



SAP BASIS Introductory Training Program

Day 6: Agenda

User Management in JAVA

Break

Internet Communication: ICM, ITS &ICF

Lunch Break

SAP Web Dispatcher

Break

SAP NetWeaver AS JAVA Monitoring Tools

Exercise & Break Out Session

User Management in Java



User Management in Java

Users – Groups – Roles

- In the UME environment, the term Principle designates the following, central objects:

Principles in UME environment

Principle	Meaning
User	General properties of a user (such as name, e-mail, telephone number etc.)
User account	Logon-related properties of a user (such as password, validity, lock indicator etc.)
Group	Set of user and/or groups
Role	Set of (Java) authorizations

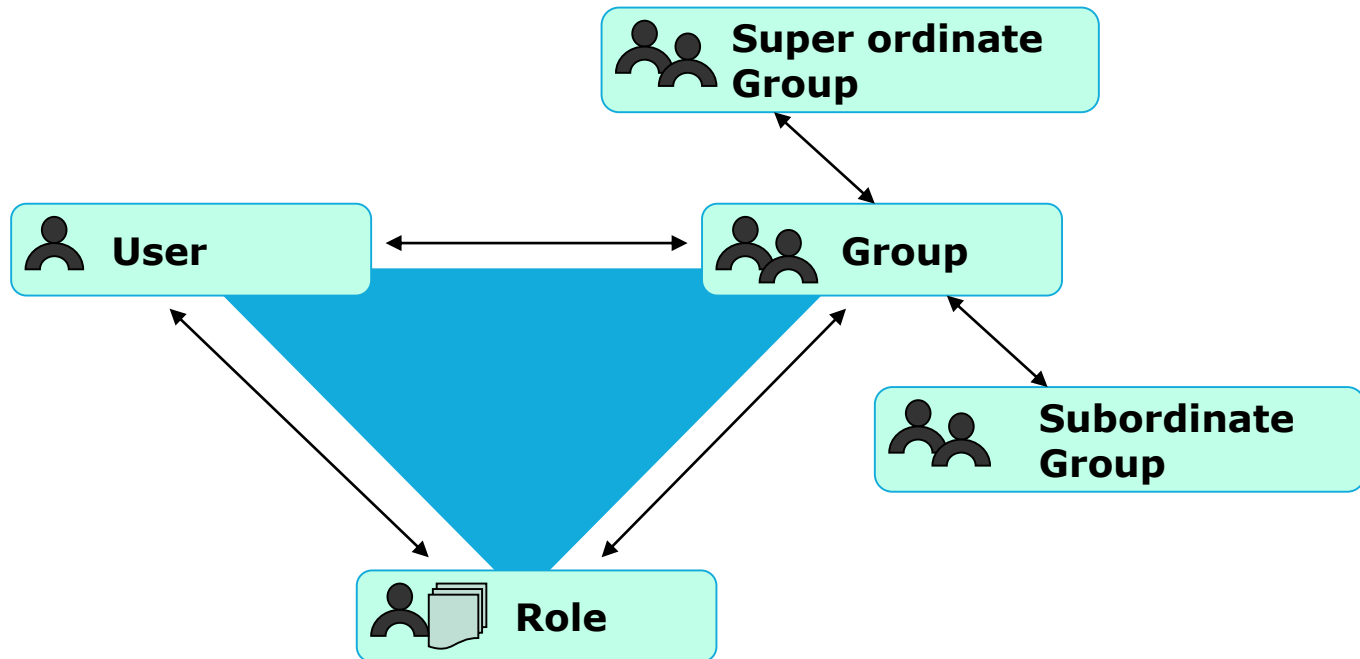
Assigning Principles

Users are usually assigned to groups to which roles are then assigned. However, it is also possible to assign roles to users directly. The Principle group supports hierarchies of groups. A group may also possess super ordinate and subordinate groups. Users actually possess the roles which

are directly assigned to them

are assigned to the groups to which they belong

are assigned to the super ordinate group of the groups to which they belong



Managing Users, Groups and Roles

To manage users, groups, or roles, you must be assigned a role that includes the relevant actions or combination of actions. For example, to assign roles to users, your role assignments must include UME actions that enable you to change both principals, roles and users, such as UME.Manage_Roles and UME.Manage_Users. The figure below summarizes the UME actions available by default in the SAP NetWeaver Application Server (AS).

Super Administrators		Administrators		Business Users
		All	Company-Specific	Profile-Specific
Users	Manage_All Read_All	Manage_All_Companies Manage_All_User_Passwords	Manage_Users Manage_User_Passwords	Manage_My_Profile Read_My_Profile Manage_My_Password
Groups		Manage_Groups		
UME Roles		Manage_Roles		
Specific Functions		Batch_Admin System_Admin		Selfregister_User Logon_Help User_Viewer User_Viewer_All_Companies
Portal-Specific	Manage_All AclSuperUser	Remote_Producer_Write_Access	Manage_Role_Assignments	Remote_Producer_Read_Access

UME Actions According to Principal and Role

Special Features of the ABAP System Data Source

If you use a client of an ABAP system (and consequently the configuration file `dataSourceConfiguration_abap.xml`) as the data source then UME behaves as follows:

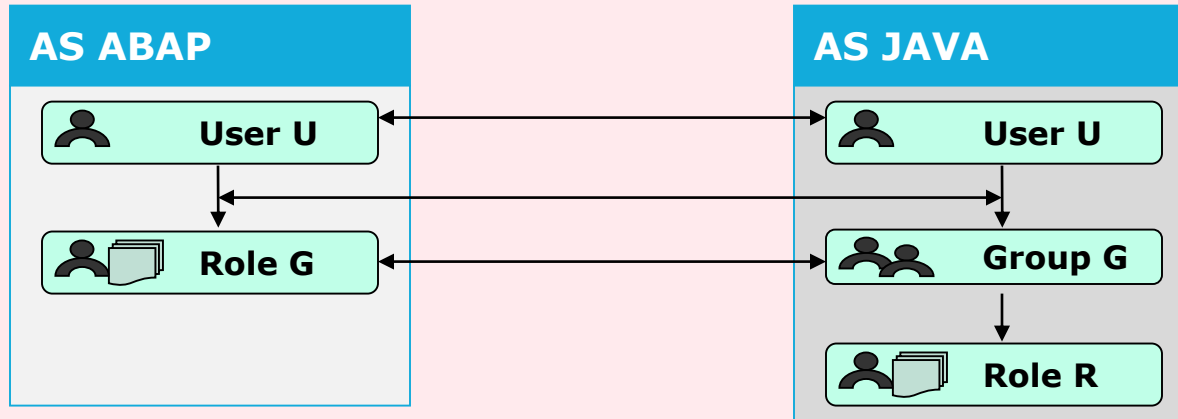
- The ABAP users are visible in AS Java and can log onto AS Java with their ABAP passwords.
- The ABAP roles are depicted in AS Java as UME groups of the same name.
- In AS Java, the assignment of ABAP users to ABAP (composite) roles appears as the assignment of UME users to UME groups.

The reason for this group administration concept is the shared authorization administration for applications that have both ABAP and Java components. Applications such as PI, for example, are made of both ABAP and Java components. The ABAP authorizations are mapped with PFCG roles. The J2EE authorizations are realized using UME roles. A user should be assigned a PFCG role in the ABAP system and a UME role on the Java side for the user to have both ABAP and Java authorizations.

The connection between the UME in an AS Java and user management in an AS ABAP is established via the Java Connector (JCo). A communication user existing in ABAP is stored as a UME parameter (this usually has SAPJSF in its name). This communication user's ABAP authorization determines whether it is possible to modify ABAP user master records using UME resources.

Special Features of the ABAP System Data Source

AS Java with “remote ABAP client” as data source



AS ABAP + Java with “local ABAP client” as data source



Administration Tools

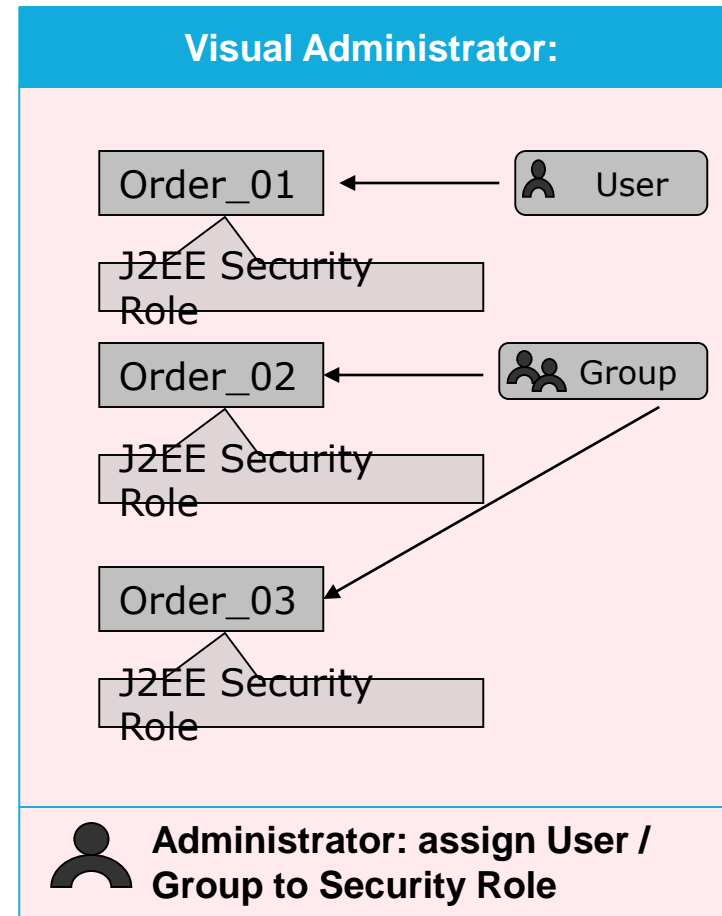
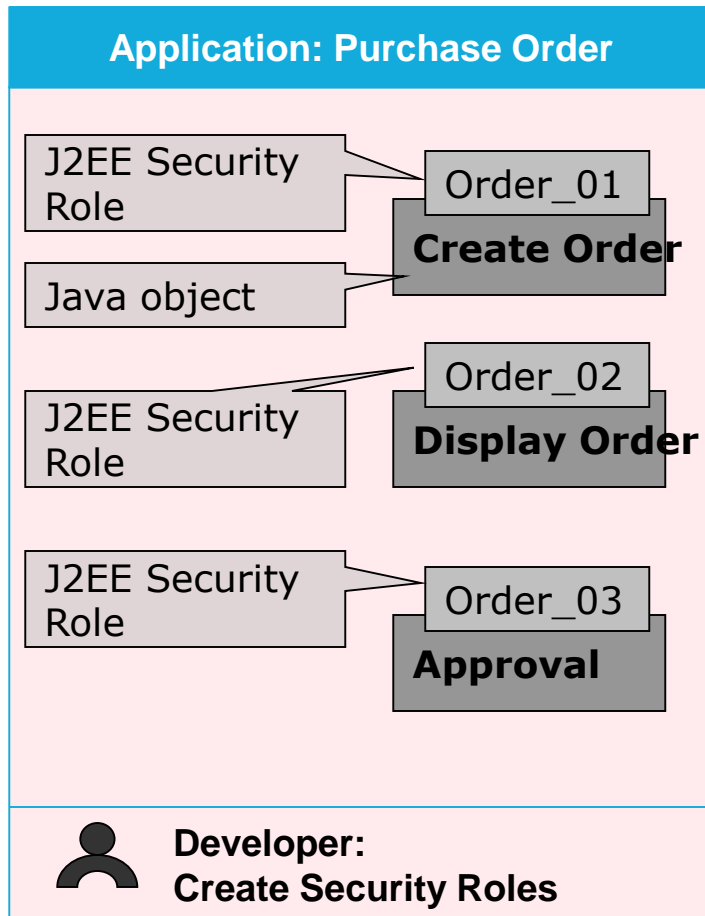
The most important tool for a user administrator in an AS Java system is the UME Administration Console. This functions independently of the configured data source and is implemented as an application running in a Web browser (based on Web Dynpro Java). To get started the Administration Console...

- via the URL `http(s)://<hostname>.<domain>:<http(s) port>/useradmin`
- via the SAP NetWeaver Administrator (URL `.../nwa`) via the path System Management → Administration → Identity Management
- via portal URL `http(s)://<Hostname>.<domain>:http(s) port/irj` via the path System Administration → System Configuration → UME Configuration

UME User Types

User Type	Logon to AS Java	Password Rules	Mapped ABAP user Types (with ABAP System as data source)
Standard	Possible	Applies	Dialog
Technical Users	Possible	Does not apply	System
Internal Service user	Not possible	Applies	—
Unknown	Possible	Applies	Communication, Service and Reference

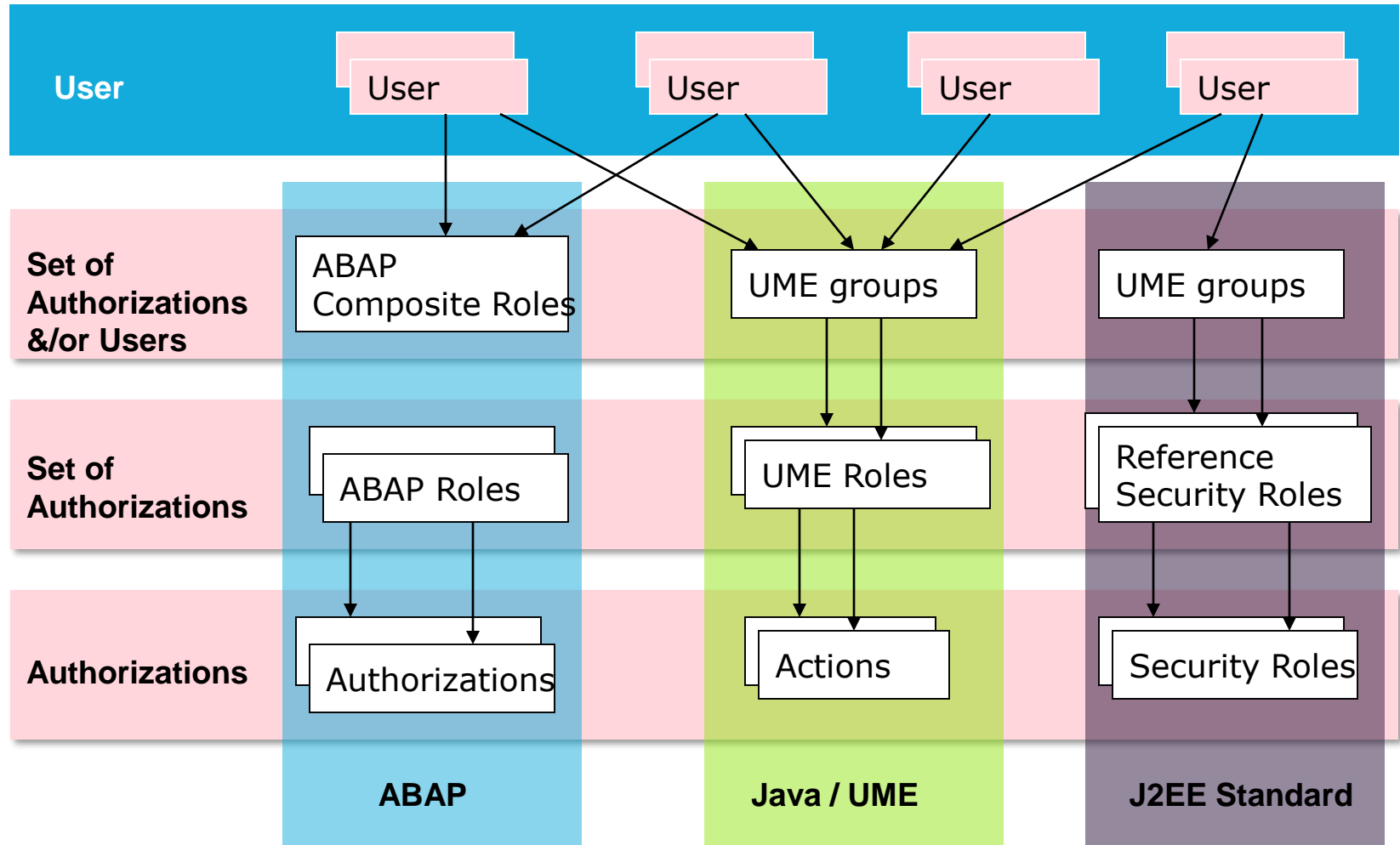
Structure of J2EE Security Roles



Structure of J2EE Security Roles

The previous figure shows the Order application as an example. For this application, a developer creates objects such as Create order, Approve order, and so on. If you are using J2EE security roles, a security role must be created for each object. The role is defined in the deployment descriptor (XML file) of a specific application. If the application is made available on the J2EE server, the administrator must add user names or user groups to each of these security roles for the users that are to use this application. The administrator must assign each single authorization/J2EE security role individually to a user or a group.

Comparison of Authorization Concepts



UME Datasources

The data repositories or persistence layers from which the user management engine (UME) retrieves user management data are referred to as data sources. With the UME, you can leverage existing user data repositories in your system infrastructure by connecting to them using configurable persistence adapters. You can read data from and write data to multiple data sources in parallel.

A persistence manager is responsible for reading the data from or writing the data to the correct data source. The data source to which the persistence manager writes is transparent to applications using UME.

The configuration of the UME for the different data source types is defined by the data source configuration file. The data source configuration file is an XML file that defines a configuration for standard scenarios, such as storing standard user data in a corporate LDAP directory (directory service) and application-specific data in the AS Java database. For more information about the data source configuration files available, see the sections about the individual data source types.

The UME can use the following types of data sources:

- Database of the AS JAVA
- Directory Service
- User Management of the AS ABAP

UME Datasources

Database Only as Data Source

All user, user account, role, and group data is stored in the database of the SAP NetWeaver Application Server (AS) Java.

Configuration file: `dataSourceConfiguration_database_only.xml`

LDAP Directory as Data Source

The user management engine (UME) can use an LDAP directory as its data source for user management data. You can connect the LDAP directory as a read-only data source or as a writeable data source.

1. User management data is stored in a combination of an LDAP server and a database

You have a mixed system landscape including both SAP and non-SAP systems, or you have an existing corporate LDAP directory in your system landscape. You want to store standard user data such as name, address, email, and so on in the directory while you want to store application-specific data in the database .

Configuration file: If the LDAP directory has a flat hierarchy:

`dataSourceConfiguration_<LDAP_directory_vendor>_not_readonly_db.xml`

If the LDAP directory has a deep hierarchy:

`dataSourceConfiguration_<LDAP_directory_vendor>_deep_not_readonly_db.xml`

UME Datasources

2. User management data is stored in a combination of a read-only LDAP server and a database

You have an existing corporate LDAP directory in your system landscape and have existing processes for administering user data on this directory. You are using the UME with SAP NetWeaver Portal and want all users that register themselves in the portal to be stored separately from the user data on the corporate directory.

Configuration file: If the LDAP directory has a flat hierarchy:

`dataSourceConfiguration_<LDAP_directory_vendor>_readonly_db.xml`

If the LDAP directory has a deep hierarchy:

`dataSourceConfiguration_<LDAP_directory_vendor>_deep_readonly_db.xml`

The user management engine (UME) can use an SAP NetWeaver Application Server (AS) ABAP as its data source for user management data. This enables you to take advantage of the following:

Users of the ABAP system are visible as users in the UME and can log on with their passwords from the ABAP system.

Roles of the ABAP system appear as groups in the UME.

The AS Java depicts the hierarchy between collective roles and single roles as nested group structures. When you create new groups created with the AS Java, the AS Java stores them in its database

UME Datasources

User Management of Application Server ABAP as Data Source

The user management engine (UME) can use an SAP NetWeaver Application Server (AS) ABAP as its data source for user management data. This enables you to take advantage of the following:

Users of the ABAP system are visible as users in the UME and can log on with their passwords from the ABAP system.

Roles of the ABAP system appear as groups in the UME.

The AS Java depicts the hierarchy between collective roles and single roles as nested group structures. When you create new groups created with the AS Java, the AS Java stores them in its database.

User and role assignments in the ABAP system appear as user and group assignments in the UME. You can use the ABAP roles for authorization management in the UME, by adding the groups representing the ABAP roles to the UME roles.

Configuration file is `dataSourceConfiguration_abap.xml`



BREAK

Internet Communication: ITS, ICM and ICF



Internet Communications – SAP ITS

SAP delivered the first version of the SAP Internet Transaction Server (SAP ITS) with SAP R/3 3.1G in 1996. It is a software component that acts as a gateway between a Web server and an SAP system. SAP ITS switches between Internet protocols and formats (such as HTTP, HTTPS, and HTML) and those of the SAP system (such as DIAG, RFC, and screens).

User Access

- SAP GUI
- Web browser or mobile devices through SAP ITS

User Interface

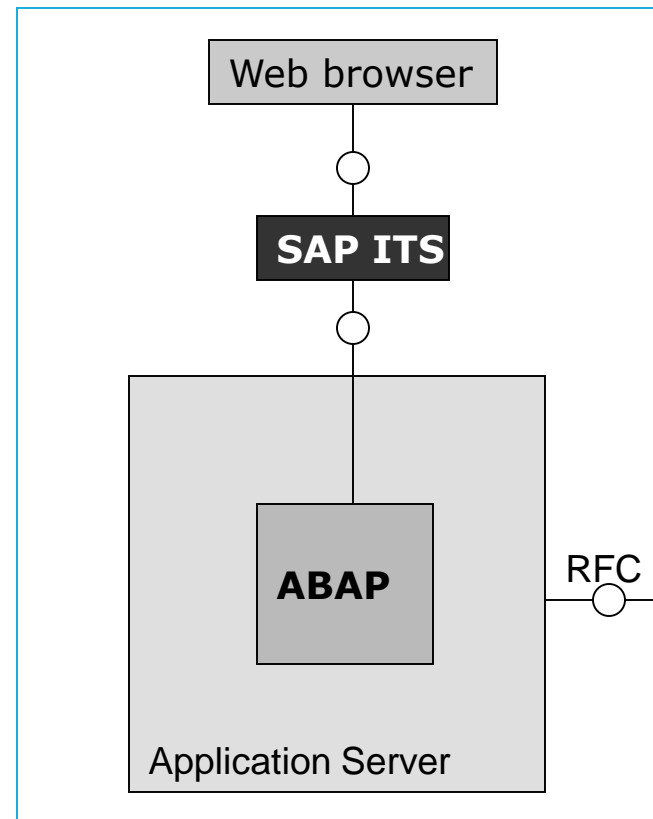
- Screen

Programming Language

- ABAP

Communication Interface

- RFC
- 3rd party products through connectors & gateways



SAP ICM

Based on the highly-scalable infrastructure, new technologies are used as of SAP Web AS 6.10 to process HTTP requests (and other protocols) directly from the Internet or to send HTTP client requests to the Internet. To achieve this, the SAP Kernel has been extended with the Internet Communication Manager (ICM) process.

The ICM process forwards requests to the Internet Communication Framework (ICF), which supports numerous programming models. This is how the SAP CRM, SAP BW, and SAP XI software components use this infrastructure. A programming model for such applications are the Business Server Pages (BSPs).

User Access

- SAP GUI
- Web browser or mobile devices

User Interface

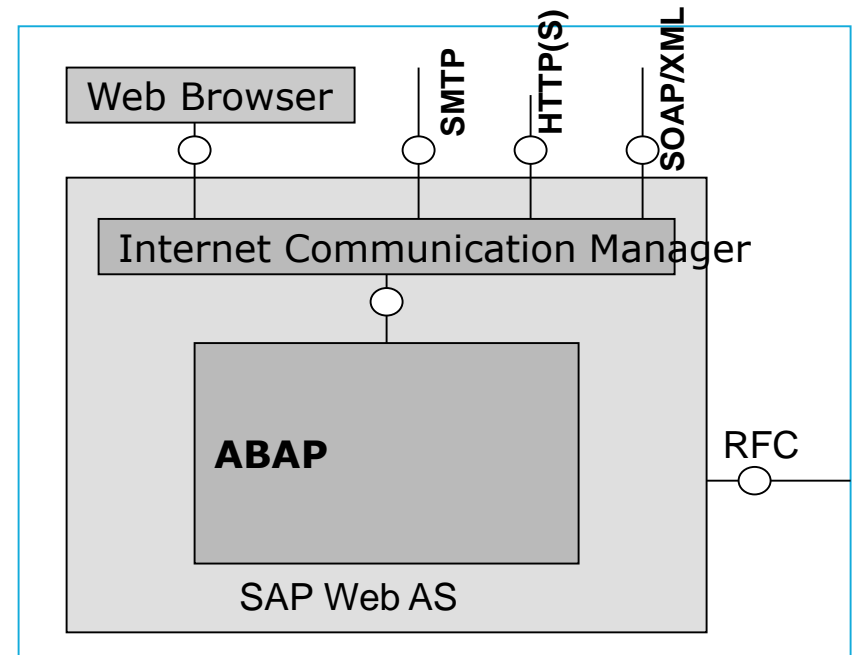
- Screen
- BSP

Programming Language

- ABAP

Communication Interface

- RFC
- SMTP
- HTTP(S)
- SOAP/XML



SAP ICM Components

Thread Control: This thread accepts the incoming TCP/IP requests and creates (or raises) a worker thread from the thread pool to process the request.

Worker Thread: This thread handles requests and responses for a connection. A worker thread contains an I/O handler for the network input and output, and various plug-ins for the different supported protocols.

Watchdog: A worker thread usually waits for a response (whether it is client or server); if a timeout occurs, the watchdog takes over the task of waiting for the response. The worker thread can then be used for other requests.

Signal Handler: Processes signals that are sent from the operating system or another process (such as the ABAP dispatcher).

Connection Info: Table with information for each existing network connection.

Memory Pipes: These memory-based communication objects allow data transfer between the ICM and the ABAP work processes.

SAP AS Java

User Access

- SAP GUI
- Web browser or mobile devices

User Interface

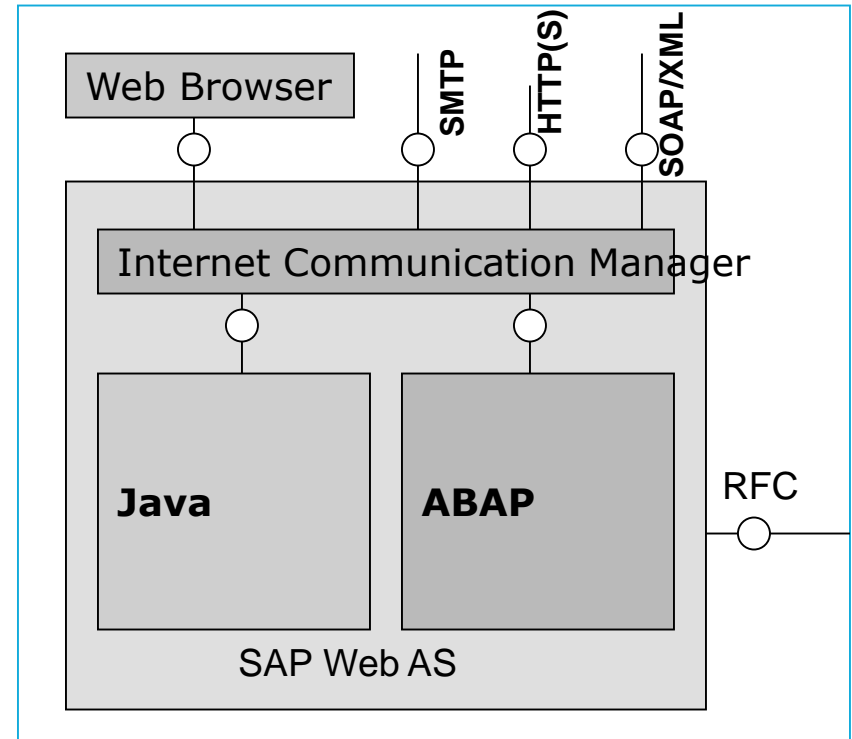
- Screen
- BSP
- JSP

Programming Language

- ABAP
- Java

Communication Interface

- RFC
- SMTP
- HTTP(S)
- SOAP/XML



Web Dynpro – Java

User Access

- SAP GUI
- Web browser or mobile devices

User Interface

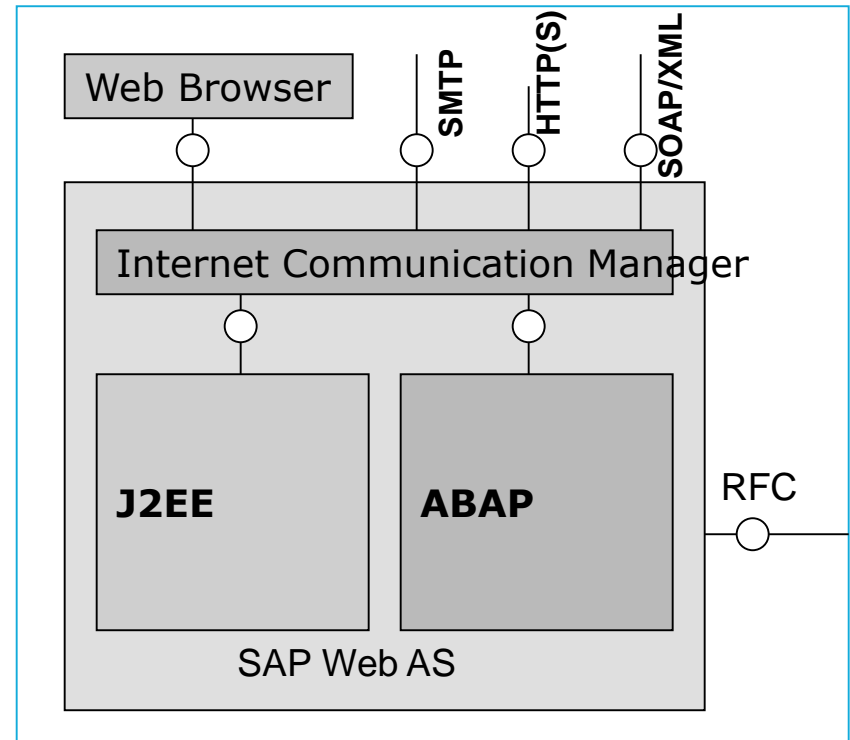
- Screen
- Web Dynpro for Java
- BSP
- JSP

Programming Language

- ABAP
- Java

Communication Interface

- RFC
- SMTP
- HTTP(S)
- SOAP/XML



Web Dynpro – ABAP

User Access

- SAP GUI
- Web browser or mobile devices

User Interface

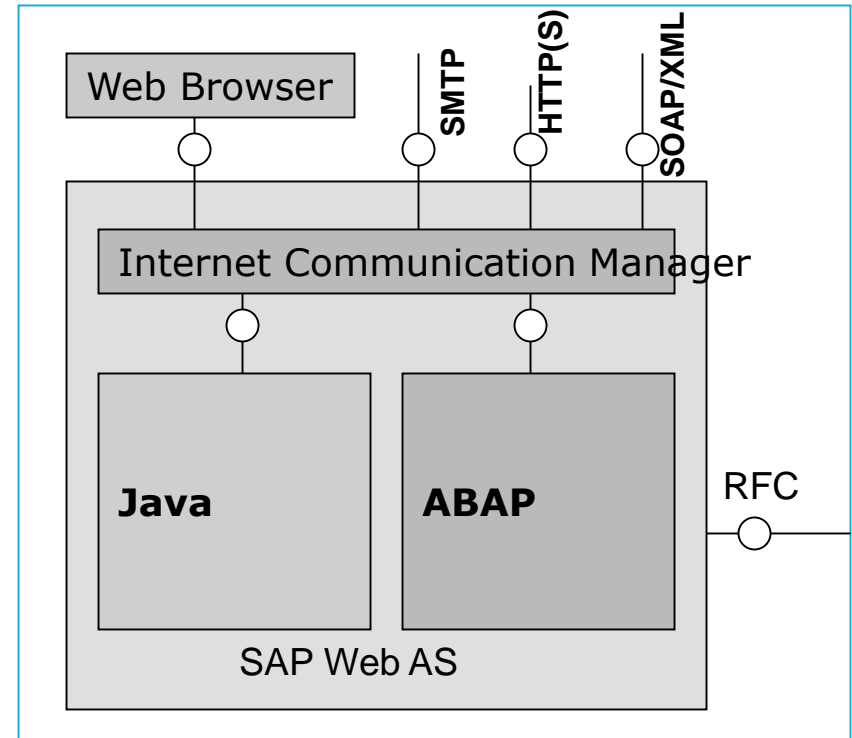
- Screen
- Web Dynpro for Java
- Web Dynpro for ABAP
- BSP
- JSP

Programming Language

- ABAP
- Java

Communication Interface

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- SMTP
- HTTP(S)
- SOAP/XML

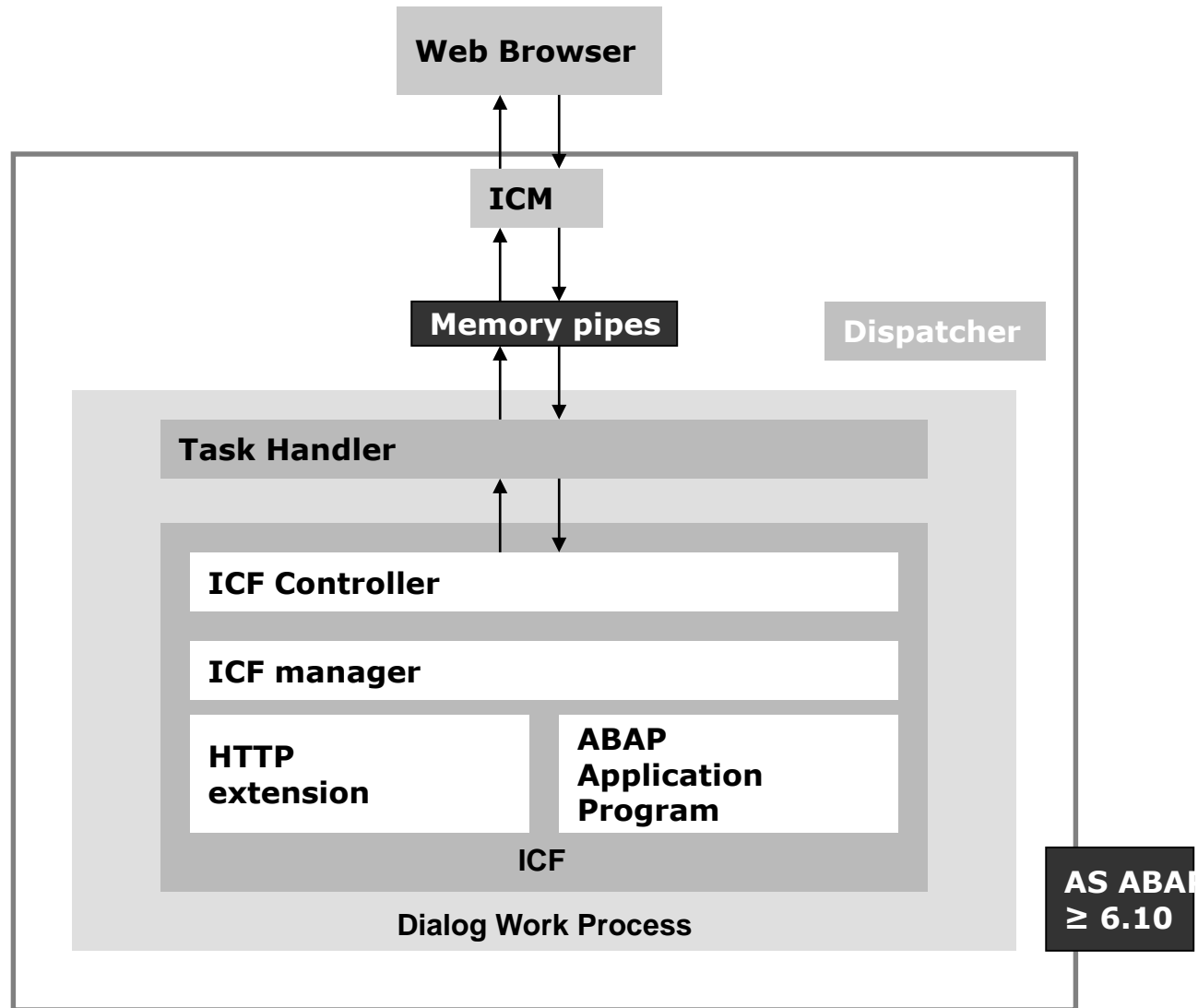


Internet Communication Framework – ICF

- The Internet Communication Framework (ICF) provides an environment for handling Web requests in the ABAP work process of an SAP system. The Internet Communication Framework (ICF) provides a way for different systems to communicate with each other over the Internet using standard protocols (such as HTTP and SMTP). No additional programming libraries (for AS ABAP) are required from SAP.
- The ICF allows a response to a request to be generated using an application. An HTTP request is sent from a client (such as a Web browser) to the server. It is then forwarded to an application by the ICF. Here, data is collected and sent back to the client as a response by the ICF. The response data is then displayed in the browser.
- ICF services can be active or inactive, which is indicated by different colors in transaction SICF

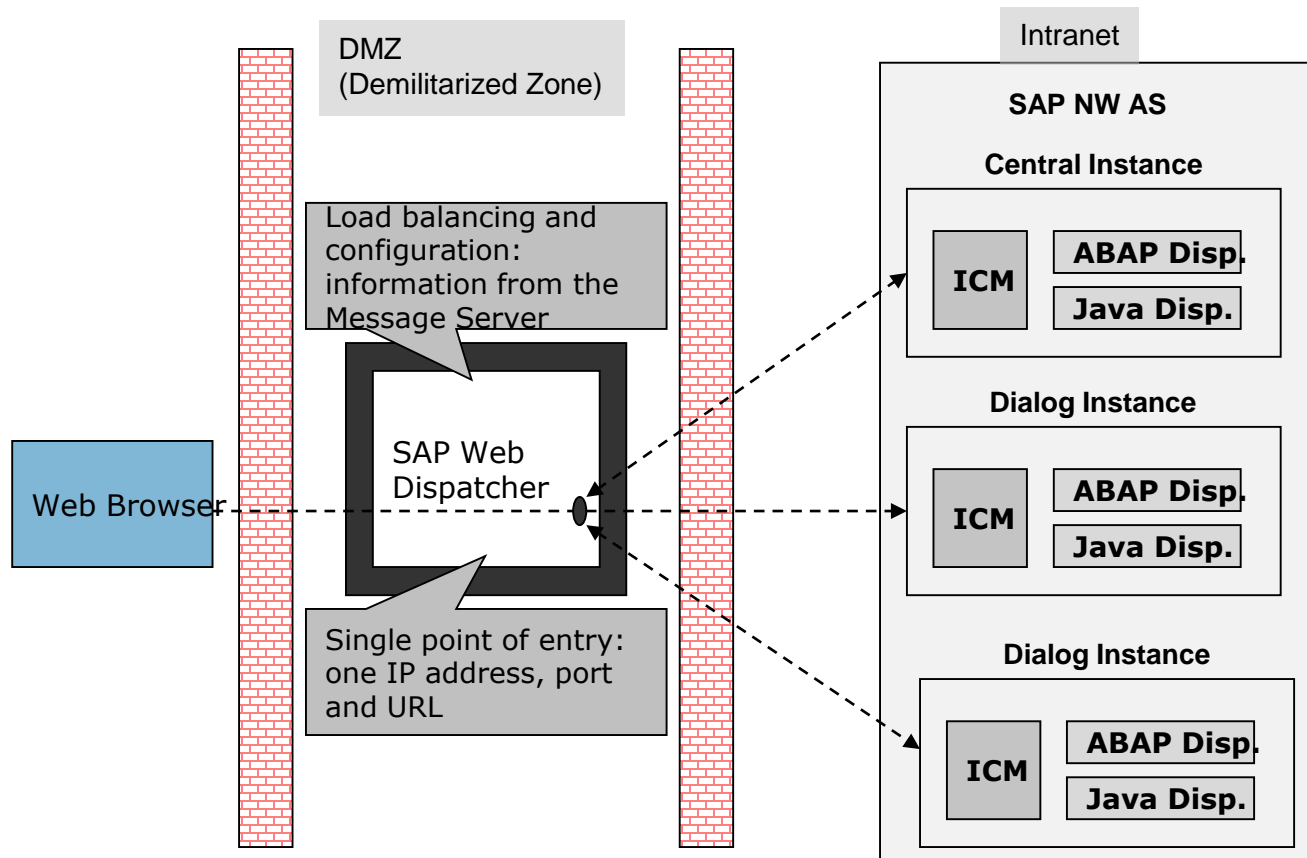
Status of ICF Services		
Status	Color in SICF	Meaning
Active	Black	Service can be called
Inactive	Gray	Service explicitly deactivated
Inactive	Blue	Service implicitly deactivated

ICM – Interaction Model



SAP Web Dispatcher

The SAP Web Dispatcher, delivered as of SAP Web AS 6.20, acts like a software Web switch. It is a stand-alone program that you can run on a separate host without any additional software. In this way, the SAP Web Dispatcher implements a central entry point for HTTP(S) requests to an SAP system, including load distribution across multiple instances



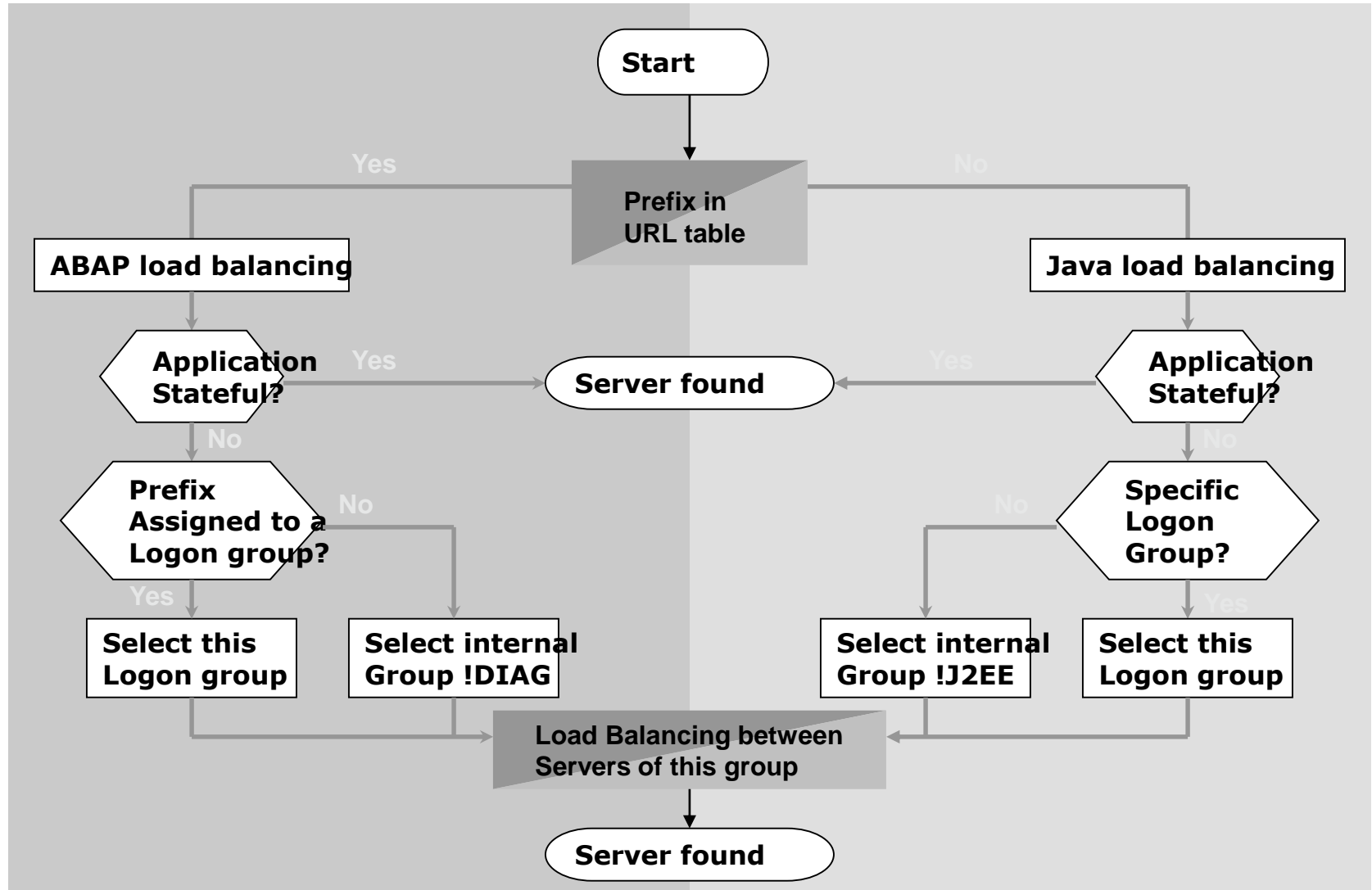
SAP Web Dispatcher – Function

The SAP Web Dispatcher ultimately forwards an HTTP(S) request to a specific application server. This section outlines the criteria by which this is performed. An HTTP request (or unpacked HTTPS request) is assigned to a server in two stages:

1. First, the SAP Web Dispatcher determines whether the incoming HTTP request is to be forwarded to an ABAP or Java server. It then finds a group of servers in the SAP system that can execute the request.
2. Load balancing is then carried out within this group. After the SAP Web Dispatcher has identified a server, it forwards the request to the ICM of the relevant application server.

A SAP Web Dispatcher can distribute requests for only one SAP system. If multiple SAP systems are required, you have to set up and start separate SAP Web Dispatcher processes for each of the respective systems (which can run together on one computer).

From the HTTP(S) Request to the Application Server



SAP Web Dispatcher – Operation

As of SAP Web AS 6.40, you can also start the SAP Web Dispatcher without a profile file. For this bootstrap option (started with command `sapwebdisp -bootstrap`), the following steps are carried out:

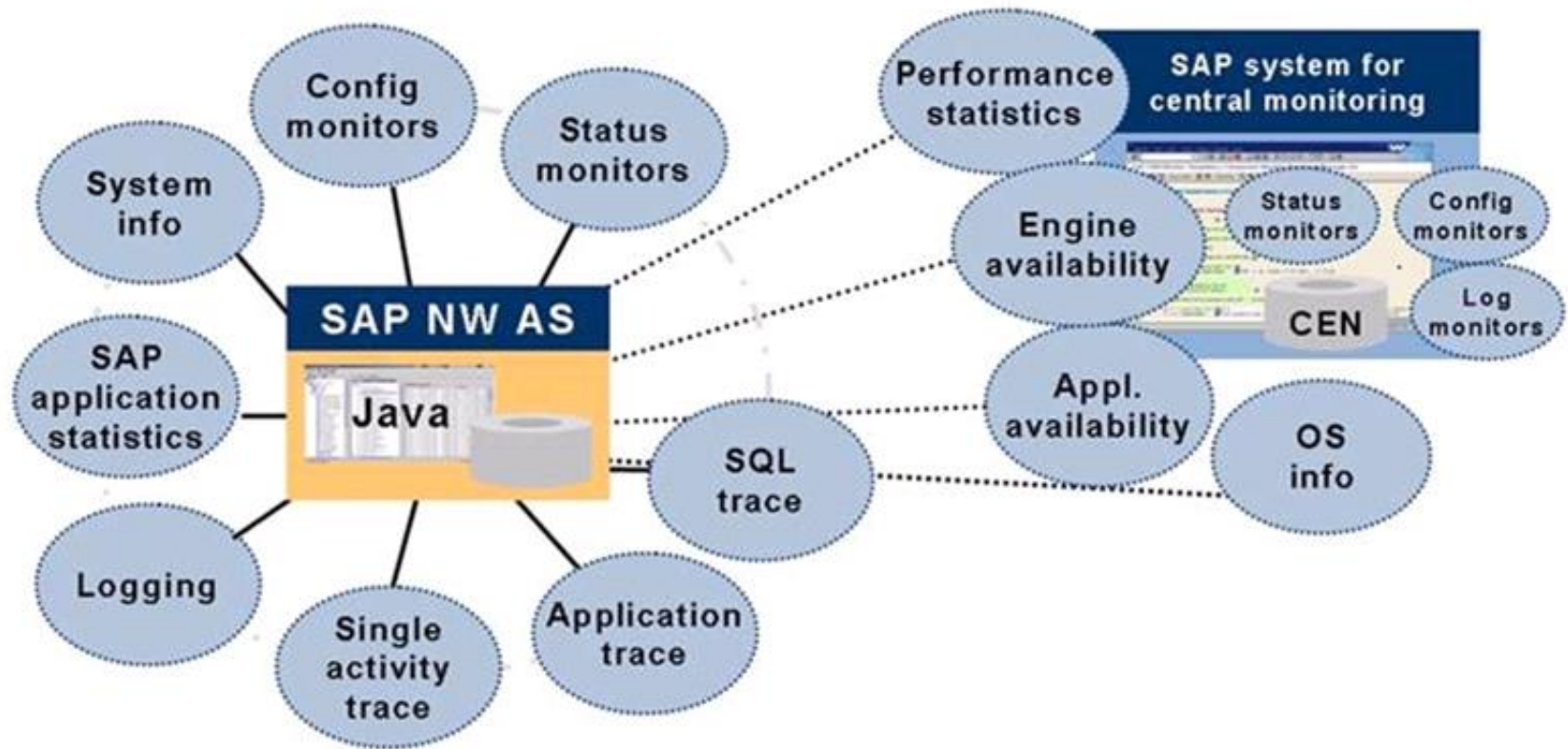
1. If the profile file `sapwebdisp.pfl` does not exist already, it is created based on interactive entries.
2. If the authorization file `icmauth.txt` does not exist, it is created and a user is entered for Web administration (see below).
3. The SAP Web Dispatcher is started with the profile file created.

As of SAP Web AS 6.40, a Web-based interface is available for SAP Web Dispatcher administration and monitoring.

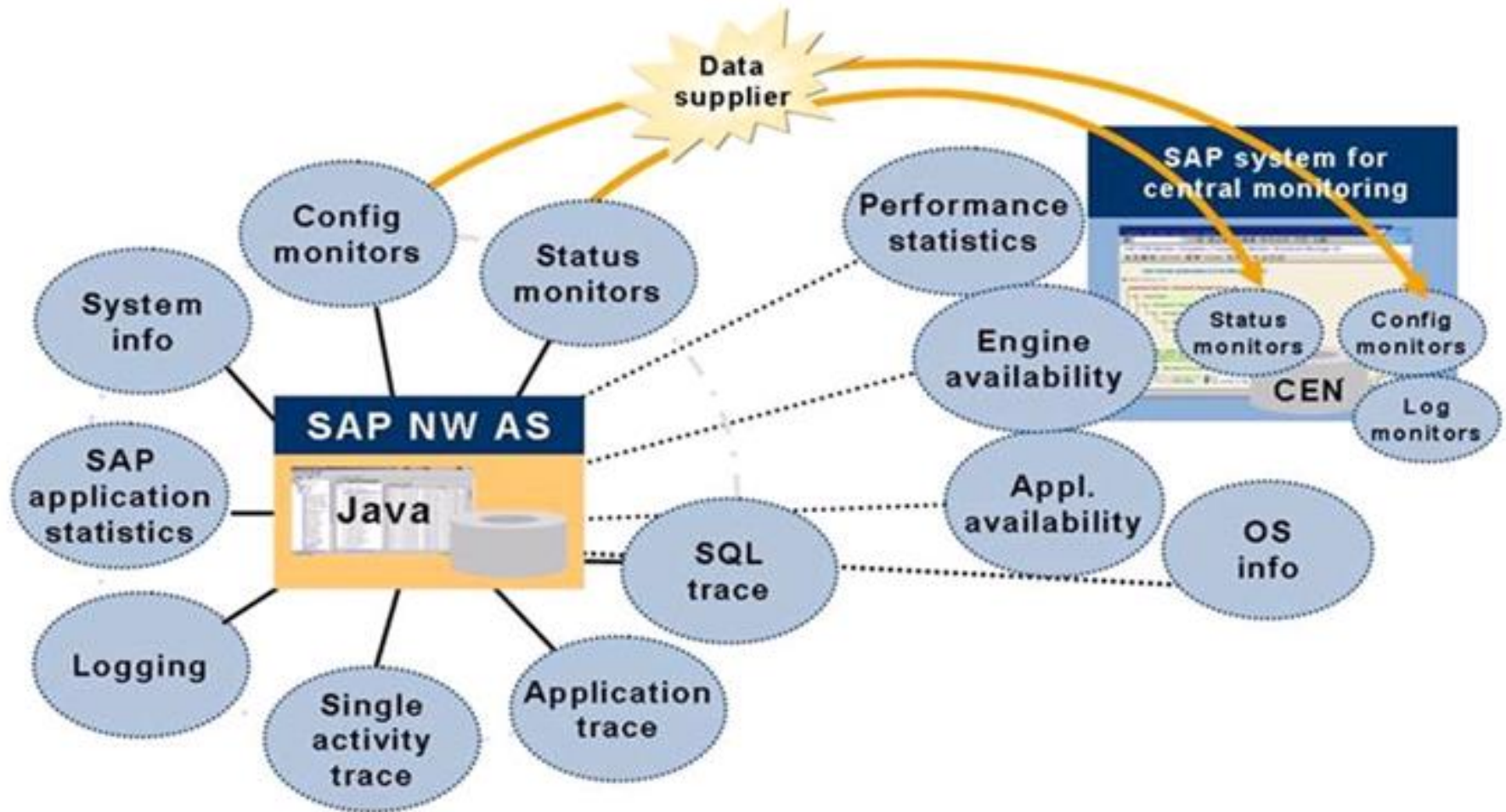
Overview of Operations in Java and Patching

- Concept of SAP Net Weaver AS Java monitoring tools
- Concept of Monitoring Infrastructure
- Configuration for Central Monitoring System
- Operate the integrated and the central Log Viewer
- Configuration of Log Configuration service
- GRMG
- Patching Java Stack

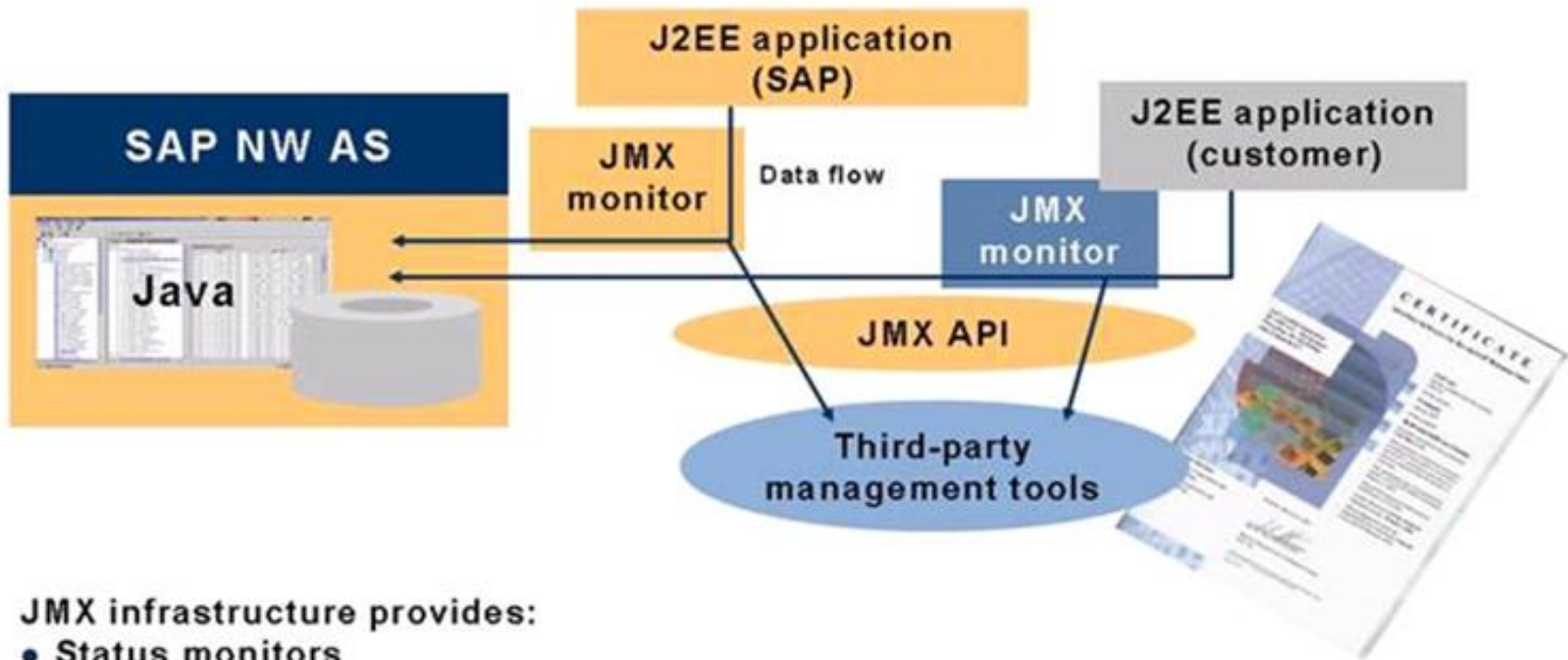
Java Monitoring



Central Monitoring of SAP Netweaver AS Java



Monitoring Infrastructure (JMX)



JMX infrastructure provides:

- Status monitors
- Configurable monitors

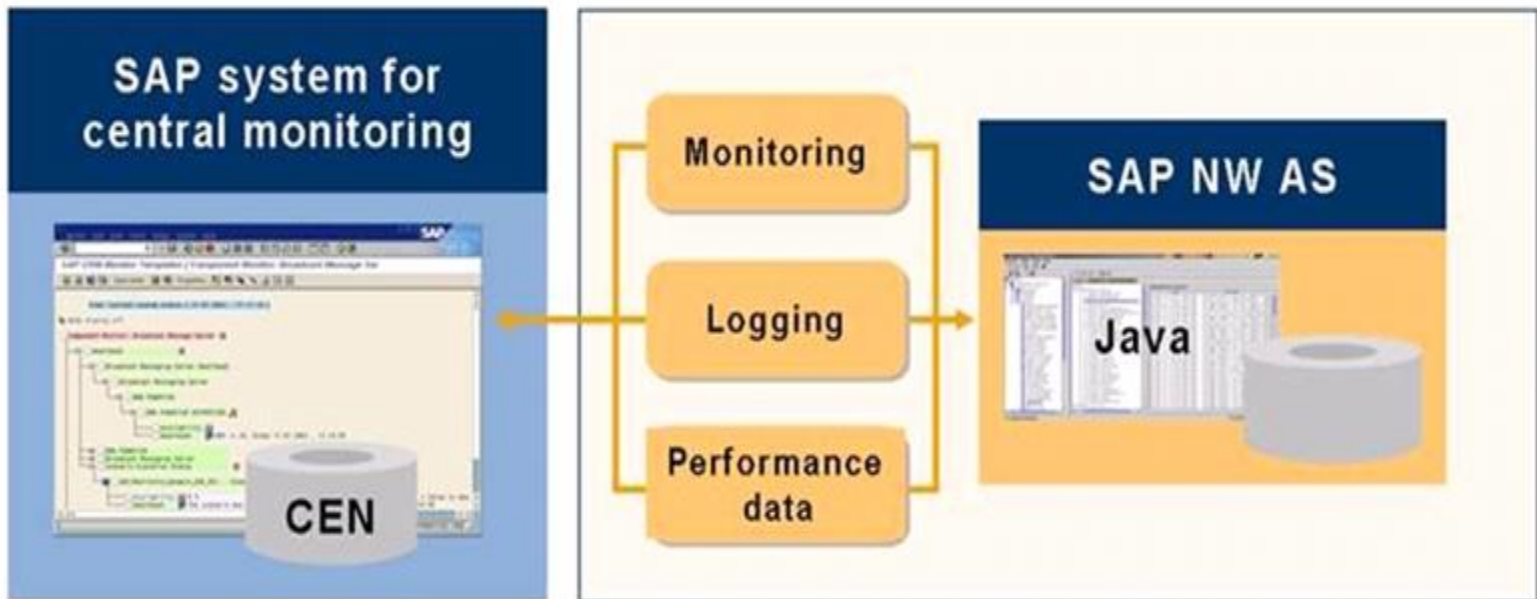
SAP provides customers with:

- SAP templates for JMX monitors to integrate your own J2EE applications

Connection to third-party management tools:

- Display all current values
- Adjust group configurations
- Create/delete groups and install/uninstall monitor nodes

Monitoring - Tools



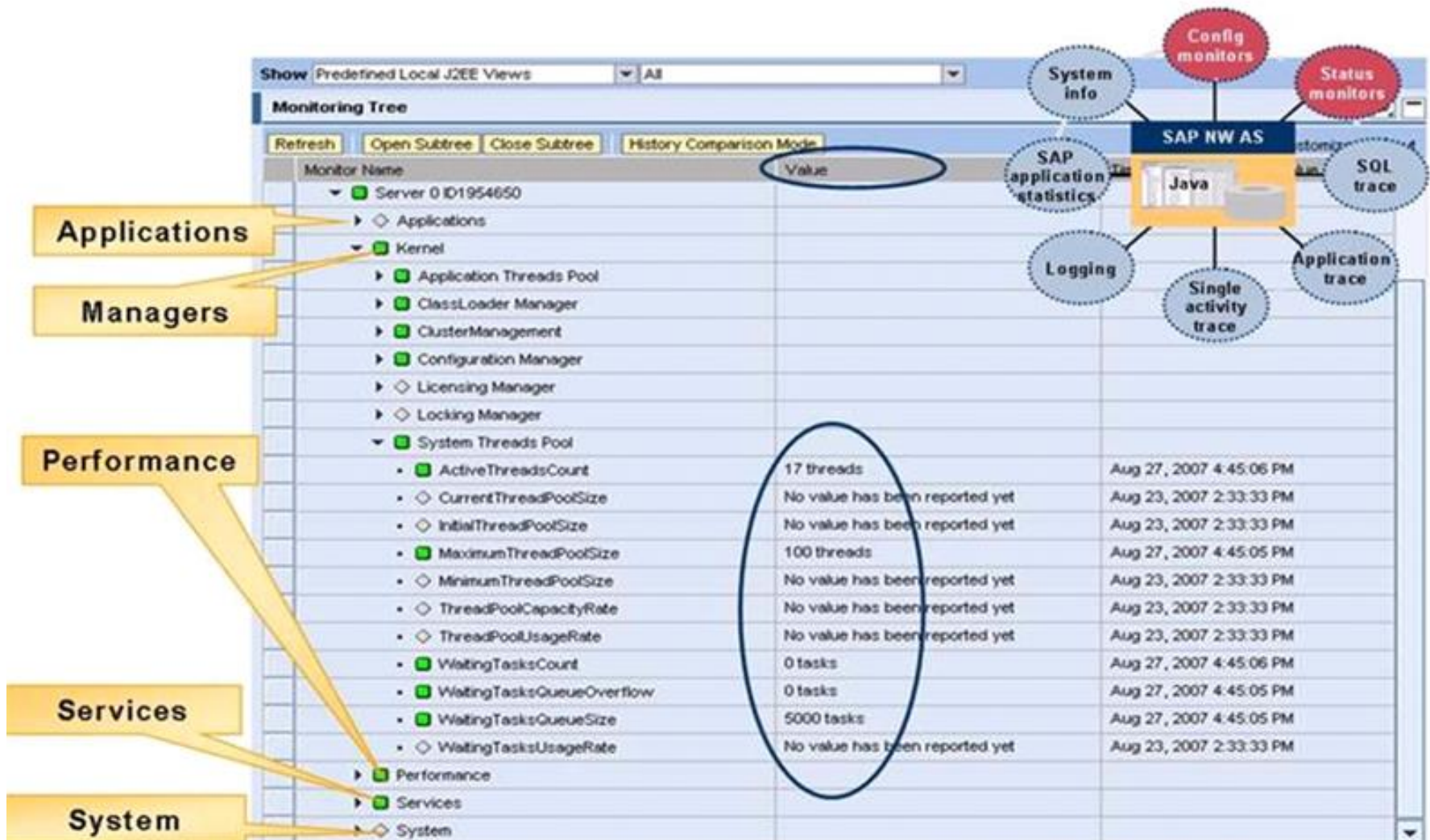
Monitoring Browser in the NWA

The screenshot displays the NWA Monitoring Browser interface. The interface is divided into several sections:

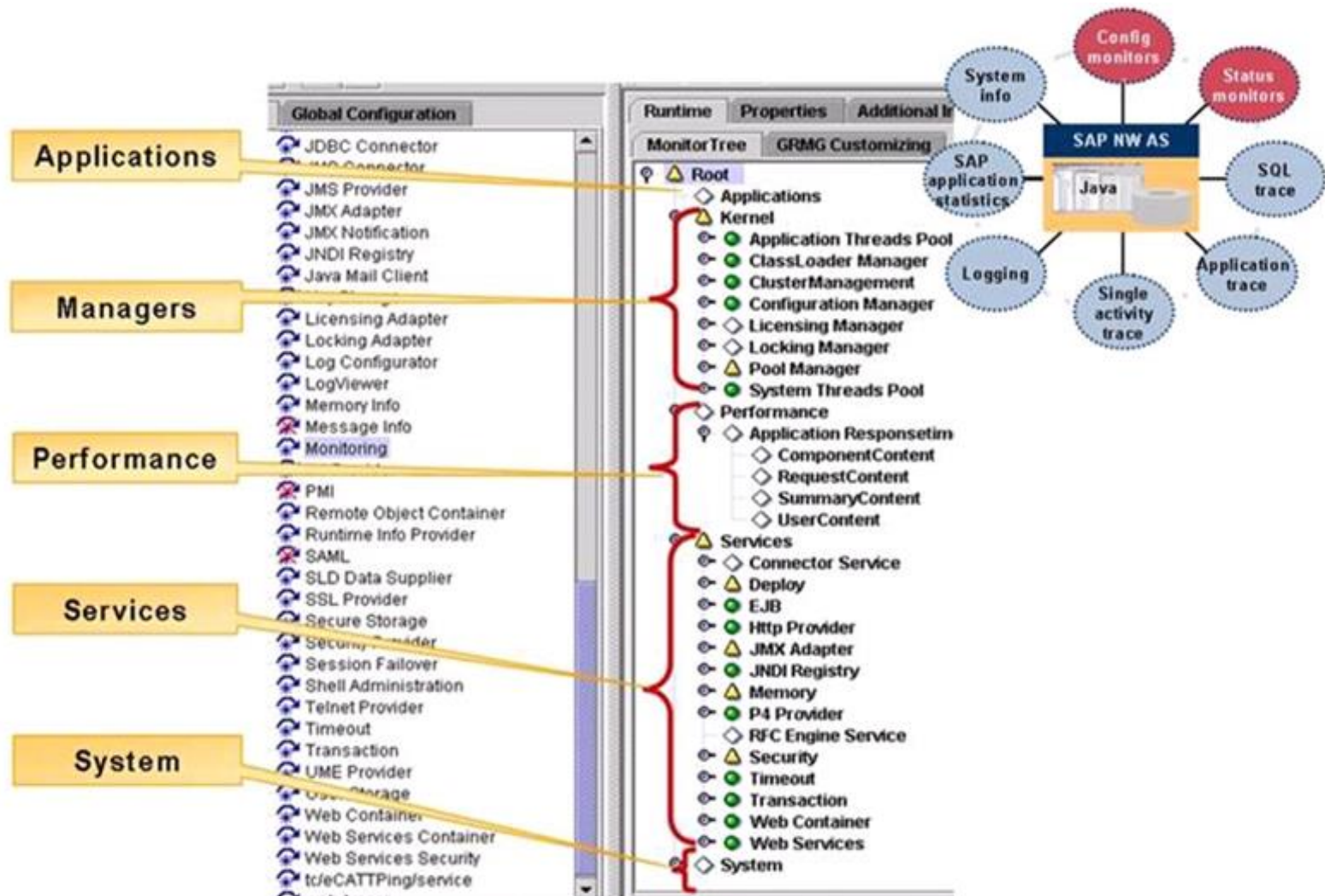
- System Management** (Annotation 1): The top navigation bar.
- Monitoring** (Annotation 2): The selected tab in the top navigation bar.
- Detailed Navigation** (Annotation 3): A sidebar menu with options: Overview, Availability, Central Reports, Java System Reports, and Logs and Traces.
- Java System Reports** (Annotation 4): The main content area, showing a report for Instance DVEBMO500 ID19548 and Cluster Node Server 0 ID1954650. It includes a Time Period dropdown set to Hour and buttons for Open Customization, Settings, and Export History.
- System Landscape Selection** (Annotation 5): A sidebar menu with options: Local System Administration, DEV on twdr11904, and Define System Selections.
- Monitoring Tree** (Annotation 6): A tree view showing the hierarchy of monitoring objects. The tree is expanded to show the following structure:
 - Monitor Name
 - DEV
 - Dispatcher ID16252700
 - Server 0 ID16252750
 - Dispatcher ID1954600
 - Server 0 ID1954650

A yellow box labeled **Node** points to the **DEV** node in the Monitoring Tree.

Monitoring Tree in the NWA



Visual Administrator – Monitoring Service



Configuration in the NWA

The screenshot displays the NWA (Network Watcher) interface, showing the configuration for the **MEMORY.UsedMemoryRate** monitor. The interface is divided into several sections:

- Monitoring Tree:** A table listing various monitors. The **MEMORY.UsedMemoryRate** monitor is highlighted in yellow.
- Details:** A section showing the current values and configuration for the selected monitor. The **Configuration** tab is active.
- Configuration Panel:** A detailed view of the configuration for the **MEMORY.UsedMemoryRate** monitor, showing various settings and thresholds.

Monitoring Tree Table:

Monitor Name	Value	Time of Last Reported Value
Memory		
• AllocatedMemory	989 MB	Aug 27, 2007 4:52:08 PM
• AllocatedMemoryRate	No value has been reported yet	Aug 23, 2007 2:33:34 PM
• AvailableMemory	1024 MB	Aug 27, 2007 4:52:08 PM
• UsedMemory	342 MB	Aug 27, 2007 4:52:08 PM
• UsedMemoryRate	No value has been reported yet	Aug 23, 2007 2:33:34 PM

Details - Configuration Tab:

Description: Ratio of the used memory to the available memory
Value: No value has been reported
Maximum: 0 Jan 1, 1970 1:00:00 AM
Minimum: 0 Jan 1, 1970 1:00:00 AM

Configuration Panel:

Current Values Configuration

Edit Configuration Group Restore Group to Default Save Configuration Group

Show Data Collection for Configuration Group: MEMORY.UsedMemoryRate

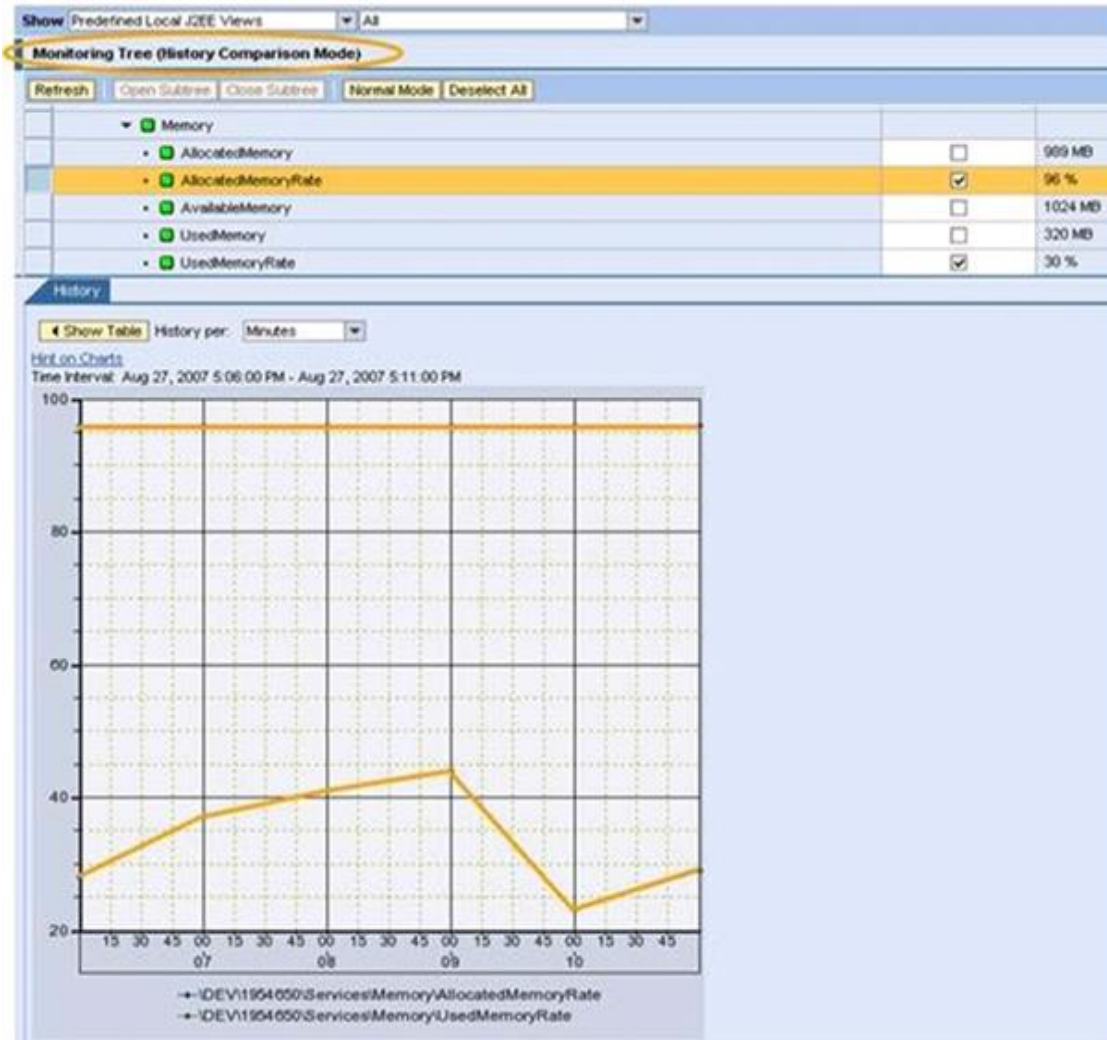
Data Collection
Reaction to Resource Failure: ignore
Data Collection Method: Polled by Monitor
Period: 1
Unit: Minute
Enabled: ☐

Color Changing Thresholds

Changes from	Value
Changes from Green to Yellow:	80
Changes from Yellow to Red:	95
Changes from Red to Yellow:	95
Changes from Yellow to Green:	80

Alert-Relevant Value Type:

Comparative History in the NWA



History and Configuration

The screenshot displays the Visual Administrator interface for monitoring services. The main window shows a tree view of services on the left and a list of monitored data on the right. The 'Monitoring' service is selected in the tree view. A 'Data History of UsedMemory MB' window is open, showing a table of historical data. A 'Monitor Configuration' window is also open, showing the 'Performance' tab for the 'Properties of /Services/Memory/UsedMemory'.

Visual Administrator - [DEV\Server 0 0_37030\Services\Monitoring]

Data History of UsedMemory MB

Minute history	5 minutes history	Quarters history	Hour history	
time	time weighted av.	min [MB]	max [MB]	counts
01:30 PM	79.0±0.0%	79.0	79.0	1
01:25 PM	73.0±0.0%	73.0	73.0	1
01:24 PM	-	-	-	0
01:23 PM	-	-	-	0
01:22 PM	-	-	-	0
01:21 PM	-	-	-	0
01:20 PM	102.0±0.0%	102.0	102.0	1
01:19 PM	-	-	-	0
01:18 PM	-	-	-	0
01:17 PM	-	-	-	0
01:16 PM	-	-	-	0

Monitor Configuration

Properties of: /Services/Memory/UsedMemory

General Performance

Color changing thresholds:

Changes from green to yellow: 80

Changes from yellow to red: 160

Changes from red to yellow: 160

Changes from yellow to green: 80

Buttons: Edit, Save, Cancel

Monitored Data:

Value:	175 MB
Maximum:	241
Minimum:	35

24.06.04 02:20 PM
22.06.04 10:30 AM

Buttons: History, Configuration

Lunch Break



Monitoring Service: Classification

Important Alert Monitors

Connections Manipulator Monitor
Application Threads Pool Monitor
System Threads Pool Monitor

Cluster Management Monitor

Memory Monitor

Table Buffer Monitor
Configuration Manager Monitor

“Info” Monitors

ClassLoader Monitor
Locking Manager Monitor
Performance Monitor
Deploy Service Monitor
HTTP Provider Service Monitor
JNDI Registry Monitor
JMX Adapter Service Monitor
P4 Provider Monitor
Timeout Monitor
Web Container Monitor
Web Services Monitor

Other Useful Alert Monitors

Security Provider Monitor
Transaction Monitor
Log Configurator Monitor
Connector Service Monitor
Licensing Manager Monitor

Monitor for the System Thread Pool

The screenshot displays the IBM Performance Monitor (PM) interface. On the left, the 'MonitorTree' pane shows a hierarchical view of system components. The 'Kernel' folder is expanded, and the 'System Threads Pool' is selected, which is further expanded to show various metrics. The 'WaitingTasksQueueSize (0)' metric is highlighted with a blue selection box. On the right, the 'Properties' pane shows the configuration for this specific metric. The 'General Info' section includes the name 'WaitingTasksQueueSize', a description of its function, its type as 'IntegerMonitor', and its configuration group. The 'Monitored Data' section shows the current value as 0, with a maximum of 1 and a minimum of 0, along with timestamps for the maximum and minimum values. At the bottom right, there are buttons for 'History' and 'Configuration'.

MonitorTree

- Root
 - Applications
 - Kernel
 - Application Threads Pool
 - ClassLoader Manager
 - ClusterManagement
 - Configuration Manager
 - Licensing Manager
 - Locking Manager
 - Pool Manager
 - System Threads Pool**
 - ActiveThreadsCount (13)
 - CurrentThreadPoolSize (64)
 - InitialThreadPoolSize (40)
 - MaximumThreadPoolSize (100)
 - MinimumThreadPoolSize (10)
 - ThreadPoolIncrementStep (1)
 - ThreadPoolPercentageUsage (0)
 - WaitingTasksCount (0)
 - WaitingTasksQueueOverflow (0)
 - WaitingTasksQueueSize (0)**
 - Performance
 - Services
 - System

Properties

General Info:

Name: WaitingTasksQueueSize

Description: Capacity of the request queue where tasks waiting for execution are stored

Type: IntegerMonitor

Configuration group: MANAGERS.RequestQueueSize

Creation date: Mon Jun 07 11:57:45 CEST 2004

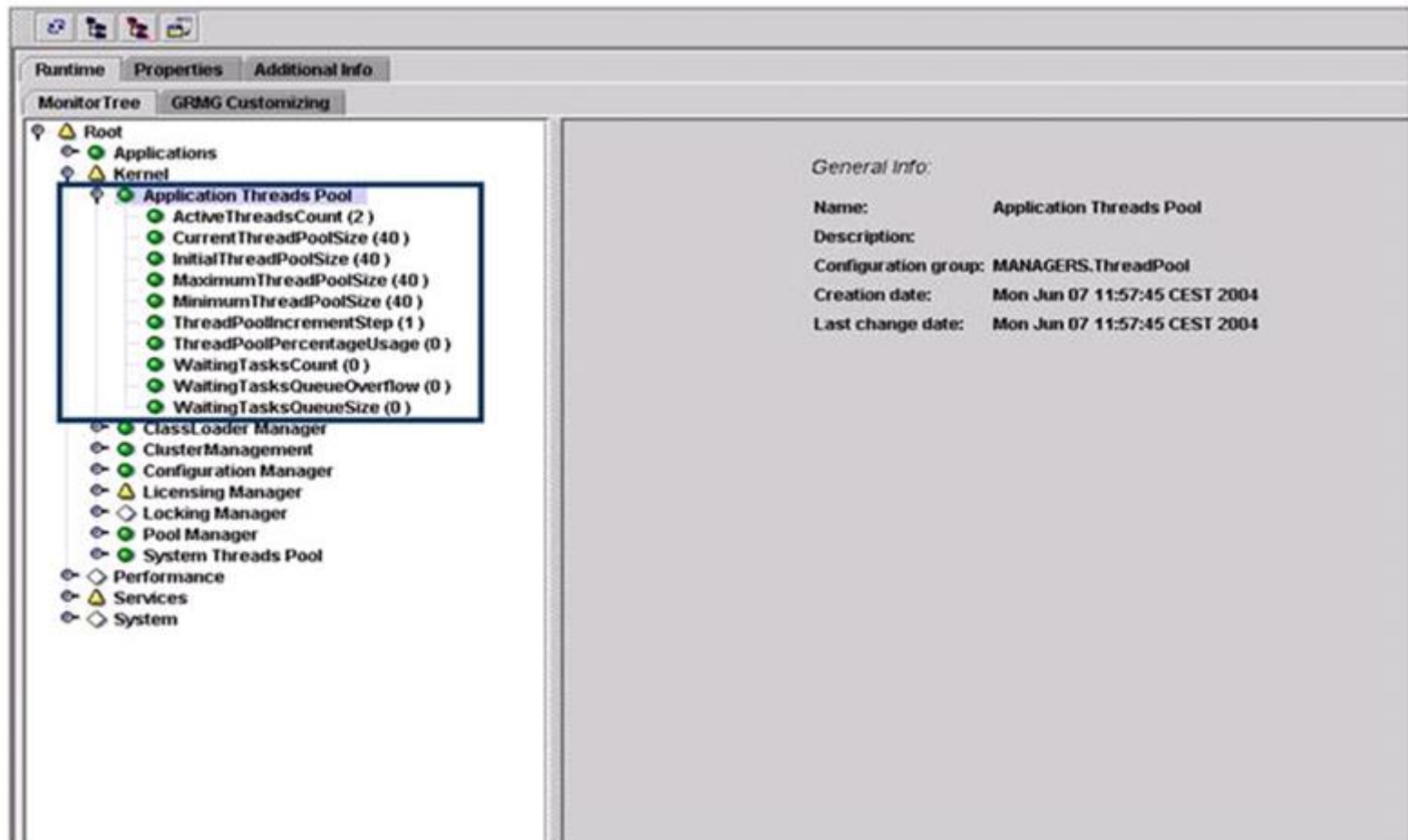
Last change date: Mon Jun 07 14:05:57 CEST 2004

Monitored Data:

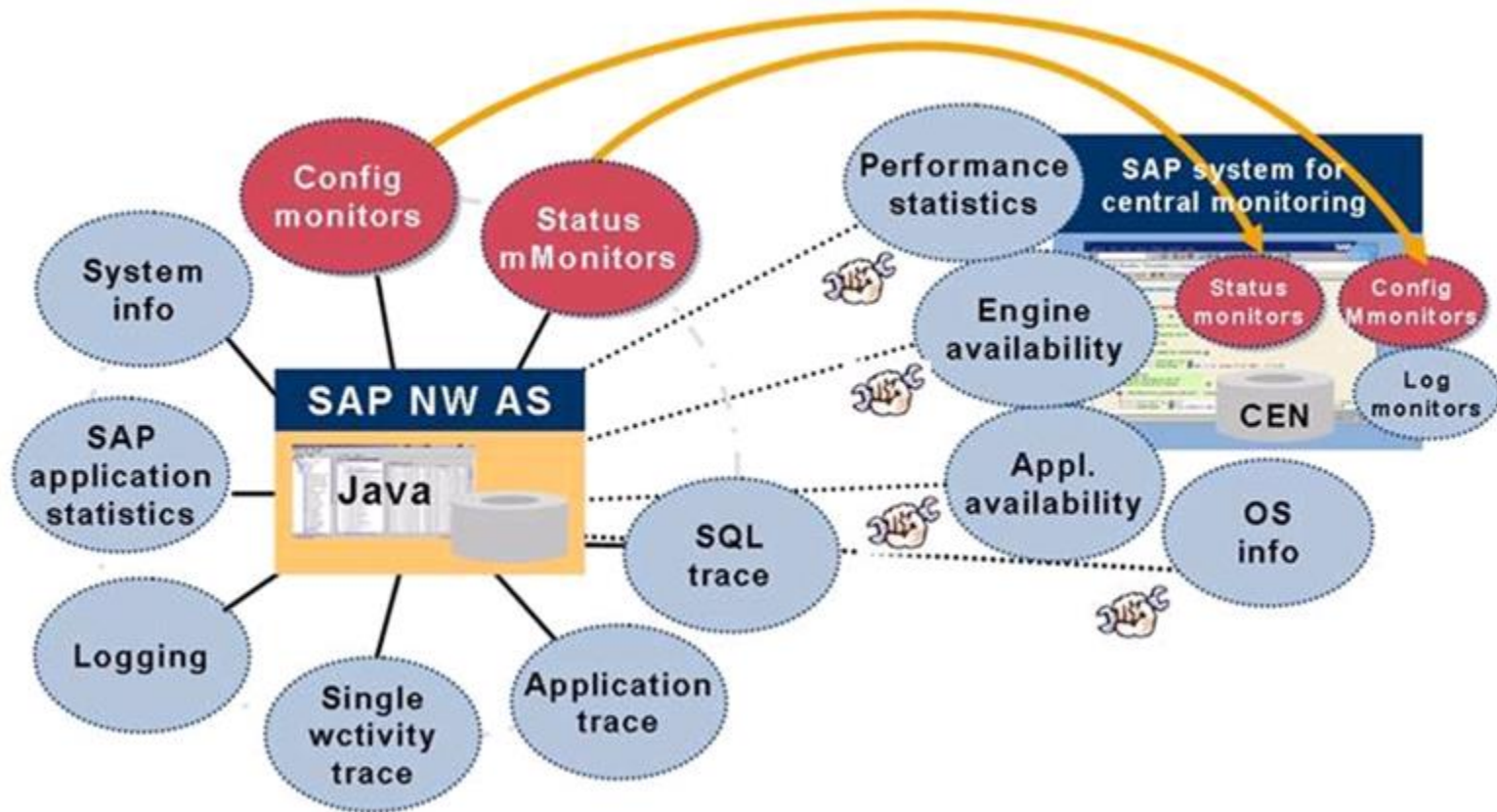
Value:	0	
Maximum:	1	07.06.04 12:27 PM
Minimum:	0	07.06.04 11:57 AM

[History](#) [Configuration](#)

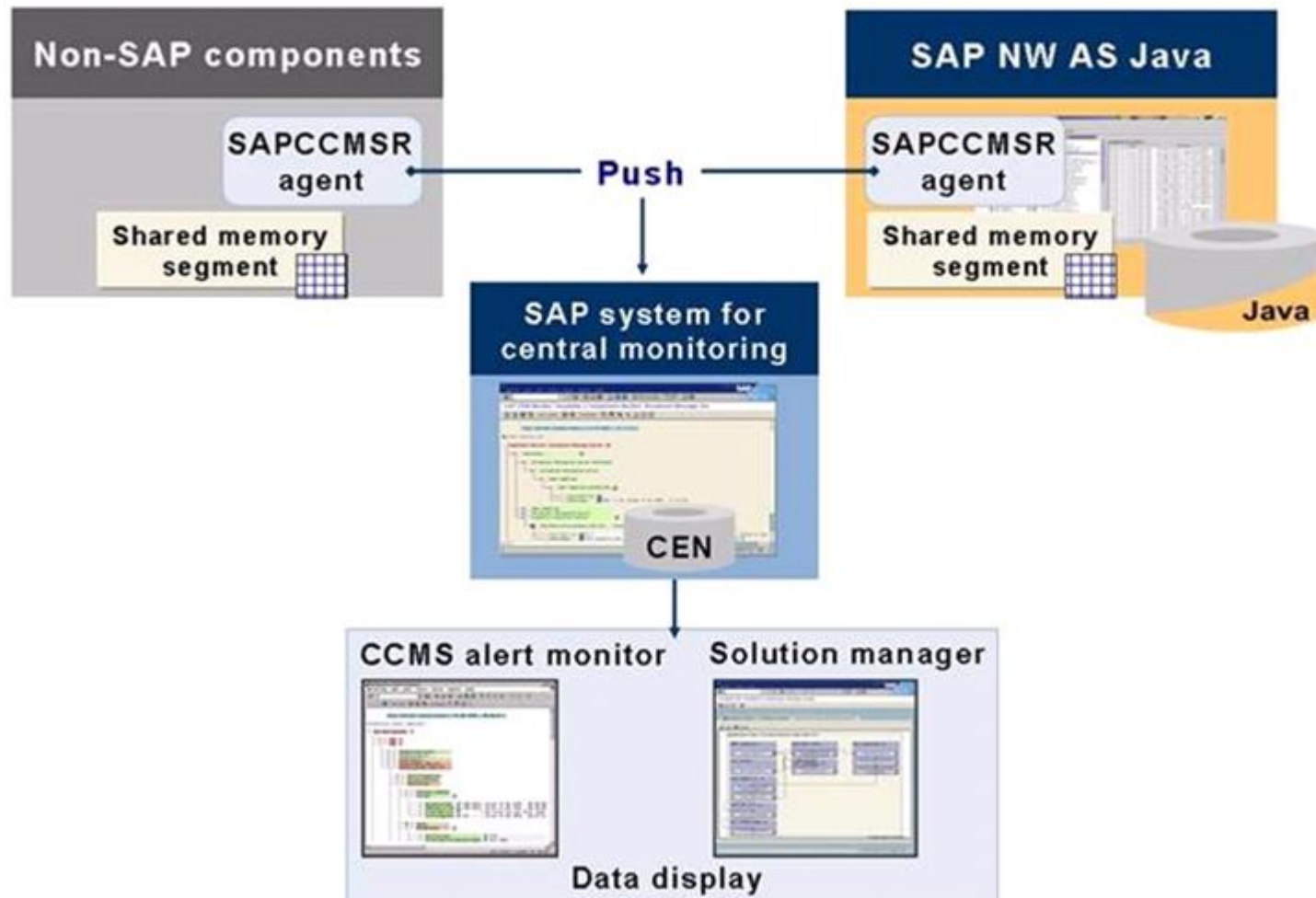
Monitor for Application Thread Pool



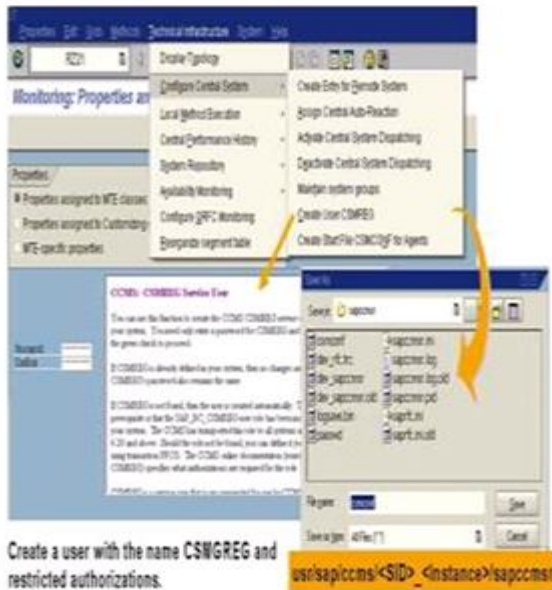
Connecting to a Central SAP ABAP Monitoring System



Data Transfer Using the SAPCCMSR Agent



Creating the CMSREG User and the CSMCONF File



Installation Steps for the SAPCCMSR Agent:

Create the CSMREG user in the central monitoring system (transaction RZ21)

Create the CSMCONF file in the central monitoring system (transaction RZ21)

Register the agent in the Visual Administrator (*Dispatcher* → *Services* → *Monitoring*)

Contents of the CSMCONF

The diagram illustrates the contents of the CSMCONF file, which is displayed in a Notepad window titled "csmconf - Notepad". The file contains configuration parameters for the central monitoring system, message server host, application server host, admin user, gateway, and CSMREG user. Callouts point to specific parameters and their descriptions:

- Name of the central monitoring system**: Points to `CEN_ADMIN_R3NAME=AT1`.
- Name of the message server host**: Points to `CEN_ADMIN_MSHOST=P77512`.
- Name of the application server host**: Points to `CEN_ADMIN_ASHOST=P77512`.
- Name of the admin user**: Points to `CEN_ADMIN_USERID=TSCENSE2`.
- Space for the admin password**: Points to `CEN_ADMIN_PASSWORD=`.
- Name of the user for the CCMS connection**: Points to `CEN_CSMREG_USERID=CSMREG`.
- Space for the CSMREG password**: Points to `CEN_CSMREG_PASSWORD=`.

The configuration parameters are organized into sections:

```
CEN_ADMIN_USER
CEN_ADMIN_R3NAME=AT1
CEN_ADMIN_MSHOST=P77512
CEN_ADMIN_LOADBALANCING=N
CEN_ADMIN_ASHOST=P77512
CEN_ADMIN_SYSNR=00
CEN_ADMIN_LOADBALANCING=Y
CEN_ADMIN_GROUP=PUBLIC
CEN_ADMIN_CLIENT=000
CEN_ADMIN_USERID=TSCENSE2
CEN_ADMIN_PASSWORD=
CEN_ADMIN_LANG=E
CEN_ADMIN_TRACE=0

CEN_GATEWAY
CEN_GATEWAY_HOST=P77512
CEN_GATEWAY_SYSNR=00

CEN_CSMREG_USER
CEN_CSMREG_R3NAME=AT1
CEN_CSMREG_MSHOST=P77512
CEN_CSMREG_LOADBALANCING=N
CEN_CSMREG_ASHOST=P77512
CEN_CSMREG_SYSNR=00
CEN_CSMREG_LOADBALANCING=Y
CEN_CSMREG_GROUP=PUBLIC
CEN_CSMREG_CLIENT=000
CEN_CSMREG_USERID=CSMREG
CEN_CSMREG_PASSWORD=
CEN_CSMREG_LANG=E
```

Agent Registration in the Visual Administrator

The screenshot shows the Visual Administrator window titled "Visual Administrator - [DEV\Dispatcher 0 0_37030\Services\Monitoring]". The left sidebar contains a tree view with the following items: Cluster, Dispatcher 0 0_37030 (selected), Interfaces, Libraries, Services, ABAP Communicator, Administration Adapter, Basic Administration, ClassLoader Viewer, Configuration Adapter, HTTP Provider, HTTP Tunneling, IOP Provider, JMS Provider, JMX Adapter, JMX Notification, Key Storage, Licensing Adapter, Log Configurator, LogViewer, Memory Info, Message Info, Monitoring (highlighted with a blue box), P4 Provider, Security Provider, Shell Administration, SLD Data Supplier, SSL Provider, and Telnet Provider.

The main configuration area has tabs for Runtime, Properties, and Additional Info. The "Runtime" tab is active, showing the "MonitorTree" and "CCMS Agent Configuration" sections. The "Enable CCMS Customizing" checkbox is checked. The "Agent Configuration File" field is set to "(twdf0338_DEV_00) G:\usr\sap\ccms\DEV_00\sapccmsrce...". The "Local Administration User (DEV)" and "Local CSMREG User (DEV)" sections show the user "100" and the password "ADM200-00" and "CSMREG" respectively. A yellow callout points to the password fields with the text "1: Enter the passwords".

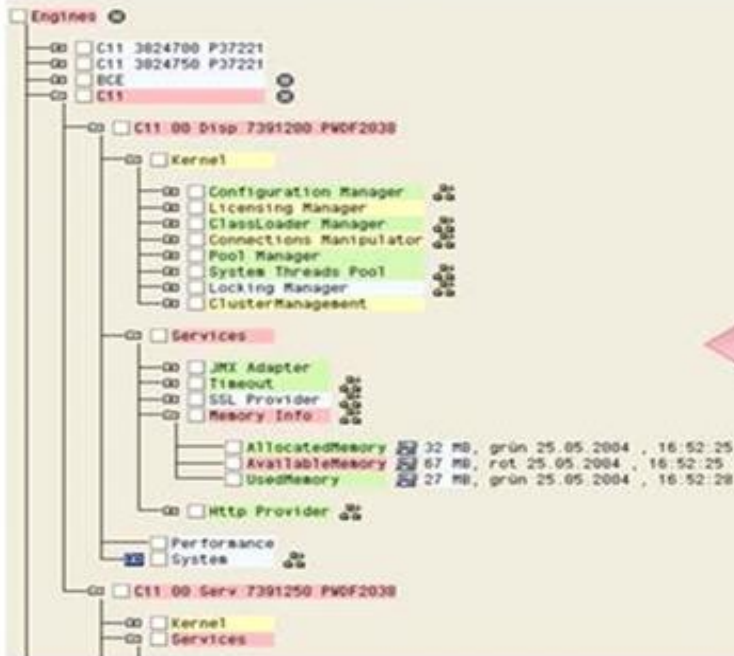
The "Output for : G:\usr\sap\DEV\SYS\exe\run\sapccmsr.exe (-j2ee,-v,pf=G:\usr\sap\DEV\:" section displays the following output:

```
CCMS version 20040229, 32 bit, multithreaded, Non-Unicode
compiled at Oct 24 2004
systemid 560 (PC with Windows NT)
reino 6400
patch text patch collection 2004/5, OSS note 694057
patchno 42
intno 20020600
```

A red callout points to this output area with the text "Log file of the registration". At the bottom of the window, there are buttons for "Register", "Unregister", "Advanced", and "Information". A yellow callout points to the "Register" button with the text "2: Start the registration".

Threshold Value Maintenance

J2EE monitoring tree in the CCMS Alert Monitor RZ20



You can perform customizing for each monitor in the Visual Administrator or in the central monitoring system.

Visual Administrator

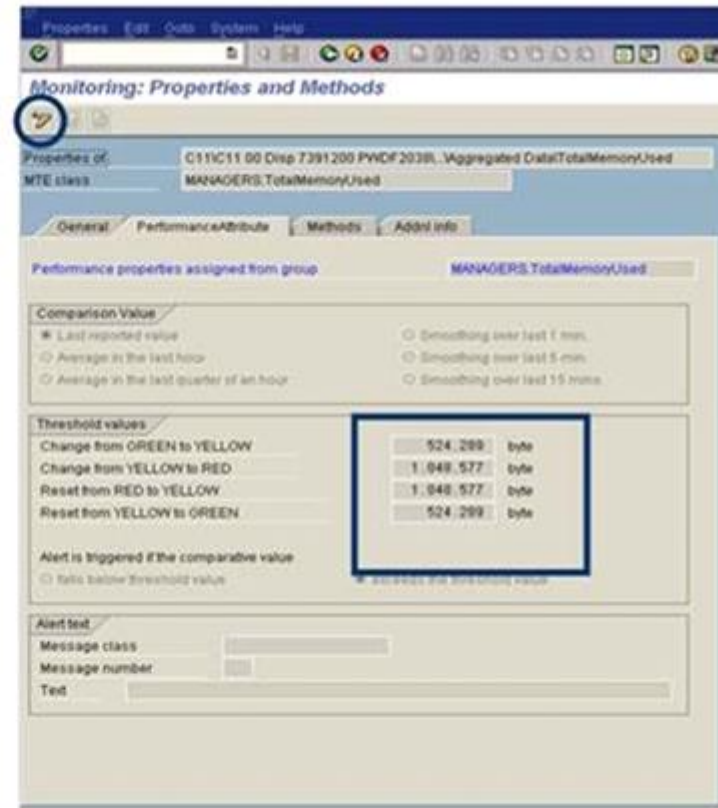
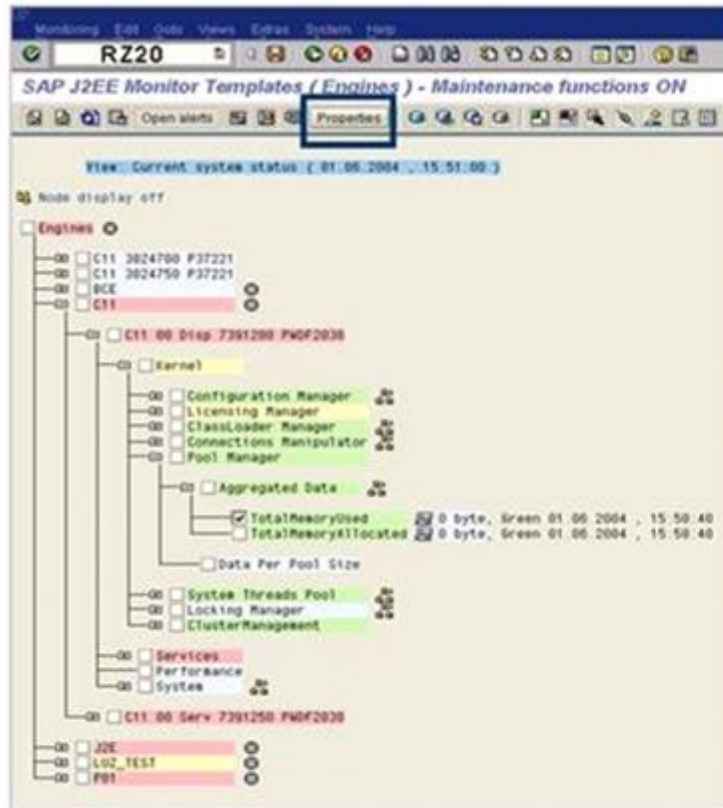


RFC

Break

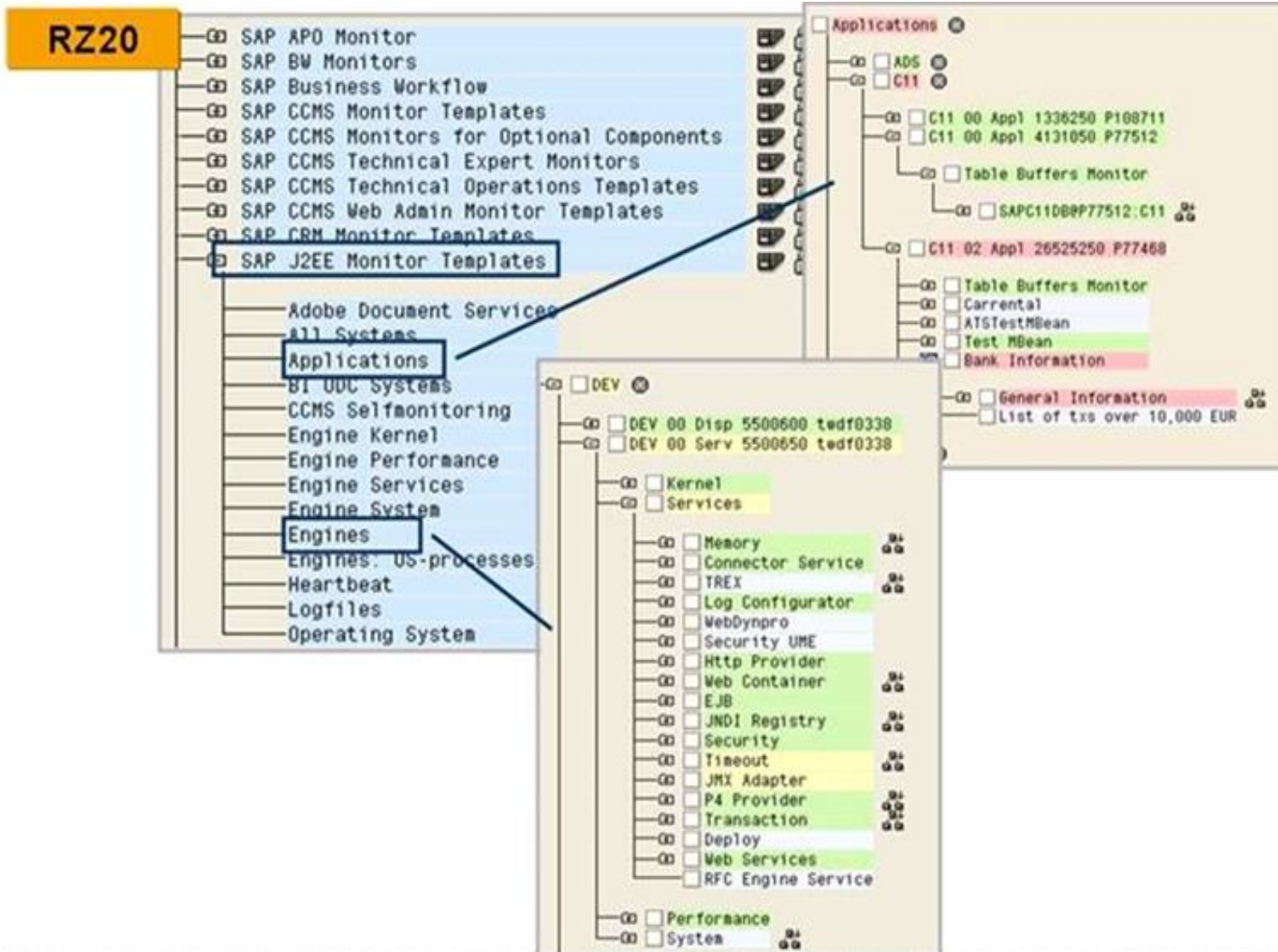


Central Monitoring System

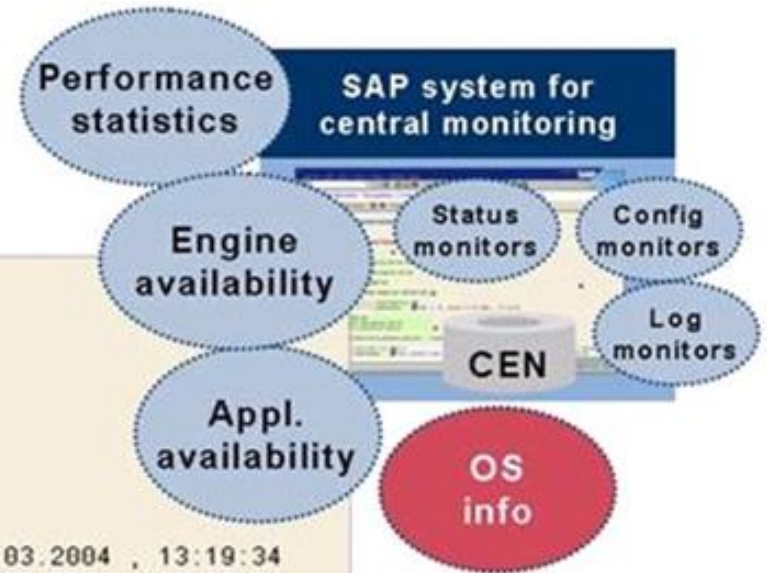
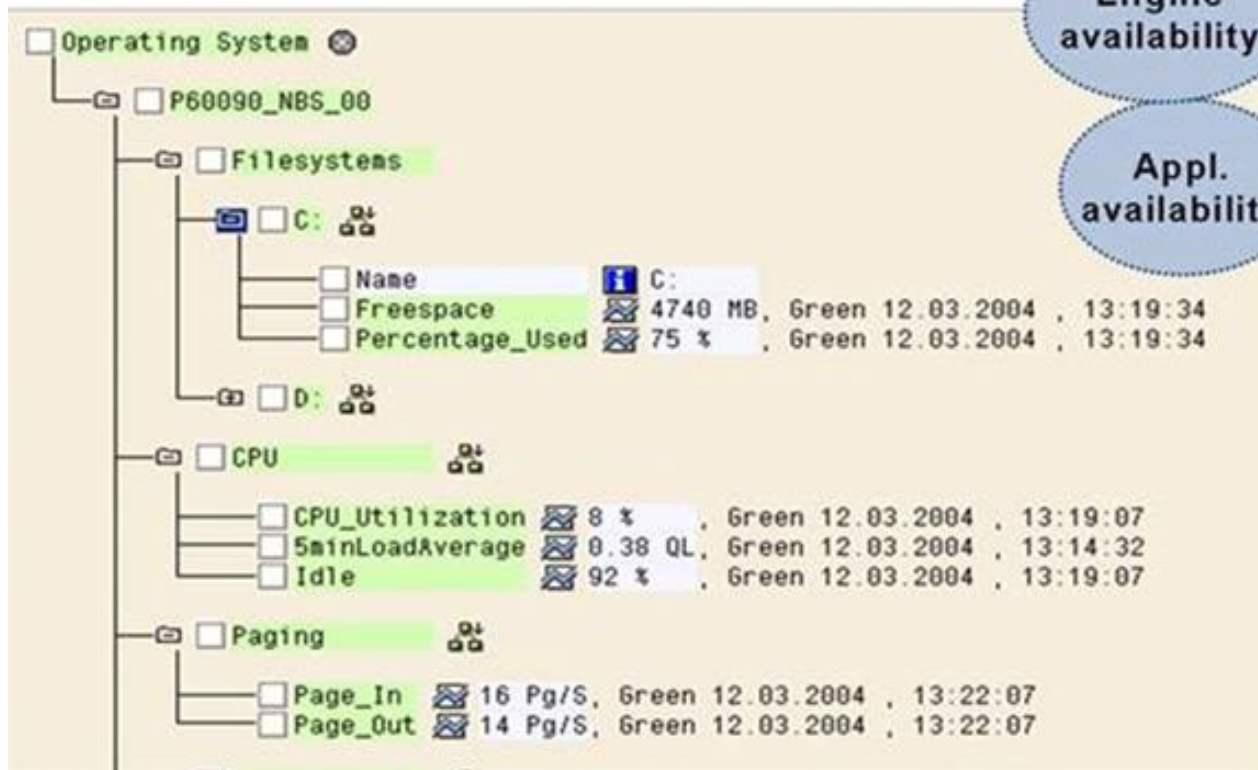


All monitoring configuration data is persistent and is stored in the Java database.

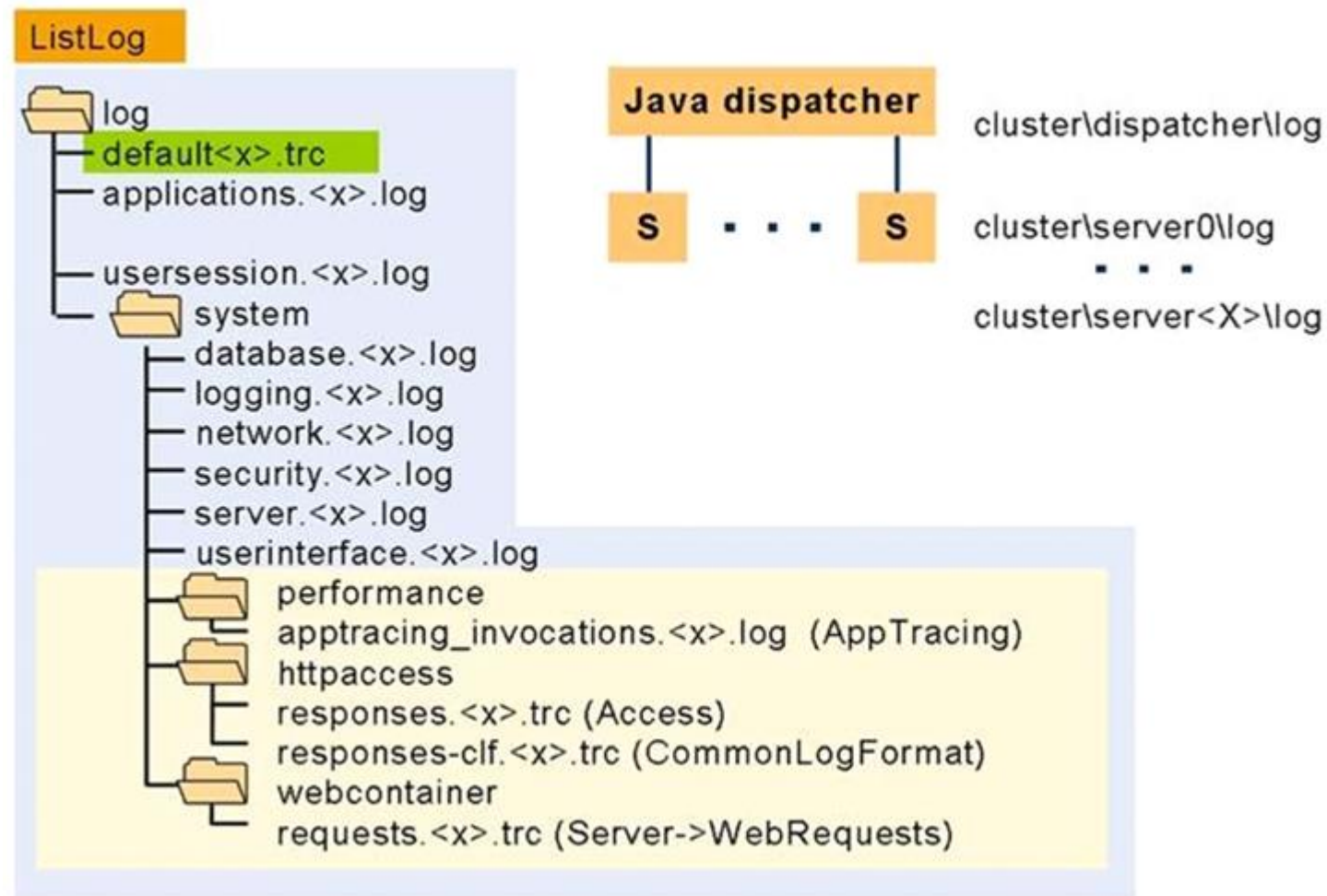
Display in Transaction RZ20



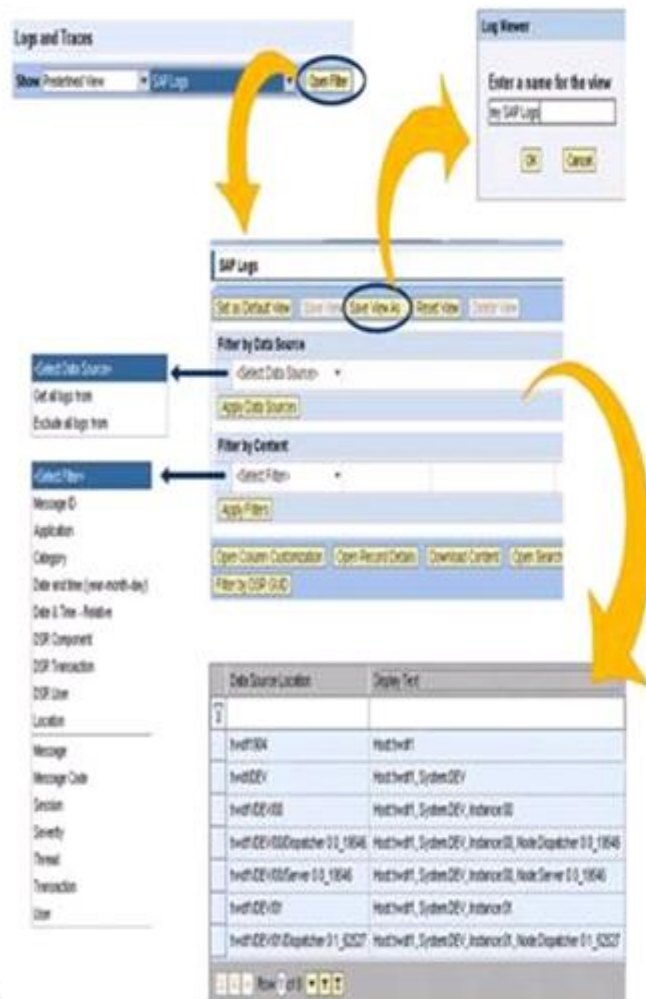
Operating System Information in Transaction RZ20



List Logs in the File System



Log Viewer in the NWA - Filters



Predefined Views

Last 24 Hours

Shows log and trace entries for the last 24 hours

SAP Logs

Shows log entries but no trace entries

Alert

Shows log entries with severity level “Error” or “Fatal”

Default Trace

Shows trace entries but no log entries

Expert

Shows all log and trace entries without restriction

Text Formatted Traces

Shows file contents which are not of type “ListLog”

Log Viewer in the NWA: Column Customization

Open Column Customization Open Record Details Download Content Open Search Filter by DSR GUID Records to Be Displayed 10

Columns

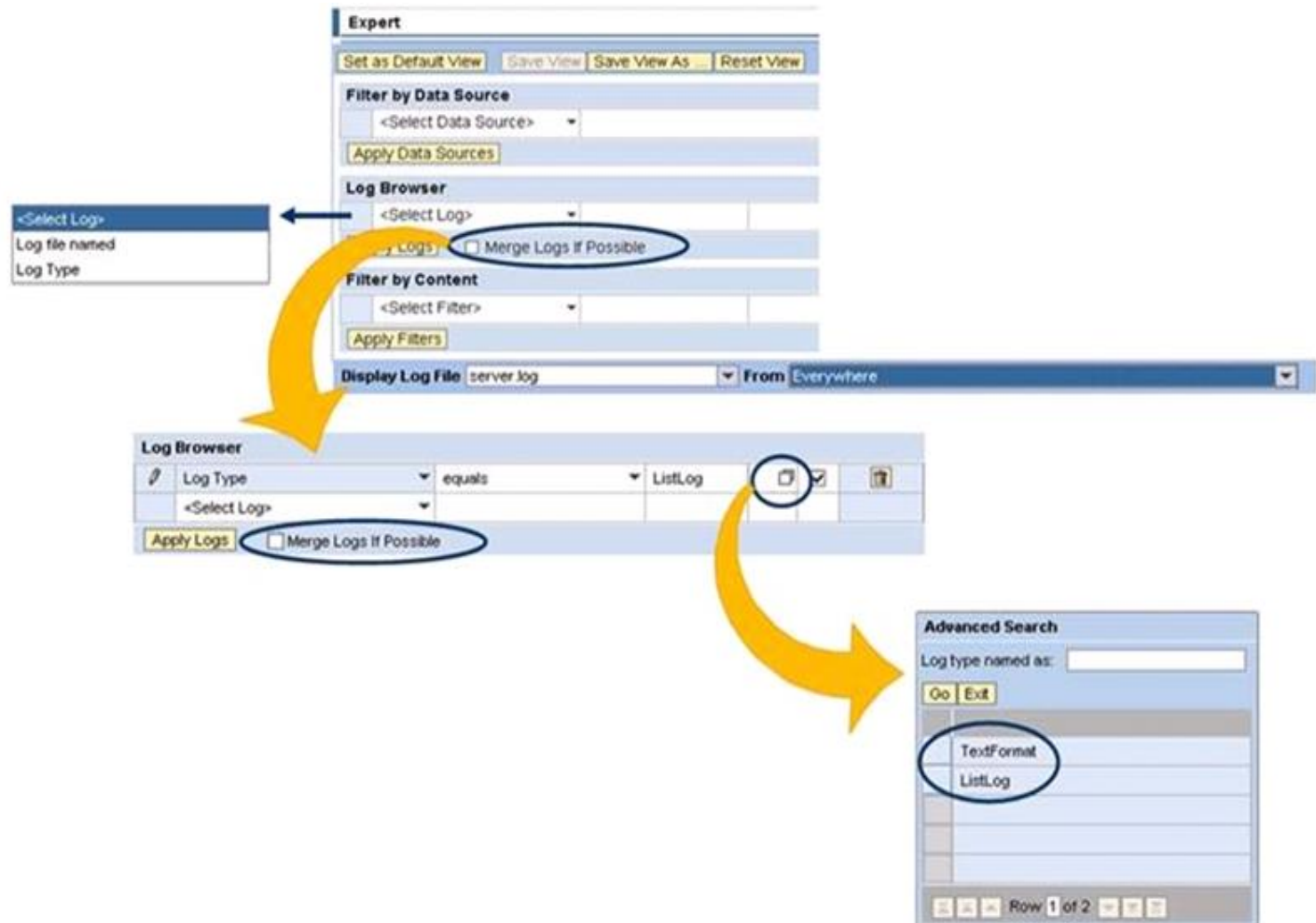
Move Up Move Down

- ☒ ▶ Date
- ☒ Time
- ☒ Message
- ☒ Category
- ☒ Location
- ☒ Application
- ☐ Thread
- ☐ Data Source
- ☐ Message ID
- ☐ Argument Objects
- ☐ Arguments
- ☐ DSR Component
- ☐ DSR Transaction
- ☐ DSR User
- ☐ Message Code
- ☐ Session
- ☐ Transaction
- ☐ User
- ☒ Host
- ☐ System
- ☐ Instance
- ☒ Node

Apply to All Views

	Details	Severity	Date	Time	Message	Category	Location
	▶	i info	2007-08-15	13:26:44.307	Service jmx_notification started. (110 ms).	/System/Server	com.sap.engine.core.service630.containe
	▶	i info	2007-08-15	13:26:44.293	Service userstore started. (0 ms).	/System/Server	com.sap.engine.core.service630.containe
	▶	i info	2007-08-15	13:26:44.262	Service classpath_resolver started. (32 ms).	/System/Server	com.sap.engine.core.service630.containe
	▶	i info	2007-08-15	13:26:44.215	Service p4 started. (953 ms).	/System/Server	com.sap.engine.core.service630.containe
	▶	i info	2007-08-15	13:26:43.199	Service timeout started. (187 ms).	/System/Server	com.sap.engine.core.service630.containe
	▶	i info	2007-08-15	13:26:43.199	Service trex.service started. (78 ms).	/System/Server	com.sap.engine.core.service630.containe
	▶	i info	2007-08-15	13:26:43.027	Service runtimeinfo started. (15 ms).	/System/Server	com.sap.engine.core.service630.containe
	▶	i info	2007-08-15	13:26:42.980	Service file started. (62 ms).	/System/Server	com.sap.engine.core.service630.containe
	▶	i info	2007-08-15	13:26:42.980	Service cross started. (15 ms).	/System/Server	com.sap.engine.core.service630.containe
	▶	i info	2007-08-15	13:26:42.918	Service memory started. (0 ms).	/System/Server	com.sap.engine.core.service630.containe

Log Viewer in the NWA: Expert View



Integrated Log Viewer

The screenshot displays the SAP NW AS Log Viewer interface. The left pane shows a tree view of the system configuration, including services like ABAP Communication, Application Client, and various connectors. The main pane shows the log files for the selected server (Server 0_0_61340), with a list of log files including applications.log, defaultTrace.log, sat.log, usersession.log, applications, libraries, services/logviewer, system, database.log, logging.log, network.log, security.log, server.log, userinterface.log, and htpaccess. The bottom pane shows a table of log entries with columns for Time, Category, and Date. The table is filtered to show entries from 10:25:41.608 to 17:05:25.772. The diagram overlay shows the SAP NW AS system with various components connected to it, including System Info, Config monitors, Status monitors, SQL trace, Application trace, Single activity trace, Logging, and SAP application statistics.

SAP NW AS Components:

- System Info
- Config monitors
- Status monitors
- SQL trace
- Application trace
- Single activity trace
- Logging
- SAP application statistics

Log Viewer Interface:

Visual Administrator - [J4E\Server 0_0_61340\Services\LogViewer]

Global Configuration

Cluster

Services

- ABAP Communication
- Administration Client
- Application Client
- Application Lock
- Basic Administration
- Class Loader View
- Classpath Resolution
- Configuration Administration
- Connector Configuration
- Deploy
- Destinations
- Distributed Statistics
- EJB Container
- File Transfer
- HTTP Provider
- HTTP Provider
- HTTP Provider
- Java Mail Client
- JCo RFC Provider
- JDBC Connector
- JMS Connector
- JMS Provider
- JMX Adapter
- JMX Notification
- JNDI Registry
- Key Storage
- Licensing Adapter
- Locking Adapter
- Log Configuration
- LogViewer
- Memory Info
- Message Info
- Monitoring

Runtime Properties Additional Info

Cluster (PWDF0117)

Server 0_0_61340

Log

- 1: applications.log
- 6: defaultTrace.log
- 9: sat.log
- 24: usersession.log
- applications
- libraries
- services/logviewer
- system
- 11: database.log
- 14: logging.log
- 15: network.log
- 17: security.log
- 20: server.log
- 21: userinterface.log
- htpaccess

Find In column

Search

Time	Category	Date
10:25:41.608	System/Datab...	06/08/2004
10:15:24.072	System/Datab...	06/08/2004
17:12:25.996	System/Datab...	06/07/2004
17:12:25.996	System/Datab...	06/07/2004
17:12:24.902	System/Datab...	06/07/2004
17:12:24.902	System/Datab...	06/07/2004
17:11:25.948	System/Datab...	06/07/2004
17:11:25.948	System/Datab...	06/07/2004
17:11:24.855	System/Datab...	06/07/2004
17:11:24.955	System/Datab...	06/07/2004
17:10:26.010	System/Datab...	06/07/2004
17:10:26.010	System/Datab...	06/07/2004
17:10:24.916	System/Datab...	06/07/2004
17:10:24.916	System/Datab...	06/07/2004
17:09:25.775	System/Datab...	06/07/2004
17:09:25.775	System/Datab...	06/07/2004
17:09:24.775	System/Datab...	06/07/2004
17:09:24.759	System/Datab...	06/07/2004
17:08:25.821	System/Datab...	06/07/2004
17:08:25.821	System/Datab...	06/07/2004
17:08:24.821	System/Datab...	06/07/2004
17:08:24.821	System/Datab...	06/07/2004
17:06:25.819	System/Datab...	06/07/2004
17:06:25.819	System/Datab...	06/07/2004
17:06:24.819	System/Datab...	06/07/2004
17:06:24.819	System/Datab...	06/07/2004
17:05:25.772	System/Datab...	06/07/2004
17:05:25.772	System/Datab...	06/07/2004

Text Date/Time Severity Info

Text

In column: Message ☐ Case sensitive

☐ Apply on Selected Log ☐ Apply Globally

Filter Out Filter In

Connected to PWDF0117

Log Viewer in the NWA: Standalone

Logs and Traces History: Logs and Traces [Back](#) [Forward](#)

Show: Predefined View Standalone Log Viewer [Close Filter](#)

Standalone Log Viewer [Set as Default View](#) [Save View](#) [Save View As ...](#) [Reset View](#) [Delete View](#) [Refresh](#)

Remote Connection

<input checked="" type="checkbox"/>	Connect to host	twdf	On Port	26000	<input checked="" type="checkbox"/>	Delete
	<Define New Connection>					

[Apply Connections](#)

Log Browser

<Select Log>						
--------------	--	--	--	--	--	--

[Apply Logs](#) ☒ Merge Logs If Possible

Filter by Content

<Select Filter>						
-----------------	--	--	--	--	--	--

[Apply Filters](#)

Display Log File Merged SAP Logs [Open Log Details](#)

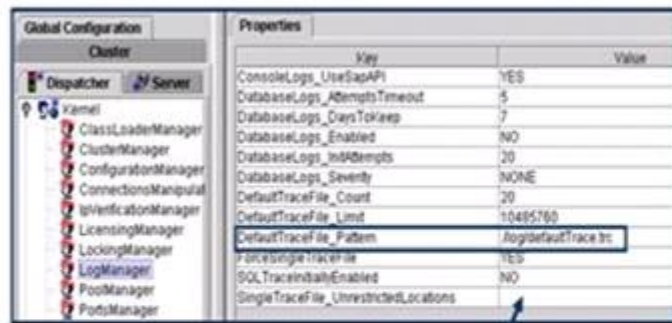
[Open Column Customization](#) [Open Record Details](#) [Download Content](#) **Records to Be Displayed** 10 [Filter by DSR GUID](#)

[Open Search](#)

Default Trace

All traces are written in one file:

```
usr\sap\<SID>\<instance>\j2ee\cluster\server0\log\defaultTrace.trc
```



Specify a location for a separate trace file (location name → Log Configurator Service)



You must update and restart the server



Functions of the Log Configuration

Service:

Change the severity

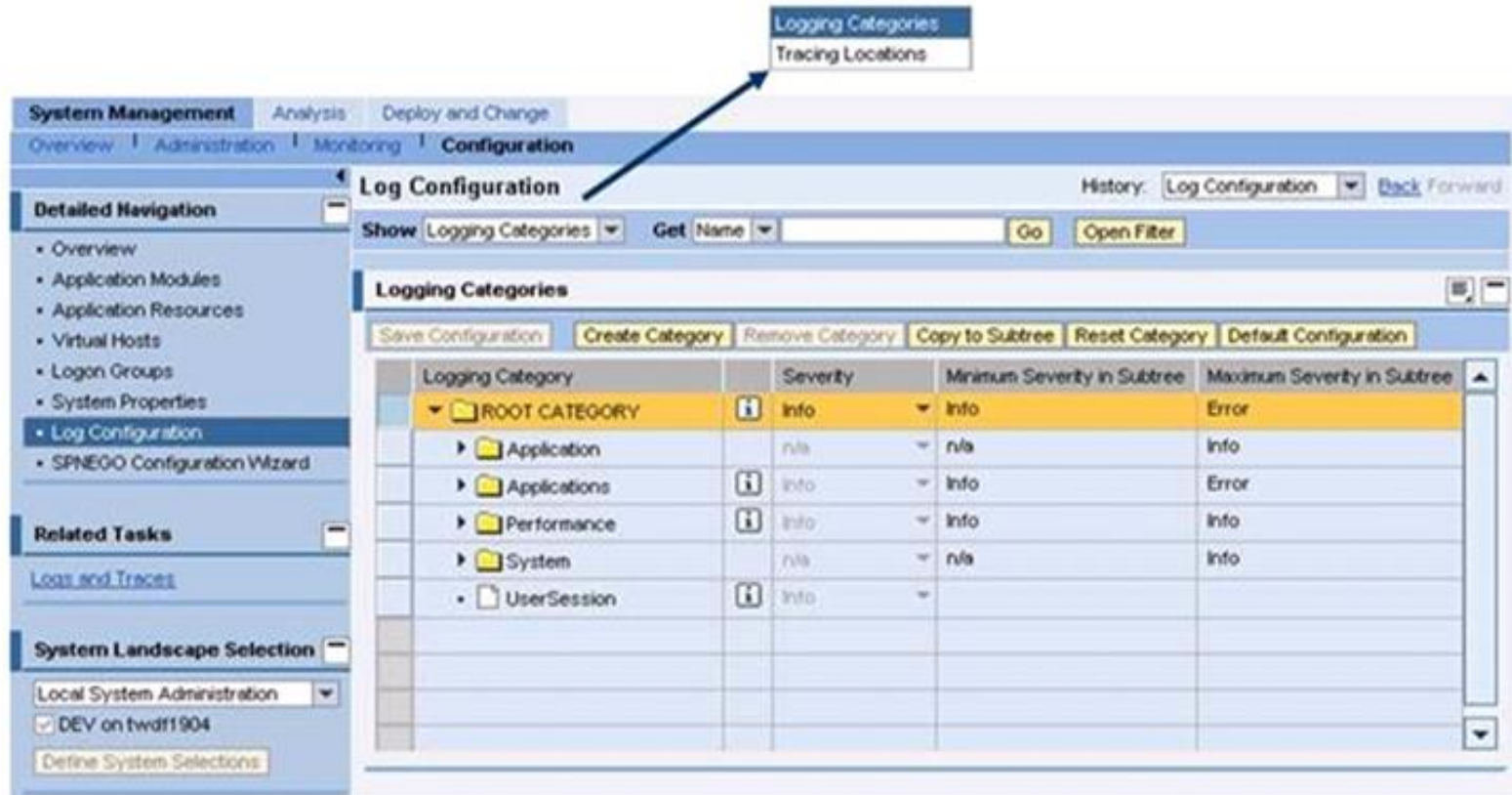
Add, change, and delete log destinations (storage locations)

Add, change, and delete log formatters

Add, change, and delete log controllers

Archive log files

Log and Trace Configuration in the NWA



The screenshot displays the 'Log Configuration' page in the NWA interface. The left sidebar contains a 'Detailed Navigation' menu with items like Overview, Application Modules, Application Resources, Virtual Hosts, Logon Groups, System Properties, Log Configuration (selected), and SPNEGO Configuration Wizard. Below this is a 'Related Tasks' section with a link to 'Logs and Traces'. The 'System Landscape Selection' section shows 'Local System Administration' and a checkbox for 'DEV on twdf1904'.

The main content area is titled 'Log Configuration' and includes a 'History' dropdown set to 'Log Configuration' with 'Back' and 'Forward' links. Below the title is a search bar with a 'Show' dropdown set to 'Logging Categories', a 'Get' dropdown set to 'Name', and a 'Go' button. An 'Open Filter' button is also present.

The 'Logging Categories' section features a table with columns: 'Logging Category', 'Severity', 'Minimum Severity in Subtree', and 'Maximum Severity in Subtree'. The table lists several categories, including 'ROOT CATEGORY', 'Application', 'Applications', 'Performance', 'System', and 'UserSession'. An arrow points from the 'Logging Categories' dropdown in the search bar to the 'Logging Categories' section header.

Logging Category	Severity	Minimum Severity in Subtree	Maximum Severity in Subtree
ROOT CATEGORY	Info	Info	Error
Application	n/a	n/a	Info
Applications	Info	Info	Error
Performance	Info	Info	Info
System	n/a	n/a	Info
UserSession	Info		

Severities in the NWA

Logging Categories

Save Configuration Create Category Remove Category Copy to Subtree Reset Category Default Configuration

Logging Category	Severity	Minimum Severity in Subtree	Maximum Severity in Subtree
ROOT CATEGORY	Info	Info	Error
Application	n/a	n/a	Info
Applications	Info	Info	Error
Performance	Info	Info	Info
System	n/a	n/a	Info
UserSession	Info		

System Configuration Per Cluster Node Configuration

Destinations

Add Destination Remove Destination

Pattern	Count	Limit
logUserSession.log	5	10,485,760

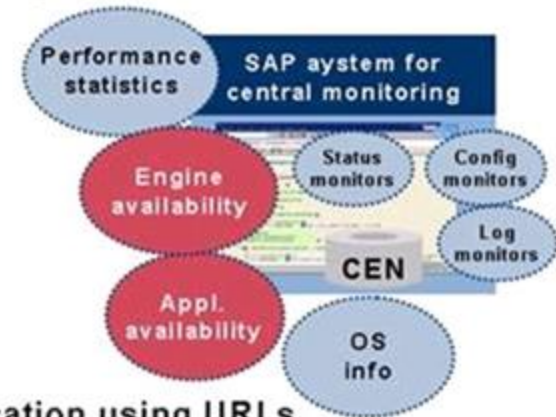
System Configuration Per Cluster Node Configuration

SAP Node Name	Severity
dispatcher node 16252700	Info
server node 16252750	Info
dispatcher node 1954600	Info
server node 1954650	Info

Availability Monitoring

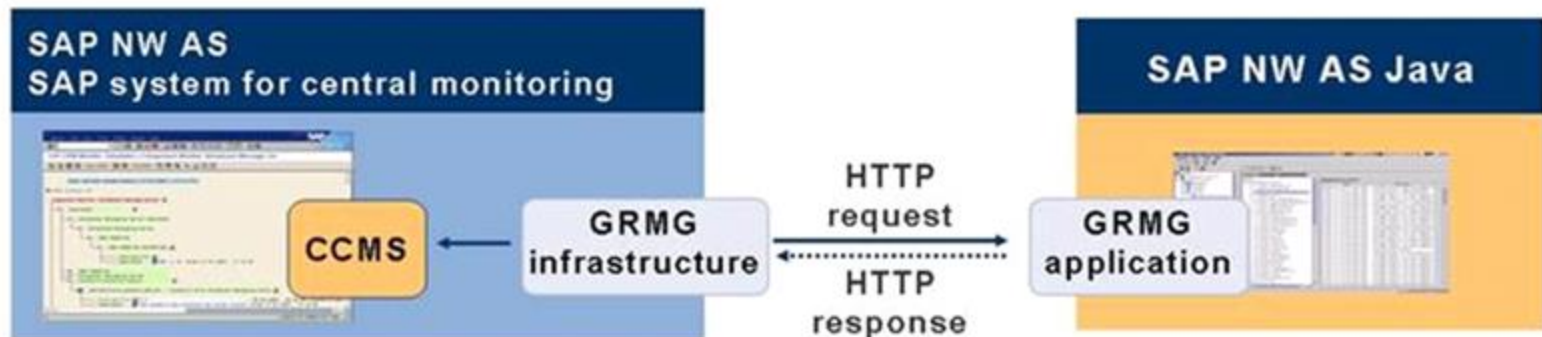
GRMG: Generic Request and Message Generator

Central infrastructure for availability monitoring of Java-based components and applications

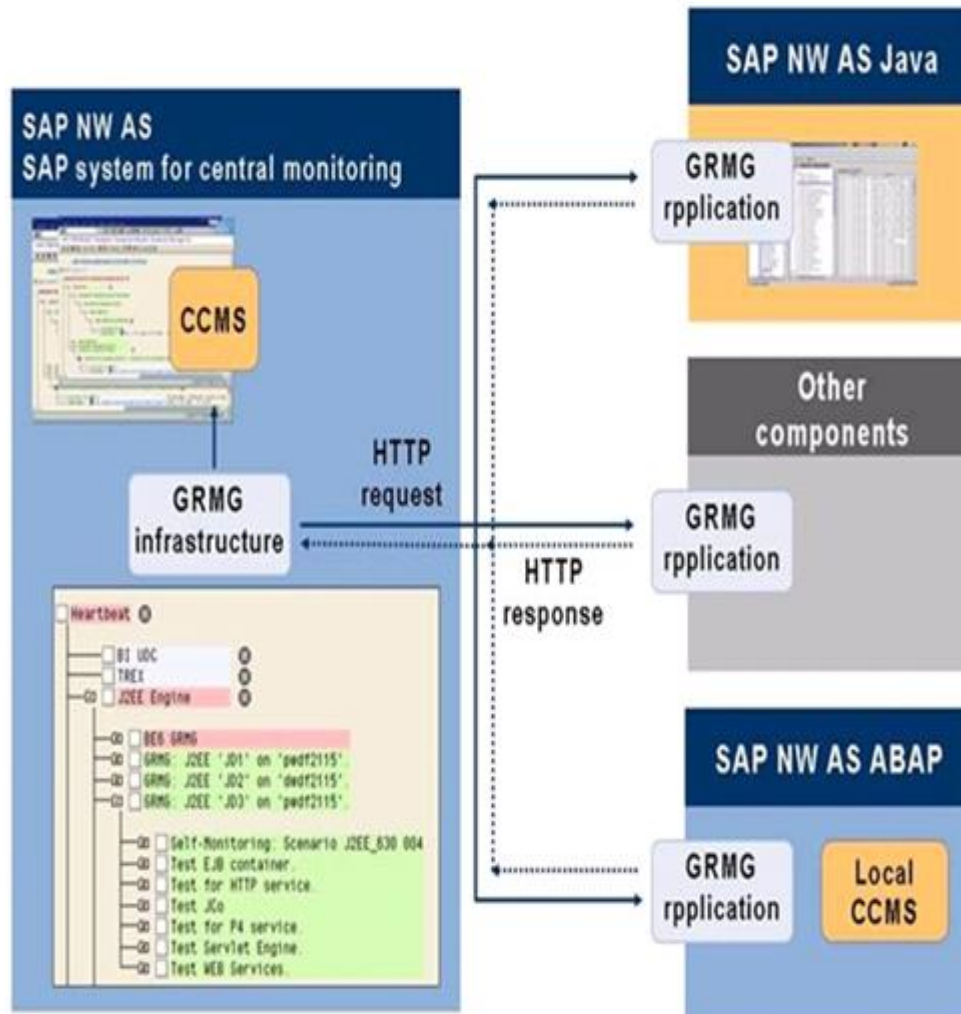


Functionality:

- GRMG infrastructure periodically calls GRMG application using URLs
- GRMG request (XML) is sent to the GRMG application to check availability
- GRMG application returns a response (XML)



Availability Monitoring with the GRMG



Setting Up GRMG Monitoring:

Instrument the application for GRMG monitoring

Perform the technical Customizing for monitoring

GRMG applications

Editing Customizing.xml (Step 1)

Visual Administrator: Server → Services → Monitoring → Runtime → GRMG Customizing

Runtime Properties Additional Info

MonitorTree GRMG Customizing

Refresh Save Upload

Applications with GRMG customization

sap.com/com.sap.engine/HeartBeat

2a. Save your changes

2b. Save your changes under (/usr/sap/prfclog/GRMG)

1. Edit the tags

Customizing tree for application

- customizing
 - control
 - scenarios
 - scenario
 - scenname J2EE_630 **Do not change, this is the technical name for RZ20**
 - scenversion
 - sceninst
 - scensturi http://localhost:50000/GRMGHeartBeat/EntryPoint
 - scenstartmod
 - scenstexts **Change to your own host and port**
 - scenstext
 - scenlangu
 - scendesc GRMG: J2EE 'SID' on 'host' **Enter your own SID and host**
 - components

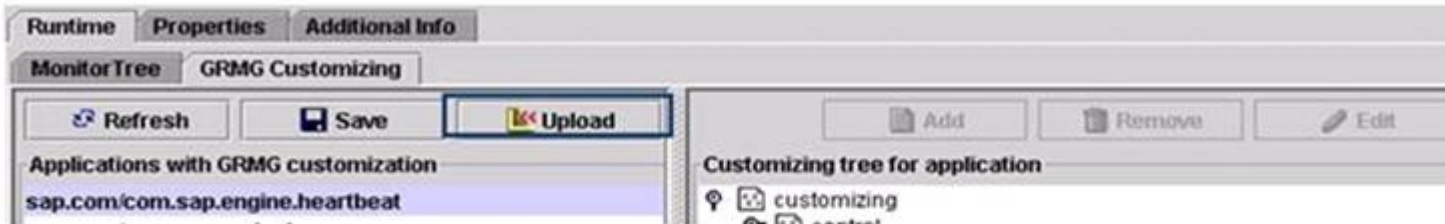
Heartbeat

RZ20

- BI UDC
- TREX
- J2EE Engine
 - BE6 GRMG
 - GRMG: J2EE 'J01' on 'pdf2115'
 - GRMG: J2EE 'J02' on 'pdf2115'
 - GRMG: J2EE 'J03' on 'pdf2115'
 - Self-Monitoring: Scenario J2EE_630 004
 - Test EJB container
 - Test for HTTP service
 - Test JCo
 - Test for P4 service
 - Test Servlet Engine
 - Test WEB Services

Upload GRMG Customizing File (Step 2)

Automatic Upload Using an Agent



Manual Upload



Starting the GRMG Scenarios (Step 3)



Availability (GRMG): Display in RZ20

RZ20 → SAP J2EE Monitor Templates → Heartbeat → J2EE Engine



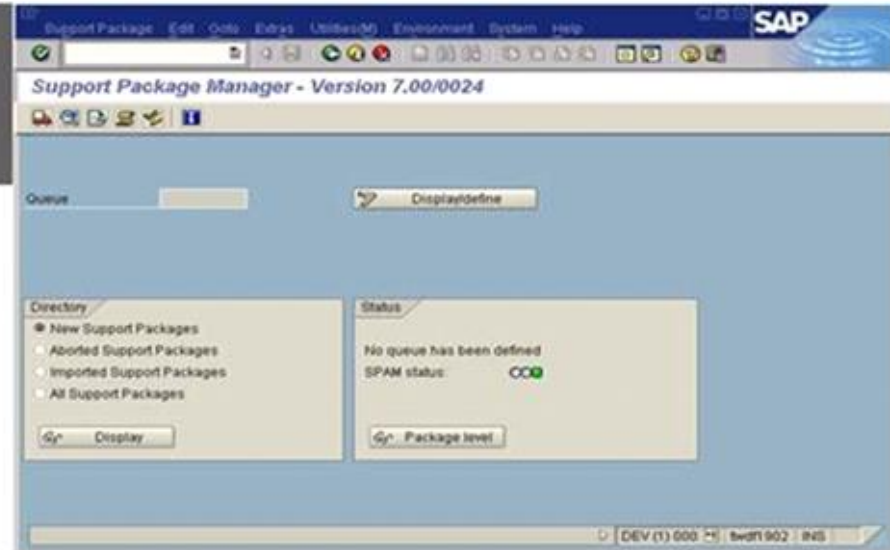
Break



ABAP Support Packages Using Transaction SPAM

Transaction SPAM:

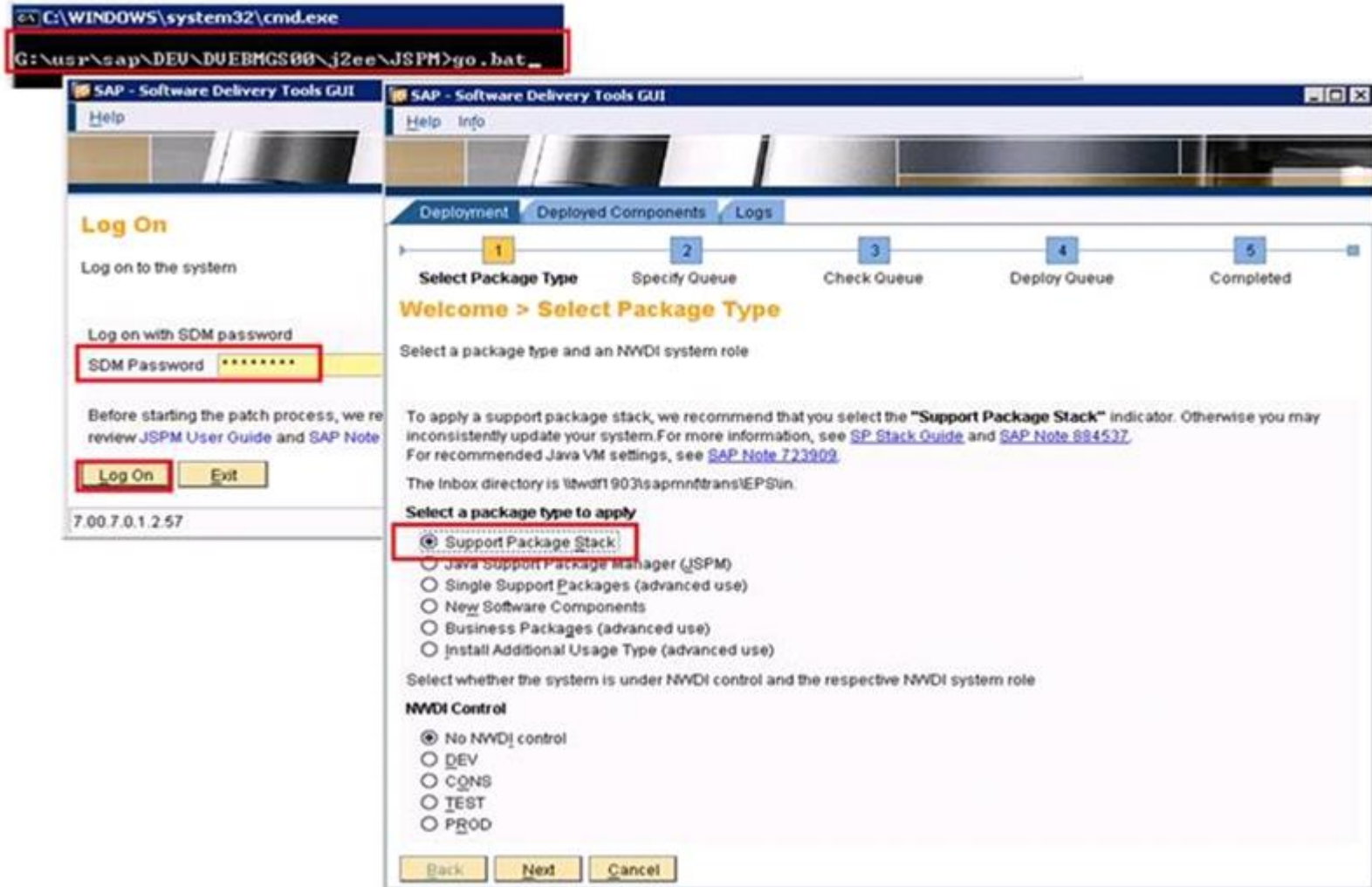
- Import SPAM/SAINT Update
- Define Support Package Queue
- Import Support Packages



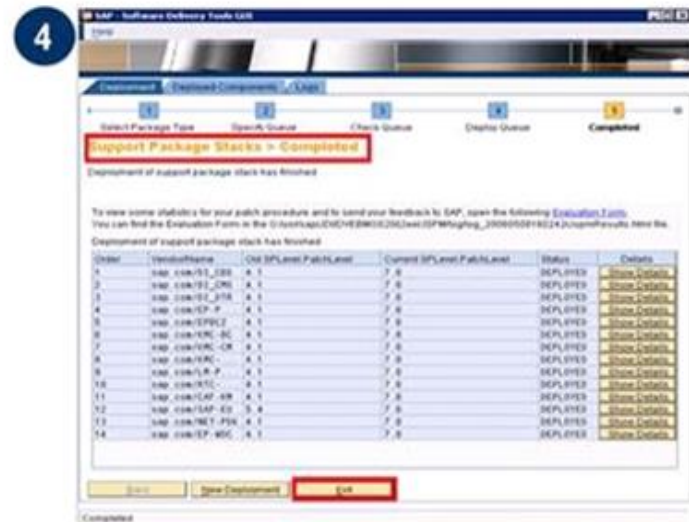
ABAP-Components of SAP ECC, which can be updated using SPAM.

Component	Release	Support Package type	Short description of the component
SAP_BASIS	700	Basis Support Pkg.	SAP Basis Component
SAP_ABA	700	Appl. Interface SP	Cross-Application Component
PI_BASIS	2006_1_700	Add-on Support Pkg.	Basis Plug-In (PI_BASIS) 2006_1_700
ST-PI	2005_1_700	Add-on Support Pkg.	SAP Solution Tools Plug-In
SAP_BW	700	Add-on Support Pkg.	SAP NetWeaver BI 7.0
SAP_AP	700	Add-on Support Pkg.	SAP Application Platform
SAP_APPL	600	APPL Support Package	Logistics and Accounting
SAP_HR	600	HR Support Package	Human Resources
EA-IPPE	400	Add-on Support Pkg.	SAP IPPE
EA-GLTRADE	600	Add-on Support Pkg.	SAP Enterprise Extension Global Trade
EA-RETAIL	600	Add-on Support Pkg.	SAP Enterprise Extension Retail
EA-PS	600	Add-on Support Pkg.	SAP Enterprise Extension Public Services
FINBASIS	600	Add-on Support Pkg.	Fin. Basis
EA-FINSEV	600	Add-on Support Pkg.	SAP Enterprise Extension Financial Servic
EA-HR	600	Add-on Support Pkg.	SAP Enterprise Extension HR
EA-DFPS	600	Add-on Support Pkg.	SAP Enterprise Extension Defense Forces &
EA-APPL	600	Add-on Support Pkg.	SAP Enterprise Extension PLM, SCM, Financ

JSPM: Java Support Package 1/2



JSPM: Java Support Package 2/2



Check System Patch Details

The image displays three SAP screenshots with annotations. The first screenshot, 'System: Status', shows system data including 'DB patch 10.2.0.2.0'. The second screenshot, 'System: Component information', shows a table of components with 'ABAP Supportpackages status' highlighted. The third screenshot, 'System: Kernel information', shows kernel details with 'Kernel: Before status' highlighted. Arrows indicate the flow from the status screen to the component information and then to the kernel information.

System: Status

Usage data

Client	100	Previous logon	18.10.2007	10:45:07
User	ADM315	Logon	23.10.2007	10:53:41
Language	EN	System time	10:53:50	

SAP data

Repository data

Transaction	SESSION_MANAGE
Program (screen)	SAPLSRTR_NAVI
Screen number	100
Program (GUI)	SAPLSRTR_NAVI
GUI status	SESSION_ADMIN

SAP System data

Component version	SAP ECC 6.0
Installation number	0120003411
License expiration	31.12.2030
Unicode System	Yes

Host data

Operating system	Windows NT
Machine type	4x AMD64 L
Server name	twdf1902_DEV
Platform ID	562

DB patch 10.2.0.2.0

System: Component information

Software Component	Release	Level	Highest Support	Short Description of Software Component
SAP_BASIS	700	0013	SAPK070013	SAP Basis Component
SAP_ABA	700	0013	SAPK070013	Cross-Application Component
SAP_BASIS	2000_1_700	0003	SAPK171003	Basis Plug-in (SAP Basis) 2000_1_700
ST-PI	2005_1_700	0003	SAPKITL013	SAP Solution Tools Plug-In
SAP_BW	700	0015	SAPK070015	SAP NetWeaver BI 7.0
SAP_AP				
SAP_HR				
SAP_APPL				

ABAP Supportpackages status

System: Kernel information

Kernel Information

Kernel release	700
Compilation	NT 5.2 3790 Serv1
Sup Pkg M.	130

Database information

DB client lib.	OCI_10201_SHARE (
DB releases	ORACLE 9.2.0 *
DBSL version	700:00
DBSL Patch Level	115

System information

IP address	10.22.16.203
SAP versions	700
Operating System	Windows NT 5.0, W
OP release	5.2

Kernel: Before status

Kernel Update

New Directory Structure for Kernel

Central Instance:

new: *\\sapglobalhost\sapmnt\SAPSID\sys\exe\codepage\platform*
(codepage:UC = Unicode systems, NUC = non-Unicode systems)
old: *\\sapglobalhost\sapmnt\SAPSID\sys\exe\run*

Java Add-in instances:

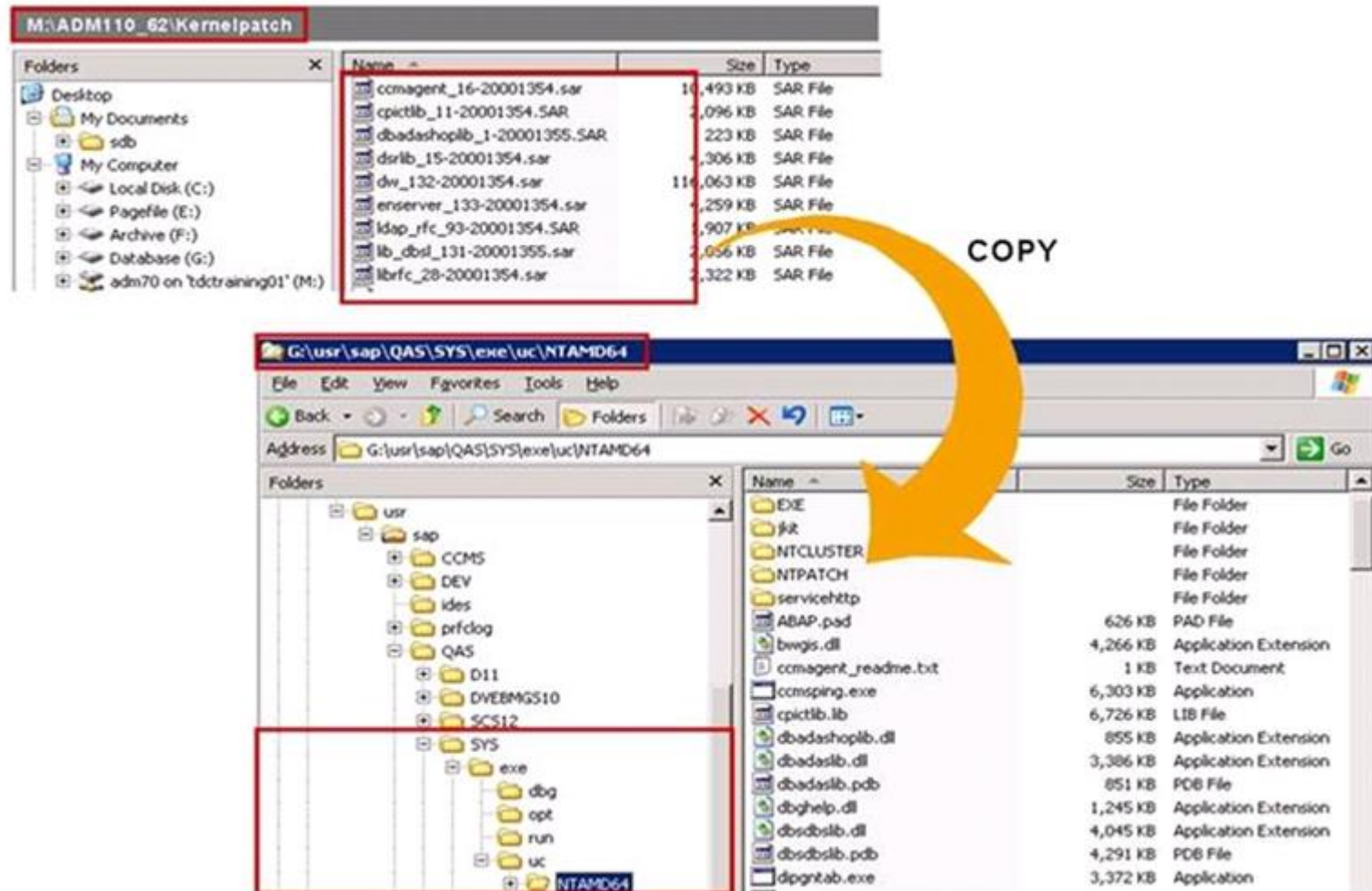
new: *\\sapglobalhost\sapmnt\SAPSID\sys\exe\UC*
old: *\\sapglobalhost\sapmnt\SAPSID\sys\exe\runU*

Central instance uses an instance-specific executable directory
(\\sapglobalhost\saploc\SAPSID\DVEBMGS##\exe)

An instance should not directly use

\\sapglobalhost\sapmnt\SAPSID\SYS\exe\run

Applying a Kernel Patch Manually



Kernel Patch Level After the Patch

The image shows two SAP system status windows. The top window, 'LS* System: Status', displays usage and SAP data. The bottom window, 'System: Kernel information', displays kernel and database details. A red box highlights the 'Sup.Pkg M.' field in the Kernel Information window, which is labeled 'Kernel: After status'.

Usage data

Client	100	Previous logon	07.09.2007	08:42:46
User	ADM200	Logon	23.10.2007	16:18:25
Language	EN	System time	16:18:33	

SAP data

Repository data		SAP System data	
Transaction	SESSION_MANAG	Component version	SAP Solution Mar
Program (screen)	SAPLSMTR_NAVI	Installation number	0120003411
Screen number	100	License expiration	31.12.2030
Program (GUI)	SAPLSMTR_NAVI	Unicode System	Yes
GUI status	SESSION_ADMIN		

Host data

Operating system	Windows NT
Machine type	4x AMD64 L
Server name	twdf1903_QAS_
Platform ID	562

Database data

DB client lib.	SQLDBC 7.6.2.015
DB releases	MaxDB 7.6, MaxDB
DBSL version	700.08
DBSL Patch Level	130

Kernel Information

Kernel release	700
Compilation	NT 5.2 3790 Servi
Sup.Pkg M.	132
ABAP Load	1563
CUA load	30
Mode	opt
Rsyn file	

System Information

SAP versions	700
Operating System	Windows NT 5.0, W
OP release	5.2

Kernel: After status

Apply a Kernel Patch using JSPM 1/2

Command Prompt:

```
C:\WINDOWS\system32\cmd.exe
G:\usr\sap\DEV\DUEDHGS00\j2ee\JSPM>go.bat
```

SAP - Software Delivery Tools GUI - Log On

Log on to the system

Log on with SDM password

SDM Password: [REDACTED]

Before starting the patch process review JSPM User Guide and SAP

Log On [REDACTED] Exit

7.00.7.0.1.2.57

SAP - Software Delivery Tools GUI - Welcome > Select Package Type

Select a package type and an NW01 system

To apply a support package stack, we recommend that you consistently update your system. For more information on recommended Java VM settings, see [SAP Note 1000000](#). The Inbox directory is %InboxDir%\9073sapmndba

Select a package type to apply

- ☐ Support Package Stack
- ☒ Single Support Packages (advanced use)
- ☐ Business Packages (advanced use)
- ☐ Install Additional Usage Type (advanced use)

SAP - Software Delivery Tools GUI - Support Packages > Specify Queue

Select support packages to apply

VendorName	Current SPLevel	Current PatchLevel	Target SPLevel	Target PatchLevel	Details
sap.com	12.0		sk1p		Show Details
sap.com/CAF-UI	12.0		sk1p		Show Details
sap.com/CORE-TOOLS	12.0		sk1p		Show Details
sap.com/JLOGVIEW	12.0		sk1p		Show Details
sap.com/JSPM	12.0		sk1p		Show Details
sap.com/KM-KW_JKS	12.0		sk1p		Show Details
sap.com/LM-SERVICE	12.0		sk1p		Show Details
sap.com/LS-TOOLS	12.0		sk1p		Show Details
sap.com/SAP KERNEL	102.0		114.0		Show Details
sap.com/SDP-TOOLS	12.0		sk1p		Show Details

Q&A Breakout Session



