SAP MM
material management

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About the Tutorial

SAP is an enterprise resource planning software that was basically designed to manage resources, information and activities that are required to complete business processes such as procurement and managing orders, billing of orders and management of human resources. SAP applications work with real-time data. It has the ability to be configured according to the needs of the business. It allows a business to make rapid changes in its requirements through a common set of programs.

This tutorial adopts a step-by-step approach to acquaint the readers with the SAP MM environment and how to make good use of its features. It will also help learners to perform procurement of stock materials in SAP.

Audience

This tutorial has been designed for beginners without prior exposure to materials management. With the customer demands changing rapidly, this tutorial will be especially useful for those who want to learn how to manage the supply chain management side of the business using SAP so that market demands can be met in the shortest possible time.

Prerequisites

A basic knowledge of ERP concepts will help you in understanding the concepts of SAP Material Management System described in this tutorial.

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Table of Contents

1. SAP MM — Overview

SAP ERP (Enterprise Resource Planning) is a commercial software that integrates all the information in a single software, considering various factors such as time and cost. Organizations can easily meet their business demands with the help of SAP.

SAP Business Process

SAP MM is the short form for SAP Material Management system. The roles of SAP MM in a business process are as follows:

- A business process in SAP is termed as a "module".

- SAP MM is a part of logistics functions and it helps in managing the procurement activities of an organization.

- It supports all aspects of material management (planning, control, etc.).

- It is the backbone of logistics that incorporates modules such as Sales and Distribution, Production Planning, Plant Maintenance, Project Systems, and Warehouse Management.

Features of SAP MM

The features of a SAP MM system are as follows:

- SAP MM is one of the modules of SAP that deals with material management and inventory management.

- Material Management as a process ensures no shortage of materials or any gaps in the supply chain process of the organization. SAP MM speeds up the procurement and material management activities, making the business run smoothly with complete time and cost efficiency.

- It deals with managing the materials (products and/or services) and resources of an organization with the aim of accelerating productivity and reducing costs. At the same time, SAP MM is quite versatile to accommodate changes that are frequent in any business environment.

- It deals with the Procurement Process, Master Data (Material & Vendor Master), Account Determination & Valuation of Material, Inventory Management, Invoice Verification, Material Requirement Planning, etc.

2. SAP MM – Screen Navigation

The first step to understand SAP is to have a basic knowledge of its various screens. The following sections describe how to navigate through the screens available in SAP and how to use the functionalities of the standard toolbar.

Login Screen

Log on to the SAP ERP server. The SAP login screen will prompt you for the User ID and the Password. Provide a valid user ID and password and press enter. The user id and password are provided by the system administrator. The login screen appears as follows:
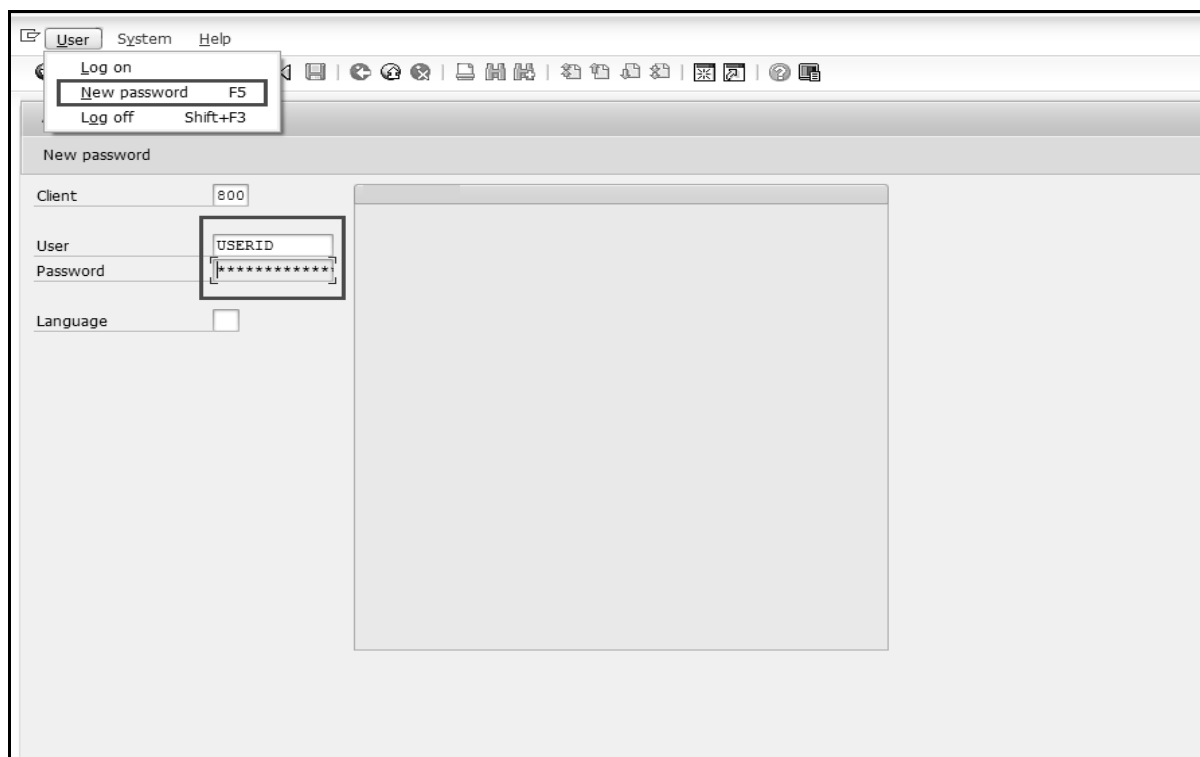
Standard Toolbar Icons

The following screenshot shows the toolbars available on the SAP screen.
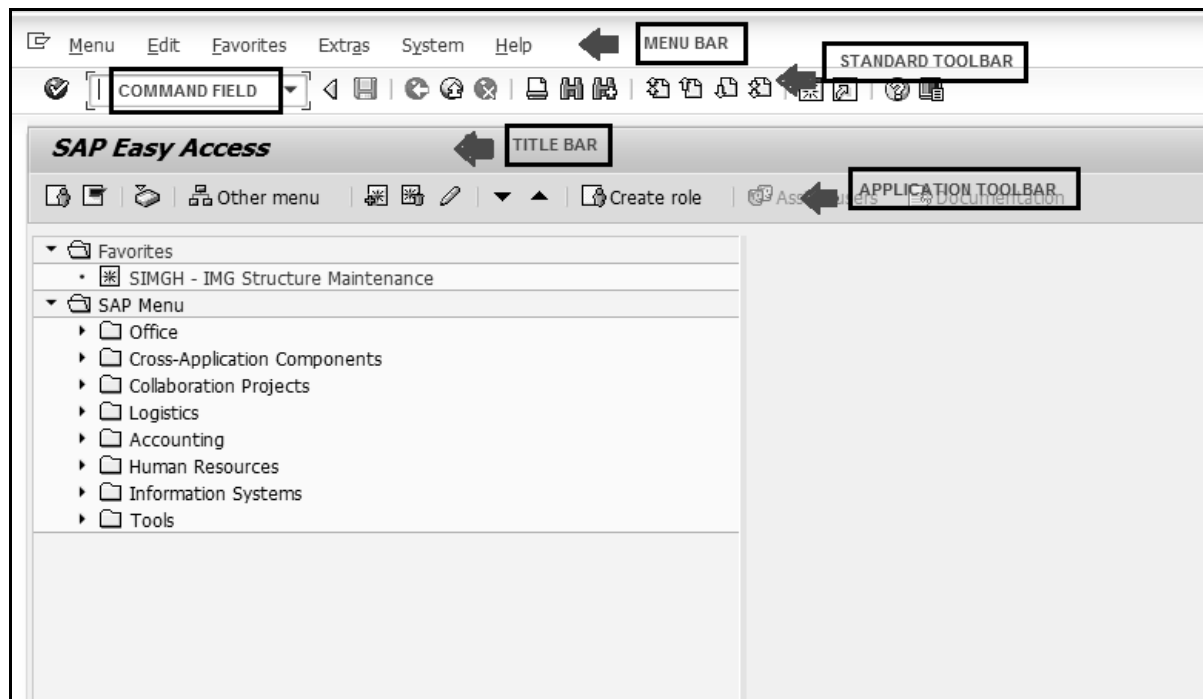
Given below is a brief description of the available toolbars:

- **Menu Bar** - Menu bar is the topline of the dialog window in the SAP system.

- **Standard Toolbar** – This toolbar includes standard functions such as save, top of page, end of page, page up, page down, print, etc.

- **Title Bar** - Title bar displays the name of the application/business process you are currently in.

- **Application Toolbar** – Application-specific menu options are available on this toolbar.

- **Command Field** - To start a business application without navigating through menu transactions, some logical codes are assigned to the business processes. Transaction codes are entered in the command field to start an application directly.

Standard Exit Keys

Exit keys are used to exit the module or to log off. They are used to go back to the last accessed screen. The following screenshot highlights the standard exit keys used in SAP:
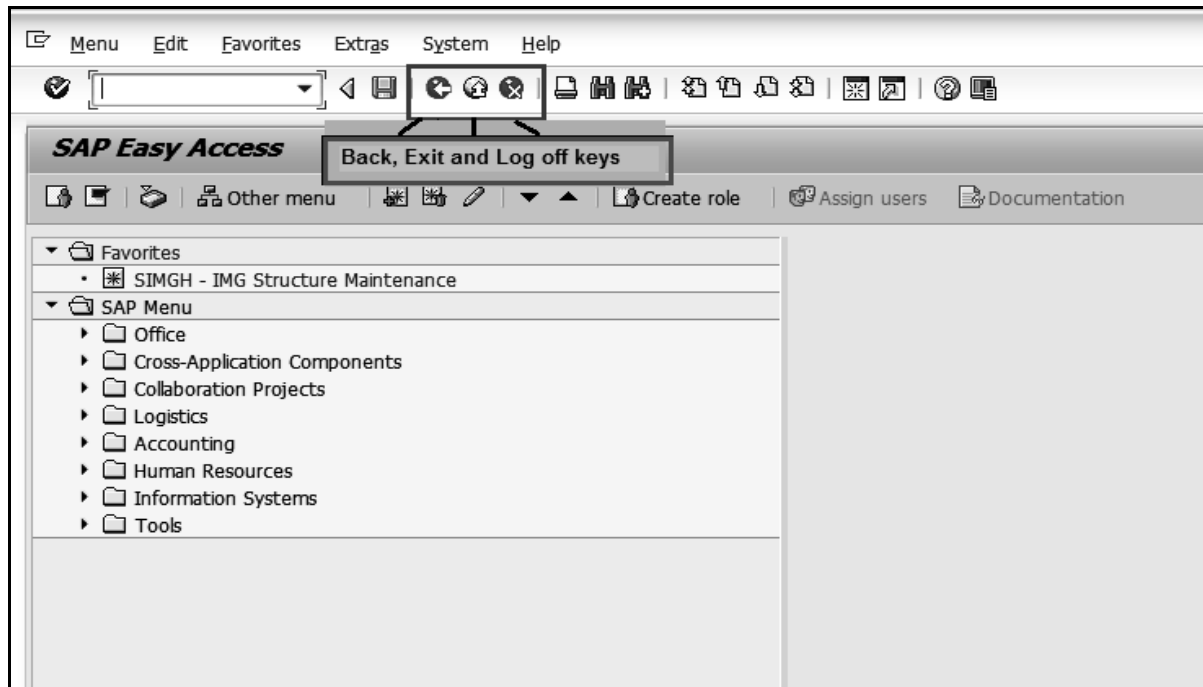
New Session Icon

For creating a new session, we use the following keys shown in the screenshot below:
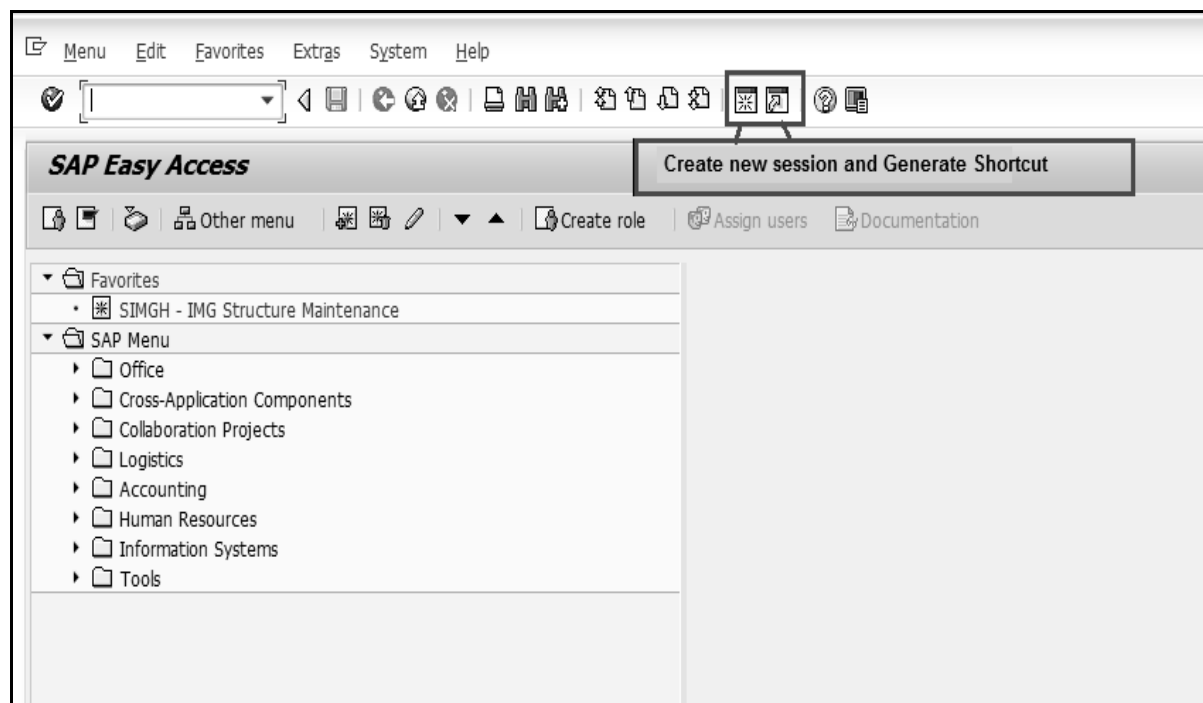
Log Off

It is a good practice to log off from the SAP system when you finish your work. There are several ways to log off from the system, but it can be done using the following instructions as shown in the screenshot below:
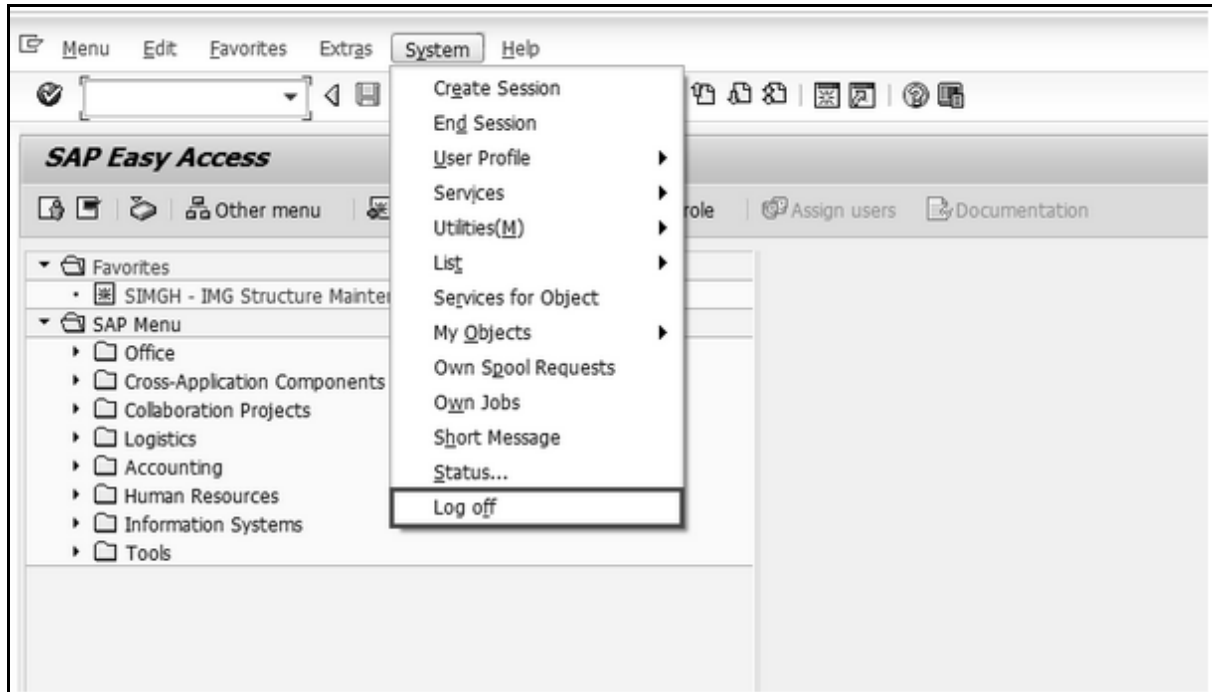
3. SAP MM – Procurement process

Every organization acquires material or services to complete its business needs. The process of buying materials and obtaining services from vendors or dealers is called procurement. Procurement should be done in such a way that materials are ordered in correct quantity, with a proper value at the proper time. It is subdivided into following parts:

- Basic Procurement

- Special Procurement

Basic Procurement

Basic procurement is a process of acquiring goods or services in the right quantity, at the right price, and at the right time. However it is critical to maintain a right balance between quantity, price, and time. Consider the following example:

- Organizations try and keep inventory levels at a minimum, due to the prices associated with high levels of inventory; at the same time, it can be detrimental to stop production due to shortage of raw materials.

- Getting the minimum price for a product or service is often necessary, however it is equally important to maintain a balance between the product availability, quality, and vendor (seller) relations.

Procurement Lifecycle

Procurement in most modern organizations follow some sequential steps which are described below:

Requirement and Information Gathering

Procurement process starts with gathering information about a product and its quantity. Then for the required products and services, it is necessary to look for suppliers who can satisfy the requirements.

Supplier Contact

After gathering the requirements, one looks for the suppliers who can fulfill those requirements. Based on that, quotation requests or information requests are sent to the suppliers or they are contacted directly.

Background Review

Once the supplier is known, the product/service quality is checked, and any necessities for services such as installation, warranty, and maintenance parameters are investigated. Some samples of the products can be obtained for quality examination.

Negotiation

Some negotiations with suppliers is made regarding the price, availability, and delivery schedule of the products/services. Thereafter, a contract is signed that is a binding legal document between the supplier and the ordering party. A contract will include all necessary information such as price and quantity of material, delivery date, etc.

Order Fulfillment

Ordered material is shipped, delivered to the ordering party, and the supplier is paid accordingly. Training and installation of product or services may also be included.

Consumption, Maintenance, and Disposal

As the products/services are consumed, the performance of the products or services is evaluated and any follow-up service support, if required, is analyzed.

Contract Renewal

Once the products or services are consumed or the contract expires and needs to be renewed, or the product or service is to be re-ordered, the experience with the vendors and service providers is reviewed. If the products or services are to be re-ordered, the company decides whether to order from the previous supplier or think about new suppliers.

Basic Procurement Activities

The following figure illustrates the flow of basic procurement activities:
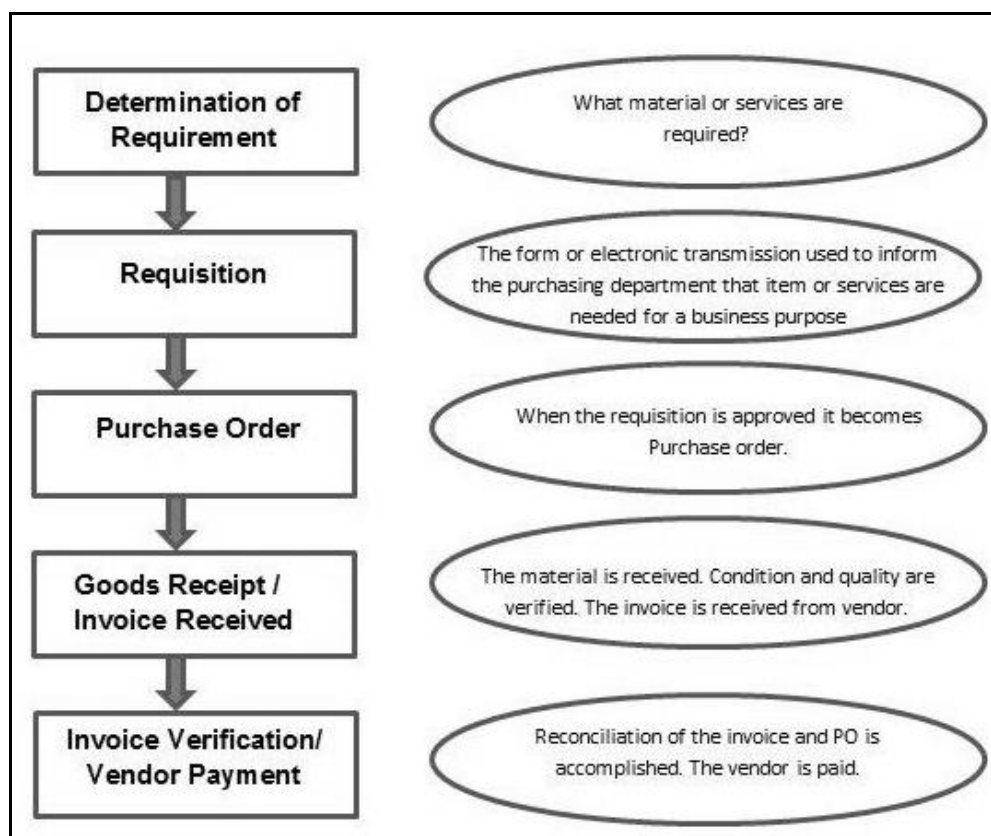
A brief introduction of the procurement activities is given below:

Procurement Activities	Description
Determination of requirement	It is the logical subdivision where it is determined what material or services are required, and which supplier can fulfill the requirements.
Creating purchase requisition	It is the phase in which the purchasing department is informed about the requirement of items or services. A requisition is an internal document.
Creating purchase order	It is the phase when an order is created from requisition and it is approved and assigned to a supplier.
Goods receipt/ Invoice received	It is the phase in which the material is received by the company and its condition and quality are being inspected. In this phase, an invoice is received from the vendor (seller).
Invoice verification/Vendor Payment	It is the phase in which the vendor (seller) is paid from the company and reconciliation of the invoice and PO is accomplished.

Type of Basic Procurement

There are two types of basic procurement:

- Procurement for Stock vs Consumption

- External vs Internal Procurement

Procurement for Stock vs Consumption

The following points show the difference between Procurement for Stock vs. Consumption:

- **Procurement for Stock -** A stock material is a material that is kept in stock. These materials are kept in stock once received from the vendor. The stock of this material keeps on increasing or decreasing based on the amount of quantity received or issued. To order a material for stock, the material **must** have a master record within the system.

- **Procurement for Direct Consumption -** When the procurement is for direct consumption, i.e., it will be consumed as soon as it is received, the user should

specify the consumption purpose. To order a material for consumption, the material **may** have a master record within the system.

External vs Internal Procurement

The following points show the difference between External vs Internal Procurement:

- **External procurement -** It is the process of procuring goods or services from external vendors. There are three basic forms of external procurement generally supported by the purchasing component of the IT system.

  o **One-time orders** are generally used for material and services that are ordered irregularly.

  o **Longer-term contracts with subsequent issue of release orders** - For materials that are being ordered regularly and in large quantities, we can negotiate a deal with the vendor (seller) for pricing or conditions and record them in a contract. In a contract, you also specify the validity date.

  o **Longer-term scheduling agreements and delivery schedules** - If a material is ordered on an everyday basis and is to be delivered according to an exact time schedule, then you set up a scheduling agreement.

- **Internal Procurement -** Large corporate organizations may own multiple separate businesses or companies. Internal procurement is a process of getting material and services from identical companies. So, each of these companies maintain a complete bookkeeping system with separate Balance, Profit and Loss Statements, so that when any trade occurs between them, it will be recorded.

Special Procurement

Special stocks are the stocks that are managed differently, as these stocks do not belong to the company. Special stocks are kept at some particular location. Special procurement and special stock types are divided into the following categories:

Consignment Stocks

Consignment stocks are those material that is available at our store premises, however it still belongs to the vendor (seller) of the material. If you utilize the material from consignment stocks, then you have to pay to the vendor.

Third-party Processing

In third-party processing, a company passes on a sales order to the associate external vendor (seller) who sends the goods directly to the customer. The sales order is not processed by the company, but by the vendor (seller). Third-party items can be entered in purchase requisitions, purchase orders, and sales orders.

Pipeline Handling

In pipeline handling, the company need not order or store the material involved. It is obtainable as and when required via a pipeline (for example, oil or water), or another style of cable (such as electricity). The material that is consumed is settled with the vendor (seller) on a regular basis.

Returnable Transport Stock

The company orders goods from a vendor (seller). The goods are delivered with returnable transport packaging (pallets, containers) that belongs to the vendor (seller) and is stored at the customer premises until they return it to the company.

Subcontracting

The vendor (the subcontractor) receives components from the ordering party with the help of which it produces a product. The product is ordered by your company through a purchase order. The components required by the vendor (seller) to manufacture the ordered product are listed in the purchase order and provided to the subcontractor.

Stock Transfer Using Stock Transport Order

Goods are procured and supplied within a company. One plant orders the goods internally from another plant (receiving plant/issuing plant). The goods are procured with a special type of purchase order – the stock transport order. You'll be able to request and monitor the transfer of goods with a stock transport order.

4. SAP MM – Organization Structure

Organization structure is the framework of a company according to which business is conducted in every company. Organization structure consists of many levels having direct or indirect relationship with one another. Organization structure is also referred as enterprise structure. Enterprise structure is made up of many organizational units having relationship with one another.

SAP Implementation Guide

When a client purchases SAP, it comes in a CD in the form of a software. When SAP is first installed, it has its standard setup that needs to be configured according to the needs of the client, i.e., organization.

Configuration of SAP is done with the help of an implementation guide, known as IMG. It is used to add fields, to change field names, to modify dropdown lists, etc. to adjust according to the functionality of an organization. IMG is where we define the enterprise structure and other settings that are required for the functioning of SAP according to the requirements of an organization.

SAP IMG Path

To perform any type of configuration according to the requirements of an organization, the first step is to reach the implementation guide (IMG) screen. We can reach the implementation guide in two ways:

- Menu path

- Transactional code

Menu Path

We can navigate through the following path to reach out to IMG:

> SAP Easy Access => Tools => Customizing => IMG => Execute Project
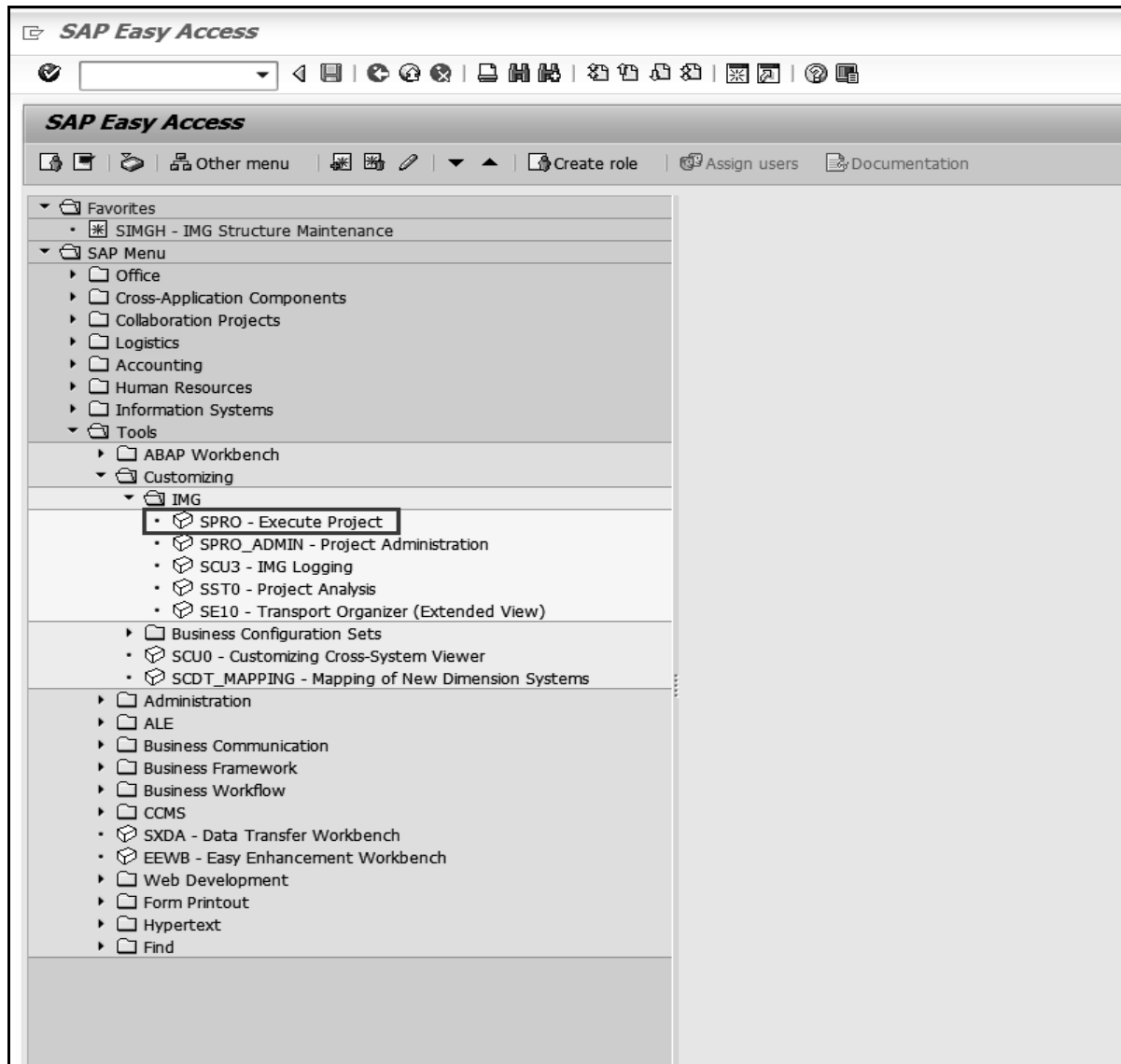
Transactional Code

The best and simple way to reach out any SAP screen is the TCode, i.e., transactional code. Transactional code is used to reach out to IMG: SPRO (SAP Project Reference Object). Enter the transaction code in the command field and then click on enter.

SAP IMG

IMG screen can be reached out just by following the steps given below:

After SPRO, on the next screen, click on SAP Reference IMG.

The next screen will appear as follows. This is the final screen from where we can do configurations.
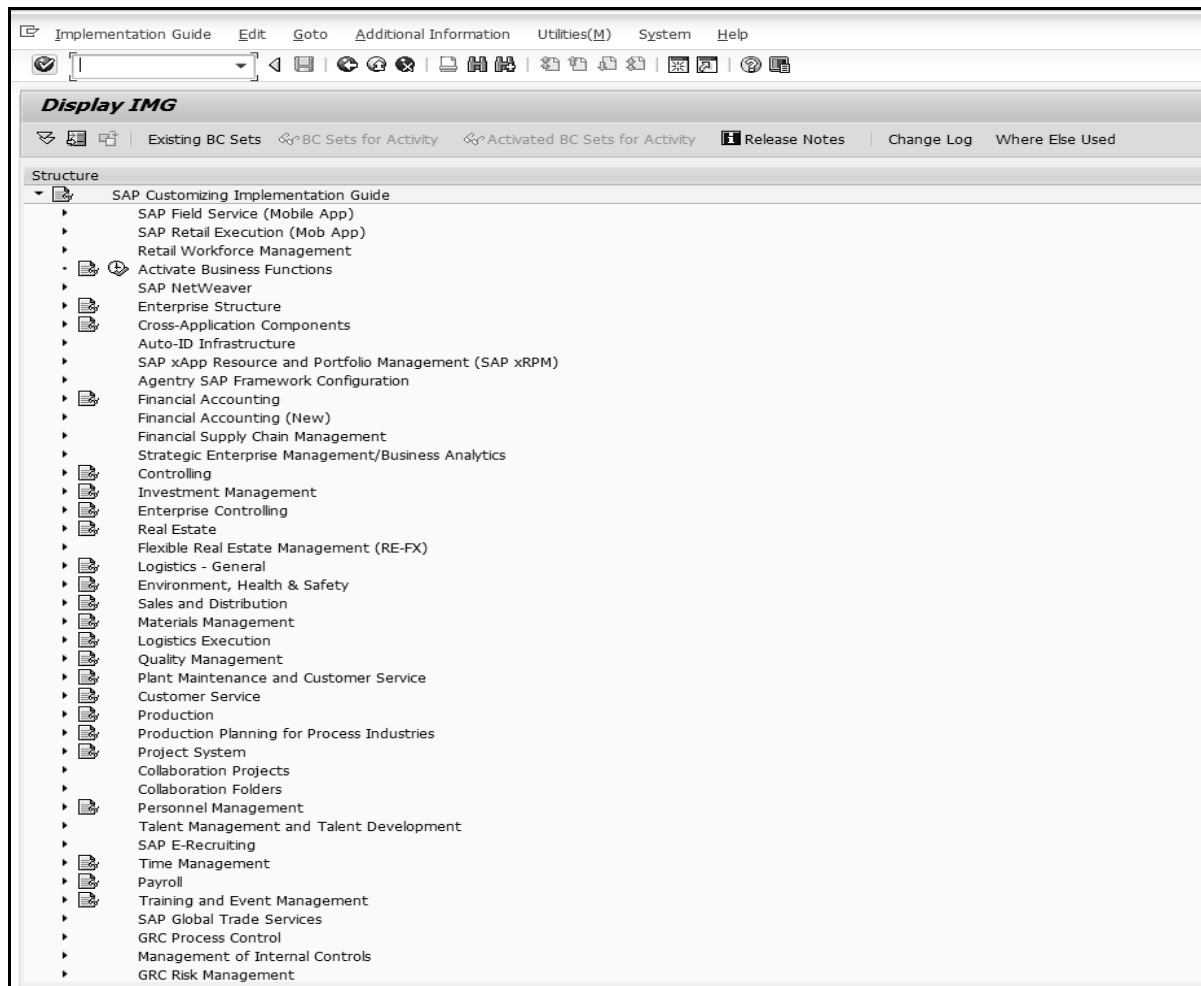
Menu path for MM Configuration

The main menu paths for MM area are as follows:

- SAP Customizing Implementation Guide (IMG) => Enterprise Structure => Definition

- SAP Customizing Implementation Guide (IMG) => Enterprise Structure => Assignment

- SAP Customizing Implementation Guide (IMG) => Logistics => General => Material Master

- SAP Customizing Implementation Guide (IMG) => Materials Management

5. SAP MM – Enterprise Structure

Every organization has some framework or structure according to which the whole business runs. An enterprise structure is the structure that represents an enterprise in the SAP ERP system. It is subdivided into various organizational units which, for legal reasons or business-related reasons, are grouped together.

An enterprise structure defines various levels in an organization. These levels are placed according to some hierarchy. Each level has some specific functionality associated with it, which in a combined way describes the working of an organization. In addition, an enterprise structure defines various organizational units that are present in an enterprise. The organizational structure in MM consists of the following organizational levels:

- Client
- Company Code
- Plant
- Storage Location
- Purchasing Organization
- Purchasing Group

The following diagram depicts one such organizational structure that describes the levels incorporated in an organization. It puts the client at the topmost, followed by multiple company code, followed by multiple plants, plants having multiple storage location with their own or centralized purchasing organizations.
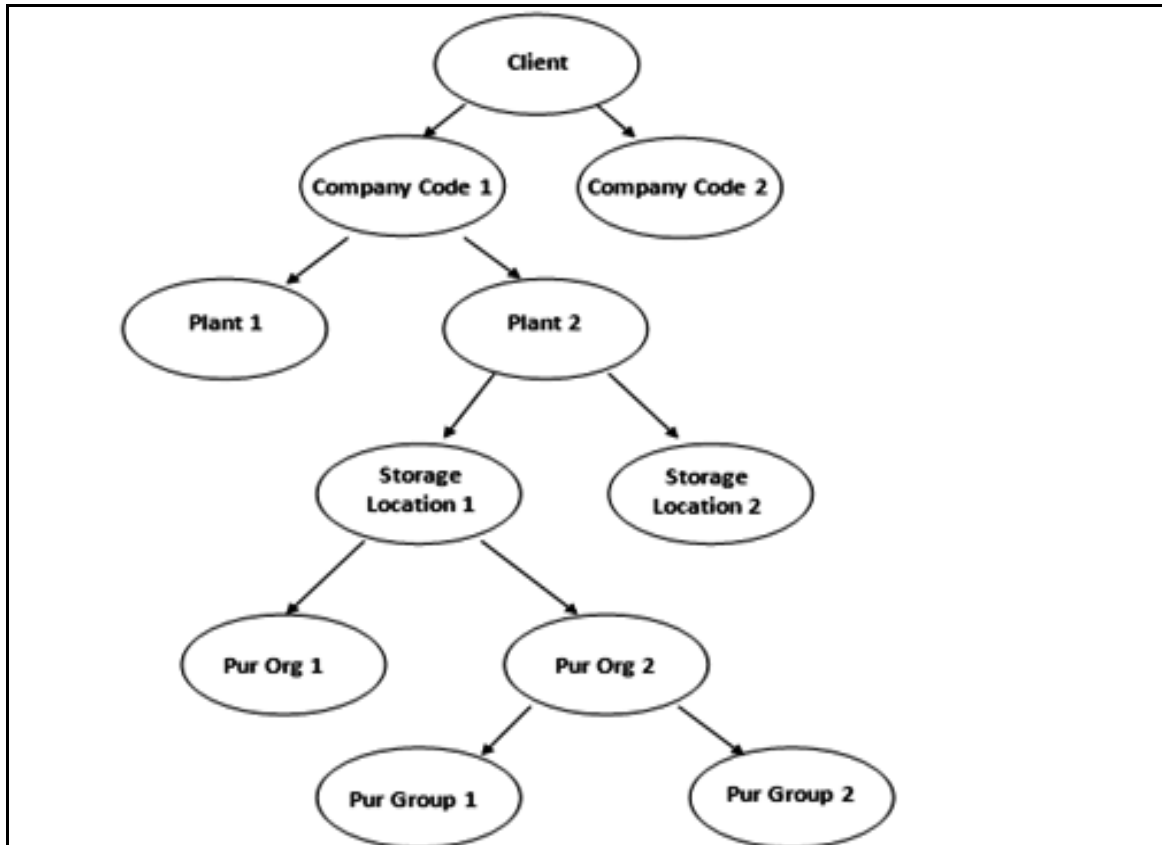
In the following sections, we will look into each of the units that constitute an enterprise structure.

Client

A client has the following attributes:

- Client is a commercial organizational unit in R/3 system.

- It has its own set of master data with independent table sets.

- According to hierarchy, a client occupies the highest level in a SAP system.

- Data that is maintained at the client level is valid for all organizational levels.

Company Code

A company code has the following attributes:

- Within client, a company code is an independent accounting unit.

- It is a legal entity that has its own profit, loss and balance statement.

- It is the smallest unit in an organization for which a complete independent account set can be replicated.

Plant

The basic points to be noted about a plant are as follows:

- Plant is an organizational unit within a company where activities take place. A plant will produce goods and make goods available for the company.

- It is a unit having manufacturing facility, warehouse distribution center, or a regional sales office within logistic. It subdivides an enterprise in different aspects.

Storage Location

A storage location has the following attributes:

- Storage location is an organizational unit, which actually differentiates between different material stocks in a plant.

- Storage location is a place where stock is kept physically.

- A plant can consist of multiple storage locations. All data is stored at storage location level for a particular storage location.

Purchasing Organization

The points to be noted about a Purchasing Organization are as follows:

- A purchasing organization is an organizational unit under a company or a plant that is responsible for the procurement activities according to requirements. It is responsible for external procurement.

- A purchasing organization can be at the client level, which is known as a centralized purchasing organization.

- A purchasing organization can also be at the company or plant level, which is known as company-specific or plant-specific purchasing organization.

Different forms of purchasing can be described as follows:

Centralized Purchasing

Purchasing organization is not assigned to any company code. It procures for all company codes belonging to different client.

Company-Specific Purchasing

Purchasing organization is assigned to a company code only. The plant belonging to the company code can purchase through this purchasing organization.

Plant-Specific Purchasing

Purchasing organization is assigned to a plant. Only this specific plant can purchase through this purchasing organization.

Purchasing Group

The attributes of a purchasing group are as follows:

- Purchasing group is an organizational unit responsible for the everyday procurement activities within an organization.

- It is a buyer or a group of buyers responsible for the procurement activities in a purchasing organization.

6. SAP MM – Defining Organizational Structure

An organization structure can be defined as the framework of a company that describes the entire structure and functioning of the company. Organization structures are split into different levels and each level is placed according to a hierarchy. These levels have direct or indirect relationship with one another. The various levels in a standard organization are as follows:

- Company

- Company code

- Plant

- Storage location

- Purchasing organization

- Purchasing group

All the Definitions in SAP are given through the Display IMG screen as shown below:

Path to reach Definition: IMG => Enterprise Structure => Definition
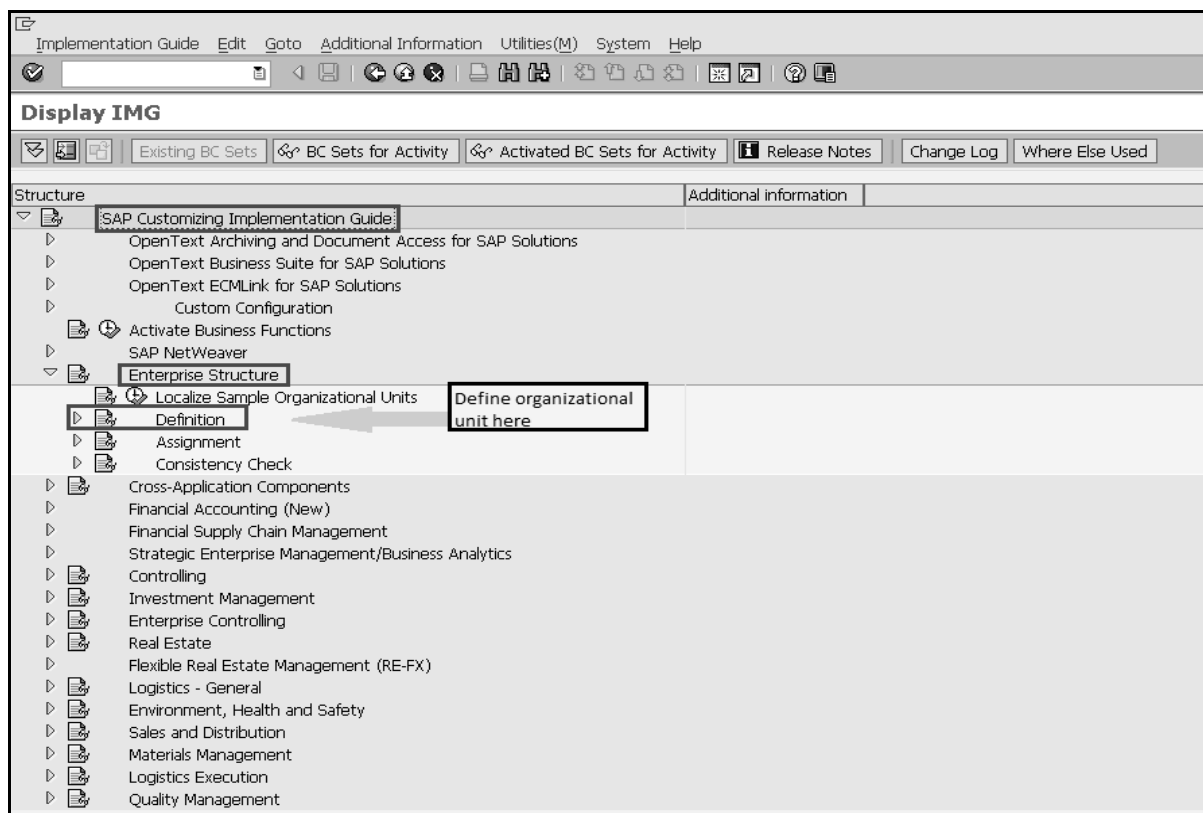
Create Company

Company is the topmost organizational unit after client, which incorporates individual financial accounting statements of several company codes. A company can have many company codes. In SAP, it is optional to create a company. The following steps will take you through the procedure of creating company.

Path to Create Company:

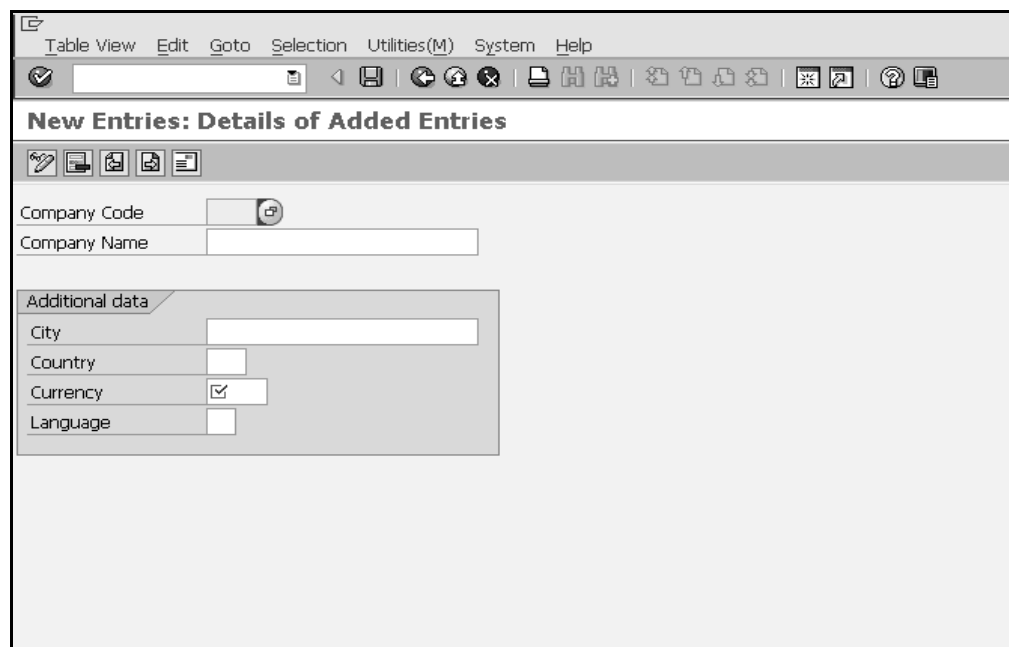IMG => Enterprise Structure=> Definition=> Financial Accounting=> Define Company
TCode: OX15

Step 1: On the Display IMG screen, select Define Company execute icon by following the above path.
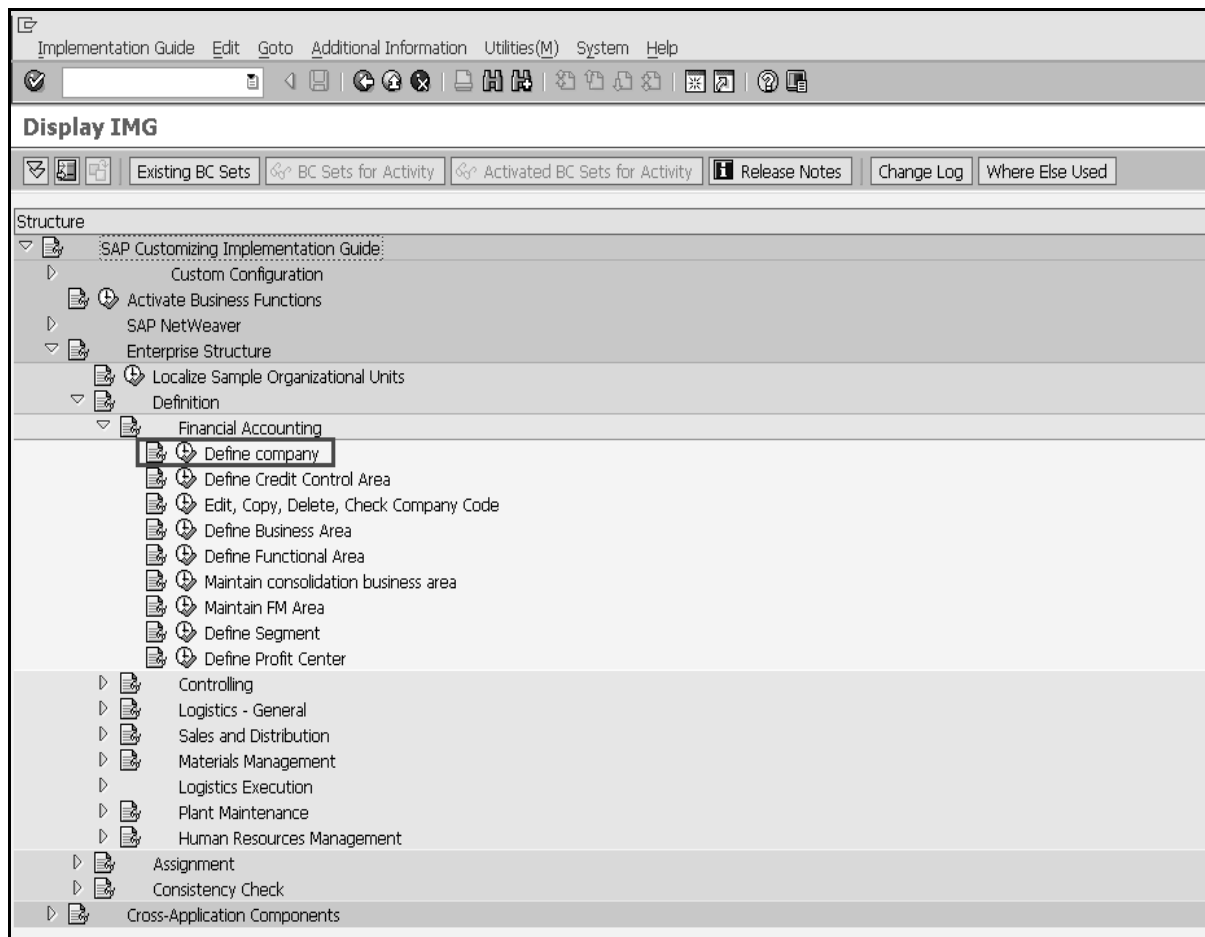
Step 2: Click the New Entries icon.
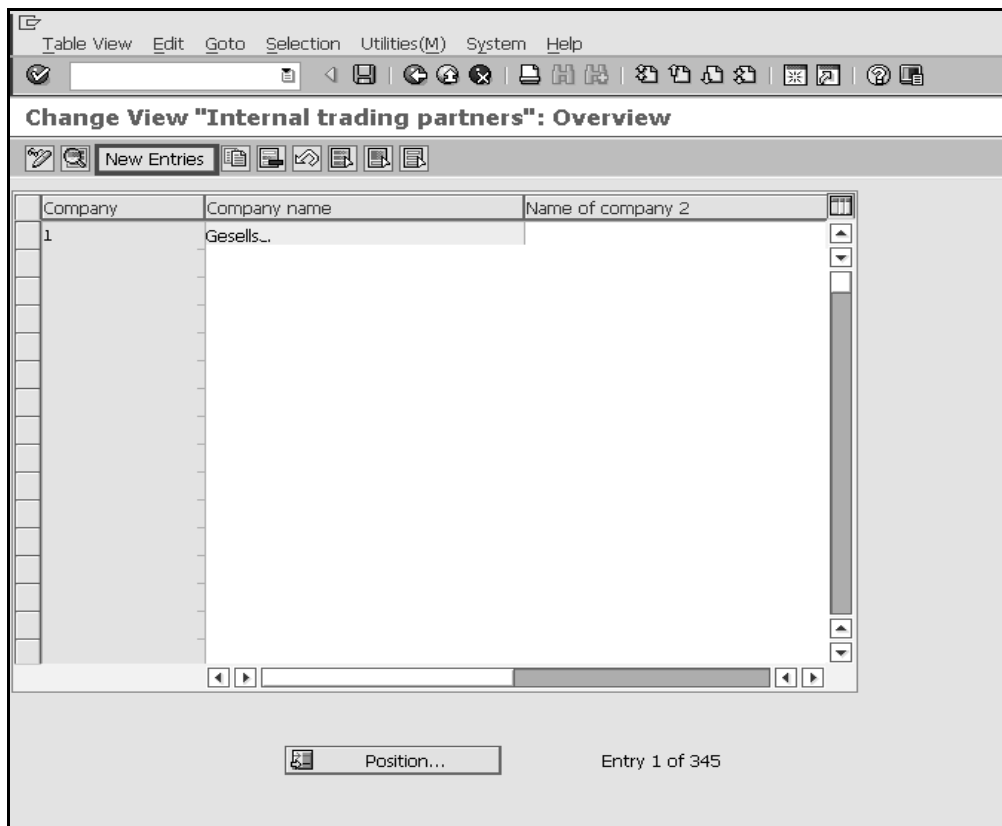
Step 3: Fill in all the necessary details such as name of the company, address of the company with street number, city, country, and postal code.

Step 4: Click the Save icon after filling the required information. A new company will be created.

Create Company Code

A Company Code is the smallest organizational unit after company, for which the standalone financial accounting's profit and loss statements can be withdrawn. Many company codes can be assigned to one company. The following steps depict how to create a company code.

Path to create Company Code:

IMG => Enterprise Structure=> Definition=> Financial Accounting=> Edit, Copy, Delete, Check Company Code
TCode: OX02

Step 1: On the Display IMG screen, select Edit, Copy, Delete, Check Company Code execute icon, by following the above path.
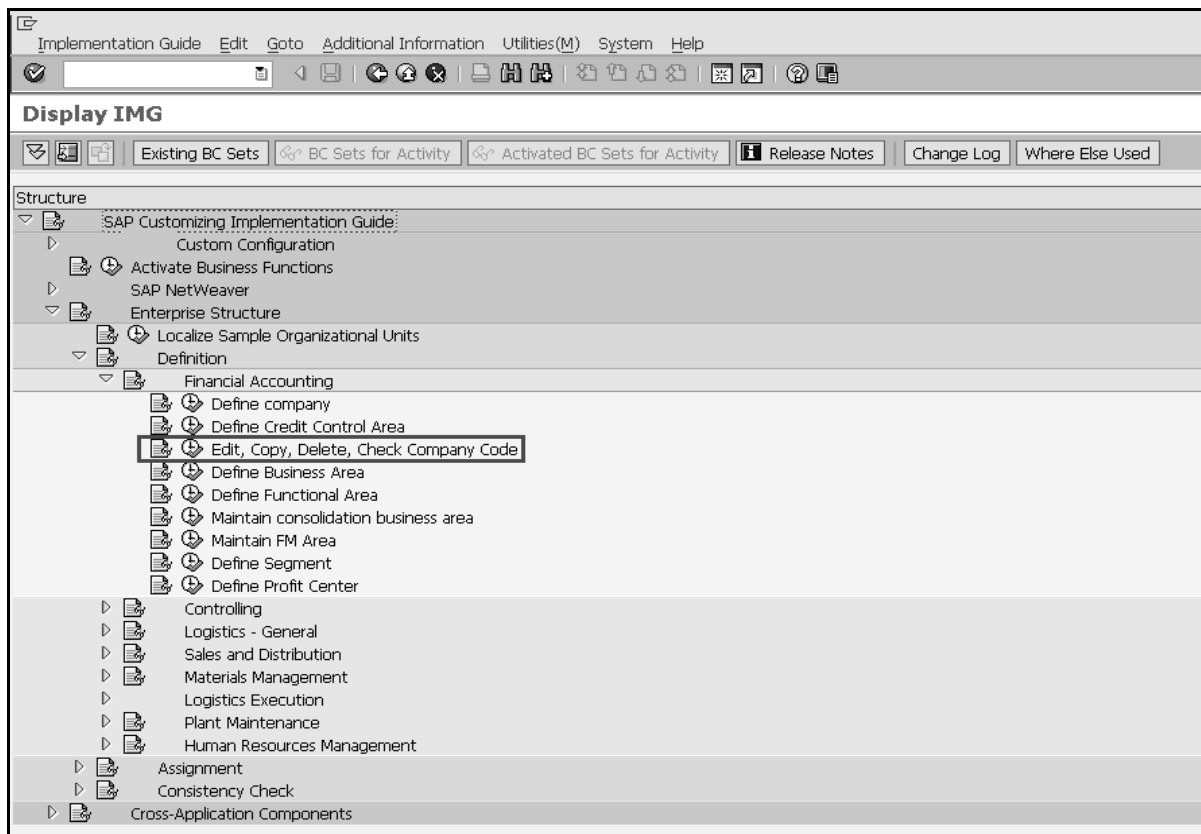
Step 2: Click the New Entries button.
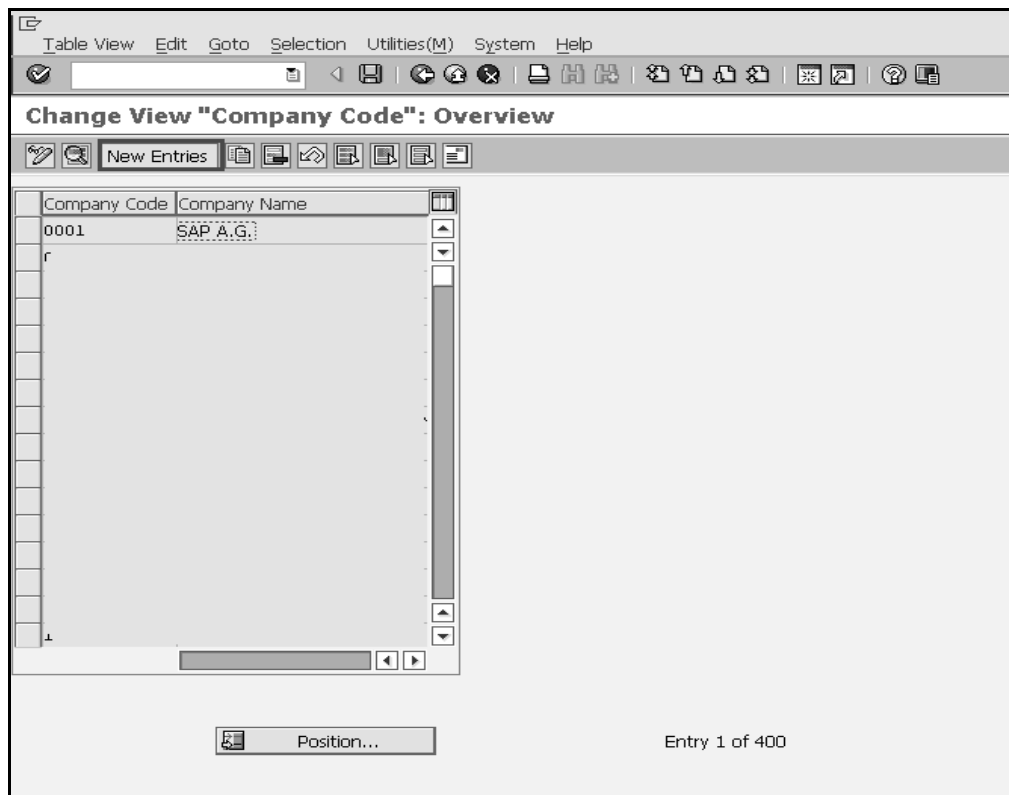
Step 3: Fill in all the necessary details like Company code, company name along with city, country, currency, language.

Step 4: Click the Save icon after filling the required information. A new company code will be created.

Create Plant

A Plant is an organizational unit within a company where activities take place. A plant will produce goods and make goods available for the company. The following steps will take you through the procedure of creating a plant:

Path to create Plant:

IMG => Enterprise Structure=> Definition=> Logistic General=>Define, Copy, Delete check plant

TCode: OX10

Step 1: On the Display IMG screen, select Define, Copy, Delete check plant execute icon, by following the above path.

Select Define Plant icon to create a new plant.
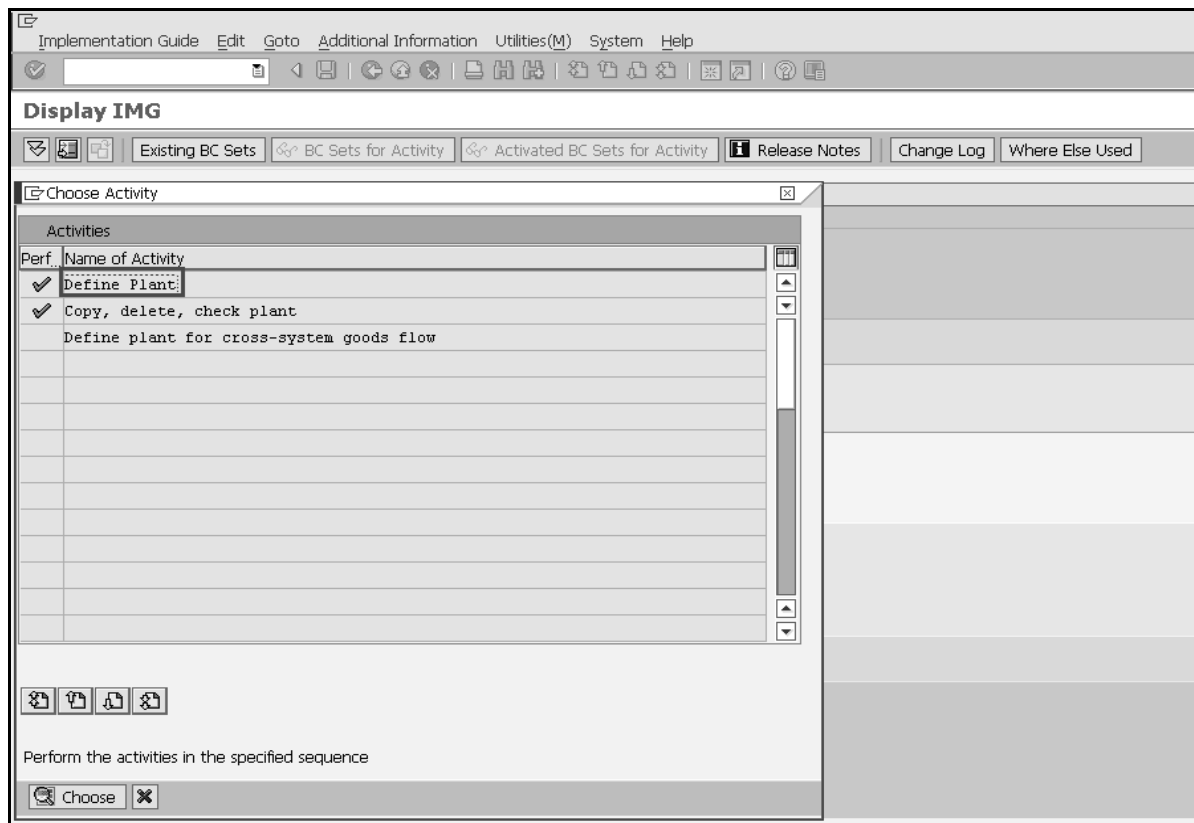
Step 2: Click the New Entries icon.
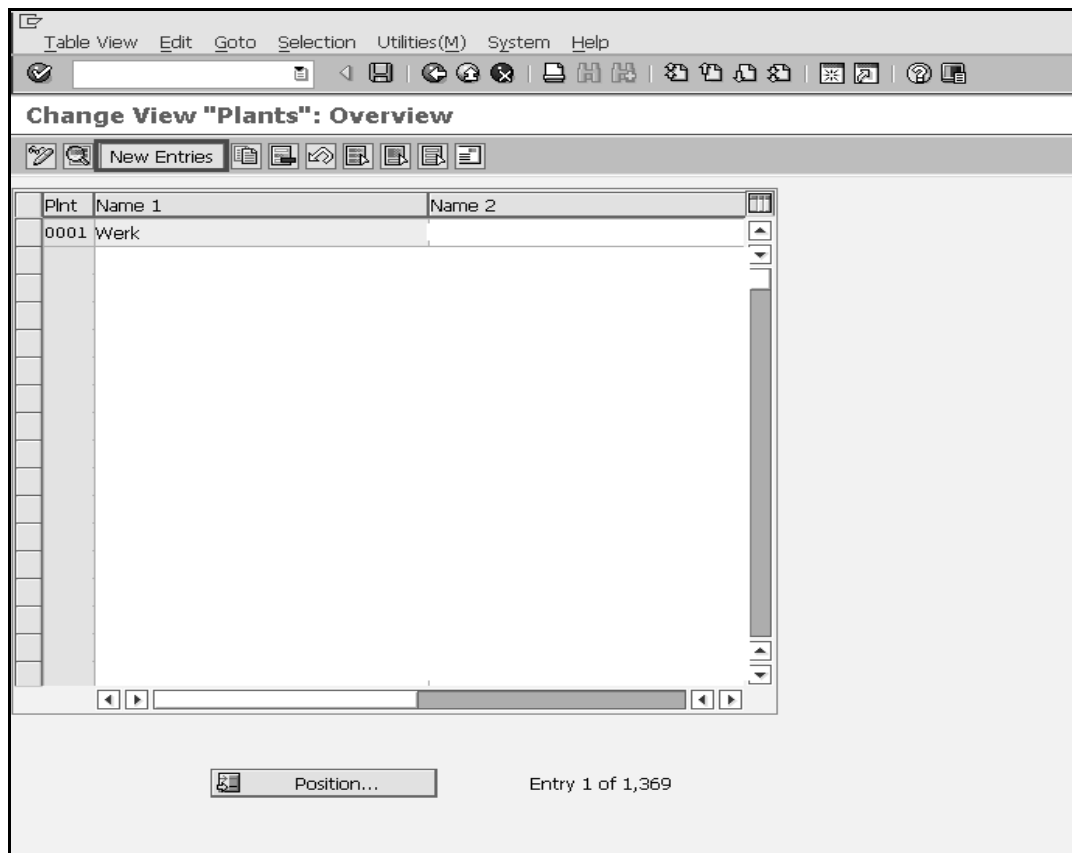
Step 3: Fill in all necessary details like plant name along with detailed information like Language, House no., city, country, region, postal code.

Step 4: Click the Save icon after filling the required information. A new plant will be created.

Create Storage Location

A Storage Location is an organizational unit, which actually differentiates between the different material stocks in a Plant. Storage location is a place where stock is kept physically. A plant can consist of multiple storage locations. All data is stored at a storage location level for a particular storage location. Follow the steps given below to create a Storage Location:

Path to Create Storage Location:

IMG => Enterprise Structure => Definition => Materials Management => Maintain Storage Location
TCode: OX09

Step 1: On the Display IMG screen, select Maintain Storage Location execute icon, by following the above path.
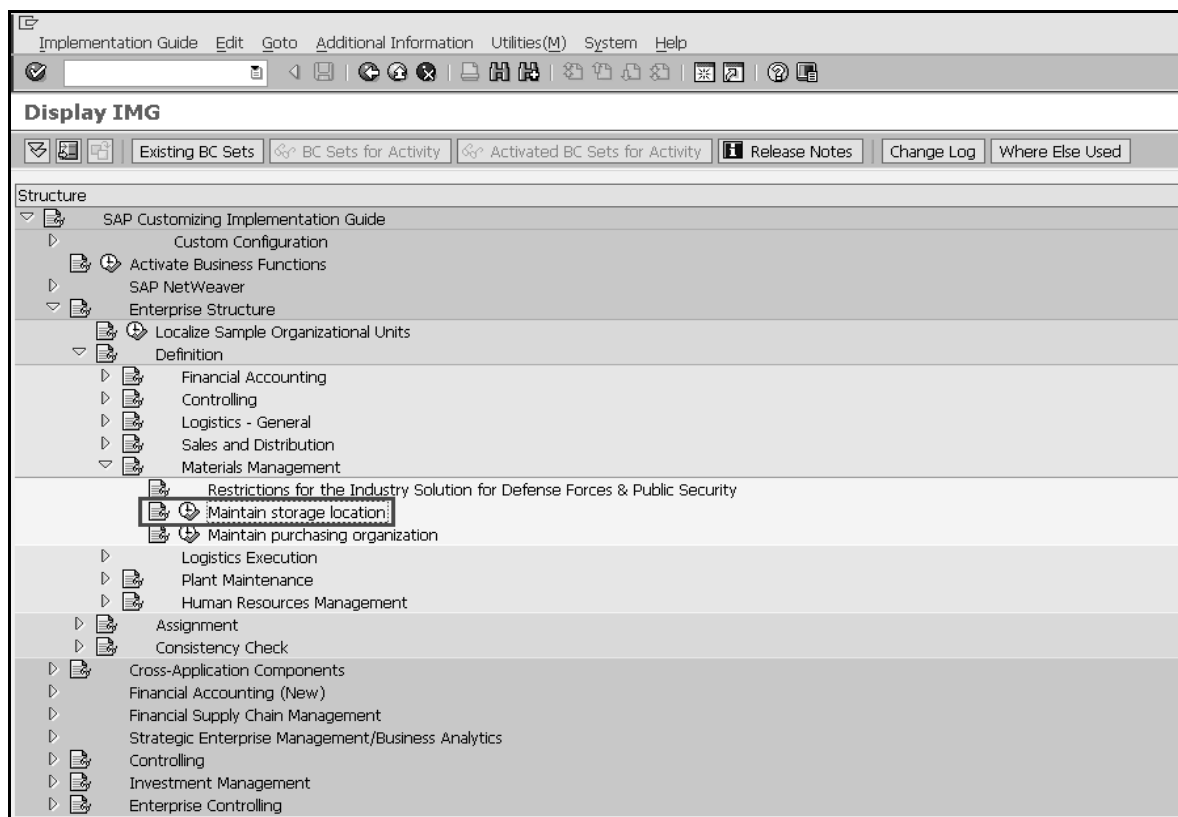
Step 2: Enter the name of the plant for which you want to create the storage location.

Step 3: Click the New Entries icon.

Step 4: Enter the name of the storage location along with its description. Click the Save icon after filling the required information. A new Storage Location will be created.
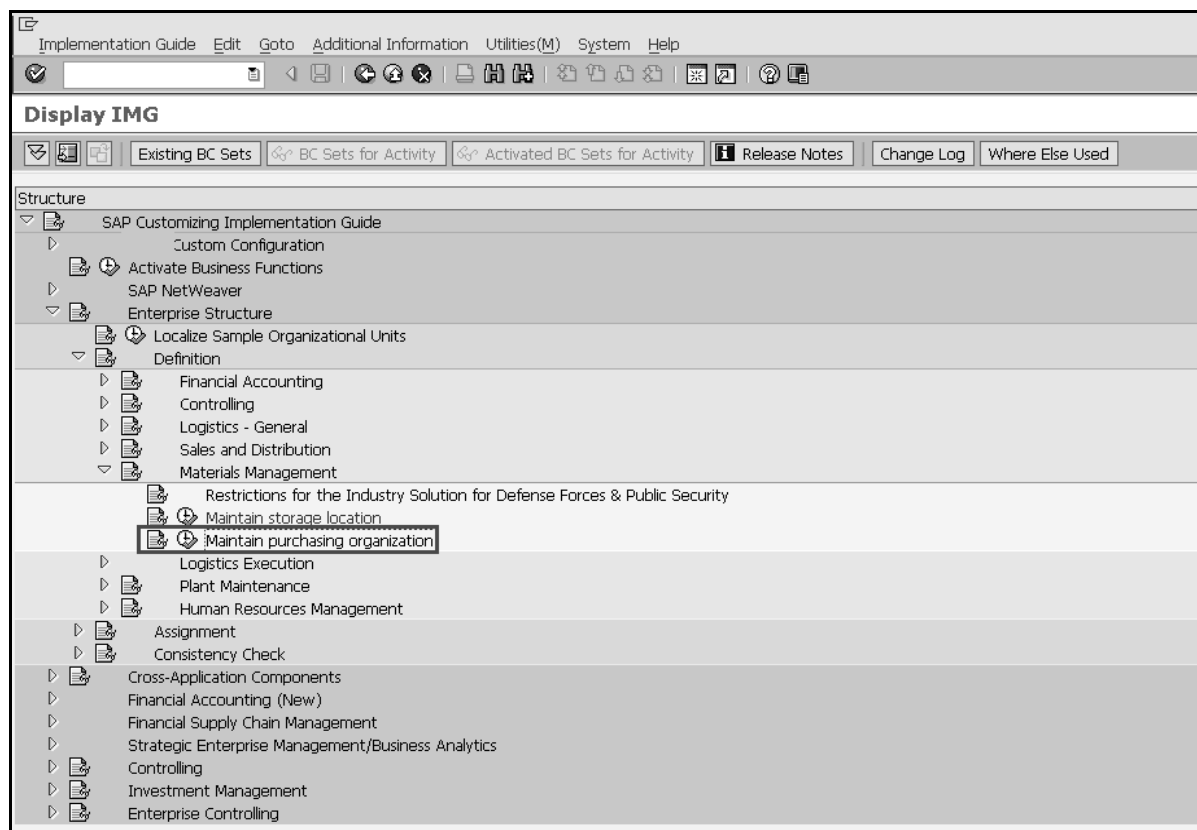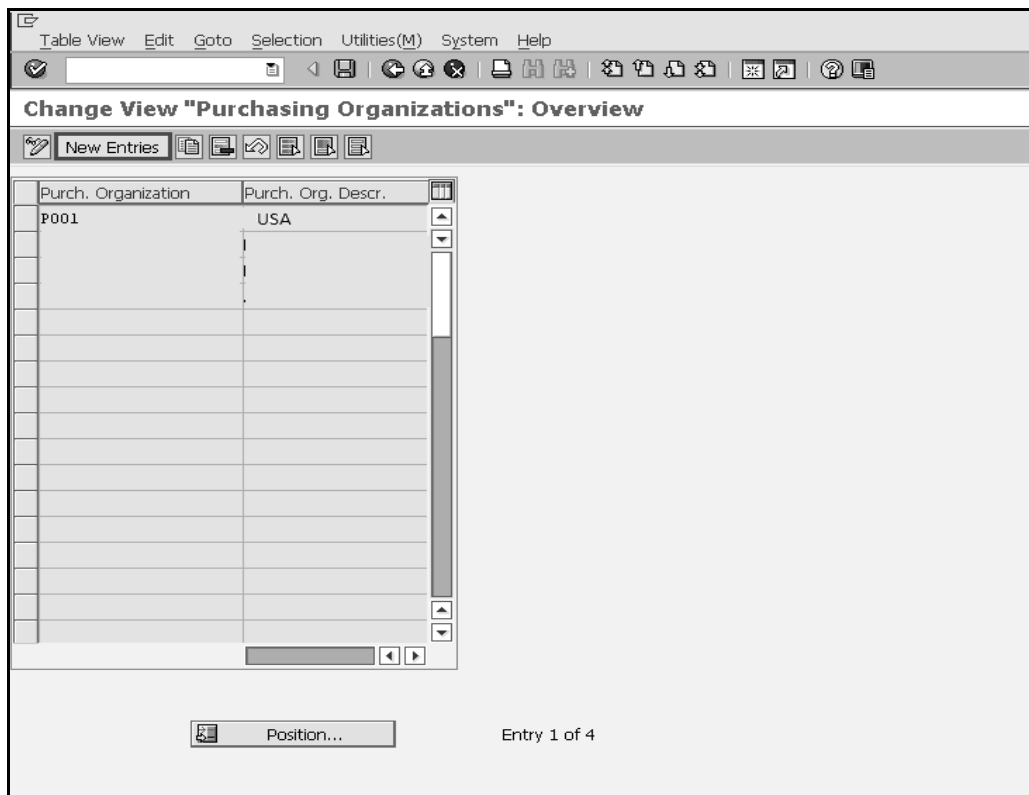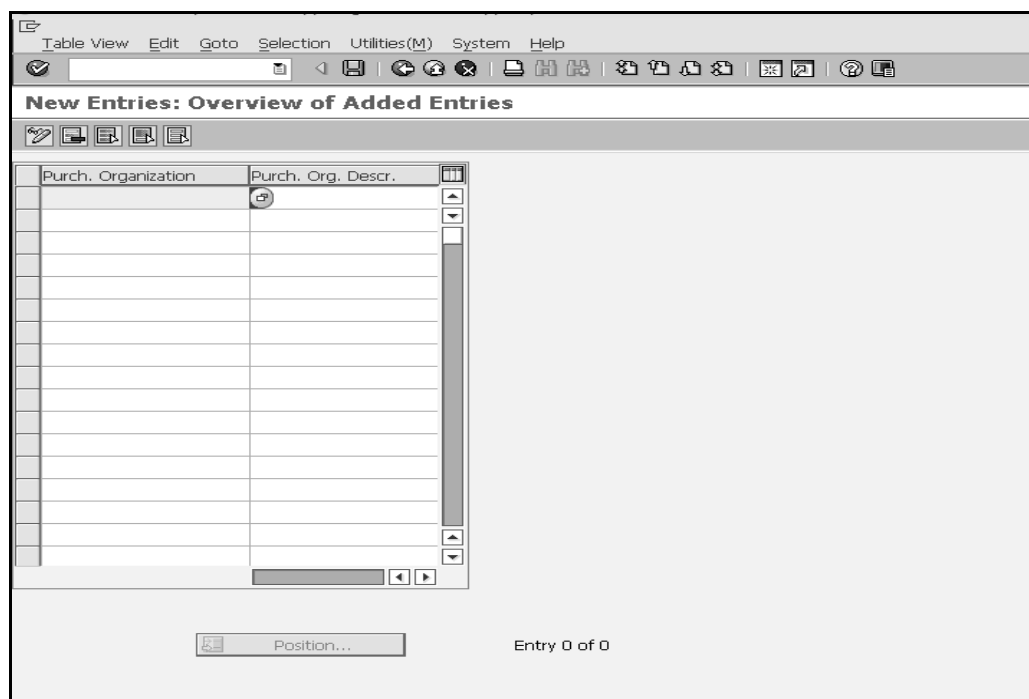
Create Purchasing Organization

A Purchasing Organization is an organizational unit under Company or Plant that is responsible for procurement activities according to requirements. It is responsible for external procurement. A purchasing organization can be specific to a plant or a company. Following the steps given below to create a Purchasing Organization:

Path to Create Purchasing Organization:
IMG => Enterprise Structure=> Definition=> Materials Management=> Maintain Purchasing Organization
TCode: OX08

Step 1: On the Display IMG screen, select Maintain Purchasing Organization execute icon, by following the above path.

Step 2: Click the New Entries icon.

Step 3: Enter the name of the purchasing organization along with its description.

Step 4: Click the Save icon after filling the required information. A new Purchasing Organization will be created.
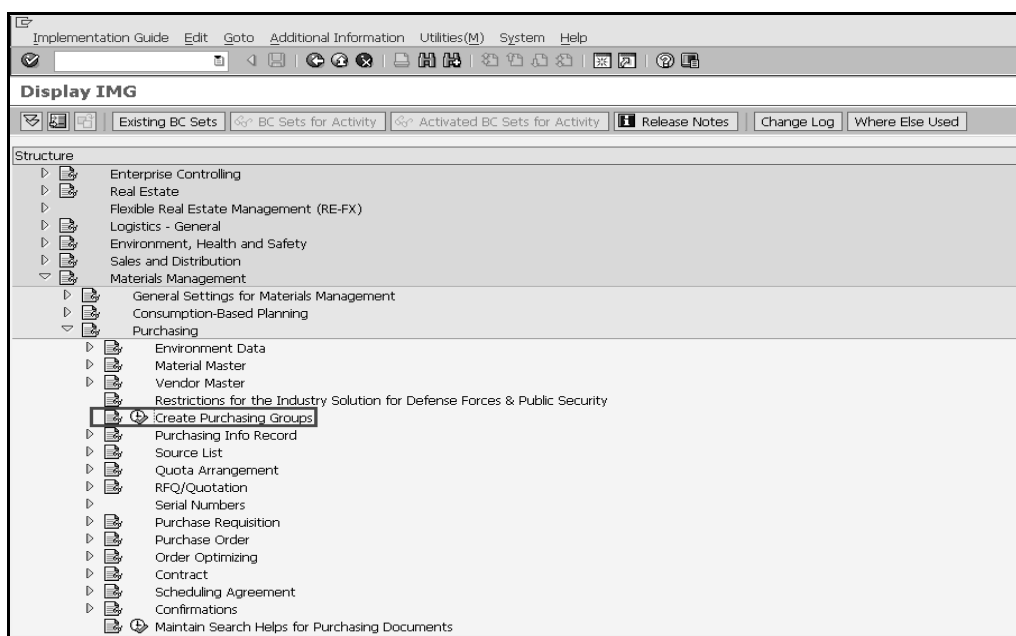
Create Purchasing Group

A Purchasing Group is an organizational unit that is responsible for the everyday procurement activities within an organization. The steps given below depict how to create a Purchasing Group:
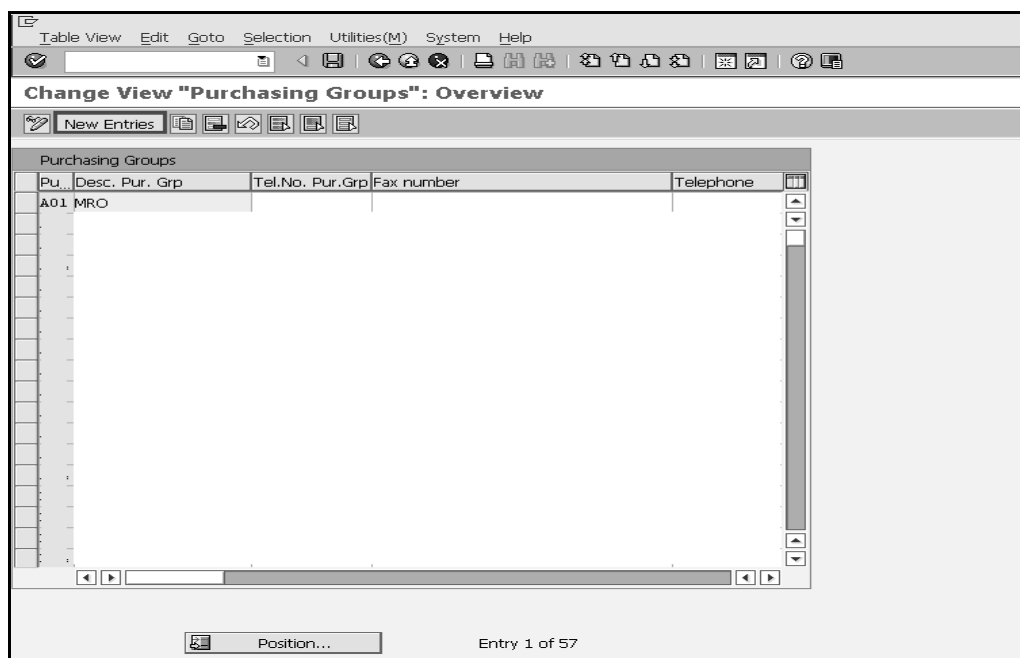
Path to Create Purchasing Group:
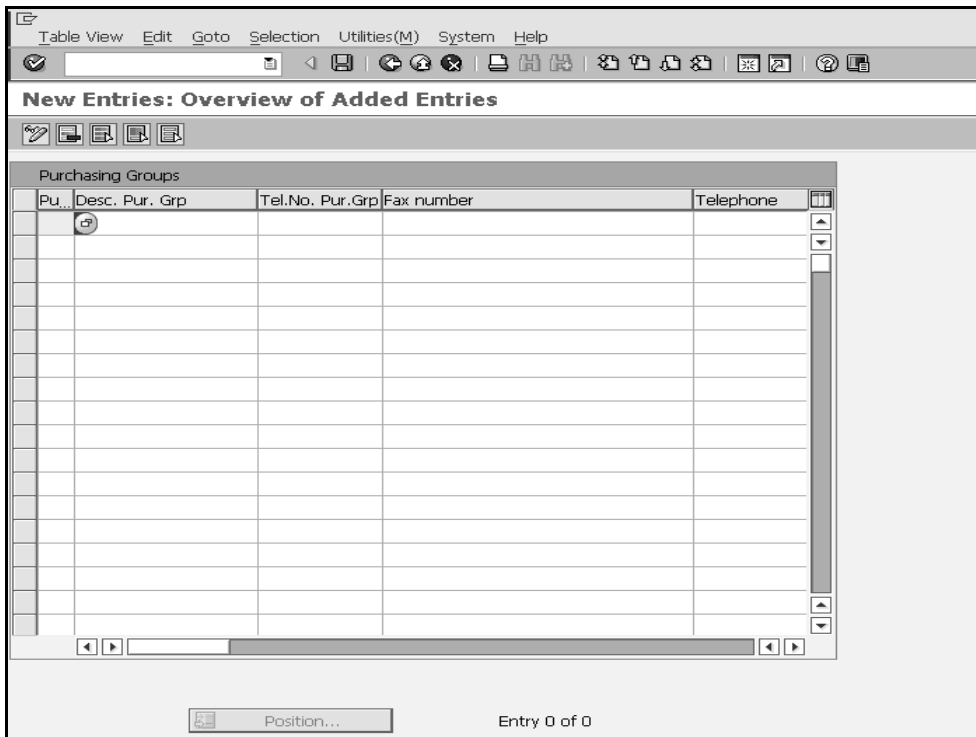IMG =>Materials Management => Purchasing =>Create Purchasing Group
TCode: OME4

Step 1: On the Display IMG screen, select Maintain Purchasing Group execute icon, by following the above path.

Step 2: Click the New Entries icon.

Step 3: Enter the name of the purchasing group along with its description.

Step 4: Click the Save icon after filling the required information. A new Purchasing Group will be created.

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