Capgemini

SAP BASIS Introductory Training Program

Day 9: Agenda

- SAP Installation: Sizing, Prerequisites & Planning
- Break
- SAP Installation,Post-Installation, SAP Kernel upgrade
- Lunch Break
- SAP Print & Spool Administration
- Exercise Break Out Session

SAP Installation –Prerequisites & Planning

SAP Installation (Oracle) – Step 1 : Sizing the System

- Facts
  - 80/20 Rule - 20% of the transactions and scenarios create 80% of the load
  - Reliable sizing can only be done with
    - Scalable application software
    - Scalable hardware and technology components
    - Meaningful and nearly complete volume throughput or active user information
  - Sizing results in overall hardware requirements in KPIs
    - Processing power (CPUs, cores, processors, threads)
    - Disk size
    - Disk I/O
    - Main memory
    - Front-end bandwidth requirements
  - Landscaping and configuration are related, but separate tasks

Sizing the System

- **SAP** conducts performance and scalability tests on all applications in single user mode for each release
- **SAP** creates standard application benchmark test kits to allow volume testing of major applications
- **Hardware & technology** partners run SAP Standard Application Benchmark tests to prove the scalability of their hardware
- **SAP** publishes benchmark certifications at www.sap.com/benchmark

Note:

- SAP Quick Sizer is used to do initial sizing www.service.sap.com/sapquicksizer
- Sizing document should have SAPS, Memory (RAM), Storage (HDD) details
- It should mention details of SAP Application & Release.
- The document should include SAP QuickSizer output for validation. Especially details like Modules implemented, User breakup (Activity: Low, Medium, High)
- User based & Through put based sizing
- User based sizing is generally not reliable and 40% addition is a good rule of thumb

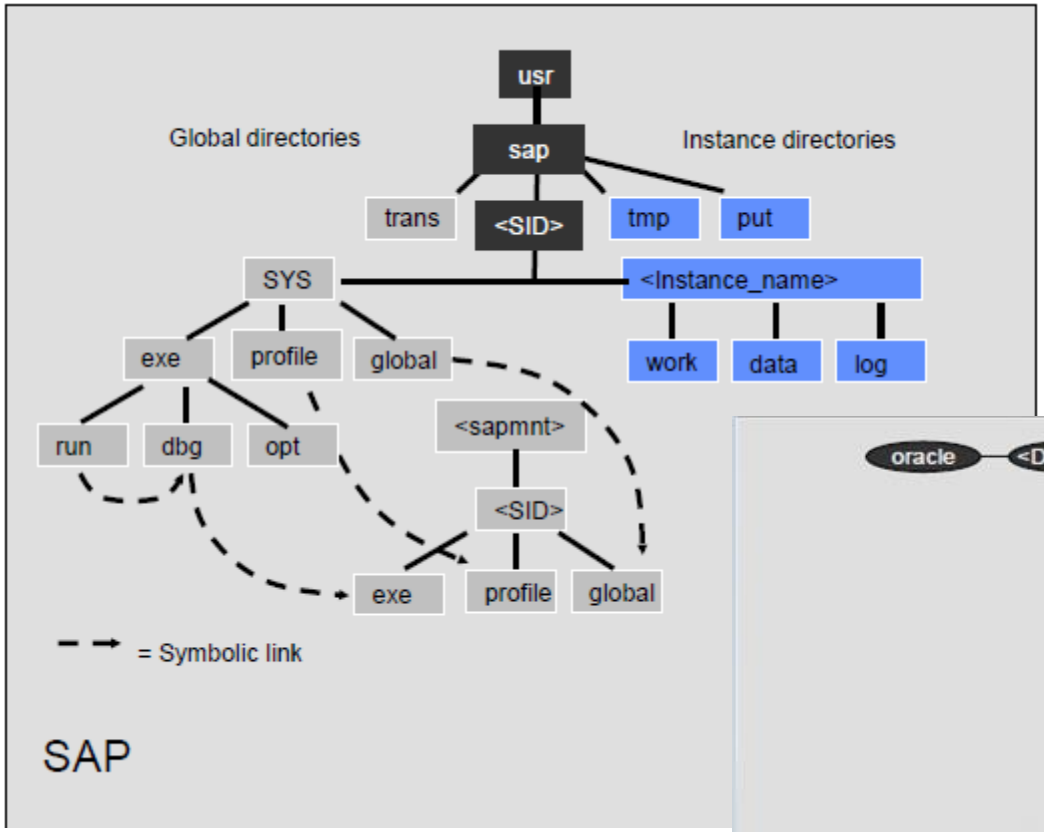
Step 2 : Installation Prerequisites

- SAP Installation Manuals
  - Installation guides – Operating System & Database specific
  - Checklist – Installation requirements: Operating System
  - OS Dependencies and Prerequisites
  - SAP OSS Notes for Installation
- SAP Installation Software
- SAP Solution Manager Prerequisites
- SAP System naming convention
- SAP System Landscape Strategy
- CTS Strategy
- Storage space requirement

Step : Installing Hardware, Base Software & Configuring Network

- Hardware Installation
  - Server Landscape
    - Virtual machine/Partitioning
    - Storage Design
  - Network Strategy
    - LAN
    - WAN
  - Backup Strategy
    - Hardware
    - Software
- OS Installation
  - OS Dependencies & Prerequisite
  - File system distribution and sizing
  - Language & software installations
  - OS Parameters
  - RAID configuration
  - GUI availability for Installations
- Network
  - IP address & Hostnames
  - Network Security
  - DNS Configuration

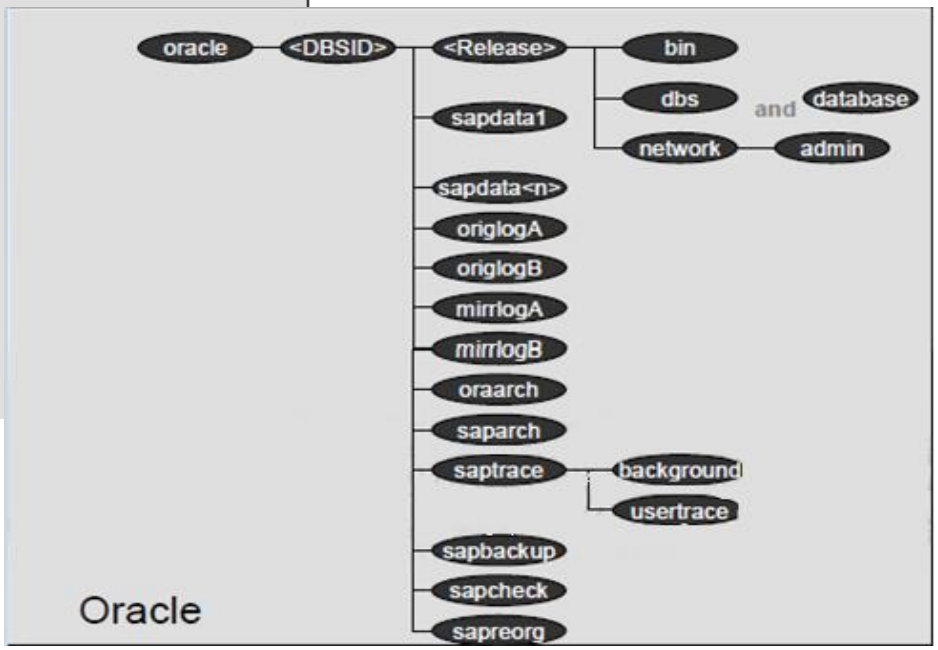
Step 4 : Designing the Layout of File Systems



SAP Installation Software dump /sapcd

SAP Installation Directory <sapinst>

Oracle Staging area /oracle/stage



Break

SAP Installation & Kernel Upgrade

Step 5 : Central System Installation

- Check all prerequisites
- User - Administrator login
- Copy all Installation software to storage
- Setup Environment Variable
- Run Installation
  - SAPINST

Step 6 : Install Database Software (Oracle)

- Check all prerequisites
- User - Oracle login
- Setup Environment Variable
- Run Oracle Installation thro' OUI
- Complete Post-Installation steps
- Install current Oracle Patch

Step 7 : Central System Installation (Contd..)

- Continue with Central System Installation
- Check Instance availability after completion of installation

Step 8 : Post-Installation

- Setting up Oracle Instance parameters
- Setting up SAP Instance parameters
- Apply Support Packs and Add-On
- Client copy
- Setting up Transport routes
- Install SAP License
- Maintain Client and Logical System Name
- OSS Connectivity
- Configure with Solution Manager
- System Backup

SAP Kernel Upgrade

- In technical terms , SAP Kernel refers to the SAP executables that reside in the directory /usr/sap/<SID>/DVEBMGS<SysNr>/exe/run directory and similar path in windows
- The above path is also reachable via the alias /sapmnt/<SID>/exe which is automatically created during SAP installation
- Download the Kernel files from SAP support portal
- Unpack the CAR archive using executable file '/sapmnt/<SID>/exe/CAR'
- Backup the Kernel directory '/sapmnt/<SID>/exe/'
- Stop the SAP Instance and OS collector process
- Ensure none of the SAP or Oracle process are running
- Apply the Kernel update with proper login and privileges
- Execute saproot command (Unix) from Kernel Directory to adapt user group and permission for the executable files
- Restart the SAP Instance

LunchBreak

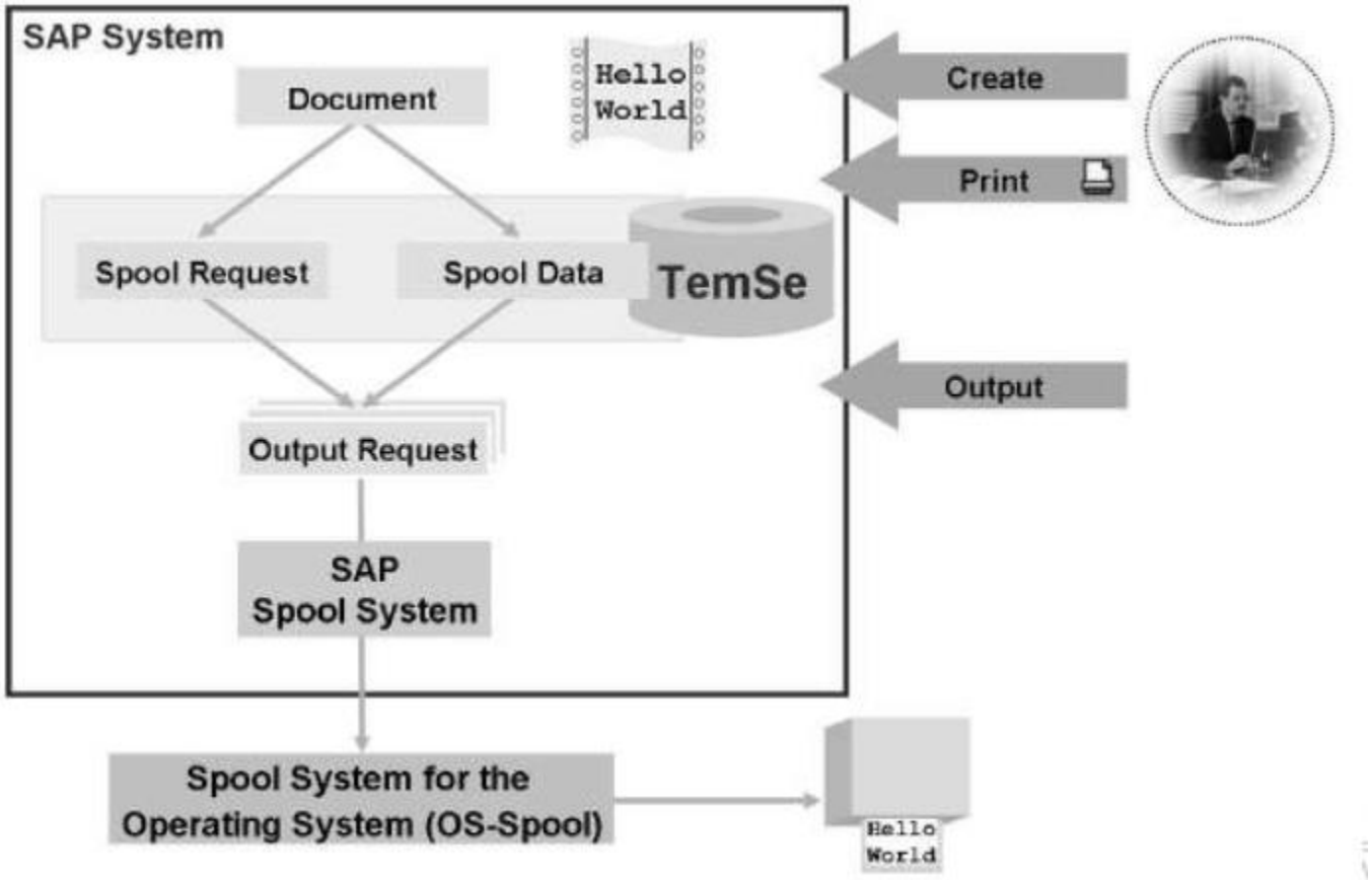
SAP Print & Spool Management

Print Processing in SAP

Print processing in SAP requires an understanding of the following concepts:

- Architecture and data flow of output processing in the SAP system
- Creation of printers and spool servers in the SAP system
- Listing important access methods
- Managing spool requests
- Understanding the concept of logical spool servers
- Set up of logical spool servers
- Managing spool and output requests

DATA Flow During Printing

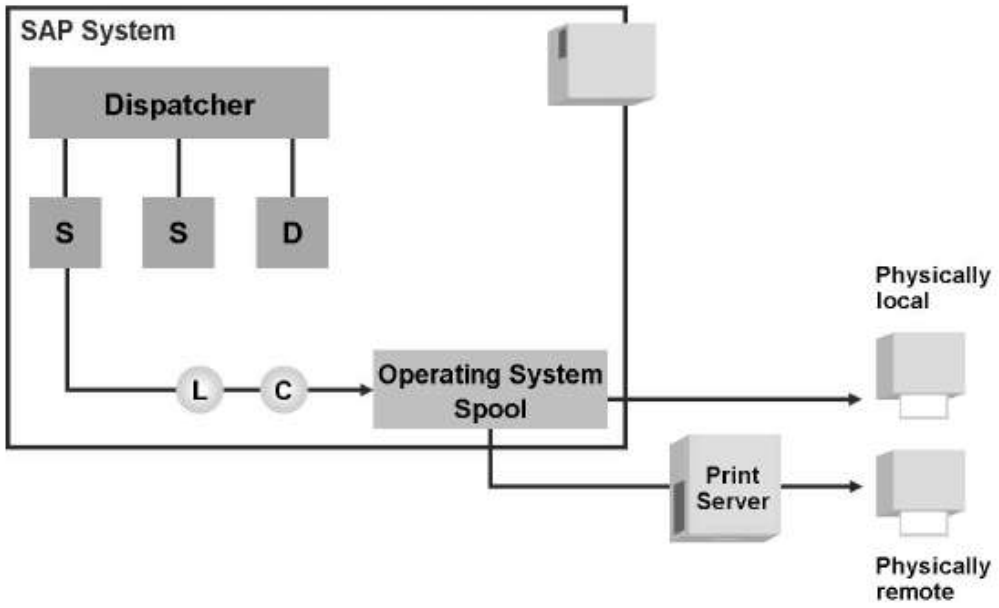


Explanation of the print process

- There are various document classes in the SAP system (such as report lists, SAPscript or SAP Smart Forms documents). Although the way in which documents are created may be completely different, the output on paper is always performed using the same mechanism in two steps: First a spool request is created. The spool request contains device-independent print data and includes administrative information (author, date, copies) and the actual print data. Only when the spool request is to be output on a particular device is an output request created. The device-independent print data from the spool request is converted to the printer language that the selected output device understands.
- This procedure allows the user to display a spool request before output. There can also be several output requests for one spool request. This can avoid the user having to recreate (possibly with a great deal of effort) a spool request.The actual document content of a spool request is stored in TemSe (temporary sequential objects), for which you define the storage location with the profile parameter rspo/store_location.
  - Valuedb (the default value): Spool requests are stored in database table TST03 (Advantage: backup as part of the database).
  - ValueG: Stored at operating system level in the global directory (advantage: performance).

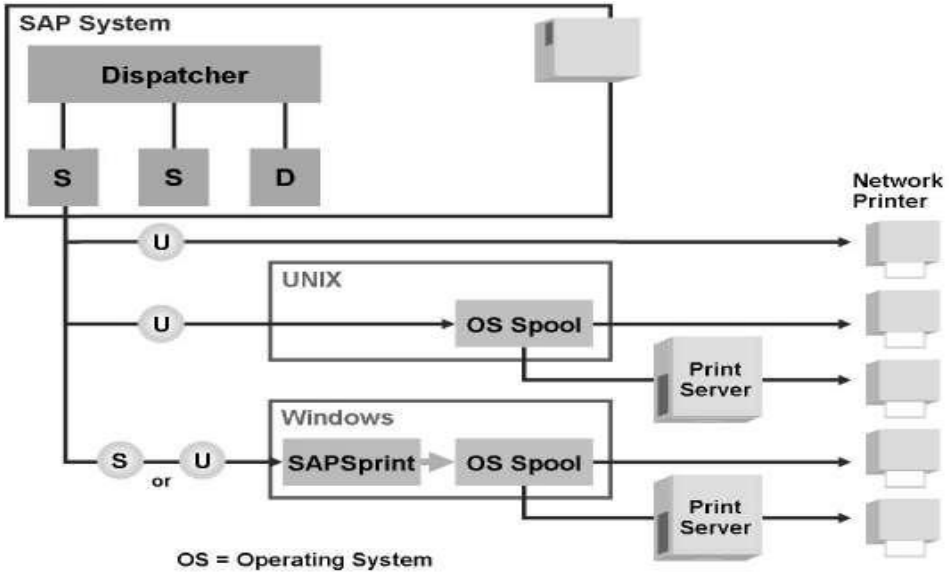
Access Methods – Local Printing

- A characteristic of **local printing** is that the **spool work process and operating system spool are running on the same host**. It is irrelevant whether the printer is directly connected to this host, or is reached over a network (and possibly another print server). The spool work process passes on its data locally, that is on the same host.
- On **UNIX** systems, the print data with **access method L** is output using operating system methods (for example, with the commands *lp* or *lpr*). The specific syntax is stored in profile parameters.
- Under **Microsoft Windows**, the data with **access method C** is passed directly to the operating system print API.



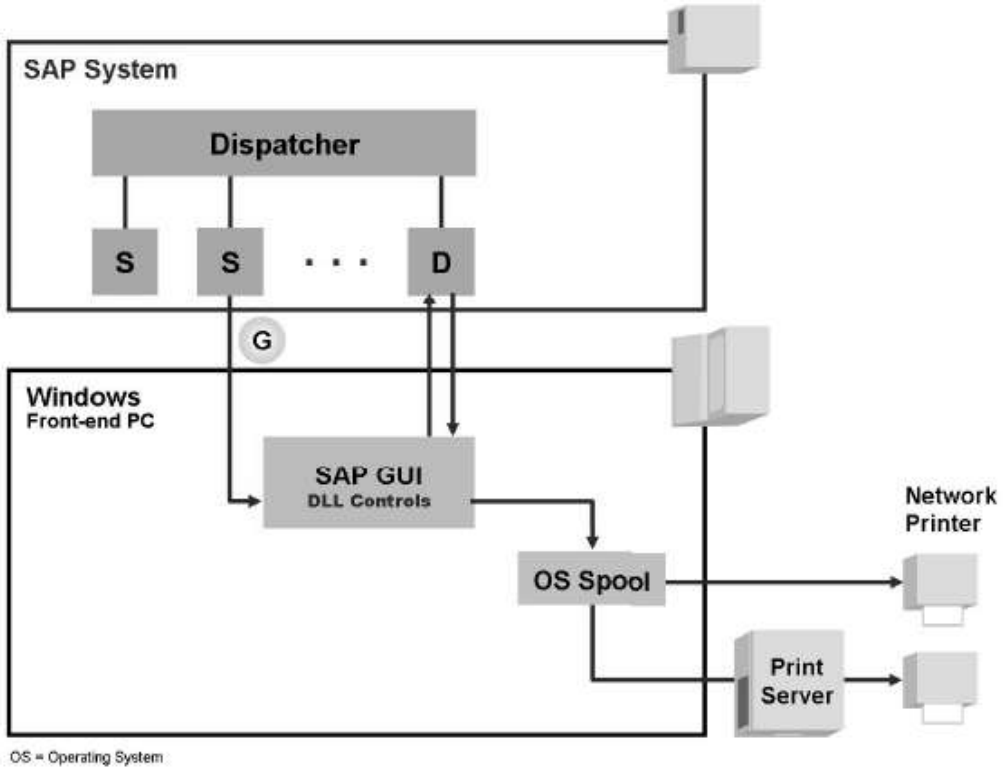
Access Methods – Remote Printing

- With remote printing, the spool work process and operating system spooler are running on different hosts. In exactly the same way as with local printing, it is irrelevant from the SAP system's point of view whether the printer is directly connected to the remote host, or is reached using another network connection.
- Network printers provide their own operating system spoolers and are directly connected to a computer network. Printers of this type are directly addressed from the SAP system using their names (**access method U**).
- SAP provides the program *SAPSprint* for all hosts with Microsoft Windows operating systems. SAPSprint is a Windows service capable of multi-threading. Each output request is processed in a separate, isolated thread. The output requests that SAPSprint receives from the SAP system can thus be transferred to a particular printer individually. If the printer is not working, this does not disturb the printing of other output requests on the other printers.**Access method S** is usually used here (SAP protocol), but **access method U** (UNIX Berkeley protocol) is also supported.



Access Methods – Front and Printing

- SAP users can output documents on their **local printers** using **front-end printing.**These local printers do not need to be individually defined in the SAP system rather the system administrator only needs to create a representative output device for each operating system platform.The access method used is **G**
- Useful information about front-end printing with control technology is available in SAP Note 821519.



Creating Printers using Transaction SPAD

- Configuring printers in SAP is part of a process called creating output devices. In SAP , the spool process considers printers , print servers and other network devides as “output devices”
- While creating an output device , device attributes and Host spool access method have to be specified.There are a number of options as shown in the table below

Creating Output Devices

		Local	**Remote**	**Front End**
Device Attributes	Device Type	Select the appropriate type in each case	Select the appropriate type in each case	SWIN
	Spool Server			_
		Local	**Remote**	**Front End**
Host Spool Access	Access Method	L (UNIX) C (Windows)	S or U	G
	Host Printer	OS Printer Name	OS Printer Name	__DEFAULT
	Host	fix	–	–
	Destination Host	–	Select	–

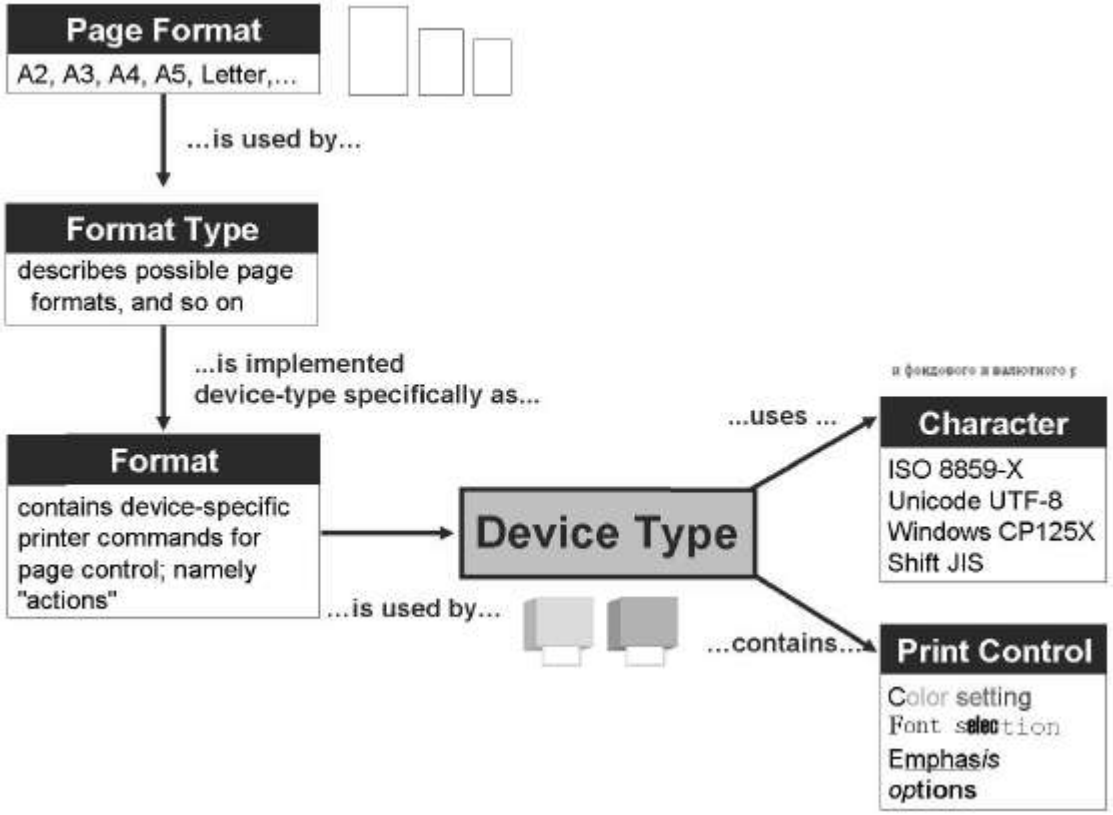
Output Devices for Front-End Printing

- With front-end printing with control technology (access method G), the printer is given a generic name in the SAP system, and is assigned to the physical device *__DEFAULT*. Since the models used as front-end printers can vary considerably, the device type *SWIN* is assigned for Windows front ends.
- When printing with SAP GUI for Java on other operating systems, you have to use a corresponding device type, such as *PostScript*.
- If front-end printing takes place using SAP GUI for HTML with access method F, the device type *PDF1* is selected. The print data is then transferred to the front-end browser as a PostScript document and can be printed locally.

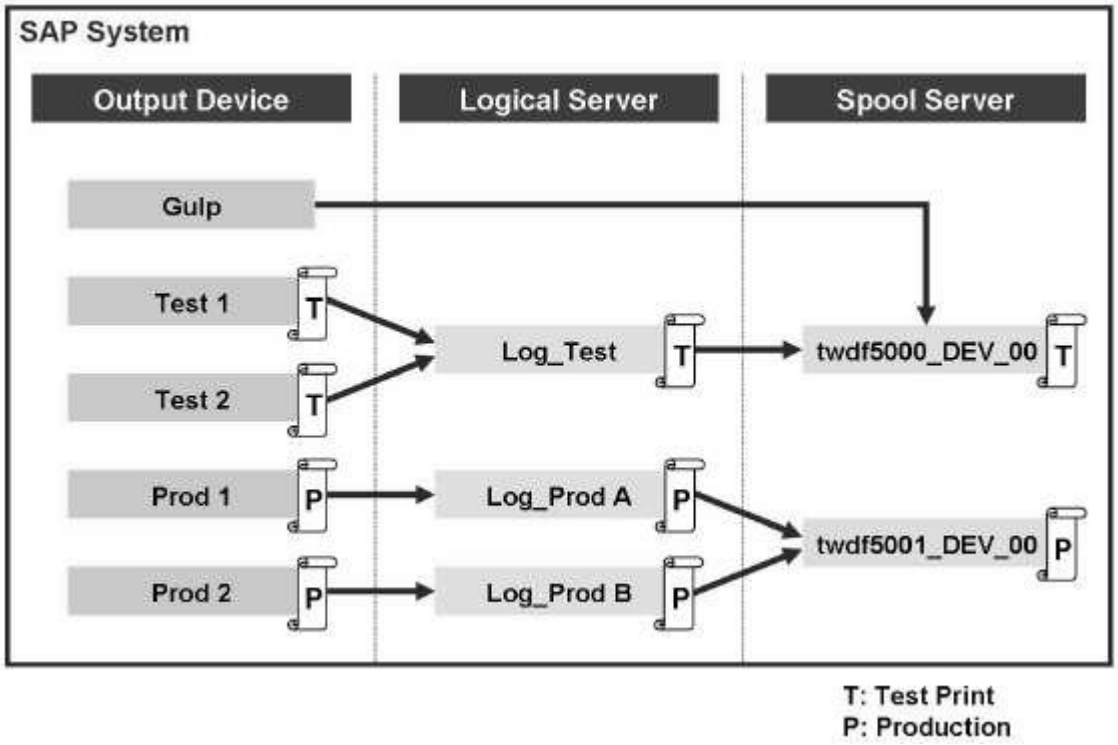
	SAP GUI for WINDOWS	SAP GUI for Java	SAP GUI for HTML
Device Type	SWIN	Select the appropriate type in each case	PDF1
Access Method	G	G	F
Host Printer	__DEFAULT	__DEFAULT	Select the appropriate type in each case

Device Types

- The SAP system uses a device type to format the output device-specific print output.
- When the spool work process generates an output request, it uses the specifications of the device type. That is, the device type describes how print data should be formatted for a particular output device.(which is not necessarily a physical printer)
- The following figure illustrates how a device type is created.



Concept of Logical Spool Server



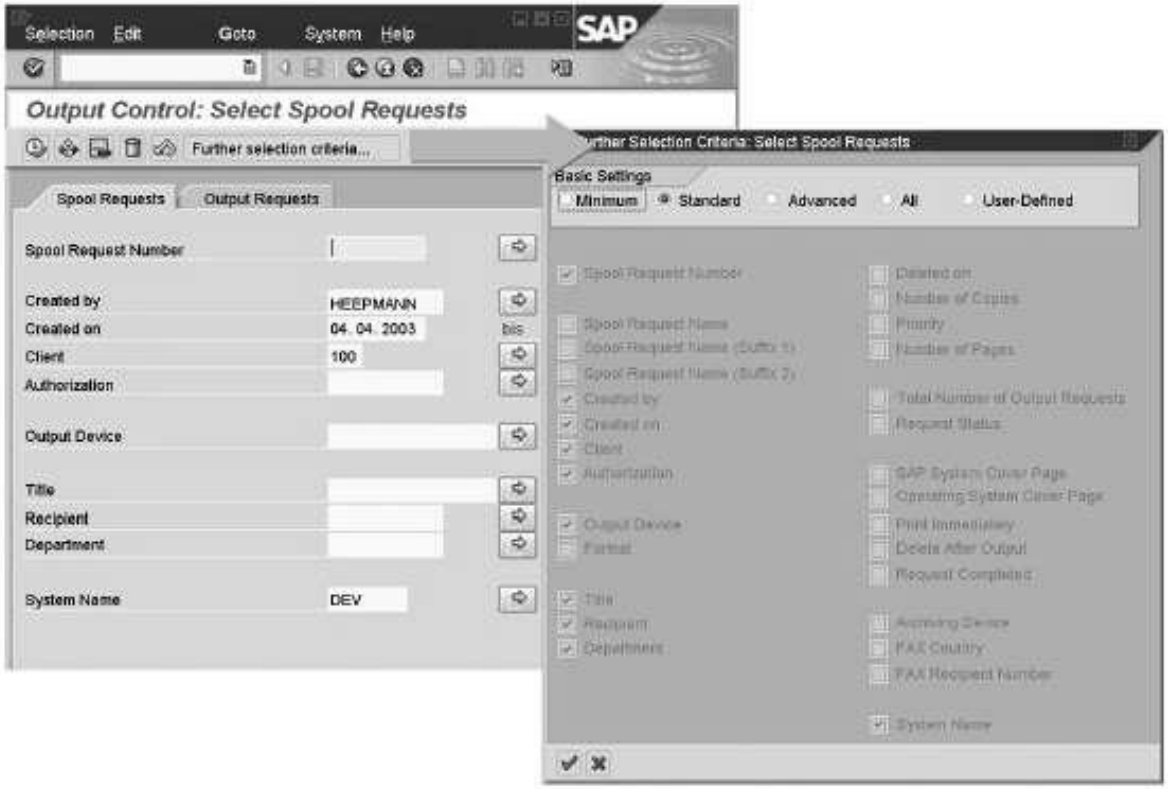
A spool server is an SAP application server with at least one spool work process. Every output request

is processed on a "real" spool server of this type.

- An output device created in the SAP system can be assigned a spool server directly. However, there are many advantages associated with an additional logical layer between the output device and the spool server. You can use logical (spool) servers for this purpose. These stand for a hierarchy of other **logical servers and/or "real" spool servers.**

Managing Spool Requests using – SP01 & SP02

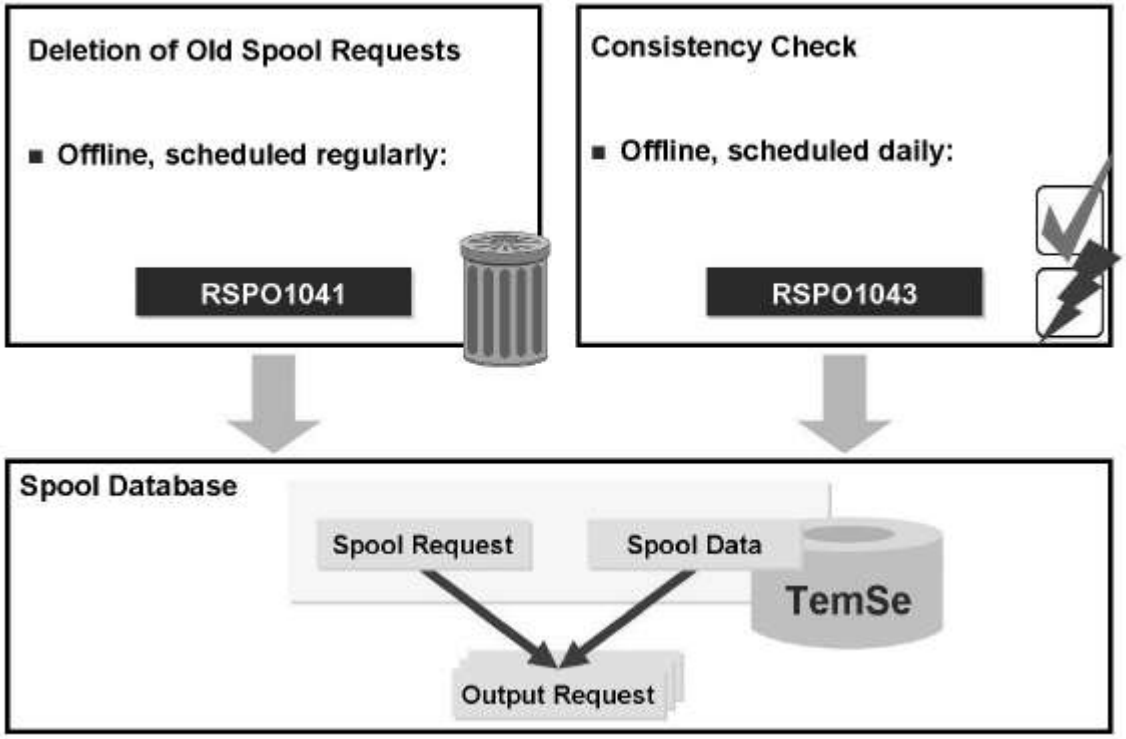
- Transaction SP01 provides many **selection criteria** for selecting particular spool or output requests. Every user can individually and easily define the selection criteria that he or she requires using the *Further Selection Criteria...* function.



Interpreting the status of spool requests

- **-** : Not yet sent to the operating system (no output request exists).
- **+** : Spool request is still being created (stored in spool system).
- **Waiting** : The output request has not yet been processed by the spool system.
- **Proc.** : A spool work process is formatting the output request for printing.
- **Print.** : The output request is being printed by the operating system spooler. If the query at the host spooler is not activated, this status is shown for around a minute.
- **Compl.** : The output request has been printed. If the query at the host spooler is not activated, the status changes to *Compl.* as soon as the output request is transferred to the host spooler.
- **<F5>** : There are output requests with various statuses.
- **Problem** : Indicates an error not of a serious nature (such as incomplete character set).This request was still printed.
- **Error** : Indicates a serious error (such as a network error).
- **Time** : A particular time was specified for the output of the request by the request creator.

Maintaining the Spool Database



Regular deletion of old spool requests and monitoring the consistency of the spool database are system administration tasks.

- To delete old spool requests, schedule the ABAP program RSPO1041 with an appropriate variant as a periodically running background job. For more information about RSPO1041, see SAP Note 130978.
- To check the consistency of the spool database, schedule the ABAP program RSPO1043 with an appropriate variant as a daily running background job. For more information about RSPO1043, see SAP Note 98065.

Summary

- CTS
  - Overview
  - Data Structure of R/3 System
  - Types of changes
  - R/3 Client role
  - System & change options
  - System Landscape
  - Configuring
  - Transport Management System
  - Exporting changes
  - Importing changes
- SAP Installation
  - Sizing
  - Installation Prerequisites
  - Installing Hardware, Base Software & Configuring Network
  - File System Layout
  - Central System Installation
  - Database Installation
  - Post Installation
- SAP Kernel Upgrade
- SAP Print & Spool Administration


COLLABORATIVE BUSINESS EXPERIENCE