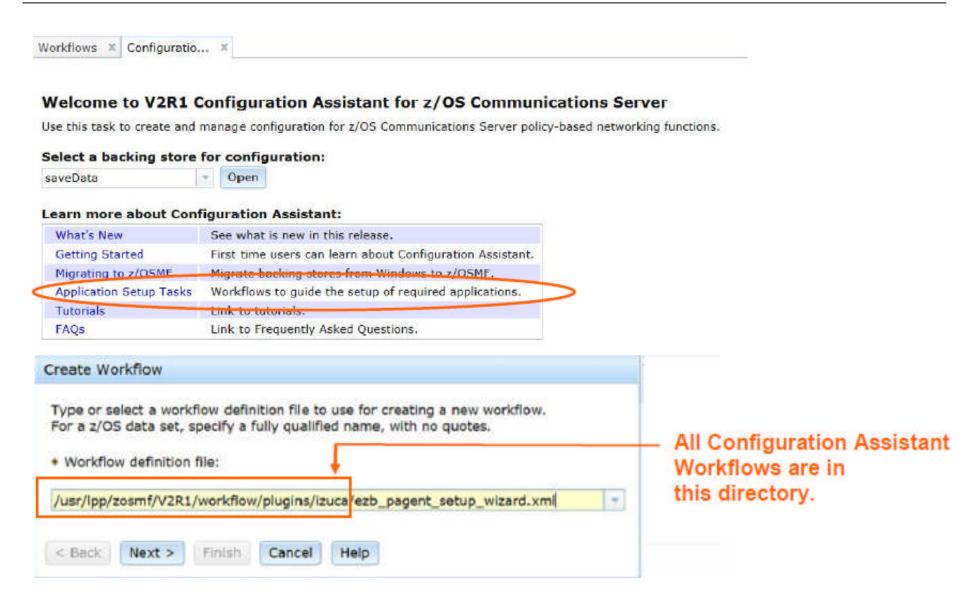
#### Enhancements in z/OSMF V2.1

- 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.

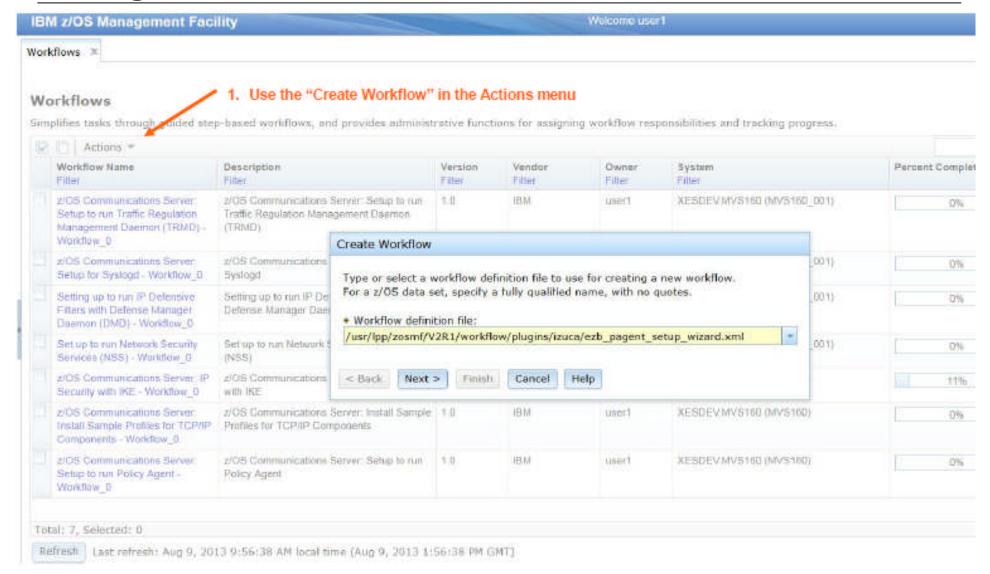
### Configuration Assistant z/OSMF V2.1 Welcome Panel



### Configuration Assistant z/OSMF V2.1 Welcome Panel



### Configuration Assistant z/OSMF V2.1 Workflows



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# z/OSMF Capacity Provisioning

#### **Background**

#### System z On/Off Capacity on Demand

Ideal if your business has few periodic workload peaks over the year. Potentially:

- Save on hardware No need to purchase hardware, 'you rent it' for the days you need it.
- Save on monthly software charges only pay for software charges for On/Off CoD peak capacity in the month it is incurred\*\*

Also ideal if you own extra hardware capacity (banked capacity). Potentially:

 Save on monthly software charges – budget for peak 'banked' capacity and turn off the resources when not needed to possibly gain software savings.

#### The Capacity Provisioning Manager (CPM) is in the base of z/OS

- z/OS Capacity Provisioning Manager can automate On/Off CoD for z/OS
  - Can manage processing capacity more reliably, more easily, and faster.
  - What had taken minutes or hours to discover, identify, decide, and resolve, now can be specified to happen automatically in as little as two minutes.

#### The Capacity Provisioning Control Center (CPCC) is the user GUI to CPM used for administering the Capacity Provisioning policies

Available as a separate Windows-based stand-alone client.

# z/OSMF Capacity Provisioning

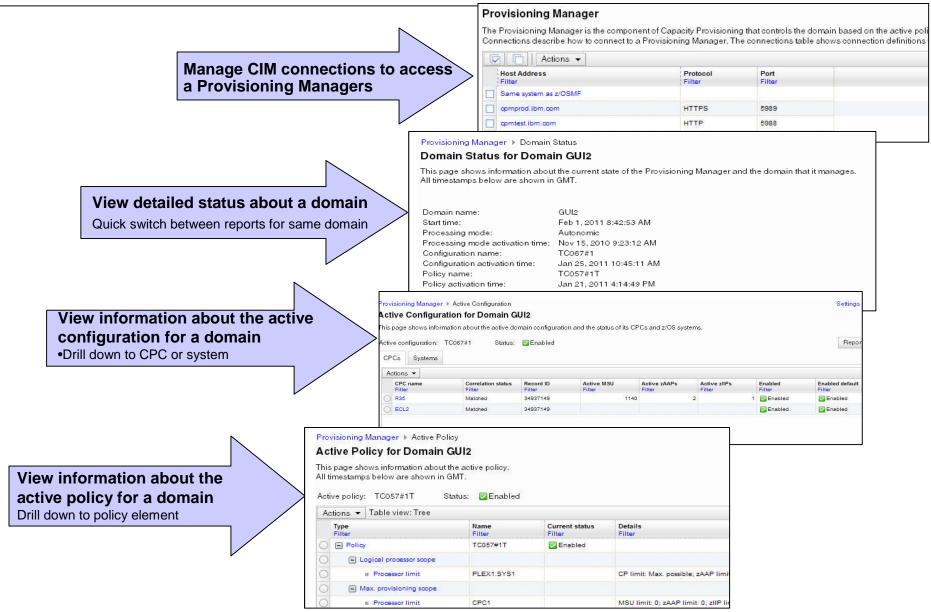
### z/OSMF Capacity Provisioning task

- 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 Windowsbased 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.

# z/OSMF Capacity Provisioning



- 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

# z/OSMF Resource Monitoring

- 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.

# z/OSMF Resource Monitoring

#### Enhancements in z/OSMF V1.13

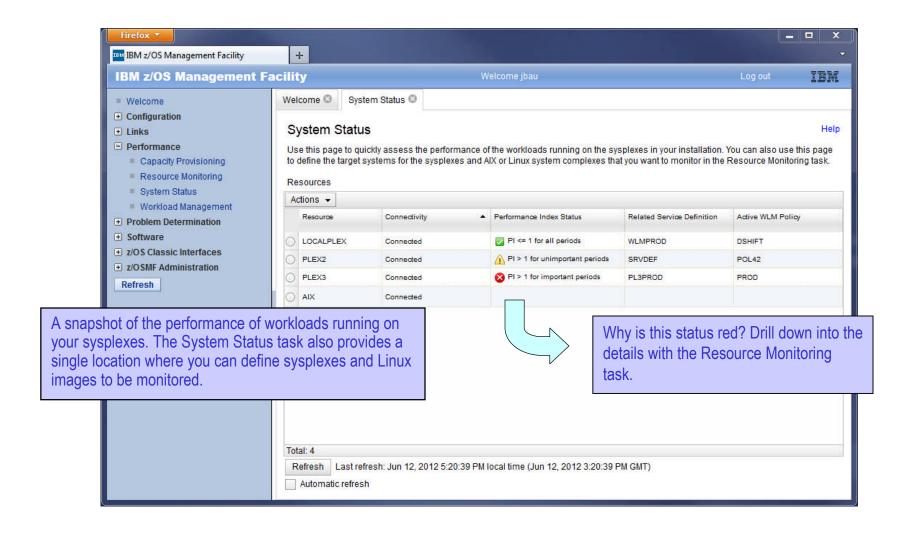
- With z/OS V1.13, RMF has new CIM-based performance data gatherers for Linux on System z, Linux on System x, and AIX systems to provide a consistent monitoring solution for zEnterprise ensembles.
- Application Linking between Resource Monitoring and WLM

#### 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\*\*

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

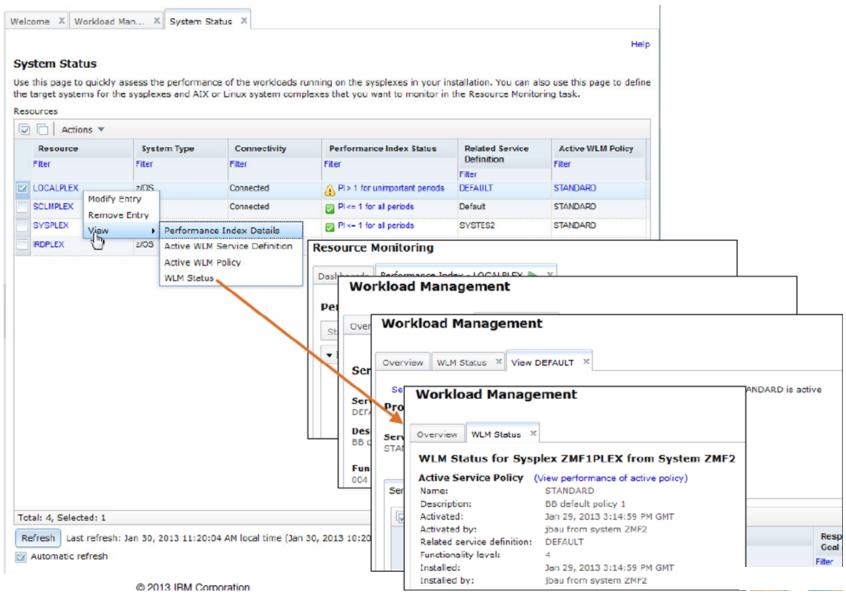
### Resource Monitoring: System Status



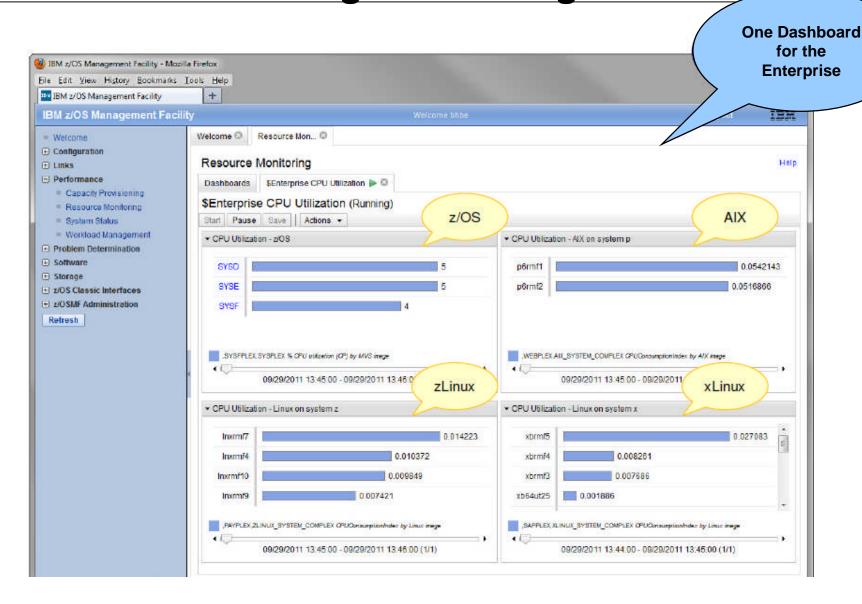
### **Resource Monitoring: Monitoring Dashboards**



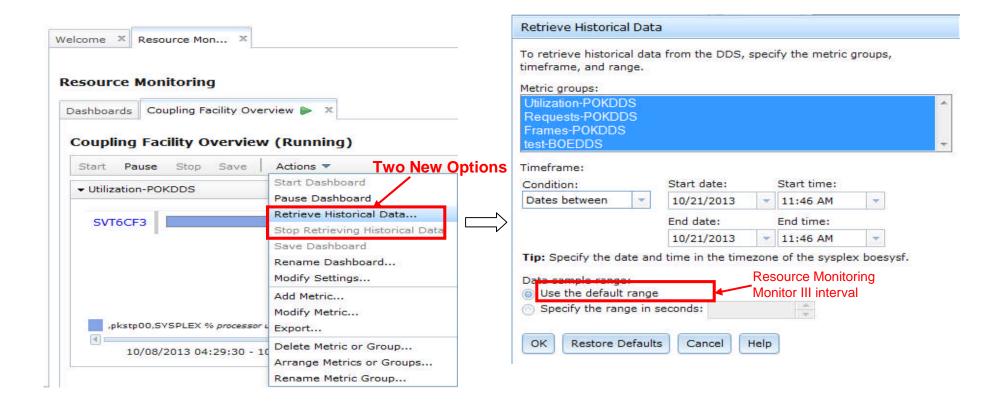
# **Application Linking: Resource Monitoring to WLM**



Resource Monitoring: Monitoring Dashboards



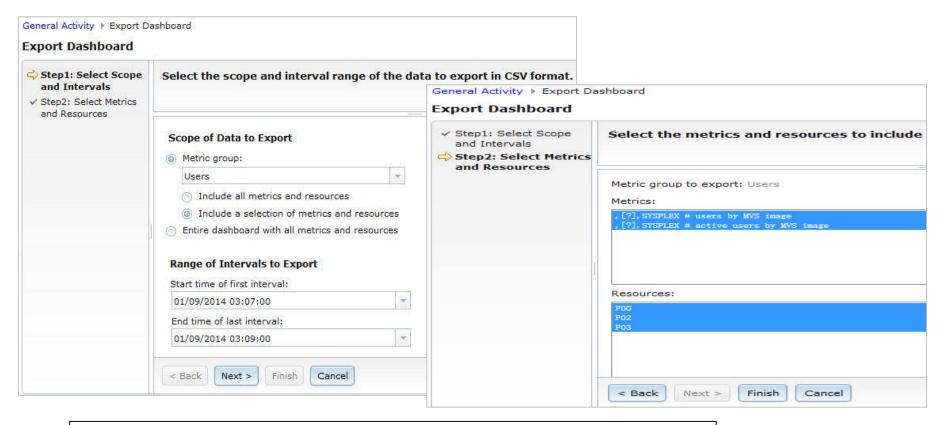
### **Retrieve Historical Data\*\***



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

### Resource Monitoring – Spreadsheet Export (1)\*\*

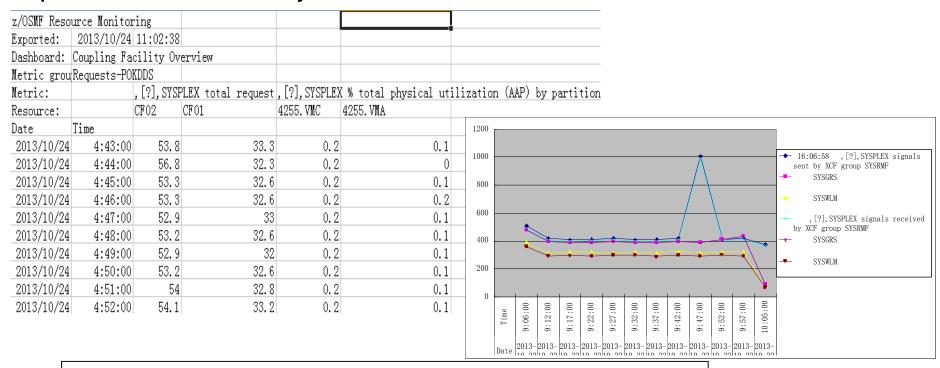
- In Resource Monitoring task, Open a dashboard, click "Actions -> Export" can bring up Export Wizard.
- User can choose a metric group or the entire dashboard, and select a range of intervals to export. Specific metrics and resources can also be sorted out.



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

# 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 the performance of the systems

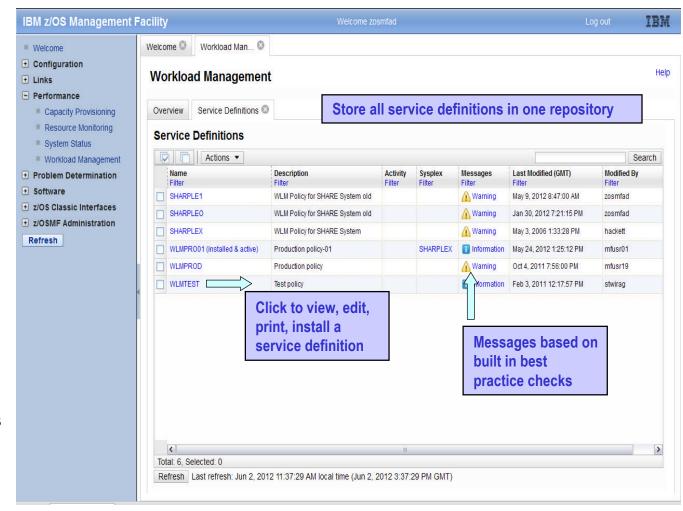


<sup>\*\*</sup> available for z/OSMF V2.1 with PTF UI16044 and its requisite PTFs

- Configuration
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  - z/OS Classic Interface
    - ISPF

### z/OSMF Workload Management

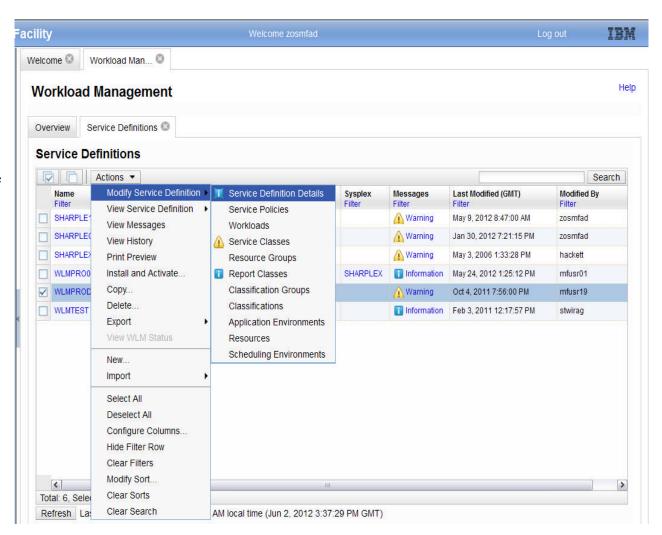
- WLM Policy Editor available on the z/OS Management Facility provides
  - All the same functions as in the 'as is' Webdownload tool and many new features
  - Direct access to the WLM Couple Data Set to install/extract service definitions. No need to FTP WLM policy files!
  - Activation of service policies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



### 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



#### Enhancements in z/OSMF V1.13

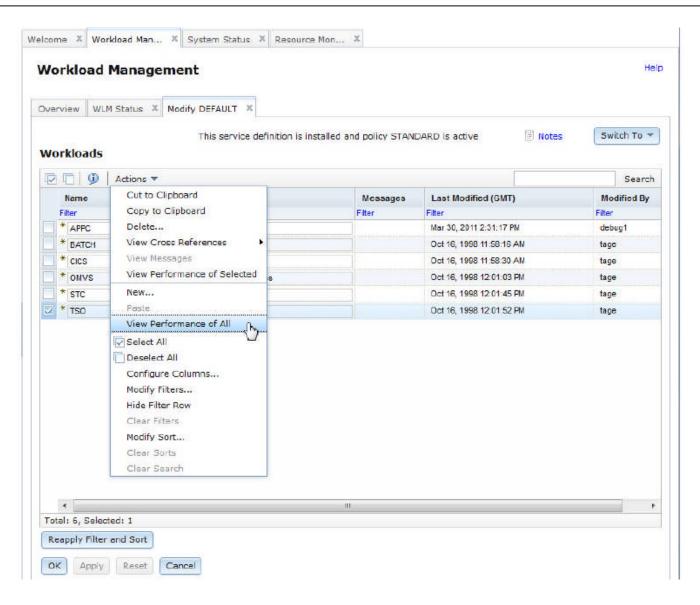
- Persists user settings.
- Supports different authorization levels.
- Allows you to view details about the performance of your active service policy, service classes, workloads, and so on.
- Allows you to activate a service policy when viewing or modifying a service definition.
- Application Linking 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\*\*

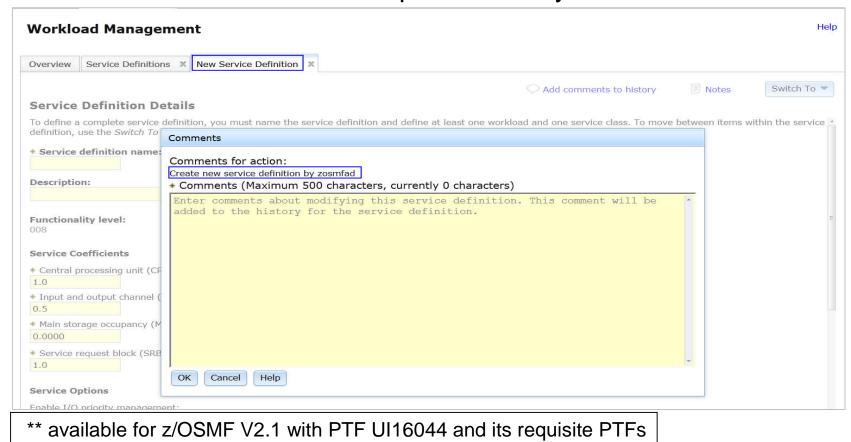
<sup>\*\*</sup> available for z/OSMF V2.1 with PTF UI16044 and its requisite PTFs

# **Application Linking: WLM to Resource Monitoring**



### 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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### 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

### 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.
  - Requires 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

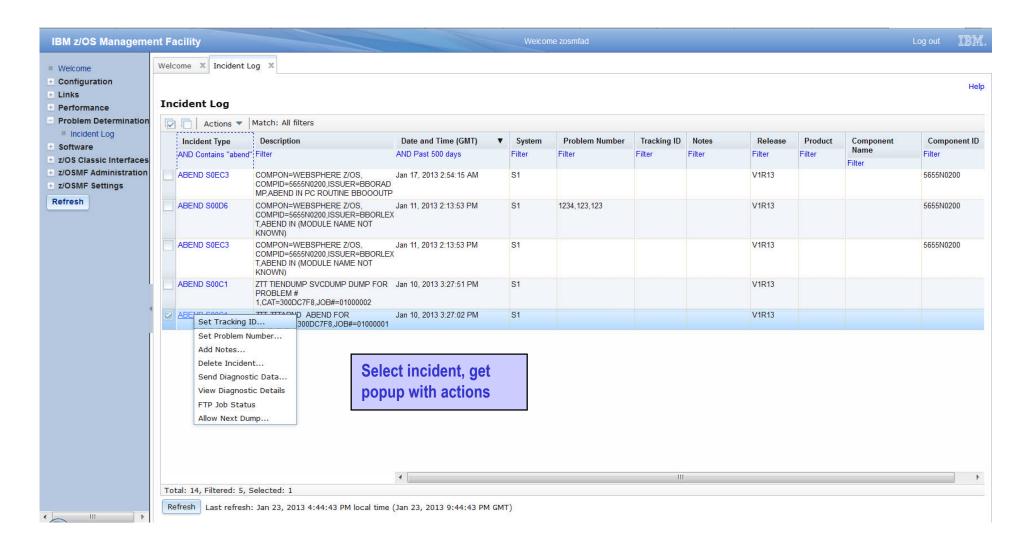
#### Enhancements in z/OSMF V2.1\*\*

- 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.

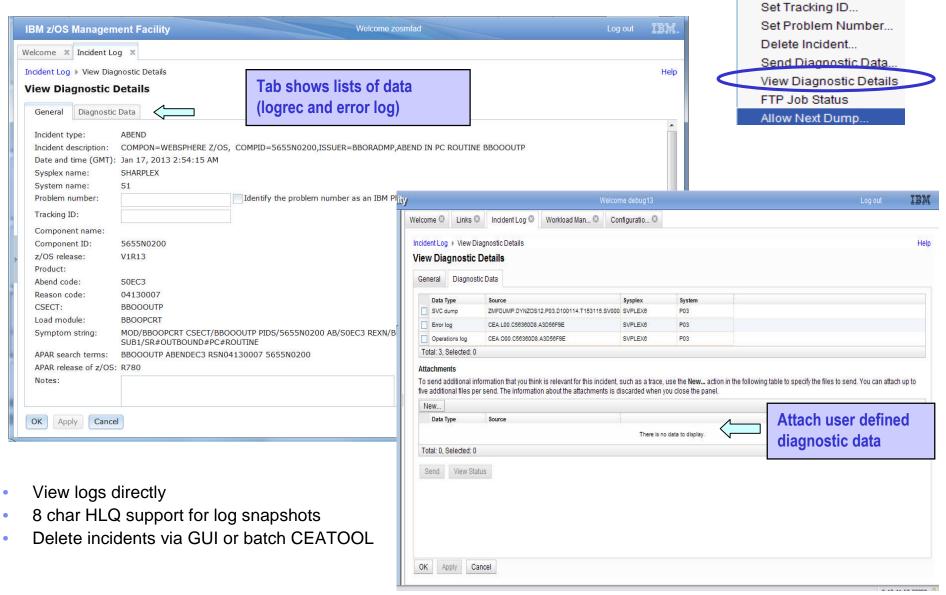
<sup>\*\*</sup> available for z/OSMF V2.1 with PTF UI16044 and its requisite PTFs



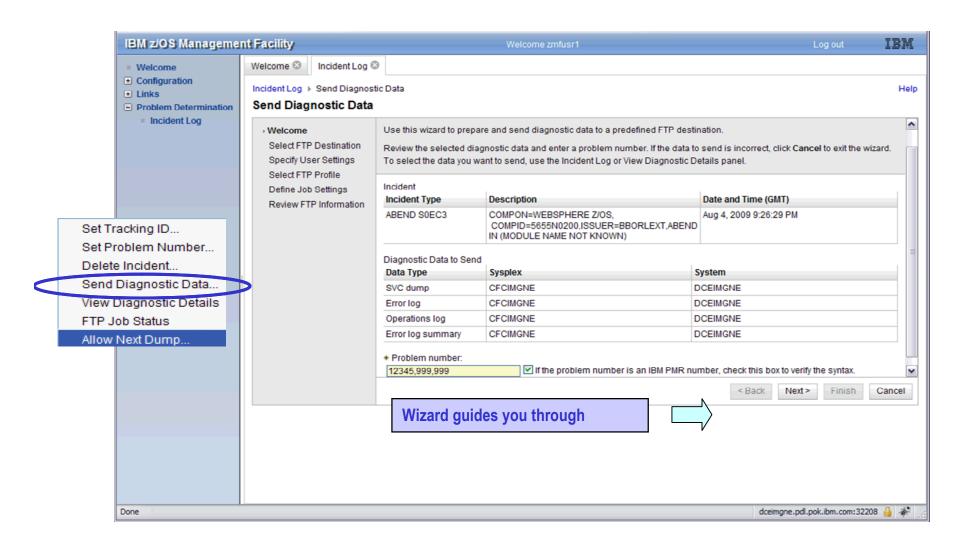
# Sessions 15604, 15814, 15815 z/OSMF Hands-On Labs



## Incident Log – Incident Details



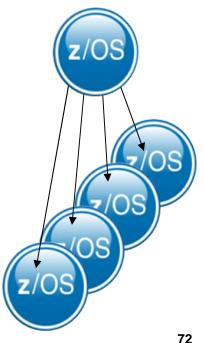
# Incident Log – Send Diagnostic Data



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# z/OSMF Software Management (Deployment)

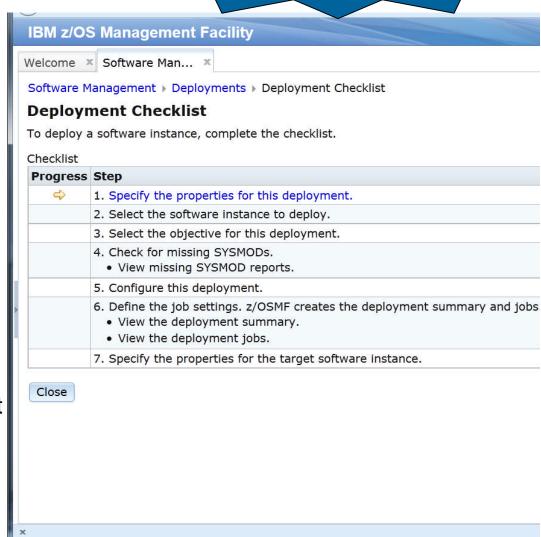
- z/OSMF Software Deployment will provide rigor in the deployment of SMP/E installed software.
- New task designed to make deployment of installed software simpler and safer.
  - Replaces manual and error prone procedures with a user friendly application
  - Incorporates IBM recommended best practices 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)



# z/OSMF Software Managemen

# **Sessions 15604, 15814, 15815 z/OSMF Hands-On Labs**

- 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

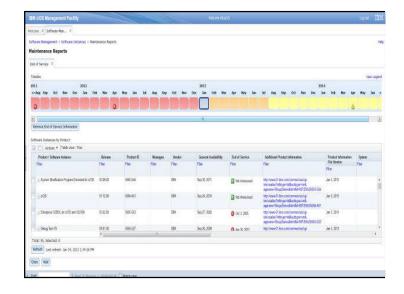


#### z/OSMF Software Managemen

# **Sessions 15604, 15814, 15815 z/OSMF Hands-On Labs**

- 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.





#### **Software Management**

#### Enhancements in z/OSMF V2.1

- New in z/OSMF V2.1 you can print and export reports about your software and installed products.
- 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.
- Add new tab to view SMP/E managed UNIX file system data sets and related UNIX directories can be viewed easily.\*\*

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

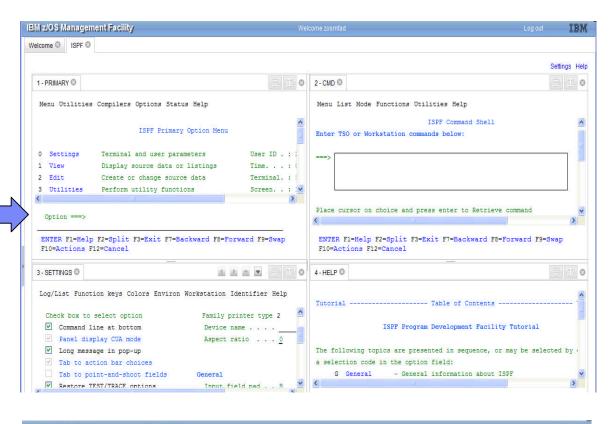
#### z/OSMF Management Tasks

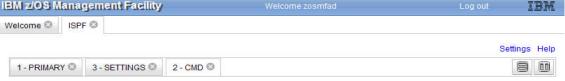
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- Software
  - Management (originally called Deployment)
- z/OS Classic Interface



#### z/OSMF and ISPF Work with existing interfaces

- Enables system programmer to perform tasks from one interface.
  - Also makes ISPF applications URL Webaccessible 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





# z/OSMF and ISPF Additional screens



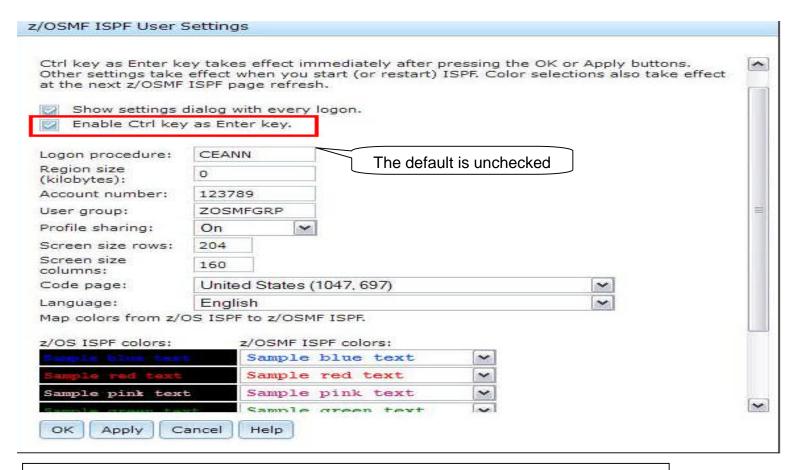




- Customize settings
- TSO messages have priority and pop up
- Example: SDSF status

### 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
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  - Problem Determination
  - Software
  - z/OS Classic Interface: ISPF
- Other z/OSMF Capabilities
- **Security** 
  - Internet and Intranet Links
  - 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

#### z/OSMF Administration: SAF-Based Security

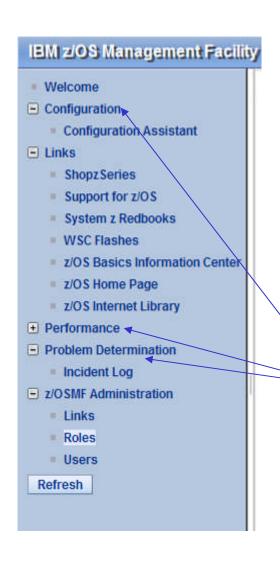
#### Enhancements in z/OSMF V2.1

- 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.

#### **Agenda**

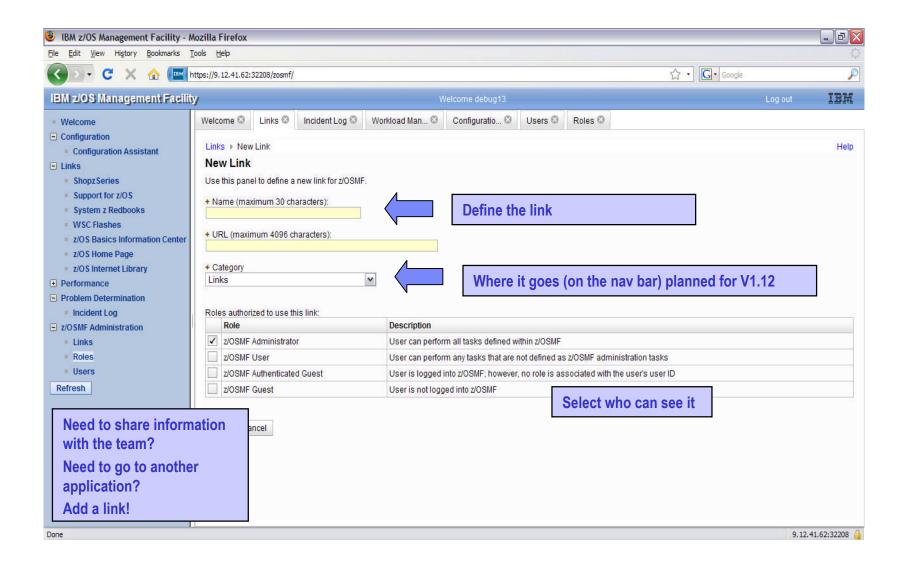
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  - Security
- Internet and Intranet Links
  - Programmatic Interface for z/OSMF © Copyright IBM Corporation 2014

#### z/OSMF Internet and Intranet Links



- The Links category contains the pre-defined links provided by IBM as well as any new links added by the z/OSMF administrator
- Administrator can define which roles have access to each of the defined links.
  - The Links task in Administration category allows the administrator to dynamically add links to non-z/OSMF resources, e.g. ISV products, commonly used installation Web sites
- The IBM pre-defined links are accessible to all users, including guests, by default.
- Also, a new interface enables you to add non-z/OSMF launch points and links to any category on the left hand side navigation tree.

#### z/OSMF Administration: Adding a link



#### **Agenda**

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- Other z/OSMF Capabilities
  - Security
  - Internet and Intranet Links



#### Jobs REST APIs enhancements

- z/OSMF R13 introduces RESTful API interface to z/OS for submitting and accessing batch job
- Enhancement in 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 \*\*
    - The Jobs API already supports submitting a job to secondary JES2. The request format is updated to allow the user to specify the JES2 subsystem name on which the job is going to be processed.
  - Support for hold & release a job \*\*
    - Jobs being processed, or waiting to be processed, are kept on a job queue in priority sequence.
    - You can issue hold job http request via the Jobs API which will issue JES2 commands to hold specified jobs or all jobs currently in a system.
    - You can also keep jobs in specified job queues or all job queues from being executed until you issue release request via the Jobs API to release them.

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

#### **RESTful File API\*\***

- The RESTful File API allows a client application to list the data sets or UNIX files and directories on a z/OS system.
- Today z/OS supports an interface via FTP. The ability to drive remote requests similar to FTP from HTTP(s) provides a secure and functionally rich interface to retrieve or manipulate file or Data Set information
- The URLs of RESTful File API have the format:

https://{host}:{port}/zosmf/restfiles/ds/{resource}?{parm}
or
https://{host}:{port}/zosmf/restfiles/fs/{resource}

- "https://{host}:{port}" specifies the target system address and port.
- "zosmf/restfiles" identifies the z/OS data set and file REST interface.
  - "/ds" identifies a data set request
  - "/fs" identifies a UNIX file path request
- "{resource}?{parm}" represents the resource, such as a data set name or file path name, and optionally one or more parameters, to qualify the request.

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

#### **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 Configuration Assistant
  - z/OSMF Incident Log
  - 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
- Three opportunities on Wednesday, Thursday and Friday
  - You can follow self guided instructions on how to use a number of z/OSMF functions
- Note that there is a separate lab for z/OSMF Resource Monitoring
- If you plan on installing z/OSMF V2.1 come hear how to configure z/OSMF by
  - Attending session 15592 z/OSMF V2.1 Implementation and Configuration
    - Thursday, August 7, 2014: 8:30 AM-9:30 AM in Room 406
      - New users and migrating user paths will be covered, as well as adding additional plug-ins

#### 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)

#### Summary - 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

# Thank You



#### Growing your IBM skills – a new model for training



Training Providers in the Edge Solution
Showcase

Global Skills Initiative

- Access to training in more cities local to you, where and when you need it, and in the format you want
  - Use <u>IBM Training Search</u> to locate training classes near to you
- Demanding a high standard of quality / see the paths to success
  - Learn about the <u>New IBM Training Model</u> and see how IBM is driving quality
  - Check <u>Training Paths and Certifications</u> to find the course that is right for you
- <u>Academic Initiative</u> works with colleges and universities to introduce realworld technology into the classroom, giving students the hands-on experience valued by employers in today's marketplace
- www.ibm.com/training



#### Related learning

- For all your training needs see: www.ibm.com/training
- IBM System z Mainframe training paths:
  - z/OS and System z
  - z/OS Operation and Parallel
     Sysplex ☆
  - z/OS Installation, Tuning, JES, and REXX Programming and Problem Diagnosis
  - Security Skills
  - z/OS UNIX System Services,
     WebSphere and SAP
  - z/VM and Linux on System z
  - z/OS Networking
  - Contains track relevant content

- Courses related to this conference track:
  - –ES42G: Parallel SysplexImplementation Workshop
  - –ES73G: IBM System z ParallelSysplex Operations
  - -ES54G: Basic z/OS Tuning Using the Workload Manager (WLM)
  - –ES90G: Advanced Parallel SysplexOperations and Recovery Workshop

# Backup

#### Additional information

- z/OS Management Facility website
  - http://ibm.com/systems/z/os/zos/zosmf/
- IBM z/OS Management Facility education modules in IBM Education Assistant
  - http://publib.boulder.ibm.com/infocenter/ieduasst/stgv1r0/index.jsp
  - Scroll down to z/OS Management Facility
- IBM Publications Center
  - 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)
  - IBM z/OS V2R1.0 Management Facility License Information (GC52-1386)
    - http://www.ibm.com/e-business/linkweb/publications/servlet/pbi.wss
- IBM z/OS Management Facility Information center
  - http://pic.dhe.ibm.com/infocenter/zos/v2r1/index.jsp

#### z/OSMF Configuration Assistant for z/OS Benefits

	Without Configuration Assistant* With Policy Agent only	With Configuration Assistant* in z/OSMF GUI for Policy Agent
Filter unwanted network traffic from your z/OS system	Learn how to set up IP filters     Review the IP Configuration Guide     Configure the Policy Agent application     Create configuration policy for IP Filter rules     Configure default filter rules in the TCP/IP profile     Configure the TRMD application     Configure the Syslogd application Hours (or even days for initial setup)	Configuration Assistant guidance     Go to IP Security Perspective     Add a connectivity rule for an IP Filter     Use Application Setup Tasks to assist with the configuration and setup of the required applications     The Configuration Assistant will generate and help you deploy the configuration files to your z/OS system  As little as 30 minutes
Secure your TN3270 server connections with SSL	Manual process     Review the IP Configuration Guide     Configure the Policy Agent application     Configure TTLS in the TCP/IP profile     Configure the Syslogd application     Create configuration policy for AT-TLS for your TN3270 Server  Hours (or even days for initial setup)	Configuration Assistant guidance Go to AT-TLS Perspective Select the AT-TLS rule for the TN3270 server and enable Use Application Setup Tasks to assist with the configuration and setup of the required applications The Configuration Assistant will generate and help you deploy the configuration files to your z/OS system  As little as 30 minutes

Get started faster! The Config. Assistant takes the rules and best practices found in various configuration publications and puts them under a single, simple user interface, saving you much time and effort.

#### z/OSMF Capacity Provisioning Benefits

	Without Capacity Provisioning in z/OSMF*	With Capacity Provisioning in z/OSMF*
View active CP policy and compare with data provided by RMF and WLM	Start stand-alone Windows-based client (CPCC) for Capacity Provisioning, connect to CPM and display active configuration report. Open z/OSMF in a browser and inspect RMF and WLM data.	Use integrated z/OSMF GUI to work with CP, RMF and WLM and compare data provided by each exploiter.
	5 – 10 minutes until all tasks are completed	2 – 3 minutes until all tasks are completed
Operating person needs to reuse existing connection	Connection information like hostname, protocol and port needs to be manually gathered from primary person. Available domains must be known.  Up to 5 minutes	Usage of shared connection repository in z/OSMF. List of available domains is retrieved form server and shown to user.  No extra time to be spent
Installation of the capacity provisioning UI	Install Windows client (CPCC) on workstation.	Centrally managed z/OSMF application available to all authorized users.
application	Hard to install on managed clients, 20 minutes otherwise	No extra time to be spent

The **z/OSMF Capacity Provisioning** task requires the base feature z/OS Capacity Provisioning

\* Based on IBM laboratory results, your results may vary

#### z/OSMF Resource Monitoring Benefits

	Without z/OSMF Resource Monitoring (using RMF ISPF Monitor III Reporter)*	With z/OSMF Resource Monitoring*
Checking the performance status for several sysplexes	You need a Monitor III Reporter session on each sysplex, and manually consolidate data from different reports. (Monitoring of Linux resources has to be done with other tools)  Up to 15 minutes to look up each sysplex and high degree of skill needed	Cross-sysplex performance monitoring from a single point of control with a quick red-yellow-green health indicator for your systems on a single panel.  (Linux monitoring features are fully integrated.)
•	to interpret reports	Just seconds to see the health of all your sysplexes (and Linux images)
Explore & compare the processor usage of specifics jobs	Tabular reports are a fixed layout and can be viewed only one at a time with limited ability to customize and filter the data presentation. You have to manually consolidate data from different reports A long time, depending on data required and correlations needed. In some cases, generating reports is not possible.	The monitoring desktops are fully customizable. Specific metrics of selected resources can be added to a desktop and are presented as charts. Multiple desktops can be started in parallel in different tabs. Advanced filtering features allow you to conduct more sophisticated performance analysis.  About 5 minutes to set up a custom monitoring desktop, 3 key clicks to view real-time statistics

<sup>\*</sup> Based on IBM laboratory results, your results may vary

#### z/OSMF Workload Management Benefits

	Without WLM Policy Editor* using WLM Administrative Application	With WLM Policy Editor* in z/OSMF
Optimization of a service definition based on best-practices	Read through WLM-related manuals and identify best-practices. Print out the service definition and investigate it with respect to proposed best-practices. If required, modify the policy elements correspondingly.  Hours (or days when done initially)	Check the best-practice hints the GUI displays for policy elements. If required, modify the policy elements correspondingly.  Minutes (or hours when done initially)
Review of service definitions for daily changes, migration, consolidation	To get an overview of a service definition you have to print it to a data set, download the data set, and print it out or feed it into the Service Definition Formatter tool to filter and sort policy elements.  5-10 minutes until review can start	Open a service definition from the service definition repository. Navigate through it using links. Filter and sort policy elements in the tables.  Seconds until review can start
Transfer policy elements from a test service definition to a production service definition	Print out the test service definition and update the production service definition by typing in the changes.  Up to several minutes per policy element	Open the test and production service definition simultaneously and copy over the changed policy elements via copy and paste operations.  Seconds per policy element

<sup>\*</sup> Based on IBM laboratory results, your results may vary

#### z/OSMF Problem Determination – Incident Log Benefits

	Without z/OSMF Incident Log **	With z/OSMF Incident Log **
Recognizing a system-detected (dumped) problem occurred	Requires 5 to 7 manual steps, plus skill on effective use of IPCS to extract data from each of the dumps.  Up to 5-6 minutes	Display in 1 click. Greatly reduced skill required  As little as 5 seconds
Allow new dump to be taken for the same symptom	Requires 7 to 12 manual steps, plus skill on effective use of IPCS to locate the dump data set, obtain the symptom string, get into the IPCS DAE display, locate the matching symptom string (could be non-trivial) and indicate TakeNext on the IPCS display  Up to 15 minutes	Make the update happen in 3 mouse clicks  As little as 10 seconds
Collecting and sending diagnostic data	Requires 7 to 15 manual steps, plus skill to locate the right log files, build and run jobs, rename the output datasets, and use an FTP job to send the different data sets to the target destination.  Up to 20 minutes  Up to 30 minutes for sysplex components	Send the material in 8 clicks:  •Select the incident materials  •Specify the FTP destination information  •Send the material  •Check whether the information was FTP'd successfully  As little as 30 seconds

<sup>\*\*</sup> Based on IBM laboratory results, your results may vary

# z/OSMF Software Management (Deployment)

Task	Without z/OSMF Software Deployment	With z/OSMF Software Deployment
Identify complete content of software to be deployed.	Done manually. Usually requires strict data set naming conventions or volume placement.  Problems occurred when customers:  • For WAS V6, copying PDSE without file system or visa versa  •For fixes, copying one library w/o another resulting in part of the APAR installed,  •Not copying a data set that had been renamed and enlarged	Automatically use SMP/E inventory to identify the all of the data sets that compose the source to be deployed.
Identify missing requisite PTFs on instances that will share resources with the deployed software.	Done manually prior to activation. System programmer can create and run SMP/E jobs to identify missing required service on other instances if the know the proper Fix Categories and commands.  Problems occurred when customers were missing coexistence maintenance:  •Cause an outage •In one case caused a sysplex wide outage when fallback was required	•Automated. •The task is optional, but recommended.
Identify regressed software on the prior level instance.	Done manually prior to activation. System programmer can create and run SMP/E jobs to compare source with prior instance. Can not be done if source and prior instance are in different sysplexes.  Problems reoccurred	•Automated. •Supports cross-sysplex checking •The task is optional, but recommended.

# z/OSMF Software Management (Deployment)

Task	Without z/OSMF Software Deployment	With z/OSMF Software Deployment
Identify required actions from PTF HOLDs.	Done Manually. No SMP/E report capability to compare source with the prior instance available. System programmer has to keep track of all SYSTEM HOLDs installed and check applicable to each system they deploy to.  Problems occurred because ACTIONS not performed on deployed to system	<ul> <li>•Automated.</li> <li>•Supports cross-system checking.</li> <li>•The task is optional, but recommended.</li> </ul>
Modify the target	Done manually.	Automated
instance data set layout (names,	•Compare source data sets with the target system catalog and volumes	•Does not allow a user to accidentally clobber an existing data set.
placement, and catalog	•Compare <u>target</u> data set names with the target system catalogs to ensure the desired catalogs will be updated and new HLQs are identified	•Analyzes target system catalogs to identify which will be updated for the target data sets, calling out new, updated, or deleted catalog entries.
	•Best-guess comparison of available free space and required space for target data sets.	•Analyzes existing space used, accounting for data sets added, replaced, and deleted.
	Problems typically result in the deployment jobs having to be rerun	

## z/OSMF Software Management (Deployment)

Task	Without z/OSMF Software Deployment	With z/OSMF Software Deployment
Create deployment jobs.	Done manually.  •Create jobs from scratch, copy IBM supplied samples, or reuse prior deployment jobs.  •Inhibits exploiting new technologies, like zFS.  Problems occurred when customers  •mistakenly deploy subsets of software  •miss copying new libraries	•Complete and accurate jobs are automatically created that always deploy complete software instances. •Supports current technologies.
View the planned target system updates before running the jobs.	No real way to do this. If done at all, manually:  •Compare source volumes with the target system,  •Review deployment jobs  Problems typically result in the deployment jobs having to be rerun	•Automatically generate reports to summarize the changes to the target system before making those changes.     •Save reports for later audit or problem determination.
Run the jobs	Done manually. Jobs and output can be saved for audit purposes	Same

Note: The same z/OSMF Software Deployment tool can be used for z/OS, middleware and vendor software. Some customers have separate tools/techniques for z/OS and other software.

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# z/OSMF Software Management - Benefits

Task	Without z/OSMF Software Management	With z/OSMF Software Management*
Display the product content of software instances.	Can use multiple different methods to report on product content locally (within sysplex). Unable to: •launch in context other views or reports •View product content for remote systems	Easy (few clicks) to identify one or more software instances (locally or remote) that you want to view product information. Once viewed, the user can launch in context additional views, reports, or follow links to additional information.  Seconds
Display the data sets that make up software instances.	Can NOT be done today. At best, the user can write their own program to identify data sets in local software instances.	Easy (few clicks) to identify the data sets actually used in a software instance.  Seconds (or up to a few minutes)
Display all the software instances where a product is installed.	Can NOT be done today.	Easy (few clicks) to identify all the software instances where a product is installed throughout the customer enterprise.  Seconds
Identify software products that are approaching, or have reached, end of service support	Currently there are web sites that can be used to identify announced end of service dates, but they don't analyze installed software.  Hours (or even days for entire enterprise)	Easy (few clicks) to show end of service information for all installed products (or products in specific software instances). Results shown in both graphic and tabular form. Seconds

# z/OSMF Software Management - Benefits

Task	Without z/OSMF Software Management	With z/OSMF Software Management*
Validate the SMP/E structure (zones and data set definitions) and content of software instances.	Can NOT be done today.	Easy (few clicks) to identify any structure problems or missing content in a software instance and the data sets referenced.  A few minutes
Identify if any critical service (HIPER, PE fixing, or fixes associated fix categories) is missing.	Can use multiple SMP/E REPORTs to identify missing critical fixes for local software instances. However, this can only be done for local software instances (within sysplex).  Less than a minute (for the local system)	Easy (few clicks) to identify missing critical fixes. Once viewed, z/OSMF sorting and filtering can help with the analysis.  Seconds (or up to a few minutes)
Identify whether a fix is installed or not; and if so in which software instances.	Can use either SMP/E query or LIST functions to see if a SYSMOD is installed. However, this can only be done for local software instances (within sysplex).  Less than a minute (for the local system)	Easy (few clicks) to identify whether a fix is installed or not; and if so in which software instances throughout your enterprise.  Less than a minute (for local and remote systems)
Compare the service and functional content of two software instances to aid in debugging, change control, or quality assurance.	Can use SMP/E REPORT SYSMODS to identify differences between two target zones for local software instances. However, this can only be done for local software instances (within sysplex). Less than a minute (for the local system)	Easy (few clicks) to identify differences between two target zones for software instances throughout your enterprise.  Seconds (or up to a few minutes)

#### **Workflow - Benefit**

Example Task	Without z/OSMF Workflow	With z/OSMF Workflow
Product & System Configuration	Manual process, users need to refer document, checklist, execute JCL/REXX/Script, verify the output. Frequent window switching is error prone.	Predefined steps, integrated environment for JCL/REXX/Script edit, execution and display make the configuration convenient.
Cooperation & Management	For complicated, multi-person involved work, lack of overall view & management.	Unified process & view for system / storage/ security /middleware owners. Provides convenient job assignment and progress tracking
Skills and risks	Need in-depth knowledge of the product and local environment, customized tips & documents are scattered, difficult to maintain	The workflow wizard & instructions make the configuration easier. Metadata file is in z/OS server, easy to maintain.