



# SAP

## Basis

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## About the Tutorial

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SAP Basis refers to the administration of SAP system that includes activities like installation and configuration, load balancing, and performance of SAP applications running on Java stack and SAP ABAP. This includes the maintenance of different services related to database, operating system, application and web servers in SAP system landscape and stopping and starting the system.

This tutorial will walk you through the different features of SAP Basis.

## Audience

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This tutorial is designed for all those readers who are willing to learn SAP Basis administration in simple and easy steps.

## Prerequisites

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The course is designed for beginners with little or no SAP Basis experience. But you need to have a basic understanding of SAP basics to make the most of this tutorial.

## Disclaimer & Copyright

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# 1. SAP Basis — Overview

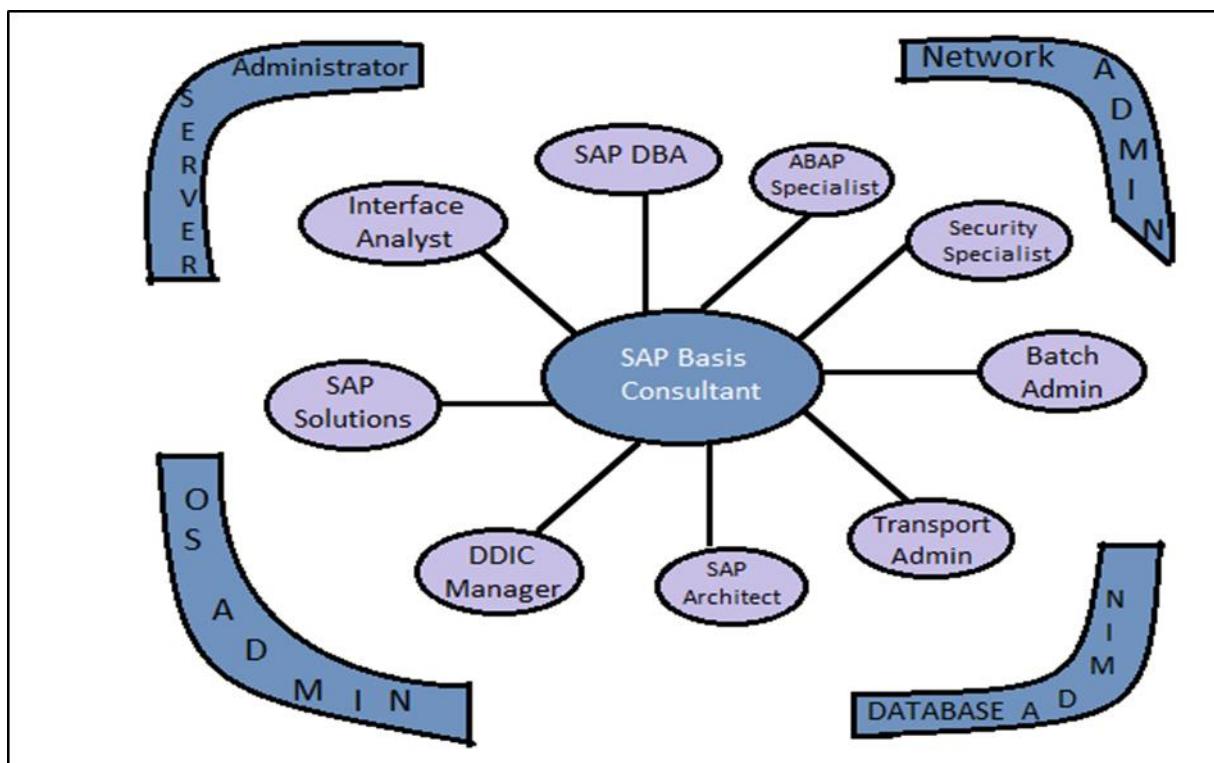
SAP Basis refers to the administration of SAP system that includes activities like installation and configuration, load balancing, and performance of SAP applications running on Java stack and SAP ABAP. This includes the maintenance of different services related to database, operating system, application and web servers in SAP system landscape and stopping and starting the system.

The key responsibilities of SAP Basis Administrator include:

- System installation and Configuration
- Load balancing on servers
- Performance management of different components
- Managing interfaces and integration with servers
- Managing servers and different services

With the help of SAP Basis, different SAP modules like Finance Accounting, Production Planning, Sales and Distribution, SAP EWM and other modules can integrate and communicate with each other.

SAP Basis supports the installation and configuration of SAP applications on different operating systems like Windows, Unix, AS/400, etc. and different databases like SQL Server, Oracle, IBM DB2 for back end database.



This picture defines the key activities that involve the role of SAP Basis Consultant. The roles of the SAP Basis Consultant are divided into the following categories:

## **Solution Specialist**

The Solution Specialist is responsible for:

- Upgrading the SAP version of system landscape
- SAP Data backup archive
- Migration of Operating system and Database
- Installation of AP/Add On

## **Interface Analyst**

The Interface Analyst is responsible for:

- Configuration and set up of interface between different modules

## **System Administrator**

The System Administrator is responsible for:

- Monitoring the performance of SAP system and modules
- Maintaining SAP system health and performing health checkup

## **SAP Database Administrator**

The SAP Database Administrator is responsible for:

- Backup and restoring the database of SAP system
- Managing database objects

## **Transport and Batch Job Administrator**

The Transport and Batch Job Administrator is responsible for:

- Managing batch job scheduling and replication
- Managing SAP Control access in system landscape

## **DDIC Manager**

The DDIC Manager is responsible for:

- Managing changes to Data Dictionary

## **SAP Architect**

The SAP Architect is responsible for:

- Designing work and data flow in the SAP system

- Managing SAP sizing

## SAP ABAP Specialist

The SAP ABAP Specialist is responsible for:

- Troubleshooting and tuning of ABAP Programs
- Applying correction to Programs as per SAP
- Coding and customization of ABAP program as per requirement

## Transaction Codes

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There are various Transaction Codes (T-codes) that a SAP Basis Administrator uses to perform the assigned tasks. The following is a list of important SAP Basis T-codes:

**SM02** — To send messages to users who are logged in and new users logging to the client

**SM01** — To take control of transaction codes. In case, the business requires that the users who are authorized to carry the transactions are to be stopped temporarily.

**SM04** — To check the number of users who are logged into the system and in which client and how many sessions each user is generated and in each session what transaction is being executed.

**SM13** — To keep track of the status of the Update service is Active, in case it is not active then we activate from the Update Administrator.

**SM37** — To monitor the status of the jobs that are created by a user and for specific dates.

**PFCG** — This is used to maintain roles in SAP system.

**SM21** — SAP system log is displayed for the values inputted in the initial screen. The values that can be maintained is the From Date.

**RZ20** — This is used for cross system monitoring. In this transaction, we have a tree structure that performs a set of transactions and also keeps a track of all the alerts that were captured during the operation of the system

## 2. SAP Basis — Installation of SAP GUI

SAP GUI is a client tool which is used to access remote central server and runs on different operating systems like Microsoft Windows, UNIX, Mac, etc. This is used to manage and access SAP applications like SAP ECC and SAP Business Intelligence System.

### Advanced Features in SAP GUI

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The following are the advanced features of SAP GUI:

#### Blue Crystal design

SAP Blue Crystal is a new visual design theme which succeeds Corbu. It provides a consistent design that allows users to seamlessly experience SAP GUI and NWBC elements.

It is the standard theme of Fiori applications and comes with a new color palette and icons which are better scalable.

The background texture has a stroke pattern in white and light blue with a gradient layer.

As it replaces Corbu with Blue Crystal, this integrates SAP GUI for Windows 7.40 and NWBC 5.0

#### Complete icons redesign for Blue Crystal

All SAP GUI icons used by SAP applications have been redesigned and are now fitting the Blue Crystal Design. Additionally, they are much better scalable than before. The new set of icons is exclusive to Blue Crystal Design.

#### New default color for Blue Crystal icons

When you use it with patch 2, the main color changes from blue to dark gray in order to harmonize the design with the Fiori Application design.

### Supported Available Versions for Different Platforms

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The following are the supported available versions for different platforms:

- SAP GUI for the Windows environment
- SAP GUI for the Java(TM) environment
- SAP GUI for HTML / Internet Transaction Server (ITS)

SAP GUI has been released separately for Windows and Java support and the latest version for Windows and Java is 7.4.

## Microsoft Windows Release

SAP GUI 7.4, the latest version for Windows was released in October, 2014 and it supports various features like — it is by default installed with NWBC 5.0 and SAP GUI and GUI shortcuts are launched through NWBC.

However, you also have the possibility to use SAP GUI and NWBC in parallel. To do so, you merely have to select the new component **Install SAP GUI Desktop Icon/Shortcuts** to install the SAP Logon (Pad) Desktop Icon and to register SAP GUI shortcuts to SAP Logon.

## JAVA Release

SAP GUI 7.4 is the latest version for JAVA. This provides support to other operating systems and was released in October, 2014. As SAP GUI for Java 7.40 is not available on DVD right now, you need to proceed to the patches section on the SAP Support Portal to download SAP GUI for Java 7.40.

### Downloading SAP GUI from SAP Marketplace

The following are the steps to download SAP GUI from SAP Marketplace:

**Step 1:** To use SAP GUI for accessing remote central service, you have to first download it from SAP Market place.

**Step 2:** Go to- [service.sap.com](http://service.sap.com) to login to SAP Market Place.



**Step 3:** Login using SID SXXXXXXXXX and password. Once you login, go to Products > Software Downloads

**SAP Service Marketplace**

**Products**

**SAP Business Suite**

- SAP ERP
- SAP CRM
- SAP PLM
- SAP SCM
- SAP SRM

**Content & collaboration**

**Cross-topics**

- Accessibility
- Globalization & localization:  
Country and language versions
- Hybrid Scenarios
- Installation & Upgrade Guides
- Release Notes
- SAP Best Practices

**Related content on other Product availability**

Find product information end of maintenance date technical release information Availability Matrix.

**Software download**

In the SAP Software Download Center you have access to the entire portfolio of SAP based on your specific needs.

**Step 4:** Under Software downloads, go to Installation and upgrades. Follow the alphabetical order A-Z and select 'G' from list.

Software Downloads > Software Downloads > Installations and Upgrades > A - Z Index

**A - Z Index**

**Installations and Upgrades**

**Software Downloads**

**Installations and Upgrades** ←

**Support Packages and Patches** →

**Databases**

A | B | C | D | E | F | G | H | I | J | K | L | M | N |

A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | All

## INSTALLATIONS AND UPGRADES - G

↓

- [SAP GRC Access Control](#)
- [GSBA](#)
- [GSTRBK](#)
- [SAP GUI FOR JAVA](#)
- [SAP GUI FOR WINDOWS](#)
- [SAP GUI FOR WINDOWS FOR S/4](#)

**Step 5:** Select platform from the list available, you can select SAP GUI for Windows, SAP GUI for JAVA, and SAP GUI for Windows for S/4. Once you click there, you can see detailed information about all that is there in the latest version of SAP GUI — features, support lifecycle, dependencies, general information, etc. on Info Page.

## Support Lifecycle

SAP GUI for Windows 7.40 was shipped in "General Availability" (released for productive usage) on 8<sup>th</sup> October, 2014. When planning a SAP GUI upgrade, please consider moving directly to release 7.40.

Please consider these end of support dates when planning or reviewing your frontend landscape:

- On 9th of April 2013 support for SAP GUI for Windows 7.20 ended.
- On 15th of July 2015 full support for SAP GUI for Windows 7.30 ended.
- On 31st of October 2015 restricted support for SAP GUI for Windows 7.30 will end.
- On 9th of January 2018 support for SAP GUI for Windows 7.40 will end.

Also consider, SAP Notes — 147519

Go to Download -> Select files to add to the download basket.

**SAP GUI FOR WINDOWS 7.40 CORE**

Select one or more files and click "Add to download basket". We recommend that you use the [SAP](#) time.

Get more information about [multispanning](#) and [how to extract multi-part archives](#). Click on to

File Type	Download Object	Title
ZIP	<a href="#">50127120_6</a>	Presentation - 7.40 Compila

**Add to Download Basket    Maintain Download Basket    Select All    Deselect All**

You can get it from the download basket later on. Save the file to the local system and run the setup. You can select to choose from different components-

**SAP FRONT-END INSTALLER**

+ SAP NetWeaver Business Client 5.0

- SAP GUI for Windows 7.40 (Compilation 1)
- Install SAP GUI Desktop Icon / Shortcuts even though I have SAP Client installed
- Engineering Client Viewer 7.0
- KW Add-On for SAP GUI 7.40
- i.s.h.med Planning Grid
- SAP Automatic Workstation Update
- Business Explorer
- SAP Interactive Excel 3.0.3
- SAP JNet/JGantt

**SAP JNet/JGantt**

SAP JNet/JGantt is an editor for network graphics that can be used by any application to integrate different forms of graphic representations. This component requires a 32-bit Java Runtime Environment (version 6u11 or higher or version 7u4 or higher) to be installed

**Disk space usage**  
Total: 56 MB  
On system drive: 21 MB

Select all   Deselect all

< Back    **Next >**    Cancel

Press Next > Finish the setup.

### 3. SAP Basis — SAP GUI Selection

As mentioned, there are three different GUIs available and we can select the right version based on the requirement. The following scenario can help you find a suitable SAP GUI:

#### **When users are working rarely in the SAP system**

Suppose most of the users fall in this category, then it is suggested to use SAP GUI for HTML format. This allows you to save effort and money for client deployment

#### **When users are working mostly in the SAP system**

In a case such as this, SAP GUI for Windows or SAP GUI for Java is recommended.

#### **When users are ABAP developers**

For ABAP developers, it is recommended that they use SAP GUI for Windows

#### **When users use operating systems other than Microsoft**

It is recommended they use SAP GUI for Java and HTML or they can use the SAP GUI for Windows on a remote server.

#### **When users are integrating Dynpro transactions to the Portal**

It is recommended they use SAP GUI for HTML. This allows you to integrate classic Dynpro-based applications into the portal easily.

### **SAP Instance and SID**

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A SAP instance is when you install and configure a SAP system. This instance defines a group of resources — memory, processors and other resources in the system. This allows users to login to the SAP system and share the same resources.

SAP instance is managed by CCMS. Users can login to the SAP system using an instance.

A SAP system can consist of one or more instances — you can set up a SAP system with a single instance with only one CCMS or you can configure a system with two or more separate instances in client/server environment.

#### **Configuring a SAP instance**

You need to follow these steps to configure a SAP instance:

**Step 1:** You need to define separate directories for UNIX, AS/400, or Microsoft Windows NT server on which the instance is to run.

**Step 2:** You can use a shared file system.

**Step 3:** For each instance, there are entries created in operating system configuration files (/etc/services, /etc/sapconfig...).

**Step 4:** There are communication entries created in the host.

**Step 5:** For each instance, start and system profiles are created.

**Step 6:** For each instance, operating system users are installed.

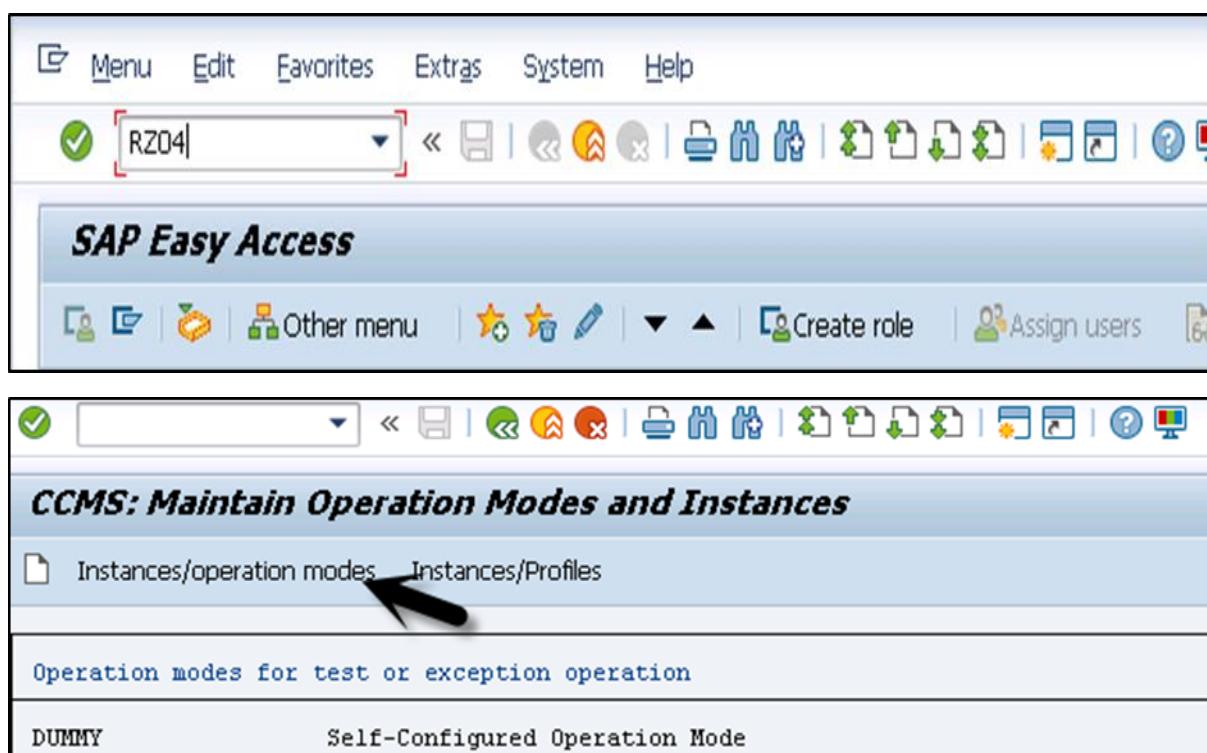
### Creating an instance for one server

You need to follow these steps to create an instance for one server:

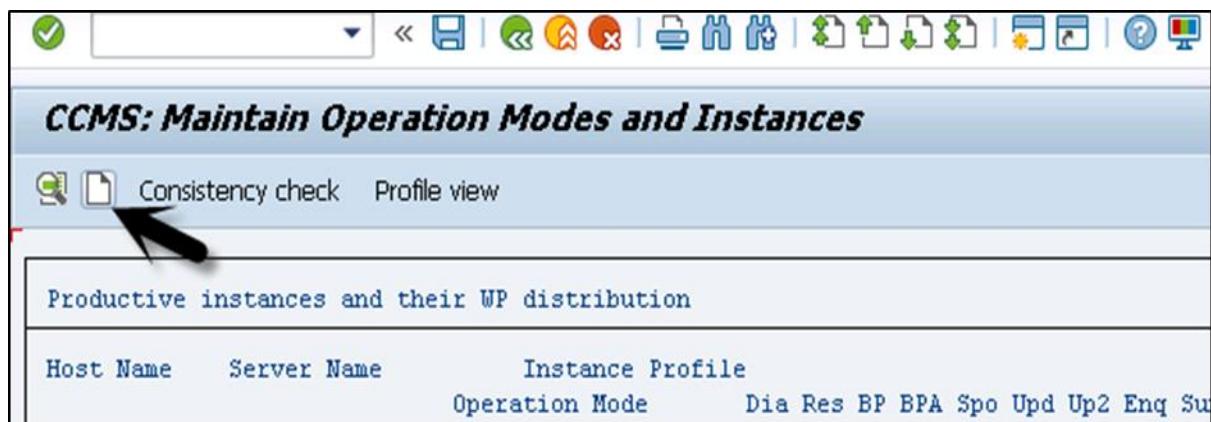
**Step 1:** To create an instance, you should first define the mode of operation.

**Step 2:** To create an instance, go to CCMS > Configuration or use Transaction code RZ04.

**Step 3:** Go to instances/operation modes as shown in shown in the screenshots below.



**Step 4:** To create a new instance, click on create new Instance — (F6) option as in the following screenshot:



**Step 5:** Enter the host name and click on current settings. When application server is already running, the system will display the current settings for that instance.

**Step 6:** If the application server is not running, you should use the input help to display the possible entries and fill the below values.

**Step 7:** Enter the host name and choose current settings. If the application server is already running, the system will display the current settings for that instance. However, if the application server is not yet running, you should use the input help to display the possible entries and fill in the following fields:

The screenshot shows the SAP CCMS interface for maintaining instance data. The title bar reads "CCMS: Maintain Instance Data". The toolbar includes buttons for "Current settings", "Maintain details", and "Check profile". The main area is divided into several sections: "Installation data" (Host Name, SAP system no.), "Instance profile" (Profile name, Display, Change buttons), "Admin. user for start/stop" (Admin User), and "Number of work processes" (Config'able WPs, Max. Work Procs). Below these is an "Instance details" section with fields for Appl. server (Test\_A4H\_00), Instance Name, OS type, Home Directory, and Instance Prof. The "Host Name" field is highlighted with a red border.

## SAP System Number

The SAP System Number is the number that is mentioned when the SAP System is installed.

### **Start Profile:** Profile Name

Insert the name of the start profile from Profiles to start the instance. You can also click on "choose the input help" to display a list of available start profiles. You can select a profile from the available list.

### **Instance Profile:** Profile Name

You have to select the name of instance profile from Profiles to run the instance. You can click on "input help" to display a list of available instance profiles.

To save the instance, click on Save button at the top > Continue

## Maintaining Instance Definition

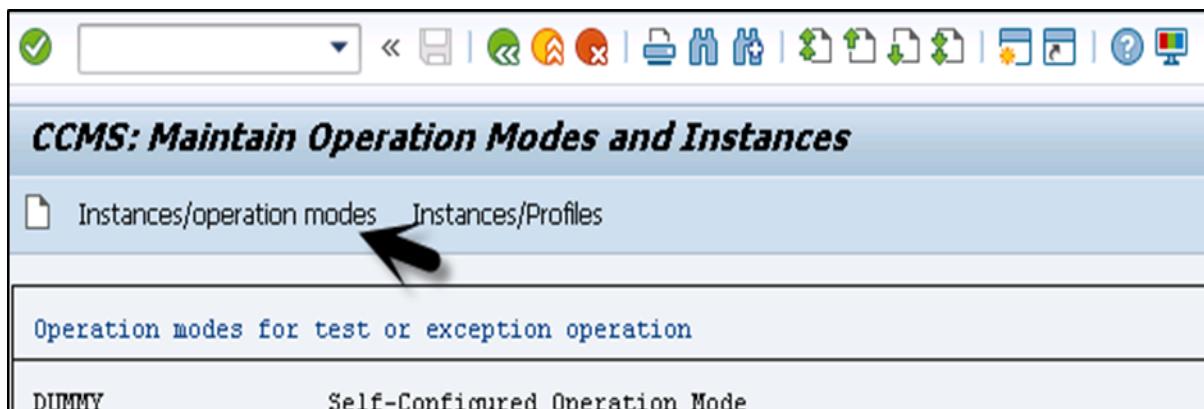
When you define operation modes, you need to maintain instance definition. Follow these steps to change the definition:

**Step 1:** Use Transaction Code: RZ04

**Step 2:** Select Instances/operation mode

**Step 3:** Select an entry from the list of productive instances.

**Step 4:** You can then change the data for that instance.



**Step 5:** You can also delete an instance, operation mode using the same transaction code.

**Step 6:** To delete an operation mode — From the list of productive operation modes, position the cursor on a line with the operation mode. Select operation mode > Delete. This deletes the operation mode, and all the instances and work process definitions assigned to it.

## 4. SAP Basis — System Landscape & Architecture

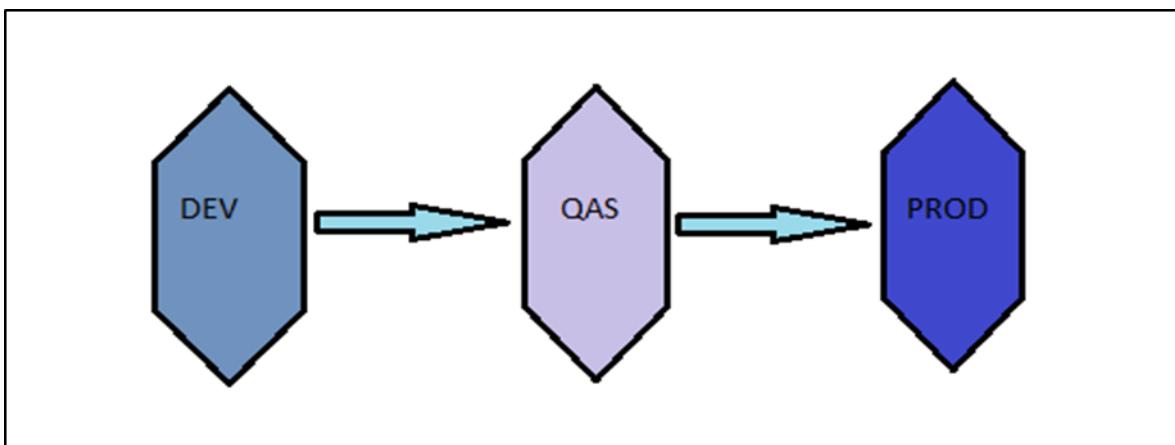
SAP system landscape is defined as an arrangement of SAP servers. Ideally, in a Sap environment, a three-system landscape exists. A system landscape consists of Development Server (Dev), Production Server (PROD), and Quality Assurance server (QAS).

SAP Architecture is defined as a technology framework of SAP system and it changes with time unlike the system landscape. SAP Architecture changes with new software like SAP ECC 6.0, the most recent one.

The following is a request in SAP System Landscape:

**DEVELOPMENT >>> Quality >>> PRODUCTION**

The following figure represents SAP three tier system landscape where work flows from Dev > QAS > PROD and not in backward direction.



Let us now discuss the system landscape:

### Sandbox Server

When a project is implemented, at the initial stages, a sandbox server is used where all the customization, configuration is performed.

### Development Server

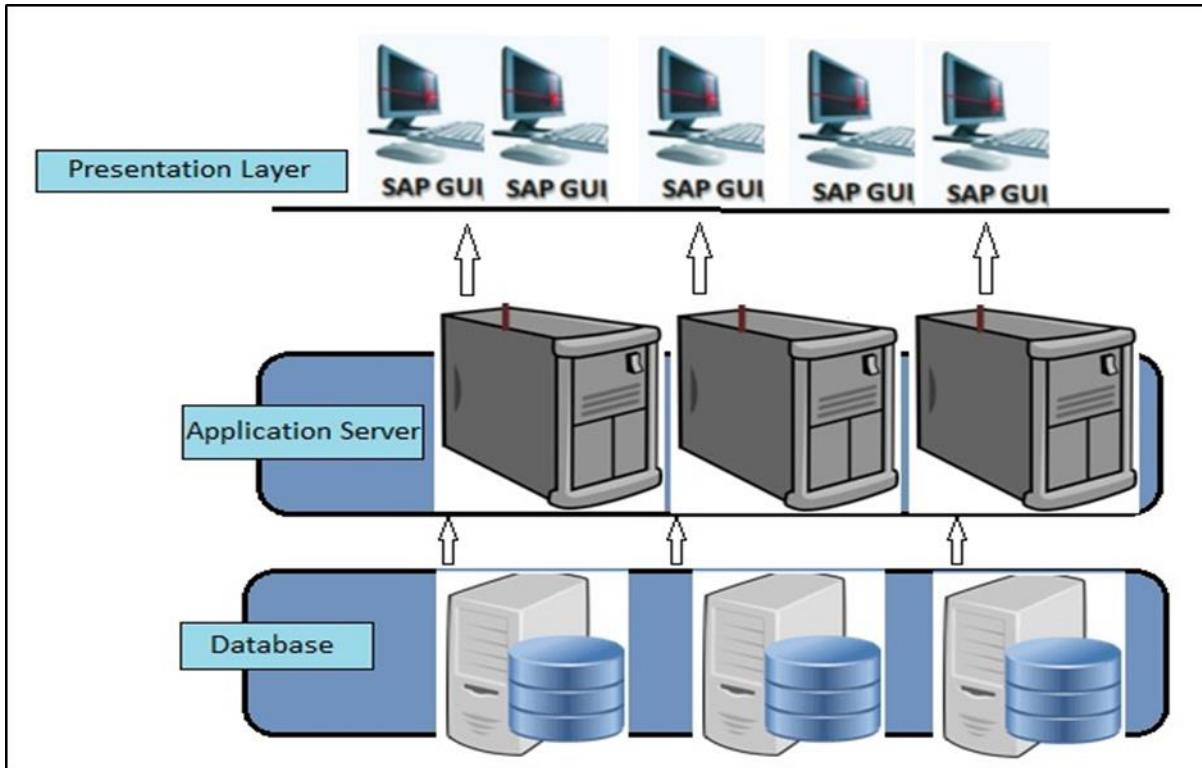
Next is to save the configuration in development server and saved in workbench requests and this has to be transported to Production server.

### Production Server

You can consider it as the final or the most refined stage where the work is done when project is in production/go live. All the changes that are required by the client are performed in the DEV environment and later, the request is transported to production.

## SAP System 3 – Tier Architecture

The image given below shows 3-tier architecture of the SAP system. The **presentation layer** is the topmost one. This contains the device/application to control the SAP system. This can include mobile devices, end user systems or SAP GUI or web browser based client.



The presentation layer communicates with the application server to perform all the processing and which is known as brains of an SAP system.

An application server consists of multiple instances and communicates with the database layer of the three-tier architecture.

The bottom layer is called the **database layer**. This is responsible to store all the data. The database of SAP system is kept on a separate server for performance and security reasons.

The presentation layer consists of different components for ABAP and JAVA that enables the communication and processing of data in SAP system.

The key components of the presentation layer include the following:

- **Message Server** – This is used to manage communication between distributed dispatchers in the ABAP system.
- **Message Server** – This is used to manage server processes and JAVA dispatchers. It is used to manage communication within JRE.
- **Dispatcher Queue** – This is used to store multiple work process types.
- **Dispatcher** – This is used to distribute the requests to the work processes.

- **Memory Pipes** – This is used to manage communication between ICM and ABAP work processes.
- **Enqueue Server** – This is used to handle logical locks set by the executed Java application program.
- **Java Dispatcher** – This is responsible to receive the client requests via presentation layer and forward to the server process.
- **Gateway** – This is used to manage communication between SAP system and external systems.
- **ABAP Work processes** – This separately executes dialog steps in R/3 applications separately.

# 5. SAP Basis – Hardware & Software Installation

To implement SAP ERP, we need to find out the minimum hardware and software requirements. The minimum system requirements should be met to perform the implementation successfully.

The following are the minimum requirements for SAP R/3 installation:

## Minimum hardware requirements

- CPU: Intel PIII 500 MHZ
- HDD: 30 GB
- RAM: 256MB
- Ethernet Card for LAN connectivity

## Minimum software requirements

- Windows Server
- Windows Server Service Pack
- Internet Explorer
- Database Software Ex: Microsoft SQL Server
- SAP R/3 System
- Report Data CD
- Export CDs
- SAP GUI
- SAP R/3 Kernel CD
- Dynamic Link Libraries or DLL
- Active Directory Service Interface or ADSI
- Microsoft Management Console or MMC

## Hardware requirements to install SAP ECC 6.0

- HDD: 250GB + 45GB Hard Disk Space
- RAM: Minimum 4 GB of RAM — The more the capacity of RAM, the less time it takes for installation
- CPU: Intel Dual Core or Core 2 Duo Processor — If you have a 64-bit processor, you can go for ECC 6.0 EHP4 instead of ECC 6.0 SR2.
- CD Drive to copy the software

## Software requirements to install SAP ECC 6.0

- Windows server 2003 32-bit SP 2 or Windows Server 2003 64-bit OS.
- Driver CDs
- Adobe Acrobat Reader for Installation Manual

SAP ECC 6.0 64-bit SR2 installation will be completed approximately in 20 hours with the above configuration. The installation time can be reduced further by upgrading hardware configuration like quad 2 core processor with 8 GB ram and 1 TB Hard Disk Drive.

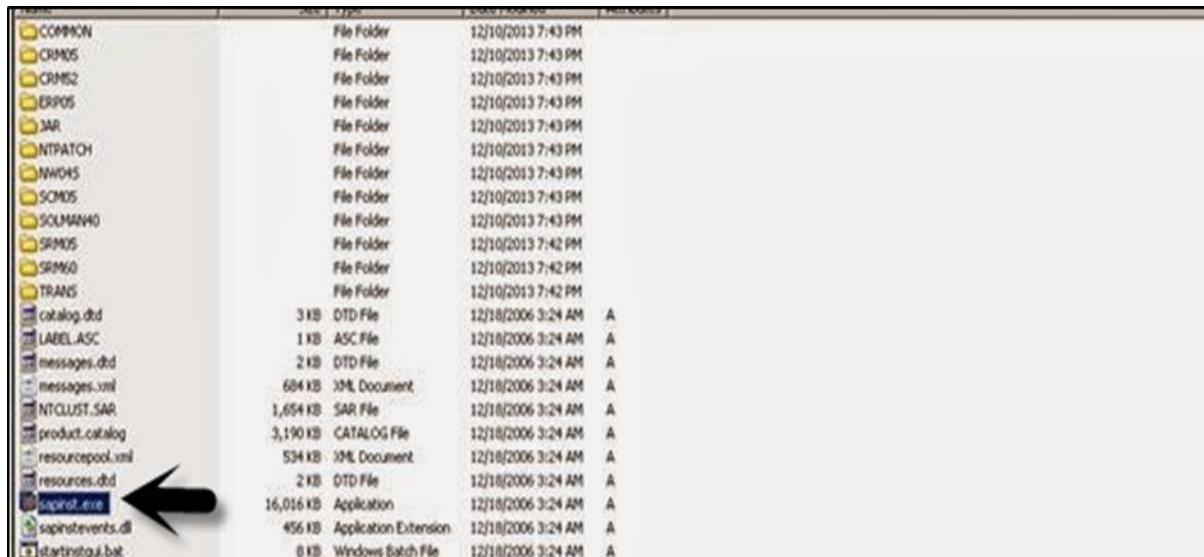
**Note:** You can download SAP ECC 6.0 free trial from SAP Market place. It is also possible to integrate SAP ECC 6.0 trial using SAP Cloud Appliance Library ACL to AWS or other cloud environment service provider by providing user public cloud key.

## Installation of SAP ECC 6.0

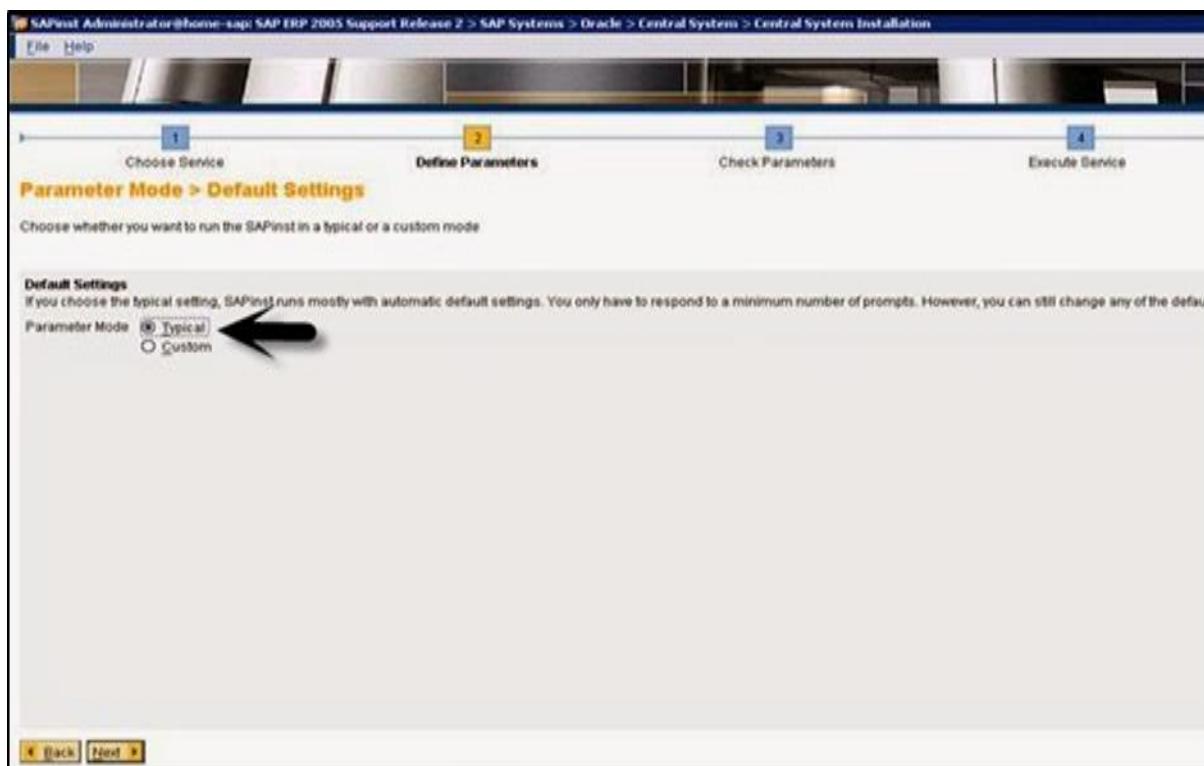
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Follow these steps to install SAP ECC 6.0:

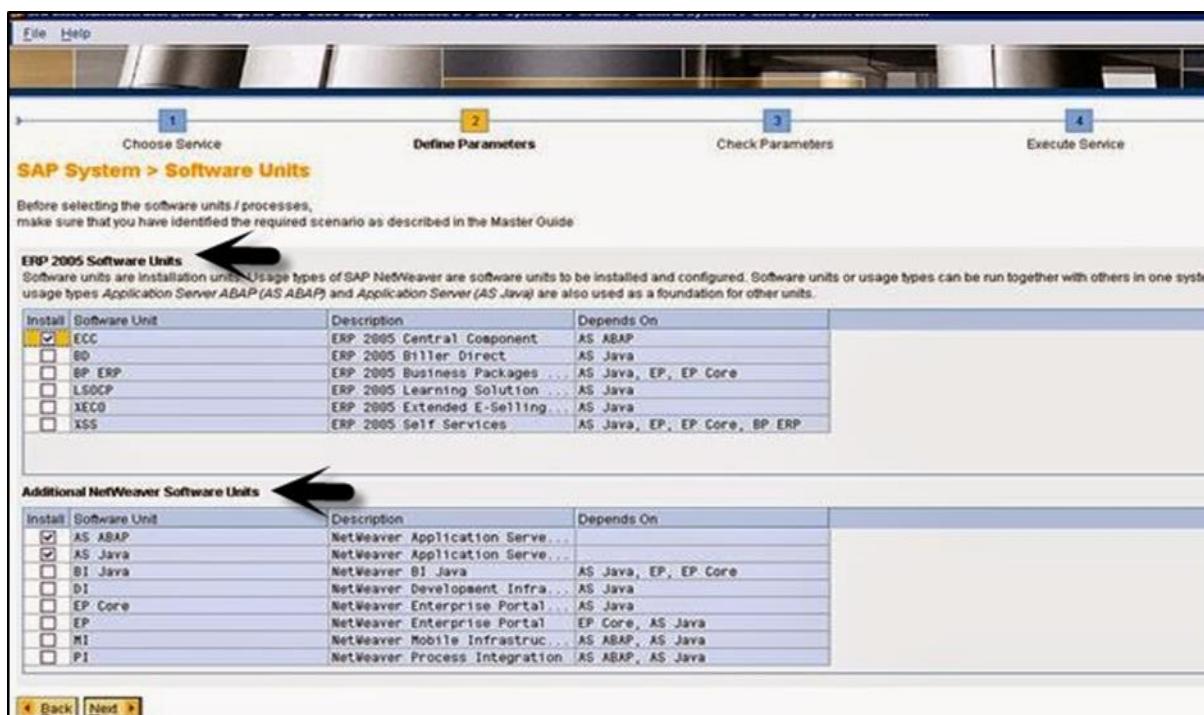
**Step 1:** Install database as per the requirement. Java JDK 1.4 is the minimum requirement. Copy the software to local drive and run sapinst.exe. Set up wizard will open.



**Step 2:** Select the service you want to install — Central System Installation > Select Service Type – Typical or Custom > Next



**Step 3:** Select the software units you want to install with ECC like Biller Direct and additional NW software units AS ABAP, etc.



**Step 4:** Enter the SAP System ID and Installation drive. SAP System ID is a unique identifier for your SAP system. It must be unique throughout the system landscape. Enter master password which will be used for all user accounts to be created.



**Step 5:** Enter Database parameters like DBSID for an existing database, host name, etc.



**Step 6:** Perform perquisite check. You can click OK to perform check or cancel to move to next step.

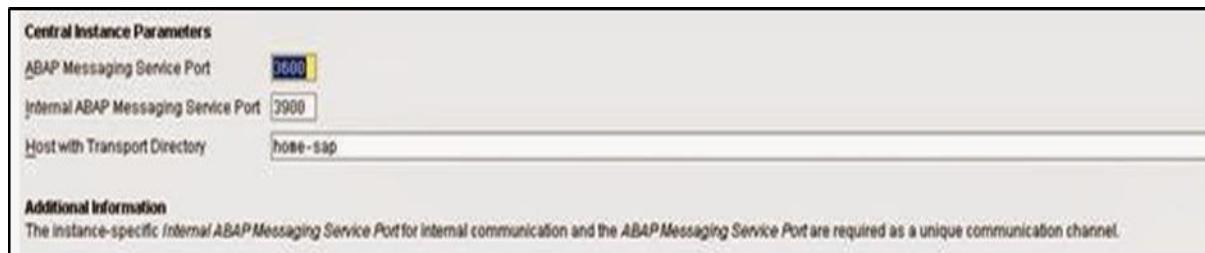


**Step 7:** In the next window, you have to provide the location of export files, oracle client and kernel files > Next > Enter OS passwords.



**Step 8:** Enter the central instance number, which serves as the technical identifier for controlling internal processes such as memory. This number must be unique for this installation.

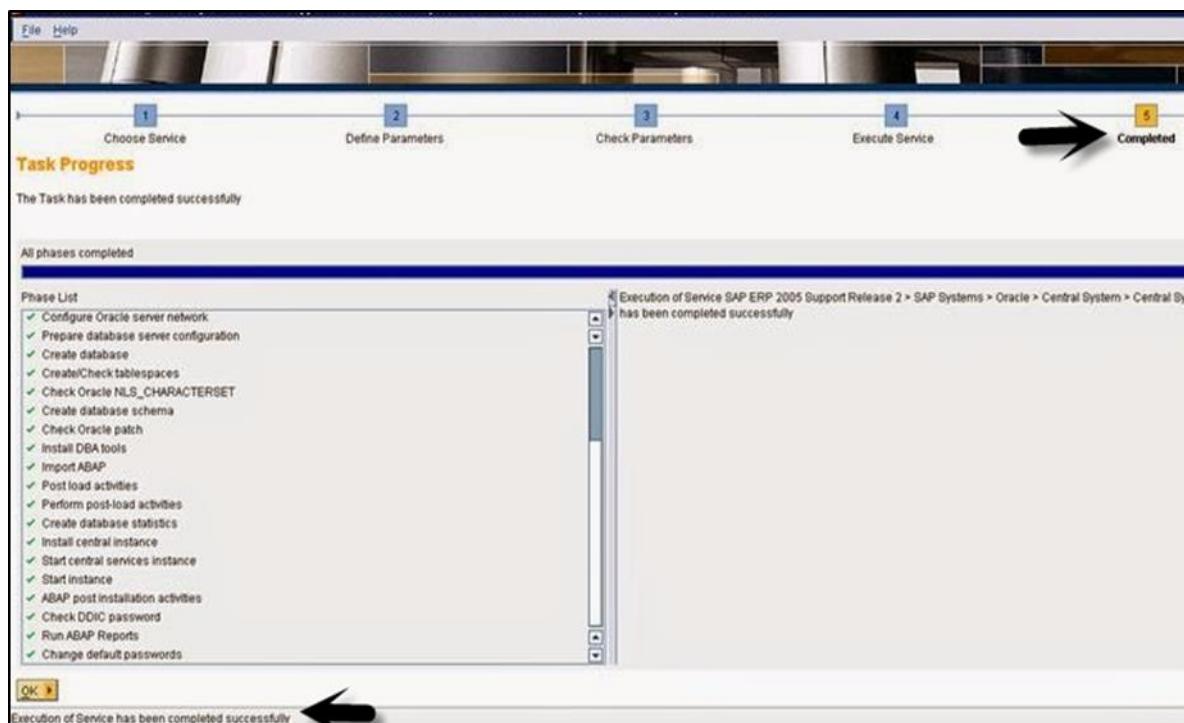
**Step 9:** The system now shows you the port numbers.



**Step 10:** Click Next and you will see the summary of installation.

**Step 11:** Enter the Solution Manager key to continue the installation and upgrade process.

**Step 12:** Once the installation is complete, you will receive the following confirmation.



## Different Hardware and Software Components in SAP System

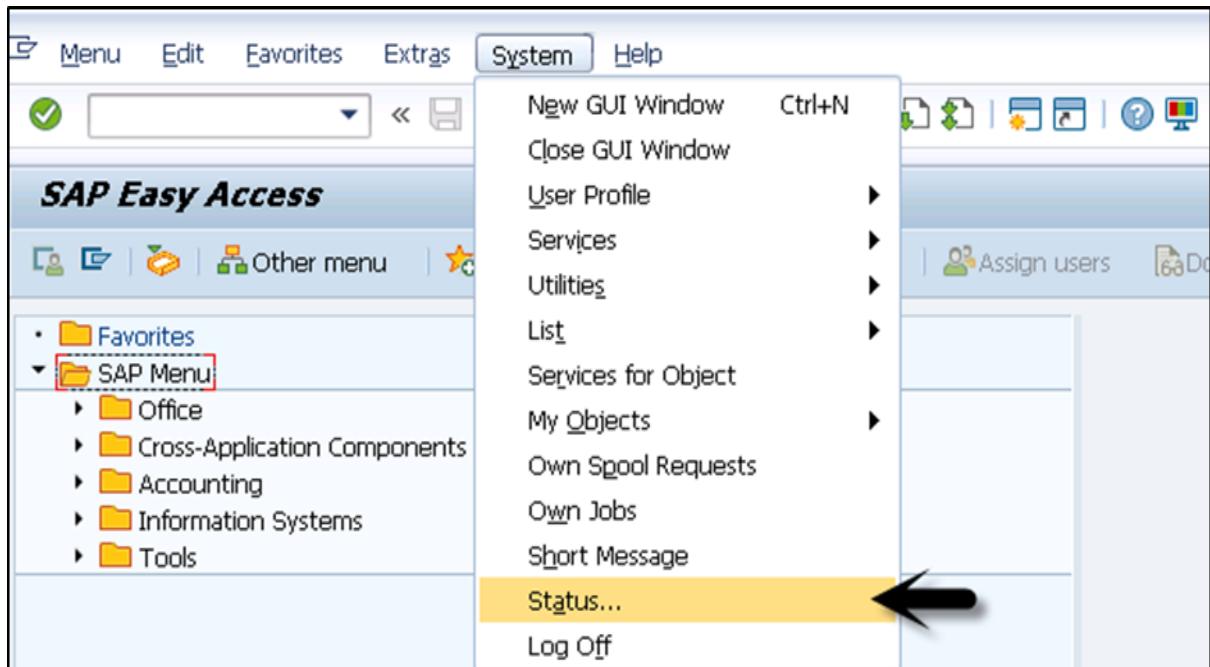
The following are the key components in SAP system:

- Database Server
- Application Server
- Other Servers
- Software components- NetWeaver
- SAP GUI

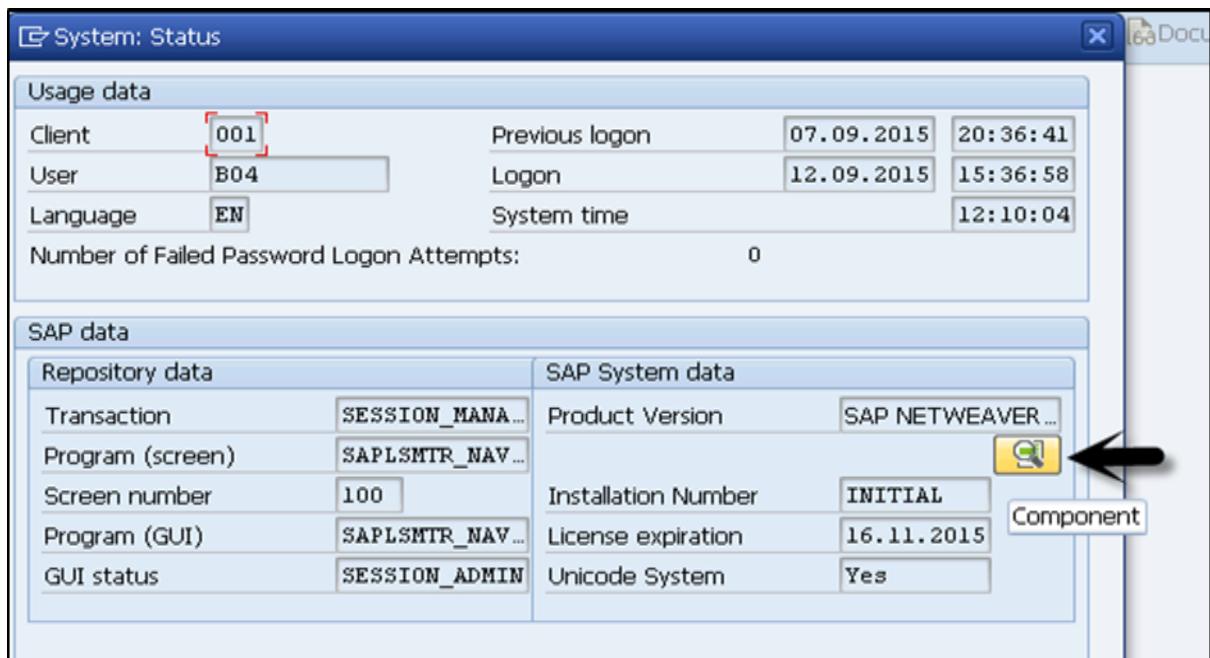
- License key and Maintenance Certificates
- Enhancement Package
- Upgrade plans
- SAP Solution Manager Integration

In SAP system, to check the list of the currently installed software component versions, you can go to SAP GUI, select system.

Choose System in SAP logon > System > Status > click the Component Information icon under system data.



Go to SAP system data -> Click on component magnifying glass.



You can see the following two options:

- Installed software component versions
- Installed product versions

The screenshot shows the SAP Installed Software window. It features two tabs at the top: 'Installed Software Component Versions' (selected) and 'Installed Product Versions'. Below the tabs is a toolbar with icons for search, refresh, and other functions. The main area is a grid table with columns for Details, Component, Release, SP-Level, Support Package, SPP-Level, Support Package Patch, Type, and Short Description of Component. The table lists various SAP components, each with a small blue cube icon next to it. A yellow arrow points to the 'Component Versions' tab, and another yellow arrow points to the search icon in the toolbar.

Details	Component	Release	SP-Level	Support Package	SPP-Level	Support Package Patch	Type	Short Description of Component
SIS	SAP_BASIS	740	0008	SAPKB74008	0000	-		SAP Basis Component
	SAP_ABA	740	0008	SAPKA74008	0000	-		Cross-Application Component
	SAP_GWFND	740	0008	SAPK-74008INSAPGWFND	0000	-		SAP Gateway Foundation 7.40
	SAP_UI	740	0009	SAPK-74009INSAPUI	0000	-		User Interface Technology 7.40
	PI_BASIS	740	0008	SAPK-74008INPIBASIS	0000	-		Basis Plug-In
	ST-PI	740	0000	-	0000	-		SAP Solution Tools Plug-In
	BI_CONT	757	0000	-	0000	-		Business Intelligence Content
	SAP_BW	740	0008	SAPKW74008	0000	-		SAP Business Warehouse

Under **installed software component**, you can see all the installed software, support package, service pack, description etc. If you want to check the details of each component, you can select the component and go to details tab as shown above.

Go to Installed Product Versions, it will show you the version of the installed SAP NetWeaver.

The screenshot shows the SAP Basis 'Installed Software' interface. The title bar says 'Installed Software'. Below it, there are two tabs: 'Installed Software Component Versions' and 'Installed Product Versions'. The 'Installed Product Versions' tab is selected, indicated by a blue border. Underneath the tabs is a toolbar with several icons. A table follows, with columns: Product, Release, Vendor, and Short Description of Product Version. One row is visible, showing SAP NETWEAVER, 7.4, sap.com, and SAP NETWEAVER 7.4.

Product	Release	Vendor	Short Description of Product Version
SAP NETWEAVER	7.4	sap.com	SAP NETWEAVER 7.4

## 6. SAP Basis — NW System

SAP NetWeaver is a web-based, open integration, application platform that serves as the foundation for enterprise service-oriented architecture (enterprise SOA) and allows the integration and alignment of people, information, and business processes across business and technology boundaries. It allows the composition, provisioning, and management of SAP and non-SAP applications across a heterogeneous software environment.

The following table defines the Main Use Cases of SAP NetWeaver and its key area:

Use Case	Description
Data Warehousing	SAP BW
Building Integration scenarios	SAP Process Integration PI
Mobilizing Business Processes	SAP NetWeaver Mobile
Building Composite Applications	SAP Composition Environment
Integration with SAP Enterprise Portal	SAP Enterprise Portal
Application Development ABAP	ABAP Development on NetWeaver Application Server ABAP

To implement these use cases, SAP has provided mapping between use cases and SAP NetWeaver software components.

Consider the use case of data warehousing, it has multiple product instances and client tools to use NetWeaver for data warehousing.

Standalone Engines	Product Instance	Client Tool
Search and Classification (TREX)	<ul style="list-style-type: none"><li>AS ABAP</li><li>BW ABAP</li><li>AS Java</li><li>NW Product Description [optional]</li><li>AS Java Extensions [optional]</li></ul>	<ul style="list-style-type: none"><li>SAP GUI with Business Explorer (BI Add-On)</li><li>SAP BusinessObjects Analysis, Edition for Microsoft Office* [optional]</li><li>SAP BusinessObjects Crystal Reports [optional]</li></ul>

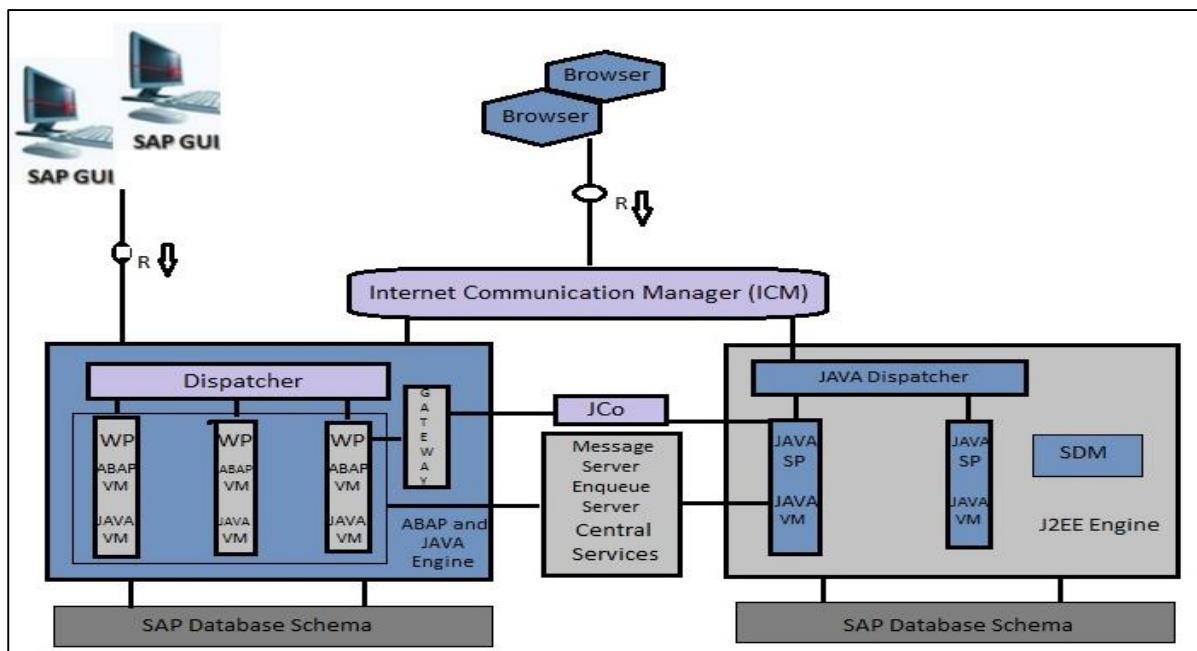
	<ul style="list-style-type: none"><li>• BI Java [optional]</li><li>• EP Core – Application Portal [optional]</li><li>• Enterprise Portal</li></ul>	<ul style="list-style-type: none"><li>• SAP BusinessObjects Dashboards [optional]</li><li>• SAP BusinessObjects Web Intelligence [optional]</li><li>• SAP BusinessObjects Design Studio [optional]</li></ul>
--	--	--

## 7. SAP Basis — NW Architecture

SAP NetWeaver is one of the central components of the entire SAP software stack and provides you a platform for other components and JAVA and ABAP applications.

SAP Application server consists of multiple application server instances and also database servers. With use of dialog instance, it also contains message server and an enqueue server.

The following is a dialog instance executed by a user:



These are the different components of the Dialog Instance:

- **Internal Communication Manager** – This is used to process both client and server web requests. It supports protocol – HTTP, HTTPS, SMTP
- **Dispatcher** – This is used to distribute the user request to different work processes. If all the work processes are busy, requests are stored in the dispatcher queue.
- **Work Processes** – These are used to execute Java or ABAP programs.
- **SAP Gateway** – This provides RFC interface between SAP instances.
- **Message Server** – This is used for message communication and also balances the load in SAP system.

## Installation Options for SAP NetWeaver

---

SAP NetWeaver provides the following installation options:

- **ABAP System** – This comes with an integrated VM Container. With this installation, you can run ABAP programs and selected SAP Java applications (shown in left box).
- **Java System** – The components to the right in the above image constitute the Java System. With the installation of this, you can run J2EE applications but not any ABAP programs.
- **ABAP + Java system** – All the components shown in the above image constitute the ABAP + Java System.

## Application Center and Instances

---

The SAP NetWeaver work center includes the configuration of the following tools –

**Adobe Document Services** – This allows you to register the Adobe Reader Rights credentials as well as keep track of all unlicensed interactive form designs in your system.

**Application Modules** – This allows you to view the details of the deployed applications and their modules. Here, you can also perform the run-time configuration of the application modules.

**Application Resources** – This allows you to enable applications to make use of external resources. A NW Administrator can add or delete the application resources.

**Authentication and Single Sign-On** – This allows you to choose the required authentication mechanism for your applications. You can configure the following authentication and SSO:

- AS Java as a Service Provider
- Kerberos

**Certificates and Keys** – This allows you to manage the AS Java certificates and keys.

**Composite Application Framework Authorization Tool** – This allows you to manage business rules and Instance Level Permissions for CAF applications, business object nodes and AS Java instances.

**Configuration Wizard** – You can make technical settings required for the technical processing of a system or a technical scenario.

**Destinations** – This can be used to specify the remote service's address and the user authentication information for remote connections.

**Development Infrastructure** – This is required while developing with Java and you want to manage it with Transport Management System (TMS).

**Identity Management** – This allows you as an administrator to control applications access by creating users and providing these users with a means of authenticating themselves to an application.

**Internationalization** – This allows you to manage data from double stack systems and also used for synchronization purpose.

**Java HTTP Provider Configuration** – You can create new virtual hosts and configure existing ones for all registered systems.

**Java Class Loader Viewer** – You can monitor the hierarchy and references between the class loaders in the AS Java.

**Java System Properties** – Using this, you can view current system configuration of Application server JAVA and you can edit the properties that are marked as online modifiable.

**Java Connection JCo RFC Provider** – You can manage the Java Connector Remote Function Call (JCo RFC) Destinations. This allows you to create, edit and view existing connections.

**JMS Server Configuration** – This is used to create new JMS resources.

**Licenses** – You can request and install new SAP licenses.

**Log Configuration** – You can view current log configuration, change security or reset it to default.

**Message Server** – You can monitor message server parameters and settings.

**SAP NetWeaver Administrator Tool** – SAP NetWeaver Administrator (NWA) is a web-based tool that allows you to perform configuration, advanced administration, and also to monitor, troubleshoot, and diagnose a SAP NetWeaver system.

You can use NWA tool in the following working modes:

- Online
- Local and remote

## Managing Java Instances using NWA

---

Follow these steps to change the status of Java instances at runtime.

**Step 1:** Go to SAP NetWeaver Administrator > Operations > Systems > Start & Stop

**Step 2:** Now, go to Java Instances tab under NWA

**Step 3:** You can see all available instances with corresponding information about the server processes within the instance.

**Step 4:** Select an instance to perform the following functions under NWA:

- Start, stop or restart a Java instance.
- Enable or disable debug mode for AS Java processes.
- View and refresh OS processes.
- Clear the DNS cache for a particular instance.

- Set a number of server processes (nodes)

## SAP NW System Landscape

---

Follow these steps to perform the implementation of SAP NetWeaver system:

**Step 1:** Plan the implementation by defining the scope, hardware and software requirements, and release instructions.

**Step 2:** Define the system landscape for the use cases.

**Step 3:** Install the components of SAP NetWeaver system.

**Step 4:** Configure SAP NW systems.

## System Landscape Management using SAP Solution Manager

---

SAP recommends the use of the latest version of the SAP Solution Manager to manage your system landscape. You can download the latest version from SAP Support Portal <http://support.sap.com/solutionmanager>

It is important to correctly define your SAP system landscape in the following versions of SAP Solution Manager to maintain it correctly.

### SAP Solution Manager 7.0

You can use the SAP Solution Manager System Landscape transaction code — SMSY for the complete system description.

### SAP Solution Manager 7.1 SP01 to SP04

You can use the Landscape Management Database transaction code — LMDB to maintain technical system information. To maintain logical product information, you can use the transaction code — SMSY.

### SAP Solution Manager 7.1 SP05 and higher

You can use the Landscape Management Database transaction code — LMDB for the complete system description and in this, transaction code — SMSY is no longer required.

## Verifying Landscape with SAP Solution Manager

---

To verify and correct your system landscape, SAP recommends that you use the verification functions of the following versions of SAP Solution Manager.

### SAP Solution Manager 7.0 to 7.1 SP04

Use Landscape Verification 1.0 for SAP Solution Manager. This add-on allows you to identify and correct issues in your SAP Solution Manager landscape (Transaction SMSY) before they cause problems, for example, during a system update. Example for errors are a missing connection to the System Landscape Directory or the incorrect assignment of products to technical systems. For each type of error, a generic description for the solution is provided.

## **SAP Solution Manager 7.1 SP05 or higher**

Use the landscape verification function that is embedded into the product system editor of the Landscape Management Database (LMDB). It replaces the previous Landscape Verification tool.

# 8. SAP Basis — SAP Client Administration

Let us first understand what a client is before we move on to SAP client administration.

A client is used in SAP system for multiple login on single instance. You can create multiple clients on a single instance. It also provides data security wherein, one user with one client can't see the data of the other user with another client. In addition, there is no need to install the software for each and every user.

## Advantages of Client Concept

Client concept comes in with the following advantages:

- You can share the same resources between multiple users.
- You can manage SAP system landscape as you can create multiple clients for DEV, QA and PROD team.
- You can share your SAP system with a large number of users.
- You can create clients in SAP system from 000-999.

SAP system comes with the following three standard clients:

**000 Client** — This is called master client and is available when you install R/3 system.

**001 Client** — This client is a copy of 000 client including the test company. This client is used to create new clients normally.

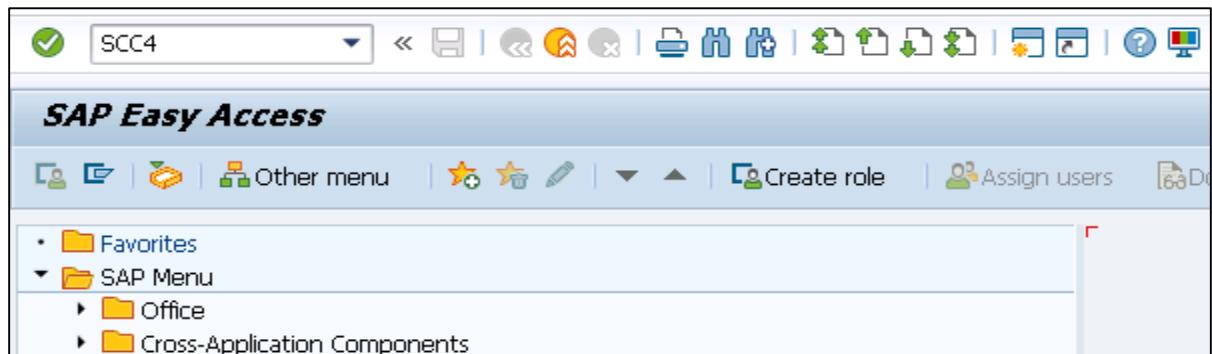
**066 Client** — This is called SAP Early watch and is used for diagnostic scans and monitoring service in SAP system.

Client	Name	City	Crcy	Changed on	
000	SAP AG Konzern	Walldorf	EUR		
001	SAP AG Konzern	Walldorf	EUR	12.09.2015	
066	Test EarlyWatch Profiles	Walldorf	EUR	20.06.2003	

## Steps to Create a New Client in SAP

Follow these steps to create a new client in SAP system:

**Step 1:** Start by using transaction code — SCC4



**Step 2:** To create a new client, enter the below details after clicking on New Entries.

The screenshot shows the 'Change View "Clients": Overview' screen. A red box highlights the 'New Entries' button in the toolbar, and a black arrow points to it. The table below lists clients with columns for Client, Name, City, Crcy, and Changed on. The first row (Client 000) is highlighted in yellow.

Client	Name	City	Crcy	Changed on
000	SAP AG Konzern	Walldorf	EUR	
001	SAP AG Konzern	Walldorf	EUR	12.09.2015
066	Test EarlyWatch Profiles	Walldorf	EUR	20.06.2003

- Client number and name
- City
- Currency, Roles

**Step 3:** Enter your client-specific data and set permission for the clients as per your requirement and click on Save.

**New Entries: Details of Added Entries**

Client	100 Dev	Last Changed By
City	Londin	Date
Logical system	Z_ABCD_MT	
Std currency	EUR	
Client role	Test	

**Changes and Transports for Client-Specific Objects**

- Changes without automatic recording
- Automatic recording of changes
- No changes allowed
- Changes w/o automatic recording, no transports allowed

**Cross-Client Object Changes**

Changes to Repository and cross-client Customizing allowed

**Client Copy and Comparison Tool Protection**

Protection level 0: No restriction

**CATT and eCATT Restrictions**

eCATT and CATT Not Allowed

**Step 4:** Now, if you go to the Display Client list, Transaction SCC4 > Display > New client will be added.

**Display View "Clients": Overview**

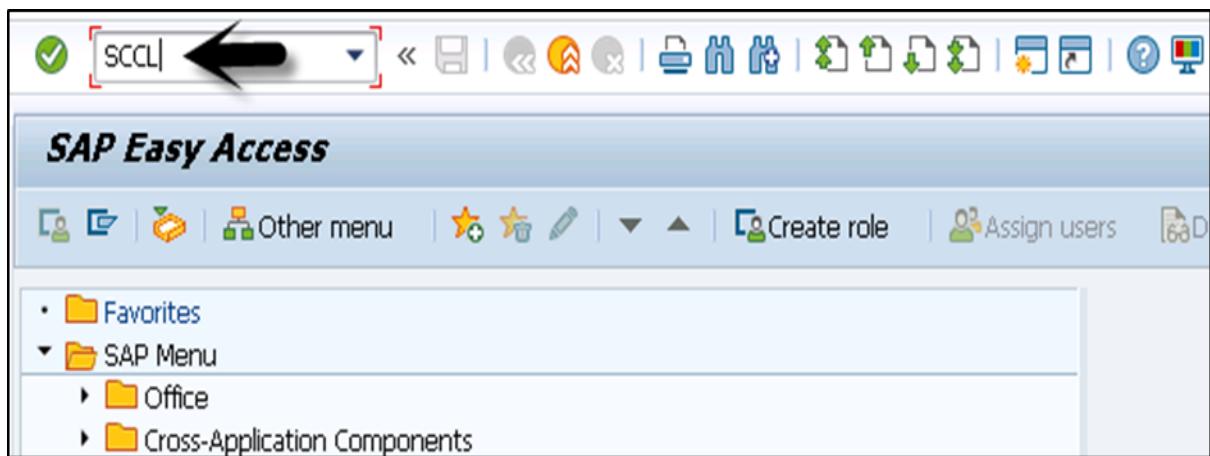
Client	Name	City	Crcy	Changed on
000	SAP AG Konzern	Walldorf	EUR	
001	SAP AG Konzern	Walldorf	EUR	12.09.2015
066	Test EarlyWatch Profiles	Walldorf	EUR	20.06.2003
100	Dev	Londin	EUR	12.09.2015

## Local and Remote System

You can also create a copy of existing clients between local and remote system IDs.

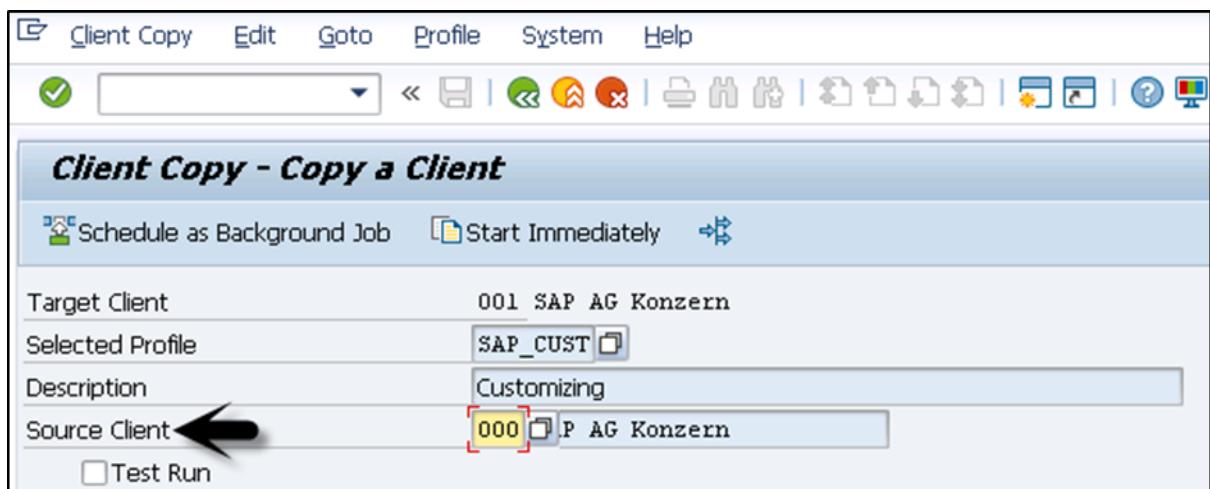
Follow these steps to create a copy of existing clients:

**Step 1:** To create a copy of a client in local SID, the transaction code is SCCL.

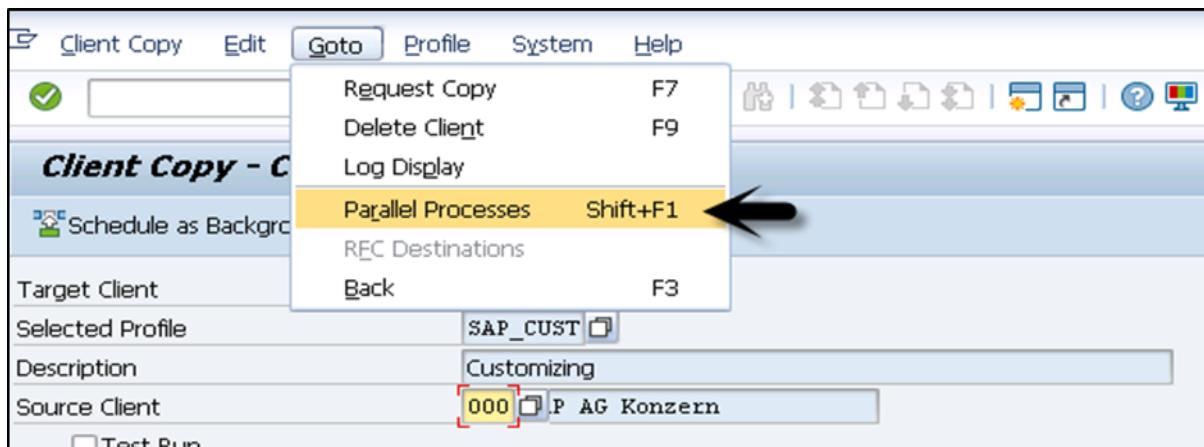


**Step 2:** Enter the following details:

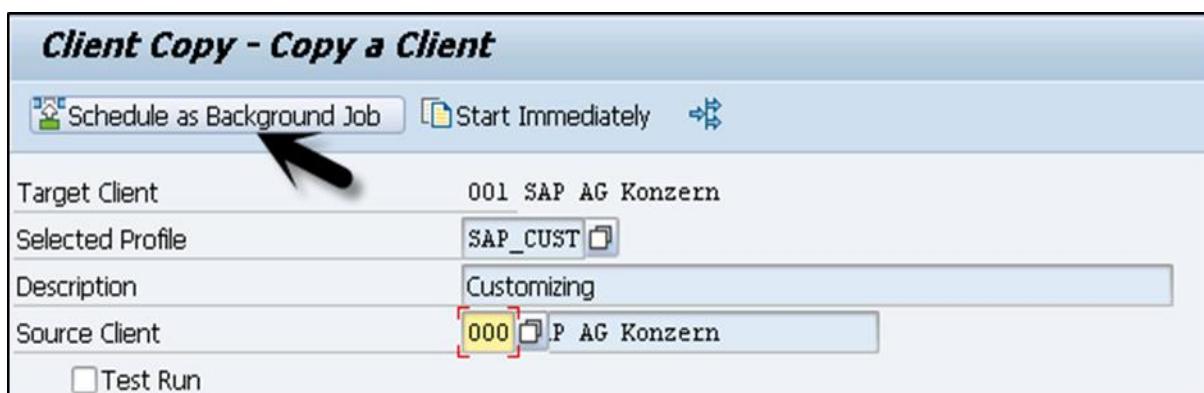
Select your desired profile, enter source client, and enter description.



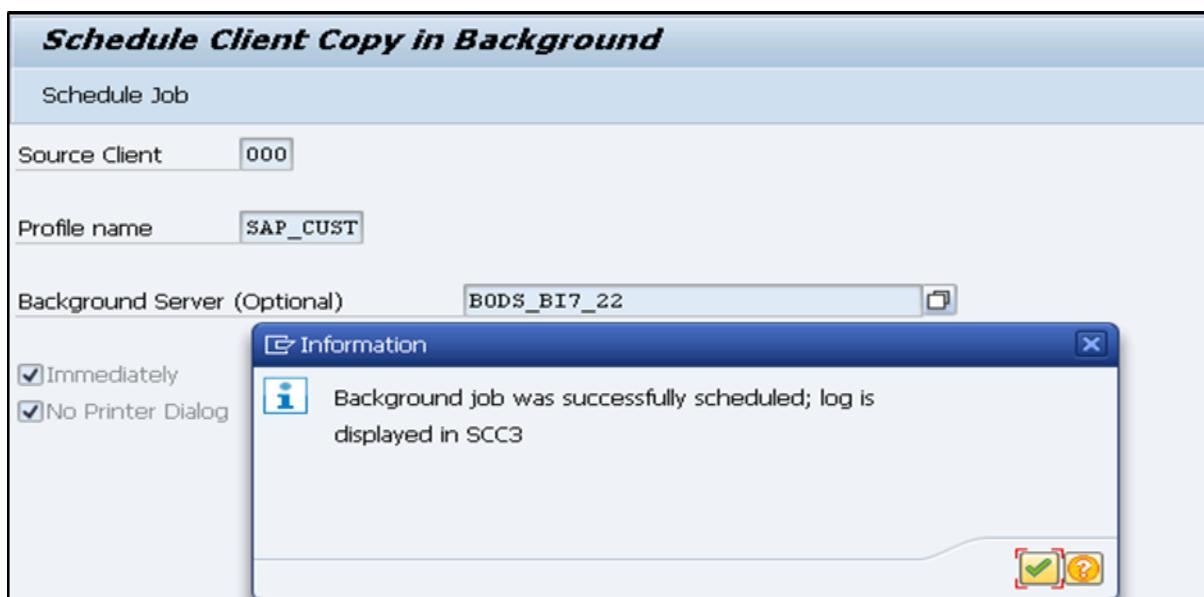
**Step 3:** By default, the client copy is executed in a single process and you can distribute the workload on multiple processes to reduce time for copying.



**Step 4:** Copying a client can take longer. Therefore, this process can be run as background job.



**Step 5:** To check the logs, transaction code — SCC3 can be used.



## Remote System

You can create a copy of client in the remote system using transaction code — SCC9. This system uses Trusted RFC connection SM59.

Enter the details as we do for local client copy and you can select an option to run the copy in background.

To check the logs, transaction code — SCC3 can be used.

**Client Copy/Transport Log Analysis**

Client Copies in Client 001 : 1

Date	Time	Source	Status Text	Profile	Mode	Test mode
12.09.2015	18:10:45	000	Successfully Completed	SAP_CUST	Local	

## Import/Export

It is always recommended to use import/export option for client copy when database size is large.

Follow these steps to **export a client**:

**Step 1:** Log on to target system and create an entry for new target client using transaction code — SCC4. To perform export for transferring data files to target system import buffer, use transaction code — SCC8.

**SAP Easy Access**

- Menu
- Edit
- Favorites
- Extras
- System
- Help

SCC8

**SAP Easy Access**

- Favorites
- SAP Menu
- Office
- Cross-Application Components

**Step 2:** Select the profile and target system. You can schedule the export process in background. Depending on the export type, it creates multiple transport requests in the following areas:

- To hold the cross client data.
- To hold the client dependent data.
- To hold some client dependent data.

Now, follow these steps to import a client:

**Step 1:** To import a client, use transaction code — STMS\_IMPORT, you will see import queue.

Number	Request	Clt	RC	Owner	Project	Short Text	St
1	E34K975388	500	⚠	RALPH	E34_P00011	TP_UPLOAD: Complete Delivery (Version 1.09 of 10.	✓
2	E34K975764	500	⚠	VOLKER	E34_P00022	I62 Rollen für N4S - 08.11.2012	✓
3	E34K975596	000	⚠	VOLKER	E34_P00025	IDES Entwicklungen - 2.32 - complete	✓
4	E34K975596	000	⚠	VOLKER	E34_P00026	Custom Check UP 100_06 12.09.2010	✓

**Step 2:** Select the transport requests to perform import process that is generated from export operation. Once import is done, you can use the transaction code — SCC7 to complete post import phase. You can check import logs using transaction code — SCC3.

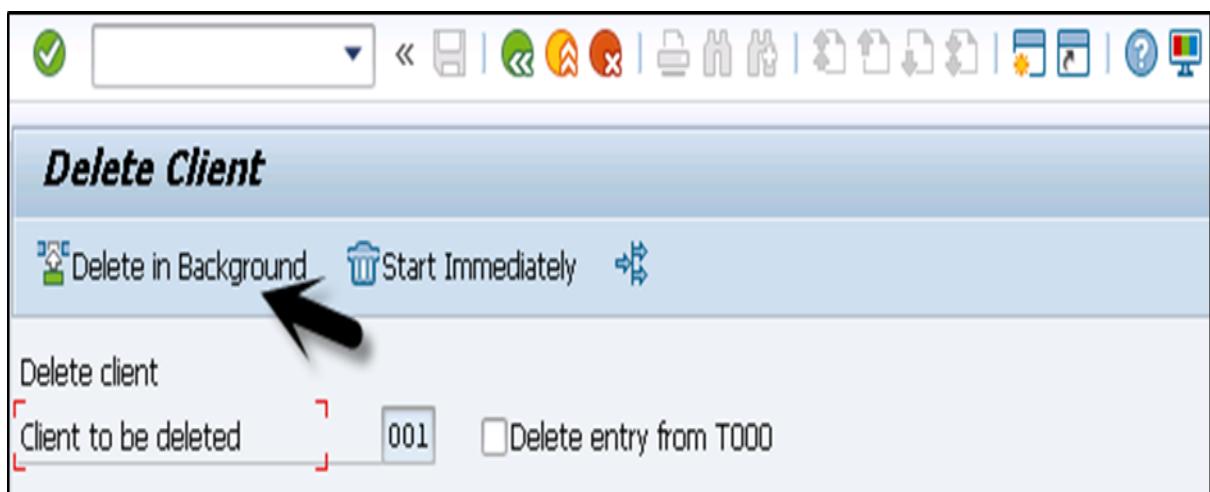
## Deleting a Client

Follow these steps to delete a client in SAP system.

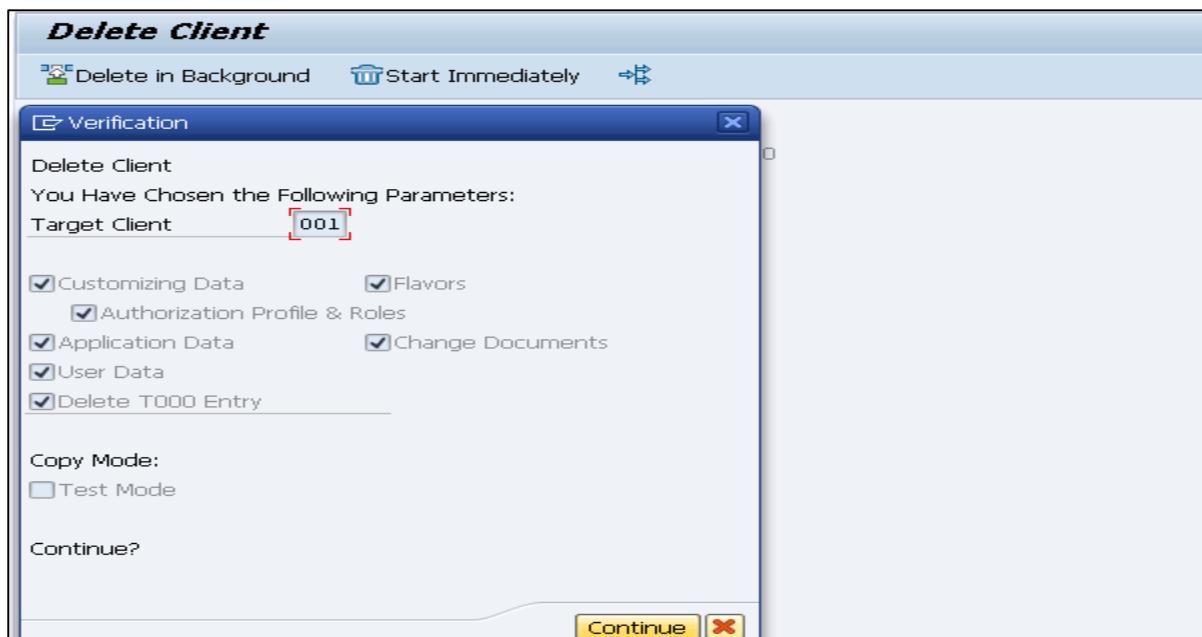
**Step 1:** Use transaction code — SCC5 as below. Go to SAP Easy Access and run the transaction.



**Step 2:** Select the client to be deleted. You can select > delete in background or start immediately. Table T000 contains all the client entries created using Transaction SCC4. You can also select to remove table entry for the client.



**Step 3:** When you select start immediately, you see the following window.



**Step 4:** Click on Continue to complete the deletion.

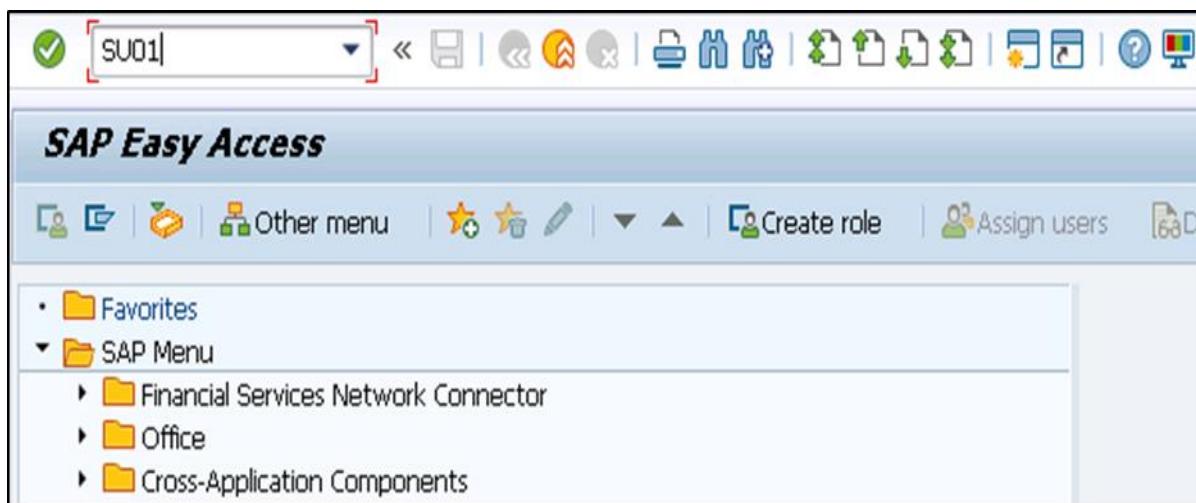
# 9. SAP Basis — User Activities

## Creating a User

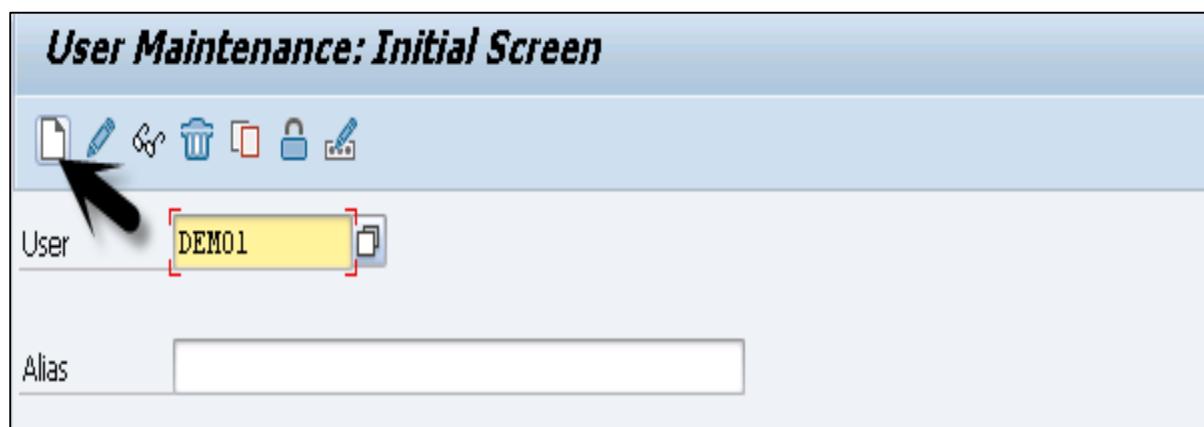
This chapter guides you on how to create user accounts in SAP.

Follow these steps to create multiple users with different access rights in SAP system.

**Step 1:** Use transaction code — SU01



**Step 2:** Enter the username you want to create, click on create icon as in the following screenshot.



**Step 3:** You will be directed to the next tab — the Address tab. Here, you need to enter the details like first name, last name, phone number, email id, etc.

Person	
Title	Mr.
Last name	DEMO1
First name	
Academic Title	
Complete name	DEMO1
Language	

Work Center	
Function	
Department	ABC
Room Number	Floor Building code

Communication	
Telephone	999999 Extension
Mobile Phone	
Fax	Extension
E-Mail Address	

**Step 4:** You will further be directed to the next tab — Logon Data.

Enter the user type under Logon data tab. We have five different user types.

Logon Data	
Alias	
User Type	Dialog
Security Policy	Dialog
Password	System
New Password Rule	Communications Data
New Password	Reference (Logon not possible)
Repeat Password	Service
Password Status	*****
User Group for Authorization Check	
User group	DEMO User for Demo Systems
Validity Period	
Valid from	
Valid through	
Other Data	
Account no.	

The following are the different user types:

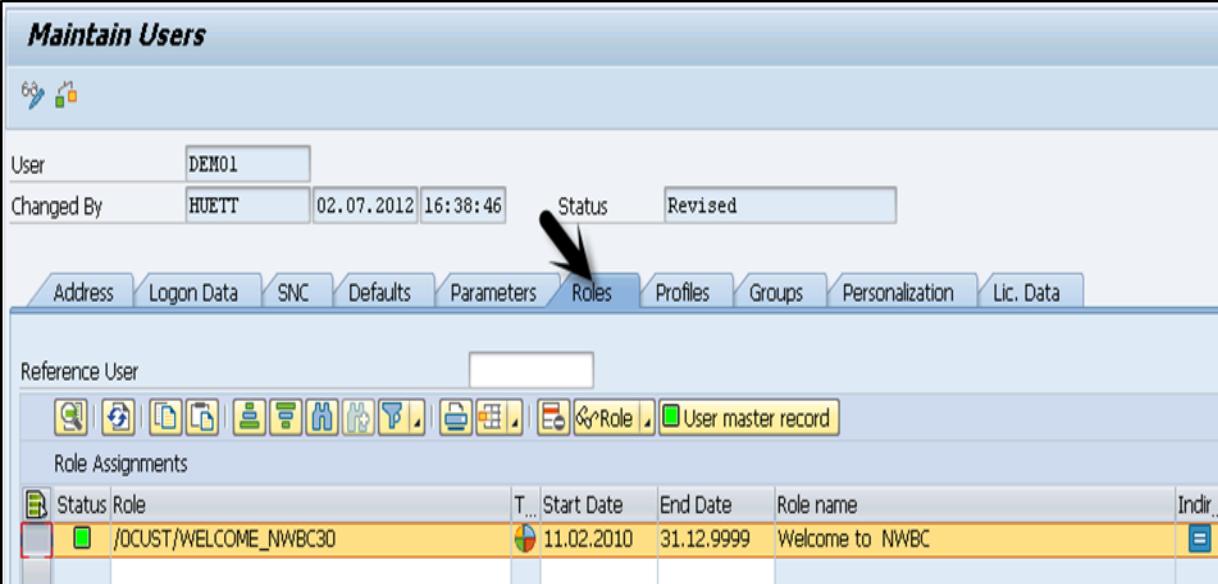
- **Dialog user** — This user is used for interactive system access from GUI.
- **System user** — This user is used for background processing, communication within a system.
- **Communication user** — This user is used for external RFC calls.
- **Service user** — This user is created for a larger and anonymous group of users.
- **Reference user** — It is not possible to log on to the system with this user type. User type for general, non-person related users that allows the assignment of additional authorizations.

**Step 5:** Type the first Login Password > New Password > Repeat Password.

The screenshot shows the SAP Fiori User Maintenance interface. It includes fields for Alias, User Type (set to Dialog), and Security Policy. Below these, a 'Password' section contains 'New Password Rules (Case-Sensitive)' and two input fields: 'New Password' and 'Repeat Password'. The 'New Password' field contains a series of asterisks ('\*\*\*\*\*'). The 'Repeat Password' field also contains a series of asterisks ('\*\*\*\*\*') and is highlighted with a red rectangular border. A black arrow points from the text above to this highlighted field. To the right of the password fields are two blue information icons.

**Step 6:** You will be directed to the next tab — Roles:

Assign the roles to the user.

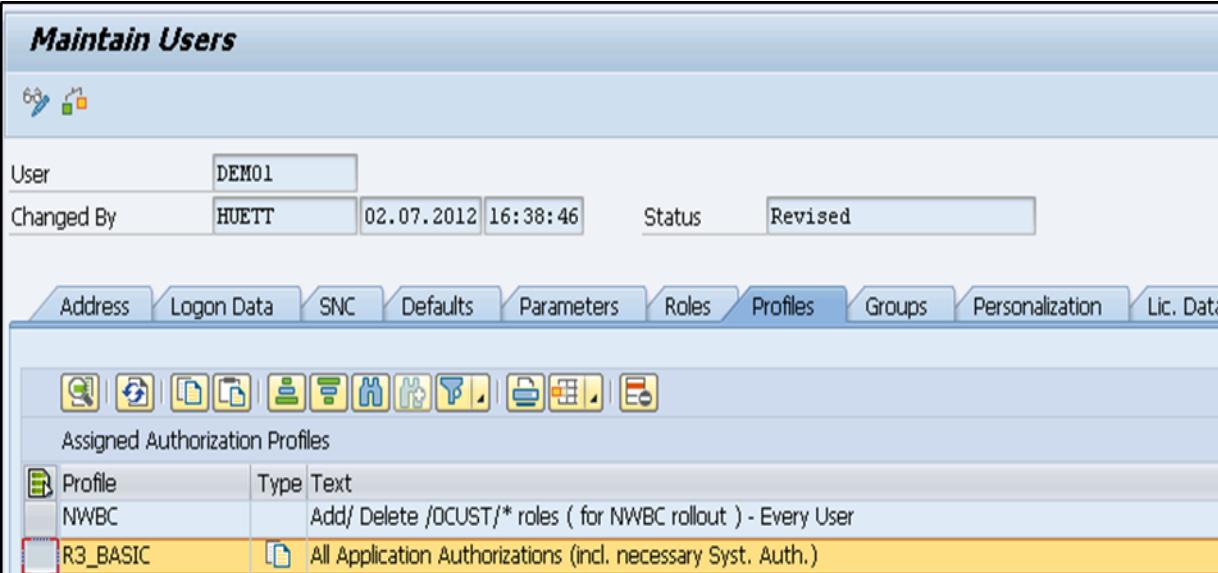


The screenshot shows the SAP Maintain Users interface for user 'DEM01'. The 'Status' field is set to 'Revised'. A black arrow points to the 'Roles' tab in the navigation bar. Below the tabs, there is a toolbar with various icons. The 'Role Assignments' section displays a table with one row:

Status	Role	Start Date	End Date	Role name	Indir.
	/OCUST/WELCOME_NWBC30	11.02.2010	31.12.9999	Welcome to NWBC	

**Step 7:** You will further be directed to the next tab — Profiles:

Assign the Profiles to users.



The screenshot shows the SAP Maintain Users interface for user 'DEM01'. The 'Status' field is set to 'Revised'. A black arrow points to the 'Profiles' tab in the navigation bar. Below the tabs, there is a toolbar with various icons. The 'Assigned Authorization Profiles' section displays a table with two rows:

Profile	Type	Description
NWBC	Text	Add/ Delete /OCUST/* roles ( for NWBC rollout ) - Every User
R3_BASIC	Text	All Application Authorizations (incl. necessary Syst. Auth.)

**Step 8:** Click on Save to receive confirmation.

## Password Reset

Follow these steps to reset password:

**Step 1:** Use transaction code — SU01

**Step 2:** Enter the username and select the change option at the top to edit the profile.

**User Maintenance: Initial Screen**

User	123456
Alias	

**Step 3:** You will be directed to the next tab — Logon Data

**Step 4:** Enter the new password and click on the save icon at the top.

User	123456
Changed By	14.10.2009 09:13:36
Status	Saved

Address    Logon Data    SNC    Defaults    Parameters    Roles    Profiles    Groups

Alias:      User Type: Service      Security Policy:

**Logon Data**

New Password Rules (Case-Sensitive)      New Password:  (Masked)      Repeat Password:  (Masked)

Password Status: Productive Password

**Step 5:** You will receive the following confirmation:

User 123456 has changed

## Lock / Unlock a User

In SAP system, an administrator can also lock or unlock a user as per the requirement. This can be performed for a specific time period or permanently. A user can be locked/unlocked in the following two ways:

- Manually/Forcefully
- Automatically

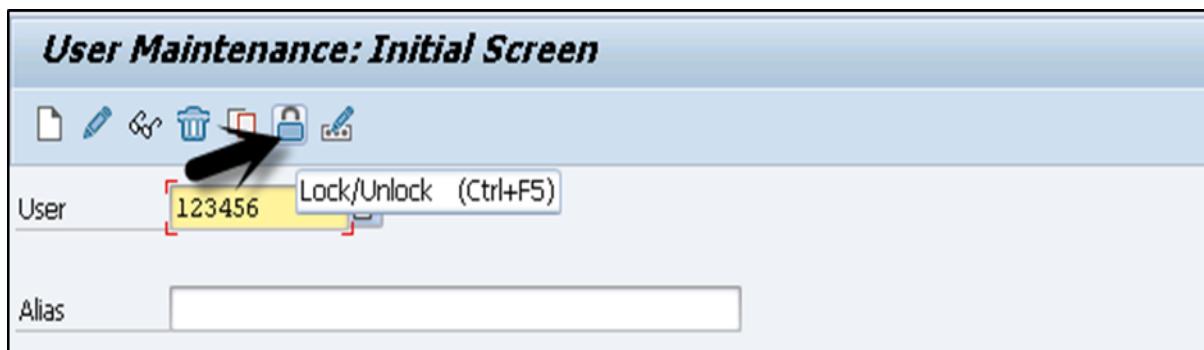
### Manually or Forcefully

You can lock a user forcefully/automatically using these transaction codes:

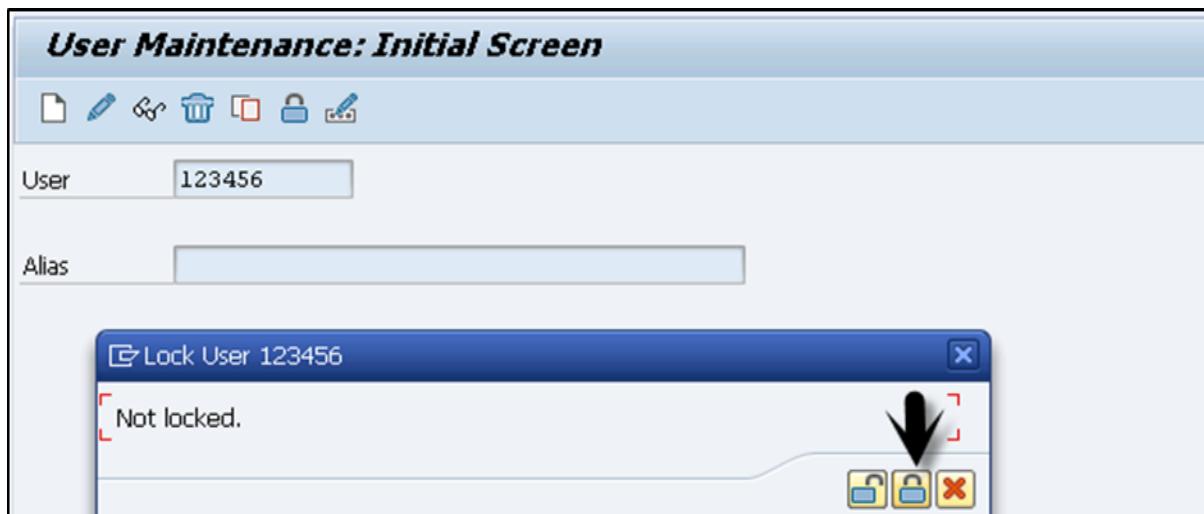
- Transaction code — SU01 for single user
- Transaction code — SU10 for multiple users

**Step 1:** Execute transaction code — SU01

**Step 2:** Select the user you want to lock/unlock and click on the icon.



**Step 3:** You will now see the current status of the user. Click on lock/unlock option.



**Step 4:** To lock multiple users, use transaction code — SU10 and enter the users in username list. To select multiple users in one go, click and search you will get an option to select multiple users at one time.

The screenshot shows the SAP User Maintenance: Mass Changes Initial Screen. At the top, there are several icons for file operations like New, Open, Save, and Delete. Below this is a navigation bar with tabs for 'Address Data', 'Authorization Data', and 'Logon Data'. The main area is titled 'User' and contains a table with columns: 'User', 'Full Name', 'Last name', 'First name', and 'Department'. A modal dialog box is overlaid on the screen, titled 'Restrict Value Range (1) 500 Entries found', with three tabs: 'Users by Address Data' (selected), 'Users by Logon Data', and 'Users by Profiles'. The table in the modal lists user information, with the first row (User Name: 123456, Last name: 123456, First name: RF USER, Department: demo equipment.) highlighted in yellow. A black arrow points to the 'User' column header in the main table, and another arrow points to the lock/unlock icon in the modal's toolbar.

User	Full Name	Last name	First name	Department
Demo				
123456	123456	123456	RF USER	demo equipment.
	301075	301075		
	828	BRITZ		
	AAMANAGER	FLANNIGAN	LORNA	
	ABAINES	BAINES	ANGELA	
	ACCOUNTANT	PERINI	CARLOS	

**Step 5:** Select the lock and unlock icon at the top as per requirement. This can be used to unlock single/multiple users using same transaction code.

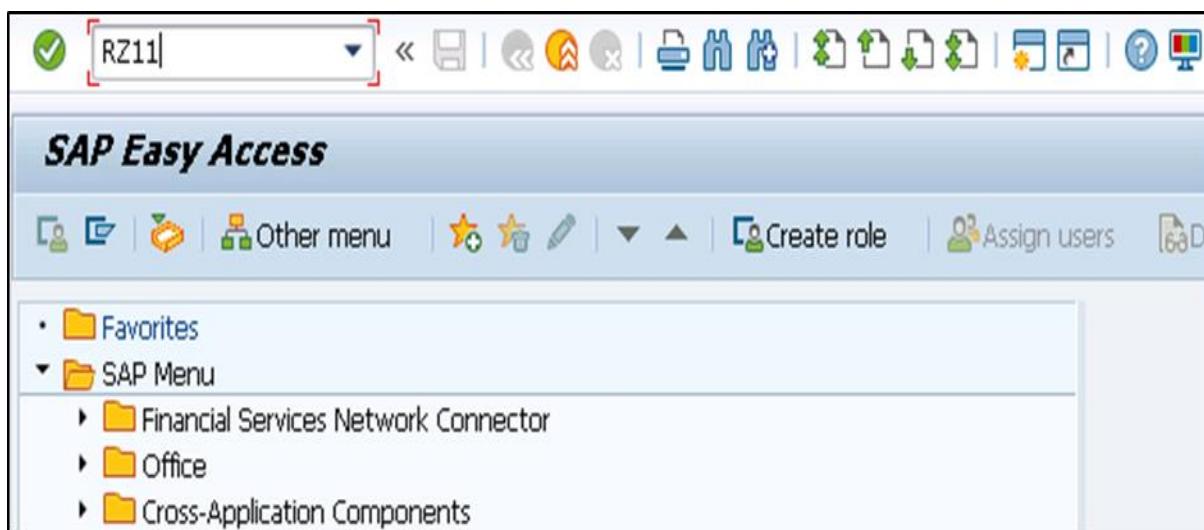
## 10. SAP Basis — Number of Login Attempts

You can set the number of incorrect login attempts and then system can end the session or can also lock the user account if parameter value is set by the administrator. The following two parameters are used to limit the login attempts:

- **Static** – This parameter doesn't apply immediately. the system needs restart for this.
- **Dynamic** – This parameter can be applied directly and the system does not need to restart for this.

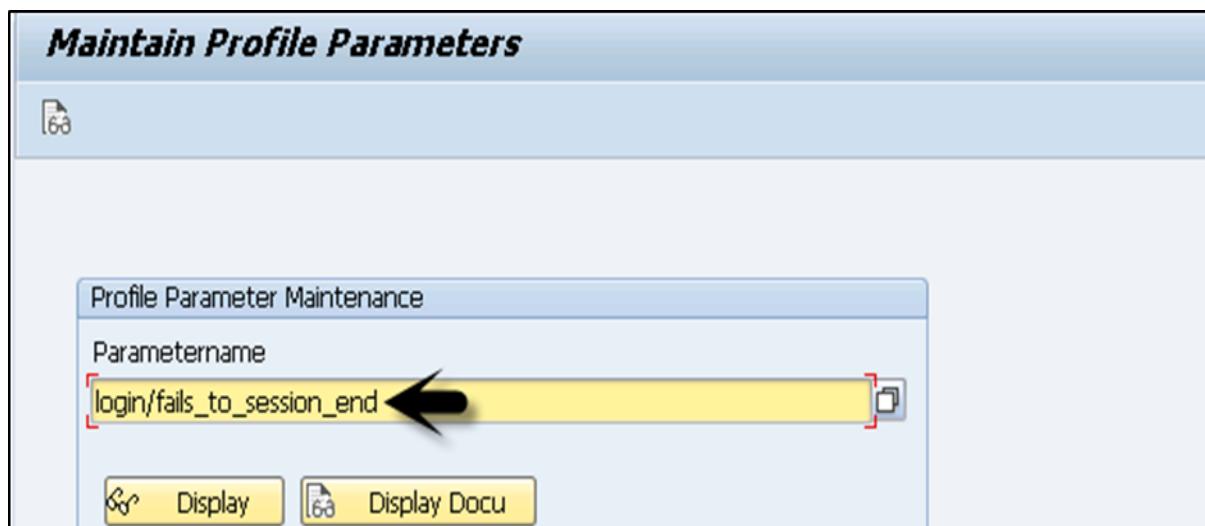
Follow these steps to set the value of parameters:

**Step 1:** Use transaction code — RZ11.



**Step 2:** Enter the parameter name and click on Display. To edit a parameter, click on Edit.

**Step 3:** To set the number of failed attempts, put parameter name — ***login/fails\_to\_session\_end***. You can put any parameter name.



**Step 4:** To check the current policy, click on Display.

Metadata for Parameter login/fails_to_session_end	
Description	Value
Name	login/fails_to_session_end
Type	Integer
Further Selection Criteria	
Unit	
Parameter Group	Login
Parameter Description	Number of invalid login attempts until session end
CSN Component	BC-SEC-LGN
System-Wide Parameter	No
Dynamic Parameter	No
Vector Parameter	No
Has Subparameters	No
Check Function Exists	No

Current Value of Parameter login/fails_to_session_end	
Expansion Level	Value
Kernel Default	3
Standard Profile	3
Instance Profile	3
Current Value	3

### Important parameters to limit login attempts

- **login/fails\_to\_session\_end:** This parameter defines the number of times that a user can enter an incorrect password before the system ends the logon attempt. The parameter should be set lower than the value of parameter.
- **login/fails\_to\_user\_lock:** This parameter is used to define the number of times that a user can enter an incorrect password before the system locks the current user account. The default value is 12 and can be set to any value between 1 and 99 inclusive.

## Password Policy

---

It is also possible to define password policy for users in SAP system in the following ways:

- A user has to set minimum password length.
- There needs to be an expiry policy for the passwords.
- Password complexity and other such aspects need to be considered too

The following parameters are used to define system password policy:

### **login/min\_password\_lng**

This is used to define minimum password length. The default value for this field is 3 characters and can be set to any value between 3 and 8.

### **login/password\_expiration\_time**

This parameter is used to define the number of days after which a password expires. To allow users to keep their password from expiring without any limit, set the default value to 0.

## Limit Users on Password Selection

---

You can also select the password which you don't want users to choose. These passwords are maintained in table USR40 and transaction code SM30 is used for this purpose.

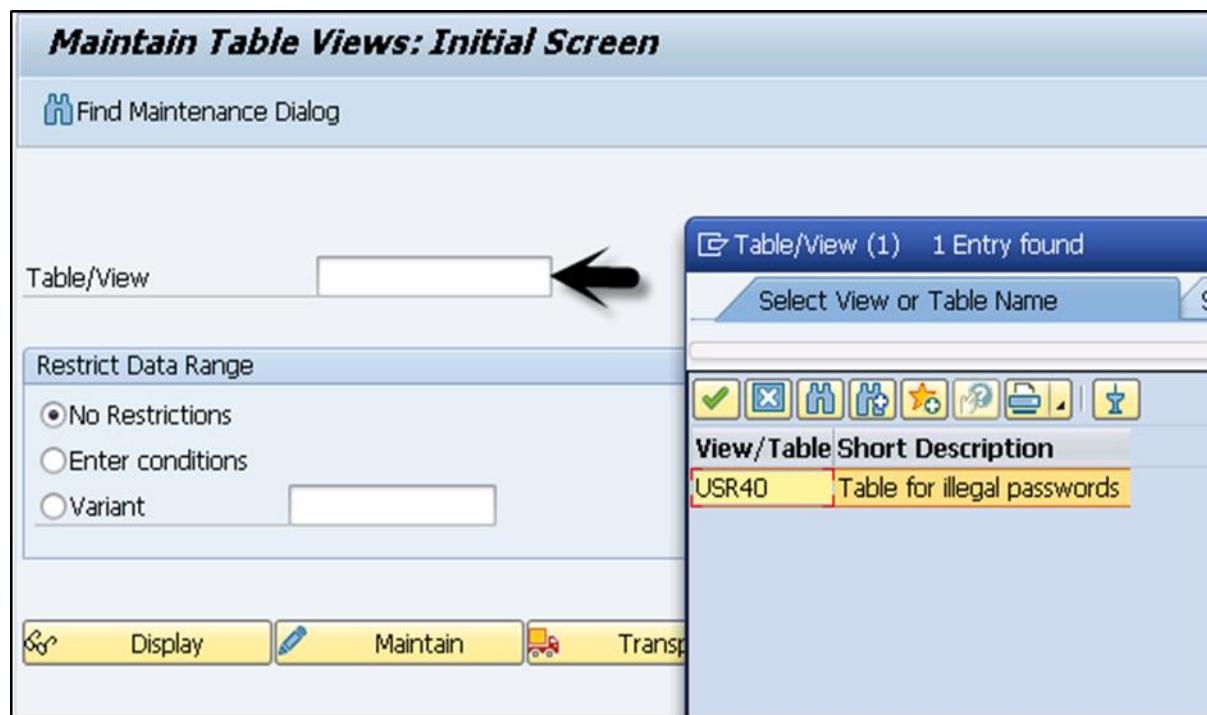
There are two wildcard characters:

- ?- stands for a single character.
- \*- stands for a sequence of any combination characters of any length.

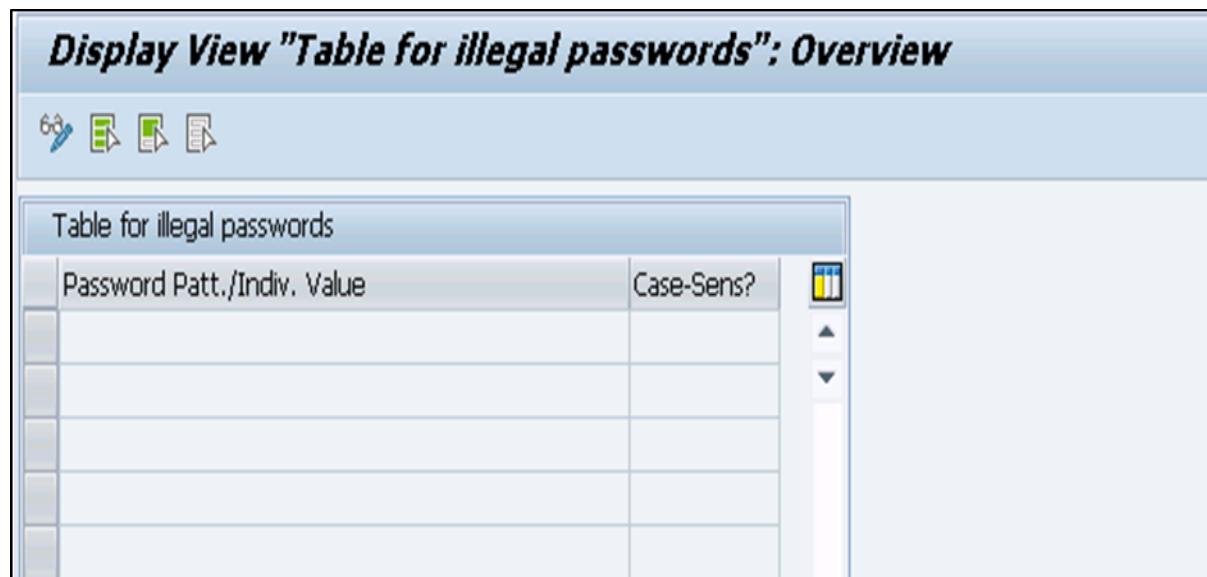
If you select **123\*** in table USR40, it means that any password that begins with the sequence "123." is prohibited

If you enter **\*123\***, it prohibits any password that contains the sequence "123."

If you select **AB?**, passwords that begin with "AB" and an additional character will not be allowed. For example — "ABB", "ABF", etc.

**Transaction Code — SM30**

Select the table and click the Display button below. Enter the password string.



# 11. SAP Basis — Job Processing

## Executing Background Jobs in SAP

Background jobs in SAP system run in the background without affecting normal operations in the system. These jobs are used to reduce manual effort and to automate the process. They can run in the background without any user input and can be scheduled to run when the system load is low.

Background jobs can be divided into three categories:

### Class A (High Priority)

This is used for urgent or critical tasks and must be scheduled with class A priority job. Class A job reserves one or more background work processes.

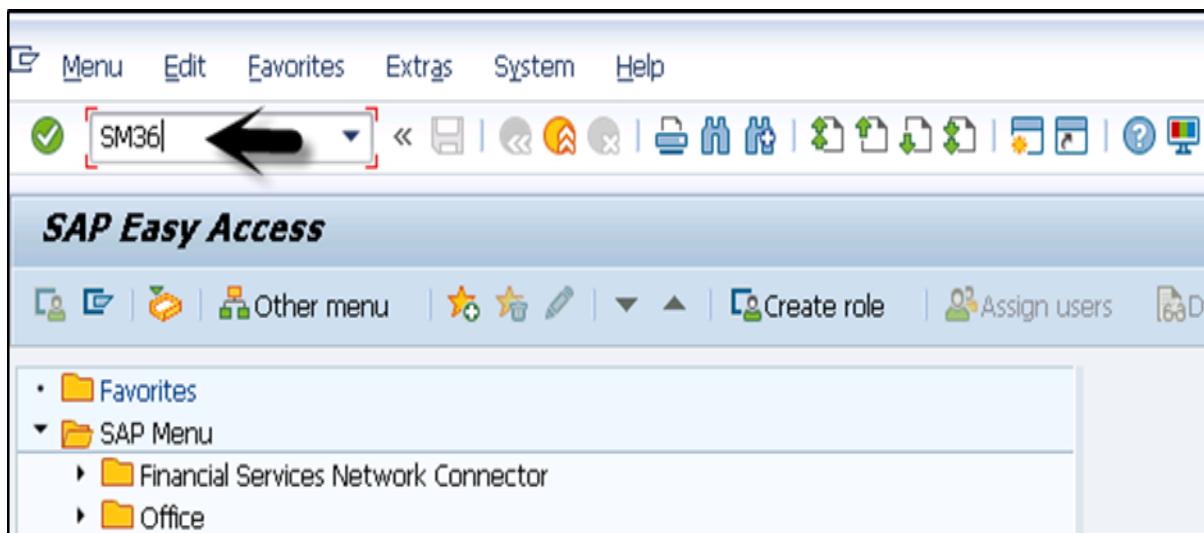
### Class B (Medium Priority)

These jobs are executed after the completion of high priority jobs of Class A.

### Class C (Low Priority)

The jobs in this category run once class A and class B jobs are completed.

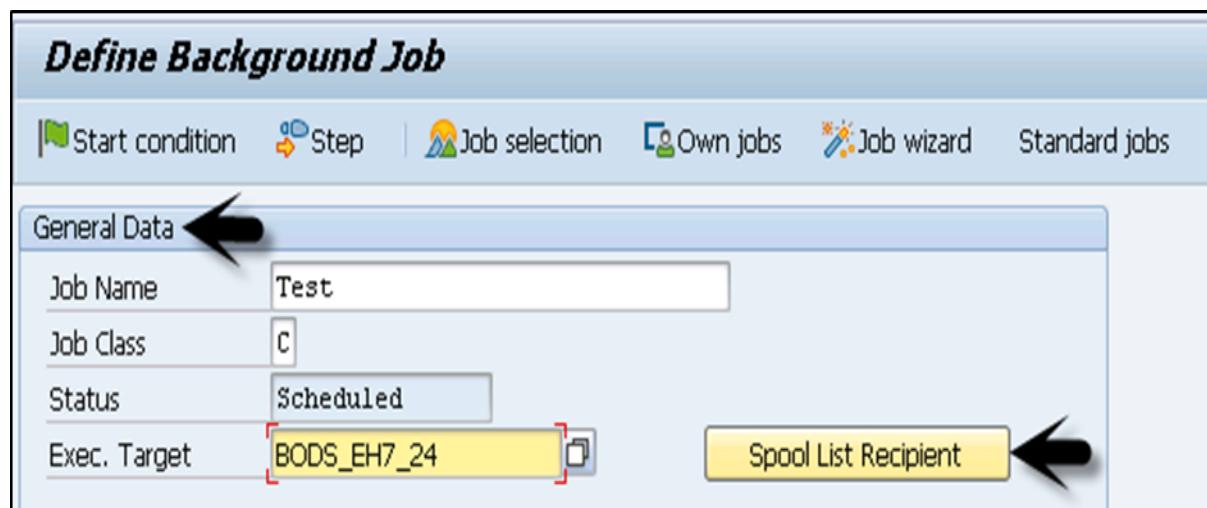
#### Transaction Code SM36



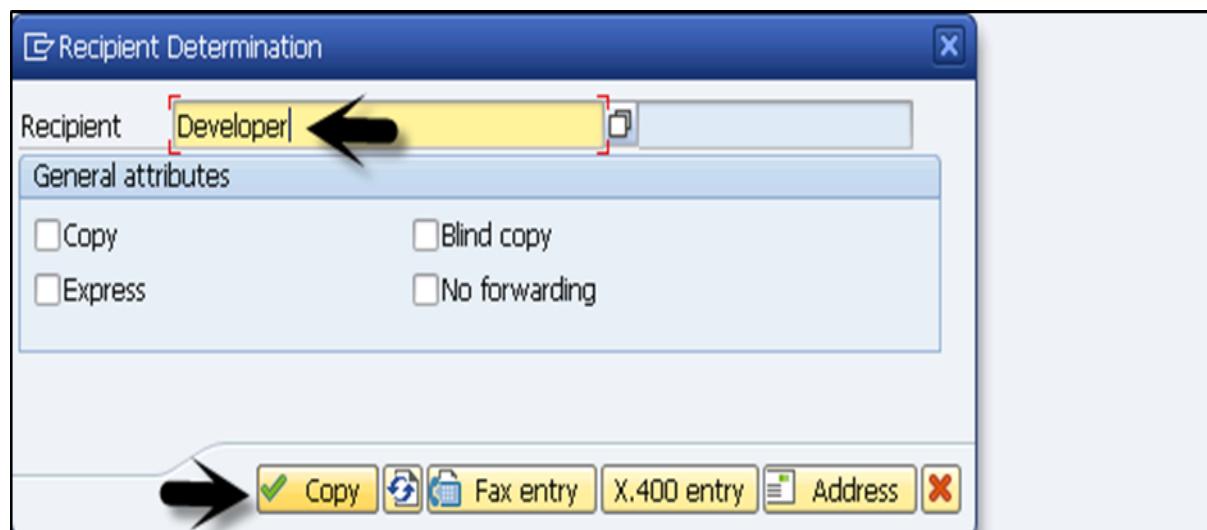
#### General Data

Enter the Job Name and its Priority.

Select the target server on which you want to execute the job. This is used for load balancing; you can define the target server on which you want to run the job.



Using Spool List Recipient, enter the email id if you want to get the results in email.

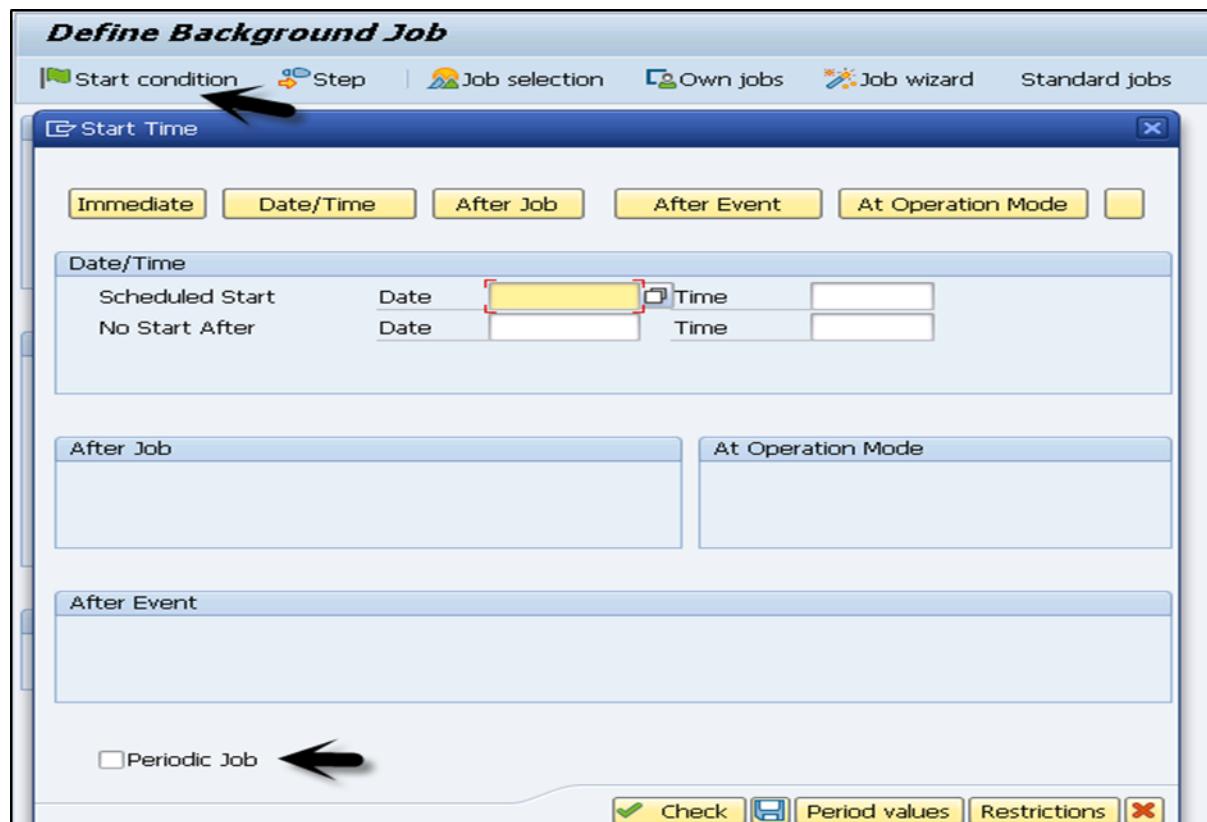


To define the steps for execution, go to the Step Tab. Enter program name, variant name in the field. If you have not created variant as per your requirement, then leave it blank. Click on the save button at the bottom.



<b>Step List Overview</b>						
No.	Program name/command	Prog. type	Spool list	Parameters	User	Lang.
1	/IACC/ARCH_M85000B	ABAP			HANAUSER	EN

To pass the start condition, enter the start date, end date, frequency, etc. In case the start condition is not specified, then the job will remain in scheduled state and will not run. Various options can be used to define the start condition. To create a periodic job, select the box at the bottom.



Once the schedule is defined, click on Save.

**Define Background Job**

Start condition Step Job selection Own jobs Job wizard Standard jobs

**General Data**

Job Name	TEST
Job Class	C
Status	Scheduled
Exec. Target	BODS_EH7_24
Spool List Recipient	

**Job Start**

Planned Start	Date 01.09.2015 Time 09:07:16
No Start after	Date 01.09.2015 Time 11:07:20

**Job Frequency**

**Job Steps**

1 Step(s) successfully defined

## 12. SAP Basis — Unscheduling a Background Job

To unschedule a job so that it doesn't run in future, you have to release the job.

Follow these steps to unschedule a background job:

**Step 1:** Use transaction code — SM37

(If a job is in **active** state, it can't be unscheduled till it's completed.)

**Step 2:** Enter the job name and username. To unschedule a job, select **Released** and **Ready** from the Job Status tab. Enter the Job Start Condition and click on Execute.

The screenshot shows the SAP SM37 - Simple Job Selection interface. At the top, there are three buttons: 'Execute' (with a green play icon), 'Extended job selection' (with a green folder icon), and 'Information' (with a blue info icon). Below these are fields for 'Job Name' (containing 'TEST') and 'User Name' (containing 'HANAUSER'). A large black arrow points to the 'Released' checkbox in the 'Job Status' section. The 'Job Status' section also includes checkboxes for 'Sched.', 'Ready', 'Active', 'Finished', and 'Canceled'. Below the status section is the 'Job Start Condition' section, which includes date and time fields for 'From' and 'To' (both set to '01.09.2015') and a dropdown for 'or after event'. At the bottom is the 'Job Step' section, which includes an 'ABAP Program Name:' field with an empty input box.

**Job Overview**

Job overview from: 01.09.2015 at: : :  
to: 01.09.2015 at: : :

Selected job names: TEST  
Selected user names: HANAUSER

Scheduled  Released  Ready  Active  Finished  Canceled  
 Event controlled Event ID:  
 ABAP program Program name :

JobName	Spool	Job doc	Job CreatedB	Status	Start date	Start Time	Duration(sec.)	Delay (sec.)
TEST			HANAUSER	Released			0	0
*Summary							0	0

**Step 3:** You will receive the confirmation and also the other details of the Job as in the above screenshot once the job is released.

# 13. SAP Basis — Monitoring a Background Job

Monitoring a background job is important in SAP system because once you schedule the job it might be cancelled due to some error.

Follow these steps to monitor a background job:

**Step 1:** Use transaction code — SM37

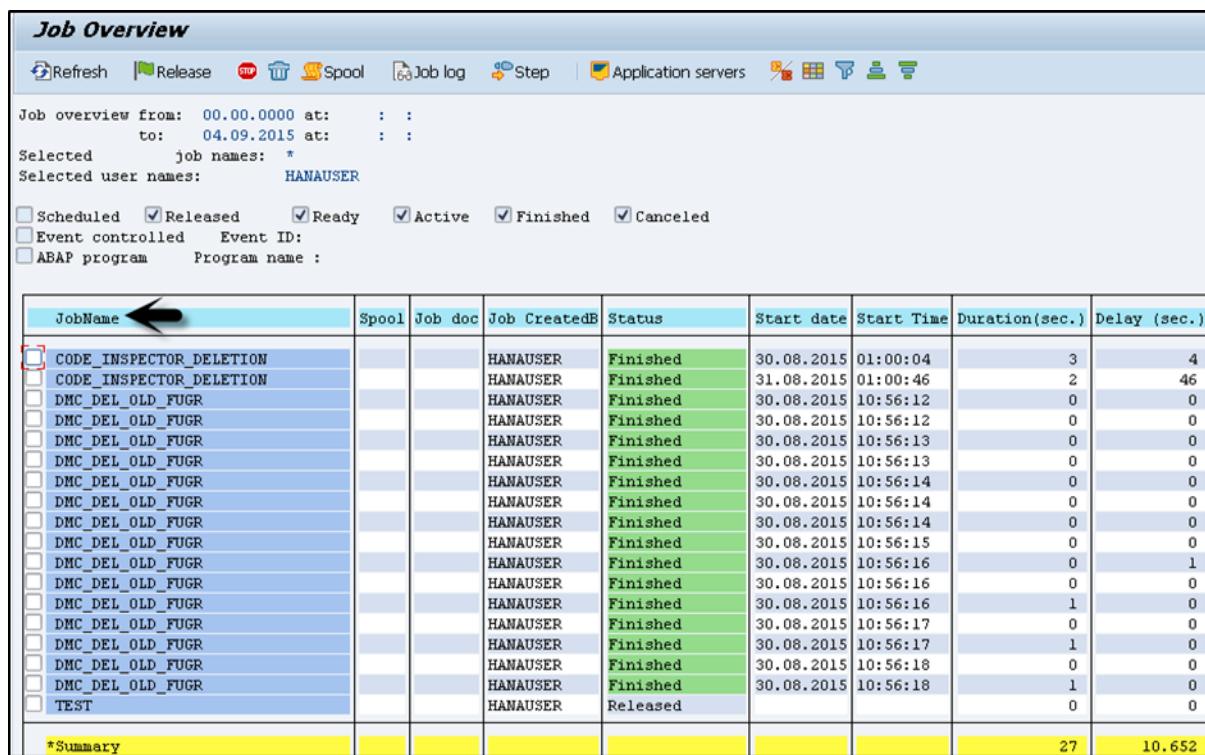
**Step 2:** Use \* in the Job Name column and select the status to see all the jobs created by this user. Also enter the date range as per the requirement and then Execute.

The screenshot shows the SAP Simple Job Selection dialog box. At the top, there are three buttons: 'Execute' (with a green checkmark icon), 'Extended job selection' (with a green arrow icon), and 'Information' (with a blue information icon). Below these are two input fields: 'Job Name' containing '\*' and 'User Name' containing 'HANAUSER'. Under the 'Job Status' section, several checkboxes are available: 'Sched.' (unchecked), 'Released' (checked), 'Ready' (checked), 'Active' (checked), 'Finished' (checked), and 'Canceled' (checked). In the 'Job Start Condition' section, there are two date ranges: 'From' (calendar icon) and 'To' (calendar icon) set to '04.09.2015', and another pair of 'From' and 'To' fields. Below this, there is a dropdown menu labeled 'or after event:'.

**Step 3:** Upon execution, all the jobs that have been created by the mentioned user and match the selection criteria are displayed.

Details like Job name, Job Created By, Status, Start Date, Duration, Delay, etc. are shown.

**Job Overview**



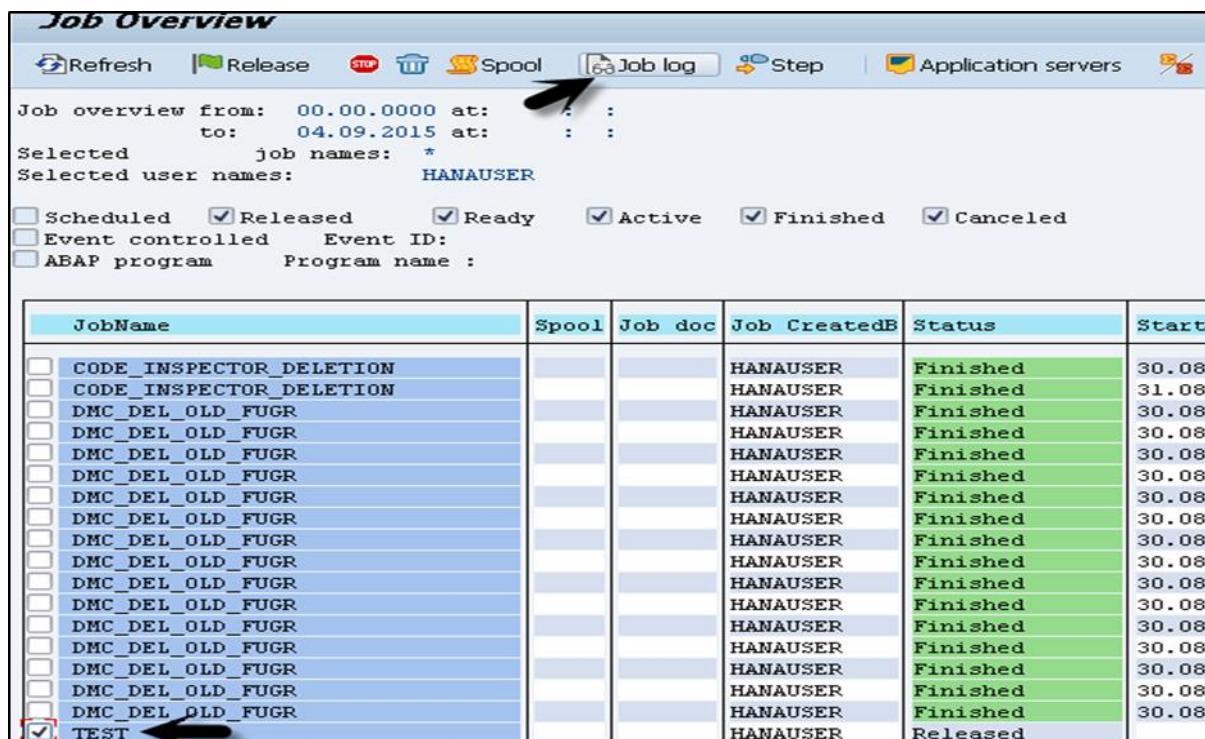
Job overview from: 00.00.0000 at: : :  
to: 04.09.2015 at: : :  
Selected job names: \*  
Selected user names: HANAUSER

Scheduled  Released  Ready  Active  Finished  Canceled  
 Event controlled Event ID:  
 ABAP program Program name :

JobName	Spool	Job doc	Job CreatedB	Status	Start date	Start Time	Duration(sec.)	Delay (sec.)
CODE_INSPECTOR_DELETION			HANAUSER	Finished	30.08.2015	01:00:04	3	4
CODE_INSPECTOR_DELETION			HANAUSER	Finished	31.08.2015	01:00:46	2	46
DMC_DEL_OLD_FUGR			HANAUSER	Finished	30.08.2015	10:56:12	0	0
DMC_DEL_OLD_FUGR			HANAUSER	Finished	30.08.2015	10:56:12	0	0
DMC_DEL_OLD_FUGR			HANAUSER	Finished	30.08.2015	10:56:13	0	0
DMC_DEL_OLD_FUGR			HANAUSER	Finished	30.08.2015	10:56:13	0	0
DMC_DEL_OLD_FUGR			HANAUSER	Finished	30.08.2015	10:56:14	0	0
DMC_DEL_OLD_FUGR			HANAUSER	Finished	30.08.2015	10:56:14	0	0
DMC_DEL_OLD_FUGR			HANAUSER	Finished	30.08.2015	10:56:14	0	0
DMC_DEL_OLD_FUGR			HANAUSER	Finished	30.08.2015	10:56:15	0	0
DMC_DEL_OLD_FUGR			HANAUSER	Finished	30.08.2015	10:56:16	0	1
DMC_DEL_OLD_FUGR			HANAUSER	Finished	30.08.2015	10:56:16	0	0
DMC_DEL_OLD_FUGR			HANAUSER	Finished	30.08.2015	10:56:16	1	0
DMC_DEL_OLD_FUGR			HANAUSER	Finished	30.08.2015	10:56:17	0	0
DMC_DEL_OLD_FUGR			HANAUSER	Finished	30.08.2015	10:56:17	1	0
DMC_DEL_OLD_FUGR			HANAUSER	Finished	30.08.2015	10:56:18	0	0
DMC_DEL_OLD_FUGR			HANAUSER	Finished	30.08.2015	10:56:18	1	0
TEST			HANAUSER	Released			0	0
*Summary							27	10.652

**Step 4:** To check the job log, you can select the job and click on the Job Log button.

**Job Overview**



Job overview from: 00.00.0000 at: : :  
to: 04.09.2015 at: : :  
Selected job names: \*  
Selected user names: HANAUSER

Scheduled  Released  Ready  Active  Finished  Canceled  
 Event controlled Event ID:  
 ABAP program Program name :

JobName	Spool	Job doc	Job CreatedB	Status	Start
CODE_INSPECTOR_DELETION			HANAUSER	Finished	30.08
CODE_INSPECTOR_DELETION			HANAUSER	Finished	31.08
DMC_DEL_OLD_FUGR			HANAUSER	Finished	30.08
DMC_DEL_OLD_FUGR			HANAUSER	Finished	30.08
DMC_DEL_OLD_FUGR			HANAUSER	Finished	30.08
DMC_DEL_OLD_FUGR			HANAUSER	Finished	30.08
DMC_DEL_OLD_FUGR			HANAUSER	Finished	30.08
DMC_DEL_OLD_FUGR			HANAUSER	Finished	30.08
DMC_DEL_OLD_FUGR			HANAUSER	Finished	30.08
DMC_DEL_OLD_FUGR			HANAUSER	Finished	30.08
DMC_DEL_OLD_FUGR			HANAUSER	Finished	30.08
DMC_DEL_OLD_FUGR			HANAUSER	Finished	30.08
DMC_DEL_OLD_FUGR			HANAUSER	Finished	30.08
DMC_DEL_OLD_FUGR			HANAUSER	Finished	30.08
DMC_DEL_OLD_FUGR			HANAUSER	Finished	30.08
DMC_DEL_OLD_FUGR			HANAUSER	Finished	30.08
TEST			HANAUSER	Released	30.08

Job Log Entries for DMC_DEL_OLD_FUGR / 10561503					
Date	Time	Message text	Message class	Message no.	Message type
30.08.2015	10:56:16	Job started	00	516	S
30.08.2015	10:56:16	Step 001 started (program DMCDELRT, variant &000000000686, user ID HANAUSER)	00	550	S
30.08.2015	10:56:16	Function group /1CADMC/DMC80000000000158 does not exist	FL	652	I
30.08.2015	10:56:16	Function group /1CADMC/DMC800000000000158 does not exist	FL	652	I
30.08.2015	10:56:16	Job finished	00	517	S

# 14. SAP Basis — Deleting a Background Job

You can delete jobs from the SAP system. These jobs may no longer be required and may occupy a lot of space on the system. Jobs can be deleted in the following two ways:

- Single Job
- Multiple Jobs

Follow these steps to delete a single job:

**Step 1:** Use transaction code — SM37.

**Step 2:** Use \* in the Job Name column and select the status to see all the jobs created by this user. Also enter the date range as per the requirement and then Execute.

The screenshot shows the SAP Simple Job Selection dialog box. At the top, there are three buttons: 'Execute' (with a green checkmark icon), 'Extended job selection' (with a green arrow icon), and 'Information' (with a blue information icon). Below these are two input fields: 'Job Name' containing '\*' and 'User Name' containing 'HANAUSER'. Under the 'Job Status' section, several checkboxes are available: 'Sched.' (unchecked), 'Released' (checked), 'Ready' (checked), 'Active' (checked), 'Finished' (checked), and 'Canceled' (checked). In the 'Job Start Condition' section, there are four date/time fields: 'From' (with a calendar icon) and 'To' (with a calendar icon) are both set to '04.09.2015'; 'From' (with a clock icon) and 'To' (with a clock icon) are both empty. Below these fields is a dropdown menu labeled 'or after event:'.

**Step 3:** Upon execution, all the jobs that have been created by the mentioned user and match the selection criteria are displayed.

Details like Job name, Job Created By, Status, Start date, Duration, Delay, etc. are shown. Select the job you want to delete from the database -> Delete

Job overview from: 00.00.0000 at: : :  
to: 02.09.2015 at: : :  
Selected job names: \*  
Selected user names: HANAUSER

Scheduled  Released  Ready  Active  Finished  Canceled  
 Event controlled Event ID:  
 ABAP program Program name :

JobName	Spool	Job doc	Job CreatedB	Status	Start date	Start Time	Duration(sec.)	Delay (sec.)
BI_WRITE_PROT_TO_APPLLOG			HANAUSER	Released			0	0
<b>CODE_INSPECTOR_DELETION</b>			HANAUSER	Released			0	0

**Step 4:** To delete multiple jobs, use transaction code — SE38. Use report — RSBTCDEL2 (New version of RSBTCDEL). Old job logs will be deleted and will not show in the job overview. Enter program and click on Execute.

ABAP Editor: Initial Screen

Program **RSBTCDEL2**

Subobjects  
 Source Code  
 Variants  
 Attributes  
 Documentation  
 Text elements

Display Change

**Step 5:** In the next screen, enter the details such as the Job Name you want to delete. You can put \* to indicate all jobs. If you want to delete jobs from a specific user, enter the username.

**Step 6:** Mention the status of Jobs to be deleted and the time period of deletion.

**Step 7:** Specify Commit — Commit value is proportional to program performance. If the commit value is high, then job deletion will run faster. Recommended value is  $\geq 1000$ .

**Step 8:** Check Test run to simulate the deletion and this way jobs will not be deleted. When you are sure, uncheck the Test run and press Execute.

**Deletion of Jobs**

Differentiation Specifications of Jobs

Job Name	hanauser	<input style="width: 20px; height: 20px;" type="button" value="..."/>
User Name		<input style="width: 20px; height: 20px;" type="button" value="..."/>
Event		<input style="width: 20px; height: 20px;" type="button" value="..."/>
Event Parameter		<input style="width: 20px; height: 20px;" type="button" value="..."/>

Statuses, Classes, and Time Specifications

Job Class:			
	A	B	C
Released	<input type="checkbox"/>	Older Than (Days)	14
Scheduled	<input type="checkbox"/>	Older Than (Days)	14
Finished	<input checked="" type="checkbox"/>	Older Than (Days)	14
Canceled	<input checked="" type="checkbox"/>	Older Than (Days)	14

Performance Optimization

Commit	1.000	<input style="width: 20px; height: 20px;" type="button" value="..."/>
Do Not Delete Temporary Variants <input type="checkbox"/>		

Execution

Test Run	<input checked="" type="checkbox"/>	<input style="width: 20px; height: 20px;" type="button" value="..."/>
Output the Statistics in the Background (Deletion Mode)		
Before	<input type="checkbox"/>	
After	<input type="checkbox"/>	

**Step 9:** When you click on Test run, it will show you the list of all jobs matching the criteria. If there is any change you want to make, you can do it before completing the deletion.

**Job List**

Index	Start Date	Start Time	End Date	End Time	Job Name	Job Count	Created By	Status
1	03.04.2014	01:10:43	03.04.2014	01:10:43	/BDL/TASK_PROCESSOR	00104200	SAP*	Finished
2	03.04.2014	02:10:43	03.04.2014	02:10:44	/BDL/TASK_PROCESSOR	01104300	SAP*	Finished
3	03.04.2014	03:10:44	03.04.2014	03:10:44	/BDL/TASK_PROCESSOR	02104300	SAP*	Finished
4	03.04.2014	04:10:45	03.04.2014	04:10:45	/BDL/TASK_PROCESSOR	03104400	SAP*	Finished
5	03.04.2014	05:10:45	03.04.2014	05:10:46	/BDL/TASK_PROCESSOR	04104500	SAP*	Finished
6	03.04.2014	06:10:46	03.04.2014	06:10:47	/BDL/TASK_PROCESSOR	05104500	SAP*	Finished
7	03.04.2014	07:10:46	03.04.2014	07:10:46	/BDL/TASK_PROCESSOR	06104600	SAP*	Finished
8	03.04.2014	08:10:47	03.04.2014	08:10:47	/BDL/TASK_PROCESSOR	07104600	SAP*	Finished
9	03.04.2014	09:10:47	03.04.2014	09:10:48	/BDL/TASK_PROCESSOR	08104700	SAP*	Finished
10	03.04.2014	10:10:48	03.04.2014	10:10:48	/BDL/TASK_PROCESSOR	09104700	SAP*	Finished
11	03.04.2014	11:11:19	03.04.2014	11:11:20	/BDL/TASK_PROCESSOR	10104800	SAP*	Finished

# 15. SAP Basis — Managing Transports

## Transport Management System Overview (TMS)

Transport Management System is one of the key components in SAP system. TMS is used to control new requests, monitor changes like who has implemented the changes, defining and configuring system landscape in SAP environment.

TMS consists of 3 different Change and Transport System (CTS) components:

### Change and Transport Organizer (CTO)

Transaction Code — SE01

This is used to manage, configure the changes in SAP repository and other objects. This provides you a central environment for development and configuration projects.

### Transport Management System (TMS)

This is used to manage, control and copy development objects and for customization of settings across SAP systems in landscape using pre-defined transport routes configured with RFC Connections. This includes exporting the objects from one SAP system and importing to another target system.

### Transport Tools

Tools are a part of SAP Kernel and are used to manage R3 trans and transport control program.

R3trans is known as SAP system transport which is used to transport the objects between different SAP systems. It is usually called for other transport control program, in particular from tp or by using SAP upgrade utilities.

Transport control program is used to support data and object transport between different systems running on different platforms and also on different database.

## Configuring Transport Management

Transport management is one of the key components in SAP system landscape and is used to perform the following activities:

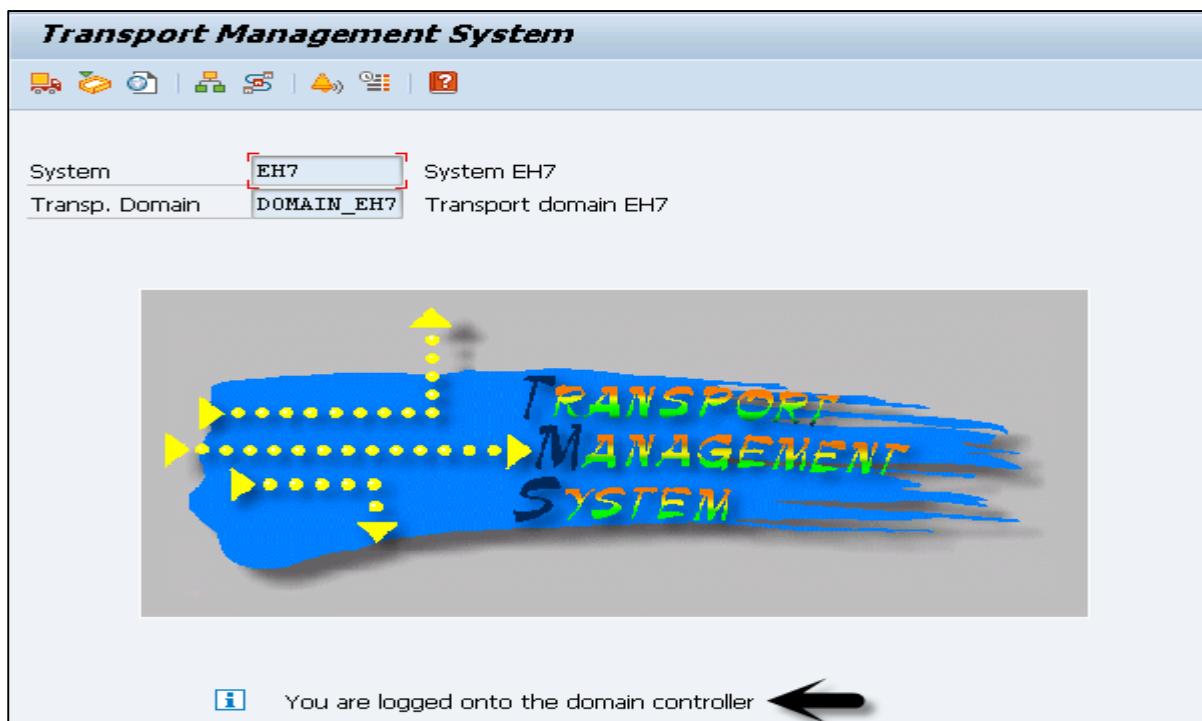
- Defining Transport Domain Controller
- Configuring the SAP system landscape
- Defining the Transport Routes among systems within the system Landscape
- Distributing the configuration

## Transport Domain Controller

This is used to manage all TMS configuration details. Any changes to configuration settings are distributed across all systems. To set up the Domain controller, use transaction code — STMS

In case, the SAP system doesn't have a Domain Controller, you will be prompted to create a new one. Transport domain includes the following activities:

- User creation TMSADM
- RFC connection and request creation, TMSADM is used login to target system
- DOMAIN.CFG file is created under usr/sap/trans/bin directory which stores TMS configuration and is used by systems and domains for checking existing configurations.



Follow these steps to add a system to Transport domain:

**Step 1:** Log on to the SAP system, that you want to add as a System, in client 000 and enter the transaction code — STMS. If system is not added, TMS will check configuration file DOMAIN.CFG and will prompt you to create one. Click on — **Select the Proposal and Save**. The system will remain in 'Waiting' status initially.

To complete the task-> login to the Domain Controller System -> Transaction STMS -> Go to Overview -> Systems.

You can now see that a new system is available. Go to SAP System -> Approve

**SAP Easy Access**

- Menu Edit Favorites Extras System Help
- STMS
- SAP Easy Access
- Other menu Create role Assign users
- Favorites SAP Menu Financial Services Network Connector

**Systems**

Imports	F5
Worklist	F6
<b>Systems</b>	<b>Shift+F6</b>
Transport Routes	Shift+F7
Exit	Shift+F3

System EH7 System EH7  
Transp. Domain DOMAIN\_EH7 Transport domain EH7

**SAP System**

- Create
- Change
- Display Ctrl+F3
- Check
- Approve**
- Lock F9
- Unlock
- Update Configuration Ctrl+F2
- Delete Shift+F2
- Exit Shift+F3

DOMAIN\_EH7

01.09.2015 12:23:39

	Release	Status	Conf
	740		

# 16. SAP Basis — Managing Transport Routes

Transport routes are defined as routes that are defined by a SAP Administrator to transmit the changes between different SAP systems.

The following are the two types of transport routes:

- **Consolidation** (From DEV to QAS) — Transport Layers are used
- **Delivery** (From QAS to PRD) — Transport Layers not required

## Transport Request

---

This contains a number of changes to be implemented in the development system. It consists of the types of changes, purpose, change category, target system and other details.

Transport request are named in a standard format like **<SID>K<Number>**

For example, in **<SID>K<Number>**:

- SID represents System ID
- K stands for fixed keyword/alphabet
- Number can be anything from a range starting with 900001

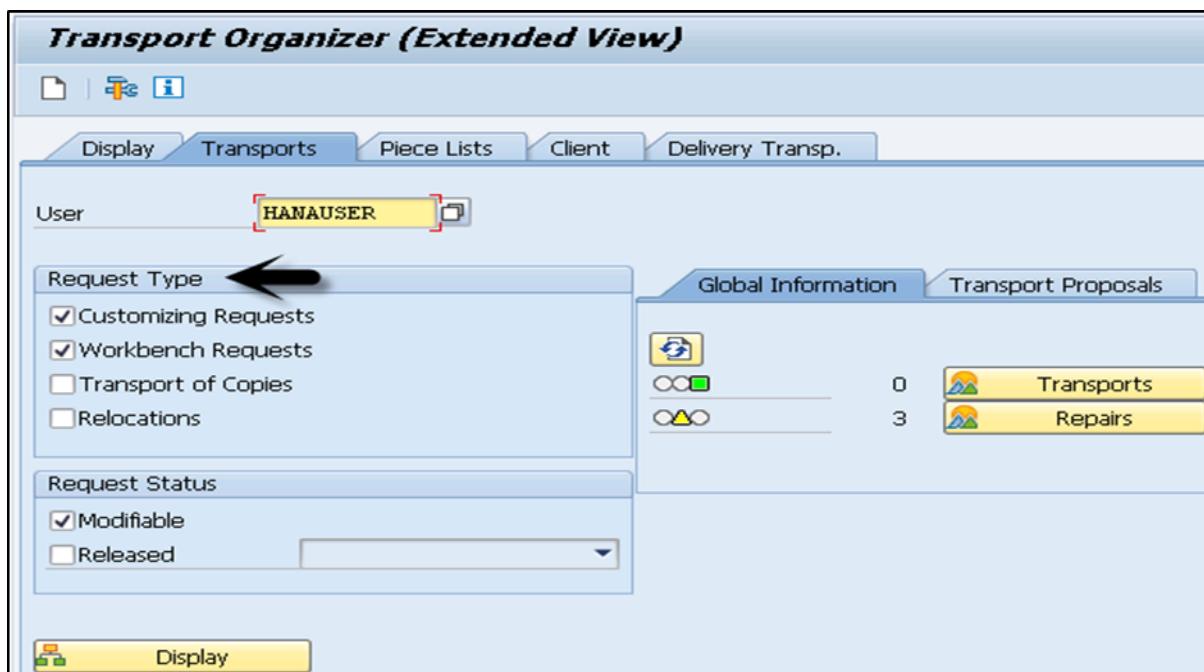
There are two type of request types that can be created in the SAP system:

### Workbench Request

This request type contains the repository objects and cross-client customizing objects. Workbench requests are used to make changes in the ABAP workbench objects.

### Customizing Request

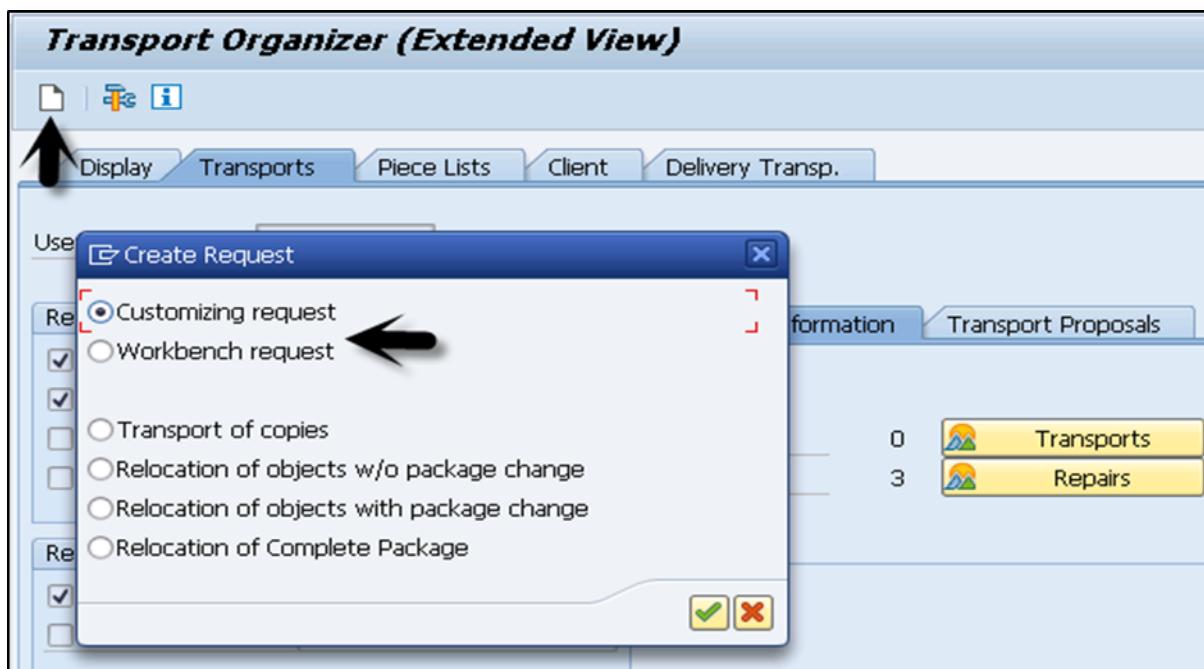
This request type contains objects that belong to 'client-specific' customizing. These requests are created in system automatically when a user performs customizing setting and a target system is automatically assigned as per the transport layer.



To create a Transport Request, use transaction code — SE01

A Transport Request can be created in the following two ways:

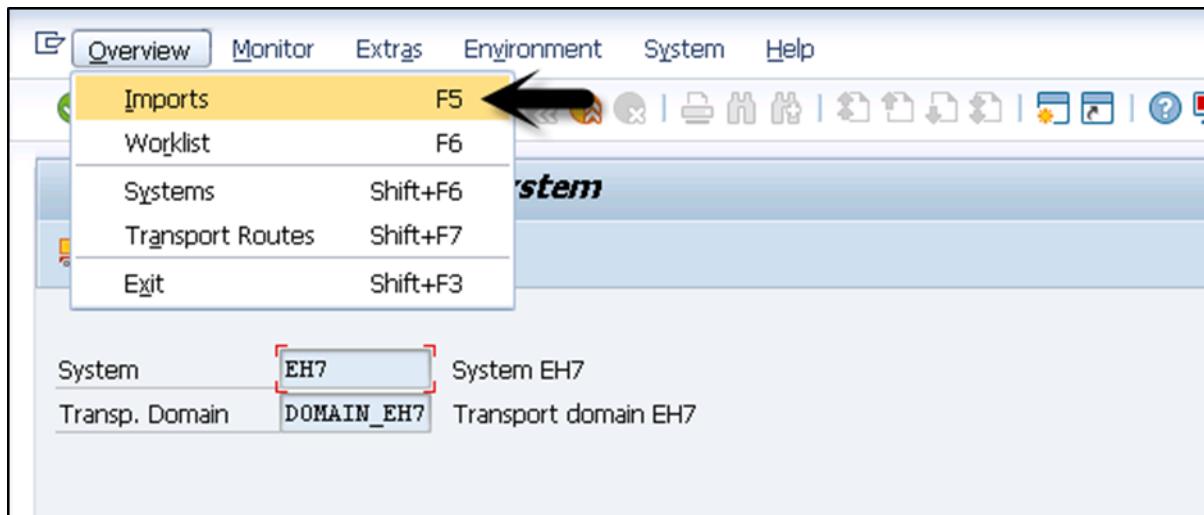
- **Automatic** — This way you can create or modify an object, or perform customizing settings. Here, the system displays the 'Dialog box' for creating a transport request or mention name of an already created request, if available.
- **Manual** — This way you can create the transport request from the Transport Organizer, and then enter required attributes and insert objects.



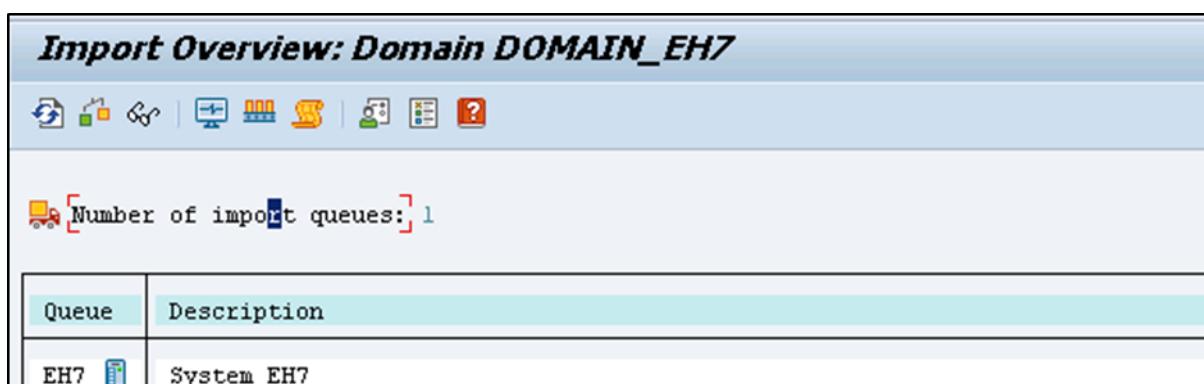
## Import / Export of Objects

Once transport request is completed in the source system, you have to export the request from the source system and import it to the target system. To perform the import, you have to select an import queue.

Transaction STMS -> Import or you can go to Overviews tab at the top -> Imports



You can see a list of systems in the current domain, description and a number of requests available in **Import Queue** and the status.

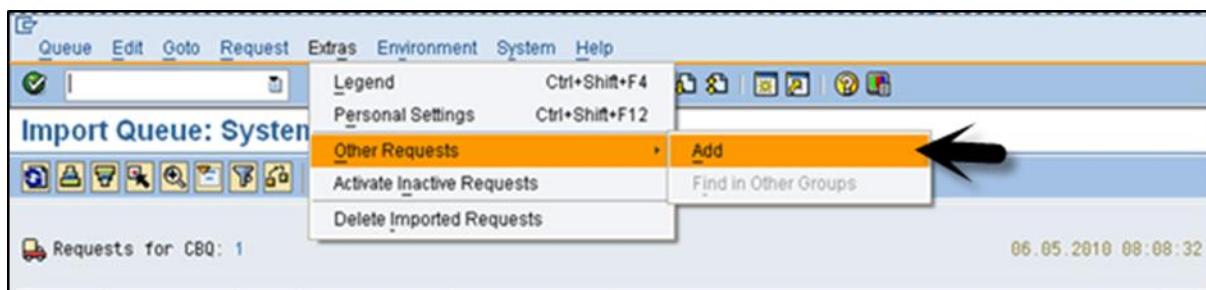


### Import a Queue

This list contains Transport Requests in the common directory. These requests are ready to be imported to the target system.

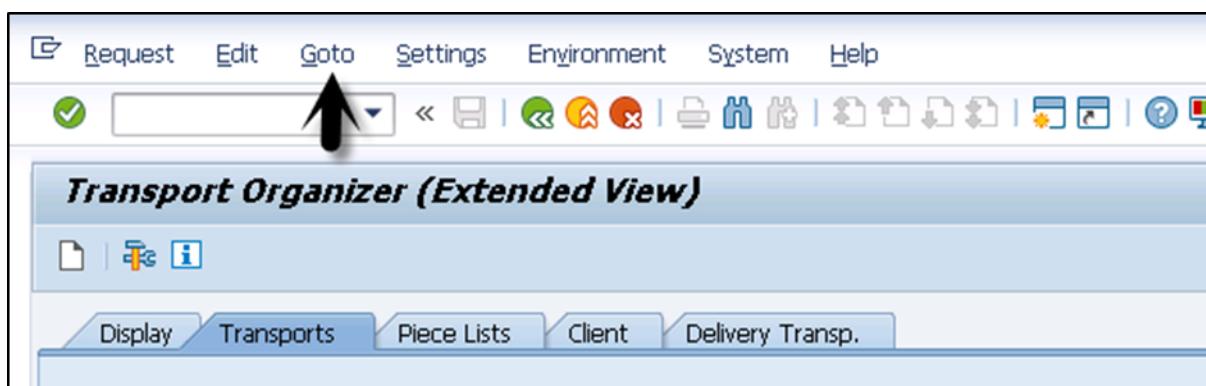


To add a request manually, you can go to other requests -> Add (you should know the name of Transport request).



## Transport Request Logs

You can also check the logs once the transport request is completed. To check the logs, use transaction code — SE01 -> GoTo -> Transport Logs



There are two types of logs available in Transport Management System:

### Transport Logs

It keeps track of the transport log files that have been moved in a Transport Request.

### Action Log

It includes the details of all the actions that have been performed in a Transport Request. Actions such as exports, import, etc.

One of the important functions provided by the logs are the following return codes:

- **0** — This value represents that export was successful.
- **4** — This value represents that a warning was issued and the objects were transported successfully.
- **8** — This value represents that a warning was issued and at least one object could not be transported.
- **12 or higher** — This value represents an error in transport request and it is generally not caused by the objects in Transport Request. This probably occurs because of system failure.

# 17. SAP Basis — Patch Management

In SAP system, a patch is used to fix a bug. There are different types of patches that can be used in SAP system. All patches start with SAPK followed by patch type.

The following are the four different types of patches:

- ABAP (SAPKA620XXXX)
- BASIS (SAPKB620XXXX)
- HR (SAPKE470XXXX)
- APPLICATIONS (SAPKH470XXXX)

A patch follows this structure — SAPKA <Rel><No>

Patches are also called support packs and they should be applied in the following sequence:

- BASIS (SAPKB620XXXX)
- ABAP (SAPKA620XXXX)
- HR (SAPKE470XXXX)
- APPLICATIONS (SAPKH470XXXX)

## **Support Packages and Add-ons**

---

As the name suggests, support packages are used to fix the bug and to improve the quality of SAP system. Support package implementation and administration is done with Transaction Spam (Support Package Manager). Each support package is valid for one release and Support Package Manager ensures that all support packages are applied in a specified order.

Support packs are applied in the above mentioned order — Basis > ABAP > HR > Applications. It is not necessary that Basis and ABAP patch levels should be same but SAP recommends that they should be at the same level. Generally, Basis and ABAP should be applied together however to apply one first, it should be Basis.

All support packs are applied with client 000. Support packages should be imported at regular intervals to avoid errors and to keep system landscape up to date.

There are different types of support packages available:

- **SPAM Update** — A SPAM Update contains updates and improvements to Support Package Manager (SPAM) and Add-On Installation Tool.
- **Component Support Package** — This contains improvement for one software component such as SAP Basis, SAP HR or SAP APPLICATIONS and to update repository and dictionary objects.

The following table shows some naming conventions for Support Packages:

Software Component	Name
SAP_APPL	APPL Support Package
SAP_BASIS	Basis Support Package
SAP_ABA	Application Interface Support Package
SAP_HR	HR Support Package
SAP_BW	BW support Package

- **Conflict Resolution Transport** — This is used to adjust the support packages on add on. A CRT for one release also contains adjustment for earlier releases of this add-on.

## Requirements to Implement Support Package

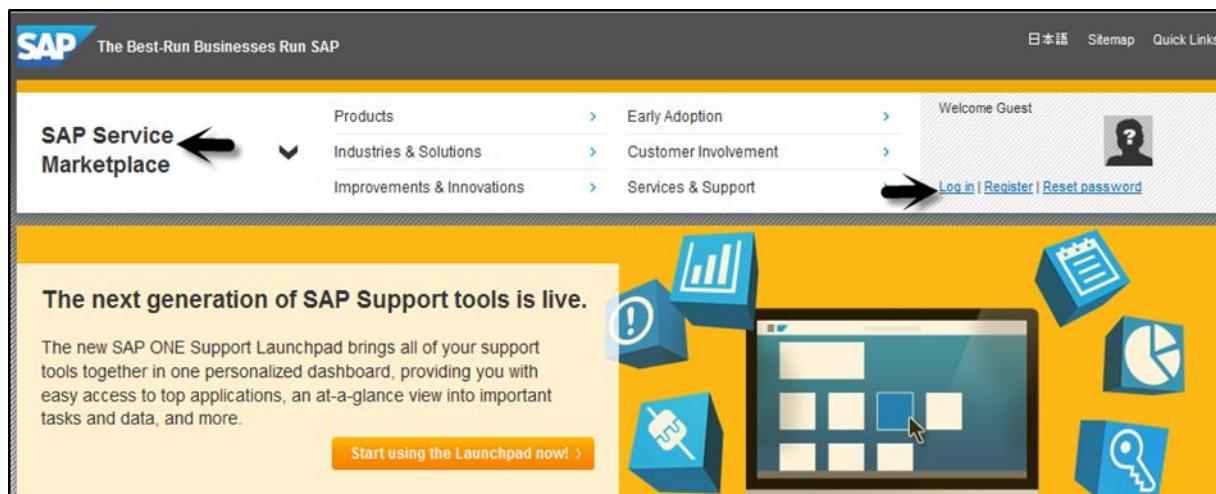
A support package is always implemented on client 000 and user should have an authorization equivalent to DDIC or SAP.

To implement a support package, use transaction code — SPAM. You can check if any previous package is in progress or is incomplete. If there is an incomplete support package, you can't proceed with the implementation of a new one.

**Note: Transport directory `/usr/sap/trans` should have enough space.**

## Support Package and Stack Update

You can download support package from SAP Service Market place. Open the link — [service.sap.com](http://service.sap.com) and login with your SID.



Go to SAP Support Portal from the dropdown -> Software Downloads

Go to Support Packages and Patches under software downloads. Now, go to Software Downloads.

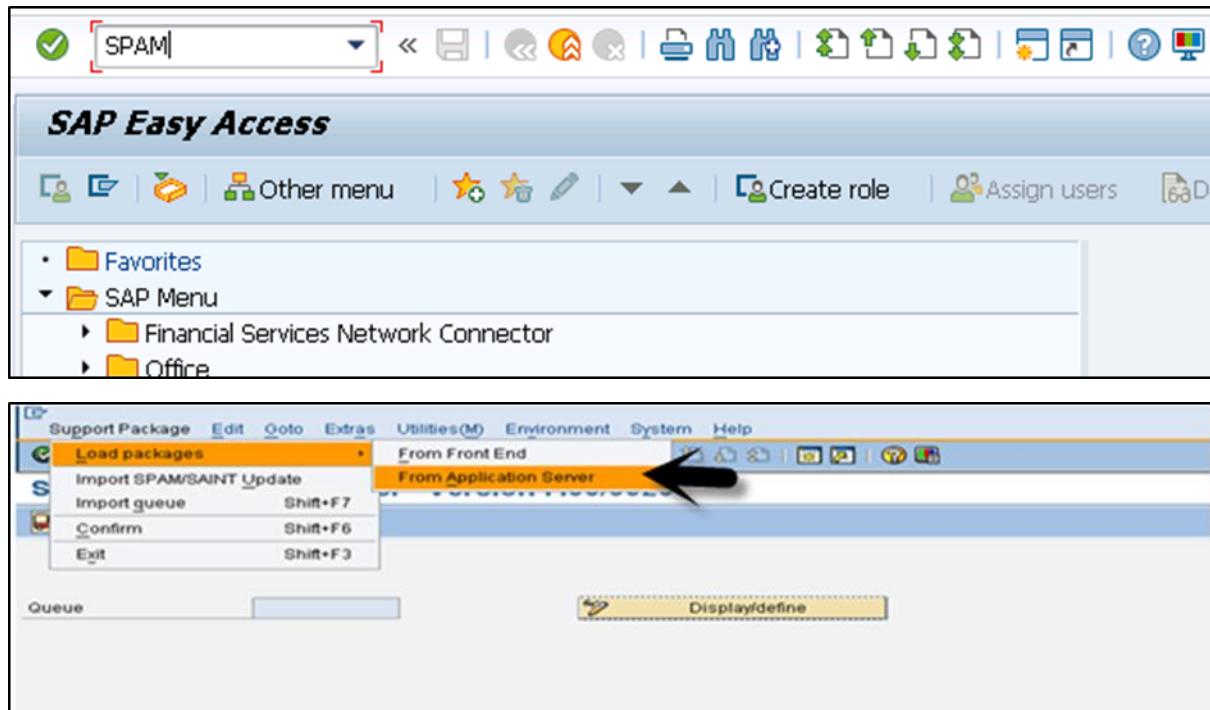
Download the support package and save in OS level Transport directory /usr/sap/trans

Uncompress the file- sapcar -xvf <support package name>

You can see .ATT and .PAT files in Transport directory.

```
E:\usr\sap\trans>sapcar -xvf KB70010.car
processing archive KB70010.CAR...
x EPS/in/CSR0120031469_0025021.ATT
x EPS/in/CSR0120031469_0025021.PAT
```

To load the support package from application Server, use transaction code — SPAM.  
Support Package -> Load Packages -> From Application Server



Or you can also load it from Front End in case it is < 10 MB. The support packages which are in the form of .car will be decompressed into eps/in directory.

If the size of the Support Package is greater than 10mb, then copy the support packages to /trans directory as above and uncompress to .ATT and .PAT files.

## SPAM Update

You can also update Support Package Manager and Add-on installation tool. This should be performed before any support package upgrade.

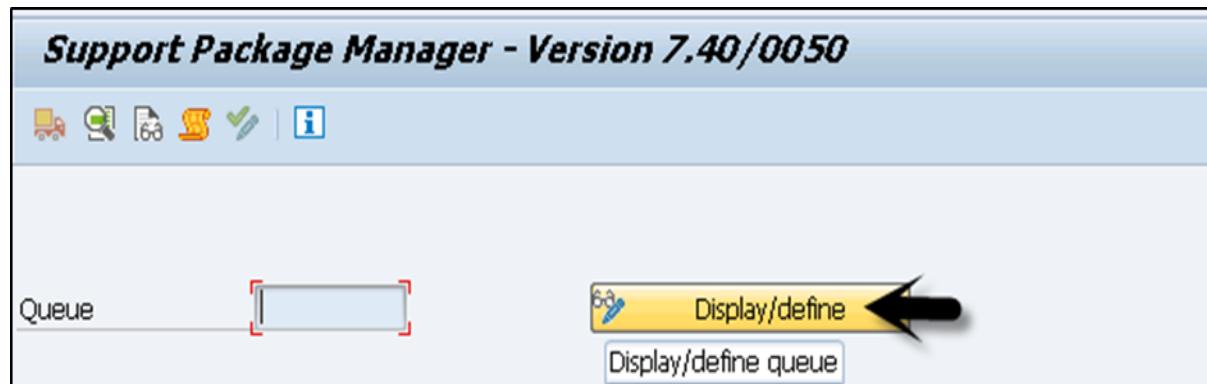


# 18. SAP Basis — Importing a Queue

Queue is used to check support packages for different SAP components in your system landscape.

Follow these steps to import a queue:

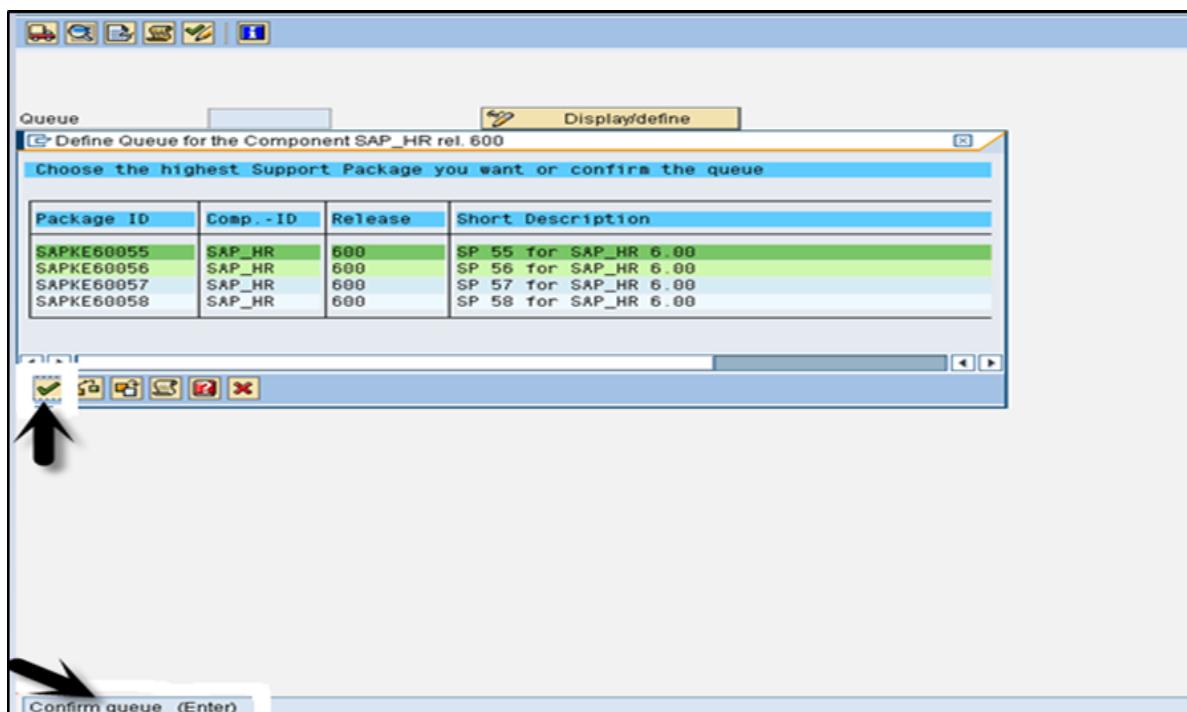
**Step1:** Click on Display/Define button and you will see a list of installed software components.



The screenshot shows the SAP Support Package Manager interface. At the top, there is a toolbar with various icons. Below the toolbar, there is a search bar labeled 'Queue' with a red box around it. To the right of the search bar are two buttons: 'Display/define' (highlighted with a yellow arrow) and 'Display/define queue'. The main area is a grid table titled 'Directory' with columns: Comp-ID, Release, Short Description of Component, and Support Package type. The table lists several SAP components and their details. At the bottom of the table, there are buttons for 'All Components', 'Confirm Queue', and 'Cancel'.

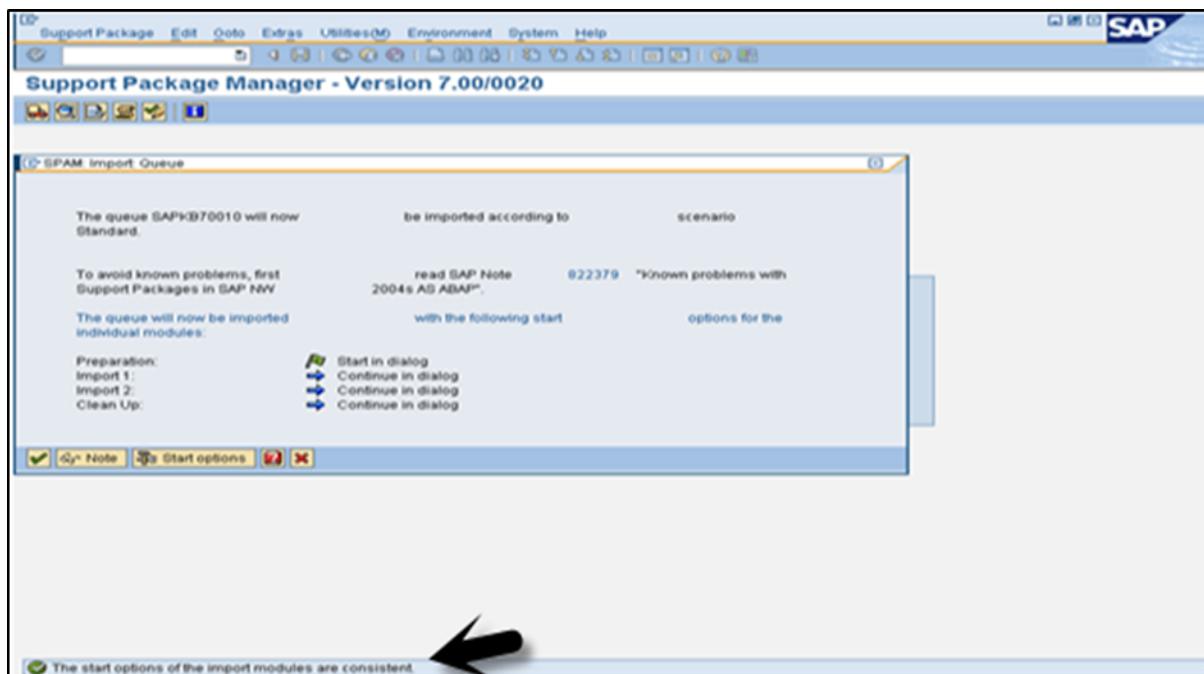
Comp-ID	Release	Short Description of Component	Support Package type
SAP_ABA	700	Cross-Application Component	Appl. Interface SP
SAP_BASIS	700	SAP Basis Component	Basis Support Pkg.
PI_BASIS	2006_1_700	Basis Plug-In (PI_BASIS) 2006_1_700	Add-on Support Pkg.
ST-PI	2005_1_700	SAP Solution Tools Plug-In	Add-on Support Pkg.
SAP_BW	700	SAP NetWeaver BI 7.0	Add-on Support Pkg.
LCAPPS	2005_700	LC Applications (LCAPPS) 2005_700	Add-on Support Pkg.
SAP_AP	700	SAP Application Platform	Add-on Support Pkg.
SAP_APPL	600	Logistics and Accounting	APPL Support Package
SAP_HR	600	Human Resources	HR Support Package
EA-IPPE	400	SAP IPPE	Add-on Support Pkg.
EA-APPL	600	SAP Enterprise Extension PLM, SCM, F	Add-on Support Pkg.
EA-QFPS	600	SAP Enterprise Extension Defense For	Add-on Support Pkg.
EA-FINSERV	600	SAP Enterprise Extension Financial Se	Add-on Support Pkg.
EA-OLTRADE	600	SAP Enterprise Extension Global Trade	Add-on Support Pkg.

**Step 2:** Select the component and it will display the list of Support Packages available for the selected components. If this is the queue you are looking for, click Confirm Queue.



**Step 3:** You will receive confirmation - Support Package Queue Saved and Defined.

**Step 4:** Now, import queue to start implementing the Support Package. Click Support package -> Import Queue.



**Step 5:** Confirm the queue once the support package is imported successfully. If you don't confirm the queue, you won't be able to import support package in future. Check the SPAM status -> Confirm successful import of support package.

Directory	Status
<input checked="" type="radio"/> New Support Packages	
<input type="radio"/> Aborted Support Packages	
<input type="radio"/> Imported Support Packages	
<input type="radio"/> All Support Packages	
	No queue has been defined
	SPAM status:  
 Display	 Package level

The following issues occur while implementing Support Packages:

- Tablespace overflow
- Kernel outdated
- SPAM/SAINT outdated
- Check environmental variables
- RDDIMPDP job not scheduled
- Inconsistency in TMS
- Max extents reached
- Space constraint in Transport directory
- "tp" could not connect to database (Execute R3trans -d which will generate trans.log)
- STMS configuration issue
- Background jobs terminated due to memory-related issues

The following table shows the default values of Support Package Manager:

Option	Global Setting
Display Content Before Decompressing	On
Delete Archive After Decompressing	On
Save Last Upload Directory	On
Queue Calculation Initial Screen	Calculation for a component vector
Including Modification Adjustment Transports	Always ask
Displaying Inactive Software Components	On
Displaying Unused Subcomponents	Off
Scenario	Standard
Import mode Downtime-minimized	Off
Number of parallel processes for each R3trans	1
Create New Data File	On
Delete Data File After Import	On

To save on the hard disk space, you can specify if data files need to be deleted after the Support Packages have been imported. As mentioned, this is the default setting in Support Package Manager.

# 19. SAP Basis — Kernel Upgrade and Patching

Kernel is an executable program that exists between SAP Applications and Operating System. It consists of executable program under the path — "/sapmnt/<SID>/exe" for UNIX and \usr\sap\<SID>\SYS\exe\run Windows. It starts and stops application services such as message server, dispatcher, etc.

In Kernel upgrade, new .exec files replace old executable files in SAP system. To check the current version, use transaction code — SM51 > Go to Release Notes.

The screenshot shows two SAP application windows. The top window is titled 'Server List' and displays a 'System Overview' for 'Started Server 1'. It includes a table with columns for Server Name, Host, and Message Types. The row for 'BODS\_EH7\_24' is highlighted with a yellow background. A black arrow points from the 'Release Notes' button in the toolbar to the bottom window. The bottom window is titled 'SAP Release Information from Server BODS\_EH7\_24' and lists various system details. A black arrow points to the 'SAP Kernel Information' section, which shows 'SAP Kernel : 741'. Other listed items include Application Server, Database Client Library, Creation details, and supported environments.

Server Name	Host	Message Types
BODS_EH7_24	bods	Dialog Batch Update Upd2 Sp

**SAP Release Information from Server BODS\_EH7\_24**

SAP Release Information  
Application Server BODS\_EH7\_24

SAP Kernel Information  
SAP Kernel : 741 ←  
Make Variant : 741\_REL

Database Client Library : SQL\_Server\_9.00  
Created in : NT 6.0 6002 x86 MS VC++ 16.00  
Created on : Nov 23 2013 16:56:56  
Support Level : 0  
Kernel Patch No. : 11  
Source ID : 0.011  
DBSL Patch No. : 010  
ICU Version : 50.1 Unicode Version 6.2  
libsapui16 Version : 2.0025 Nov 23 2013 13:29:16  
Supported Environment  
SAP Database Version

To check the status, go to System -> Status tab -> Other Kernel info

The screenshot shows the SAP Basis interface. In the top-left corner, there's a toolbar with icons for various system functions. To its right is a menu bar with 'List', 'System' (which is currently selected), and 'Help'. Below the menu bar is a vertical toolbar with icons for session management, application objects, and database requests.

The main area displays a list of system-related options under the 'System' menu:

- Create Session
- End Session
- User Profile
- Services
- Utilities
- List
- Services for Object
- My Objects
- Own Spool Requests
- Own Jobs
- Short Message
- Status... (highlighted with a yellow background and a black arrow pointing to it)
- Log Off

Below this list is a status bar showing '00'.

On the right side of the screen, there's a window titled 'System: Status' which contains several sections of data:

- Usage data:**

Client	800	Previous logon	04.09.2015 11:48:35
User	HANAUSER	Logon	12:00:32
Language	EN	System time	12:04:17
		Time Zone	CET 08:34:17

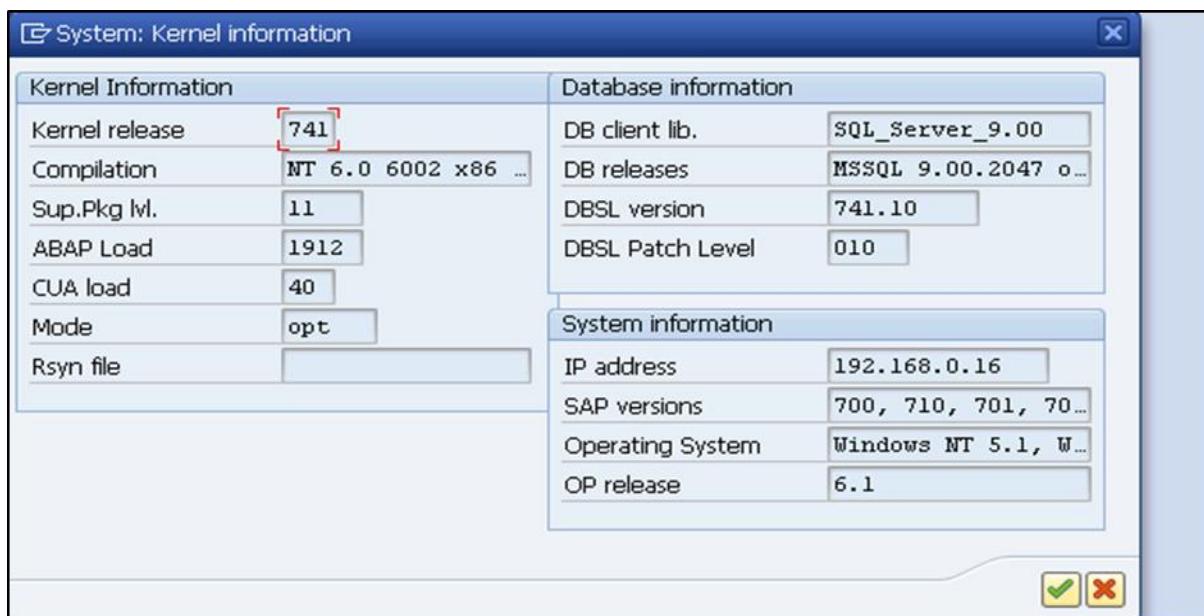
Number of Failed Password Logon Attempts: 0
- SAP data:**

Repository data		SAP System data	
Transaction	SMS1	Component version	EHP7 for SAP ERP...
Program (screen)	SAPLSLVC_FUL...	Installation Number	0120003411
Screen number	500	License expiration	20.11.2015
Program (GUI)	RSM51000_ALV...	Unicode System	Yes
GUI status	WITHOUT_REFR...		
- Host data:**

Operating system	Windows NT
Machine type	16x_X86_64
Server name	BODS_EH7_24
Platform ID	562
- Database data:**

Database System	MSSQL
Release	10.50.1600.01
Name	EH7
Host	BODS
Owner	eh7

At the bottom right of the 'System: Status' window, there are several buttons: a green checkmark button, a 'Navigate' button, a yellow exclamation mark button, and a red X button. A large black arrow points downwards from the 'Status...' menu option towards these buttons.



In UNIX, use **disp+work -version** to see information on the current Kernel version.

Follow these steps to download Kernel from SAP Market Place:

**Step 1:** Open URL — <https://service.sap.com> and login with SID and password.

**Step 2:** Go to SAP Support Portal from dropdown -> Software Downloads.

**Step 3:** Go to Support Packages and patches under software downloads. Go to Software Downloads.

The screenshot shows the SAP Software Downloads interface. At the top, there's a breadcrumb navigation: Home > Software Downloads > Support Packages and Patches. A black arrow points to the 'Support Packages and Patches' link. Below this, a yellow banner displays the message: "Short Internet Connectivity Outages on April 24". The main content area is titled "Support Packages and Patches". It includes a brief description: "A patch is a code-correction for a specific version of an SAP product. Support Packages are a collection of one or more patches, and are released according to a set schedule." To the right is a "Useful Links" sidebar with links like "Plan ahead: Support Package release schedules", "Apply support packages: Support Package Manager or Software Update Manager", and "Read about options to find your software". In the center, there are three buttons: "Software Downloads" (yellow background with a download icon), "Download Basket" (white background with a shopping cart icon), and "Application Overview and Help (PDF)" (dark grey background with a question mark icon). On the left, a sidebar lists categories: Installations and Upgrades, Support Packages and Patches (which is expanded to show "Tools to Apply Support Packages", "SAP Support Package Stacks", and "Archive"), Databases, Address Directories & Reference Data, and SAP Business One for Business.

The screenshot shows the SAP Software Downloads interface. At the top, it says "SAP Software Downloads" and has a "Downloads" dropdown menu. A black arrow points to the "SUPPORT PACKAGES & PATCHES" tab, which is highlighted in blue. Below this, there's a section titled "By Alphabetical Index (A-Z)" with the sub-instruction: "A complete A-Z index of your company's licensed products (formerly My Applications)". There are three items listed: 1. "ALL in one list" (with a folder icon) - "A complete list of your company's licensed products". 2. "A" (with a folder icon) - "like Adapters for SAP, SAP Auto-ID Infrastructure, Sybase Adaptive Server". 3. "B" (with a folder icon) - "like SAP Bank Communication Management, SBOP BI platform, SMS build".

Software Downloads

Downloads

Browse Your

## INSTALLATIONS AND UPGRADES - K

Choose the Next Category (14)

- SAP KERNEL 32-BIT
- SAP KERNEL 32-BIT UNICODE
- SAP KERNEL 64-BIT

All Kernel Versions are available in 64-bit:

Software Downloads

Downloads

Browse Your

- SAP KERNEL 6.40\_EX2 64-BIT
- SAP KERNEL 7.20 64-BIT
- SAP KERNEL 7.21 64-BIT
- SAP KERNEL 7.21 EXT 64-BIT
- SAP KERNEL 7.41 64-BIT
- SAP KERNEL 7.42 64-BIT
- SAP KERNEL 7.45 64-BIT

**Step 4:** Select the Kernel version and download the files as per the Operating System – Windows, Linux, Solaris, AIX, and HP-UX.

<input type="checkbox"/>	51033191_1 NW 04 SR1 Kernel 6.40_EX2 Linux on x86_64 64bit	ZIP	243451 KB	15.11.2007	
<input type="checkbox"/>	51033191_3 NW 04 SR1 Kernel 6.40_EX2 Windows Server on IA64 64bit	ZIP	306869 KB	15.11.2007	
<input checked="" type="checkbox"/>	51033191_4 NW 04 SR1 Kernel 6.40_EX2 Windows Server on x64 64bit	ZIP	239552 KB	15.11.2007	
<input type="checkbox"/>	51033192_1 NW 04 SR1 Kernel 6.40_EX2 Solaris on SPARC 64bit	ZIP	310879 KB	15.11.2007	
<input type="checkbox"/>	51033192_2 NW 04 SR1 Kernel 6.40_EX2 Solaris on x64 64bit	ZIP	214878 KB	15.11.2007	

## Upgrade Kernel Version

Let us now follow these steps to upgrade the Kernel version:

**Step 1:** Create a directory with enough disk space and enter the name of directory.

**Step 2:** Copy the upgrade files SAPEXEDB.SAR & SAPEXE.SAR files to the new directory at OS level.

**Step 3:** To check directory, use 'pwd' to ensure you are in the same directory.

**Step 4:** Now, uncompress .SAR files by sapcar exe.

SAPCAR -xvf sapexe.SAR

SAPCAR -xvf sapexedb.SAR

```
C:\Documents and Settings\My Documents\New Folder>SAPCAR -xvf SAPEXE_102-20000922.SAR
SAPCAR: processing archive SAPEXE_102-20000922.SAR (version 2.01)
x ABP.pad
x cfu
x cfu/conf
x cfu/conf/auto.java
x cfu/conf/auto.java/base
x cfu/conf/auto.java/base/config.xml
x cfu/conf/jarn
x cfu/conf/jarn/base
x cfu/conf/jarn/base/props.xml
```

**Step 5:** To take backup of existing Kernel, you have to create one more directory with the name "exe\_old<ddmmmyy>" and take backup of existing Kernel file.

**Step 6:** To perform upgrade, stop the SAP application. You don't need to shut down the database for Kernel upgrade but you need to stop the SAP application using this command – stopsap r3.

**Step 7:** Copy the files from the new kernel directory exe\_new<ddmmmyy -> to the existing kernel directory exe.

**Step 8:** Use this command to copy – cp -rp /sapmnt/<SID>/exe\_new<ddmmmyy> /\* /sapmnt/<SID>/exe/

**Step 9:** Now if you check the current Kernel version using disp+work, then check the kernel version from OS level by the command **disp+work -versions** and new patch version should be displayed.

**Step 10:** Login to the operating system as root specific to UNIX. Execute the script in Kernel directory — ./saproot.sh <SID>

You use this to assign correct permissions to all the executable programs in the kernel such as br\* file etc.

**Step 11:** Start SAP Applications using this command — startsap r3

**Step 12:** If you run Transaction SM52, you can see current kernel version level.

# 20. SAP Basis — System Monitoring

System monitoring involves proactive monitoring of application servers, CPU utilization, database space, monitoring log files, etc.

System monitoring also includes the following:

- Batch jobs monitoring
- Database performance monitoring
- Monitoring application users
- Spool request monitoring
- Print requests

To monitor the SAP system, use transaction code — SM51

The screenshot shows the SAP SM51 - Server List interface. At the top, there's a toolbar with various icons. Below it is a header bar with the title "System Overview" and the text "Started Server 1". The main area is a table with columns: "Server Name" (BODS\_EH7\_24), "Host" (bods), "Message Types" (Dialog Batch Update Upd2 Spool ICM), and "Server State" (Active). A red arrow points to the "Server State" column.

To check the list of processes, go to Processes icon.

The screenshot shows the SAP SM51 - Process Overview of Server BODS\_EH7\_24 interface. At the top, there's a toolbar with various icons. Below it is a header bar with the title "Process Overview of Server BODS\_EH7\_24". The main area is a table with columns: "Time" (04.09.2015, 12:53:24), "Total Number of Processes" (20), and detailed statistics for Dialog, Update, Background, Spool, and other tasks. Below this is another table showing a list of active processes. The columns include "Num...", "Type", "Process ID", "Status", "Info.", "Failures", "LockedSem.", "Sema...", "CPU Time", "Time", "Priority", "Active Program", "Cli...", and "User Name". A red arrow points to the "Type" column, which shows entries like "DIA", "CL", and "CP".

To monitor application users, use transaction codes — AL08 and SM04

<b>List of All Users Logged On</b>							
Refresh  System EH7 Overview of all Date, Time 04.09.2015 12:59:22 users logged on.							
Active Instances	Number of Active Users	Interactive Users	Number of RFC Users	Number of Plug-In Users			
BODS_EH7_24	7	1	6	0			

1 Destinations with 7 users.

BODS_EH7_24	Client	User Name	Terminal	Transaction Code	Time	Ext. Sess.	Int. Sess.
	800	HANAUSER	BODS		12:59:22	1	1
	800	LTRUSER			12:59:21	1	1
	800	SAPUSER			12:59:21	1	3
	800	HANAUSER	BODS		12:59:22	1	2
	800	SAPUSER			12:59:21	1	3
	000	SAP_WSRT	bods.logon2erp.com		12:59:20	1	1
	000	SAP_WSRT	bods.logon2erp.com		12:59:18	1	1
	800	BGRFC_SUPER	bods.logon2erp.com		12:56:48	1	1
	800	BGRFC_SUPER	bods.logon2erp.com		12:56:48	1	1

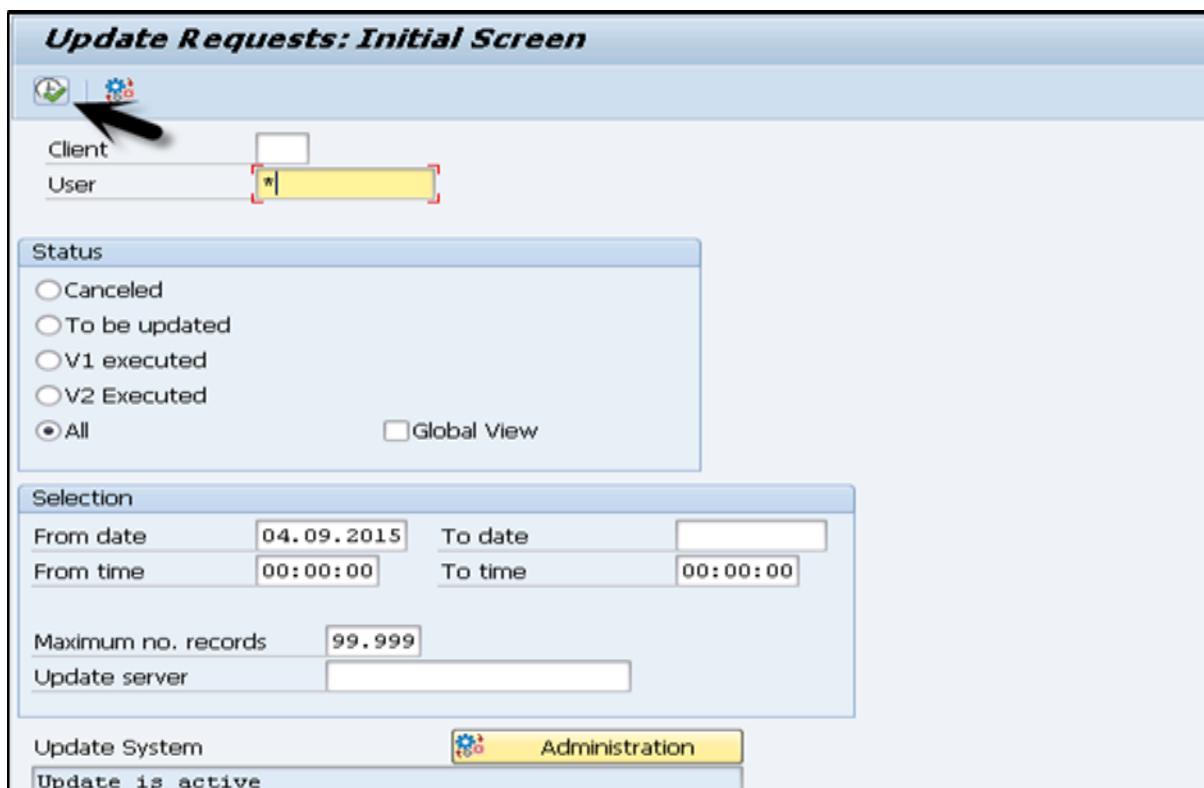
Use transaction code — SM04

<b>List of All Users Logged On</b>							
Refresh  System EH7 Overview of all Date, Time 04.09.2015 12:59:22 users logged on.							
Active Instances	Number of Active Users	Interactive Users	Number of RFC Users	Number of Plug-In Users			
BODS_EH7_24	7	1	6	0			

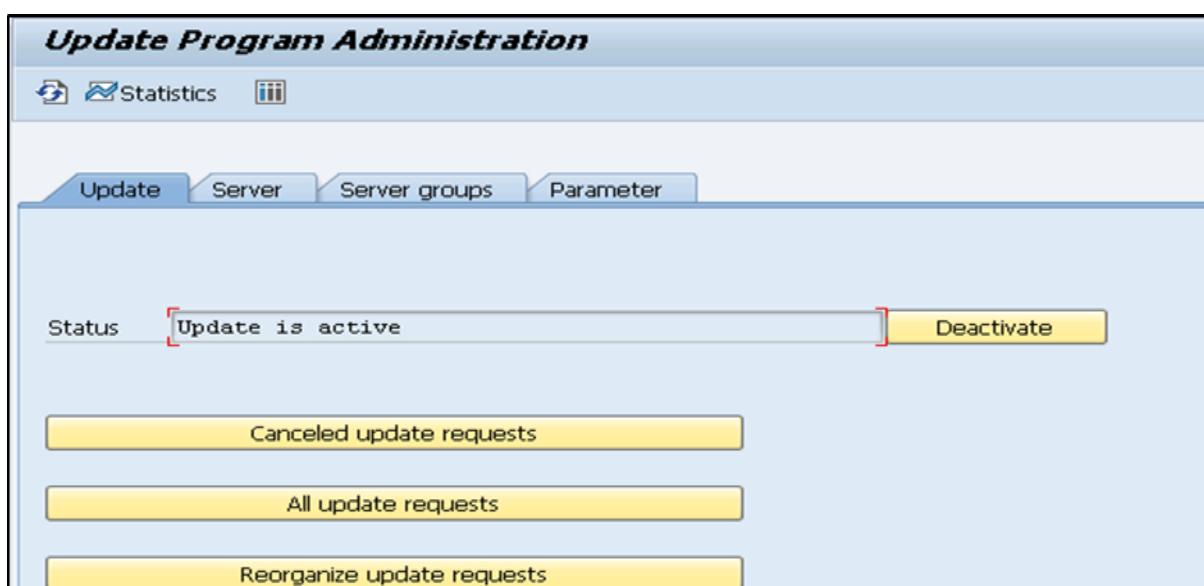
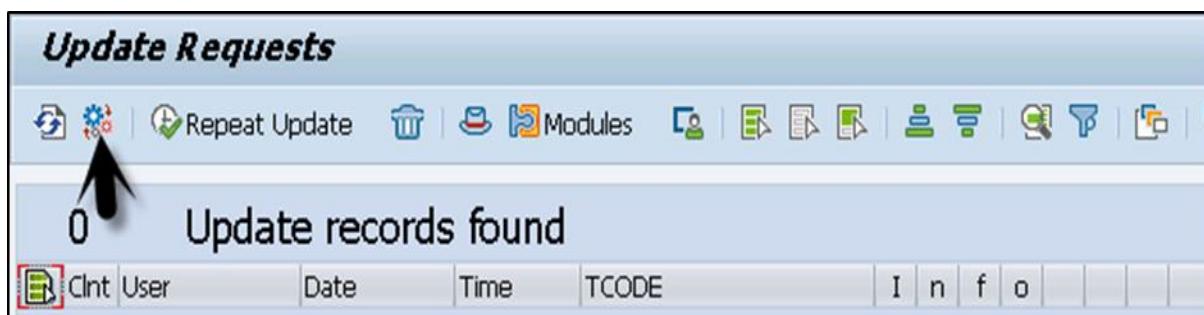
1 Destinations with 7 users.

BODS_EH7_24	Client	User Name	Terminal	Transaction Code	Time	Ext. Sess.	Int. Sess.
	800	HANAUSER	BODS		12:59:22	1	1
	800	LTRUSER			12:59:21	1	1
	800	SAPUSER			12:59:21	1	3
	800	HANAUSER	BODS		12:59:22	1	2
	800	SAPUSER			12:59:21	1	3
	000	SAP_WSRT	bods.logon2erp.com		12:59:20	1	1
	000	SAP_WSRT	bods.logon2erp.com		12:59:18	1	1
	800	BGRFC_SUPER	bods.logon2erp.com		12:56:48	1	1
	800	BGRFC_SUPER	bods.logon2erp.com		12:56:48	1	1

To monitor update processes, use transaction code — SM13. In User field enter '\*' and click on Execute.



If there is no pending request, queue will be empty as in the following screenshot:



The following table shows important transaction codes for system monitoring and performance checks:

Monitoring System Log	SM21
Tune Summary	ST02
CPU Utilization	ST06
ABAP Dumps	ST22
Spool Request Monitoring	SP01
Monitoring Batch Job	SM37
Database Administration	DB02
Database backup logs	DB12

# 21. SAP Basis — Remote Function Call

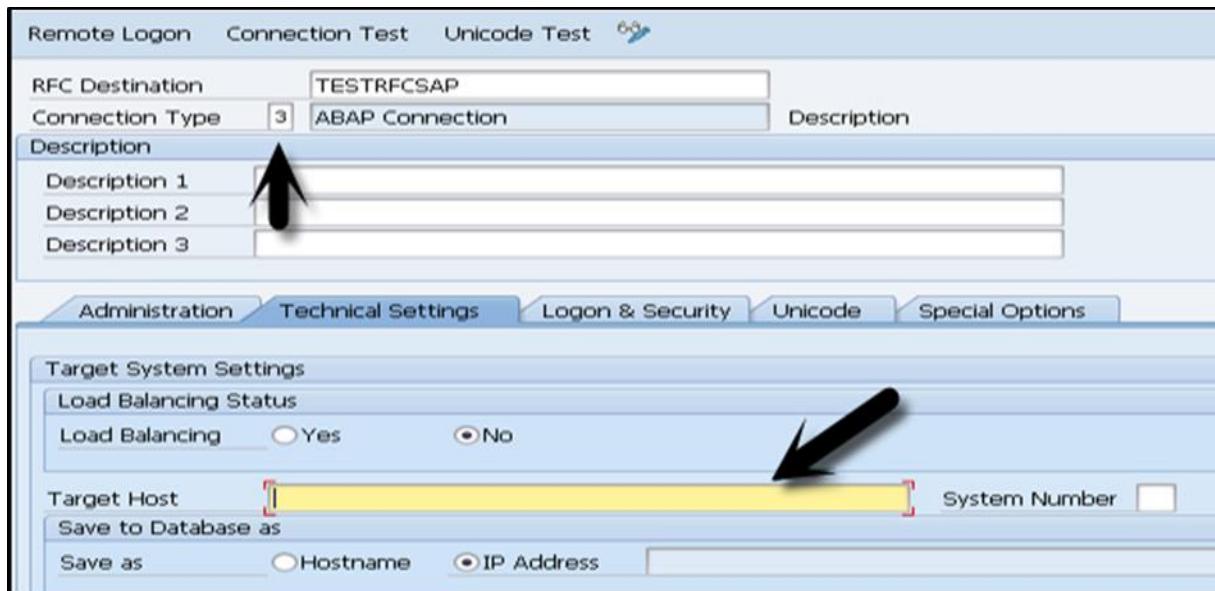
## What is RFC?

To communicate between SAP systems, there is a need to define a mechanism. One of the most common ways is to define Remote Function Call (RFC Connection) between two systems. By creating a trusted RFC connection between two systems, it allows you to create **trusted-trusting relationship between systems** wherein, you can communicate and exchange information and data.

There are different types of trusted RFC connections.

### Type 3 Connection

This connection type is used to specify connection between ABAP systems. Here, you need to mention the host name and IP address of source system and also the logon information. This is applicable for both type of RFCs, between ABAP systems and external calls to ABAP systems.



### Type I Connection

This connection type is used to specify ABAP systems connected to the same data base as the current system. Let us take an example entry name — ws0015\_K18\_24

ws0015=host name

K18=system name (data base name)

24=TCP-service name

## Type T Connection

This connection type helps connect destinations to external programs that use the RFC API to receive RFCs. This can be activated using start or registration.

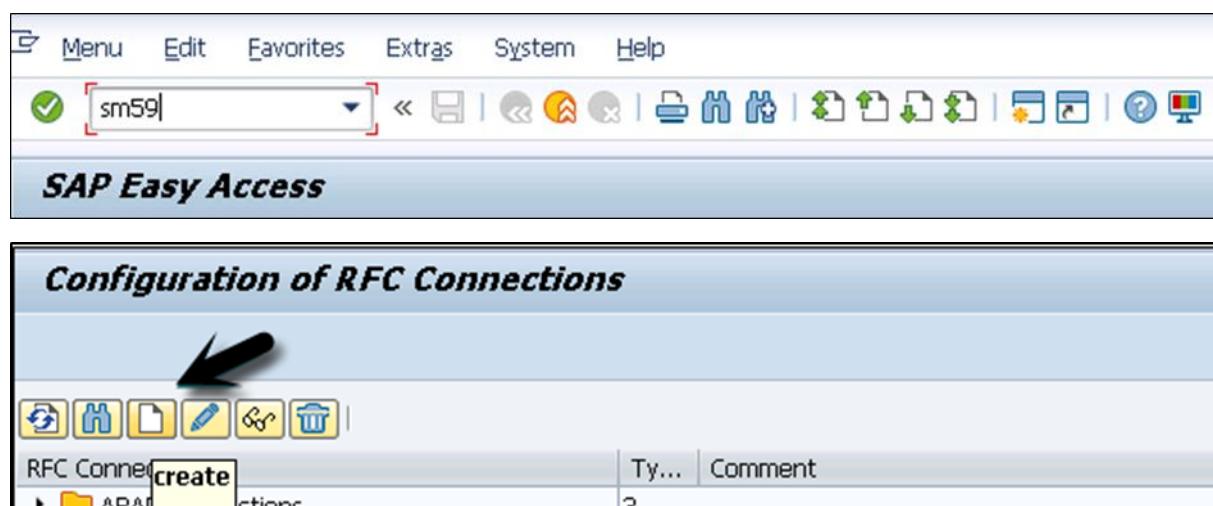
## 22. SAP Basis – RFC between SAP ECC & HANA

### Creating a Trusted RFC between SAP ECC and HANA

Suppose, you want to set up a trusted RFC towards target system BB1 on your source SAP system AA1. With the completion of the setup, you would be logged onto AA1 and your user would have enough authorization in BB1; you can use the RFC connection and logon to BB1 without having to re-enter username and password.

Using RFC trusted/trusting relationship between two SAP systems, RFC from a trusted system to a trusting system, password is not required for logging on to the trusting system.

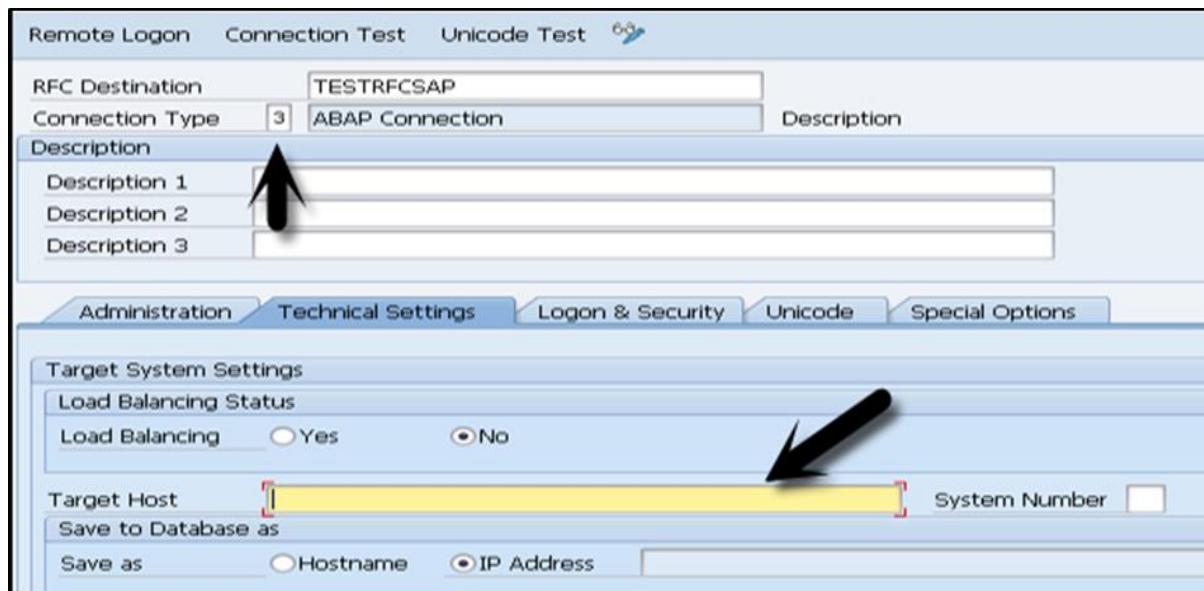
Open SAP ECC system using SAP logon. Enter transaction code SM59 -> this is the transaction code to create a new Trusted RFC connection -> Click on the 3<sup>rd</sup> icon to open a new connection wizard -> click on Create and a new window will open.



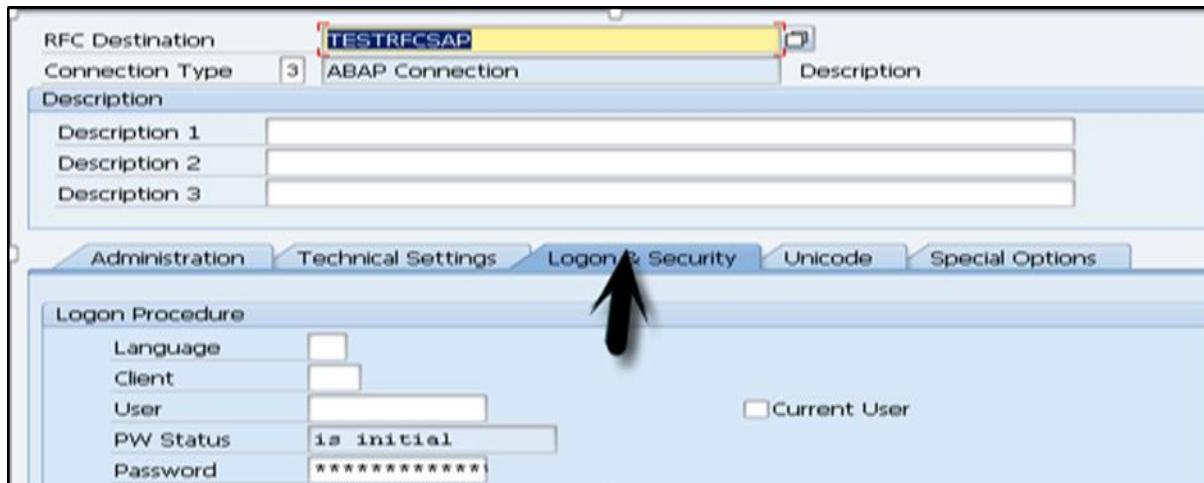
RFC Destination ECCHANA (Enter name of RFC destination) Connection Type — 3 (for ABAP system)

Go to Technical Setting.

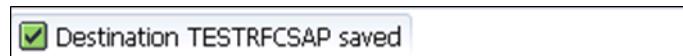
Enter target host — ECC system name, IP and enter system number.



Go to Logon & Security Tab, Enter Language, Client, ECC system username and password.



Click on the Save option at the top.



Click on Test Connection to successfully test the connection.



## Configuring RFC Connection

Follow these steps to configure RFC connection:

**Step 1:** Run transaction — Itr (to configure RFC connection) -> New browser will open-> Enter ECC system username and password and logon.

The screenshot shows the SAP Configuration and Monitoring Dashboard. At the top, it says "Configuration and Monitoring Dashboard". Below that, there's a section titled "Available Configurations" with two buttons: "New" (highlighted in blue) and "Check Status".

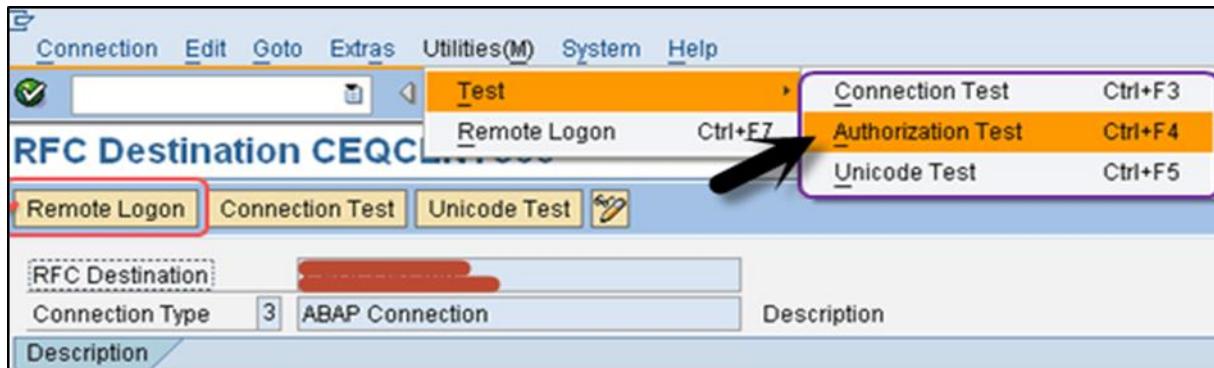
**Step 2:** Click on New -> New Window will open -> Enter configuration name -> Click Next -> Enter RFC Destination (connection name created earlier), Use search option, Choose name and click Next.

The screenshot shows the "Create Configuration" wizard. The title bar says "Create Configuration" and the configuration name is "SAPECCTEST". The current step is "Specify Source System" (step 2). There are six steps in total: 1. Specify General Data, 2. Specify Source System, 3. Specify Target System, 4. Specify Transfer Settings, 5. Review and Create, and 6. Confirmation. Below the steps, there are buttons for "Previous", "Next >", and "Close". A note says "Specify the relevant information in order to connect to the source system." Under "System Data", the "RFC Connection" radio button is selected. The "RFC Destination" field contains "TESTRFCSCP" with a browse icon. There are also checkboxes for "Allow Multiple Usage:" and "Read from Single Client:".

**Step 3:** In Specify Target system, Enter HANA system admin username & password, host name, Instance number and click Next. Enter number of data transfer jobs like 007 (it can't be 000) -> Next -> Create Configuration.

## Testing Trusted RFC

Click on Test Connection to successfully test a connection.



The screenshot shows the SAP GUI interface. The title bar reads "RFC Destination CEQCL". The menu bar has "Test" selected, which is highlighted in orange. A dropdown menu for "Test" is open, showing three options: "Connection Test" (Ctrl+F3), "Authorization Test" (Ctrl+F4), and "Unicode Test" (Ctrl+F5). The "Connection Test" option is highlighted with a purple box and an arrow pointing to it from the text above. Below the menu, there is a toolbar with buttons for "Remote Logon", "Connection Test", and "Unicode Test". The main area displays connection details: "RFC Destination" (redacted), "Connection Type" (3 ABAP Connection), and "Description".

**RFC - Connection Test**

**Connection Test TESTRFCSCP**  
Connection Type SAP Connection

Action	Result
Logon	86 msec
Transfer of 0 KB	2 msec
Transfer of 10 KB	5 msec
Transfer of 20 KB	22 msec
Transfer of 30 KB	3 msec

## 23. SAP Basis — New Dimensional Product

### Introduction to BI / BW

SAP BI/BW is a data warehousing product and is based on SAP ABAP infrastructure. It is used to convert raw data into reports. This can also be used to build analytical reports and for decision making by business managers.

Using a Business Warehouse, you can combine data from different heterogeneous sources, organize and manage the data for detailed reporting.

This data warehousing product can easily be integrated with different SAP reporting tools. This product can help to analyze multidimensional data from different sources.

The key components in SAP NetWeaver Business Intelligence are:

- SAP NetWeaver Business Warehouse (BW)
- SAP Business Explorer (SAP BEx) and
- SAP NetWeaver BW Accelerator (BWA)

Besides replicating data from the source to the SAP NetWeaver BW system, it is also possible to access the source data directly from the SAP NetWeaver BW system using **Virtual Providers**. The analytic engine provides methods and services for analysis, planning and generic services such as caching and security.

SAP Business Explorer BEx is used to define how data is displayed. This tool also supports the creation of Excel-based and web-based applications for analysis, planning, and reporting. The BEx applications created with the BEx tools can be integrated into the SAP Enterprise Portal. Integration with SAP BusinessObjects tools offers further options for analysis and reporting in addition to the standard SAP BEx functions. You can access BI information (like reports, analysis and dashboards) with the SAP BusinessObjects BI Portal InfoView.

BW	1.2A	Oct-1998
BW	1.2B	Sep-1999
BW	2.0A	Feb-2000
BW	2.0B	Jun-2000
BW	2.1C	Nov-2000
BW	3.0A	Oct-2001
BW	3.0B	May-2002
BW	3.1	Nov-2002
BW	3.1C	Apr-2004
BW	3.3	Apr-2004
BW	3.5	Apr-2004
BI	7	July-2005

## Basis Integration with ECC

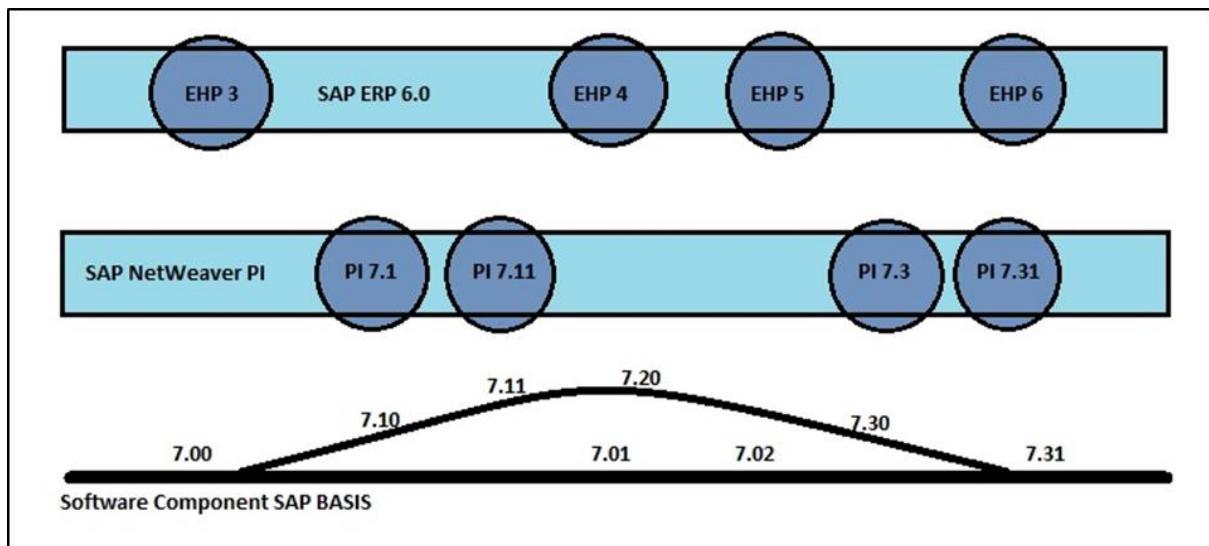
SAP ERP is based on SAP NetWeaver version. For example, SAP ERP 6.0 is based on SAP NetWeaver 7.0. SAP ERP is also based on enhancement packages; for example, ERP 6.0 is based on EHP04 and NetWeaver Enhancement Package — EHP01.

The software components always follow product numbering like SAP HR 6.04 belongs to Enhancement Package 4 for SAP ERP 6.0 and SAP BASIS 7.01 belongs to EHP01 for SAP NetWeaver 7.0.

Likewise,

- SAP ECC 6.0 Enhancement Package 5 is based on SAP NetWeaver 7.0 Enhancement Package 02
- ECC 6.0 Enhancement Package 4 is based on SAP NetWeaver 7.0 Enhancement Package 01
- ECC 6.0 Enhancement Package 6 is based on SAP NetWeaver 7.0 Enhancement Package 03

Implementation of an EHP for ECC involves the application of SAP NetWeaver EHP (starting with ECC EHP 4).



# 24. SAP Basis — Interview Questions

## **Q1. What are the key responsibilities of SAP Basis Administrator?**

**Answer:** The key responsibilities are:

- System installation and configuration
- Load balancing on servers
- Performance management of different components
- Managing interfaces and integration with servers
- Managing servers and different services

## **Q2. What is the current version of SAP GUI? How do you install it?**

**Answer:** SAP GUI 7.4, the latest version for Windows was released in October, 2014. It supports various features like — it is by default installed with NWBC 5.0 and SAP GUI and GUI shortcuts are launched through NWBC.

## **Q3. Which SAP GUI type is suitable for different kind of users? How do you decide?**

**Answer:**

### **When users are working mostly in the SAP system**

SAP GUI for Windows or SAP GUI for Java is recommended.

### **When users are ABAP developers**

For ABAP developers, SAP GUI for Windows is recommended.

### **When users use operating systems other than Microsoft**

It is recommended that they use SAP GUI for Java and HTML or they can use SAP GUI for Windows on a remote server

### **For integrating Dynpro transactions to the Portal**

The use of SAP GUI for HTML is recommended. This allows you to integrate classic Dynpro-based applications into the portal easily.

## **Q4. How do you maintain roles in the SAP system?**

**Answer:** To maintain roles in the SAP system, we use transaction code — PFCG

100

## **Q5. Why do we create instances in SAP system? How are these instances configured?**

**Answer:** SAP instance is defined when you install and configure a SAP system. These are used to refer to memory, processors and other resources in the system. SAP instance allows users to login to the SAP system and share the same resources.

A SAP instance is managed by CCMS and is used by users to login.

A SAP system can consist of one or more instances — you can set up a SAP system with a single instance with only one CCMS or you can configure a system with two or more separate instances in client/server environment.

We need to consider the following points to configure a SAP instance:

- You need to define separate directories for UNIX, AS/400, or Microsoft Windows NT server on which the instance is to be run.
- You can use a shared file system.
- For each instance, there are entries created in operating system configuration files (/etc/services, /etc/sapconfig...).

## **Q6. Explain the architecture of SAP system with different layers. What is the use of Gateway?**

**Answer:** Presentation layer communicates with the application server to perform all the processing. This is known as the brain of a SAP system.

An application server consists of multiple instances and communicates with the database layer of the three-tier architecture.

Bottom layer is called the database layer. This is responsible to store all the data. Database of SAP system is kept on a separate server for performance and security reason.

The Presentation layer consists of different components for ABAP and JAVA that enables the communication and processing of data in SAP system. The key components at Presentation layer also includes — Gateway. This is used to manage communication between SAP system and external systems.

## **Q7. Suppose you have to integrate SAP ECC 6.0 to AWS cloud. How can you achieve this?**

**Answer:** You have to make use of SAP Cloud Appliance Library (CAL). This will help you to directly push SAP ECC software to your cloud environment by entering the Security key.

## **Q8. How do you check the installed software components and product versions on SAP system?**

**Answer:** Go to SAP system data -> Click on component magnifying glass.

The following two options will be displayed:

- Installed Software Component Versions
- Installed Product Versions

Under installed software component, you can see all the software installed, support package, service pack, description etc. If you want to check the details of each component, you can select the component and go to the details tab as shown above.

Go to Installed Product Versions; it will show you the version of the installed SAP NetWeaver.

## **Q9. What is client administration in SAP system? Why do we use multiple clients in SAP system?**

**Answer:** A client is used in SAP system for multiple login on a single instance. You can create multiple clients on a single instance. It also provides data security as one user with one client can't see the data of the other user with another client and also there is no need to install the software again.

The following are the advantages of client administration in SAP system:

- Using SAP Clients, the same resources can be shared between multiple users.
- It helps you to manage SAP system landscape as you can create multiple clients for DEV, QA and PROD team.
- It allows you to share the SAP system with a large number of users.
- We have standard clients in SAP system.

## **Q10. What are the default clients in SAP system? How can you create a new client in SAP system?**

**Answer:** SAP system comes with the following three standard clients:

**000** — This is called the master client and is available when you install R/3 system.

**001** — This is a copy of 000 and it comes with a test company. Generally, this client is used to create new clients.

**066** — This is called the SAP Early watch. This is used for diagnostic scans and monitoring service in the SAP system.

Following are the steps to create a New Client in SAP:

- To create a new client in SAP system, use transaction code — SCC4
- To create a new client, enter the following details after clicking on New Entries:
  - Client number and name
  - City
  - Currency, Roles
- Enter your client-specific data and set permission for the clients as per your requirement and click on save.

## **Q11. How can you create a new user in SAP system? How do you assign roles to new users?**

**Answer:** You can create multiple users with different access rights in SAP system. Follow these steps to create a new user:

**Step 1:** Use transaction code — SU01

**Step 2:** Enter the username you want to create, click on the Create icon.

**Step 3:** You will be redirected to the Next Tab — the Address tab wherein, you have to enter details like First name, Last name, Phone number, email id, etc.

**Step 4:** You will further be directed to another Tab — the Logon Data tab wherein,

- You have to enter the user type under Logon data tab.
- Type the first login password — New Password and Repeat Password

**Step 5:** You will now be directed to the Roles tab wherein, you have to assign the roles to the user

**Step 6:** Now, the next tab is the Profiles tab wherein, you have to assign the Profiles to user.

**Step 7:** Click on Save and you will get a confirmation.

## **Q12. What are the different user types in SAP system that an admin can use while creating a new user?**

**Answer:** The following are the five different types of user types:

- Dialog user — This user is used for interactive system access from GUI.
- System user — This user is used for background processing and communication within a system.
- Communication user — This user is used for external RFC calls.
- Service user — This user is created for a larger and anonymous group of users.

- Reference user — These are reference users with no logon possible, non-person related users that allow the assignment of additional authorizations.

### **Q13. Is it possible to lock users in SAP system? What are the different ways to lock/unlock users?**

**Answer:** The different ways to lock/unlock users are:

- Manually/Forcefully
- Automatically

#### **Manually or Forcefully**

You can lock a user forcefully/automatically using the following transaction codes:

- Transaction- SU01 for single user
- Transaction -SU10 for multiple users

### **Q14. How can you define login policy for users in SAP system?**

**Answer:** You can set the number of incorrect login attempts and then system can end the session or can also lock the user account if parameter value is set by Administrator. There are two types of parameters used:

**Static** – This parameter doesn't apply immediately and the system needs a Restart for this.

**Dynamic** – This parameter can be applied directly and the system does not need a Restart.

To set the value of parameters, use transaction code — RZ11

### **Q15. What are the different login and password parameters that can be applied in SAP system?**

**Answer:**

To set the number of failed attempts, use parameter — ***login/fails\_to\_session\_end***.

Likewise, you have other parameters such as ***login/fails\_to\_session\_end***, ***login/fails\_to\_user\_lock***

The following are the password policy parameters:

- login/min\_password\_lng
- login/password\_expiration\_time

## **Q16. How do you maintain password selection for users? What are the different parameters that can be used for this and which table maintains these details?**

**Answer:** Passwords are maintained in table USR40 and transaction code — SM30 is used for this purpose.

There are two wildcard characters:

- ?- stands for a single character
- \*- stands for a sequence of any combination characters of any length.

If you select 123\* in table USR40, it means that any password that begins with the sequence "123." is prohibited.

If you enter \*123\*, it prohibits any password that contains the sequence "123."

If you select AB?, it indicates that all passwords that begin with "AB" and an additional character are not allowed. For example, "ABB", "ABF", etc.

## **Q17. What are the categories to execute SAP Background jobs?**

**Answer:**

**Class A (High Priority)** — This is used for urgent or critical tasks. These tasks must be scheduled with class A priority job. Class A job reserves one or more background work processes.

**Class B (Medium Priority)** — These jobs are executed after the completion of Class A high priority jobs.

**Class C (Low Priority)** — These jobs run once class A and class B jobs are completed.

## **Q18. What are the different options available for scheduling a background job? What start conditions type can be used?**

**Answer:** To schedule a background job you must specify the conditions that will trigger the job to start.

The different types of start condition you want to use are:

- Immediate
- Date/Time
- After Job
- After Event
- At Operation Mode

## **Q19. What are the different types of job status? Can you unschedule an active job?**

**Answer:** The different types of status are - Scheduled, Released, Ready, Active, Finished, Cancelled

You can't unschedule a job if it is active. You need to wait for the completion of the job to unschedule it.

## **Q20. What is the use of commit value while deleting jobs in SAP system?**

**Answer:** Commit value is proportional to program performance. If the commit value is high, then job deletion will run faster. Recommended value is  $\geq 1000$ .

## **Q21. In Transport Management System (TMS), which file is used to store TMS configuration and is used by domains for checking configuration?**

**Answer:** DOMAIN.CFG file is created under usr/sap/trans/bin directory which stores TMS configuration and is used by systems and domains for checking existing configurations.

## **Q22. What is a Transport Request in TMS? What are the different types of Transport Requests that can be created in a SAP system?**

**Answer:** A Transport Request contains number of changes to be implemented in the development system. It consists of the type of change, purpose, change category, target system and other details.

Transport Requests are named in a standard format — <SID>K<Number>

For example, in <SID>K<Number>:

- SID represents System ID
- K stands for fixed keyword/alphabet
- Number can be anything from a range starting with 900001

There are two type of request types that can be created in SAP system:

**Workbench Request** – This request type contains repository and cross-client customizing objects. Workbench requests are used to make changes to the ABAP workbench objects.

**Customizing Request** – This request type contains objects that belong to client-specific customizing. These requests are created in system automatically when a user performs customize setting and a target system is automatically assigned as per the transport layer.

### **Q23. What is the use of transport logs in TMS system? What are the different log types and record value in the log files?**

**Answer:** There are two types of logs that are available in Transport Management System:

**Transport Logs** — This keeps track of transport log files which have been moved in a transport request.

**Action Log** — This includes the details of action logs that have been performed in a Transport Request. This also includes exports, import, etc.

One of the important functions provided by the logs are the following return codes:

- 0 — This value represents that export was successful.
- 4 — This value represents that a warning was issued and objects were transported successfully.
- 8 — This represents that a warning was issued and at least one object could not be transported.
- 12 or higher — This value represents an error in Transport Request and this normally does not result because of objects in TR and probably occurs because of system failure.

### **Q24. Which transport directory is used to implement support package and add-ons?**

**Answer:** Transport directory /usr/sap/trans should have enough space.

### **Q25. What is the use of Kernel in SAP system? How do you check the current Kernel version in SAP system?**

**Answer:**

Kernel is an executable program that exists between SAP Applications and operating system. It consists of executable program under the path — "/sapmnt/<SID>/exe" for UNIX and \usr\sap\SID\SYS\exe\run Windows. It starts and stops application services such as message server, dispatcher, etc.

In Kernel upgrade, new .exec files replace old executable files in SAP system. To check the current version, use Transaction SM51 and go to Release Notes.

To check the status, go to System -> Status tab -> Other Kernel info