The SAP Materials Management Handbook

Ashfaque Ahmed

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Preface

Systems, Applications, and Products (SAP) application has been implemented by thousands of customers worldwide over the years since it was introduced in 1972 by SAP AG. There are thousands of SAP consultants who implement SAP application for their customers. They must have learned SAP somewhere using some learning tools such as books, online portals, and training classes.

Yet it baffles me that many good books are not available in the market, especially for SAP materials management (SAP MM). I still have no idea why it is so but I have decided to bridge the gap. So I have put my effort in the form of this book. I hope it will be extremely useful to the aspiring SAP MM consultants. The book includes a complete flow of business transactions involved in SAP MM. It also provides a detailed explanation of all the steps involved in SAP MM.

This book discusses the following aspects:

- Complete guide on features related to SAP MM including procurement of materials and inventory management with screen shot of real-time SAP environment.
- Complete guide on customization required for procurement of materials and inventory management with screen shots of real-time SAP environment.
- Business scenarios related to SAP MM such as subcontracting cycle and consignment cycle, and a complete step-by-step guide to do it yourself with live SAP environment with screenshots.

This book is designed to be your dependable reference for SAP MM. There are many tricky business transactions in SAP MM that cannot be performed without thorough understanding of how particular SAP MM features work. For example, the feature "Release procedure for purchase requisition" is used to release a purchase requisition by all authorized personnel before it can be released to be used by the purchase department for further processing; it is a good example that can never be implemented without the knowledge of all steps involved in setting up a release procedure for this document. Similarly, setting up a subcontract order requires knowledge of all steps involved in setting up a subcontract order in SAP.

Experienced SAP MM consultants can set up complex business scenarios related to business requirements of their customers. However, due to complexity and a large number of ways any business scenario can be set up in SAP, newbie SAP MM consultants find it almost impossible to implement them. This book will definitely be of great help for these people.

There are two aspects to implementing any business software application: (1) to have a good knowledge about business processes so that the users find it useful when the software application

gets implemented and (2) to have in-depth knowledge about the features of the SAP system. It is possible that a SAP MM consultant may be good at understanding business requirements but lacks the knowledge of SAP MM features. Similarly, a SAP MM consultant may be good at understanding SAP features but has little experience of business processes and thus lacks good knowledge about business requirements. In either case, the consultant will not be a successful one. The consultant must have good knowledge and experience of business processes related to purchasing and inventory management. If he uses this book, he will definitely find it easy to bridge the gap between the knowledge of business requirements and SAP MM features. After practice, he can be a good SAP MM consultant.

I hope this book will help you to become a successful SAP MM consultant.

Author

Ashfaque Ahmed obtained his bachelor of engineering from the National Institute of Technology, Raipur, India, in 1988 and his MBA in marketing management from Indira Gandhi National Open University in 1997. He has more than 25 years of experience in the steel industry and software application development. He started his career as a management trainee in Steel Authority of India Limited, the largest and most admired company in the steel industry in India. He learned production management, inventory management, and marketing management in the Indian steel industry. Later he moved to the software industry as a programmer analyst and worked for a Canadian software company based in Montreal. In the software industry, he learned about software programming and how software helps run a brick-and-mortar business. Then he moved to software testing and worked as a software testing manager and software project manager.

In 2005, he learned SAP materials management (SAP MM) module and became a SAP MM consultant. Since then, he has been working with Global Steel Holdings Limited and SAP Nigeria for implementing SAP solutions for their customers. In his career as SAP MM consultant, he has worked on some challenging assignments that involve the implementation of variants of standard business scenarios in the context of local country-specific customizations of SAP MM features.

He is a well-known and popular author. He has written two books and many research papers. His books *Software Testing As a Service* (2009) and *Software Project Management: A Process-Driven Approach* (2011) were published by CRC Press.

Chapter 1

Introduction to SAP Materials Management and Navigation

Introduction

If you are pursuing to become a SAP materials management (SAP MM) consultant, you may already know something about SAP. So we will quickly and briefly go over what is SAP and move over to SAP MM, and discuss some preliminary points about it. Later we will see some advance topics related to customizing SAP MM. Finally, we will see some business scenarios related to MM and understand how SAP MM is used to solve these scenarios.

I welcome you to this edition of text on SAP MM. You are going to read and learn a lot about SAP MM. But first we will learn what is SAP all about and some basic understanding about SAP MM as well as how to navigate SAP screens as a user and as a business analyst.

What Is SAP?

SAP stands for Systems, Applications, and Products for enterprise data processing. In 1972, five former IBM employees formed this company in Germany. The company name is SAP AG and the product that was developed is called SAP. Initially, SAP application was built to run on IBM mainframe computers, and this release of the application was termed as SAP R/1. Then in 1978, SAP AG launched R/2 version of its product. Finally, in 1992, SAP released its R/3 version. There was a fundamental shift with this release. While earlier versions of SAP were built to run on IBM mainframes, SAP R/3 was built to run on UNIX platforms; hence, there was a paradigm shift from the mainframe era to the client–server one. Since then SAP AG has kept releasing many versions of its product catering to different technologies and different businesses. In 1999, SAP AG introduced mySAP.com, a technological initiative to join the era of Internet and client independent computing.

SAP AG has also been kept adding new functionalities to its product. Initially, there was only accounting package in its product. Later it added advanced financial features. For order and front office management, it introduced sales and distribution (SD) module to its product. Later it introduced the feature to take care of back office work related to supply chain management such

as inventory management, shipment management, and warehouse management (WM). Similarly, it added mobile platform to integrate mobile devices to the backbone application so that users can use mobile devices to process transactions online.

SAP AG also developed the modules for human resource management, customer relationship management, advance planning and optimization, components for mobile integration and operation, and so on over the years as technology and customer requirements evolved from time to time.

Importance of Enterprise Resource Planning

In any enterprise that deals with procuring, processing, production, or distribution of materials, transactions such as purchase order, purchase requisition, contracts, inventory count, inventory valuation, vendor management, and material requirement planning take place.

These transactions can be done using a paper and a pencil if the operations involved may be very small. For instance, a small retail shop may have 500 items, and every week it needs to order 70 items from its supplier. In this case, these transactions can easily be taken care of by using a paper and a pencil. Now assume that the owner of this shop expands, and suddenly now there are three shops located at different parts of the city. The number of items increased to 5000 and the number of items on orders to suppliers also increased to 700 per week. In this case, a small software package can be used to take care of these transactions.

Now assume that this retail store chain expands again over the years. There are 30 stores located at different parts of the state. There are 7000 items on orders per week. How will the management of the retail store chain handle these increased transactions? Maybe they will go for a larger software package to take care of the larger number of transactions. In fact, nowadays there are global business houses that are so large that the number of transactions for their different business units runs in billions per day. The organization structures at these houses also tend to be very complex. There may be many legal business units which are, for all purposes, separate business units from each other. Yet, because of the same ownership, they do business with each other differently than they do business with other business houses. Then these global business houses operate in many countries. Each country has its own legal and commercial requirements.

Despite all these complex issues, a business house needs to have a system that can tie all of its diverse operations together. Thus, running the business becomes easier. The top management can make decisions instantly based on the information they get from such a system that provides revenue, expenses, and future commitments, and all such information. The top management of a global enterprise may need all these information from all of its global operations. This information is current, instant, and available at a touch of a button. These global business houses also need to provide legally binding information to governments and public on a quarterly or a yearly basis about their business operations. It is simply impossible to provide these pieces of information without the help of a good enterprise software application that helps these business houses to do instant transactions, and at the same time make available information about these transactions.

SAP is one of such an enterprise system. This system is known as enterprise resource planning (ERP) system. In fact, SAP is the most successful of these ERPs.

What Is SAP MM?

SAP ERP consists of financial, logistics, and human capital management core areas. SAP MM is part of the SAP ERP logistics system, which consists of SAP production planning (SAP PP),

SAP plant maintenance (SAP PM), SAP WM, SAP SD, SAP logistics execution (SAP LE), and SAP MM. SAP MM covers the areas of purchase and inventory management.

To fulfill these tasks associated with purchase and inventory management, SAP MM needs master data to be defined for materials, vendors, plants, storage locations, and purchase organization. These master entities need to be configured in conjunction with the client and company codes, which are two top-level organization entities in SAP.

Apart from these master data, SAP also needs to create master data for

1. Linking vendor to materials
2. Creating a list of all available sources of supply of materials so that sourcing for these materials can be optimized

SAP purchase management deals with the transactions associated with creation and maintenance of purchase documents. The set of purchase documents contain transaction data. SAP needs master data to produce this transaction data.

In essence, SAP MM is all about purchase transactions, inventory management transactions and the transaction data being generated during these transactions.

SAP Is Not Easy

If you think that learning SAP is easy, you are mistaken. SAP is one of the most complex software applications, and thus, it is difficult to learn. For an end user, it may be a complex and difficult product, but for a SAP consultant, it is even harder.

Complexity Issues for End Users

Even at the end user level, SAP presents very complex user screens. There are thousands of transactions which an end user is supposed to perform on a daily basis. For these transactions, there are too many options available in the implemented system. At the same time, on each user screen, there are too many elements. These factors make the SAP environment difficult to learn and understand.

Complexity Issues for SAP Consultants

SAP consultants need to use implementation guide (IMG) to configure the SAP application as per customer requirements. On top of already complex end user screens, there are too many options available in the IMG guide to configure the application. Definitely this makes the job of a SAP consultant difficult. Understanding what each of the options available in the IMG does for implementing a business process is a labor-intensive work. It may never happen that a SAP consultant may have to implement many of these options ever on any of the projects he/she may have worked. Thus, he/she may be aware of a limited number of options which he/she may have ever implemented.

Typical Nature of SAP Transactions

Learning SAP is also difficult because transactions in SAP are done in a typical way. So if a consultant or user has experience in using or implementing any other ERP system, he/she may find it difficult

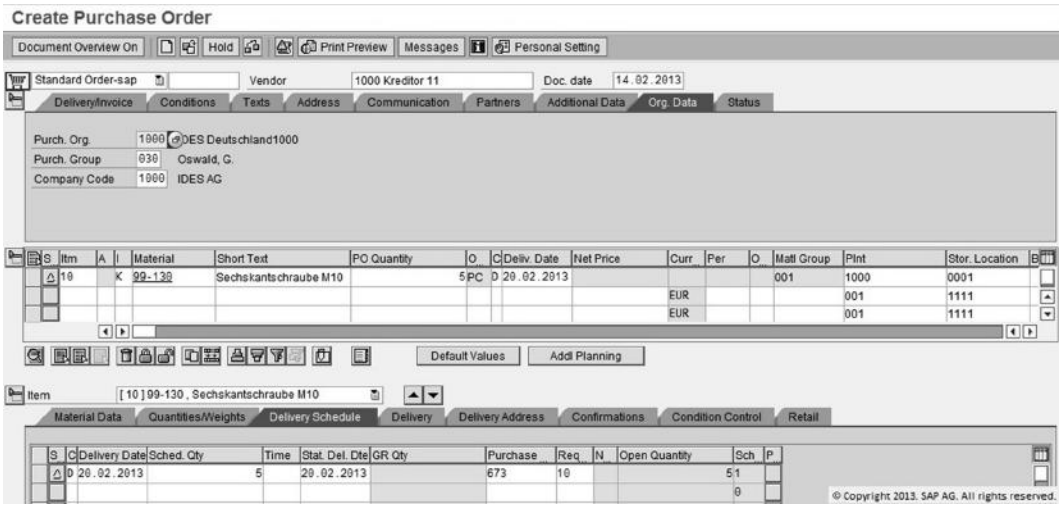
to migrate to SAP. For instance, a consignment cycle done in SAP is very different from how it is done in any other ERP system. In SAP, a consignment cycle is implemented in the following steps:

1. Activate consignment payment via info records in the IMG.
2. Create info record of consignment type.
3. Check general ledger account setting for consignment payable and stock posting.
4. Create a consignment contract (with item category type "K").
5. Create a purchase requisition referencing the above created contract.
6. Create a purchase order referencing the above created purchase requisition for ordering the consignment material into consignment stock.
7. Post goods receipt for the purchase order. The material will be received in consignment stock. At this point, a material document will be created.
8. Post goods issue to move material from the consignment stock to customer's own stock. At this point, a material document and an accounting document will be created.
9. Do settlement of consignment payment to vendor.

If you go through the above steps, you will ask what is info record, what is item category, and what is material document? You will appreciate that SAP has its own terminology and way of doing things. You will learn about all the SAP terms mentioned here in the later chapters.

Typical SAP User Screens

A user screen for purchase order is shown in the below figure.



You can see that the screen is indeed complex and contains a large number of screen elements. A new user will have to master and understand all these screen elements to work in SAP environment. Definitely learning and mastering such a large number of user screen elements is a difficult task.

Difficult Language

SAP application has been developed by German people in German language for German companies. Later it was translated into English so that people from English-speaking countries can use it. So the German influence on SAP application is unmistakable. Icons, screen layouts, and screen elements definitely have a German imprint. This makes learning SAP a bit difficult proposition for people from English-speaking countries.

Navigation

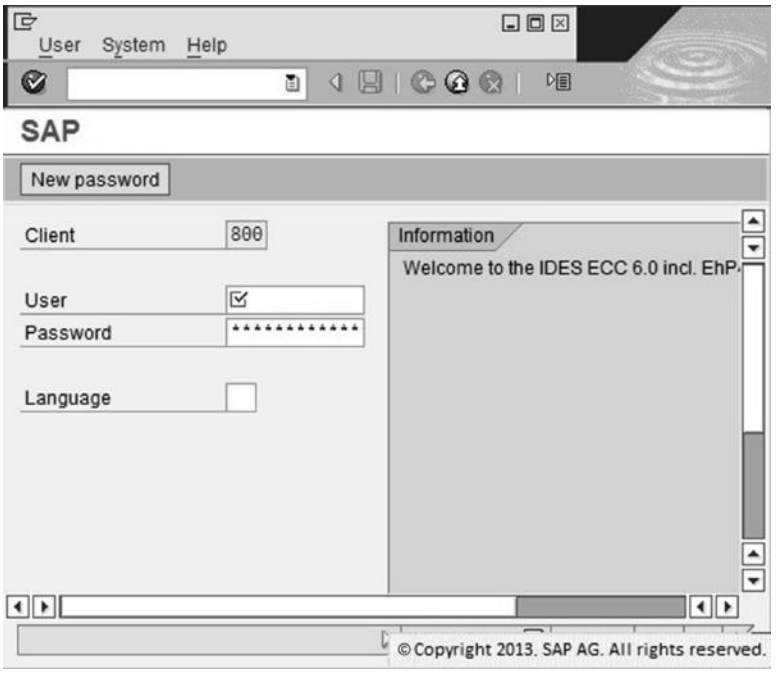
Navigation in SAP consists of menus, file directories, and iconic button commands. The entire screen in any SAP program is divided into many parts. User can navigate from one screen to another by using either drop-down menus, iconic button commands, or the file directories.

Menus are divided into four types: system menu, application menu, context-sensitive menu, and drop-down menu. System menu consists of menus related to entire system. They are always present at the top of all SAP screens. But they also change with the application being run.

Log On

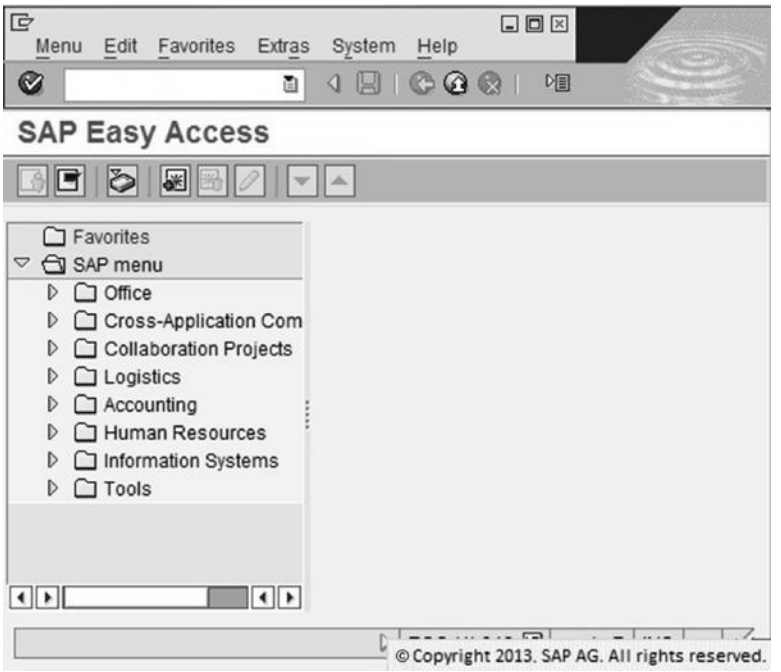
In SAP, you need to log on first to access it. Every user of a SAP system is provided with a user name and a password to access it. It is also necessary to provide a connection string so that a user terminal (with either a SAPGUI or a WebGUI) can be connected with a server that hosts the SAP application.

A SAPGUI is the front end to access SAP application using standard windows interface. It can be installed on any user computer. A WebGUI is the front end that uses Web browser instead of SAPGUI. Any supported Web browser can be directed to a server running SAP application using a network connection through Internet or Intranet.



User Screen Elements

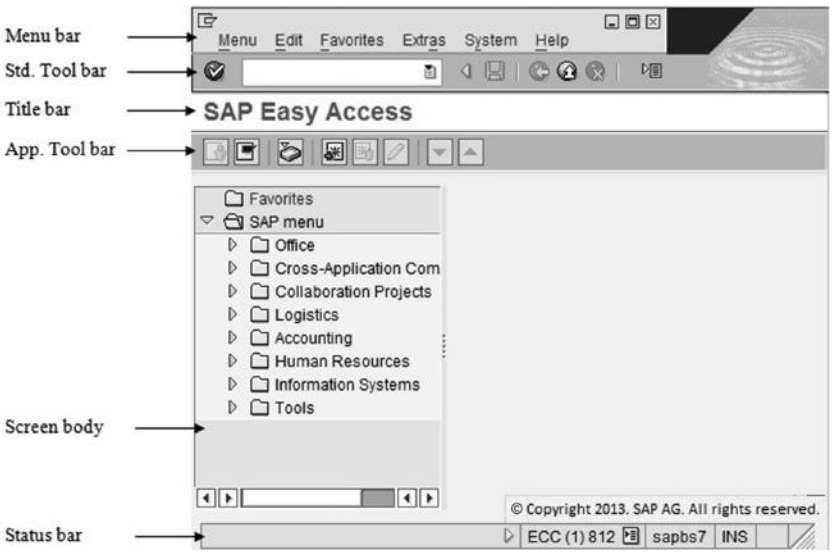
User screen elements are slightly different from what you have experienced with usual computer applications such as MS Office or even Web applications. So much attention should be paid to the screen elements and their functions as shown in the below figure.



Menu

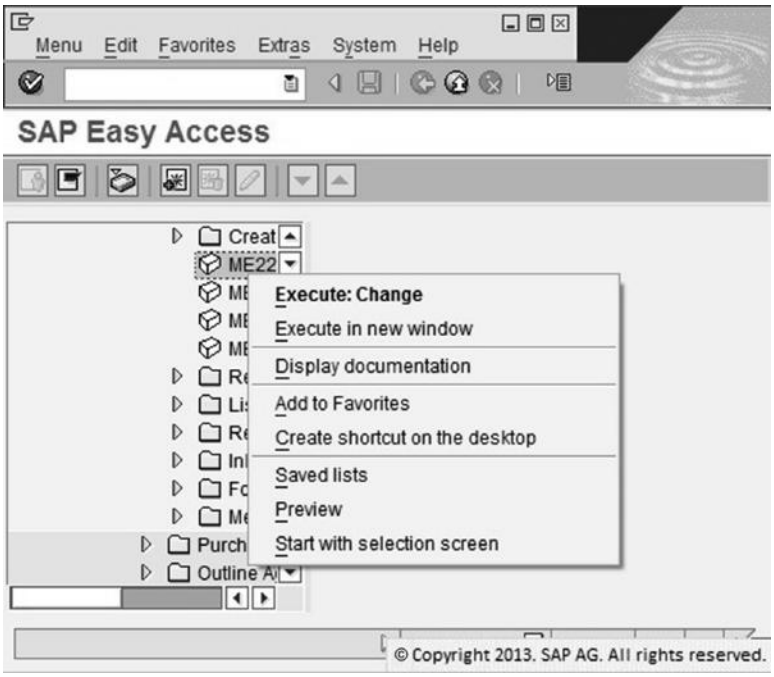
There are two types of menus in SAP application. One is the standard menu at the top of the window screen which is known as menu bar. The menu bar contains both fixed and application-specific menus. The fixed menus in the menu bar include Menu, Edit, Favorites, Extras, System, and Help. These main menus also include their respective submenus. The application-specific menus are displayed when corresponding screen is chosen and displayed. For example, when a purchase order screen is opened, specific menus of purchase order are also displayed in the menu bar.

The other menu can be invoked by pressing the right click after pointing on a screen element. This menu is context driven and depends on the screen element for which the user invokes the menu.



Standard Tool Bar

Standard tool bar in SAP screen contains tool buttons in transaction code box: Enter, Save, Cancel, and Exit.



Title Bar

Title bar contains no menu or tool buttons. It contains only a title for the screen displayed.

Application Tool Bar

Application tool bar contains tool buttons specific to the application and the screen displayed. All tool buttons get changed according to their application and screen displayed.

Screen Body

Screen body is where most of the screen elements are located.

Status Bar

Status bar is at the bottom of the screen. It contains two parts: The left part displays status messages and the right part contains boxes. These boxes contain information for system, SAP implementation version, SAP window number, and overwrite/insert switch.

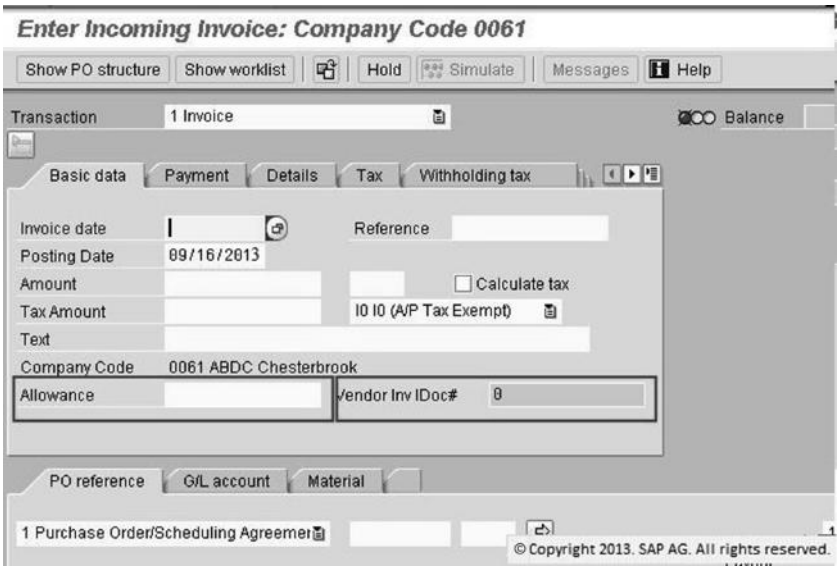
Standard Tool Buttons

In SAP, a standard set of tool buttons is used for the application. It is important to understand what these tool buttons do and how to use them.

Button	Keyboard Shortcut	Description	Button	Keyboard Shortcut	Description	Button	Keyboard Shortcut	Description
	Enter key	Enter/Continue		Ctrl P	Print		Page Down	Next page
	Ctrl S	Save to database		Ctrl F	Find		Ctrl Page Down	Last page
	F3	Back		Ctrl G	Continue Search	(Mac only	F1	Help
	Shift F3	Exit system task		Ctrl Page Up	First page	(PC only)	None	Create new session
	F12	Cancel		Page Up	Previous page	(PC only)	Alt 12	Customize local layout

Personalization

The standard SAP screen interface can be modified to suit the needs of different users. There are many tools available which can be used to change SAP screens.



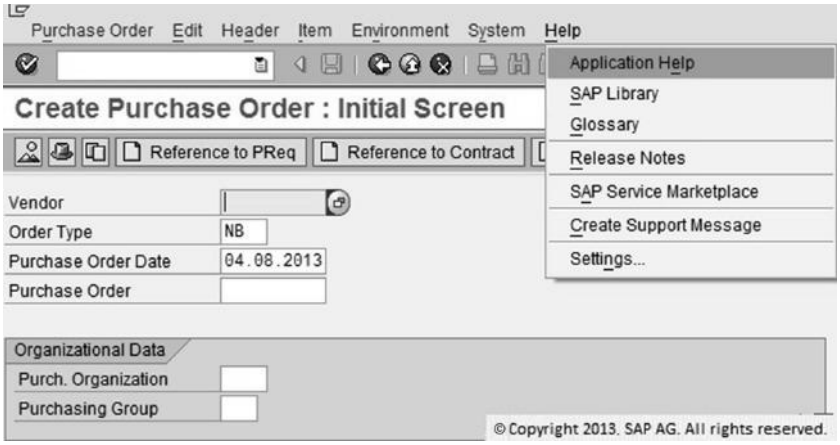
Transaction Codes

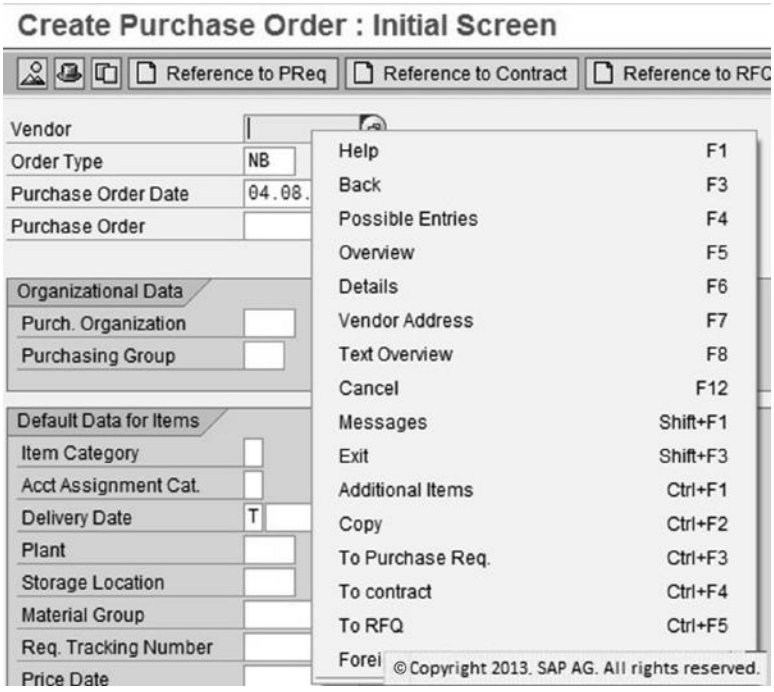
In SAP, you can invoke any transaction either by clicking the menu or by using a transaction code and writing it in the transaction code box located in the standard tool bar. The transaction codes are usually four characters long, which may contain letters or numbers or a combination of letters and numbers. For example, transaction code ME21 can be used to invoke "Create Purchase Order" transaction.

Help Functions

Any SAP system has two kinds of help functions: Application Help and SAP Library. The Application Help is available within the installed SAP system, whereas the SAP Library can be accessed from online portal with the help of an Internet connection.

Application Help is again of various types. F1 help provides help on any field located on any SAP screen. Search help is available in the form of matchcodes. Matchcodes are a string of values that are provided by the user in any help box and the system searches for appropriate documents based on the values in the search string.





Chapter 2

Business Mapping in SAP Materials Management and Job Advice

Introduction

Any business requires that the revenues and expenses for all business activities performed across all business units, departments, and so on are captured accurately and instantly. Apart from the financial aspect, businesses also require accounting information as to what expenses are accrued for which material or activity. For materials management (MM), information about how inventory is located at different locations and the availability of these materials should always be available to make decisions about their usage. For purchasing functions, information about vendors, procurement materials, their prices, and so on should be readily available to make appropriate procurement decisions.

Some of these business activities and their solutions in SAP can be categorized as follows:

- Sales and marketing transactions (customer orders, enquiries, customer payments, etc.) are captured in the sales and distribution (SAP SD) module.
- Production, material processing, and material requirement planning (MRP) are captured in the production planning (SAP PP) module.
- Procurement and inventory management are captured in the SAP MM module.
- Transportation, distribution, and shipment of finished goods are captured in the transportation management module together with the SAP MM and SAP SD modules.
- Warehouse management (WM) is captured in the SAP WM module.
- Human resources and payroll are captured in the human capital management (SAP HCM) module.
- Finance and costing are captured in the finance and accounting and controlling (SAP FI and CO) module.

Apart from these modules, there are several core and related modules available in SAP. Depending on the needs of a company, these modules are also implemented apart from the core modules of SAP.

Business Function Mapping in SAP MM

In procurement activities, user departments request the purchase of materials and services through either manual or automated process such as MRP in the form of purchase requisitions (PRs). After getting approval from the approving authorities, these PRs will be converted into external purchase documents by the purchasing department. These external purchase documents will then be sent to vendors. Once a purchase is made and the material is received, an invoice will be generated. Payment will then be made after the verification of the invoice by the finance department.

The received materials will be either consumed without stocking or put into stock. Materials will then be consumed through goods issue.

Sometimes, goods received from vendors will be put tested for quality. If the quality is not good, then the goods will be returned back to the vendor; if the quality is good, then the goods will be sent to stock.

When a service is procured, there will be no goods receipt or goods issue. The process starts with a request for service to the bidder (supplier). Once you get quotation from the bidder, you create a purchase order (PO). The bidder starts delivering service, and the time and expenses are logged over the delivery time of the service. During the delivery of service as well as at the end of service, invoices will be sent by the bidder. These invoices will be verified and payment will be made to the bidder. For enabling the suppliers in the bidding process as well as for logging the time and expenses, a self-service portal can be created in SAP and connected to the SAP back end.

SAP has all kinds of business scenarios that you want to implement, for example, be it consignment cycle, subcontracting cycle, request for quotation (RFQ) cycle, long-term contracts, scheduling agreements, stocking strategies, invoicing plans, and so on. SAP has elaborate functionalities. SAP MM takes care of all kinds of procurement and inventory management strategies.

You will have to learn how to map all these business processes in SAP. Most of these business processes and in fact the entire life cycle of these processes are already mapped and available in the standard SAP installation. However, in cases when the business process of your customer cannot be mapped using the standard SAP functionality, you can use the Implementation Guide (IMG) to map the business process by modifying the standard functionality. If even this approach does not help, then you can document it under gap analysis. Then you can find out if the functionality can be achieved by either using enhancements [Business Add-Ins (BAdI)] made by SAP or writing custom code.

Many features in SAP sometimes are cumbersome to deal with. For instance, each of the material master views contains so many fields which an end user may not need at all. When he/she creates a material master, it will be much easier for him/her if these unnecessary fields are removed from his/her screen, which is possible to do in SAP. Many times the user does not need all the screens provided by SAP for making a transaction. In SAP, it is perfectly possible to remove these screens using screen variants. Similarly, screen layouts can be changed using personalization in SAP.

Now let us discuss about custom development and BAdI. For instance, you need to make a report based on a table in SAP. You find out that the values you want to get for the report do not appear in any of the fields inside that table. In that case, you can add a column in that table and populate that column using some queries in your custom code. After that you get data from this column for your report. To achieve this, you will need to find out the place where you can write your code into the source code directory. The place where you will be writing your source code is known as the user exit in SAP.

Many third-party vendors have developed tools that can be easily plugged into your SAP installation. These tools help the end users in the form of easier screen flows, printing, saving or formatting documents, and so on.

Now, to get you familiar with business documents and how they are represented in SAP, we will discuss some important documents in SAP.

Purchase Requisition

PRs are basically notes of requirements from user departments. In plants, user departments need raw materials to make finished goods. So users create PRs and send them to the purchasing department. The purchasing department finds out the vendors from where the raw materials can be procured. Then they convert the PRs into POs and send them to the vendors.

PRs contain information such as material, quantity, required date, plant, storage location, and material group. PRs can be either created manually or generated automatically from MRP systems. PRs are internal purchase documents as they are used only for internal communication. They are never sent to vendors. PRs can also be created for services.

Purchase Order

The PO is the most widely used instrument for purchasing. The purchasing department creates POs from PRs. POs can be either created from scratch or adopted from documents such as PRs or contracts. In addition to the information contained in PRs such as account assignment category, item category, plant, storage location, material group, delivery date, material name, material description, quantity, purchase organization, and purchase group, you also need to include header information such as delivery, vendor address, payment processing, and partner information.

Request for Quotation

RFQ is used when for any material no vendor information is available or when the purchasing department wants to get the best price for any material. The purchasing organization creates a quotation and sends it to selected vendors. Vendors then fill the quotation form and send it back to the purchasing department that evaluates the received quotation and compares it for price and any other criteria. Finally, the purchasing department selects the best quotation and then invites the selected vendor and rejects other quotations.

Contract

Contract is used by the purchasing department to enter into a long-term purchasing agreement with a vendor. The vendor agrees to supply the required material quantities at stipulated time intervals to the customer. For each purchase, transaction at these intervals is done using a call-off order (a type of PO).

In SAP, there are two types of contracts: (1) quantity contract and (2) value contract. The quantity contract is for a stipulated quantity over a time period and is used for procuring materials. The value contract is based on the total value of the contract in terms of dollars or any other monetary unit and is used for procuring services.

Scheduling Agreement

Scheduling agreement is a type of contract. Here, a purchase document known as scheduling agreement is created. This document contains scheduling lines. The purchasing department maintains these scheduling lines based on the firmed and planned requirements and keeps informing

the vendor about the firmed and planned requirements by sending them the latest and updated scheduling agreement document.

Scheduling agreements are used when there is a close working relationship between the customer and the vendor.

Invoice

When a vendor supplies material to the customer, it also sends an invoice for the payment to be made to the vendor for the material supplied. The customer then verifies the invoice by comparing the PO with goods receipt.

Material Requirement Planning

MRP used by manufacturing companies are of various types. Many MRPs are based on forecasts for material required at a future date. Some other MRPs are based on the consumption of materials in the past. In SAP, this latter type of MRP is used. The consumption-based MRP can be further divided into reorder point based, forecast based, master production schedule (MPS) based, and so on.

When you run MRP, it generates a plan that shows all the required materials with quantity which the production department needs over the planning period. The plan also shows the time when a particular material is needed. To procure or to make the required material, the MRP that is run produces planned material orders. If the material is to be procured externally, then the planned order is converted into PR either manually or automatically. If you need to convert planned orders into PRs automatically, then you will need to configure this functionality in IMG.

Reservation

Reservation functionality is used to plan the consumption of material from material stocks. If a material stock exists, MRP and other programs try to consume material from this stock. Many times, these programs may not find the required material in the stock because some other programs have already consumed the material and exhausted the stock. So there will be a mismanagement as to how the material gets consumed from the stock. To overcome this problem, programs do not consume material directly from stock. If any program requires material, then this requirement is logged and kept in a queue. When material is available in the stock, the request in the queue with highest priority gets the material issued. This queue is known as reservation. Thus, goods issue and inventory management can be planned and managed in a good way.

Material Document

Material documents are generated for each inventory transaction in SAP. When goods are received, a material document is generated, which shows the material received and its quantity in the stock. Similarly, when goods are issued to the production department, a material document is generated, which shows the material issued and its quantity. Material documents are used to manage inventory.

Financial Document

When there is an inventory transaction and the transaction is valuated, a financial document is generated. The financial document contains information about which general ledger (G/L) account is credited and which G/L account is debited.

Core and Central Functions

SAP system is divided into many modules. But to enable the system to function across the enterprise and all these modules requires that there should be some central functions that sit on top of these modules such as organization structure, user roles, and some other cross-application functions. These functions are not part of any module and in fact are organized separately from these modules as central functions. However, each module has its own set of functions. These functions are known as core functions.

Since SAP MM is a module in the SAP system, it has its own set of core functions. The core functions in SAP MM are broadly divided into two groups: procurement management core functions and inventory management core functions.

Minimal Customization Required in SAP MM

One good news for the newbie SAP MM consultants is that SAP has built a lot of features using the standard SAP functionality. So customization efforts are minimal on any SAP MM implementation project. In fact, customization is not required at all for many large SAP implementation projects, whereas customization to the tune of 10% of all implementation effort may be required for some other projects. The guideline is that you should not customize unnecessarily. You should customize only when user requirements are not met through the standard SAP functionality. The reason is that there are two side effects of customization: (1) the implementation project effort and cost goes higher with increase in customization required and (2) the support cost and effort also goes higher than what can be achieved with standard SAP functionality.

During blueprinting, try to map all user requirements that are available in the standard SAP functionality. Mark requirements as "Gaps" only when a requirement cannot be met in the standard SAP functionality. These gaps can then be achieved through customization.

Real World and SAP

If a software system is developed which has fancy screens and a lot of highly interesting features for doing everyday business transactions but lacks features required to do business transactions, then this kind of system will never be useful. On the other hand, if a software system is developed which is used for everyday business transactions and has the required features such as robustness and transaction integrity then the software system will definitely be very useful.

Job Advice

SAP application is very large and therefore divided into many modules. Learning and mastering all modules available in SAP application is not possible. That is why SAP consultants learn and master any of the modules. So there can be a SAP consultant who has learned and mastered SAP SD module. Similarly, there can be a consultant who has learned and mastered SAP MM module. In SAP, consultants are known by the module which they master. So we have SAP MM consultants who master in SAP MM module, SAP SD consultants who master in SAP SD module, and so on.

If you are thinking of learning SAP, then you should first decide which module you want to learn and master. It also helps if you have some prior functional experience. People who have experience in inventory and MM or in purchasing should opt for SAP MM module. People who may have experience in order management, customer management, shipping, and so on should opt for SAP SD module.

To get into a SAP consultant career, SAP certification is helpful. A SAP certification makes sure that the employers know that the consultant has good grasp of SAP concepts.

How to Learn SAP

The best method to learn any subject is to first get to know as to how the user will be using the application provided by you. The best implemented application will fail if the user is not using it properly due to reasons such as too complex to use, too many clicks and fields to fill for doing any transaction, and difficult to understand screens and fields even when a good documentation is provided in the shape of a user guide. Many users may end up having difficulties in navigation, filling forms, and so on, if the application is too cumbersome. There are always bugs or defects that prevent the end user in suing the application effectively.

For a beginner who wants to be a SAP MM consultant, it is advisable to learn SAP as a user. He/she will become familiar with the nomenclature, screen flows, typical SAP transaction styles, and so on. Once he/she is familiar with the application, he/she can be introduced to customize the standard SAP interface and transactions to make the application specific to the user needs of the customer.

A SAP MM consultant needs to customize the SAP application as per customer needs and then train the end users so that they can use the customized application effectively. Tasks involved in the customization project includes requirement gathering of user needs for the application, making a blueprint of these needs, making necessary changes (customization) in the standard application, testing the application, and finally installing it at customer premises so that users can start using it. For all these activities, a SAP consultant needs to have expertise and experience so that he/she can be efficient in all these project activities. Generally, a project team consists of a project manager and SAP consultants. For each module of SAP, there could be a module lead as well if the project is large. There could be a team of SAP consultants under the module lead. For instance, there could be a module lead for SAP MM and under him/her there could be a team of SAP MM consultants.

SAP projects can be categorized as follows:

- Implementation projects
- Support projects
- Roll-out projects

Implementation projects are the one in which a customer wants to implement a SAP system for its own internal use. These projects are further divided into two types: green field projects and brown field projects. Green field projects are the one in which the customer does not use any kind of software application before going for SAP implementation. In this case, no legacy data from the previous system need to be migrated to the SAP system. In case of brown field projects, customer already uses some legacy application, which needs to be migrated to the SAP system. In this case, legacy data need to be ported to SAP. Generally, porting legacy data is a major effort as legacy data need to be cleansed and formatted, and then only it can be made portable.

Support projects are the one in which SAP has been already implemented by the customer and users have now started using it. These users need technical support on a day-to-day basis. At the same time, for enhancement or repair of defects, SAP technical skills are required. Similarly, an older version of SAP implementation may need to be ported to a new version, which also requires SAP technical skills. All of these activities are taken care of in support projects.

Most of SAP implementations are done in a phased manner. First, SAP is implemented at some divisions (legal entity) of any corporate entity where users are ready to use it. Later, other divisions also go for SAP. Implementations at these divisions are covered under *roll-out projects*. In these projects, the effort required for implementation is significantly lower than that required for SAP implementation at the initial corporate division. It is because, in roll-out projects, most of the features of SAP that are implemented at initial division are simply replicated.

A SAP consultant should know about the environment in which he/she is supposed to work. So he/she should be aware of the differences among implementation, roll-out, and support projects. Skills required to work on these different kinds of projects also vary as it is evident from the explanation of these kinds of projects outlined above.

Project Management and SAP Responsibilities

SAP implementation projects follow a project methodology known as accelerated SAP (ASAP). The entire implementation project is divided into project phases. In project initiation phase, project team formation, project estimation, project charter, formation of project steering committee, and similar tasks are performed. In blueprinting phase, requirement gathering, mapping requirements into SAP features, gap analysis, and so on are done. In realization phase, requirements are converted into SAP functions by configuring and customizing SAP application. In final preparation phase, unit testing, integration testing, end user training, training documentation, end user documentation, and so on are done. In go-live phase, data migration from legacy systems, system installation, user hand-holding, and so on jobs are done.

A SAP MM consultant thus needs to perform all of these activities during the entire life cycle of the implementation project. He/she will have to gather requirements related to all MM functions. Then he/she has to make a blueprint in which he/she has to map these requirements to fitting SAP features or when a gap exists then to create a specification so that the feature can be either accomplished through customization of a SAP function or custom developed to bridge the gap.

During realization phase, a SAP MM consultant will configure SAP features as per requirements. He/she will also again customize SAP features as per requirements. He/she will also work with Advanced Business Application Programming (ABAP) consultants for features that need to be custom developed. In final preparation phase, he/she will test his/her module as well as test integration points of his/her module with other SAP modules. For instance, SAP MM module is integrated with SAP FI/CO, SD, PP, and other modules. So he/she has to test his/her module to make sure that the integration of SAP MM module is fine with other modules. He/she will also prepare end user manuals. During go-live (also known as cutover phase), he/she will provide end user training on the configured SAP system. He/she will migrate legacy data to SAP. Then he/she will do consistency testing to make sure that the migrated data are working fine.

Chapter 3

SAP MM Masters and Organizational Structure

Introduction

To master SAP, first it is important to master the foundation on which SAP transactions and reports are built upon. When it comes to SAP MM, material master, vendor master, plants, storage locations, purchasing organizations, purchasing groups, and so on are the entities that need to be created as masters in SAP. Further, there are masters for purchasing part of the SAP MM module, which are used for purchasing documents. They include purchasing info records, purchasing source lists, and conditions.

Of course, the SAP MM masters are also part of the overall organizational structure of SAP. In real life, large global business empires consist of many legal entities, representing different companies in their own right. But ownership of all these legal entities is the same. It makes sense to incorporate all of them within one umbrella. The way they do business with each other is different than they do with other legal entities, which are not part of the same ownership. These separate legal entities belonging to the same ownership may share information with each other. It also makes sense that although they do business with each other and share information by using the same platform, they hide some sensitive information from each other. To enable this kind of scenario, in SAP you can create many legal entities in the same instance of SAP application. In SAP, the umbrella organization is created as client. Inside one client, there can be many company codes, which can represent separate legal companies. Inside each of these company codes, there can be various plants, purchasing organizations, storage locations, and so on. Masters such as material master and vendor master are attached to the company codes and plants.

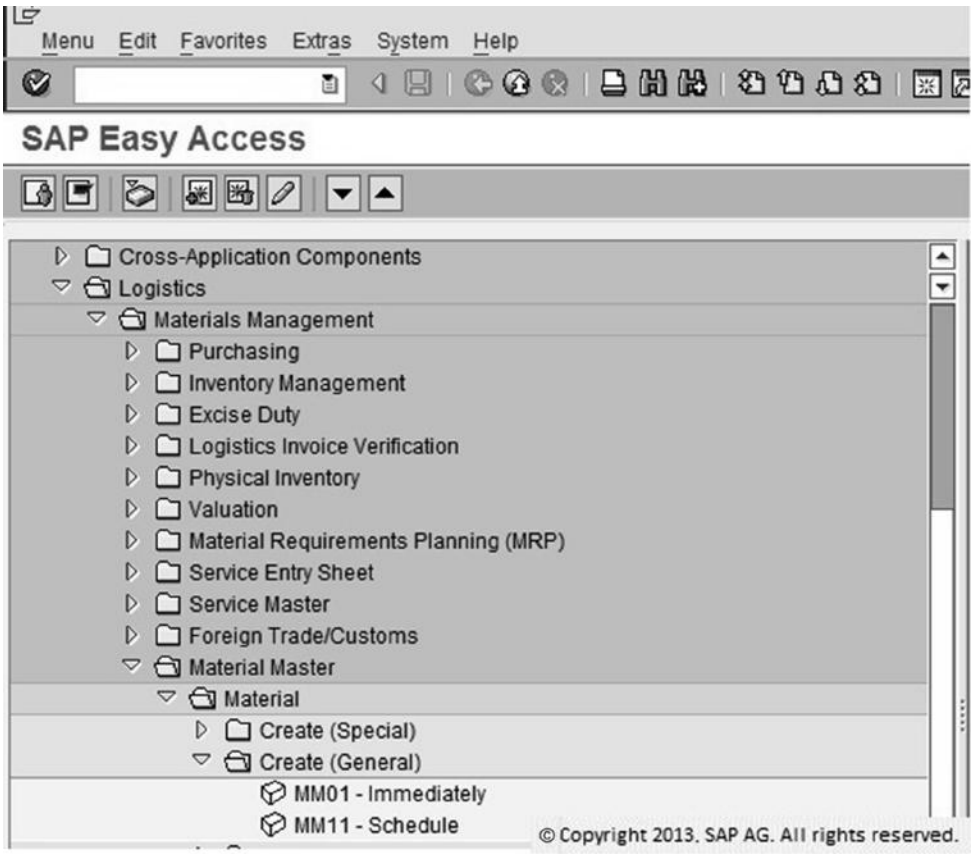
Material Master

Material master is the most important master data in SAP MM and in fact for the whole logistics area. Material master holds data about material characteristics, material type, department information, material batch, and so on.

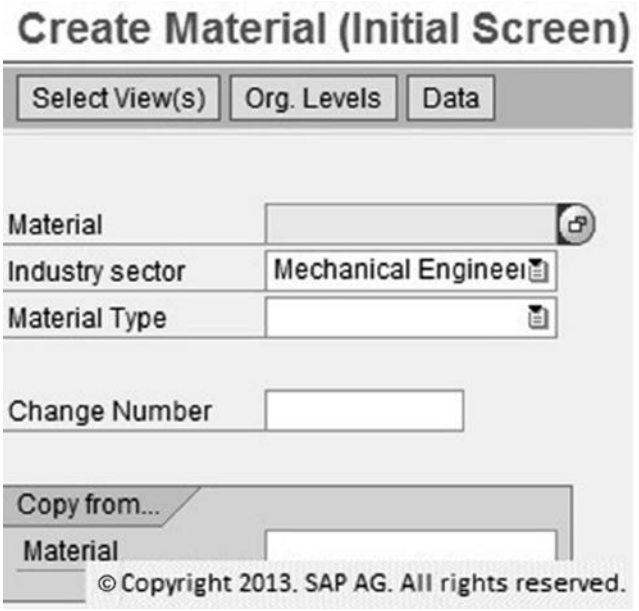
To create a material master, certain information is required. This includes "Industry sector" and "Material type." If there is an external material numbering system, the material number is to be provided.

Material information is needed for a company and its departments. For instance, the sales department needs information about price, location, date of manufacturing, size, order unit of measure, and so on for each material that is sold to customers. The costing department may need information about cost of production, material purchase price, and so on. To facilitate the information relevant to each department, each material has many views in SAP. Each of these views contains relevant information for these departments. Therefore, when you create a material, the material master shows a large number of material views. In each of these views, you need to create and maintain relevant material data.

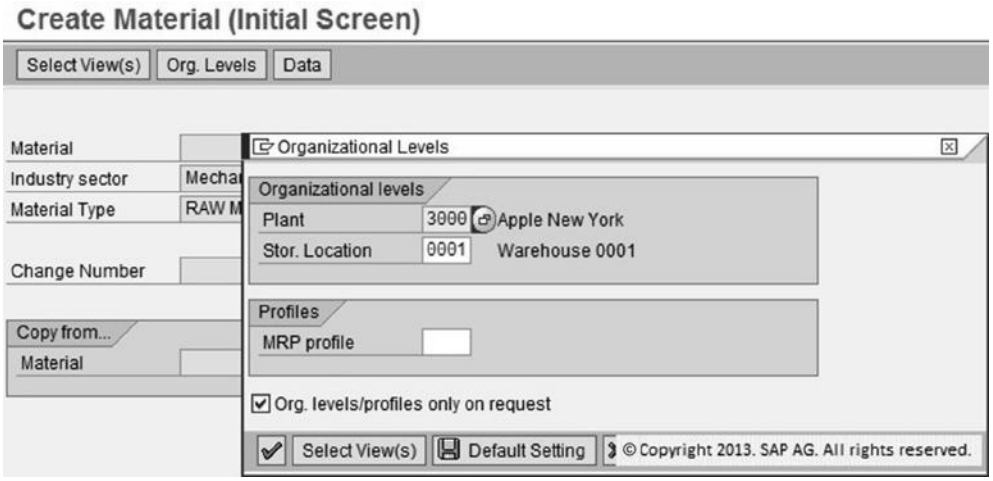
Let us discuss about all of these aspects when we create or maintain master data for a material. To create a material, you can use transaction code MM01 or you need to follow the menu path: SAP Menu → Logistics → Materials Management → Material Master → Material → Create (General) → MM01 - Immediately.



Once you double click the menu, you will be navigated to the "Create Material" screen as shown in the below figure.



You select the Industry sector and Material type from the drop-down box on the screen. There is also an option to create a change number. You can also create a new material by copying an existing material. You can do this by mentioning the material number in the Copy from text box. Once you are done, press Enter. A new window will appear as shown in the below figure to enter the organizational data.



Remember that when you log in to the SAP application in which you have already entered the client. So client information is displayed when you navigate to this screen. Now when you have to enter plant on this screen, you need to know the company code of which the plant is part of the organizational structure for which you are creating the material. Click on the Copy button next to the Plant text box (you will get this button after you click on the Plant text box). You will be taken to a screen where you can select the company code and subsequently the plant. After selecting the plant, you need to choose the storage location. Now click on the Storage Location text box to get the Copy button. Now click this Copy button and select your storage location from the selection screen. If you are maintaining material requirements planning (MRP) profile, enter your MRP profile in the MRP profile text box. MRP profile is the SAP feature that is defined using the menu path: SAP Easy Access → SAP Menu → Logistics → Materials Management → Material Master → Profile → MRP Profile → Create. The transaction code is MMD1. MRP profile is used in connection with MRP. MRP profile is used to keep data related to MRP for maintenance purposes.

Once you enter the organizational data on this screen, click on the right arrow button. The organization level window will close and a window displaying the selection list of material views will pop up.

Material master data are divided into many views, which are organized such that all data related to one department are covered in one view. From the material views selection window, select the views for which you want to create data and then click on the right arrow button. The material views selection window will close and you will see the main window displaying your selected views.

Each department maintains its own material master views. The basic data views 1 and 2 are common to all departments. From SAP MM perspective; purchasing, purchase order (PO) text, MRP1, MRP2, MRP3, MRP4, plant data/storage location 1 and 2, accounting 1 and 2, and costing 1 and 2 views are important. Other views are also referred by SAP MM consultants when they need to check integration points with other modules. But most often SAP MM integration with finance, controlling, production planning, and quality are more common, and thus, SAP MM consultants refer material views for these departments. Due to these reasons, we will not study all material views but restrict ourselves to the views related to MRP, purchasing, finance, and controlling.

Let us discuss these views in detail. But before we begin, let us first see the setup information. Depending on the material type, you will see different fields on material views.

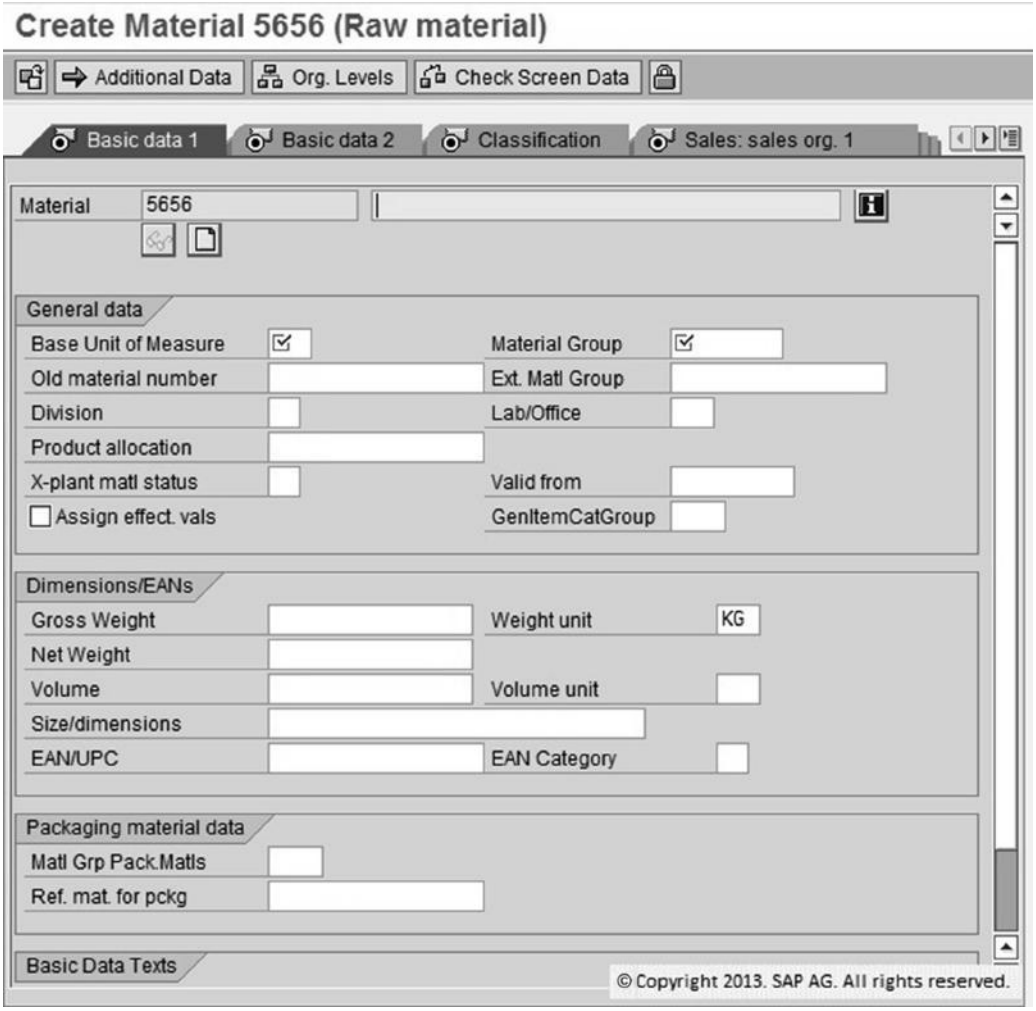
Material Master Setup Information

For this tutorial, I have selected industry sector as "Chemical Industry" and material type as "Raw Materials."

Material Master Views

Basic Data View 1

The first material view is the basic data view 1. You will see many text boxes to fill on this view as shown in the below figure.



The mandatory fields on this view are material name, basic unit of measure, and material group. First of all, enter a suitable name for your material in the material name field. Enter a basic unit of measure for the material that will be used by your organization. You can also use the drop-down box and select your basic unit of measure. The basic unit of measure is the primary unit of measure, which can later be used by other types of units of measure such as alternate unit of measure and order unit of measure. You can define these units of measure by using a conversion factor.

The material groups are the group of materials that are often purchased together. You can define material groups in a separate IMG activity which is discussed later in this chapter. You can select the material group to which your new material belongs to.

Apart from these three mandatory fields, other optional fields include old material number, external material number, division, and so on. Let us see how these fields are used.

Old material number. If the material being created in fact is an old material having a material number already in the system, enter this old number here.

External Material Group. If you are using a material number that is being used by some other system for the material you are creating, enter this external material number here.

Division. Enter the division number or select from the list the division of your business to which the material belongs to.

Lab/Office. Enter the laboratory number where this material will go for quality inspection.

Product allocation. If a material is scarce and needs to be allocated among selected customers, a decision is taken at sales and operations planning and an allocation is done. If this is the case, select the allocation strategy from the drop-down box.

X-plant material status. When a material gets blocked for purchasing or for any inventory operation, this field displays the status. This field can also be used for some other conditions such as when a material is to be used for pilot projects and commercial use. For these cases, select the appropriate reason from the drop-down list. Whenever the material is used, a warning message will be displayed.

Valid from. If you want this material to be used for a future date, enter the date here.

Gross Weight. Enter the gross weight of the material for each unit in terms of weight unit of measure.

Weight unit. Enter the weight unit for gross weight.

Net Weight. Enter the net weight of the material here.

Volume. Enter the volume of the material for each unit in terms of volume measure of unit.

Volume unit. Enter the volume unit of measure for the volume of the material.

Size/dimensions. Enter the dimensions and size information for each unit of the material.

EAN/UPC. Enter the International Article number (EAN)/Universal Product Code (UPC) here for the material.

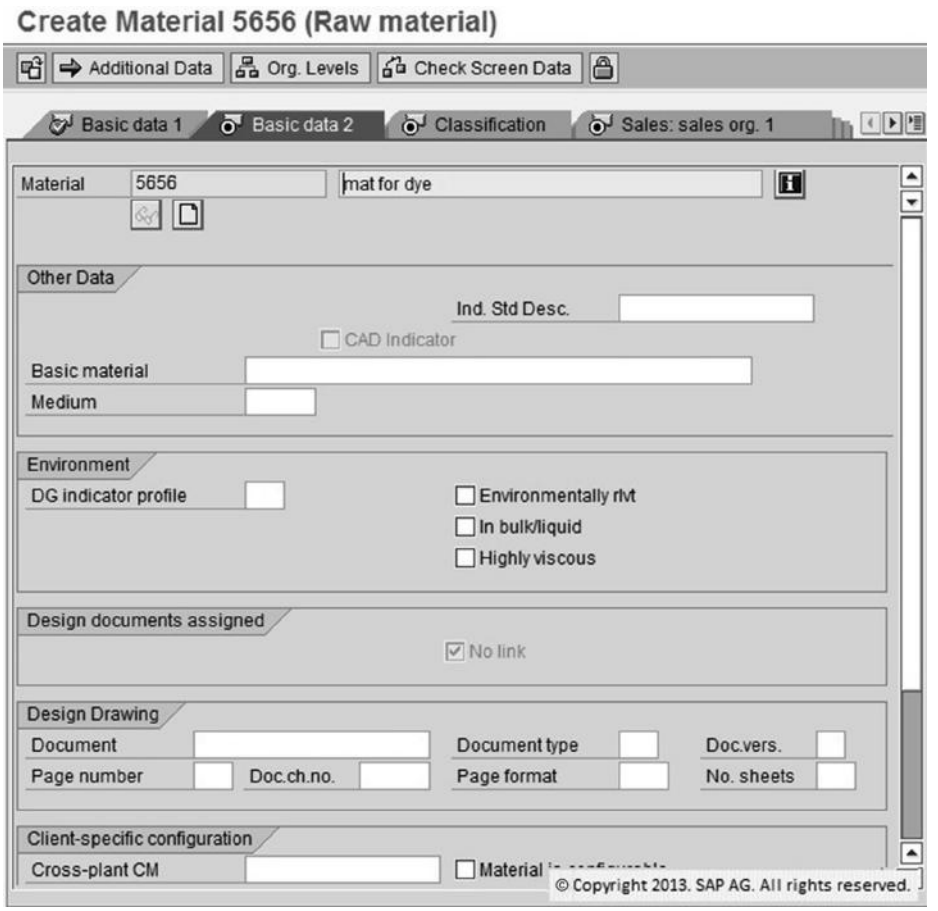
EAN Category. Enter or select the EAN category of the material.

There are some fields related to packaging of the material.

Important tip. Before we move on to the next material view, let us see how SAP application works. If you have not entered all the mandatory fields, and you try to go to the next view, SAP will not allow you to do so. You can move from the current view to the next view only after you have entered all the mandatory fields in the view. After you have entered all the mandatory fields and you hit "Enter" on your keyboard, SAP will take you to the next view. You can also move to the next view by clicking on the tab of the view.

Basic Data View 2

On basic data view 2 screen, there are no compulsory fields as you can observe in the below figure. All the fields on this screen are optional. Let us see how these fields are used.



DG indicator profile. If the material being created is a dangerous goods, you can create a profile or select it from the drop-down list.

Environmentally relevant. If the material affects the environment, check this box.

In bulk/liquid. If the material is in liquid or gas form, check this box.

Highly viscous. If the material is viscous, check this box.

Document. In design drawing section, if there is a design document created, enter the name of the document.

Document type. Enter the name of the design document type here.

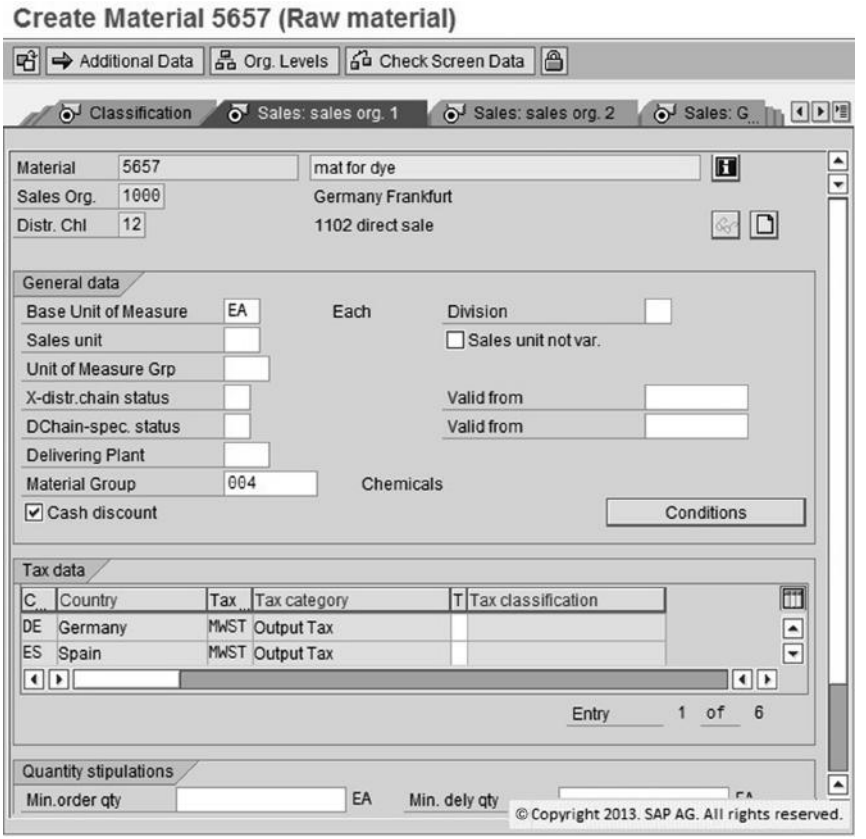
Document versions. Enter the version number of the design document here.

Page number. Enter the page number of the design document here.

Cross-plant CM. If the material is configurable and available at more than one plant, select the cross-plant change management configuration of the material.
Material is configurable. Check this box if the material is configurable.

Sales Organization Data View 1

On sales organization data view 1, most of the fields are not mandatory. Let us see how these fields are used.

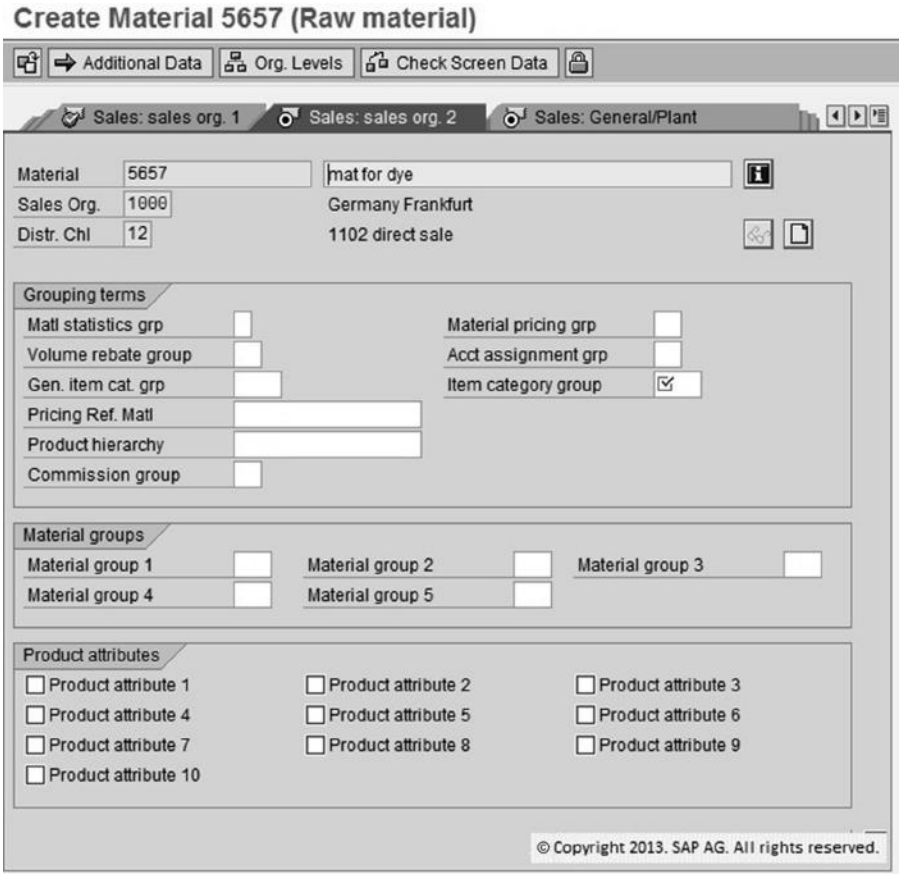


Sales Org (mandatory field). Select your sales organization in this field.
Distribution Chl (mandatory field). Select your distribution channel here.
Basic Unit of Measurement. Already taken from basic data view 1.
Division. Already taken from basic data view 1.
Sales unit. Enter the unit of measurement for sales.
Unit of Measure Grp. Select the unit of measurement group.
X-distr. chain status. If the material needs to discontinue or is part of a pilot project in the distribution system or for any other reason, and you want to display a warning signal to the user when he/she uses this material in any part of the cross-chain distribution system across plants, select the appropriate message to display from the drop-down list
DChain-specific status. If the material needs to discontinue or is part of a pilot project in the distribution system or for any other reason, and you want to display a warning signal to the user when he/she uses this material, select the appropriate message to display from the drop-down list.

Valid from. For both X-distr. chain status and Dchain-specific status, enter the valid from date.
Delivering Plant. Enter the number of the plant from where the material will be procured.
Material Group. Already taken from basic view.
Cash discount. If cash discount is applicable, check the check box.
Tax data. Enter the tax data for each of your tax categories.
Min. order qty. Enter the minimum order quantity for this material here.
Min. dely qty. Enter the minimum delivery quantity for this material here.

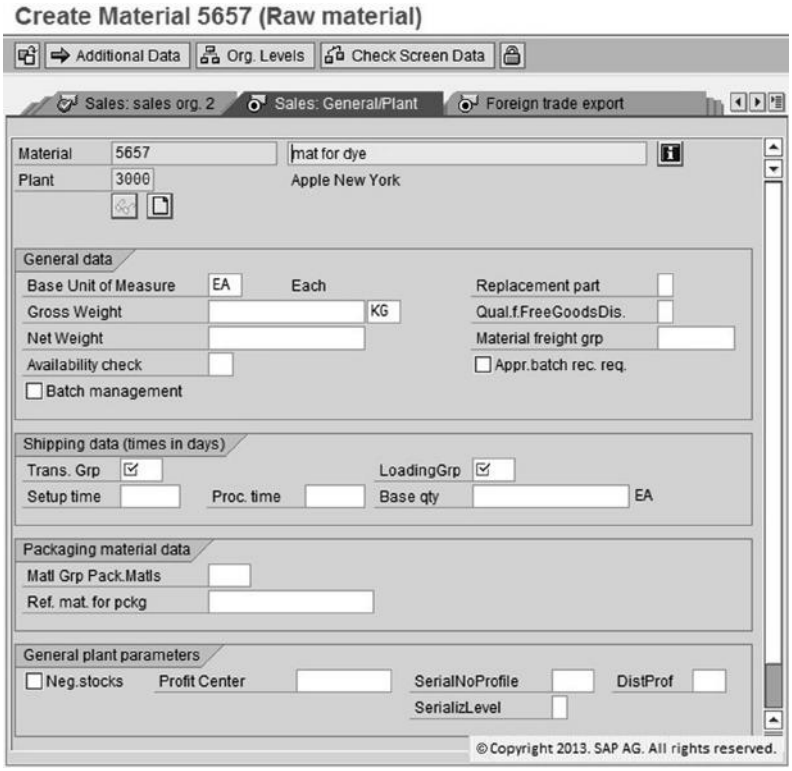
Sales Organization Data View 2

On this screen only material description is mandatory. All other fields are optional. This view is used by sales department people. On this view, there are fields related to the areas for grouping of the material along with material group, material statistical group, volume rebate group, material pricing group, account assignment group, item category group, and so on.



Sales: General Plant Data View

On this screen only material description is mandatory. All other fields are optional. This view is used by sales department people. The main fields on general plant data view include Qualified Free Goods Distribution, batch management, negative stock, and so on.



Purchasing View

The fields on the purchasing view are listed as follows:

Material Group. Material group is a group of materials that are purchased together. Enter the material group for the material in this field.

Purchasing Group. Purchasing group is responsible for purchasing materials for the department. Select the purchasing group for your material.

Plant-sp. matl status. When a material is being discontinued or used for pilot project or any special purpose, and you want to display a warning message to the user when he/she tries to use this material, select the appropriate material status from the drop-down list.

Automat. PO. Select this checkbox if you want to generate automatic POs from purchase requisitions (PRs) for this material.

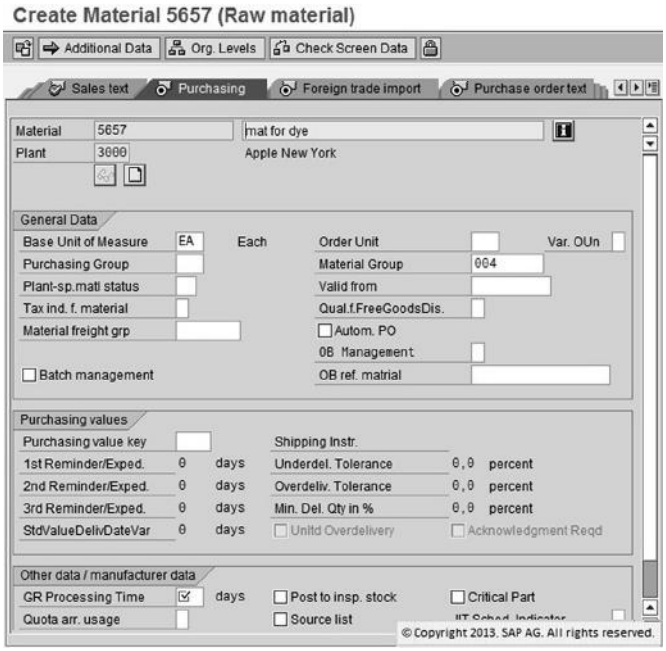
Batch management. Select this checkbox if you want to have batch management enabled for this material.

Purchasing value key. It sends reminder to the vendor when a material to be delivered by the vendor gets delayed.

GR Processing Time. Define how many days a goods receipt processing takes.

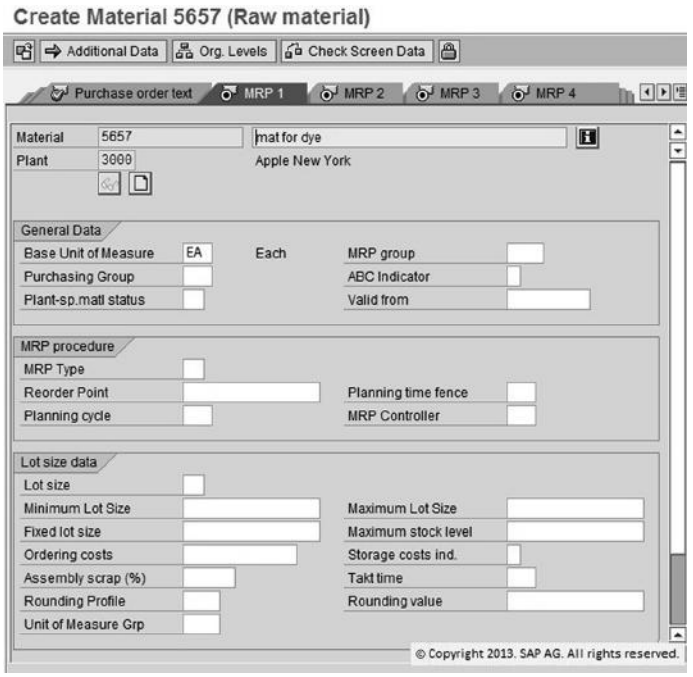
Post to inspection stock. Define whether the material can be posted to inspection stock after goods receipt instead of posting to open stock. Select checkbox if you want to post this material in inspection stock after goods receipt.

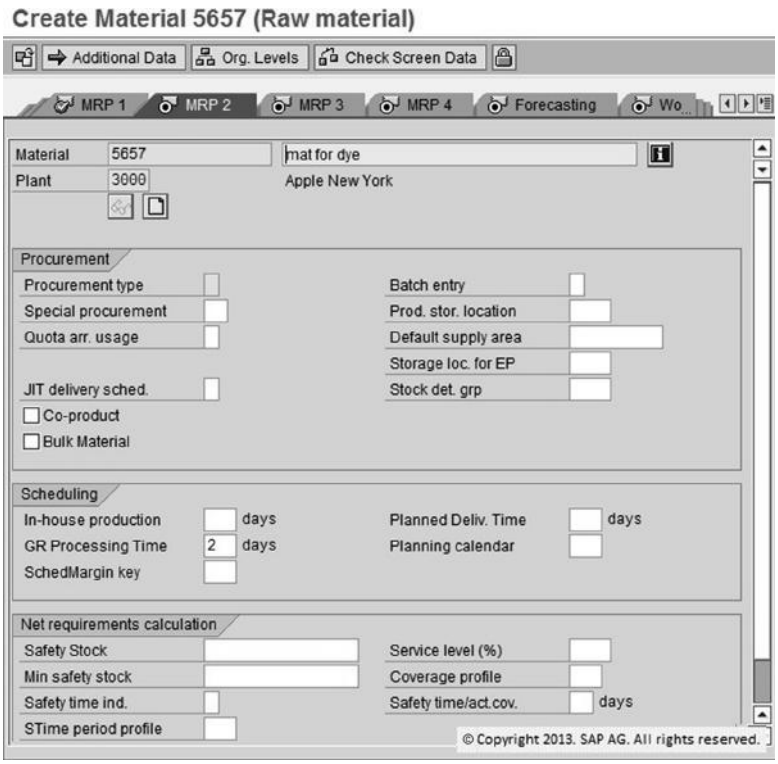
Source list. Check this box if you want to maintain a source list for this material.



MRP Views

MRP views belong to production planning department. MRP type, reorder point, and so on are included on MRP view 1. MRP view 2 includes special procurement, bulk material, co-product, and so on. MRP view 3 contains information on forecasting and procurement planning for the material. MRP view 4 contains information on bill of material (BOM) and storage location for the material.




Create Material 5657 (Raw material)
Additional Data
Org. Levels
Check Screen Data
MRP 1
MRP 2
MRP 3
MRP 4
Forecasting
Wo...
Material 5657 mat for dye
Plant 3000 Apple New York
Procurement
Procurement type
Special procurement
Quota arr. usage
JIT delivery sched.
Co-product
Bulk Material
Batch entry
Prod. stor. location
Default supply area
Storage loc. for EP
Stock det. grp
Scheduling
In-house production days
GR Processing Time 2 days
SchedMargin key
Planned Deliv. Time days
Planning calendar
Net requirements calculation
Safety Stock
Min safety stock
Safety time ind.
STime period profile
Service level (%)
Coverage profile
Safety time/act.cov. days
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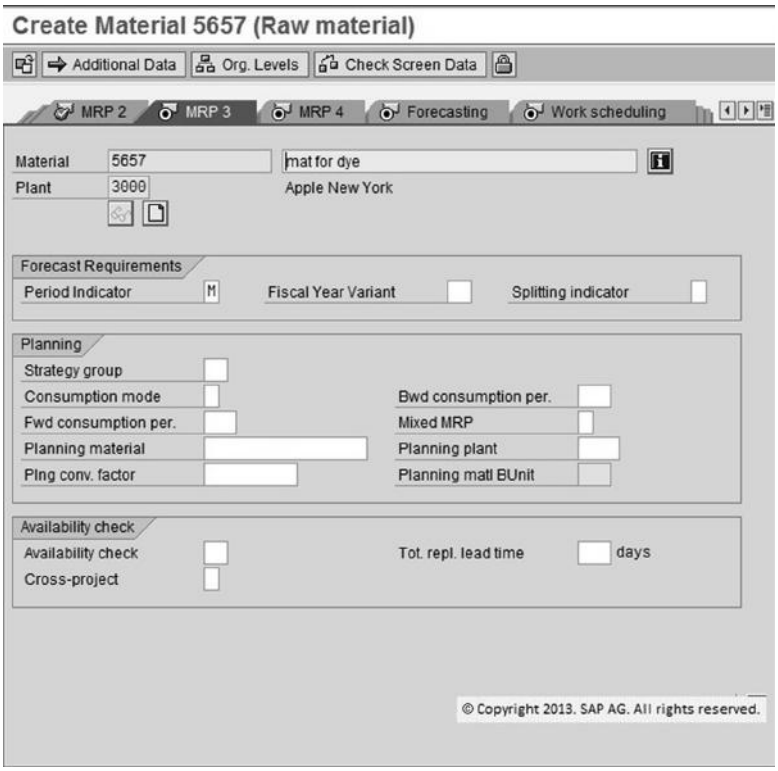
Create Material 5657 (Raw material)
Additional Data
Org. Levels
Check Screen Data
MRP 2
MRP 3
MRP 4
Forecasting
Work scheduling
Material 5657 mat for dye
Plant 3000 Apple New York
Forecast Requirements
Period Indicator M
Fiscal Year Variant
Splitting indicator
Planning
Strategy group
Consumption mode
Fwd consumption per.
Planning material
Plng conv. factor
Bwd consumption per.
Mixed MRP
Planning plant
Planning matl BUnit
Availability check
Availability check
Cross-project
Tot. repl. lead time days
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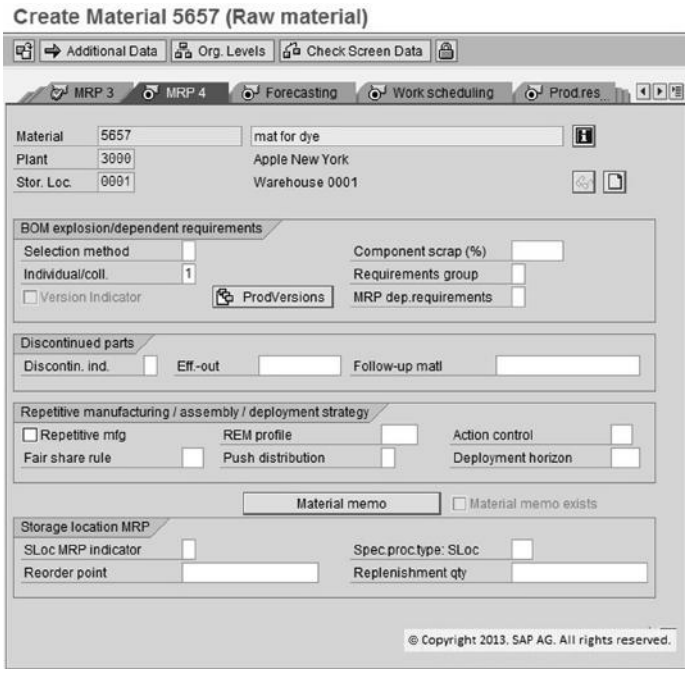
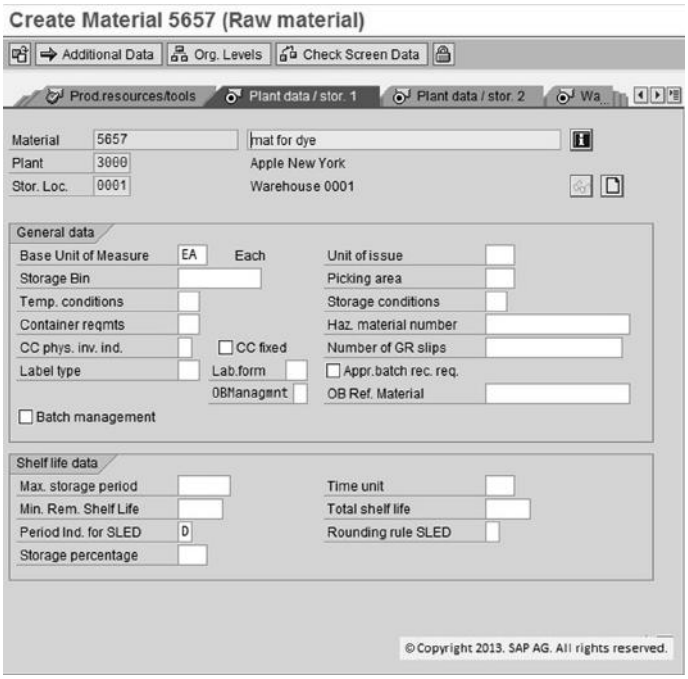
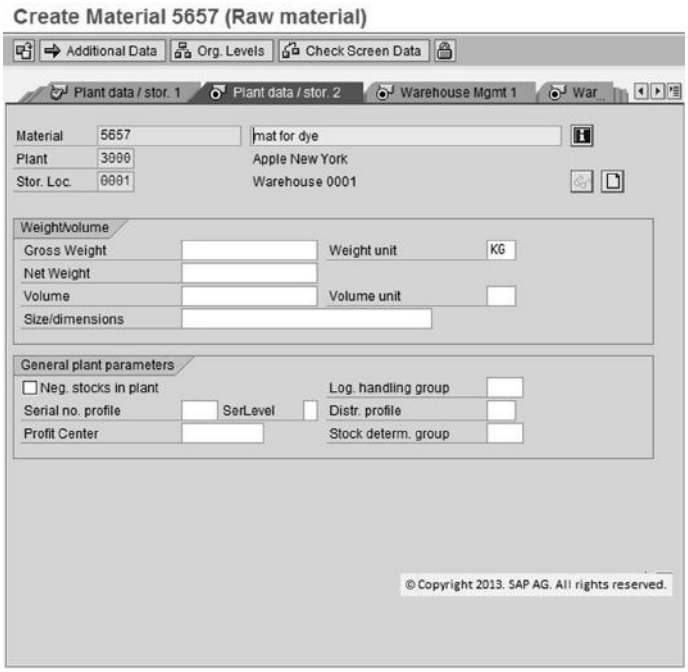


General Plant Data Views

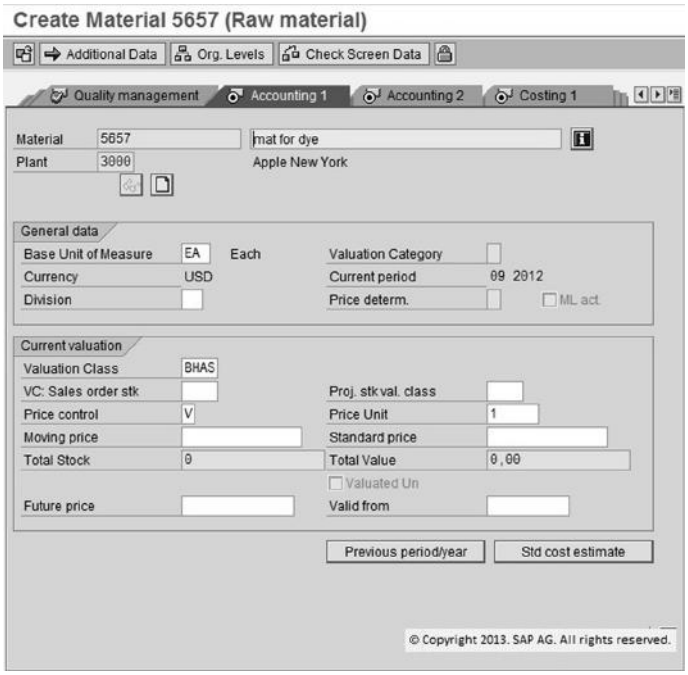
General plant data/storage location view 1 contains information related to storage locations, shelf life, and so on. General plant data/storage location view 2 contains information about plant parameters and weight and volume of the material.

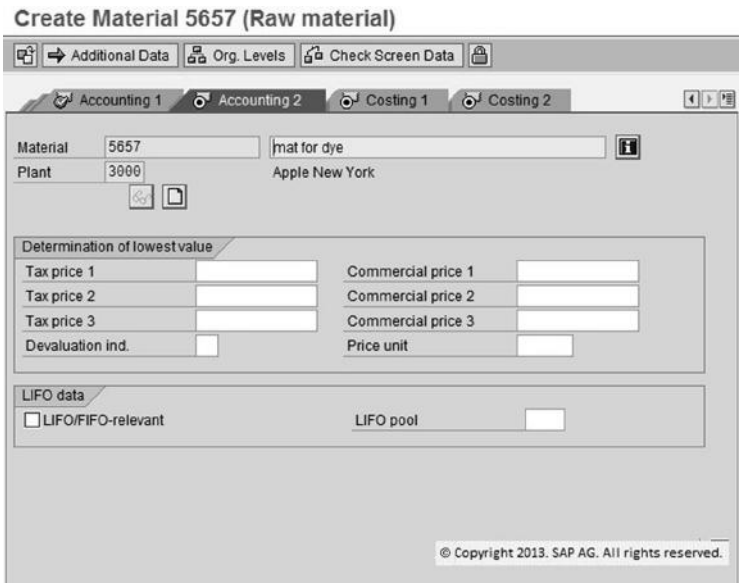




Accounting Views

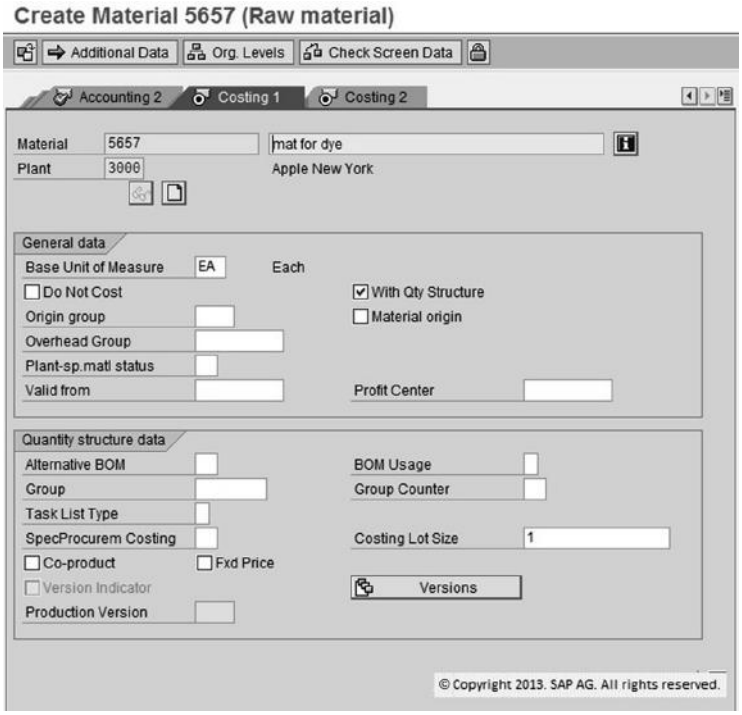
Accounting view 1 contains information related to valuation category, valuation class, price control, cost estimate, and so on. This is one of the most important views about the material. Accounting view 2 contains information about taxes; last-in, first-out (LIFO)/first-in, first-out (FIFO) valuation; and so on.

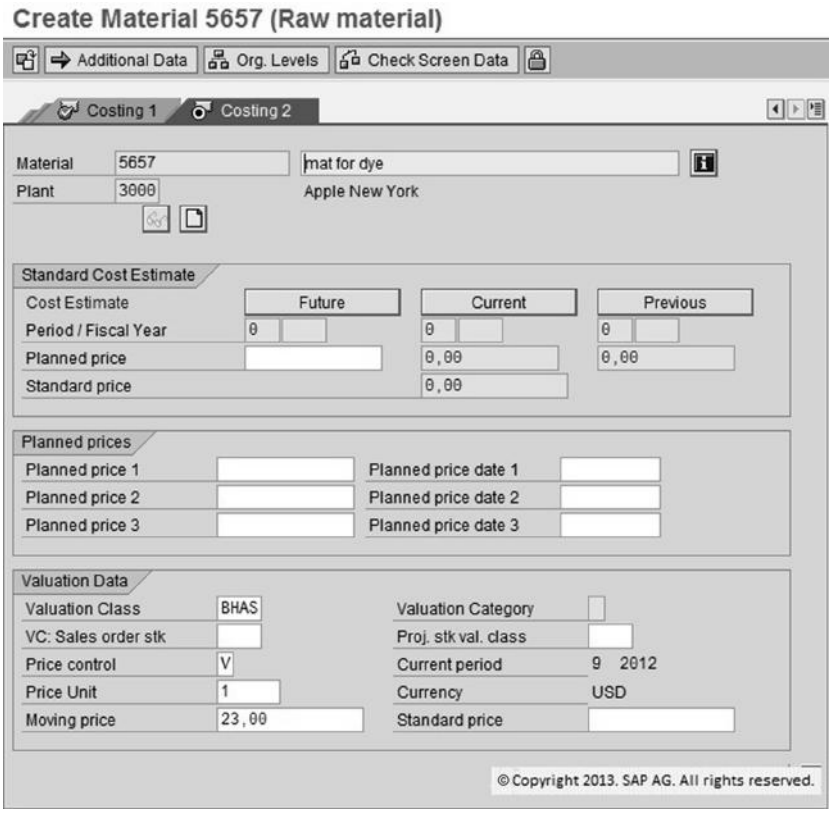




Costing Views

Costing view 1 contains information if costing required, costing lot size, and so on. Costing view 2 contains some of the important data about the material such as cost estimates, planned prices, and valuation data. Valuation data include valuation class, price control, price unit, valuation category, and so on. Apart from the main views for the material master, there are also additional views available.




Create Material 5657 (Raw material)
Additional Data
Org. Levels
Check Screen Data
Costing 1
Costing 2
Material 5657 mat for dye
Plant 3000 Apple New York
Standard Cost Estimate
Cost Estimate
Future
Current
Previous
Period / Fiscal Year 0 0 0
Planned price 0,00 0,00
Standard price 0,00
Planned prices
Planned price 1
Planned price 2
Planned price 3
Planned price date 1
Planned price date 2
Planned price date 3
Valuation Data
Valuation Class BHAS
VC: Sales order stk
Price control V
Price Unit 1
Moving price 23,00
Valuation Category
Proj. stk val. class
Current period 9 2012
Currency USD
Standard price
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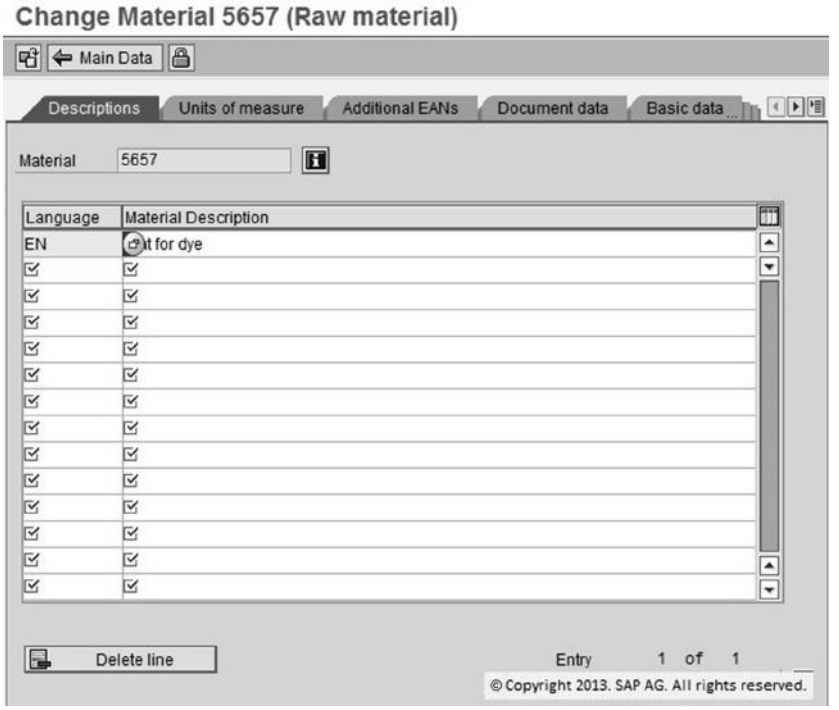
Change Material 5657 (Raw material)
Main Data
Descriptions
Units of measure
Additional EANs
Document data
Basic data
Material 5657
Language
Material Description
EN t for dye
Delete line
Entry 1 of 1
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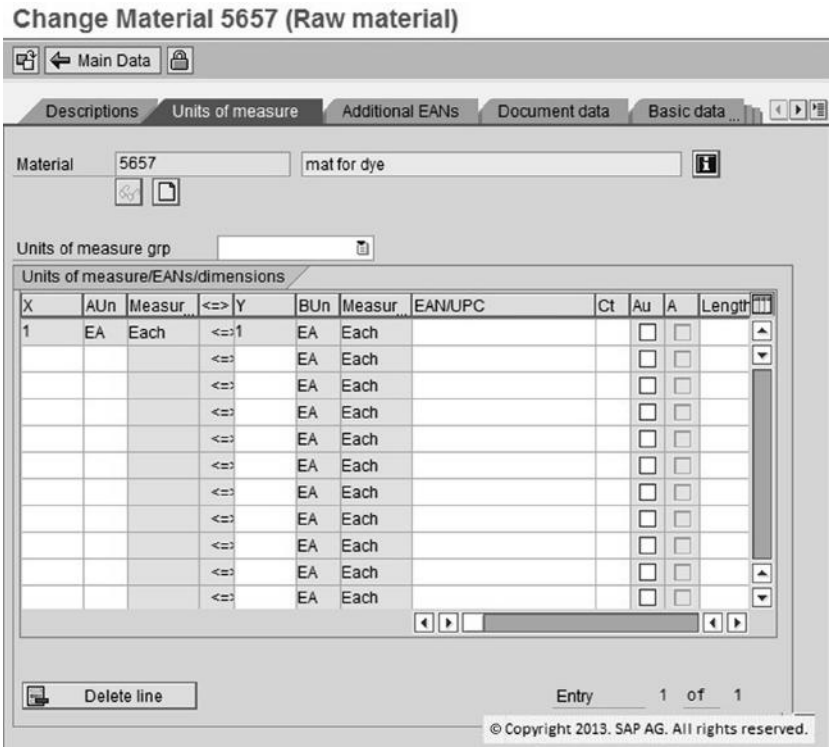
Change Material 5657 (Raw material)
Main Data
Descriptions
Units of measure
Additional EANs
Document data
Basic data
Material
5657
mat for dye
Units of measure grp
Units of measure/EANs/dimensions
X
AUn
Measur...
<=>
Y
BUn
Measur...
EAN/UPC
Ct
Au
A
Length
1
EA
Each
1
EA
Each
Delete line
Entry 1 of 1
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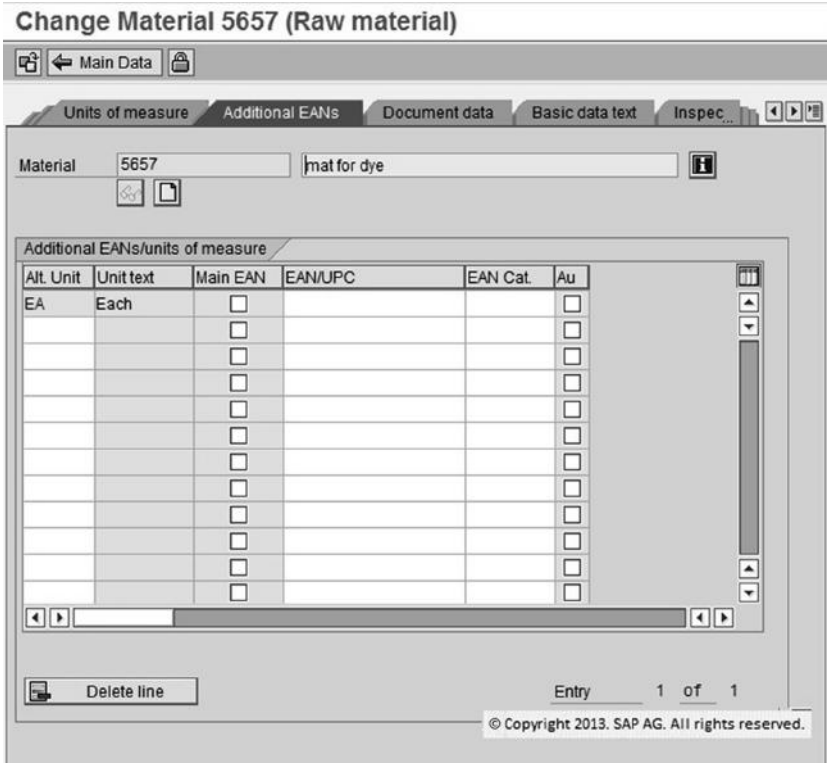
Change Material 5657 (Raw material)
Main Data
Units of measure
Additional EANs
Document data
Basic data text
Inspec...
Material
5657
mat for dye
Additional EANs/units of measure
Alt. Unit
Unit text
Main EAN
EAN/UPC
EAN Cat.
Au
EA
Each
Delete line
Entry 1 of 1
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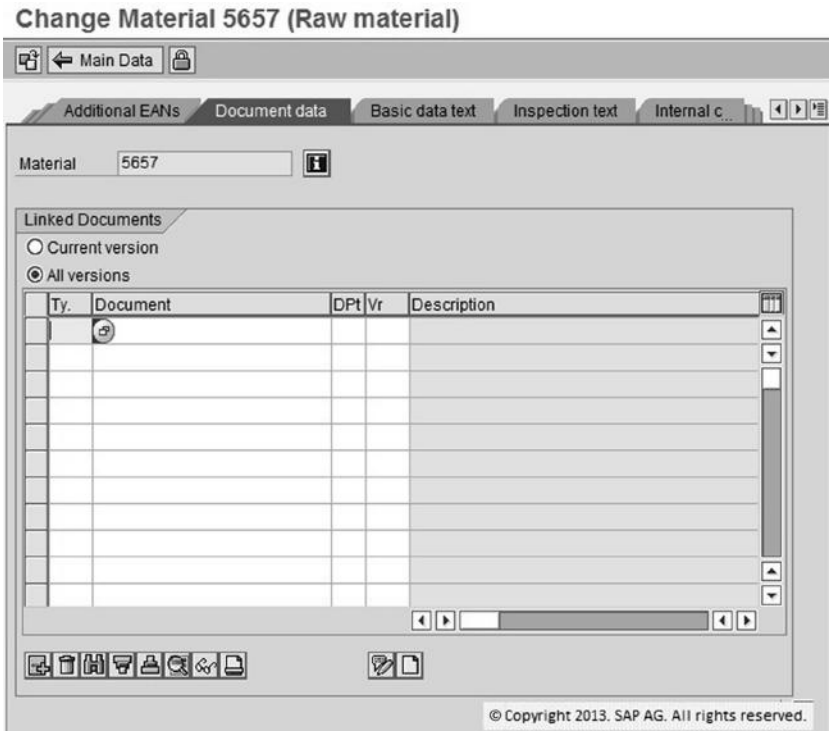
Change Material 5657 (Raw material)
Main Data
Additional EANs
Document data
Basic data text
Inspection text
Internal c...
Material
5657
Linked Documents
Current version
All versions
Ty.
Document
DPt
Vr
Description
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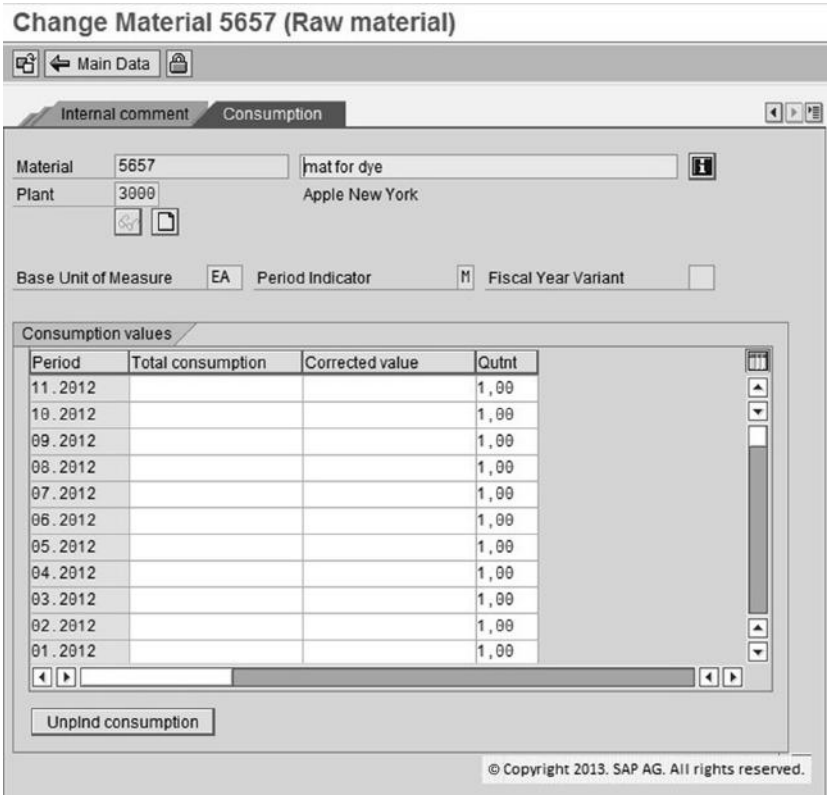
Change Material 5657 (Raw material)
Main Data
Internal comment
Consumption
Material
5657
mat for dye
Plant
3000
Apple New York
Base Unit of Measure
EA
Period Indicator
M
Fiscal Year Variant
Consumption values
Period
Total consumption
Corrected value
Qutnt
11.2012
10.2012
09.2012
08.2012
07.2012
06.2012
05.2012
04.2012
03.2012
02.2012
01.2012
1,00
Unpind consumption
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Material Types

Material types are important from the point of view that it influences every aspect related to a material right from procurement to inventory management to picking, packing, and packaging. In standard SAP, a large number of material types are defined to take care of different kinds of needs right through the supply chain. A material type has an identifier consisting of four characters.

Important Material Types

1. Configurable materials (KMAT)
   Configurable materials are materials that can have different variants. For example, a computer can have different types of CPU, memory, and motherboard.
2. Empties (industry LEER, retail LGUT)
   Empties are a type of returnable transport packaging generally subject to a deposit. They can consist of several components grouped together in a BOM, which are assigned to a full product. For example, an empty crate and empty bottles are assigned to the full product cold drink. Each of the components in the BOM has a separate material master record.
3. Finished products (FERT)
   Finished products are produced in-house. Since they cannot be ordered by purchasing, a material master record of this material type does not contain purchasing data.
4. KANBAN containers (CONT)
   This material type is recommended for creating KANBAN containers as a material. In the standard R/3 system, only the basic data view is offered. Using this material type makes it easy to search for KANBAN containers.
5. Manufacturer parts (HERS)
   Manufacturer parts are materials that can be supplied by different manufacturers and/or vendors who use different manufacturer part numbers to identify the materials.
6. Nonstock materials (NLAG)
   Nonstock materials are not held in stock because they are consumed immediately.
7. Packaging materials (VERP)
   Packaging materials are used to transport goods and are not changed and so are free of cost to customer. A material master record of this material type is managed on both a quantity basis and a value basis.
8. Perishables (FRIP)
   Perishables are goods that are perishable in an assortment.
9. Pipeline materials (PIPE)
   Materials such as oil, power, or water that flow into the production process directly from a pipeline, line, or other type of conduit. Since pipeline materials are always available, they are not planned.
10. Product groups (PROD)
    Product groups aggregate materials according to certain freely definable criteria. For example, the products may be similar to each other in some way, or they may be finished products that were produced on the same machine.
11. Production resources/tools (FHMI)
    Production resources/tools are procured externally and used in production or plant maintenance. A material master record of this material type can contain purchasing data but not sales data. It is managed on a quantity basis.

12. Raw materials (ROH)
    Raw materials are always procured externally and then processed. A material master record of this type contains purchasing data but not sales data since they cannot be sold.
13. Semifinished products (HALB)
    Semifinished products can be procured externally and manufactured in-house. They are then processed by the company. A material master record of this material type can contain both purchasing and work scheduling data.
14. Services (DIEN)
    Services can be performed internally or procured externally (outsourced). They cannot be stored or transported.
15. Trading goods (HAWA)
    Trading goods are always procured externally and then sold. A material master record of this material type can contain purchasing data and sales data.
16. Value-only articles (WERT)
    A value-only article represents a group of articles whose inventory is not managed on an article basis. All goods movements for this group of articles are posted to the value-only article.

Additional Material Types

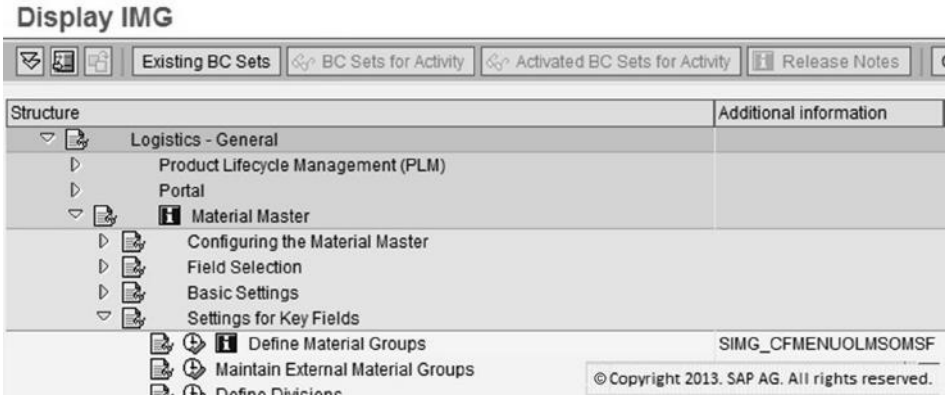
1. Additionals (VKHM)
   Additionals are assigned to a material that is to be sold to ensure its effective presentation to customers, for example, clothes hangers, care labels, and services such as pressing clothing for display or arranging it on hangers.
2. Advertising media (WERB)
   Advertising media is a means of presentation used in advertising and grouping together advertising messages about a number of materials, for example, printed mail order catalogs, computer catalogs on CD-ROM, and promotional fliers.
3. Apparel, seasonal (MODE)
   These material types are used exclusively for apparel goods like shirts, pants, jackets, and so on. These goods are seasonal in nature.
4. Beverages (FGTR)
   Beverages material types include wine, coffee, tea, and so on.
5. Competitive products (WETT)
   Observing and evaluating the activities of your competitors is essential for optimum market analysis. You can enter the basic data on the products of your competitors in material master records of this material type. By specifying a competitor number, you can assign the product to a particular competitor.
6. Foods excluding perishables (FOOD)
   Some food items like cereals are not treated as perishable as they have a long shelf life. In such cases, this material type is used for these materials.
7. Full products (VOLL)
   Full products are the counterpart to empties. For example, with a crate of lemonade, the full product is the lemonade itself, whereas the empties are the individual bottles and the crate.
8. Intra materials (INTR)
   Intra materials exist only temporarily between two processing steps. A material master record of this material type contains neither purchasing nor sales data.

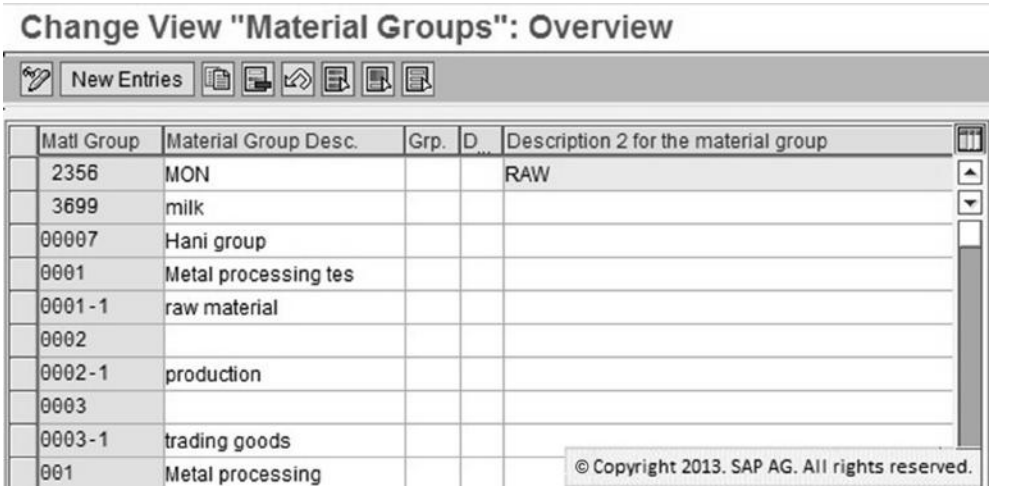
9. Maintenance assemblies (IBAU)
   Maintenance assemblies are not individual objects but logical elements to separate technical objects into more clearly defined units in plant maintenance. For example, an automobile can be a technical object, and the engine, gearbox, chassis, and so on are the maintenance assemblies. A material master record of this material type can contain basic data and classification data.
10. Nonfoods (NOF1)
    Nonfoods are items sold in grocery stores other than food.
11. Nonvaluated materials (UNBW)
    Nonvaluated materials are managed on a quantity basis but not by value.
12. Operating supplies (HIBE)
    Operating supplies are procured externally and required for the manufacture of other products. A material master record of this material type can contain purchasing data but not sales data.
13. Process materials (PROC)
    Process materials are used in the manufacture of coproducts. They are not physical entities but represent production processes. They are useful if production is initiated by the availability of input materials and capacities, and not by MRP.
14. Spare parts (ERSA)
    Spare parts are used to replace defective parts. They may be kept in stock. A material master record of this material type can contain purchasing data but not sales data.

Material Group

Material groups are a mechanism to provide a common classification for similar materials in SAP. Material group is a key that is used to group together several materials or services with the same attributes. Each material or service is assigned to a particular material group. Material group is used for reporting purposes, and you can restrict the scope of analyses and search material master records via search helps.

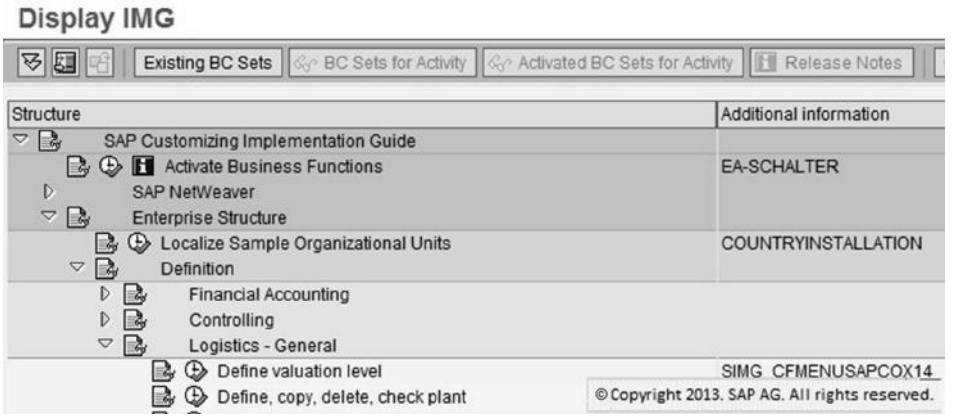
Material groups are important when you want to create any purchase document, but you do not have material master created for the material you want to procure. The material group is used to create purchase documents in such cases without specifying the material on the purchase document.

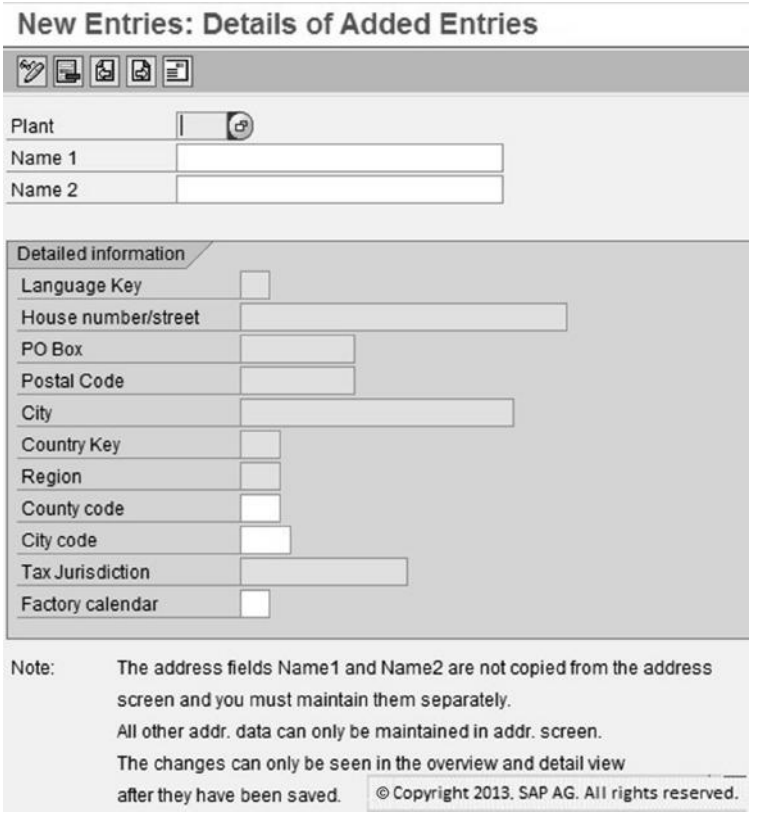




Plant

In standard SAP configuration, you cannot define or maintain a plant. It is customized by going to IMG (SAP customizing). Once you define the plant, you need to assign it to the organizational structure (company code).




New Entries: Details of Added Entries
Plant
Name 1
Name 2
Detailed information
Language Key
House number/street
PO Box
Postal Code
City
Country Key
Region
County code
City code
Tax Jurisdiction
Factory calendar
Note: The address fields Name1 and Name2 are not copied from the address screen and you must maintain them separately.
All other addr. data can only be maintained in addr. screen.
The changes can only be seen in the overview and detail view after they have been saved.
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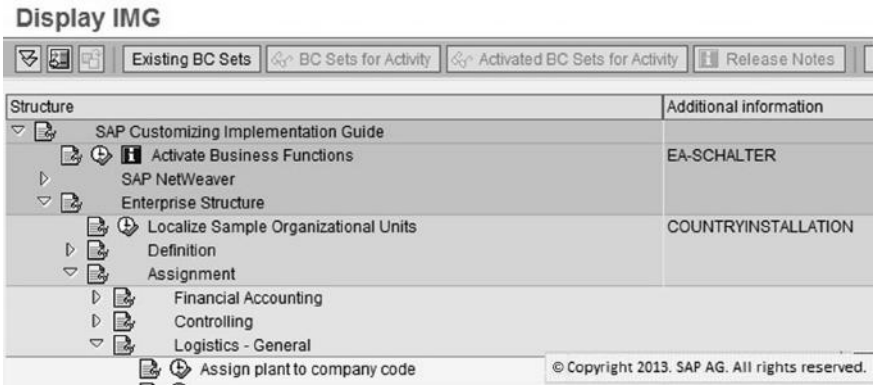
Display IMG
Existing BC Sets
BC Sets for Activity
Activated BC Sets for Activity
Release Notes
Structure
Additional information
SAP Customizing Implementation Guide
Activate Business Functions
EA-SCHALTER
SAP NetWeaver
Enterprise Structure
Localize Sample Organizational Units
COUNTRYINSTALLATION
Definition
Assignment
Financial Accounting
Controlling
Logistics - General
Assign plant to company code
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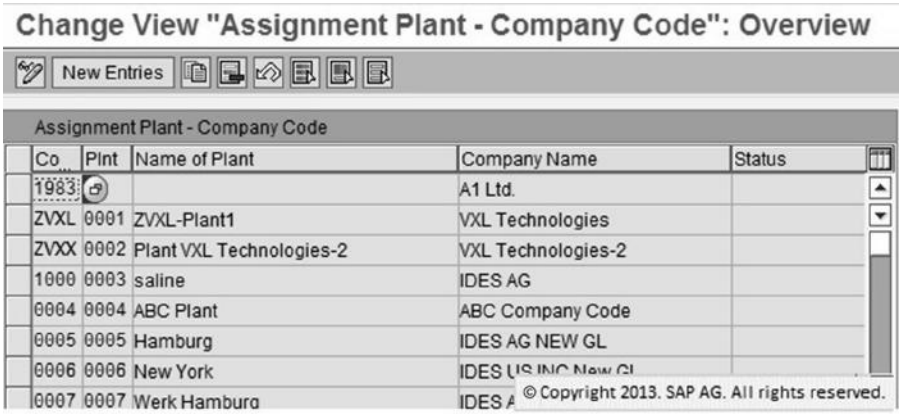

Change View "Assignment Plant - Company Code": Overview

New Entries

Assignment Plant - Company Code

Co...	Plnt	Name of Plant	Company Name	Status
1983			A1 Ltd.	
ZVXL	0001	ZVXL-Plant1	VXL Technologies	
ZVXX	0002	Plant VXL Technologies-2	VXL Technologies-2	
1000	0003	saline	IDES AG	
0004	0004	ABC Plant	ABC Company Code	
0005	0005	Hamburg	IDES AG NEW GL	
0006	0006	New York	IDES US INC New GL	
0007	0007	Werk Hamburg	IDES A	

When you define plants, you should be aware of the relationship between a plant and other organization elements.

A plant can be defined as follows:

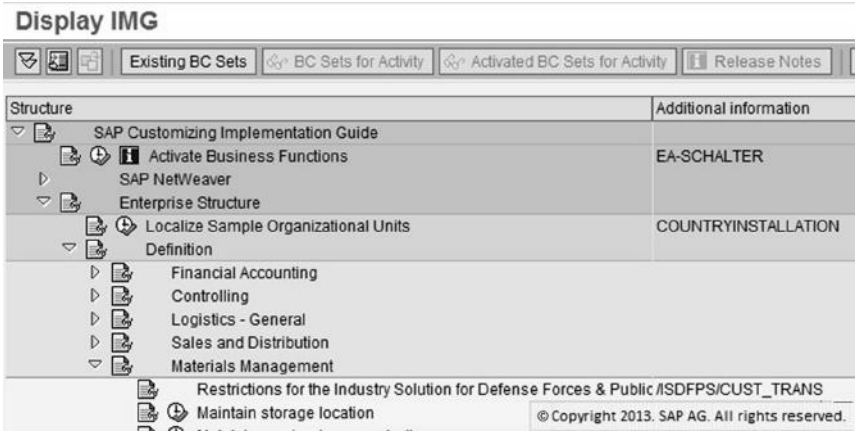
- It is assigned to one company code. A company code can have several plants.
- It can have many storage locations.
- It is assigned to a single business area.
- It is assigned to a single division.
- It is assigned to many combinations of sales organizations and distribution channels.
- It can have many shipping points. A shipping point can have many plants.

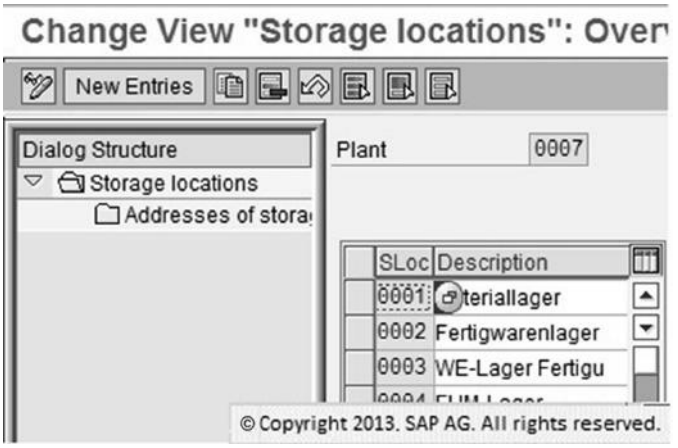
Important tip. Plant is one of the major deciding factors for creating the organizational structure in SAP. Some of the thought-provoking questions that need to be answered for creating plants:

- What are the delivery addresses for purchased materials or services? Delivery address on purchase documents comes from the address provided for a plant. So if your delivery address is different from that of the plant you want to set up, you should also create another plant with the delivery address.
- What are your MRP and forecast data for materials?
- Do you need different valuation methods for your materials?
- Do you have more than one physical location from/to which you ship materials?

Storage Location

Similar to plant, storage location is not part of the standard configuration available in SAP system. You need to define and maintain storage locations from IMG. Once you have defined a storage location, you do not need to assign it to a plant as it is done already at the initial screen.





A storage location in SAP is a physical place where you keep your stock of materials. Even though in SAP a storage location has an address; however, on purchase documents, this address does not appear. Address on purchase documents for delivery comes from plant address.

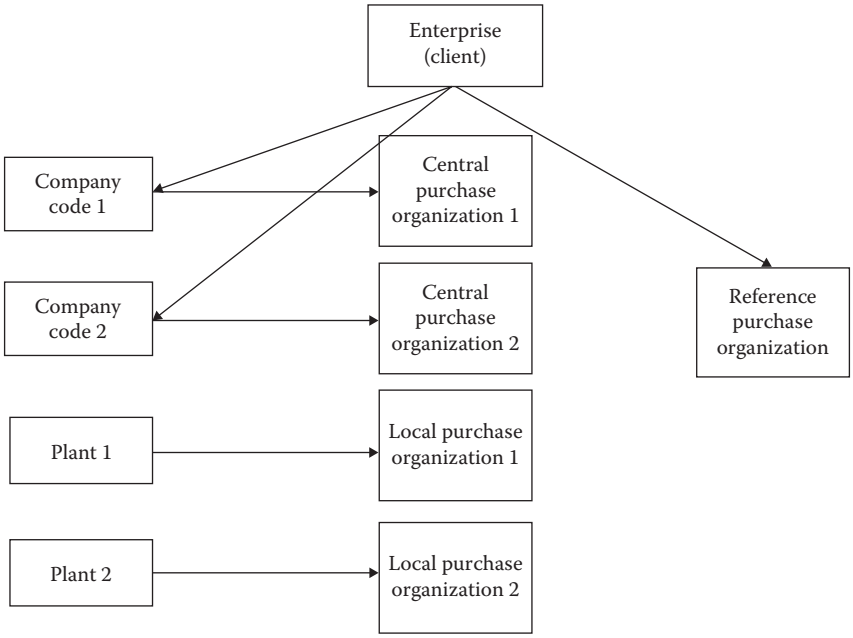
Some important points regarding the storage location are as follows:

- Stocks are managed on a quantity basis at storage location level and on a value basis at either plant level or company code level (depending on your configuration for stock valuation).
- Physical inventory is always done at storage location level.
- Quantity of any inventory is at storage location level, but value of inventory is at plant level. If warehouse management is active, physical location of the inventory will be at warehouse/storage type/bin level.
- You must create at least one storage location per plant even if no inventory is kept at any storage location.

Purchasing Organization

Purchasing organization is the organization unit that procures materials and services on behalf of the organization from external sources such as vendors and negotiates favorable buying prices with them. Depending on the needs of the organization, the purchasing organization can be set up and attached

at the corporate, company, or plant level. SAP is very flexible as to how one or more purchasing organizations can be set up. In global and large organizations, a central procurement is set up so that they can take advantage of negotiating with vendors at a global level as well as buying in large bulks. These factors can reduce procurement costs substantially. For smaller organizations, it makes sense to buy from locally available vendors. To reduce procurement costs, they can deploy strategies to reduce order costs by having a lean purchasing organization and efficient ordering processes.



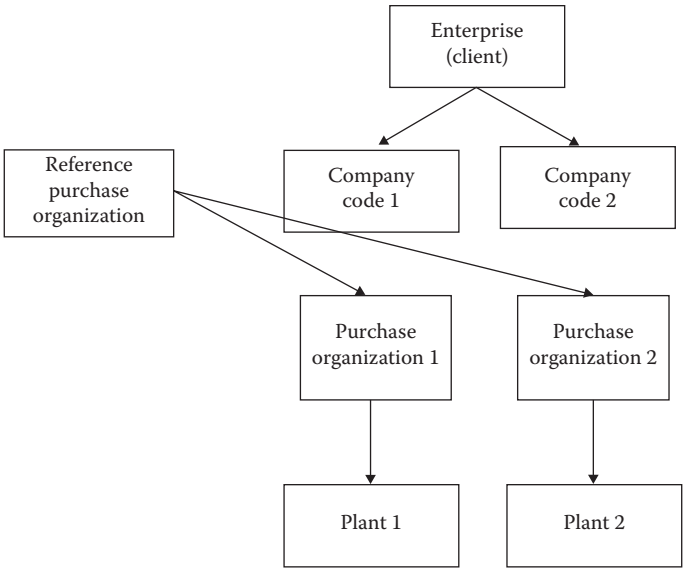
In SAP, you can set up your purchasing organizations in many ways to ensure that your needs are fulfilled.

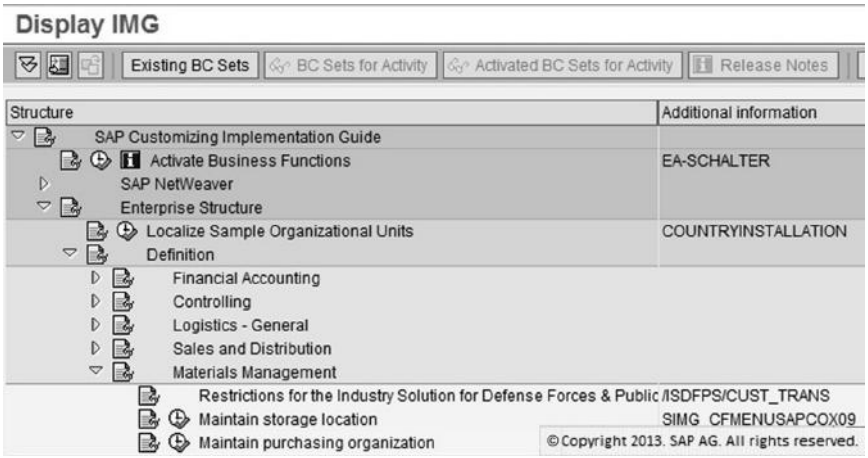
- Reference (centralized) purchasing organization: To enable a purchasing organization to procure for the entire enterprise or for all plants within a company code
- Decentralized (local) purchasing organization: To enable a purchasing organization to procure for a plant

Some important points about purchasing organizations are as follows:

- A purchase organization can be assigned to many plants.
- A purchase organization can be assigned to many company codes or no company codes at all. When no company code is assigned to a purchase organization, it is at the enterprise (client) level. In this case, this purchase organization can do procurement for all plants under all of the company codes within the client.
- A purchase organization can be linked to many purchase organizations.
- Vendor, info record, and pricing conditions can be maintained at the purchase organization level.
- Authorization to purchase organizations can be maintained using security available in SAP.

Purchasing organization is not part of the standard configuration of SAP. It has to be defined and maintained through IMG.


Enterprise (client)
Reference purchase organization
Company code 1
Company code 2
Purchase organization 1
Purchase organization 2
Plant 1
Plant 2


Display IMG
Existing BC Sets
BC Sets for Activity
Activated BC Sets for Activity
Release Notes
Structure
Additional information
SAP Customizing Implementation Guide
Activate Business Functions
EA-SCHALTER
SAP NetWeaver
Enterprise Structure
Localize Sample Organizational Units
COUNTRYINSTALLATION
Definition
Financial Accounting
Controlling
Logistics - General
Sales and Distribution
Materials Management
Restrictions for the Industry Solution for Defense Forces & Public
/ISDFPS/CUST_TRANS
Maintain storage location
SIMG_CFMENUSAPCOX09
Maintain purchasing organization
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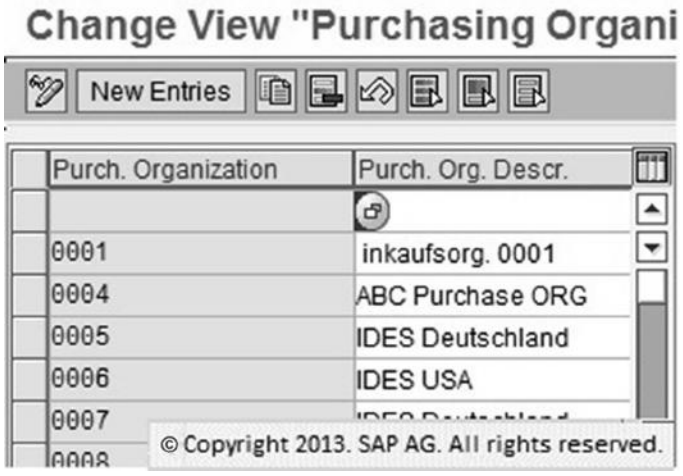
Change View "Purchasing Organi
New Entries
Purch. Organization
Purch. Org. Descr.
0001
inkaufsorg. 0001
0004
ABC Purchase ORG
0005
IDES Deutschland
0006
IDES USA
0007
0008
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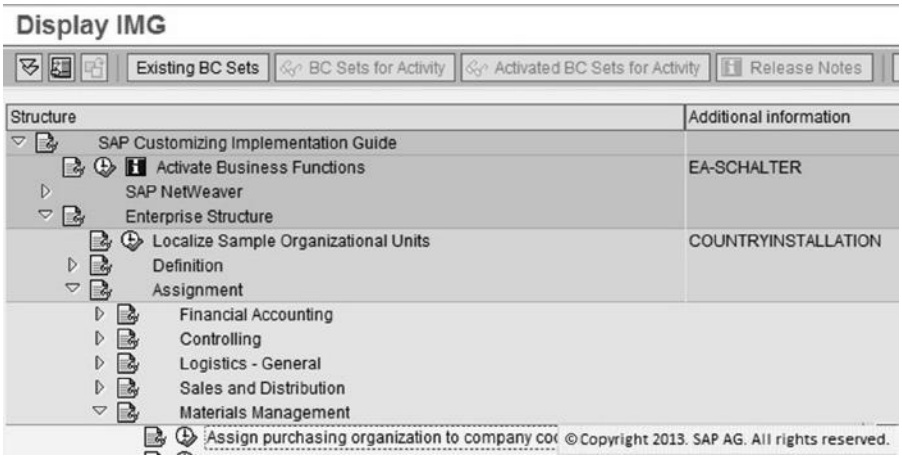
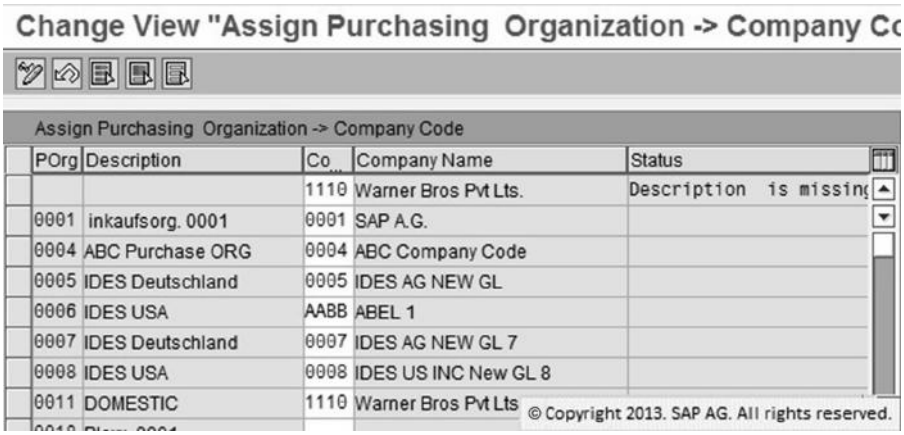
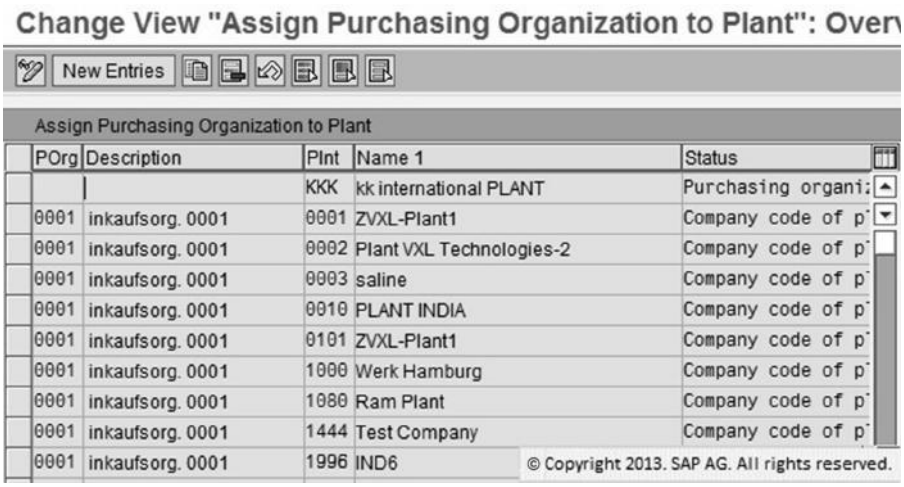
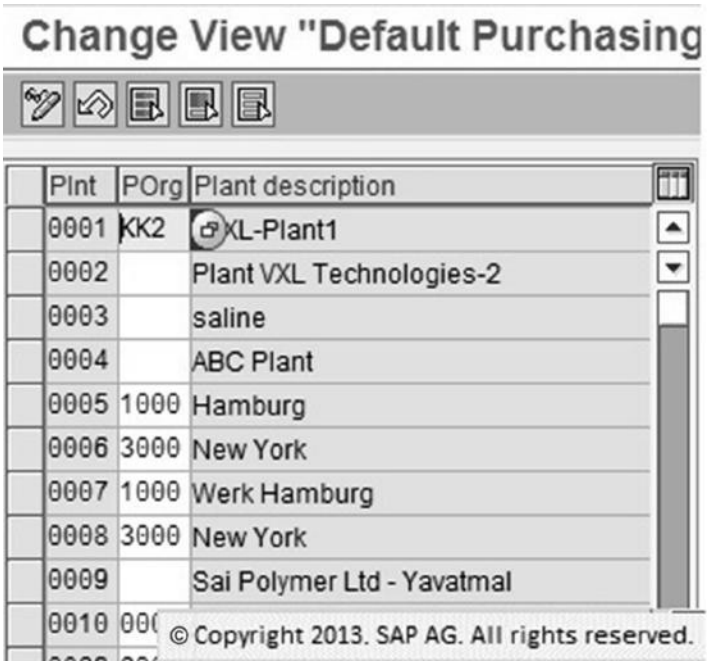
Once you have created purchasing organization, you need it to assign to either company code or plant, or to a reference purchase organization.

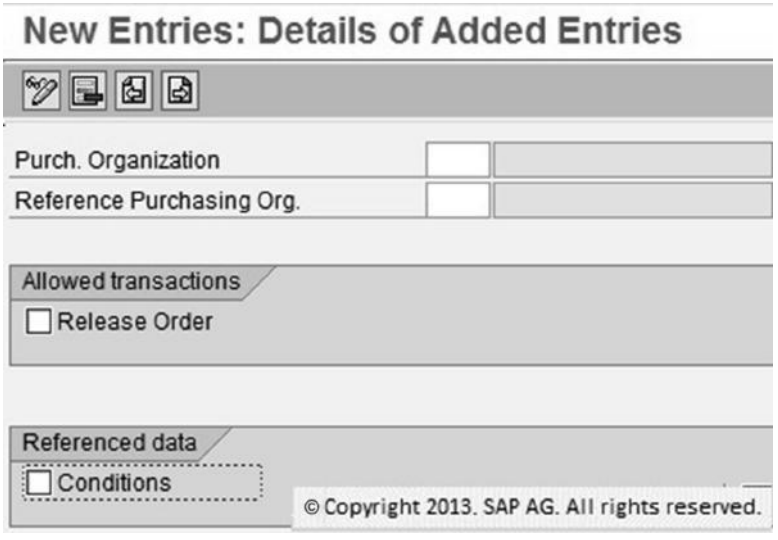






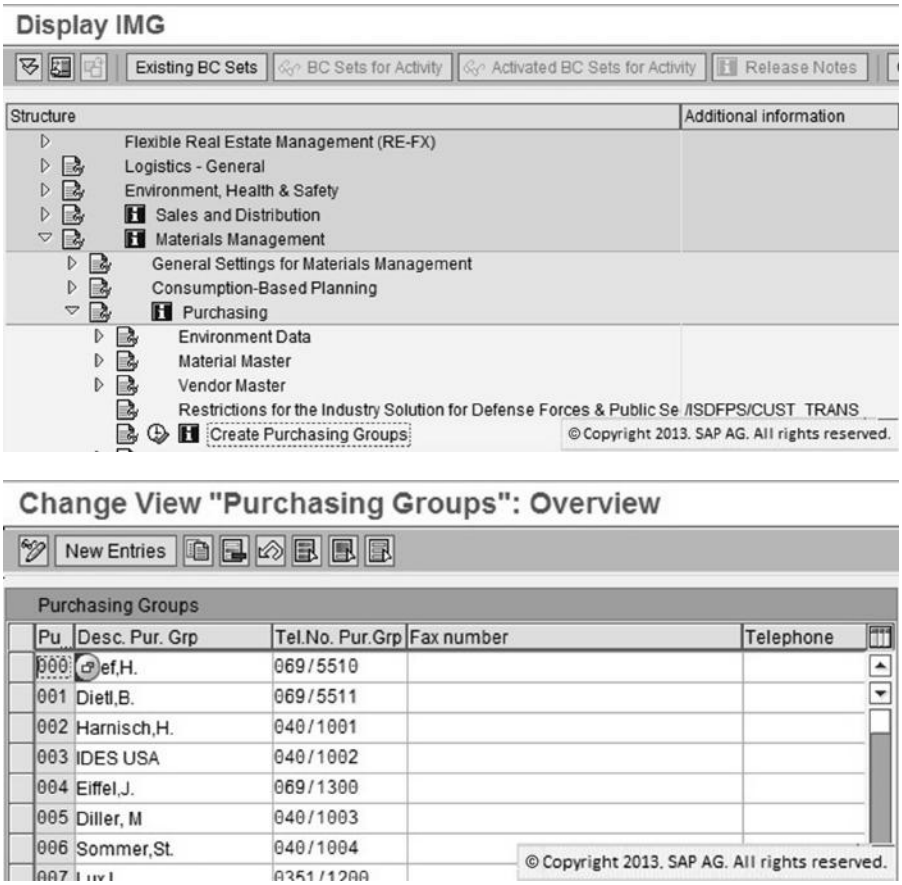


This menu name is a misnomer. Here, one particular purchase organization is being selected as the default purchase organization for a plant out of many purchase organizations which may be attached to that plant. If you see the screen name, it is correctly claimed as "Default purchasing organization." In SAP, there is a particular significance of standard purchasing organization. In source determination for consignment and stock transfer, the system automatically selects the standard purchasing organization when you create a purchase document. In case of goods issue for a pipeline material, the purchasing info record of the standard purchasing organization is read.



Purchase Group

Purchase groups are entities that are used to denote a group of buyers who are responsible for buying similar materials or services. For instance, purchase groups can be configured in such a way that each department in a plant can have its own purchase group. All purchasing for that department will be done through the purchase group.

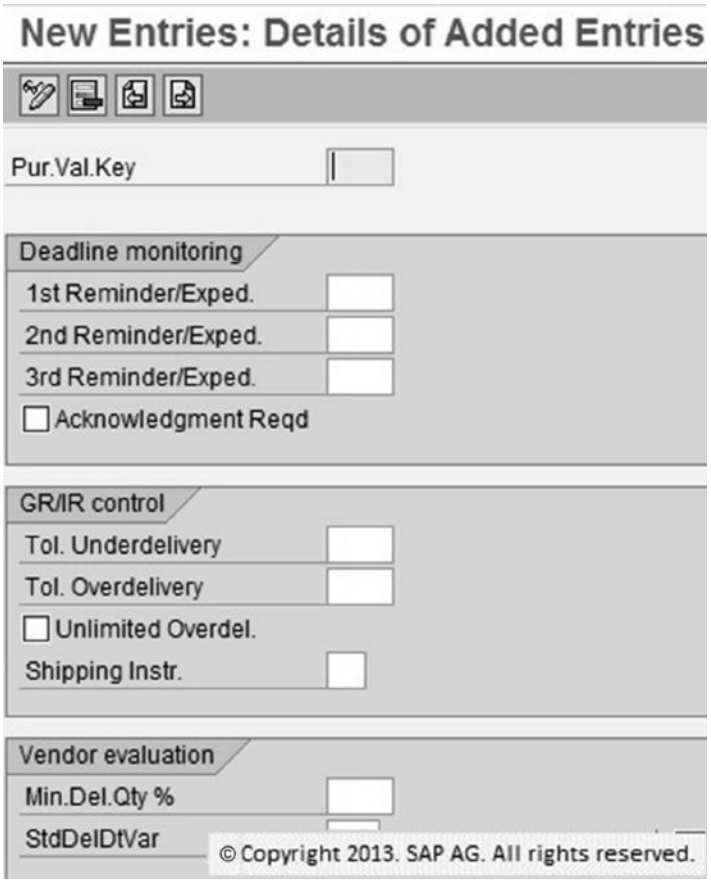


Purchasing Value Key

In the material master record, you can store the rules governing the following:

1. The issue of reminders and urging letters (expediters) with respect to nearly due and overdue deliveries
2. The admissibility of over and under deliveries ("overages" and "underages")
3. Order acknowledgment requirements for PO items
4. Shipping/packaging instructions

You stipulate these rules in the purchasing value key. These data appear as default data in purchasing documents and are taken from the material master record (unless a purchasing info record exists, in which case it is taken from the latter source).

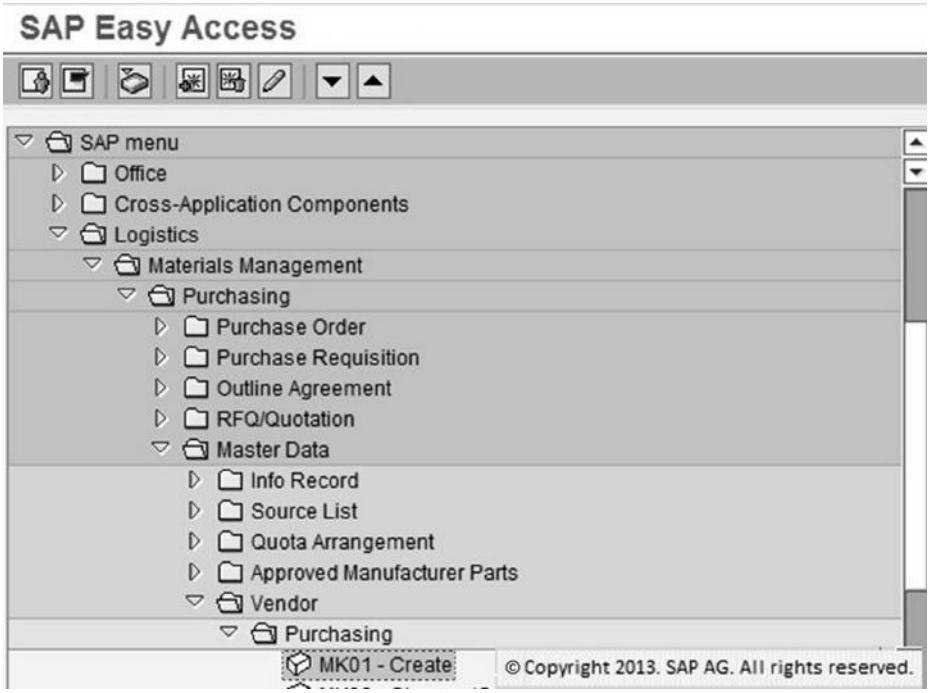


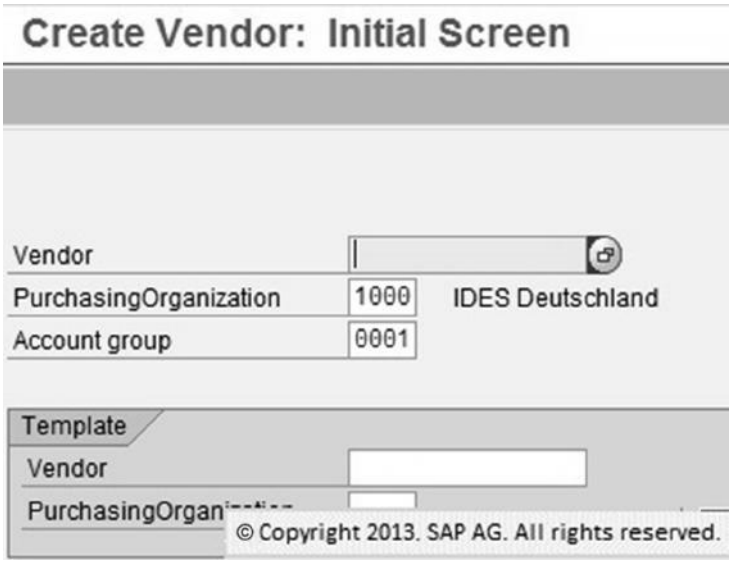
Vendor Master

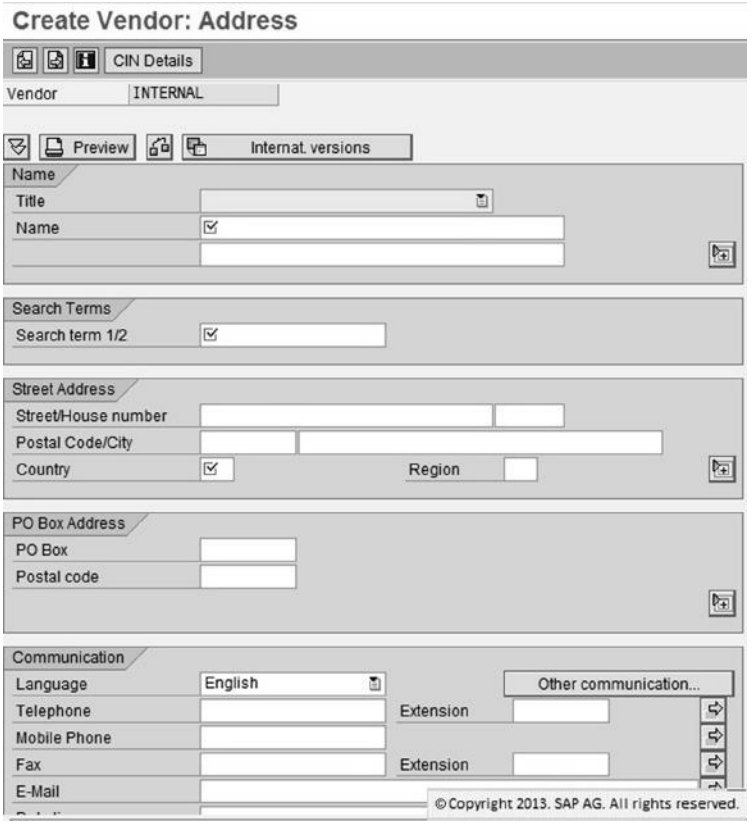
You can create a vendor in two ways depending on your needs. If you want to create a vendor that will be linked to your company code, and thus, the vendor will become a central vendor for all of your plants and purchasing organizations, it is possible to do so. Otherwise you can create a

vendor attached to a purchasing organization. In this case, if the vendor is also a vendor for other purchasing organizations in your company, you will have to copy this vendor and attach with each of your purchasing organization.

If you have a central purchasing organization for your entire company, creating a central vendor makes sense. If this is not the case, creating a vendor at the purchasing organization level is the choice.






Create Vendor: Address
CIN Details
Vendor INTERNAL
Preview
Internat. versions
Name
Title
Name
Search Terms
Search term 1/2
Street Address
Street/House number
Postal Code/City
Country
Region
PO Box Address
PO Box
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Communication
Language English
Other communication...
Telephone
Extension
Mobile Phone
Fax
Extension
E-Mail
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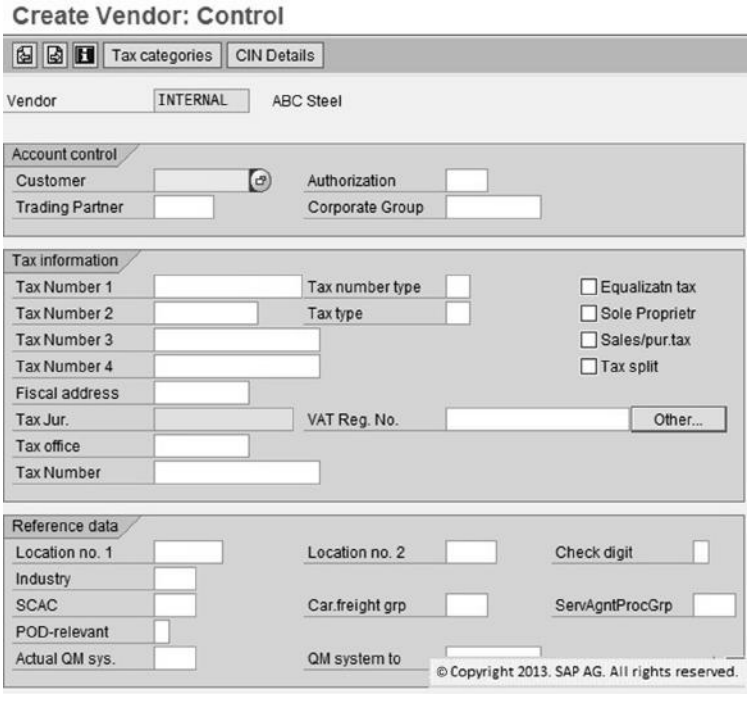
Create Vendor: Control
Tax categories
CIN Details
Vendor INTERNAL ABC Steel
Account control
Customer
Authorization
Trading Partner
Corporate Group
Tax information
Tax Number 1
Tax number type
Equalizatn tax
Tax Number 2
Tax type
Sole Proprietr
Tax Number 3
Sales/pur.tax
Tax Number 4
Tax split
Fiscal address
Tax Jur.
VAT Reg. No.
Other...
Tax office
Tax Number
Reference data
Location no. 1
Location no. 2
Check digit
Industry
SCAC
Car.freight grp
ServAgntProcGrp
POD-relevant
Actual QM sys.
QM system to
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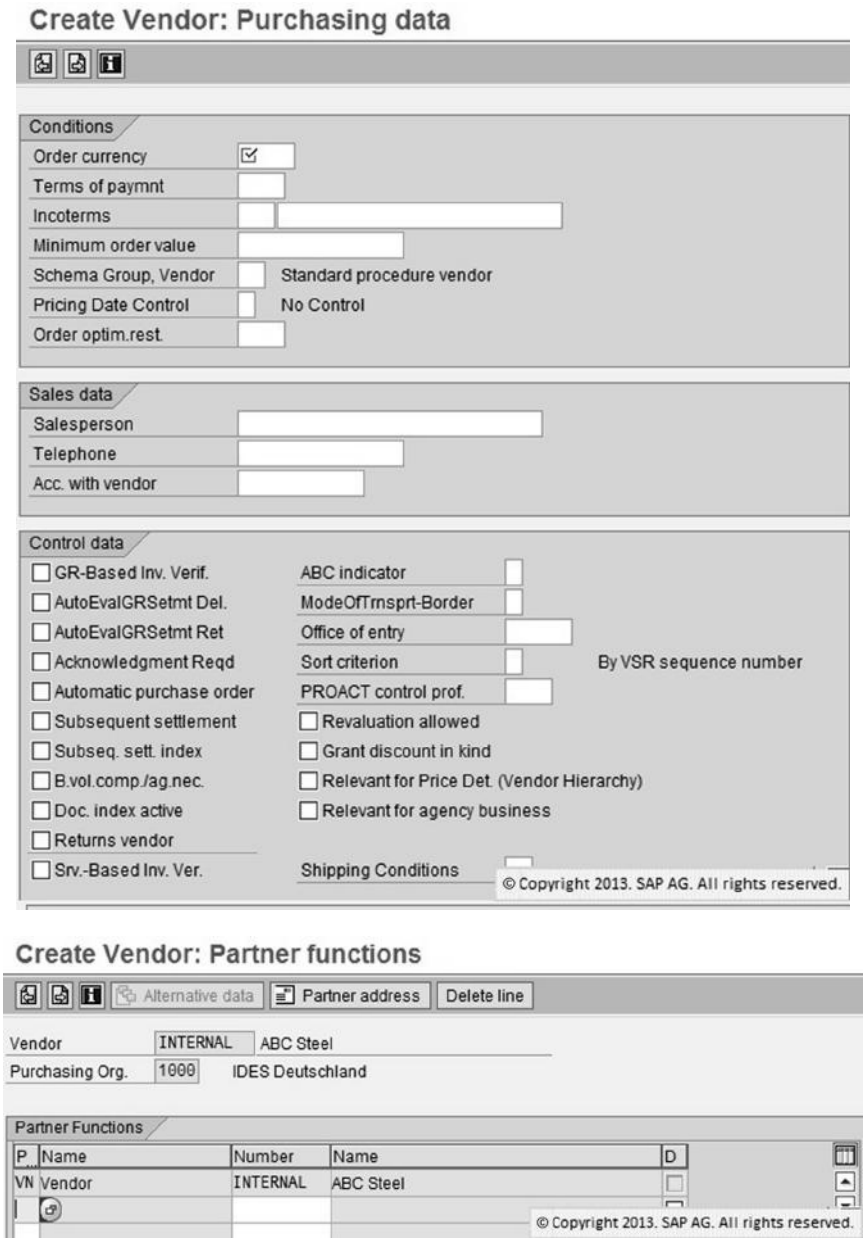
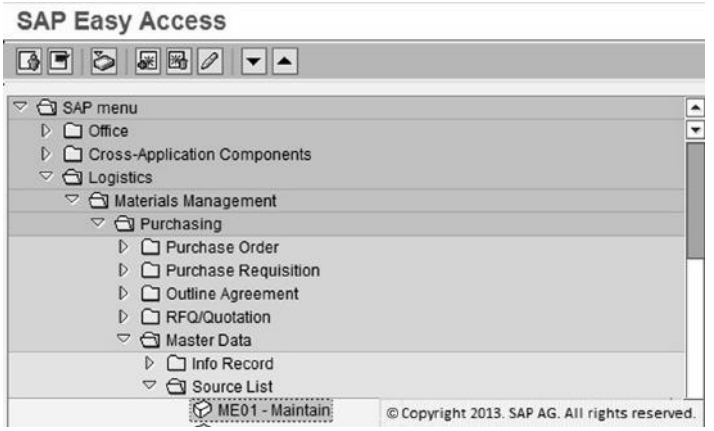
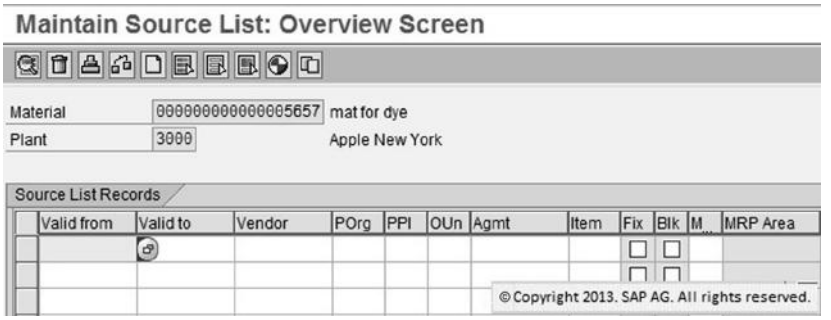


Source List

Source list is part of the purchasing system. For any material, SAP maintains a list in which all sources of supply for that material are kept. From info records and outline agreements, you can create a source list for a material automatically by using transaction ME05. You can also create an entry in the source list for a material directly from an outline agreement by selecting "maintain source list option." Similarly, from info record screen, you can create the source list entry by clicking "Choose Extra" menu and opt for source list. You can also create entries in this list manually.

In the source list, available sources for a material are listed with preferences. You can make a source as the preferred source for a material by selecting the "Fix" checkbox in the source list overview screen. You can also block a source by selecting the "Blocked source of supply" checkbox. You can also select a source for making MRP. In this case, MRP will allocate all sources of supply for a material regardless of any preferences made for any source.





Some important points for any SAP MM consultant to deal with source lists and sources of supply are as follows:

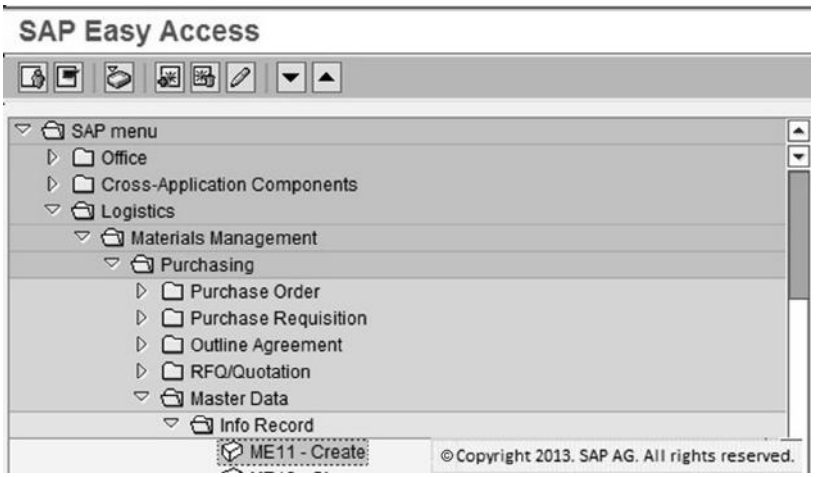
- When you create a source list manually, an existing info record or outline agreement is not required. You may create one later if you want.
- At PR creation, if you want the system to assign a source of supply, you have to check "Source List" in material master record.
- If you have vendors in source list but without valid info record or outline agreement, these will not be included in the sources of supply search.
- If there is no vendor in the source list with valid info record or outline agreement, the system will look for vendors in info record and outline agreement, but you will get an error/warning message because the vendors are not in the source list if the "Source List" option is checked in Purchase Requisition.
- If quota arrangement (explained later in this chapter) is also being maintained for a material, the system always looks for quota arrangement first and then the source list.

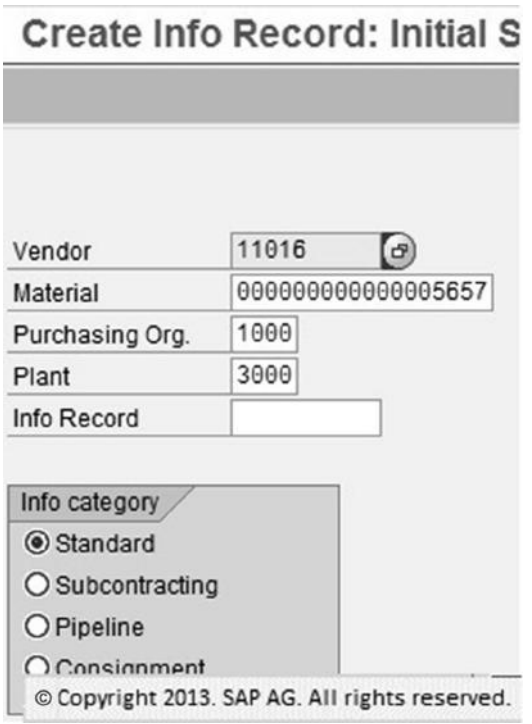
The gist of the matter is that we can have source list without info record, but it is not completely maintained.

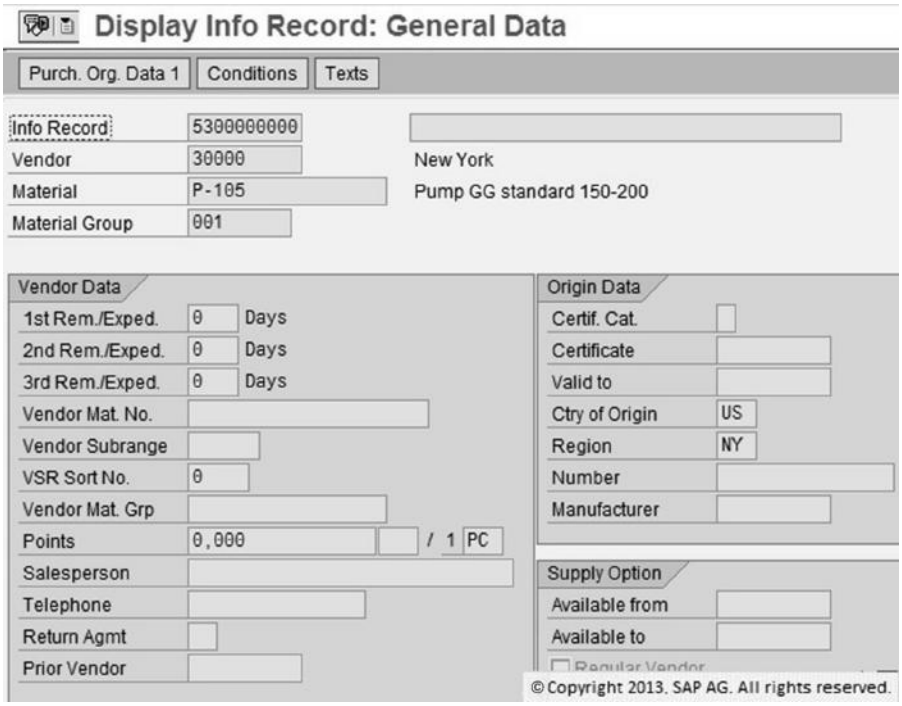
Info Records

Info records are used to link a material to a vendor and price. Info records can be kept at plant level or purchasing organization level. Info records in turn are linked to source lists. When a user searches for a material to create a PR or a PO and if the source list is enabled on the PR or PO document and when the material is selected on the document then price and vendor information will be copied automatically on the PR or PO document. This information comes from the info record if the info record is created for the combination of vendor–material.

There are four types of info records: standard, subcontracting, pipeline, and consignment depending on the procurement type for which you want to create the info record.



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Purch. Org. Data 1
Conditions
Texts
Info Record 5300000000
Vendor 30000 New York
Material P-105 Pump GG standard 150-200
Material Group 001
Vendor Data
1st Rem./Exped. 0 Days
2nd Rem./Exped. 0 Days
3rd Rem./Exped. 0 Days
Vendor Mat. No.
Vendor Subrange
VSR Sort No. 0
Vendor Mat. Grp
Points 0,000 / 1 PC
Salesperson
Telephone
Return Agmt
Prior Vendor
Origin Data
Certif. Cat.
Certificate
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Ctry of Origin US
Region NY
Number
Manufacturer
Supply Option
Available from
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Regular Vendor
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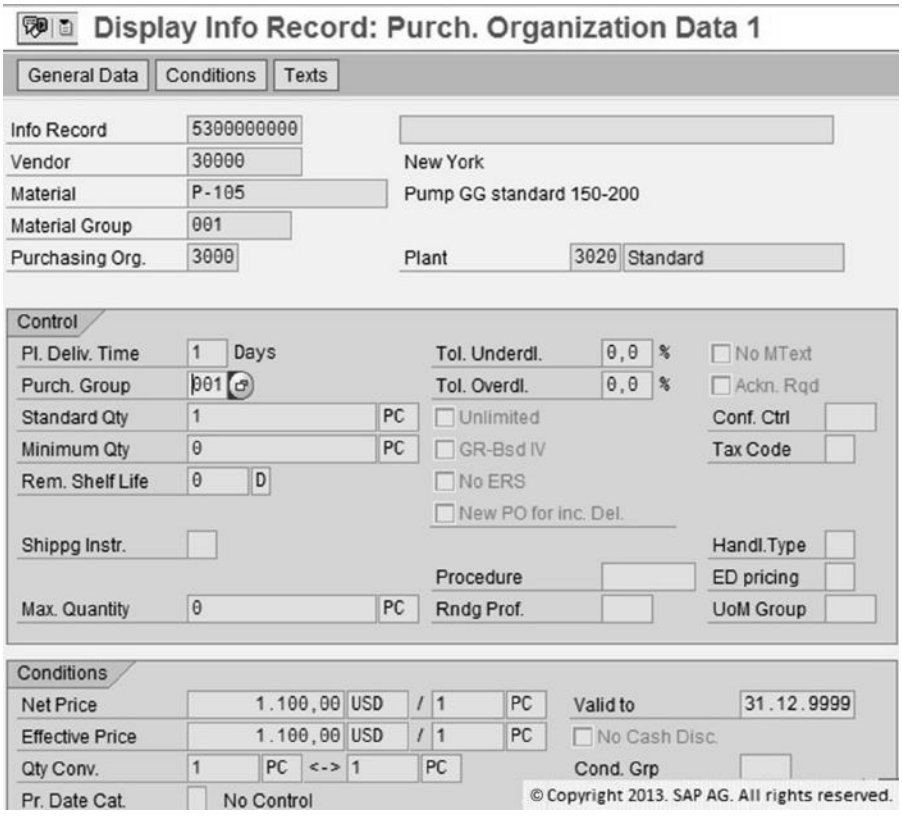
Display Info Record: Purch. Organization Data 1
General Data
Conditions
Texts
Info Record 5300000000
Vendor 30000 New York
Material P-105 Pump GG standard 150-200
Material Group 001
Purchasing Org. 3000 Plant 3020 Standard
Control
Pl. Deliv. Time 1 Days
Purch. Group 001
Standard Qty 1 PC
Minimum Qty 0 PC
Rem. Shelf Life 0 D
Shippg Instr.
Max. Quantity 0 PC
Tol. Underdl. 0,0 %
Tol. Overdl. 0,0 %
Unlimited
GR-Bsd IV
No ERS
New PO for inc. Del.
Procedure
Rndg Prof.
No MText
Ackn. Rqd
Conf. Ctrl
Tax Code
Handl.Type
ED pricing
UoM Group
Conditions
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Effective Price 1.100,00 USD / 1 PC
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Pr. Date Cat. No Control
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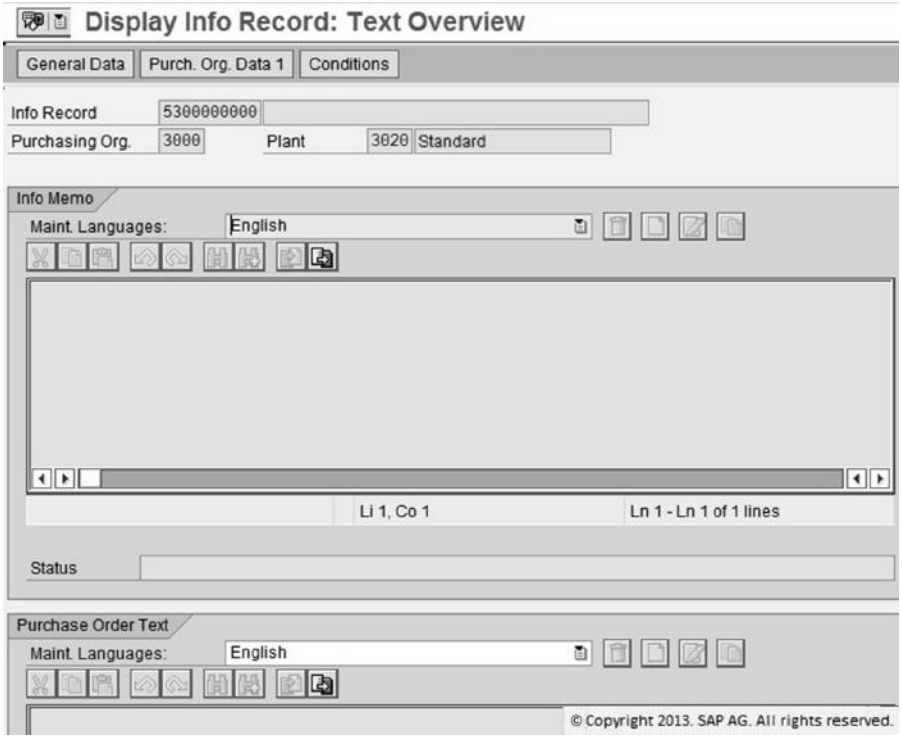


Info Record at Plant or Purchasing Organization Level

Info records can store information about a material and a vendor either at purchasing organization level or at plant level. There are many implications about how and at what level the information about the material and vendor is stored in an info record. If the information is stored at the plant level, the price of the material from a vendor is applicable locally only for the specific plant. However, if the information is stored at the purchasing organization level, the price of a material from a vendor can be applied centrally throughout the organization. This functionality can be achieved in case when a central contract is made by the customer with a vendor. A central purchasing organization (reference purchasing organization) can make the contract with a vendor, and then the contract becomes available to local purchasing organizations. In this case, the info record created on the contract is adopted by the local purchasing organizations. Thus, the negotiated price in the info record becomes available to the local purchasing organizations.

Apart from the benefits of info records created at the purchasing organization level, there are some limitations as well. Since it is at the central level, the local influences on the price of the material cannot be incorporated. Price components such as freight costs and local taxes are different for different locations, and thus, a flat central pricing is not possible. To overcome this problem, the price components can be split into two groups: price components that are same for any location and price components that are specific to a location.

Once we have this clarity, we can create two types of info records: (1) Info records at the central level contain price components that are not affected by local conditions and (2) info records at the local level contain price components specific to the local conditions. The central contract will have

the info record (at purchasing organization level) of first type where price components do not get affected by local conditions. Then we can create info records at the plant level which contain price components that are specific to local conditions.

Info Record Structure

Info records contain vital information related to vendor, material, and material price. They also contain information related to last PO number, tolerance limits for under and over deliveries, planned delivery lead time, vendor evaluation data, preferred vendor for a material, vendor subrange, availability period, quotation data, ordering data, material price data, and so on.

Procurement Types in Info Record

The procurement types in info record are as follows:

Standard. Standard info records can be created for standard POs. Standard info record can be made for both material and services. It is not necessary that material or service master is available beforehand to create standard info record.

Subcontracting. Subcontracting info record is used for subcontracting POs. If any part of your assembly is subcontracted, the subcontractor's price for doing assembly will be available in the info record.

Pipeline. Some kinds of material are unique in that they cannot be measured using conventional measuring devices. For example, some materials are either in a liquid or gaseous form or in an intangiable form and need a conduit for transportation. Materials such as oil, water, electricity, and liquid chemicals are such materials. In SAP, a material type "pipeline" is exclusively defined for this purpose. A pipeline info record contains information on a vendor's commodity that is supplied through a pipeline or similar means. The info record contains the vendor's price for consumption of the material by the buyer. It is also possible to keep different prices for the material for different time periods.

Consignment. In consignment arrangement, the vendor keeps and manages the inventory of his/her material at customer premises. The customer is not the owner and not liable for the stock of this material, but it is the vendor who is the owner and responsible for this stock of material. In the info record, the vendor's price of the material is kept. This price is specific to the stock of the consigned material. The price of the material also available in any other storage location belonging to the owner may be different from the price of the consigned material.

Info Record Net Price and PO Net Price

When information about the price from the info record is copied to a PO, the net price in the PO may not be the same as that in the info record. It is because some components of the price may include bulk discounts. For example, suppose that we have a material that is gross priced at \$10 per piece. There is a bulk discount of 20% on the gross price if the quantity ordered is in excess of 100 pieces. So the net price in the info record is \$10. If the customer has ordered 200 pieces, his/her total price will be ($\$10 \times 200 - \$10 \times 0.20 \times 200 = \$1600$) and the net price per piece will be ($\$1600/200 = \$8$).

If the price in the PO is adopted from an info record and subsequently the price in the info record is changed by any user, the price in PO and info record will be different. The info record will now contain new price with the new effective date, whereas the PO will contain the old price.

Creating Info Records

Info records can be created either manually or automatically if "Info update" field on quotation, PO, or outline agreement is checked. Once an info record is created, order information is always updated in the info record.

Before you can create an info record, you need to know the material number (or material group + material short text + order unit, in case material master does not exist), the vendor number, and the plant or purchasing organization (where info record needs to be created).

Net Price Simulation

Simulating and comparing the prices of a material from all sources helps in procurement decision making. Similarly, displaying the prices of all materials from a vendor helps in finding out cost-effective alternative materials from the same vendor.

In SAP, you can do these functions in net price simulation. Use the following menu path to compare the prices of a material from different vendors: SAP Easy Access → SAP Menu → Logistics → Materials Management → Purchasing → Master Data → Info Record → List Displays → By Material.

Use the following menu path to compare the prices of all materials from a vendor: SAP Easy Access → SAP Menu → Logistics → Materials Management → Purchasing → Master Data → Info Record → List Displays → By Vendor.

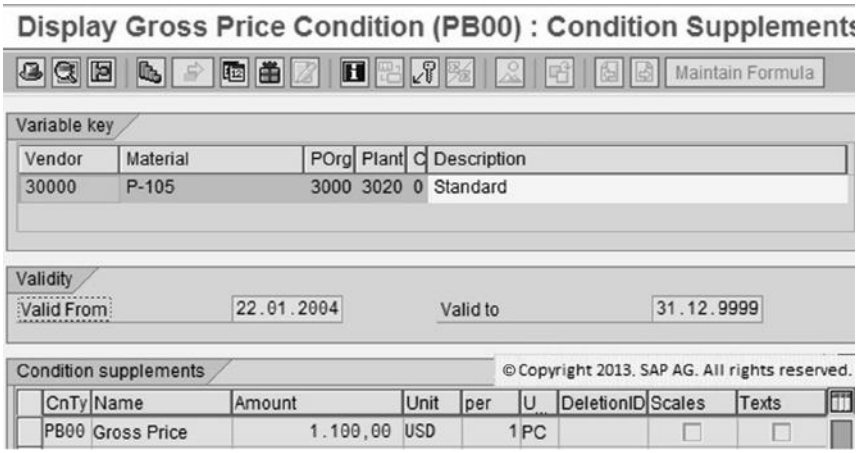
When you get the list, you can see which materials are supplied by which vendors for purchasing organizations or plants. You also have the option to select the price in the last PO or quotation. You can select the info records from the list to see the details of each info record. After selection, use the menu path: Edit → Price Simulation.

Conditions

Conditions are the elements that contain pricing and discounts information about a material from a vendor. Pricing about any material is very important as the purchasing department has to get materials at the most economical costs. At the same time, the accounting department must get the exact cost figures for each and every material for accounting purposes.

Cost components include gross price, discounts, taxes, cash discounts, shipment costs, seasonal rebates, and so on. How each of the cost component impacts the net or effective price of any material depends on how it is calculated. In SAP, conditions help in not only identifying the cost components but also calculating the net or effective cost even in the most complex situations.

Conditions are of two types: time-dependent and non-time-dependent conditions. Time-dependent conditions have a defined time period in which duration the condition is applicable. Outside this time period, the condition is not applicable. Time-dependent conditions can be used on purchase documents (PO, PR, etc.) and purchase master data (info records). Non-time-dependent conditions are used in the info records.



There are cases when payment for vendors is made after a settlement period. So in these cases, we have conditions that are predefined but are not applicable before the settlement is done.

Condition Groups

Sometimes a price component of any material depends on market conditions. For example, due to changes in government tax changes, the price of similar input materials may get changed by 7%. You need to update this price change in every info record for each material. Instead if you have kept this price component in a group condition and included this condition in price condition of each material, you only need to update the group condition once and the prices of all materials may reflect the change.

Conditions that are not directly included in an info record but instead are linked to several info records are called condition groups.

Variant Conditions

Variant conditions are used in conjunction with variant materials. Many variations of the same material may have different prices. To take care of this scenario, we use variant conditions. For example, the price of a metallic colored car may be different compared to that of a nonmetallic colored car. In this case, we can define the discount or surcharge for material variations. These surcharges or discounts can be applied to the material price using a variant condition.

Pricing (Condition Technique)

Conditions together with calculation schemas form condition technique that is used for deriving the net and effective price for a material. Each condition type is part of a price determination procedure. Access sequence determines information from which document (info record, contract or outline agreement) the pricing information is to be taken.

The steps involved in price determination procedure are as follows:

- The relevant calculation schema is determined and available on the purchase document (PO, PR, and contract).
- Condition records are searched from condition tables for condition types mentioned in the calculation schema.

- The search is done as per the access sequence (search order).
- Price is calculated after the condition record is found.

In SAP MM, there are three kinds of prices: gross price, net price, and effective price. Gross price of a material is the price excluding taxes, discounts, or surcharges. Net price is the price derived after adding or deducting taxes, discounts, and surcharges from gross price of the material. Effective price also known as landed price is derived from the net price after considering shipment charges, cash discounts, and so on.

Quota Arrangement

Quota arrangement is used when you have more than one source of supply for a material or service at any given time. It helps in distributing the procurement among the available sources of supply.

One word of caution here! When we speak of distributing a requirement for a material or service, it does not mean the individual requirements. It means that the total requirements over a period of time are distributed among all the sources of supply as per the distribution arrangement. For example, suppose there are two vendors A and B for a material M. In quota arrangement, the distribution is allocated as 70% to A and 30% to B. When a requirement for material M comes for, say, 100 parts from the customer, it will be allocated to vendor A. Next time if a requirement comes for 200 parts, which vendor will be allocated as a source? At this point, allocation realization is 100% to vendor A and 0% to vendor B. If we allocate this requirement to vendor B, allocation realization will be 33% to vendor A and 67% to vendor B. This allocation realization will be against the quota arrangement that has been defined (70% to A and 30% to B). So this requirement will again go to vendor A. Now if the next requirement is for 200 parts, it will definitely go to vendor B. The quota arrangement logic works this way.

When source determination is done, quota arrangement takes precedence over other source categories such as source list, outline agreement, and info records.

Quota Arrangement Calculation

Quota arrangement calculation is done to find out the quota rating of any vendor for a material at any given time within a valid period. Depending on the quota rating of vendors, the system finds out which vendor will be allocated to the next sourcing requirement for a material out of all valid sources (vendors).

Quota arrangement in SAP is divided into allocation quota, splitting quota, maximum lot size, priority, and maximum release quantity.

Chapter 4

SAP MM Purchasing Management

Introduction

Purchasing or procurement is one of the fundamental activities of SAP materials management (MM). SAP MM enables purchasing functions for materials and services through a wide range of features available in the standard SAP as well as through customized features.

If you log in to the SAP system, you will see a menu structure. This menu structure corresponds to various functionalities available in the standard SAP. These functionalities are divided on the lines of modules and then submodules. Finally, each submodule contains the features and functionalities.

From a business perspective, purchasing functions require to keep information about vendors, materials, material prices, contracts with vendors, scheduling agreements with vendors, and so on. Purchase information for all purchasing needs to be kept. From user departments, information about purchase requisitions (PRs) also needs to be kept.

Each user department has a set of requirements, which create PRs to fulfill their needs. They send these PRs to the respective purchase departments. Purchase departments then place purchase orders (POs) to the appropriate vendors. Vendors ship the required material to the user departments. Once the material is received, the invoice sent by the vendor needs to be verified. After verification of invoices, accounting department makes payment to the vendors for the purchase done.

In cases where the price of a material is not known, for the purpose of getting the best price, a purchase organization can raise the request for quotation (RFQ) and place it to some selected vendors. Vendors in turn send the quotation for the requested material or service. The price from all these vendors is then compared. The best priced quotation is selected and rejection letters are issued to other vendors.

In any organization, projects are undertaken to create assets. For these projects, material is issued to the subcontractor, who builds the asset using these materials. Once the asset is built, the surplus material is returned back along with the asset. So for each project, accounting for both material and financial is done to ensure that there is no wastage of material.

In many instances, there is a fixed vendor for a particular material. In these cases, a contract is established with the vendor. In the contract, either the total quantity of material or the total value of service is mentioned for a specific period of time. As long as the contract is valid, material is received at time intervals and running quantity of material is maintained. When the received quantity of material becomes equal to the agreed quantity in the contract, the contract terminates. For service contracts, the contract terminates when the value of service (in terms of money) received becomes equal to the value mentioned in the contract. Settlement of quantities of materials received during the contract period can be governed by creating POs each time material is received.

In industries such as automobiles, vendors are supposed to deliver fixed quantity of automobile parts at fixed intervals. For fulfilling this need, a contract is made between the customer and the vendor. This contract is known as scheduling contract. It is very similar to the normal contract with the scheduling part attached to the contract.

In some industries, the vendor manages the inventory to the point when the material is consumed by the customer. So even though the inventory of a material lies at the premises of the customer, it is actually owned by the vendor. In such cases, the material is counted in inventory balance of the customer, but payment for it is done only after it is consumed.

In some industries such as oil, water, various liquids, and electrical supply, the material is continuously consumed. It is almost like the source of supply contains infinite quantity of material and from where a fixed rate of quantity is being tapped. These kinds of materials are known as pipeline materials.

For optimized buying, a business needs to have a central contracting purchasing organization that can make contracts with the vendors for the entire enterprise. This contract can be used by various business entities within the entire enterprise so that the benefits of central buying can be achieved. Similarly, whenever buying for a material is required, information about the best price for that material should be available.

One more aspect about buying is that the enterprise should have a list of known sources of supply of any material. This ensures flexibility in procurement function.

For accounting purposes, pricing for any purchase must be broken into various heads such as gross price, discounts if any, surcharge if any, transportation cost, and taxes. For each purchase, debit or credit must be done in corresponding ledger accounts. For this purpose, various ledger accounts are maintained so that appropriate transactions can be posted in these accounts. These are some of the aspects any business entity faces in its everyday business. In SAP, most of these activities can be captured easily.

Integration Points

The purchasing component of SAP MM is integrated with other SAP modules. The touch points are as follows:

1. *Controlling (SAP CO).* When a PR is made, the user has to specify the account assignment for directly consumed items. Through account assignment, the consumable item is connected to the cost center.
2. *Financial Accounting (SAP FI).* Vendor data contain both procurement and financial data. Whenever a purchase is made from the vendor, a financial credit is made in the bank

account of the vendor, which is maintained in the financial data for the vendor after invoice verification. At the same time, through account assignment, the general ledger (G/L) account is debited.

3. *Sales and distribution (SAP SD).* Material requirement arising due to sales can be linked to purchasing. Similarly, when a PR is created, it can be directly assigned to a sales order.
4. *Production planning (SAP PP).* Production orders created by the SAP PP module can be automatically or manually converted into PRs.
5. *Quality management (SAP QM).* The quality management in procurement component is integrated with material by way of quality check of the material before the material can be received.

Similarly, purchasing part of SAP MM module is integrated with other SAP modules such as SAP human capital management (SAP HCM), and SAP advance planning and optimizer (SAP APO).

Make to Stock versus Make to Order

Manufacturers adopt a make-to-stock or a make-to-order strategy for production for fulfilling the customer demands. When they produce only against confirmed customer orders, it is known as a make to order. In contrast when they produce against forecast, it is known as make to stock. In case of make to stock, the manufacturer produces materials and keeps them in its warehouse. Whenever a customer order comes, the salespeople search the warehouse and find the suitable material, and deliver the material to the customer.

SAP MM purchasing component can be aligned with the manufacturing strategy of the manufacturer. To this end, SAP MM contains functionalities such as long-term contracts, scheduling agreements, consignment stocks, RFQ, direct consumable items, reference purchasing organization, and distributed contracts.

1. *Long-term contracts.* When a manufacturer negotiates a long-term contract with a vendor, invariably it leads to lower procurement costs. In SAP MM, there are two types of contracts: value contracts and quantity contracts. Generally, for materials, a quantity contract is used where the vendor agrees to supply a fixed quantity of materials over a fixed time interval. Value contracts are usually used for service contracts where the vendor agrees to supply services amounting to the agreed value over a fixed time period. Long-term contracts are more suitable for make-to-stock manufacturing strategy.
2. *Scheduling agreements.* When a manufacturer keeps a very close association with its suppliers, it can go for scheduling agreements. The vendors agree to provide raw materials or components at predefined intervals. This kind of arrangement is used in industries such as automobiles and electronics. This arrangement minimizes both PO costs and inventory-carrying costs. This arrangement suits make-to-order environments.
3. *Consignment stocks.* In consignment stock arrangement, the vendor takes care of inventory of raw materials and the manufacturer pays for raw material only when it is consumed.

The vendor is responsible for shipping the inventory up to the manufacturing site as well as taking care of this inventory. In this arrangement, the procurement cost is high for the manufacturer, but he saves inventory-carrying costs. This arrangement suits assemble-to-order environments as well as retail industry.

4. *RFQ.* RFQs are the most common scenario for purchase of assets and building of assets. For procurement of low-value goods, this is not suitable as the procurement costs are very high. However, if the volume of purchase is expected to be large in future, it can be used to find suitable vendors. The initial high procurement costs can be offset in long term by using it in such a scenario.
5. *Direct consumable items.* Direct consumable items are used when the procured material is not needed to be kept in inventory and is used immediately after goods receipt (GR). In this arrangement, no tracking and management of received materials is possible. Naturally, it is not suitable for any kind of material processing where inventory management is required. This arrangement is suitable for materials such as office supplies and small value consumables.
6. *Reference purchasing organization.* When a manufacturer has many manufacturing sites, creating a central purchasing organization makes sense as this central purchasing organization can negotiate contracts with vendors for all the manufacturing plants. This arrangement makes use of a central contract that can be referenced by plants for procuring goods and taking benefit of already negotiated contracts. This arrangement is extremely suitable for global organizations.
7. *Distributed contracts.* Sometimes, there could be more than one instance of SAP instance in your organization. For instance, there is a subsidiary in your organization that has its own instance of SAP. If this subsidiary wants to use a contract made by your organization, a copy of the contract will be copied to this instance of SAP. In this case, plants within your subsidiary will use the copy of the contract available on this instance of SAP. This arrangement is known as distributed contract.

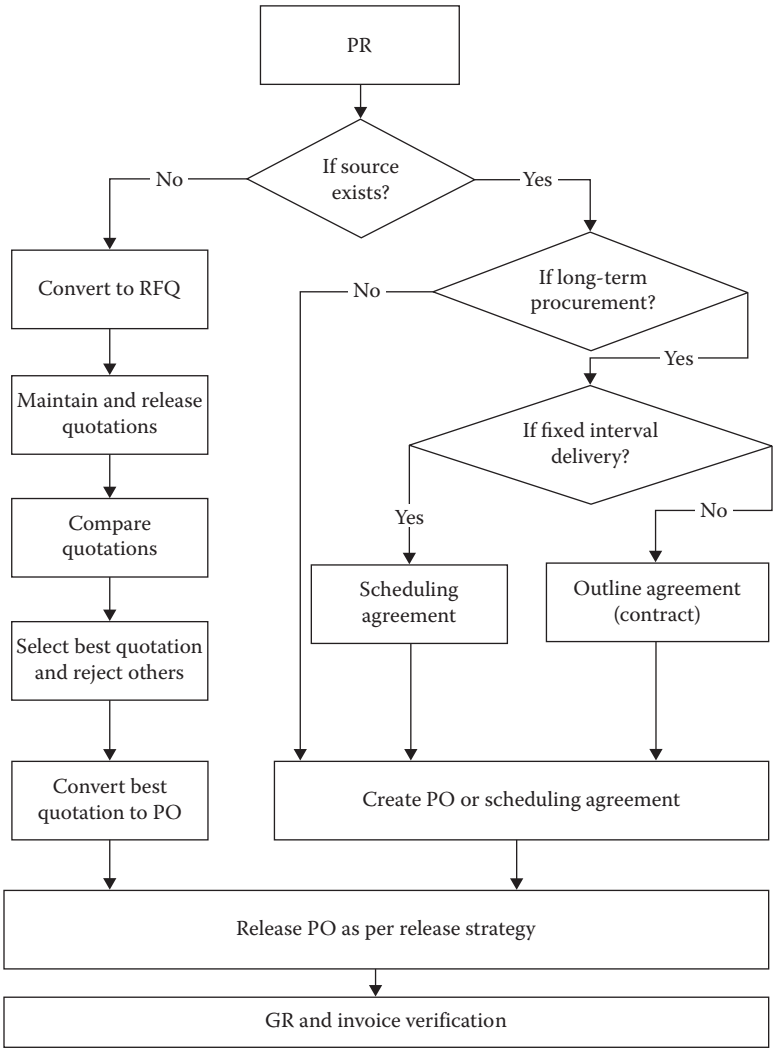
Complete Purchasing Cycle

Purchasing cycle varies from organization to organization depending on their particular needs. Then, again in any organization, purchasing differs from one material to another material depending on the material usage.

Purchasing cycle starts when a user department creates a PR. This requisition is sent to the purchase department, which then finds out if known sources of procuring the required material exist. If not, the purchase department creates an RFQ and follows the RFQ process to procure the material. If the source of the material is known, the purchase department finds out whether the long-term procurement plan for the material is required. Then it finds out whether the fixed time delivery of the material is required. If this is the case, it creates a scheduling agreement with the vendor. If fixed time deliveries are not required, the purchase department makes a contract with the vendor.

Once long-term agreement is in place, a type of PO or scheduling agreement can be used to procure the material from time to time. If each installment of procurement needs to be approved by approving authorities, a release procedure can be used.

The whole procurement cycle is depicted in the below figure.



Purchase for Stock versus Purchase for Consumption

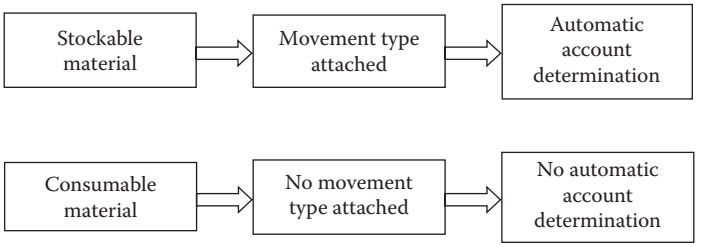
When any company buys any material, the material can be either consumed immediately or put in stock and used later. This aspect impacts the way financial accounting has to be done for the purchase. In SAP, there is a concept known as movement type, which will be discussed in Chapter 5. There is also a concept known as valuation of material. Through this movement type along with the valuation of material, both financial and material accounting posting is done for ledger accounts and storage location inventory balance, respectively. In SAP, directly consumable materials are not linked to the movement type. When purchase is done for immediate consumption, this movement type is not linked on the PO. So when the PO is to be posted, it will not be

known to which account financial posting is to be done. Of course, there will not be any posting to any storage location as the material is not a stockable material. That is why when a PO is made for any directly consumable material, appropriate ledger account must be mentioned in the PO so that financial account entry is done when payment is made for the purchase.

When a purchase is made for directly consumable material, account assignment has to be done manually on the PO by specifying the G/L account where posting has to be done at the time of invoice verification. Also account assignment category has also to be mentioned on the PO.

In case of materials that are to be stored, there is always a movement type linked. So for any kind of transaction, for example, a purchase transaction or an inventory movement transaction, both financial and material accounting is taken care of automatically. So when a PO for a stockable material is made, ledger account is not mentioned on the PO. This concept is known as automatic account determination.

When purchase is made for stockable material, no manual account assignment has to be done during inventory movement (in most cases during GR), account assignment will be determined automatically by linking to the movement type. So manual account assignment entry is not needed on the PO for the material. Of course, you will need to set up automatic account determination for the material first before you use it.



Automatic Account Determination

Automatic account determination is one of the most complex subjects in SAP. Why is it so? Is there any simpler way to connect your materials with financial accounts?

But first let us see as to why do we need automatic account determination. Every time a transaction with financial implications is run, postings must be made to financial accounts. This is an integration point between MM and accounting. It is quite possible that the user can enter the GL account each time an invoice or GR is posted. But this arrangement will be quite unsatisfactory. The reason is that the user will have to keep a table of all possible combinations of movement types and transaction types for the material type and the organizational structure, and finally find out the suitable GL account to be posted. It will be quite daunting as this table could be enormously large. Also remember that the user who will be doing these postings belongs to either a purchase department or an inventory management department. So for him/her, knowing all the ledger accounts will be a difficult task. So this arrangement is not acceptable!

Instead SAP has a better arrangement. For all invoice and GR postings, the system will determine what account to post depending on a number of factors, such as company code, valuation area (plant or company code), material type, transaction or business event, and movement type.

No doubt, with all these variables, the solution will be extremely complex. But if this complexity is kept under wraps (and exposed only to technical guys who will implement the system), it is still possible to provide the use of a simple interface to do his/her daily chores comfortably and easily. SAP has done it exactly this way.

To implement the automatic account determination, SAP MM consultant will have to sit with the SAP FI consultant and find out what all the accounts are there and how and when each of the accounts should be posted to. Both have to discuss all five of the categories above. Once all the corresponding data and functionalities of SAP FI and SAP MM are tallied and links are established between the two, SAP MM consultant can begin the SAP configuration.

Configuration Steps

To set up an automatic account determination, we need to configure SAP. Entities that need to be configured include valuation control, valuation class, and so on.

To set up a valuation grouping code, use the menu path: IMG → Materials Management → Valuation and Account Assignment → Account Determination → Account Determination Without Wizard → Define Valuation Control.

We have to specify whether the system should consider the valuation grouping code in its determination procedures. The valuation grouping code is a collection of valuation areas that will have the same account determination. Since a valuation area can be a company code or plant, we can say that a valuation grouping code represents a group of plants or company codes that have the same account determination.

If you do not use the valuation grouping code, you will have to set up an account determination for each plant or company code in SAP. If you are using the valuation grouping code, jump into "group together valuation areas" and assign your company codes or plant a code. These codes should be already in the drop-down list automatically. All you have to do is to select the code.

The next step is to manage different account determination per material type. This is where it can get complicated if you let it. The valuation class is linked to an account category reference. The account category reference is an artificial code that allows flexibility in linking material types with valuation classes.

We could relate the GL account directly to the material type. This would be easy to set up for a few material types, but would take a huge amount of time for many material types, and would be hard to understand if changes need to be made.

We could use the valuation class, assign the GL account to it, and then assign valuation classes to material types. This is better since we could, for instance, have a "Raw Materials" valuation class and a "Finished Materials" valuation class and then simply link all the various material types under each category to the valuation class. This would make updates and initial loads easier, but there is still one thing missing—a material type can be part of one valuation class and can post to only one account.

However, in the real world, a material type may post to different accounts depending on plant, movement type, or indeed any of the factors above.

So, we have an account category reference that is linked to a material type. This account category reference, as well as the GL account, is then linked to a valuation class. Thus, a material type can be linked to one or more valuation classes (and hence GL Accounts) and in turn, a valuation class can be linked to multiple material types.

This can be done by to the the menu path: IMG → Materials Management → Valuation and Account Assignment → Account Determination → Account Determination Without Wizard → Define Valuation Classes. Here you can first define your valuation classes and account category references, and then assign them to material type. Then go to your material types and assign your account category reference to the material types.

At this point, we should consider another factor: the actual business event that is occurring and its effect on account determination. This is another area where you have to try and see through the impenetrable fog of terminology.

Each time "something" occurs in the system, it produces a "key" for each of the postings that need to be made (i.e., debit and credit). This "key" is entered in our account determination procedure so that postings for credit and debit go to different accounts.

When the "something" can be called "transaction key" or "event key" and the "key" can be called "value string," "posting rule," or "posting string for values," and the column header in SAP for the "key" says "Trans," you have hit the bulls eye.

The combinations of movement type and "keys" and how they are determined are all internally programmed by SAP. So we have to care about the account modifier or "account grouping code."

The account grouping code (account modification code, modifier, or general modifier) is a three-character code. In SAP, it has no direct link with the posting strings key. Instead, an indirect connection is coming through connection of the account grouping code to the plant or company code (ultimately it comes back to the plant through connection of the plant to the company code!), connection of the plant and the valuation areas, and then connection of the valuation area to the valuation class. Valuation class in turn has a link to value string. So we have an indirect connection with this value string to the account grouping code. Once all these settings are done, we can break down the account determination by movement type.

For example, by default in SAP, if the system says for movement type 101 and posting key PRD, there is no modification. So the account determination is not different based on the movement type. However, a code AAA against the movement type 101 and posting key PRD and a code BBB against the movement type 102 and PRD can be entered.

Then in "Configure Automatic Postings," when we go into posting key PRD, we will make entries for "general modifier" AAA GL account number 100000, and BBB GL account number 100001. Here an entry for a "blank" modifier is needed, which should cover all the other movement types.

Now you need to go through and for each combination of posting key and movement type, follow the steps given above and assign GL account number.

Account assignment steps are as follows:

1. Create and assign valuation group code to company code.
2. Establish automatic posting for inventory posting (Tcode: BSX).
3. Establish automatic posting for offsetting entry of inventory posting (Tcode: GBB).
4. Establish automatic posting for cost/price differences (Tcode: PRD).

Account Assignment for Purchase Documents

Generally, payment terms for purchasing vary considerably. Once GR happens for purchasing, the customer has to pay either in full or in installments, or periodically.

In SAP, we have POs for which the customer has to pay in full once GR happens. In case of outline agreements, the payment is based on GR. In case of scheduling agreements, the payment is done periodically. Payment is also not based on GR.

In essence, in some cases, payment depends on GR and in some cases, payment does not depend on GR. This is valid for all goods that are kept in stock.

In SAP, account assignment is mandatory for all purchases for which payment is based on GR. Whenever there is a GR, through account assignment, the linked GL account is debited. In case of purchases for which payment is not based on GR, arrangement is made so that payment is made

periodically for all purchases during that period. For example, a material is received five times in a month and then payment for all these five purchases will be made at the end of that month. At the time of periodic payment, all GRs are counted for that period.

In SAP, payment for PO and outline agreements is based on GR. So in these cases, account assignment is made (automatic account determination for valuated stock materials and manually assigning account in the PO in case of consumable and nonvaluated materials). In case of scheduling agreements, payment is not based on GR and payment is done periodically. So account assignment is not necessary for scheduling agreements. Similarly, when services are procured, there is no GR for these services. So account assignment is not needed for procurement of services.

Account assignment is also needed for PRs because the user departments do not know the details about the ledger accounts for the required material. Through account assignment, material can be linked to accounts automatically by the system without the knowledge of the end users.

Account Assignment Category

Account assignment for materials and services is categorized for different needs of materials and services. Cost objects such as assets, production orders, cost centers, and sales orders need different kinds of account assignment. Depending on the requirements of GRs and invoice receipts (IRs), account assignment will differ as follows.

- In case of asset, the main asset number and subnumber are needed for account assignment.
- In case of order generated by MRP (order in SAP), the order number and G/L account number are needed for account assignment.
- In case of production order (generated by SAP PP– shop floor [SF] component), the production order number is needed for account assignment.
- In case of business process, the business process number and G/L account number are needed for account assignment.
- In case of cost center, the cost center number and G/L account number are needed for account assignment.
- In case of sales order, the sales order number and G/L account number are needed for account assignment.
- In case of project, the project number and G/L account number are needed for account assignment.

Similar Names but Different Entities

In SAP, there are some names that appear for different entities, which are as follows:

1. Procurement types: Procurement types are consignment, subcontracting, standard, external service, and stock transfer. They are used in creation of document types such as PO and scheduling agreements. They are important because they specify what kind of input materials or services may be required for the required material to be delivered.
2. Info records: Info records are of consignment, subcontracting, standard, and pipeline types.

3. Item categories: Item categories are used in conjunction with account assignment categories in PO. They determine whether a material number, account assignment, stock item, non-stock item, GR, or IR is required. They include standard, consignment, subcontracting, stock transfer, third party, and limit.

Item Category

Item category is an important concept in SAP. For any material or service, it identifies how the material or service can be procured. It determines whether a material requires a material number, an account assignment, GR, or IR, or whether a material is stock managed/consumed immediately.

Item Category Characteristics

The characteristics of item category are as follows:

- If the item category is standard, GR and IR are possible.
- If the item category is consignment, material number and GR are mandatory, account assignment and IR are not required, and material is stock managed.
- If item category is subcontracting, GR is possible and IR is mandatory.
- If the item category is of stock transfer type, goods are transferred from one plant to other. A stock transport order (STO) is created for the goods movement.
- If the item category is of third party type, goods are ordered by the customer on behalf of a third party (customer of customer). Goods recipient is the third party, and thus, on the PO, delivery address is that of the third party.

The limited item categories are for blanket POs (also known as PO with limits or limit orders). In cases where order costs are very high compared to the cost of goods or services, creating and maintaining separate PO for each item is not feasible; we can use blanket PO in which one PO line item may contain several schedule lines, each containing partial quantities of materials or service jobs. The entire line item may be subject to a maximum value limit. At the line item level, instead of a delivery date, a delivery period can be specified. At the schedule line level, specific delivery dates can be maintained. Blanket POs have the document type "FO" in SAP.

GR in case of materials or service entry in case of services is not required. The IR is PO based and not GR based. The value limit is applied at the time of IR.

Release Procedure

In any organization, users from various departments raise their requirements for materials and services. These requirements are converted into PRs. Depending on the value of the PRs, they need to be sanctioned (approved) by relevant authorities. Once a chain of authorities approves a PR, it can be sent to the purchase department. Each requisition line item on a PR may need to be sanctioned separately. Sometimes, all line items on a PR can be sanctioned together so there is no need to sanction each and every line item.

When a sanctioned PR reaches the purchase department, the PR can be converted into a PO, an RFQ, or a long-term contract, depending on the procurement type to be followed. Here again,

the PO, RFQ, or contract may need to be sanctioned (approved) by the authorities in the purchase department before any of these documents needs to be sent to the vendors. But since these documents are to be sent to external parties, no line item approval is possible. So these documents are approved in whole. For instance, suppose a PO is approved at the line item level. Now when each of the line items is approved separately, many documents with the same PO number will be sent to the vendors. This is simply not possible. That is why these documents can be approved in whole and not in part.

In SAP, there is a default configuration for the release procedure associated with approval process for PRs. If this default release procedure is not suitable for customer needs, a release procedure can be defined and implemented through customization.

Release Procedure for PR

There are two types of release procedure for PRs: the release procedure with classification and the release procedure without classification. The default preconfigured release procedure available in standard SAP is the release procedure without classification. When a release procedure class is created and attached to a release procedure, it is known as the release procedure with classification.

Before we proceed to discuss the two types of release procedures, let us discuss as to how to use a release procedure. A release procedure creates release groups, release conditions, release strategy, release code, release indicator, and release prerequisites.

If you want to use either of the two types of release procedure, you will have to touch the customization zone and need to set up all the entities listed above in the IMG activities. Only then you will be able to use the release procedure of any type.

Release Procedure without Classification for PR

Release procedure without classification works only at the item level. It can be used when the number of line items in PRs is small. At the same time, the total number of PRs should also not be large. Generally, when a user department has a large number of PRs, it is tedious to release each line item one by one. This is especially true if the value of each line item is very small, say $10 or even less. It is much better to release PRs in these cases at the header level so that the approving authorities do not bother about approving small value line items.

The steps involved in creating a release procedure without classification are as follows:

1. Create release codes.
2. Create release indicator.
3. Create release strategies and assign release indicator to release strategies.
4. Release points (prerequisites): relate release codes and release indicator to release strategies.
5. Determine the release strategy: relate release strategy to material group, plant, PR value, and account assignment category.

Release Codes

The release codes are the approval authority roles that you define. These roles are not related to the existing users in SAP application. So there is no workflow involved (no e-mail or messages are sent to the approving authorities for approving PO line items).

You need to create as many release codes as you need. It depends on the number of approval levels. The number of approval levels can be up to eight. The hierarchy of approval depends on the way it is set up in customizing.

Release Indicator

The release indicator is the place where you define a release indicator ID that is linked to a set of selections to decide whether you want the release procedure to allow changes in PR by MRP runs or the PR is converted into an RFQ or PO document after it is released. There is also a field selection option, which can be used to change fields related to release procedure on a PR.

There is also an option to reset the release strategy or allow changes in the PR, which happen after it is released. You can set a tolerance limit for the changes made in the value of a PR for which the release strategy will work even after changes in the PR, which are within the tolerance limit.

Assign Release Indicator

In this step, you create a release strategy and assign it to release indicator.

Release Points (prerequisites)

In this step you make a relationship among release codes, release indicators and release strategies.

Determine Release Strategy

In this step you test your release strategies by assigning material groups, plants, account assignment category, and purchase requisition value (in dollar terms) to a release strategy and run it to see if it is working perfectly.

Release Procedure with Classification for PRs

In release procedure with classification, you create characteristics that represent various release strategies and then embed them into classes. Then these classes are linked to release strategies.

The steps involved in creating a release procedure with classification are as follows:

1. Create characteristics.
2. Create class and assign characteristics to class.
3. Create release groups.
4. Create release codes.
5. Create release indicators.
6. Create release strategies.
7. Assign release codes to a release point (creates workflow).

Create Characteristics

You create characteristics depending on the corporate PR approval matrix. The approval matrix depends on departments that make request for purchase and the amount of purchase to be

Table 4.1 Hierarchy and Approval Limit for Approvers at Different Departments

Department	*Position*	*Amount*
Production	Line manager	Up to $15,000
Production	Director	Up to $50,000
Production	President	Above $50,000
Finance	Accountant	Up to $5,000
Finance	Controller	Up to $20,000
Finance	Director	Above $20,000

made. In one department, you can have a hierarchy of approvers and approval may be controlled by the amount of the purchase and the approval limit of each of the approver in the hierarchy (Table 4.1).

If your purchasing group is same as your department, the purchasing group will be one of the components of the characteristics. The other component of the characteristics will be the amount approval limit.

In the table CEBAN in SAP, various fields are available to store characteristics values you make for creating release procedure.

Create Class and Assign Characteristics to Class

In this step, you create a class and assign the already created characteristics to this class. This class will later be linked to release strategy.

Create Release Groups

Release groups are a collection of authority levels for a release strategy. For example, from the data given in Table 4.1, we can have a release group consisting of a line manager from production department and accountant from finance department. In this case, a release strategy can be set so that when a PR is released by the line manager, the accountant in the finance department can only make decision regarding the release of the PR.

Create Release Codes

Release codes are the authorities who determine if a PR can be released for further processing based on the value of the PR or any other criteria. You create release codes for each level of authority needed in releasing a PR.

Create Release Indicators

Release indicators are the decision indicators when a PR is processed for release. A release indicator can be a green, red, or yellow signal to denote if a PR is released, on hold, or not released.

Create Release Strategies

Release strategies are the complete release procedures which while running can determine if the release of a PR will be complete or not. A release strategy relates release indicators and release codes, and compares the value of a PR stored in a characteristic inside a class.

Assign Release Codes to a Release Point (Create Workflow)

Release codes need to be linked to SAP user ID of the authorizer who releases PR so that he/she can get notifications of the pending PR for approvals in his/her e-mail ID. Whenever a PR needs to be approved, an e-mail will be generated and sent to the authorizer.

Source Determination

When a user department or purchase group needs a material or service, it needs to know the sources from where it can be procured quickly and cost-effectively. Finding the right sources (vendors or internal procurement via stock transfer) is difficult without proper help. In SAP, there are many avenues for finding the right sources. Source determination in fact is a vital feature in SAP. Any user can easily find the right sources including vendors, existing outline agreements, or internal sourcing through stock transfer.

Outline agreements. In SAP, there are many types of outline agreements including contracts (quantity and value contracts) and scheduling agreements. All these types of outline agreements help any user to find the right source. For instance, once a user identifies a contract as the right source, he/she can assign the PR to the contract and the system will generate a release order. If the source identified is a scheduling agreement, a scheduling agreement delivery schedule will be released for the PR.

Info record. If an info record exists for a material or service, the prices and conditions in the info record are suggested on the PO when you create the PO referencing your PR.

Plant. If you have plants that produce material which can be sourced to your plant, the plant can be an option for your procurement. If the plant has been identified as the right source of supply, you can create an STO or just a transfer posting (one or two steps).

Quota arrangement. If you have more than one vendor for supplying the same material, you can create a quota arrangement among your vendors so that at any point in time, you can always have more than one source available.

Source list. It contains a list of sources of supply for any material or service over certain periods of time. You can also assign one of the sources as your preferred source by checking "Fixed" field on the list against the source.

Source Determination Sequence

When you run source determination, the different categories of sources (quota arrangement, source list, outline agreement, and info record) run one after the other. In SAP, there is a predefined sequence in which they run. One category of source has precedence over the other. If a source is found in the first category, it will not search for other sources and thus will not run other categories of sources. However, if it does not find any sources in the first category, it goes to the second category and vice versa.

The precedence sequence from higher precedence to lower precedence when source determination is run is as follows.

Quota Arrangement → Source List → Outline Agreement → Info Record.

When you run source determination to find the best source for procurement, the system first searches if any valid quota arrangement exists for the material. If a quota arrangement is found, this will be the preferred source and will be selected. If no valid quota arrangement is found, the system searches for any valid source list. If a valid source list is found, this will be the preferred source and will be selected. If no valid source list is found, the system will search for outline agreement and info records.

When the system reaches at this stage, there are many branches of logic involved. The outline agreements are mainly of two types: contracts (value contracts and quantity contracts) and scheduling agreements. The system can find more than one outline agreement. Similarly, the system can find more than one info record for a material or service (one info record for one purchasing organization, second info record for another purchasing organization, one for plant, etc.).

Because of this possibility of finding more than one source for both info records and outline agreements, they have been clubbed together. Thus, if more than one source is found, the system suggests all of them in a dialog box. User then can select a source out of all suggested sources.

If source determination is being done in the background, the system must find a source and select it and complete source determination automatically. This functionality is achieved by giving a precedence to any valid outline agreement over info records. If more than one outline agreement is found, the system checks if one of them is from a regular vendor. If so, this outline agreement is selected automatically. If this is not the case, the system does not assign any source to the PR and then it has to be done manually.

When an info record is found as a valid source, the system checks for supply region and regular vendor. If the plant on the info record belongs to the supply region of the vendor as per the vendor master record, the info record will be a valid source. If not, the info record will be discarded. Similarly, if the vendor on the info record is the preferred vendor for the material (in customizing if the preferred vendor is specified), the info record will be selected. If not, the info record will be rejected as a valid source.

Purchase Documents

Type of Purchase Documents

SAP has a number of purchase documents to cater to the needs of various kinds of procurements. These documents can be divided into internal and external documents. Internal documents are the documents that are used inside the organization. All forms of PRs are examples of internal purchase documents. These documents are never transmitted outside the organization.

External documents need to be transmitted outside the organization so that purchase can be made. These documents are transmitted to and fro between the organization and the vendors. PO, RFQ, outline agreement, and scheduling agreement are examples of external purchase documents.

Purchase Document Structure

Purchasing document contains a lot of data. These data can be segregated into three types: (1) data that belong to the entire document are called header data, (2) data that show all line items on that particular document are called overview data, and (3) data that belong to the specific line item are called item details.

These three types of data are contained inside a section of the user screen. The section containing the header data is known as "Header." The section containing the line items is called "Item Overview" and the section containing the details of a line item is called "Item details." On any screen in SAP, you can either collapse or expand any of these three sections. When you click on any line item in "Item Overview" section, the "Item details" section shows the details of that particular line item.

Header data contain information such as vendor, document number, document date, movement type, terms of the purchase, and document type. The overview data contain information such as material or service number, material or service description, material quantity, unit of measure, plant, storage location, and delivery date. The item details contain information such as material details, delivery details, and account assignment details.

Each kind of purchase document contains all three sections. One exception to this rule is PR documents, which do not contain any information in the Header.

Each line item of "Item Overview" is considered a unit of procurement. All purchasing operations including requisitioning, ordering, and follow-on processes deal on a item-specific basis. In fact you can select one line item from all line items in the "Item Overview" area for processing.

Document Types

In SAP, there is a concept called document type. Depending on the document type, purchasing documents differ from each other, and the document number ranges and fields on the document screen are determined.

Each kind of purchasing documents such as RFQ, PO, and PR has its own document types. Many document types are already defined in the standard SAP system. For example, the document type "NB" is defined for PO. The customer can also define his/her own document types.

Purchase Document Numbering

Purchase documents are numbered uniquely. The document numbers can be an alphanumeric code and can be assigned to the documents internally or externally. When an internal number is used, SAP generates numbers and assign them to the document when you save them. If the system is customized for external numbering, the user has to supply the document number.

Purchase Document Screens

When any purchase document is invoked using the transaction code (e.g., ME21N for PO) or the menu path SAP Easy Access → SAP Menu → Logistics → Materials Management → Purchasing → Purchase Order → Create → ME21N Vendor/Supplying Plant Known, the user can see the screen for that purchase document. This screen is known as the "initial screen." If no document of this type has been opened recently, the screen may contain no data. But the screen may contain data from the previously opened document. These data are copied from the last purchase document.

If the user has referenced any other purchase document to open a purchase document (e.g., opening a PO from a PR), data from the original document are copied to the new document. In SAP, this is known as adopting. In cases where release orders are created based on the outline agreement, data present on the outline agreement are copied to the release orders.

This feature of SAP is very useful to the user. It reduces data entry to be done by the user so productivity of the user gets increased. It also reduces the chances of error in data entry.

Enjoy Interface

From release 4.6, SAP introduced a user interface for purchasing documents named Enjoy. This interface is very interactive and productive. It supports fast and straightforward completion of working with purchase documents. One important feature introduced in the Enjoy interface is named document overview. The user screen is divided into two panes: The left-hand side pane contains the purchase document and all its elements, and the right-hand side pane contains an overview of purchasing documents.

Document overview feature is very useful. You can select a criterion based on which this pane will display a list of documents you need to work on. This feature makes searching for documents redundant. For example, you want to keep a list of all contract documents for production department. You select your criterion by clicking on the icon for document list selection. This will result in display of all contracts for production department. From this list, you can display or copy any document, which will be displayed on the left pane. You can work on the displayed document. Once you are finished working with this document, you can save or post it. Now you are ready to work with other document. Again you can go to the document overview pane and open another document to work on.

The Enjoy interface is integrated with the follow on functions in the SAP MM–IM and invoice verification (when the subsequent user actions lead to screens belonging to SAP MM-IM or SAP Invoice verification). The restriction in the Enjoy interface includes the inability of the customer to include their own fields in the account assignment overview for any line item. For service items, no facility of "Hold" or changing plant or vendor on POs is provided. For batch input, conventional PR and PO screens are used.

Features of Enjoy Interface

Document overview pane, Header, Item Overview, and Item Detail sections constitute the top structure of any Enjoy interface. Inside this structure, there are many features that are extremely useful for the user:

Personal settings. Any user can invoke personal settings from the "Personal Setting" button. Personal settings allow the system to keep in memory the last document that was opened along with the state in which it was closed. So unfinished documents that were closed earlier get open with partial data, which the user may have entered in his/her last session.

Sorting and filtering items. There are three icons at the bottom of the Item Overview section for sorting and filtering of line items in the item overview. You can sort PO items in ascending or descending order. For example, you might want to see the PO items with the highest price at the top of the list. You can also display the PO items according to certain criteria. You can use all the fields of the PO items as filter criteria. For example, you wish to see only items destined for your Houston plant with an order quantity of up to 30 pieces. If you want to see all the PO items again, you can remove the filter.

Simplification of data entry. Functions such as correction of faulty entry, entry of names instead of numbers, and material searches using fragments of material short text help users in entering their data on the purchase documents.

Messages. If you do not want to receive distracting messages while you are working on any document, you can turn off messaging functionality while working. You can later see the error log and rectify the mistakes made while entering the data where he entered data has fault. It also displays description of the error so that the user can rectify the error. There is a display of three lights resembling traffic signal. This traffic signal is displayed at the document level on the top of the document header as well as at each line item. This helps the user in knowing as to which line item has an error. The error is shown as a red light much like the traffic signal. When all details pertaining to a line item are OK, the green light is shown. To differentiate between the warning and the error, the amber and red lights are used, respectively. If the user encounters an error, he/she must correct the error; otherwise he/she will not be able to save or post the document. When the user gets warning, he/she can check the fields on the document; if he/she finds that the things are OK, he/she can proceed to save or post the document.

Error log. An error log keeps the user informed about the fields that have error.

Copy or adopt. You can adopt document from a document which you are referencing. For example, you can open a PR and then make a PO document by adopting the PR. All data on the PR get copied to the PO document.

Simplified navigation. Double clicking any relevant field on the purchase document will display master record. For example, if you double click on a material number, the material master will be displayed. An Environment menu has been added from where you can access information about many master records for master data such as info record, changes in item, stock, source list, material, and vendor.

Text editor. The new text editor allows automatic line breaks and search for and replacement of text functionalities.

Help. The help area is adjacent to the application and you do not need to get help by going to another help window.

Document Overview

Document overview is indeed a very neat feature inside the Enjoy interface. You can have all kinds of purchase documents in the document list inside the document overview such as PO, RFQ, PR, outline agreements, scheduling agreements, PO on hold, POs, and PRs.

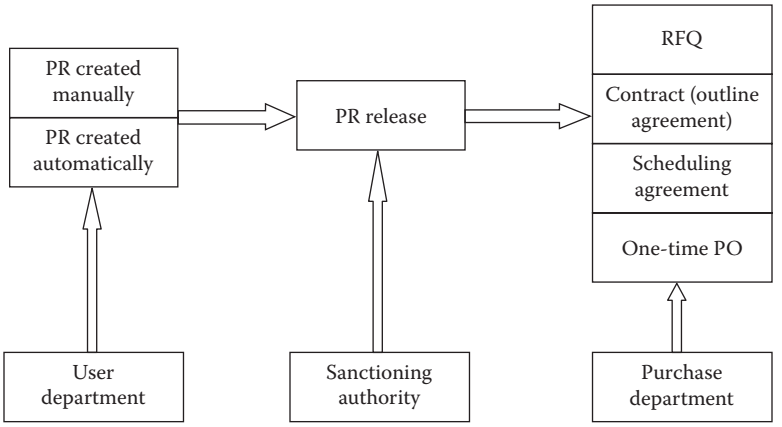
In document overview, you can define which data to be displayed on the chosen document. You can display the document number, vendor, material, and so on. You can specify the way to display data. For example, you can specify that you want only to display POs that were created yesterday. You can create, modify, or delete selection variants. For example, you can create selection variant to display POs for a certain purchase group. Later you can modify this selection variant to display POs for another purchase group. From the list of documents (based on your selection variant), you can open or adopt any document by either double clicking on it or clicking the Adopt button. You can also search for documents by clicking on the Search icon. You can also refresh the document list by clicking on the Refresh button.

Document overview is a very strong tool for working with purchase documents. To work with it, first of all you need to put it in "Document Overview On" mode by clicking on the "Document Overview On" button. This will display the document overview if it was in off mode previously.

Then you can use selection variant to select a list of files you want to work on by clicking on the selection variant icon. Once your files are in the file list, you can then decide what kind of data on these documents you want to work on.

Purchase Requisition

PR is created by the user departments to fulfill their needs for either material or service. A PR can be either created manually or generated automatically through the application system. The application can generate a PR automatically against a production order (if MRP system is installed) or sales order (if trading system is installed). A PR can be for an external purchase or for an internal procurement. Let us see the life cycle of PR.



The PR created by the user department (manually or automatically) is released by the sanctioning authority. Once the PR is released, it comes to the purchase department, which then finds out what kind of purchase strategy is needed for the particular PR. If there is no source available for the requested material or service in the PR, it opts for RFQ. If the known source is available and the requested material needs to be delivered at fixed intervals over a period of time, a scheduling agreement will be created. If delivery of materials is not required at fixed intervals (may be linked to safety stock requirement and whenever minimum safety stock level is reached, order needs to be placed), a contract (also known as outline agreement) will be created. In case the PR is raised for only one-time purchase, a PO can be created directly from the released PR.

Fund Availability

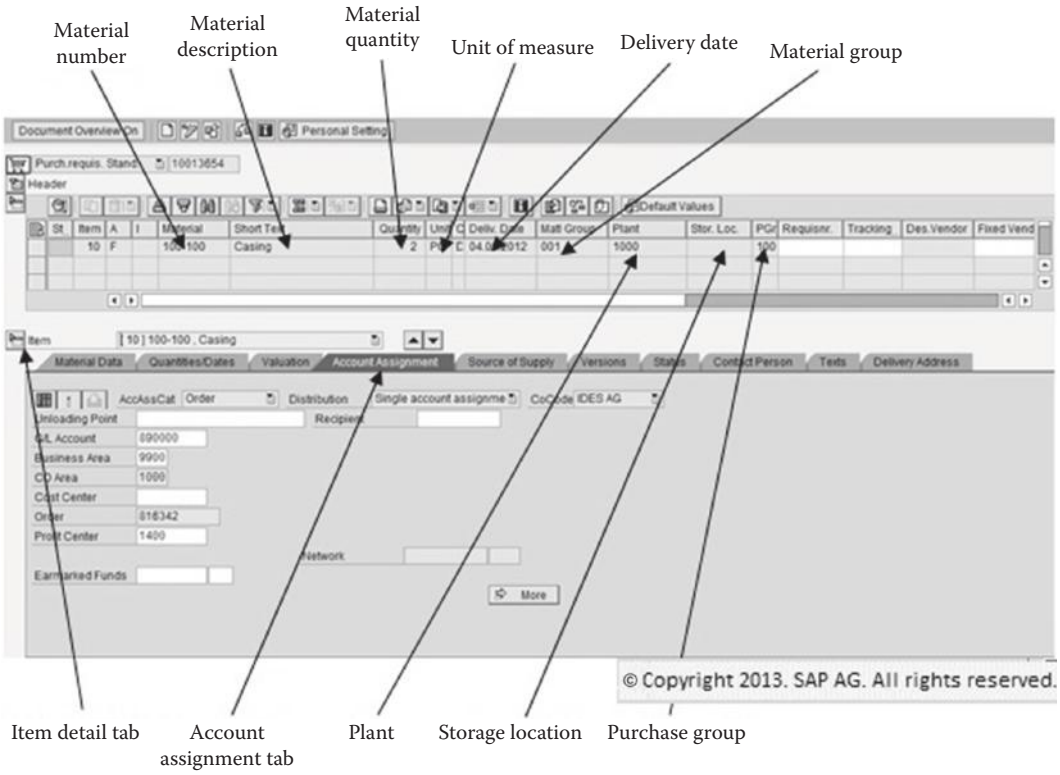
It is very important for the user to know if funds are available in the company for the material or service he/she wants to procure. Once he/she knows that funds are available, he/she can go ahead and make the PR. On the other hand, if funds are not available for a purchase, the user will not be able to post the PO for further processing.

There are options to find out the availability of funds. One option is to have funds management module of SAP implemented in your system so that you can find out the fund availability for any purchase (this option is beyond the scope of this book to discuss.). The other option is to use internal order. If this option is not available, you will have to consult your finance department. But to get help from your finance department, you will have to know some information about the cost center or asset.

Of course, if the procurement is for stockable material, fund availability check is not needed because in SAP these materials are procured using automatic account determination. The G/L account to which the budget for procurement for these materials is connected gets automatically deducted when GR is done.

Parts of a PR

Let us discuss all the elements of a PR in SAP.



Material number. If you know your material number, you can directly enter it here or you can select your material from the drop-down list. If PR is generated automatically from an MRP run, this field will be populated automatically.

Material description. Material description gets populated automatically when you select your material number.

Material quantity. You can enter your material quantity here in the base unit of measurement specified in the material master.

Unit of measure. After you enter the material number and hit "Enter" on your keyboard, the base unit of measure will be populated in the field. Or you can also change the unit of measure manually.

Some other important elements of PR document include delivery date, material group, item detail tab, account assignment tab, plant, storage location, purchasing group, purchasing organization, and so on.

Request for Quotation

When a purchase organization receives a PR and cannot identify a source for the material required as per the PR, it has no choice but to raise an RFQ from a selected list of vendors. This happens when a new material is requested on a PR or request has come for a material that has not been ordered for a long time and so the current price of the material or vendors who can supply the material is not known.

In such cases, the purchase organization can go for RFQ. The purchase organization can prepare an RFQ document and send it to prequalified vendors. The RFQ document contains a request for material or service and a clause for terms and conditions for delivery of the requested material or service. The vendors who receive the RFQ then make quotation. They use the same RFQ document sent by the customer (purchase organization) to make the quotation. They send the quotation back to the customer.

Once all quotations are received by the customers, they compare the quotations. Then they select the best quotation as per their needs (price/terms, etc.). They reject other quotations and award the contract to the best quotation. To do so, they create a PO from the quotation and send it to the selected vendor. The RFQ process can be subjected to a release procedure.

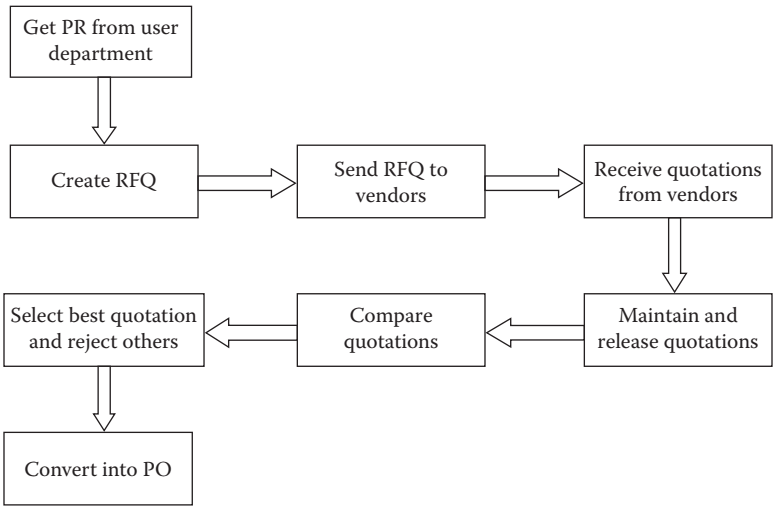
RFQ Document Structure

An RFQ document structure contains a header and the line items. The header contains general information such as information about vendor including the address, RFQ number, purchasing group, purchase organization, RFQ date, and so on.

Each line item contains information about material or service, quantity, delivery date, and so on. It may contain a complete delivery schedule made up of all schedule lines. Each schedule line contains material quantity that will be delivered on a specified delivery date.

RFQ document does not contain an account assignment because RFQ documents are used as quotations, which are not subject to invoice processing or GRs. RFQ documents in fact are converted into a PO after the bidding process, and at this stage, account assignment will be done on the PO.

Any RFQ document can be created manually or referencing to the existing RFQ, PR, or outline agreement.



Prerequisites for RFQ

Before creating RFQ document, you must have information about vendors to send RFQ to meet deadlines by which the quotation should be submitted, RFQ number assignment should be internally or externally assigned, a collective number should be assigned to all bids to track and manage easily, manufacturer part number (MPN), and so on.

RFQ Creation Manually

When you have to enter data on an RFQ document, you should be familiar with all the fields on the document and all the screens associated with the RFQ document.

When you invoke the RFQ document by using the menu path, you can see the initial screen: SAP Easy Access → SAP Menu → Logistics → Materials Management → Purchasing → RFQ/Quotation → Request for Quotation → ME41 Create.

On the initial screen the following fields are present:

RFQ type: You need to enter the document type of RFQ in this field. The default RFQ type is "AN." The customer can also define his/her own RFQ types.

RFQ number: You can enter your own RFQ number if you use an external RFQ number in organization. Otherwise internal RFQ number will be assigned automatically by the system when you save the document.

Organization data: Enter the purchase organization and purchase group as organizational data.

Default value: If you put some default values such as delivery date, the default value will be populated for each line item on the RFQ document.

When you click Enter, you will proceed to the next screen which is the Item Overview Screen. The fields on this screen and their explanation are as follows:

Item: You will see blank lines with columns on the screen for doing data entry. Each of these lines is for entering a line item for the RFQ document. On each line you have to enter the material number, quantity, delivery date, receiving plant number, storage location, and so on. If you are making RFQ for a material that has no material master, you have to leave the material number field blank. But you will have to enter the material short text, order unit, and material group as these fields are mandatory in this case.

If you want to review item details for any line item, select the line item and then go to the menu path: Item → Details. If you need to review the header information such as deadline date or enter the collective number, go to the menu path: Header → Details.

Once you are done with Item Overview screen, you can go to the menu path Header → Vendor Address or click on the Vendor Address icon. Once you are on the vendor details screen, enter the vendor number and press Enter. If vendor master already exists for this vendor, all the vendor details on this screen will be filled by the system. Otherwise you will have to enter all data manually and save the data. For each vendor to whom you are sending the RFQ, create and save vendor data.

Now the RFQ, as well as the messages for the vendors, is created. You can send the messages containing the RFQ to vendors using electronic data interchange (EDI) or any other communication mechanism configured for your system.

RFQ Creation Using Reference Document

If you have an existing RFQ, you can copy it to create a new RFQ document. If you want to create RFQ from the existing PR or outline agreement, you can adopt it to create a new RFQ document. The only catch is that the referencing document must be released if it is subject to get released.

You go to the following menu path to create RFQ with reference: SAP Easy Access → SAP Menu → Logistics → Materials Management → Purchasing → RFQ/Quotation → Request for Quotation → ME41 Create. On the initial screen, enter the deadline for submission of RFQ and also enter the purchase organization and purchase group. Now go to the menu path RFQ → Create with Reference → Choose, either with reference to PR or with reference to outline agreement. Suppose you have chosen with reference to PR, enter the PR number and the reference documents to be adopted in the dialog box. Now press Enter and the RFQ Item Overview screen will appear. The PR may contain more than one line item, and thus, on the Item Overview screen, you may have more than one line item. Select the line item you want to adopt. If you want to make some changes in the selected line items, go to the menu path: Edit → Adopt + Details. Make your changes on the Item detail screen that appears now. Now go to the menu path: Edit → Adopt. Item Overview screen will appear. If you want to add more line items on the Item Overview screen, use the menu path: RFQ → Create with Reference → With Reference to PR. Do the same steps as above. Once you have all the line items on your RFQ document, you can proceed further and go to the Vendor Address screen by clicking on the Vendor Address icon. Enter the vendor number here and press Enter. If the vendor is a one-time vendor, you have to enter the vendor address manually and save the RFQ. Repeat the procedure to create RFQ for other vendors.

Creating a Delivery Schedule for an RFQ

If the total quantity of material to be supplied for the RFQ to a prearranged schedule, you can enter the delivery dates and material quantity in several schedule lines for each line item in the RFQ.

To create a schedule, select the line item in the Item Overview and go to the menu path: Item → Delivery Schedule. On the next screen, enter the delivery date, delivery time spot, and scheduled quantity.

Comparing Quotations

Once you receive quotations from vendors, you can enter these quotations in the system manually. If you receive quotations via EDI and the system gets updated, you can use these quotations for comparison. The system will generate a price comparison list from the received quotations. Before using the price comparison list, ensure that all quotations have prices for the same line items. When you have prices from all quotations, the system will generate a mean and a total value for the line item. If any vendor is using other currency that is not used by purchasing organization, the other currency will be automatically converted into the currency used by the purchasing organization. Make sure that your currency exchange rates are up to date in the system.

To generate price comparison list, go to the menu path: Easy Access → SAP Menu → Logistics → Materials Management → Purchasing → RFQ/Quotation → Quotation → Price Comparison list. You will get selection screen for price comparison list. Enter RFQ numbers or use collective number to get price comparison list for all quotations. By selecting vendors or material, you can also do price comparison list. Now choose the comparison values to be used. One option is to use reference

quotation. Here you can choose one of the quotations as reference and all other quotation prices will be compared against the prices maintained for this quotation. The result will show the percentage deviation in prices of quotations against the reference quotation. The other way to compare quotations is to use mean/minimum value of quotation. Here, a mean or minimum price (depending on your choice) will be generated by the system by taking into account prices of all quotations and this price will be given to a fictitious quotation. You can also compare the prices on a percentage basis.

All components of price may not be included when prices are compared because of business requirements. Components that should not form the comparison list should be removed from prices. For example, freight charges can be removed from price and then prices can be compared.

Once you have done your settings for price comparison, go to the menu path Program → Compute and price comparison list will be generated. From the generated price comparison list, you can not only compare prices of material but also do vendor evaluation and various analyses.

Rejecting Quotations

Once you have evaluated all the quotations and found out the best quotation based on your analysis, it is time to reject other quotations.

You can do it using the menu path: Easy Access → SAP Menu → Logistics → Materials Management → Purchasing → RFQ/Quotation → Quotation → Maintain. Enter quotation number to reject on the screen and press Enter. The Item Overview screen will appear. Set the rejection indicator (column R in the line item) for each line item you want to reject.

Once you post the document, the system saves the reject information and generates a message. If our message transmission is configured, the message will be sent to the vendor automatically. Otherwise you can do it manually.

Selecting Quotation

When you finally select the best quotation, you invite the vendor, make a PO, and then transmit it to the vendor. The PO will contain the line items adopted from the line items of the successful quotation.

To create the PO, use the transaction code ME21N. In document overview, open the successful quotation by supplying the RFQ number and adopt this RFQ. The line items and header of the RFQ will be copied to the PO. Now you can process the PO as usual. Refer the section "Purchase Order" as to how to work on a PO.

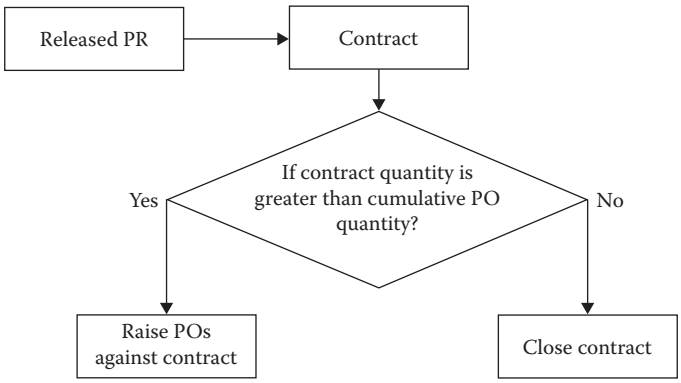
Outline Agreement

Outline agreement is a broad term used in SAP to cover most of the long-term purchasing agreements by the customers with their vendors. It includes contract-based purchasing agreements which are commonly known as blanket orders, framework orders, contract, and so on. In SAP, these kinds of agreements are termed as contract.

There are other types of long-term agreements where a fixed quantity of material is to be supplied by the vendor to the customer at fixed intervals of time. Here, the payment terms are also periodic and are not based on GR. The agreement document contains fully legal binding and no other document is needed for the supply and receipt of goods. In SAP, this kind of arrangement is known as scheduling agreement.

In SAP, contract agreement is of two types:

1. *Quantity contract*. This contract will be created when a fixed quantity of material is to be purchased over a period of time. This type of contract is usually used for purchasing materials.
2. *Value contract*. This contract will be created when a fixed value (in monetary terms) of service is to be purchased over a period of time. This type of contract is usually used for purchasing services.



Structure of Outline Agreement Document

Similar to the structure of other purchase documents, outline agreements also have a header and an item overview. The header contains information such as document number, vendor, purchase organization, header text, and header condition information.

The line items (items in SAP) are contained in the Item Overview section. Each line item contains information about the material or service, quantity, unit of measure, plant, storage location, and so on.

Header area contains the text called header text, which can be either suggested by the system or entered manually. Item overview area also contains the text known as item text.

Texts are divided into text types. The text type determines the print sequence on the document printout. Some types of text include shipping instructions, handling instructions, extra material description, and so on.

Creating Outline Agreement Documents

Outline agreements can be created manually from scratch or can be copied or adopted from other purchasing documents (existing PR or RFQ) by reference.

When you create an outline agreement document by referencing other purchasing documents, the vendor and purchasing organization must be the same as those on the referencing document.

If you want to create outline agreement document referencing an existing RFQ, use the following menu path to create an outline agreement document: Easy Access → SAP Menu → Logistics → Materials Management → Purchasing → Outline Agreement → Contract → Create. On the initial screen, use the menu path: Outline Agreement → Create with Reference → To RFQ. In the dialog box, enter the RFQ number. You also specify the fields

that you want to adopt from the RFQ document in the dialog box. After pressing Enter, the Header data screen appears. Enter validity period and target value of the contract. When you press Enter, the Item Overview screen appears. Select the line items to be copied from the RFQ document. If you want to change some fields later on these line items, use the menu path: Edit → Selections → Edit → Adopt + details. Now you can make changes on the line items. If you want to select the line items only from the RFQ document, use the menu path: Edit → Selections → Edit → Adopt. You can now enter additional line items if required and save the document.

The contract will be created in the system. The system also generates a message that can be sent automatically if the system is configured or you can send the document externally.

Changing, Cancelling, and Blocking Outline Agreement Document

Before you can think of changing, cancelling, or blocking an outline agreement document, you need to make sure that the change notice to the vendor is possible. If the vendor has already made deliveries, you cannot change goods quantity less than what was originally agreed. The quantity can be made more but not less than the agreed. If an invoice has already been received or paid, you cannot change the price of goods, which will not have any effect. For a price change, the vendor must send a new invoice.

If you want to stop all users who are involved in creating release orders or making delivery schedules against the outline agreement before you make the price or quantity change, you must block the outline agreement document. Once the changes to the outline agreement are made and affected, you can again unblock the document and the users can perform their activities again for the outline agreement.

Use the following menu path to make changes to your outline agreement document: Outline Agreement → Contract → Change. Enter the outline agreement document number and press Enter. Now you can make your changes to the document such as entering new line items, deleting line items, or making changes in field values in any line item. After making changes, you can save the document.

When you make any changes in the document, all activities are logged in the log sheet. The log sheet shows the time stamp when changes were made, who made those changes, and what were changed. To view the log sheet, go to the menu path: Item → Statistics → Changes.

You can delete any line item on an outline agreement only if no deliveries or invoices were outstanding for that line item.

Contract

Contract in SAP is a type of outline agreements. Contract is a broad agreement with vendors by a customer to purchase goods on a long-term basis. It is more like a template and cannot be used to actually purchase goods or services. So in SAP there is a mechanism in which release orders are issued against this contract to actually purchase goods or services.

These release orders are a type of PO which reference the contract and take all information from the contract. The release orders contain the information of partial material quantity instead of total material quantity mentioned in the contract. Similarly, they will not have a validity period, and instead they will have a firm delivery date. In case of services, the release order will contain a partial value instead of the total value mentioned in the contract.

The contract contains the information for validity period during which the contract is valid. The contract also has information for value limit or quantity of service or material to be supplied over the validity period.

In industry and common parlance, the terms such as blanket order, systems contract, and period contract are also used for similar concept.

Structure of Contract Document

Like other purchase documents in SAP, a contract document also consists of a header and an item overview. The item overview contains line items. Each line item contains the information about material to be procured, material group, and material quantity. In case of service contracts, instead of material, it is service and service value.

Item categories play an important role in defining each line item as to how it will be procured and whether GR, IR, and so on, may be required. Item category types include subcontracting, consignment, sales order, external service, and so on. You can learn more about item categories in the section "Item category" in this chapter. Account assignment is used to apportion the total cost of a contract among various cost objects.

When release orders are issued against the contract, an instance for each release order is maintained in the release documentation log. This log is mostly used to calculate the total amount in local currency or the total quantity received so far against the contract. This total value indicates how much of the contract has been fulfilled and how much still remains.

As explained in the "Outline Agreement" section, contracts are of two types: value contracts for services and quantity contract for materials. So each contract always contains either upper value limit or quantity limit. Once this limit is reached, the contract is closed.

Again there are two types of contracts based on whether a contract is valid for just one plant or for more than one plant. When a local purchasing organization belonging to a plant makes a contract, it is valid only for that plant and other plants cannot use it.

But when a central purchasing organization belonging to a company code makes a contract with a vendor, this contract is valid for all plants belonging to that company code. This kind of contract is known as central contract. In this case, the central purchasing organization is not attached to any plant. To take benefit of the central contract, there should be local purchasing organizations attached to each plant.

When the purchasing organization does not belong to any company code and instead it serves the entire organization represented through a client, it can make contracts with vendors and this contract is valid for all plants belonging to all company codes within that client.

Central Contracts

You can create contracts in any SAP system, which are not assigned to any plant. On the contrary, if you do not have a central purchasing organization, the local purchasing organization creates the contract for the plants that are attached to this purchasing organization. In this kind of contract, the plant that will receive the purchased goods is always mentioned.

But when you create a central contract meant for many plants, you do not mention the plant in the contract. When any purchase organization creates a release order against this contract, the plant that will receive the purchased goods is mentioned.

It is also possible that the price of the material will be different for different plants because of their proximity or distance from the vendor site as well as other conditions such as different

taxes applicable to different geographies. To achieve this functionality, you can maintain separate price conditions for different plants in the central contract. It is also possible that different plants may receive materials from different sites of the same vendor. So we need to maintain many addresses of the same vendor. To achieve this, we can maintain many partner profiles of a vendor on the main SAP instance where the central contract is located. When a release order is created, an appropriate partner profile is selected so that the right address of the vendor is selected in the release order.

Partner Roles

Partner roles are well defined in Chapter 3 in the section "Vendor Master." This section provides a brief discussion on how partner roles can be utilized with central and distributed contracts.

Partner roles (or functions) include the roles of "ordering address," "goods supplier," and "invoicing party." These roles are defined in the vendor master in the "Partner Roles" view and apply generally to purchasing organization. These roles can also be maintained at plant and vendor subrange level. Of all partner roles, a role applicable to a release order against a contract is determined at the time and the release order is created.

Item and Account Assignment Categories in Contracts

Because contracts are high-level purchase documents (more of a template), specification for material, time period, account assignment, and so on need to be kept at group level. Thus, the contract can be versatile and the same contract can be used for purchasing similar materials or services. When a release order is created against the contract, the buyer may need to give exact specification for purchase.

Item categories and account assignment categories help significantly in achieving this goal. These aspects are described as follows:

- Item category "M" is used for procuring similar materials with the same price but different material numbers, for example, procurement of different kinds of car tires with almost the same price but each having its own material master. Since no material number is entered in the contract in this case, you must enter material short text, target quantity, unit of measure, and price.
- Item category "W" is used when the material is known but the quantity or value is unknown. In contracts with this item category, you can enter material group instead of material number. This makes it possible that you can save the contract without price or value for the same.
- Item category "D" is used only for service procurement. With this item category, you need to specify the service specification, value, and unit of measure.
- Item category "K" is used for consignment material.
- Item category "L" is used for subcontracting material.
- Account assignment category "U" is used when for any line item account assignment is required but cannot be specified in the contract. The account assignment can be specified at the time of release order creation against this contract. This account assignment category is useful for procuring consumption of materials that have been negotiated with a vendor but actual purchasing agreement has not been made yet.

Distributed Contract

A central contract made by a central purchasing organization that is not attached to any company code is good for all plants belonging to all company codes within the client. What if the organization has some subsidiaries or due to some legal obligations does not want all companies to be on the same client? If these entities are on some other SAP client or SAP box altogether, how can they benefit from the central contracts? How can they use the central contract?

Well! In SAP, there is a solution for this kind of scenario. It is known as distributed contracts. Using IDOC, the central contract can be copied to these separate SAP instances. Once this central contract is available on the local SAP instance, the purchasing organizations attached to these SAP instances can use it. One catch here is that the material master, vendor master, purchasing organization, and purchasing group on the local SAP instance should be set up exactly the same as the ones located on the central SAP system. Distributed contracts are of a different document type than local contracts.

How Distributed Contracts Work

Suppose Mars Corporation has two plants, Plant A and Plant B, on the central SAP system and it has a subsidiary called Mars One that has one plant, Plant C, attached to it. Mars One has its own SAP instance, which is separated from the central SAP system. Mars Corporation has a vendor V and a central contract has been made with V to supply 20,000 units of widget W. A copy of this central contract was copied onto the local instance of SAP at Mars One from the central contract via IDOC. Exactly identical master data for material, vendor, purchasing organization, and purchasing group were also created on SAP instance at Mars One. Conditions (price conditions) are also created for each plant on the central instance of SAP as well as on other instances of SAP.

Plant A requisitioned 2000 units of W and using the central contract received these widgets through release order. Then Plant B requisitioned 5000 units of W and using the central contract received the requested widgets through a release order. Plant C also made a requisition for 5000 units of W. Purchasing organization at Mars One used their local copy of central contract to create a release order. This release order is sent to the vendor V similar to the way the release orders were sent to the vendor from purchasing organization belonging to Mars Corporation. Plant C received 5000 units of W.

Now let us see the inner workings at the two instances of SAP and how this scenario works out. First of all, the central system distributes the contract and conditions and any changes it undergoes subsequently to local instance of SAP via IDOC. Whenever a release order is placed on the vendor against the central contract, a message is sent to the main instance of SAP where the original central contract is placed. This is true for both the release orders generated on the main SAP instance at Mars Corporation and the instance of SAP at Mars One. When a release order was placed for plant A for 2000 units, the central release order documentation log on the main SAP instance got updated. Now whenever any new requisition request for widget W received by the main SAP instance, it will check the central release documentation log. So after the release order of 2000 units of W by Plant A, 18,000 units of W remain. After the release order of 5000 units of W by plant B, 13,000 units of W remain to be requisitioned. After the release order of 5000 units by plant C, 12,000 units of W remain to be requisitioned.

You can now see as to how the central release order documentation log is maintained. It will have entries for all release orders from all local SAP instances. Release order documentation log for local instances is also maintained. Each local release order documentation log will have entries for all local release orders issued on its own.

Contract Distribution with Classification

Classification system allows you to distribute the contracts from the central SAP system to local systems selectively. A contract distribution system with classification ensures that when a new local system is added, it starts getting contracts copied automatically. Also if a local system is present but the contract is never copied on it, the contract will get copied. A contract distribution system with classification also prevents from copying on already existing local system if it already has a copy of the contract.

In this arrangement, the central SAP instance first checks whether a copy of the central contract exists on a local system. Only after ensuring that a copy of the contract does not exist, it copies it there.

It is also possible to make several classes and assign individual local systems to these classes. On the central system, if you assign a new contract to a particular class, a copy of the contract will be made only on those local systems that are assigned to that particular class. No copy of the contract will be made on local systems that are not assigned to that particular class.

How to Create Contract Distribution with Classification

First you need to create a class with class type "055" (Contract Class) and assign the class to desired logical systems. Once you have assigned classes to appropriate logical SAP systems, you can determine the dependencies and filtering of messages between the central system and the local systems. Now you can maintain the distribution model in such a way that classes and dependencies between message categories are taken.

For example, suppose you have Plant A and Plant B on the central system and Plant C on a local system which is a separate SAP instance. To enable purchasing organization attached to Plant C, you have to create a Contract Class "Contract_Class_01." Later you have to assign Plant C to this class (membership to this class). In this case, your filter group will consist of Plant A, Plant B, and distribution via class Contract_Class_01. You also have to configure the message category MATMAS so that your material master data are linked to this class.

Now you can distribute your contract either to Plant A or B directly or via class Contract_Class_01 to plant C. To assign a contract to a class, use the menu path: Header → Details → Contract → Classify. Via the class, the contract will be copied to the purchasing organization on the local SAP instance.

You can assign several classes to a contract as well as several systems to a class. Thus, you can model your contract distribution system that is very flexible and convenient.

Contract Release Order

Contracts are just agreements to procure materials or services from a vendor with an upper limit on quantity or value and within a validity period. POs are created against this contract and sent to the vendor to actually purchase the material or service with specified delivery dates. These POs are referred as release orders in SAP. In industry, these documents are also known as blanket release, contract releases, call-off orders, and so on.

You need to know the contract number to create a release order. You will specify the delivery date and quantity or value on the release order. All information such as vendor, vendor address, and price is adopted from the contract.

On the release order, you can specify additional line items apart from the line item consisting of release order against the contract. This is useful when you want to return some material to the vendor that is defective.

Scheduling Agreement

Scheduling agreements are a type of long-term agreements with a vendor to procure goods at regular (fixed) intervals within a validity period. The time intervals or exact dates, as well as the partial quantity to be procured on those dates or intervals, are fixed in the agreement. Scheduling agreements are a type of outline agreements in SAP.

Contracts are like a template, and thus, release orders are to be made to actually do procurement. In contrast to the contracts, scheduling agreements are concrete purchase documents. They contain all information to actually do a purchase. In form and content, they are more like POs with scheduling lines.

Advantages of Scheduling Agreements

Scheduling agreements reduce purchase cycle time and allow a paperless procurement process. One scheduling agreement can replace a large number of discrete POs or even contract release orders.

Scheduling agreements are particularly useful for manufacturing industries where just-in-time (JIT) manufacturing principles can be easily adopted. The vendor also needs less time in preparing and making deliveries. He gets a firm delivery plan in form of schedule lines well up to long periods in future, and he knows when and how much material he needs to supply. The buyers do not have to devote much time on a scheduling agreement as the process is almost automatic. If you are using SAP PP component or SAP APO, the system can automatically create MRP or master production schedule (MPS) and can subsequently be converted into a scheduling agreement either automatically or manually.

If you want to work with JIT schedules, you must check "JIT delivery schedule" indicator in material master. This indicator must also be checked in the additional data view for scheduling line items in the scheduling agreement. If the schedule lines in the scheduling agreement need to be generated automatically, the source list for the material must be maintained and MRP indicator be checked.

Item and Account Assignment Categories in Scheduling Agreements

Since scheduling agreement documents are complete purchasing documents and can be used directly to procure from vendors, item and account assignment categories are used directly for the material and not for the material group. Item categories used are subcontracting, consignment, standard, and stock transfer.

Procurement Types in Scheduling Agreements

Procurement types used for scheduling agreements are subcontracting, consignment, standard, and stock transfer. In case of subcontracting, you can create schedule lines that can be used by the subcontractor to deliver goods, and at the same time, you can issue goods to the subcontractor so that he/she can process them and return them back to you.

A Scheduling Agreement Document Structure

Scheduling agreement documents consist of many line items. Each line item has an item category, an account assignment category (if required), a material number, a material quantity, a unit of measure, a plant, a storage location, a number of schedule lines, and so on. The total quantity of material as per the agreement is spread over on these schedule lines with firm delivery dates. Price conditions can apply both at document and at line item level.

A scheduling agreement can be worked with or without release documentation. Without release documentation, the scheduling agreement is fairly automatic. When you save the scheduling agreement, a message is created and sent to the vendor. In case of scheduling agreement with release documentation, you can change scheduling lines without ever sending any message to the vendor. A message will be sent to the vendor only when you create a release.

Use or no use of release documentation depends on document type. If release documentation is applied, any buyer can refer the documentation to see whether the vendor complied with schedule and what was his performance in delivering as per the schedule. The document type of the scheduling agreement with release documentation is "LPA" and without release documentation is "LP."

Creating Scheduling Agreements

You can create scheduling agreement either manually or using an existing PR, RFQ, contract, or any other scheduling agreement as a reference document. Apart from creating scheduling agreements with vendors, you can also create stock transport scheduling agreements with your own plants.

Before starting to create a scheduling agreement, you must have account assignment data, account assignment category, purchasing organization, and purchasing group.

To create scheduling agreement manually, use the menu path: Easy Access → SAP Menu → Logistics → Materials Management → Purchasing → Outline Agreement → Scheduling Agreement → Create. On the initial screen, enter the necessary data. In the Agreement Type field, you will have to specify whether you want a scheduling agreement with or without release documentation. In the standard system, LPA (with release documentation) and LP (without release documentation) options are available. Your company can define and use customer-specific agreement types as well.

Once you press Enter, the Header screen appears. Enter the duration of the scheduling agreement and other data such as terms of payment and header conditions.

After pressing Enter, the Item Overview screen appears. Enter all the required data such as material number, target quantity, price, plant, account assignment, and conditions (if required). If you are entering a material without a material master, enter the material short text, material group, and account assignment apart from other data.

Once your line items are created and saved, you can go to item details of any line item by using the menu path: Item → Details. Enter the conditions for line items (discounts, surcharges, etc.) by using the menu path: Item → Conditions. Also enter any additional data if required and save the document.

When you save the scheduling agreement document, a message is generated, which can be sent to the vendor.

Time Zones in Schedule Lines in Line Items in Scheduling Agreements

Each line item in the scheduling agreement contains multiple schedule lines. These lines are either entered manually or generated automatically from MRP/MPS planning components.

Schedule lines coming out of MRP/MPS planning components can be forecast or JIT schedules. Thus, fresh schedule lines are mostly planned data for future requirements. When date and time mentioned in these schedule lines fall near procurement cycle start, these schedule lines are firmed up, and subsequently the vendor sends delivery against these schedule lines. Based on these scenarios, the schedule lines can be categorized into three time zones.

1. *Firm zone (zone 1)—go ahead for production.* The schedule lines in this zone are considered to be binding on the vendor, and the customer and vendor will send delivery against the schedule lines. If the customer cancels any schedule lines in firm zone, he/she will have to pay the vendor for the costs associated with production and the procurement for making his/her material.
2. *Trade-off zone (zone 2)—go ahead for procurement of input materials.* When the schedule lines fall in this zone, the vendor can go ahead for procuring his/her input materials so that he/she can manufacture the materials required by the customer. If the customer cancels any schedule line in this zone, he/she will be liable for procurement cost incurred by the vendor.
3. *Planning zone (zone 3)—forecast.* All schedule lines that do not fall within zone 1 or 2 fall in this zone. The schedule lines in this zone are future procurement requirements and tentative. Customer can make changes in schedule lines here without incurring any liability with the vendor.

To define a zone for a scheduling line, select the line item for which you want to define delivery schedule time zones and use the menu path: Item → More Functions → Additional Data. You will see two fields on the additional data screen: Firm Zone and Trade-Off Zone. Here you need to enter the number of days in each field. The system will then find which schedule lines will fall in which zone as of today's date. For example, suppose you enter 6 in Firm Zone field and 5 in Trade-Off Zone field. If today's date is January 5, 2013, all schedule lines that are in the time zone of January 12–17 will be in Trade-Off Zone. All schedule entries beyond January 17 will be in Planning Zone. Entries from today (5th January) to January 11 will be in Firm Zone.

There is one more field on this screen "Binding on MRP." If you check this box, the MRP program cannot change the schedule lines that fall within the Firm and Trade-Off zones. Once you have defined your fields on this screen, save you data.

Scheduling Agreement Release

Scheduling agreement release (SA release) creates a release documentation that is very useful to the buyer. The release documentation helps buyers to see which schedule lines in the Firm zone have been transmitted to the vendor during the last accounting period. The buyers can then check GRs against these released schedule lines and find out if any inconsistency exists. If any inconsistency is found, it can be corrected. SA release contain finalized information from the vendor about material quantities and exact delivery dates.

There are two types of SA release: forecast delivery schedule and JIT delivery schedule. Forecast delivery schedule is a long-term plan for the vendor so that he/she can plan for procurement and production of the required material for the customer. The delivery dates here are approximate and are mentioned in terms of weeks or months. The JIT delivery schedule is the exact requirement of the customer, and thus contain exact material quantities and delivery dates. The delivery dates are mentioned in terms of exact date and optionally exact time on the given date.

SA release can be activated by choosing the document type LPA (SA schedule with release). For JIT delivery schedule, "Activate JIT schedule" should be checked in Material Master Purchasing or MRP2 view.

SA release information is available in the standard SAP system via EDI message, fax, hard copy, or mail. It is also possible for the vendor to access SA releases via the Internet. To enable the Internet messaging system, you need to implement the vendor workplace module of SAP.

Messages for SA Release

When you work with SA release, you have to send message to the vendor about JIT and forecast schedules regularly. Depending on the customization in your system, a message can be generated and sent to the vendor on each SA release item or one message for all release items.

Scheduling Agreement with Centrally Agreed Contract

The benefit of scheduling agreements is that you can plan with your vendor well in advance so that your vendor knows when and how much material or components you need in near as well as in far future. This makes sure that even when the vendor may need considerable time in procurement and production of material you need, he/she will be ready to fulfill your needs and your production plans are not halted because of want of procurement.

The limitation of scheduling agreements is that they are for local procurement. You cannot do procurement centrally for all of your plants using scheduling agreements.

However, you can mix the advantages of scheduling agreements with the advantages of central procurement using centrally agreed contracts. You can reference a centrally agreed contract to create a scheduling agreement with a vendor. The conditions of the centrally agreed contract from the reference purchasing organization are used by local purchasing organizations to create scheduling agreements for their respective plants. Thus, the prices negotiated with vendors through the central contract are carried to scheduling agreements for local procurement. Make sure that the conditions used in scheduling agreements are time dependent.

To create a scheduling agreement with reference to a contract, use the menu path: Outline Agreement → Scheduling Agreement → Create → Vendor Known. After filling information on the initial screen and clicking on the submit button, you will be taken to the scheduling agreement main screen. You can now create your scheduling agreement.

Purchase Order

PO can be adopted or created manually or with reference from PR, RFQ, contract, or scheduling agreement. A PO contains all the information that is required for completing formalities of a purchase.

In the classic example, a purchase department of the customer organization creates and sends a PO to a vendor. The vendor receives the PO and sends the requested material as per the quantity and date of delivery requested on the PO. The customer organization receives the material as well as the invoice sent by the vendor and then verifies the invoice. After invoice verification, the customer makes payment to the vendor. Once settlement completes, the PO closes.

In reality, however, there are many variations to the classic example. For instance, in some cases, a PO can act like a contract where, instead of a delivery date, a delivery period can be defined in the PO so that goods can be scheduled to be delivered over a span of time.

Organizations procure goods and services in a variety of ways. Procured materials can be consumed immediately or can be put into stock and consumed later. Sometimes customers never manage inventory themselves so they ask the vendors to manage the inventory up to the production shop floor. This is known as vendor managed inventory (VMI) or consignment. In some cases, the customer procures goods or services not for himself but for his customer. This kind of deal can be termed as a third-party transaction. In some other cases, the customer can procure goods and issue them to a subcontractor. The subcontractor processes these goods and makes some assets, and hand these assets back to the customer.

POs can help organizations to procure goods and services in a variety of ways. There are many ways any organization procures goods and services externally as well as internally. When a vendor supplies goods or services, the procurement is external. When another plant or storage location belonging to the same organization can fulfill the procurement requirement, the procurement is internal. In both cases, you can use a PO for your procurement.

A PO has a complete life cycle. First, it is created and transmitted to the vendor. The vendor supplies the required goods and services. The customer then receives the goods or service, makes an invoice for payment, and finally pays to the vendor. The PO is updated in all these transactions. Once payment is made in full, the procurement cycle completes. The PO is also closed and later archived.

Procurement Types in PO

In SAP, procurement types of consignment, subcontracting, standard, stock transfer, and external services are supported for POs.

A procurement type can be defined for each line item in a PO. Each line item can have a schedule where partial material quantities out of the total agreed quantity can be spread over many delivery dates.

- In case of standard type procurement, both GR and IR are possible.
- In case of consignment type procurement, no account assignment is required for the line items. Consignment stocks are managed separately from company stocks and are not valuated.
- In case where line items are being supplied back from the subcontractor, you need to specify the required input materials at planned delivery dates to the subcontractor so that the subcontractor can process or assemble.
- In case of external service type procurement, the customer engages a vendor to perform a service in the specified time period. In this case, instead of a material, the line item contains a specified service that needs to be performed. Instead of price, a service is provided with a value. A service specification may consist of a schedule in a hierarchical structure. This structure is referred as a service outline. The outline consists of a number of levels. Each service line or level will have a job to be performed and its schedule and the value. In cases when the complete service outline cannot be correctly broken down into service levels, a value limit for the entire service can be specified.
- If the service itself is part of a service contract and being released against the contract, a value limit for this entire service can also be specified.

The price conditions can be applied at the PO document level and even at line item level. In case of services, the condition can also be applied at the third level where service jobs or tasks are specified.

Account assignment in the PO document is done as per setting in the system. If the PO is subjected to a release (approval) procedure, the authorities must release the PO. Only after the PO is fully released, it can be transmitted to the vendor.

PO Creation Scenarios

You can create a PO in different ways. If you know the vendor for whom the PO is being created, you can use the transaction code ME21N to create a PO manually. It is also possible to create a PO referencing an existing PO, outline agreement, or PR.

If you do not know the vendor, you can search the vendor in the system. The system suggests the possible vendors, and then you can choose the vendor who is most probable for the PO.

You can manually create PO from the assigned PR to your purchasing group that has already been assigned to a vendor.

In case of VMI, you can create PO based on EDI message from the vendor about how much material has been consumed by your organization.

Prerequisites for Creating PO

Before you can create PO, you should have delivery date, account assignment category and account assignment data (in case of consumable material), material number (or material description, account assignment information, and material group), MPN material number (if MPN material number is required), plant, storage location, external number (if using external number for PO), material price, and vendor.

PO with Zero Value

If a material is to be delivered free of cost, you create a PO for this material in the same way you create for any normal delivery. The only difference is that in the Item Overview, you need to check "Free of charge" indicator. When you do this, invoice will not be generated for this material.

Important Considerations in PO Life Cycle

PO that is already created and fully paid is closed after it has completed its life cycle. But before closing the PO, you need to check and ensure that indeed all line items and the PO itself have no open-ended issues left.

Sometimes a PO needs to be changed due to wrong data entered. In some other instances, a PO needs to be blocked when some commitment has not been fulfilled. To take care of some of the real-life problems during processing of a PO, in SAP there are some unique features that help in circumventing these problems.

If any change is being done by the customer in the PO that has already been sent to the vendor, a change notice is generated in the system and a message is outputted and sent to the vendor.

If goods have been delivered in full or partially by the vendor against any line item in the PO and now if you want to make changes in the PO, you still have some options. If you want additional quantity of material than what was mentioned in the PO, you can do this change and a change notice will be generated and sent to the vendor. However, you cannot reduce the quantity of material on the PO than what was mentioned originally. If goods have already been received in full and invoice has been settled, there is no option for you to make any changes in the PO.

To make sure that all your closed POs have no open issues, you can always open the PO archive and check for errors.

Cancelling a PO

You can cancel a PO after receiving partial goods if you no longer need more material anymore. For instance, you made a PO for 20 pieces of a material and you have already received 20 pieces. Now you no longer need five more pieces of the material. In this case, you can change the PO and cancel the remaining five pieces.

One aspect that needs to be taken care of when you cancel the PO is to make sure that the material quantity on GR and IR tally with the material quantity mentioned on the PO. Suppose you actually received 21 pieces and the invoice is for 19 pieces. In this case, you can cancel only four pieces and at the same time you need to pay for two pieces.

In another scenario, suppose you have received 19 pieces and so far received invoice for 21 pieces. In this case, you can cancel five pieces and still you can receive one more piece. Here again you will need to pay for two additional pieces.

The change notice of the PO will be sent to the vendor.

Blocking a PO

You can block a PO if you do not want to receive goods for this PO. You can block individual line items of a PO where no goods or invoices have already been received.

To block a PO, go to the menu path: Purchase Order → Change. On the initial screen, enter the PO number and press Enter. The Item Overview screen will appear. Select the line item you wish to block and then choose the menu path: Edit → Block. The system will insert "S" in the column "D" of the line item. Finally, you save the PO.

Monitoring a PO

You can monitor any PO from the PO archive. The archive contains all the information for the entire life cycle of the PO. Even the documents that are related to a PO (invoices, GRs, etc.) are also linked to the PO.

Some of the views available with a PO include invoices and their clearing values, quantity in blocked stock, delivery costs, assignment of GR and IR documents in case of GR-based invoice verification, and so on.

Using analyzing capability of the PO history functionality, you can list a range of material numbers, purchasing groups, requirement tracking numbers, material groups, and so on. All POs with account assignments for any cost center or any other cost object can also be listed and

analyzed. The total values of POs for any criteria (account assignment, material, etc.) can also be displayed and analyzed.

Archiving of PO

It is important to understand the terminology associated with history, closing, or archiving of POs. All these concepts have important differences among each other.

PO history is used and available when the PO is still not closed. It can be invoked using the menu path: Item → Statistics → PO History. When all line items of a PO are closed after GR and invoice verification and the PO no longer has any open quantities, the PO is closed.

The closed POs are still available in the system with open POs and can be opened and analyzed. You need to deactivate a PO to archive it. Inactive POs are deactivated periodically by the system administrator, who deactivates a PO when all items of the PO are cancelled or the ordered quantity has been delivered and invoiced or the "Delivery Completed" indicator in the PO is set. The deactivated POs can be archived using the menu path: Purchase Order → Follow on Functions → Archive.

Once a PO is archived, it still remains in the system. It can then be archived on an optical archiving system using SAP ArchiveLink.

PO with Enjoy Interface

Using the personal settings and document overview, you can set up your working environment to work on your POs.

GR-Based Invoice Verification

Invoice verification can be done against either the PO or the GR. In GR-based invoice verification, the invoice relates to the individual deliveries and not to PO. In such cases, the reference document is not the PO but the delivery note or the GR document (material document). GR-based invoice verification is useful when a PO consists of many partial deliveries.

In GR-based invoice verification, you should check the "GR-based IV" indicator in the PO for the relevant line item. To ensure that each delivery is against the relevant PO, please check the PO number on each GR document. The PO number should be the same for all deliveries linked to the particular PO. Also check that the total delivered quantities tally with the quantity on the PO. In customizing, ensure that the "delivery completed" indicator is also configured correctly so that whenever a delivery is done against the PO, the PO itself gets updated correctly and the "delivery indicator" invokes when the total quantities delivered tally with the quantity mentioned on the PO.

Returns

Returns can happen from many sources. Origin and destination of goods in a return process differ greatly as follows:

1. Return from consumer to retail store
2. Return from retail store to external vendor

3. Return from retail store to manufacturer distribution center
4. Return from external customer
5. Return from distribution center to external vendor

When the return is from external consumer, the return process is handled in SAP SD—Billing. When the return is from retail store consumer, the return process is handled in SAP IS—Retail. When the return is to the vendor, on the PO you can check "R" indicator on the line item that represents the return. You can use the same PO where you receive goods from the vendor at the same time you enter return items to the vendor. When invoice verification is done, the return items appear as negative stock in the invoice. If shipping is also required for returns, you can specify it on the PO line item.

Invoicing Plan

Invoicing plan is a facility in SAP by which the invoicing schedule dates are planned and executed independently of GRs of services or materials. Invoicing plan lists the dates on which you can create and pay invoices. It allows you to invoice and pay to the vendor instead of waiting for the vendor to send invoices. The system automatically generates invoices based on the data available on the POs already sent to vendors.

There are two types of invoicing plan available in SAP: periodic and partial.

Periodic Invoicing Plan

Periodic invoicing plans involve invoice generation and payment to the vendor on a regular time interval, for instance, a monthly invoicing plan. Here the invoice is generated at the end of each month (due date), and all POs issued during the month are counted and a total value of all these POs is calculated. The invoice includes payment for this total value.

Generally, periodic invoicing plans are used in cases where a vendor is contracted to do a regular servicing (e.g., maintaining/cleaning office buildings) or a regular supply of material (e.g., office supplies). Rental, leasing, or subscription of services can also be covered by periodic invoicing plans.

Evaluated receipt settlement (ERS) mechanism is used for periodic invoicing plan in SAP. This process is automatic in which invoice creation and settlement of payment take place in the invoice verification process.

You can also customize to generate the due date by the system or you can enter the due date manually each time.

Partial Invoicing Plan

For large projects, the payment terms include partial payment at the start, at the completion of certain percentage of project (e.g., 60% completion), and at the end of the project. For instance, the payment term of a project is 30% payment at the start, 20% payment at 50% completion, and rest 50% payment at the completion of the project. In such cases, a partial invoicing plan is used.

In a project plan, there are tasks that contain information such as start date, end date, resources required, and cost. Based on these data, the percentage of project completion on any given date can be computed. When the project starts its execution, it is possible to track whether on any given

date how much of the project will actually get completed. So if any partial invoices are planned during execution of the project, these invoices can be raised on these due dates or the actual date of completion of those tasks. Payment for these invoices can be done after verifying the progress of the project.

It is also possible to flag the due dates as advance payments. Thus, the amounts in advance payments do not have certain percentage completion of project tasks as a requirement. When invoices are raised as advance payments, invoice verification is not needed. In fact, when the tasks get completed for which the advance payments were made, the invoice can be verified either at completion of the entire project or after completion of the task. At the same time, when invoice is raised at completion of certain percentage of the project and if this task against which advance payment is already made also falls into this invoice, this task and the payment for it are not included in the invoice.

The concept of advance payment against certain task is tightly integrated in partial invoice planning. So there will be no chances that for one task in the project, payment is made twice (advance payment plus payment at completion of task; if advance payment is already availed).

The PO line item for a project will always contain schedule lines for taking care of partial payments over time. The sum total of the values of the project is thus broken down into many partial payments.

Important Considerations for Invoicing Plans

The PO of "FO" type is used to work with invoicing plans. An extended validity period and the reasons for cancellation are defined in the header of this type of PO. The extended validity period feature is used to plan for invoicing. However, if you are using a standard type PO, you will have to maintain date determination rules as this type of PO does not have an extended validity period that can be used to define invoicing plan.

If you want automatic settlement with invoicing plans, you must check "Evaluated Receipt Settlement" indicator in vendor master record for the vendor. If you want to enter the invoicing dates manually, you need not check the indicator.

PO line items for which you are using invoicing plans must have an account assignment irrespective of whether it is for a material (with or without material master) or for a service.

The GR/IR facility must be set up so that no GR is required at the time of invoice settlement. This is done in the Item Detail of the PO line item.

Automatic Settlement of Invoicing Procedure

You can do it using the menu path: Easy Access → SAP Menu → Logistics → Materials Management → Logistics Invoice Verification → Automatic Settlement → Settle Invoicing Plan. On the selection screen, enter the company code, plant, vendor, purchasing document number (PO number), and line item. Now you can choose the mode of invoice document by selecting per vendor, per purchase document, or per PO item. Now you can start settlement accounting process either online or in the background. Before actually doing settlement, you can also do simulation to see if everything is set up correctly. To do so, check the "Test mode" indicator on the screen.

While running the settlement, an error log is created. After running the settlement, if you want to see the errors and rectify them, you have to refer to this error log.

Chapter 5

SAP MM Inventory Management

Introduction to Inventory Management

In any organization that procures, processes, or sells goods, inventory management (IM) is used in some form or other. Goods need to be received, stored, and issued for various purposes. While storing, goods need to be kept in bins in such a way that when required for goods issue (GI), it will be easy and convenient to do so. For goods that have a shelf life (expiry date), it is important to keep them in batches so that all goods with the same expiry date are kept at one place. Similarly batch-produced goods needs to be kept in batches so that goods from one batch is not get mixed with another batch. The quality of one batch differs from that of another batch.

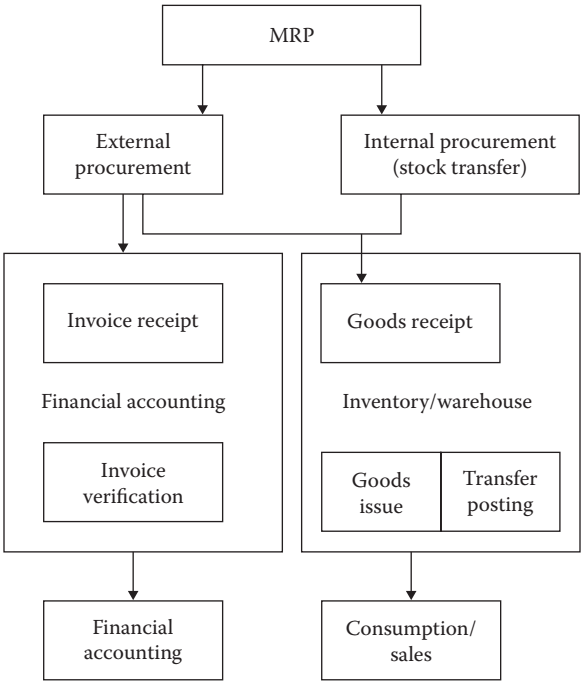
IM in SAP starts either from material requirement planning (MRP) order or from manually created purchase requisitions (PRs). These MRP orders or PRs are then converted into purchase order (PO) or production order. Goods purchased or produced internally based on these POs or production orders will then be received at storage locations. These goods are then issued for various kinds of consumption or restocking.

During purchasing, two documents are created in SAP: one document for financial transaction (invoice) and the other document for stock management (material document). Based on the invoice document, the customer (manufacturer) makes payment for the goods purchased from the supplier. Based on the material document, the stock for a particular storage location gets increased for the amount mentioned in the material document.

IM includes activities such as managing goods receipts (GRs), GI, stock control, physical IM, goods return management, batch management, expiry date management, material valuation, and stock transfer. For GI, reservation in the existing stock of any material is used so that stock control is done efficiently. It is because there are many sources where specific amounts of a particular material may be needed and allocation of these amounts of material to all required sources must be controlled. Otherwise some activities may be hampered due to unavailability of material, and at the same time, material may be kept unused at some other locations. Making a reservation in the stock of a material at a storage location for specific requirement solves these problems.

Inventory Management in a Nutshell

IM for stock items starts from MRP. For consumable items, manual PRs is the starting point.



In MRP, you can define whether the required material can be procured from external sources (to buy) or can be procured internally (produced). If the required material needs to be purchased through GR, the material defined as a stock item can be received at a storage location, whereas the material defined as a consumable item can be received at a defined receiving location.

Integration Points

The IM component of SAP materials management (MM) is integrated with other SAP modules as well as its subcomponents. The touch points are as follows:

1. *SAP MM.* IM (SAP MM–IM) is integrated directly with MRP, purchase, and invoice verification. SAP MM–IM provides information to MRP so that MRP gets information about physical stock position as well as all planned material movements (goods requirements and GRs). When a material is ordered from a vendor, IM posts the delivery as a GR with reference to the PO. The vendor invoice is processed later by invoice verification. Here, the quantities and values from the PO and the GR document are checked to ensure that they match with those in the invoice.
2. *Controlling (SAP CO).* When any inventory movement happens through movement type, the material gets connected to the cost center through automatic account assignment.

3. *Financial accounting (SAP FI).* Whenever an inventory movement happens (GR, GI, or stock transfer), a financial document is made. At the same time, through account assignment, the general ledger (G/L) account is debited for the storage location from where the goods are received and the G/L account is credited for the storage location from where goods are issued.
4. *Sales and distribution (SAP SD).* Material requirement arising due to sales is linked to IM through creation of delivery against a sales order. Delivery quantity is deducted from the total stock when the GI is posted. Availability check for material when a sales order is being booked directly gets connected to IM. It is also possible to create sales order stock.
5. *Production planning (SAP PP).* Production orders created by the SAP PP module (using MRP or any other program) can be linked to a GI when in-house production of any material fulfills that production order. Thus, IM is responsible for staging of the components required for production orders. The receipt of the finished products in the warehouse is posted in IM.
6. *Quality management (SAP QM).* The QM in procurement component is integrated with material by quality check of the material before the material can be issued or a GR to a stock can be made. When a quality check is required, a corresponding activity is initiated in the QM system.
7. *Plant maintenance (SAP PM).* It is possible to post goods movements with reference to equipment bill of materials (BOMs) that are part of SAP PM and to withdraw parts for maintenance orders. When serial number management is active, the individual serial numbers are entered in case of every goods movement. Serial numbers are managed in the PM system.
8. *Logistics information system (SAP LIS).* With the inventory controlling component, the LIS offers a tool for collecting, compressing, and evaluating IM data.
9. *Warehouse management (SAP WM).* Inventory movements originate in SAP IM, and when SAP WM is implemented, move over to SAP WM. So when a GR happens for a material that is procured from a vendor, the GR is done in SAP IM. Then this material is moved into SAP WM using transfer orders. Similarly when GI for a production order is made, it is entered into SAP IM. Through transfer order, the request for goods is entered into SAP WM.

Similarly, IM part of SAP MM module is integrated with other SAP modules such as SAP human capital management (SAP HCM) and SAP advance planning and optimizer (SAP APO).

Stock Item versus Consumable Item

In organizations, goods are either bought for stocking or consumed immediately without the need to store them. For instance, spare parts of an equipment used in manufacturing need not be stored. So when a spare part is needed for this equipment, it can be bought and used immediately. Similarly when a project is undertaken to build some assets, the material required to build the assets can be bought and used immediately. These materials need not be stored and later consumed.

But in manufacturing, a large quantity or number of items are needed either continuously or in batches. So these materials get consumed regularly and are needed almost continuously month after month and year after year. Procurement of these materials may have some lead time. Keeping a stock of these materials at a manufacturing site makes sense; otherwise manufacturing lines may get stopped for the need of these materials.

In SAP, a distinction is made between stock items and consumable items because in SAP account assignment for buying transaction of these two types of items is different, which is discussed in detail in the section "Account Document."

Account determination and debit flow for consumable items are as follows:

1. PO Creation → Debit account to be mentioned on PO
2. Goods Receipt → No account determination as no movement type is defined
3. Invoice Verification → Account determination and debit from account

Account determination and debit flow for stock items (valuated) are as follows:

1. PO Creation → Debit account not to be mentioned on PO
2. Goods Receipt → Account determination from movement type defined
3. Invoice Verification → Debit from account

Account determination and debit flow for stock items (nonvaluated) are as follows:

1. PO Creation → Debit account to be mentioned on PO
2. Goods Receipt → No account determination as the item is nonvaluated
3. Invoice Verification → Account determination and debit from account

Movement Types

In SAP, a concept called movement type deals with material movements when transactions happen. Any material can be received by the customer, when it is sent by the vendor. Similarly from a stock lying at any storage location, a material can be issued for consumption or for transfer to another plant or storage location.

There are also cases where there is no physical material movement but status of the material gets changed. This happens, for instance, when a material is allowed for unrestricted use after quality inspection. Here, the material was in a blocked status due to a pending quality inspection. After quality inspection is done and if the result shows that the material quality is within the norms, the material can be used by using the SAP function of transfer posting.

For each of these movements, some entries need to be done in either material document or financial document or both. In SAP, movement types help in doing all kinds of inventory transactions associated with movement of inventory. Movement types are denoted by a three-digit number. A large number of movement types are already defined in the standard SAP. Customers can also define and use their own movement types apart from these available movement types already defined.

Movement type 101 is used for GRs of all kinds of POs. Movement type 201 is used for GI to a cost center. Movement type 321 is used for release of stock from quality inspection stock.

Movement types play an important role in updating the quantity fields on all documents that have material quantity fields, whenever stocks of that material get updated due to any material movement.

Movement types also help in updating stock and consumption accounts. On any purchasing or IM document, movement types help in determining which fields are displayed.

When a goods movement is posted, the following will happen in the system:

- A material document is generated, which is used as proof of the movement and as a source of information for any other applications involved.
- If the movement is relevant for financial accounting, one or more accounting documents are generated.
- The stock quantities of the material are updated.
- The stock values in the material master record are updated, as are the stock and consumption accounts.
- Additional updates are carried out in participating applications if they are connected. All these updates are based on the information contained in material and accounting documents.

Material Document

In the IM system, when a goods movement is posted, a material document is generated, which serves as proof of the movement and as a source of information for any applications that follow. A material document consists of a header and at least one item. The header contains general data about the movement (e.g., its date). Each item describes one movement.

Once you have posted a goods movement, you can no longer change the document. You can only enter additional information in the document, such as the reference to the original document, or a comment on the event. If you want to reverse the movement or change the quantity of material moved, you must enter a new document. A material document is identified by a document number and the material document year.

You can change, display, or cancel a material document. Changes on a material document can only happen for entering additional information or for printing GR/GI for the material document. Sometimes, after saving a material document, you realize that you entered wrong information on the document. Once saved, the material document cannot be changed. In these cases, you will need to cancel (reverse) the material document. You can reverse a material document in two ways: you can reverse the material document referencing the original material document or you can reverse without referencing the original material document. The advantage of reversing the document with reference is that you can copy the values in the fields in the original document to the reverse document. Reversals of GIs, transfer of postings, and GRs without reference in the system are posted with the value of the original document.

Reversals of GRs with reference to a PO or production order are posted with the value specified in the PO/production order. You can also reverse a material document using reversal movement type. In this case, you do not reference an already available material document. Instead, you enter all data manually. As there is no reference to a material document, the system redetermines the value of the posting. If the material price has been changed, the new material price is used, for example, for a GI reversal.

To create a reversal material document with reference to a material document, use the menu path Material Document → Cancel from the Inventory Management menu. To create a reversal material document with reverse movement type, use the menu path Goods Movement → Goods Issue from the Inventory Management menu. On this screen, enter reversal movement type 202 and all data required for document reversal.

Accounting Document

If the movement is relevant for financial accounting (i.e., if it leads to an update of the G/L accounts), an accounting document is created parallel to the material document. In some cases, several accounting documents are created for a single material document. This might be the case, for example, if you have two material document items with different plants that belong to different company codes.

The G/L accounts involved in a goods movement are updated through an automatic account assignment.

For GRs of the POs, goods movements for stock transport orders (STOs), and consignment withdrawals, business partners may have different local currencies.

Therefore, in addition to the local currency, the accounting document must also contain another currency for processing and postings. For this purpose, accounting documents created as a result of these goods movements will automatically be managed in the local currency and the document currency. You can switch between both currencies by choosing the menu path: Settings → Currency display.

An accounting document is identified by the company code, the document number, and the fiscal year.

Quality Management in Inventory Management

In IM, QM component of SAP works at two places: during the receipt of goods after purchase (procurement) and before GI by way of material inspection.

If QM is active for procurement, when goods receiving is being performed, the system asks for a quality certificate. If certificate is issued and entered in the system, GR is possible. In the material master itself, this quality certificate is defined and the user can activate it.

If QM is active at the time of GR, an inspection lot is automatically created during GR posting. Only after the quality is verified, you can do GI. In such a situation, the material is not posted into unrestricted lot at the time of GR, but instead it is posted into a blocked stock. Only after inspection result, it can be transferred into unrestricted lot by way of a transfer posting.

Material Status

In SAP, any material can be in a state of the following:

- Unrestricted-use stock: If material is in this state, it can be used and transferred.
- Blocked stock: This is a state above unrestricted-use and inspection stock. From blocked stock, any material can be transferred to either inspection or unrestricted-use stock.
- Inspection stock: When an inspection of a material is required, it is put into inspection stock.

Goods Movements in SAP MM–IM

In SAP, materials movements are handled in the form of GRs, GIs, stock transfers, and stock transfer postings. Let us discuss all of these movements.

Goods Receipt

A GR is a goods movement with which the receipt of goods from a vendor or from production is posted. A GR leads to an increase in warehouse stock. A GR can be with reference to a reservation, an order, or some other form of GRs.

Planning for GR

Unless receipts are planned, the system cannot track materials that have been ordered. Planned receipts, therefore, are crucial to regulating the level of inventory in the warehouse and are also important for determining whether you have received materials promised by the vendors or in-house production. Without them, the system cannot establish a link between the orders and the received material.

When goods are received against POs (and the PO is created in the system), there is no need to make manual planning for materials to be received because through POs GRs are already planned ahead. All you need to do is to look at the POs in the system and find out the date and time when goods will be expected to be received. The expected receipts will be open PO quantities and the dates when goods will be expected to be received.

When goods are received against production orders (through SAP PP module), no manual planning is needed. Through production order information already in the system, GRs are already planned. All you need to do is to look at the PP reports and find out the date and time when goods will be expected to be received. The expected receipts will be open production order quantities and the dates when goods will be expected to be received. In case of reservations, the planned receipts will give you the idea about expected material receipts.

If you do not have either the purchasing component or the PP component in your system, you can plan your material receipt using reservations. Here you can plan reservations for receiving goods either from vendors or from your production department.

Planning GR with POs

Information for material receipt planning comes from POs and shipping notifications. Information on a PO that is vital for material receipt planning includes GR indicator, vendor, GR message, material, material quantity, under delivery and over delivery tolerance, planned delivery day or week, latest possible delivery date, goods destination, shipping instructions, shelf life, batch, and so on.

Information on a shipping note helps to plan material receipt with more precision compared to a PO because it contains more precise information about delivery date, means of transport, material number used by vendor, International Article Number/Universal Product Code (EAN/UPC) code, and so on.

If the GR is for consumption, the unloading point or the recipient is mentioned on the PO.

Planning GR with Production Orders

If you use the production order component to plan production orders, this component provides a source of information for planning the receipt of goods manufactured in-house.

On a production order, information that is useful for GR planning includes GR indicator, plant, material, material quantity, under delivery and over delivery tolerances, planned delivery date, destination of goods, goods posting into stock, and so on.

Planning GR with Reservations

When you create reservation for GR, you are creating it only for materials that go to the stock. You do not make reservation for nonstock (consumable) materials. So reservations for GR are meant only for stockable materials.

Since you are making reservations manually, you choose the appropriate information for the GRs yourself. No information will be available to you automatically.

Tracking GRs against POs

The PO is not only the document with which the purchasing department orders goods from the vendor but also an important planning and tracking tool for the following departments: purchasing, MRP, IM, and invoice verification.

GRs against POs must reference the purchase for which the GR is being done. It is important because

1. Goods receiving can check whether the delivery actually corresponds to the order.
2. The system can propose data from the PO during the entry of the GR (e.g., the material ordered, its quantity, etc.). This simplifies both data entry and checking (over deliveries and under deliveries).
3. The delivery is marked in the PO history. This allows the purchasing department to monitor the PO history and initiate the reminder procedures in the event of a late delivery.
4. The vendor invoice is checked against the ordered and delivered quantities.
5. The GR is valuated based on the PO price or the invoice price.

The PO number is usually listed on the delivery note, which is attached to the ordered goods and passed on by the vendor to the goods receiving point. If the PO number is not on the delivery note, you can search in the system for the PO that initiated the delivery using the material number or vendor number.

If the GR is for stock, the material can be received either into an unrestricted-use or block stock or into a quality inspection lot. The PO contains this information. If the GR is for blocked stock, the stock is not updated. You can also post goods return to the vendor using the movement type 161.

PO Creation for GR

Sometimes, a material is required urgently and there is no time for the creation of PO. In this case, the vendor may deliver the material without a PO. It is possible in SAP to do so. For this functionality, you need to customize the SAP.

Automatic PO creation for GRs is only applicable to GRs for unrestricted-use and valuated stocks. SAP plans to enable this functionality for nonvaluated materials as well in the future release.

Steps to Create GR from PO

You can create GR from PO by using the menu path: SAP Easy Access → SAP Menu → Logistics → Materials Management → Inventory Management → Goods Movements → Goods Receipt → For Purchase Order → PO Number Known (or PO Number Unknown). You can also use the transaction code MIGO.

This menu will take you to the initial screen of the goods movement. Enter header data and then select movement type (101 for GRs for PO). If you want to receive goods in blocked stock, select the movement type as PO to blocked stock. Similarly if you want to receive goods into a warehouse, choose the movement type as PO to warehouse. Now enter the PO number. If you had selected PO Number Unknown, you can specify the search criteria to find out your PO number. Then you can enter your PO number. Now you can select your PO line items. When you post the line items, GR will be generated for the selected line items.

Steps to Create GR from Shipping Notification

You can create GR from shipping notification by using the menu path: SAP Easy Access → SAP Menu → Logistics → Materials Management → Inventory Management → Goods Movements → Goods Receipt → For Purchase Order → PO Number Unknown. You can also use the transaction code MIGO.

Enter the header and movement type data on the initial screen. If the GR is not for unrestricted-use stock and instead is for blocked stock, choose the movement type as PO for blocked stock. Now enter shipping notification number in the "Delivery" field. Line item selection list is displayed. Select the line items you want to do GR for.

Results of GR

Once GR is posted, a material document and a financial accounting document are created. You can also print GR/goods slip document. If "GR message" indicator on the PO is ticked, a message will be sent to the buyer after GR.

Stocks are updated after GR is posted. It depends on which configuration is set up in the system. If the GR is for unrestricted-use stock, stock where material will be posted gets updated. If the GR is for blocked stock, no stock update takes place. Only the blocked stock shown in PO history gets updated.

If automatic creation of storage location is enabled and if the stock destination is a new storage location, the storage location will be created by the system and stock will be delivered in that storage location. If automatic storage location creation is not enabled, you will have to create storage location manually.

From a financial point of view, a financial accounting document will be created and the G/L account will be updated. In case of consumption items, corresponding cost center, order, asset, and so on will also be updated.

Finally, the PO data also get updated after GR is posted. The PO history will be updated. If "Delivery completed" indicator is set in material document, the open PO quantity for the line item in the PO will be set to zero and the line item is considered closed.

Under/Over Delivery and Final Delivery

Open PO quantity is the quantity of material that is still not delivered and needs to be delivered. The quantity of the material mentioned in the PO (ordered quantity) becomes equal to the open PO quantity when the GR happens. The delivered quantity is then compared with this open PO quantity. If any differences occur, it can be compared with the allowed under or over delivery tolerances. If the delivered quantity is within this tolerance, the system accepts the GR. Otherwise it needs to be taken care of manually. In case when goods delivery happens in several lots for a PO,

this open PO quantity keeps getting updated whenever goods are received. When the delivered quantity becomes equal to the ordered quantity, the open PO quantity equals zero.

The under delivery tolerance works as follows: When a GR is posted, the delivered quantity is compared with the open PO quantity. For instance, if the ordered quantity is 10 pieces, the under tolerance limit is 5 pieces, and the delivered quantity is 6 pieces, the system accepts it as a partial delivery. Now the system knows that more deliveries are expected as the open PO quantity is now four pieces. Once 10 pieces are delivered, the system will show the open PO quantity as zero, and thus will close the PO. Here the full delivery has happened.

However if in the initial delivery, the delivered quantity is four then the system will reject this GR as the under delivery tolerance limit is violated. The user will thus get a warning message. You can customize the system so that if you receive delivery that is within under tolerance limit; the system will treat it as a full delivery and so will close the PO.

To deal with over deliveries, SAP has two options. Any PO can have an unlimited delivery indicator. You can also set over delivery tolerance limit. You can customize your system to take care of many scenarios dealing with delivery tolerances. In many instances, even if it is under delivery but within tolerance limit, you can allow the "Delivery completed" indicator to set and thus close the PO. In cases when you have returns to vendor, the "Delivery completed" indicator is reset.

Many GRs per PO Line Item

When goods are received against a PO, the system converts every PO line item into a GR. So if we have five line items on the PO, the system generates five GRs. This is the standard functionality in SAP. But in many cases, we need to have more than one GR per line item of PO. When we need to send a partial quantity for quality inspection, the delivered quantity consists of many batches or we need to receive material in many storage locations; in these cases, we need to have more than one GR per line item of PO.

There are two strategies that can be used in such cases. We can distribute quantities among storage locations or batches.

GR for Nonvaluated Materials

If the stock of a material is managed on a quantity basis and not on a value basis and when you receive stock through a GR for a PO, you will have to make account assignment in the PO because when goods movement (GR) is done, there will not be any value string attached with the movement. So the system will not know which G/L account needs to be updated. That is why account must be assigned on the PO.

Order Unit of Measure and Unit Price

Sometimes the order unit of measure and unit of price are different on a PO line item. For instance, there is 50 kg of steel on the PO line item with price quoted as US$10 per pound. In such cases, you must enter the GI in both units. In the system, the GR is valuated based on the GR quantity in the order price unit and the invoice verification is based on the GR quantity in the order price unit. Entering the GR in the order price quantity allows the system to immediately detect and report variances in the order price quantity during the GR. That is why in GR you should enter both units.

Two types of variance tolerance limits can be set up for order price unit in customizing: One for error messages and another for warning messages. If the variance is greater than the tolerance limit for warning message but lesser than that for error message, the user can still post the GR. If the tolerance is greater than the one set for error message, the user cannot post the GR and has to take some manual measures to correct the PO before posting the GR.

Entering a Freight Supplier

If the freight supplier is a third-party logistics provider, it is possible to make entries during the GR. The prerequisite for entering a freight supplier is that the freight supplier is defined in the condition type on the PO. The delivery cost should also include the freight cost in the conditions defined on the PO.

To enter a freight supplier on the detail screen for the PO line item, use the menu path: Go To → Freight Supplier.

Shelf Life and Batch Management in GR

At the time of the GR, you can check whether the goods you are receiving still have shelf life remaining. This functionality is good for perishable goods such as food. On the material master record, there are two parameters related to shelf life: One is related to the remaining shelf life in days and another is related to the total shelf life in days. During GR, either enter the remaining shelf life or enter the date of production. The system will calculate the remaining shelf life and expiration date.

Sometimes batch management may not be active for a material with shelf life. In these cases, GR with shelf life check is also possible. It is done in the same way as for materials with batch management.

You can generate a list of batches of materials with shelf life expiration date (SLED) using the menu path: SAP Easy Access → SAP Menu → Logistics → Materials Management → Inventory Management → Environment → Stock → Expiration Date List.

Releasing Material from Blocked Stock

When you receive goods into blocked stock, you must release the material to unrestricted-use stock so that it can be consumed. You can release these materials either using the PO from where you received the material or from the material document which was the result of the GR. If you are using the material document, you can release only the material that is shown on the material document. You cannot release the material that is on any other material document.

To release material from material document, use the menu path: SAP Easy Access → SAP Menu → Logistics → Materials Management → Inventory Management → Material Document → Release Blocked Stock. On the initial screen, enter the material number and document year and press Enter. The item selection list is displayed. This list contains all the items that were posted into the blocked stock. Select the items you want to post and then post the document.

To release material from PO, open the PO using the transaction code MIGO and change the movement type to 105. When you press Enter, the item selection list is displayed. From the item selection list, select the items you want to release and then post the document. When you post the document, a material document and a financial document will be created. The G/L account and the stock will be updated. The PO will also be updated.

GR for Production Orders

Goods are received against production orders in much the same way as goods are received against POs. To make a GR from a production order, use the menu path: SAP Easy Access → SAP Menu → Logistics → Materials Management → Inventory Management → Goods Movement → Goods Receipt → For Order. Enter header data, movement type, and order number, and then choose Continue. You will get a list of production orders. Choose the production order you want to receive goods against and then adopt the document. Before adopting the document, you will also have to specify the storage location and storage type. Now you can post the document. A material document and a financial account document will be generated.

GR for By-Products

During production process, a product may be created automatically along with the main product. This material is known as by-product. During GR of the main product produced, you can also receive the by-product. GR for by-product can be either planned or unplanned depending on whether the by-product and its quantity are mentioned on the production order. If the by-product is unplanned, you have to manually enter the GR for the by-product.

If the by-product is planned, you can enter the GR for the same at the same time when the GR for the main product is done. A by-product can be planned in the order as a component with negative quantity. For this component, a reservation item is created automatically with the movement type 531 (receipt of by-product). You can also do GR for the by-product manually. When you do the GR manually for the by-product, you can reference either the production order or the reservation item.

To receive the unplanned by-product, use the menu path: SAP Easy Access → SAP Menu → Logistics → Materials Management → Inventory Management → Goods Movement → Goods Receipt → Other. On the initial screen, enter the header data and choose Movement Type → Receipt → By-product → To Unrestricted (531) or From Network to Unrestricted (581). On the screen, enter the plant and storage location data and choose Continue. A collective screen will appear. On this screen, enter the line items to be posted and the production order number or the network order number and post them.

To receive the planned by-product, use the menu path: SAP Easy Access → SAP Menu → Logistics → Materials Management → Inventory Management → Goods Movement → Goods Issue. On the initial screen, enter the header data and then choose Goods Issue → Create with Reference → To Order or To Reservation. In the dialogue box, enter either the order number or the reservation number (depending on your menu selection). In the by-product field, enter the value 1 so that the system also takes the by-product reservation line item into account.

Other GRs

Apart from GRs for production orders and POs, you can also do GRs for free goods, initial entry of stock balances, external GRs without PO, internal GRs without a production order, GRs for by-products, returns from customers, and so on.

When a new SAP instance is implemented, you can transfer the existing book inventory balances from the existing SAP instance using GR. You can do initial entry of stock balances for unrestricted-use stock, stock in quality inspection, and blocked stock. Use movement type 561 for unrestricted-use stock, movement type 563 for stock in quality inspection, and 565 for blocked stock.

If your company does not use the MM purchasing component, you enter an external receipt as a miscellaneous GR. Use the menu path SAP Easy Access → SAP Menu → Logistics → Materials Management → Inventory Management → Goods Movement → Goods Receipt → Other for entering the GRs without POs. Use movement type receipt without PO.

If your company does not use the PP Production orders component, you enter a receipt from production as a miscellaneous (other) GR. Use the menu path SAP Easy Access → SAP Menu → Logistics → Materials Management → Inventory Management → Goods Movement → Goods Receipt → Other for entering the GRs without production orders. Use movement type receipt without production order.

GRs for by-products can also be entered as miscellaneous GRs. If you receive a delivery from a vendor free of charge for which no PO was placed, you must enter the receipt of the goods as a miscellaneous (other) GR. Returns from customers can be handled through returns delivery. Even without a returns delivery, you can post returns from a customer into blocked stock returns.

When invoice verification is PO based, each PO has one invoice receipt regardless of the number of GRs generated for each PO. There can be more than one GR for one PO when goods for the PO are not received in one lot, and in fact there are instances of many GRs for that PO.

Material document is generated for each GR. So for one PO, there could be many material documents. When invoice verification is GR based, every GR is settled separately. In this case, there could be more than one invoice receipt for one PO.

Goods Issue

A GI is a goods movement with which a material withdrawal or material issue, a material consumption, or a shipment of goods to a customer is posted. It leads to a reduction in warehouse stock. It can be used for withdrawal of material for production, scrapping, sampling, return delivery to vendor, internal staging of material, delivery to vendors without shipping (SAP SD component), and so on.

Let us discuss below the various types of GI handled in SAP.

GI General

When GI is posted for finished goods from warehouse (and not from IM), SAP SD component handles the transactions, which include withdrawal, picking, packing, and shipping of goods. Goods issued from the warehouse are for customer. However, if your company is not using SAP SD component, there are two ways in which SAP MM–IM can handle these transactions using "Consumption to sales" and "Consumption to sales order" transactions.

GI transaction is mostly used with withdrawing material for production orders. The goods are issued referencing the production order for which the goods will be issued. Materials can also be used for internal staging purposes in cases related to issue to cost center, maintenance order, subcontracting, and so on.

Account Assignment

When you issue goods, it is most important for you to know as to which financial account will be credited. For this purpose, whenever you issue goods, you must specify the account and so account assignment is most important for each and every GI movement.

Table 5.1 Movement Types for GI

Movement Type	*Consumption For*	*Data to Be Entered*
201	Cost center	Cost center
221	Project	WBS elements/network
231	Sales order	Sales order number, sales order item
241	Asset	Asset number, asset subnumber
251	Sales	Cost center
261	Order (production order)	Order number
281	Network	Network/operation
291	Other account assignment	Account assignment number

In the system, G/L accounts are maintained for each credit or debit transaction. Linking a transaction to the correct G/L account is a complex phenomenon because there are many factors that come into play during transaction processing. The material type, the movement type, and the material valuation together with the organizational structure (chart of accounts) determine the link between the G/L account and the transaction. Fortunately in SAP, the complexity of assigning G/L account to a transaction is taken care of when the system is configured. The end user only needs to specify the movement type and the relevant cost center or the relevant asset number, and the system will link the transaction with the appropriate G/L account.

Table 5.1 lists all the movement types and the data to be entered for each GI transaction.

GI without Reference Document

When you enter GR, you reference the production order or reservation. When you issue the components for a BOM, you need to know the details about that particular BOM. When goods are being issued, it is important to reference the document based on which GI is to be done. This will ensure that a check will be made for each GI against the required material for the production order or the reservation or the BOM. If you do not know the document number of your reference document, you can search the system using the material number or account assignment number.

To issue goods without reference document, use the menu path: SAP Easy Access → SAP Menu → Logistics → Materials Management → Inventory Management → Goods Movement → Goods Issue. On the initial screen, enter the header data and select the movement type as Consumption and the options available for the movement type. Enter the plant and storage location, and press Enter. The collective screen will appear. Enter the account assignment and select the items. Now post the document.

GI for Scrapping

A material can be scrapped due to poor quality, wearing, or out of date. In SAP, it is possible to scrap a material from the unrestricted-use stock, quality inspection stock, or blocked stock. Once you scrap a material, the system will be updated for stock and the value of scrapped material will be posted from stock account to scrap account and assignment to cost center.

To scrap a material, use the menu path SAP Easy Access → SAP Menu → Logistics → Materials Management → Inventory Management → Goods Movement → Goods Issue and post the scrapping using an appropriate movement type.

Taking Sample

In SAP, if you want to take a sample of a material, you need to use GI transaction. If after doing quality inspection, the material is still usable, you can post it back using the GR from quality inspection. Otherwise the material quantity used for sampling is lost after GI and you do not need to take it back. At the most, if required, you can post it to a scrap account. You can take a sample from the unrestricted-use stock, quality inspection stock, or blocked stock.

To take a sample of a material, use the menu path: SAP Easy Access → SAP Menu → Logistics → Materials Management → Inventory Management → Goods Movement → Goods Issue. Enter the header data and select the movement type issue as "To Sampling" and the stock type. Enter the plant, storage location, cost center, and items, and post the document.

GI with Reference to Reservation

GI can be done either directly from available stock or with reference to a reservation. For good practice, it is always preferable to do GI with reference to a reservation. Use the menu path SAP Easy Access → SAP Menu → Logistics → Materials Management → Inventory Management → Goods Movement → Goods Issue and enter the header data. You do not need to enter the plant or movement type as these are copied from the reservation.

If you issue the total reserved quantity for a reservation item, the final issue indicator is set automatically in the reservation item when you post the GI. If you issue only a partial quantity for a reservation item but want the item to be considered completed, you have to set the final issue indicator manually either in the reservation or at the time of the GI. You can set or reset this indicator on the collective entry screen or the detail screen.

GI for Production Order

When you issue goods for production order, there could be three possibilities: unplanned GI, planned GI, or backflushing. Planned GI always happens against a production order or a reservation. Sometimes, a component is needed for production due to damage or over consumption of the already planned component. This component is now to be issued unplanned. In case of multilevel BOM, some components are already planned and delivered along with their parent components. So separate GI planning for these components is not needed. This is known as backflushing.

GI against BOM

To withdraw all components of a BOM (production BOM or equipment BOM), you can reference the relevant BOM. In this case, all of the components in the BOM are automatically copied for GI.

To issue goods against a BOM, use the menu path SAP Easy Access → SAP Menu → Logistics → Materials Management → Inventory Management → Goods Movement → Goods Issue and enter the header data. Then select the movement type as consumption plus the desired movement type. Enter the plant and storage location. Now select the menu path GI → Create

W. Reference → To BOM. A dialog box will appear. Enter the BOM, material or equipment, and material quantity. Adopt the document and post it.

Results of GI

After a GI, the following take place in the system:

1. A material document is created.
2. An accounting document is created.
3. A GI slip is created (optional).
4. Stock is updated.
5. Update of G/L account takes place.
6. Consumption update takes place.
7. Reservation information is updated.
8. Production order is updated.
9. Other connected applications are updated.
10. Transfer requirement is created if WM system is connected.
11. Inspection lot is created when QM module is connected.

Reversing a Planned GI

It is possible that a GI needs to be reversed due to reasons such as unforeseen production situation. In such cases, GI can be reversed with reference to either the material document or the reservation. In both cases, the system references the reservation during reversal; the "old" reservation is reactivated and the open required quantity in the reservation is increased by the quantity reversed.

If during the reversal you reference the material document with which the GI was posted, the system proposes for reversal only the quantity withdrawn with this material document. If during the reversal you reference the reservation, the system proposes for reversal of the total quantity withdrawn to date, even if several withdrawals (material documents) were posted or reservation made.

After you post the reversal, a material document and a financial accounting document are created. The total valuated stock, the unrestricted-use stock, and the reserved stock are increased. The consumption of the material is decreased by the amount reversed.

Return Delivery to Vendor

Sometimes, due to quality issues, a material needs to be returned back to the vendor. The return can be done using SAP Shipping (SAP SD) for picking, packing, and shipping. The return delivery can be made from unrestricted-use stock, quality inspection stock, blocked stock, and GR blocked stock. When you return the delivery, you should reference the PO or the material document.

Before you enter a return delivery with reference to a PO, you have to determine whether the goods were posted to stock or consumption or whether they were posted into GR blocked stock. If you posted the goods to a particular stock type at GR (e.g., quality inspection stock), you have to return them from the same stock type.

After you return a delivery to a vendor, the vendor may send the substitute delivery. If you receive a substitute delivery after you have returned the goods to a vendor, it is advisable to reference the associated return delivery by using a reverse posting when you post the new GR. This

enables the system to suggest and update the data for this particular business process. This is particularly important in GR-based invoice verification so that the link among the GR, the return delivery, and the invoice remains intact.

Return Delivery in Goods Delivery-Based Invoice

When GR-based invoice verification has been defined, every GR is settled separately. This means that an invoice always refers to a material document. When you want to return material, you therefore have to reference the material document that you used to post the GR.

Stock Transfer

A stock transfer is the removal of material from one storage location and its transfer to another storage location. Stock transfers can occur either within the same plant or between two plants. Stock transfer can happen from company code to company code, plant to plant, or storage location to storage location. When we speak about the transfer from company code to company code, the transfer actually happens between a plant of one company code to another plant of any other company code.

A stock transfer from plant to plant leads to a change in stock quantity in both plants; if both plants are assigned to different valuation areas, an accounting document is also created. This type of stock transfer can only be carried out from the unrestricted-use stock of the issuing plant to the unrestricted-use stock of the receiving plant. Stock transfers from plant to plant are relevant for materials planning, since materials planning operates at plant level.

A stock transfer from storage location to storage location in the same plant simply causes an update of the stock quantities in both storage locations. The stock value remains unchanged, and the event is not relevant for accounting. A stock transfer from storage location to storage location is possible for all stock types.

You can transfer stock in SAP in a two-step or one-step procedure. You can also use STO for this purpose. To carry out a stock transfer from plant to plant for a material that is subject to split valuation at the receiving point, you have to use the one-step procedure or an STO.

During a one-step stock transfer, the system creates two material document items for every item you enter: an item for removal from the storage at the issuing point and an item for placement into the storage at the receiving point.

During a two-step stock transfer, two material documents are created. Upon the removal from the storage at the issuing point, the system creates a material document. For every item you enter, two material document items are created: an item for removal from the storage at the issuing point and an item for placement into the stock in transfer at the receiving point. Upon placement into the storage at the receiving point, the system again creates a material document. For every item you enter, only one material document item is created because the quantity is only transferred from the stock in transfer to the unrestricted-use stock at the receiving point.

Planning Stock Transfer Using Reservation

You can plan stock transfers using stock transfer reservations. Stock transfer reservations are reservations that plan the GI from the issuing point. They are intended for one-step stock transfers only and cannot be used for transfer postings because transfer postings are not planned in advance. Stock transfer reservations can also be created automatically by MRP. The reserved quantity is

managed in the unrestricted-use stock and the reserved stock of the issuing point. In MRP, the reserved quantity reduces the available stock in the issuing plant.

Storage Location-to-Storage Location Stock Transfer: One-Step Procedure

The one-step stock transfer procedure without reservation reduces the corresponding stock type at the issuing storage location and increases the same stock type at the receiving storage location. At plant level, the stock level does not change, except that the stock is distributed differently among the storage locations in the plant. The system does not create an accounting document for the material document.

The one-step stock transfer procedure with reservation reduces the unrestricted-use stock and the reserved stock at the issuing storage location and increases the same stock at the receiving storage location. At plant level, the stock level does not change, except that the stock is distributed differently among the storage locations in the plant. The system does not create an accounting document for the material document. The quantity becomes available again for materials planning.

Storage Location-to-Storage Location Stock Transfer: Two-Step Procedure

In the first step, posting a stock transfer in two steps involves the removal from storage at the issuing storage location. In the second step, you enter the placement into storage at the receiving storage location. In the two-step procedure, you can only transfer material from the unrestricted-use stock at the issuing storage location to the unrestricted-use stock at the receiving storage location.

Reservations are not possible with this procedure. After posting the removal from storage, the quantity is deducted from the issuing storage location. The quantity is managed in the stock at the receiving storage location (not in the unrestricted-use stock, but in the stock in transfer). In addition, at plant level, the quantity is not available for unrestricted use.

When the goods are actually received at the receiving storage location, the quantity is taken over from the stock in transfer to the unrestricted-use stock.

Situation at Issuing Storage Location

Posting the removal from storage at the issuing plant changes the stock situation both at plant and at storage location level. At plant level, the unrestricted-use stock is reduced by the posted quantity because the goods are in transit at the moment and are therefore managed as stock in transfer. The quantity has been deducted from the unrestricted-use stock at the issuing storage location. The quantity is already managed in stock, but is not yet available for unrestricted use at the receiving storage location. It is contained in the stock in transfer at storage location level. Since the stock transfer occurs within the plant, no accounting document is created in addition to the material document.

Situation at Receiving Storage Location

You have the option of entering the placement into storage at the receiving storage location with or without reference to stock removal document. Posting the placement into storage changes the stock situation both at plant and at receiving storage location level. At plant level, the transferred quantity is now part of the unrestricted-use stock. At receiving storage location level, the quantity from the stock in transfer has been posted to the unrestricted-use stock. Since the stock transfer occurs within the plant, no accounting document is created in addition to the material document.

Plant-to-Plant Stock Transfer: One-Step Procedure

A stock transfer from plant to plant generally takes place within a company code. It can, however, also take place between the two company codes, if the plants are assigned to different valuation areas, which belong to different company codes.

Unlike a stock transfer from storage location to storage location, a stock transfer from plant to plant affects both accounting and materials planning. Accounting is affected if both plants are assigned to different valuation areas. This means that a stock transfer leads not only to a quantity update but also to a value update (stock value, G/L accounts). Thus, parallel to the material document for stock transfer, an accounting document is created. Materials planning is affected because a change of plant stock is taken into account by MRP.

You can enter this stock transfer using either the one-step or the two-step procedure. But only the one-step procedure can be planned with a reservation. If the material is split valuated, a two-step procedure is not possible. Either one-step procedure or an STO may be used in this case.

Plant-to-Plant Stock Transfer: Two-Step Procedure

You can post a stock transfer from plant to plant using the two-step procedure. In the first step, you post the removal from storage at the issuing plant and then the quantity being transferred is managed in the stock in transfer at the receiving plant. However, It is not yet part of the unrestricted-use stock.

In the second step, you post the placement into storage at the receiving plant. Only then the event is completed and the transferred quantity is part of the unrestricted-use stock.

Company Code-to-Company Code Stock Transfer

When you transfer goods from one plant belonging to one company code to another plant belonging to some other company code but inside the same client, you are doing a stock transfer almost in the same way as you do from one plant to another plant in the same company code. During this stock transfer, two documents for each plant are generated: one document for materials management and another for accounting management in the issuing plant. Again material and accounting documents are generated at the receiving plant.

Similar to the plant-to-plant stock transfer, one-step or two-step procedure can be applied in the company code-to-company code stock transfer. STO can also be used for these kinds of transfers.

Withdrawal Rules

When you want to withdraw material for consumption (using already discussed stock transfer strategies such as storage location to storage location, plant to plant, and company code to company code), you can do it from an unrestricted-use stock. You cannot withdraw from a blocked stock or a quality inspection stock. From the quality inspection or blocked stock, you only withdraw for either sampling or scrapping.

However, there are exceptions when it comes to transfer postings (material to material or stock to stock). For example, a material is in a blocked stock pending a quality inspection. After quality inspection, it needs to be made available for consumption. In this case, the material must be transferred from the blocked stock to the unrestricted-use stock.

Transfer Posting

A transfer posting is a general term for stock transfers and changes in stock type or stock category of a material. It is irrelevant whether the posting occurs in conjunction with a physical movement. Examples of transfer postings are as follows:

- Transfer postings from material to material
- Release from quality inspection stock
- Transfer of consignment material into company's own stock

Transfer Posting: Material to Material

Sometimes a material may change over time and thus need to be classified as a different material. To take care of such scenarios, in SAP there is a provision to transfer the original material to a new material. Such a transfer posting is always carried out in one step and without advance planning. The posting can only be carried out from the unrestricted-use stock of the issuing material to the unrestricted-use stock of the receiving material. The unit of measure should be the same for both materials.

Transfer Posting: Stock to Stock

A material may be transferred from one stock to another for cases such as transferring from quality inspection to unrestricted-use stock and transfer from consignment stock to company stock.

Reservation

With the reservation component, you make a request to the warehouse to keep the materials ready for withdrawal at a later date and for a certain purpose. This simplifies and accelerates the GR process. A reservation for GI can be requested by various departments for various account assignment objects (such as cost center, order, and asset). It is also important that reservations are taken into account by MRP, which means that the required materials are procured in time if they are out of stock.

A reservation document consists of a header and at least one item. The header contains general data about the reservation (creator, movement type, account assignment). The items describe the individual planned movements (material, quantity, requirement date). You can create a reservation for exactly one purpose only; that is, in a reservation, you can enter only one movement type and one account assignment object (e.g., a cost center).

The system makes reservations at plant or storage location level. For materials handled in batches, you can also create reservations at batch level.

Type of Reservations

SAP has two types of reservations: (1) automatic reservations and (2) manual reservations. Again automatic reservations are of two types. When a production order, network element, or project element is created, a reservation is made automatically for the production order, network element, or project element [work breakdown structure (WBS) item]. If reorder point planning is used at storage location level and the available stock on hand falls below the reorder point, the system generates a stock transfer reservation in the plant for the replenishment quantity.

After a reservation is made, the system creates a reservation document, which serves as proof of the request. In the material master record, the total stock and unrestricted-use stock of the material remain unchanged. The reserved stock is increased by the reserved quantity. In MRP, the available stock is reduced by the reserved quantity. This is visible in the current stock/requirements list. The reservation causes an entry to be made in the requirements planning file.

Batch Management

Some materials are always treated the same. You pick a piece of the material from inventory at one storage location and compare it with the same material at another material location. More or less, they are the same in physical, chemical, or any other characteristics. But some materials are not the same. You will observe the differences. Although they are same in physical, chemical, or any other material attribute, they may be different in the expiration date. For example, a piece of medicine manufactured on December 22, 2011, may expire on December 21, 2012, as its expiration life is 1 year. Another piece of the same medicine may have been manufactured on July 22, 2011, and will expire on July 21, 2012. So these two pieces of the medicine are different in their expiration date though their physical or chemical attributes may be same.

Generally, pieces of these kinds of materials are differentiated based on the batches. In the medicine example cited above, we can keep all piece of information in batches at one place based on the date of manufacture. Similarly, if two pieces of the materials manufactured on different dates, they may need to be kept at different places. In real life, batches are differentiated based on the production lot. In process industries where batch management is primarily used, a production run happens when a material lot is produced continuously with the same machine settings and raw material feeding. Material pieces in this production lot are very similar to each other. So making a batch of these pieces makes sense. If there are any problems with the quality of the material, these can easily be tracked through the batch number.

Some more examples of batch-managed materials include food items, chemical products, hygiene products, and so on. In most cases, these materials are differentiated on attributes such as expiration date, color shades, chemical composition, and physical appearance.

In SAP, these kinds of materials can be managed when the batch management indicator in the material master is activated. Once batch management for a material gets activated, all stocks of the material must be managed in batches. This means that if you receive goods from vendors, you have to assign a batch number to these goods. Similarly, the in-house produced goods should also be assigned a batch number. When a material is moved from one storage location to another or from one stock type to another (blocked stock, unrestricted-use stock, or quality inspection stock), the batch number of the material remains the same.

Batch Number Levels

In SAP, the material number is unique at client level, which means that you cannot have the same material number used for different materials in different plants even if the plants belong to different company codes. When batch management is active for a material, the material number along with the batch number makes a unique combination at the client, material, or plant level, depending on the settings in customizing.

In SAP system, you can assign the batch number to materials at various levels depending on your customization. The three levels of batch numbering are client level (unique batch number for

the client), material level (unique batch number for client/material combination), and plant level (unique combination at client/material/plant).

To understand these settings, let us discuss an example. You have a material ABC and another material DEF. You set the batch number generation level at the plant level. In this case, you can have a batch number 123 for material ABC for plant A. If this batch of material is transferred to plant B that belongs to the same company code (or any other company code), the batch number is not recognized at plant B. A new batch number will be generated.

Now you set the batch number generation at material level. If the batch number 123 is transferred to plant B, the batch number is recognized in plant B. Thus, the material will be stocked there with the same batch number 123.

Consider now that the batch number generation is set at client level. If the batch number 123 is transferred to plant B, the batch number will be recognized at plant B. Thus, the material will be stocked there with the same batch number 123.

There is a difference between the material-level and the client-level batch number generation. Let us assume that material B has a batch number. In case of batch number generation at material level, we can have the batch number 123 for both materials A and B. The batch number is unique only for a material but not across materials. The same is not true for setting when we have batch number generation at client level. If our setting is at client level, material B must not have the batch number 123 as this batch number is already allocated to material A.

Advice on Batch Number Settings

Setting up your batch number generation management at any of the following three levels depends on your customer's needs. If your customer has a lot of transfer of material among plants and the material is batch managed, you should set up the batch number generation at either client or material level. If you want to keep the batch number unique across all company codes for any material, you should set the batch number level at client level. If you want to keep combination of batch number and material unique across all plants, use the material-level batch number.

In case of finished goods that are batch managed, the batch number must be unique. The same batch number should not be assigned to any other material. For example, finished foods and pharmaceutical items must have unique batch number. The same batch number should not be assigned to any other material. In such cases, the batch number should be at client level. But in case of semifinished materials, two different materials may have the same batch number. Of course, they are different because of different combination of batch number and material number.

For all other materials that do not need unique batch number across plants or company codes, a plant-level batch number is sufficient. One word of caution here! If you transfer a material from one plant to another plant and if the batch number level is at plant level, it is possible that the other plant is using the same batch number that is being used for the material being transferred. In this case, although the batch number is the same, the material inside the batches will have different specifications, which will create problem. If you are sure that there will not be any stock transfer between plants, you should use the batch number at plant level. Otherwise use the batch number at a higher level (client or material).

Structure of Batch Data

A batch of a material contains information related to the inventory as well as the material. Inventory information may contain stock quantity of a batch located at different storage locations. Material

information may contain shelf life, material valuation, last GR date, chemical properties of the material in the batch, and so on.

The inventory data of a batch is known as master batch data. Depending on the customization for setting batch number generation, this batch master data will be unique at plant, material, batch, or client level. When you enter material number on any inventory or purchase document, you will also have to specify the batch number.

Batch number and stock data of a batch are created automatically when the first GR happens. But if the user wants to modify any batch information, he/she can do it manually as well. For batch-managed materials, stocks can be managed in unrestricted-use stock, blocked stock, restricted-use stock, quality inspection stock, stock in transfer, and blocked stock returns.

Batch Status Management

If you activate batch status management, there will be two statuses of any batch in the system. A batch can be either in unrestricted use or in restricted use. When a batch is created first, it is in unrestricted use. After a goods movement, the batch status may change to restricted use if the movement leads to stock types of blocked stock or quality inspection stock. You can also change a batch status using "change batch" function. The status is stored centrally as part of the batch and is used as a batch characteristic in classification, which in turn is responsible for batch selection in batch determination.

If you try to issue goods from a restricted-use stock, the system may issue a warning or an error message depending on your customization. If it is a warning message, you can issue goods. If it is an error message, you cannot issue goods.

A batch can have either restricted-use or unrestricted-use stock. It cannot have both statuses at the same time.

GR for a Batch-Managed Material

When you enter GR for a batch-managed material, you have to enter the batch number along with the material number. If the GR for a PO is assigned to an account, the batch number is not needed. But if "batch where used list" is active, you can enter the batch number to track the receipt and consumption from the batch.

If the batch does not exist, it will be created automatically. If the batch already exists, the GR will be posted to the batch in the specified storage location.

There will be updates in the system after GR is posted for the batch. GR date will be recorded for the batch and will be used for selecting a batch according to the batch selection strategy [last in, first out (LIFO), first in, first out (FIFO), etc.] defined in the system for batch determination. If shelf life is activated for the material, you have to enter the production date on the GR. If batch classification is active, you have to enter classification values for the batch in the GI. If GR consists of several batches of the material, you have to create separate material document for each batch.

GI for a Batch-Managed Material

When you issue goods from a batch managed material, first you have to deal with the reservation of material. The reservation can be at plant, storage location, or batch level. When reservation is at plant level, you do not specify the storage location or batch. This is done during GI and not during reservation. When reservation is to be made at storage location, you do not specify the

batch. During GI, the plant and storage location are copied from the reservation, and then you specify the batch. When reservation is made at batch level, the plant, storage location, and batch are specified. During GI, you cannot change the plant, storage location, or batch.

Stock Transfer and Transfer Posting of Batch-Managed Materials

Stock transfers from plant to plant and from storage location to storage location are possible with batch-managed materials as well as transfer postings from material to material. The transfer always happens at the batch level and you have to specify the issuing and receiving batch. Except for a two-step stock transfer from plant to plant, the issuing batch number is copied and used as receiving batch number.

In case of two-step plant-to-plant transfer, the inventory is managed at plant level. When material is removed at the issuing plant, the receiving storage location or the batch is not known. Only the receiving plant is known. At the time of goods receiving at the receiving plant, you specify the storage location and batch. In all other cases including one-step plant-to-plant transfer or storage location-to-storage location transfer, the receiving plant, storage location, and batch are known in advance.

If batch status management is active and even if the issuing batch is in restricted use, the receiving batch will be in unrestricted use.

Batch Classification

Batch classification data may include material properties such as active chemical ingredient, viscosity, and color. It is also possible to include inventory-related data (master batch data) such as GR date, batch status, and shelf life in the classification.

Batch classification data help in batch determination. How a batch of material is to be stored, picked, packed, and delivered can be refined by the batch classification data. If the batch classification data are not present, you can handle a batch of a material only on the information related to GR date.

To classify batches, you have to define the characteristics of a material that is batch managed and include them in classes. These classes are then linked to batches.

For example, the viscosity of a material varies from batch to batch. Let us assume that the average viscosity for a batch is 0.9. The viscosity of the material varies from 0.6 to 1.1. We can create a characteristic for this material for which the viscosity value is mentioned. Now we will create a class and include this characteristic. When you create a class, you also define the class type. Class type 022 is for plant level and class type 023 for client/material level. Once you have the class defined, you can link the class to the material. Now when a batch is created or modified to include this characteristic of viscosity, you can go to the menu path Batch → Change from the material master menu.

Batch Determination

Batch determination is used for GI for a batch-managed material. If you are looking for a batch that contains specific characteristics, you can enter "*" in the batch field to search for an appropriate batch automatically. The system then searches for batches with appropriate characteristics such as viscosity and shelf life. The system searches and finds suitable batches of the material. The system also suggests how to distribute the requested quantity among the batches found.

The user can either accept the system's proposal for the goods movement or distribute the quantity manually. If there are problems in definition of batches (faulty characteristic definition) or no batches available with requested characteristics, the system is not able to find any batches and then the user can search a batch without selection criteria. In this case, the system will list all batches of the material and the user can choose a batch manually.

Batch Search Strategies

If you need to search batches effectively, you must define good search strategies for batches. In a search strategy, you need to define the characteristic values based on which batches can be searched. You can define the strategy types in customizing and then assign a strategy type to your search strategy.

A strategy type can help a search strategy to work at plant or movement type level or at plant or movement type or material level or any other level defined in the customizing for strategy type. Basically, a strategy type is a combination of keys.

To define a search strategy for batches, it is important to understand how users search for batches. If a user is searching for a batch for GI to a cost center, he/she will look for batches with unrestricted use (movement type 201). If he/she is looking for batches for scrapping, he/she will be looking for batches with restricted use (movement type 551). If he is looking for a batch of a material with viscosity of 0.9, he/she will search for batches that have a viscosity range of 0.8–1.0. In this case, the movement type will be 201.

Generally, the users will restrict their search at the plant level. So plant is also a criterion for search strategy. Thus, plant, movement type, material, status, and material characteristics (e.g., viscosity) are some of the criteria for the search of a batch.

To create a search strategy, go to the menu path: SAP Easy Access → SAP Menu → Logistics → Materials Management → Inventory Management → Environment → Batch Search Strategy → Create. On the initial screen, select a strategy type and press Enter. A list of strategy types will be displayed. When you select a strategy type, you will be prompted to enter the values of the key combinations that make the strategy type. For example, if you select the strategy-type plant, movement type, material, or status, you can enter "1000" for plant, "201" for movement type, "XYZ" for material, and "unrestricted use" for status. Then press Enter. The system will now suggest the values of the strategy types and will also prompt you to select "Via selection criteria" or "Via Sort" which can be used to search for batches. Now you can save the search strategy.

Goods Movement of Split-Valuated and Batch-Managed Materials

Split valuation of a material allows the user to keep different prices of a material at different storage locations. For example, a material can be procured externally as well as built in-house. Generally, the price of the material will be different depending on whether it was procured externally or built in-house. Similarly, the price of a material is different if it was procured from different vendors. In other cases, a vendor may quote the price of the same material differently for different locations of the same organization.

To take care of these scenarios, in SAP a material can be set up to have split valuation. When a split-valuated material is also batch managed, goods movement of this material has to take care of this aspect.

You enter goods movements of split-valuated materials in the same way you do for batch materials. In the Batch field, you simply enter the valuation type instead of a batch number. To display a list of valid valuation types for the material, enter "*" in the Storage location or Batch field.

If the material is handled in both batches and split valuated, the system prompts you to enter the batch and then allocate the batch to a valuation type.

Stock Determination

When you want to withdraw goods for issue, transfer, or scrapping, you need to have good idea about your stocks at various storage locations inside your plants that may be spread over many company codes. For this purpose, you can make various stock strategies to find and locate various kinds of stocks across your organization. Manually determining the right stock and its location is difficult and time consuming. Making good stock determination strategy will help you find your stocks automatically.

The system makes decision on material withdrawal based on the material, plant, and business process when you define your stock determination strategy. You can make stock determination strategy for unrestricted use, vendor consignment, pipeline material, sales order, and project stocks.

Let us see some of the stock determination scenarios. When you need a material for your MRP, the material could be found at any of your storage locations or could be procured from a preferred vendor, any other vendor, or another plant. One strategy could be to find the material first at any storage location inside your plant. If the material is not found, you can search it at other plants. If the material is still not in other plants, you can procure the material from the preferred vendor. If it is still not found, you can approach any other vendor. You can make a stock determination strategy that can do all these searches and then find out as to how to source the material. Since this search will be online and in real time, you can keep your inventory buffers lean as this program runs only when you need the particular material.

If split valuation is active for your material, you can always search among your vendors to find the lowest priced vendor and place a PO with him.

Stock determination component is tightly integrated with many modules of SAP system. First of all, it is an integral component of SAP MM–IM. It is integrated with SAP WM so that your search for material also includes your warehouses. Stock determination is then integrated with SAP SD so that availability check for stocks can be performed when taking orders. It is integrated with SAP LO–BM so that batches can be searched when stock determination is performed. Similarly, components of SAP PP such as production orders (PP-SFC), Kanban (PP-KAB), and repetitive manufacturing (PP-REM) are integrated with stock determination so that materials required for PP can be found out using stock determination.

Create Stock Determination Strategy

To create a stock determination strategy, you have to find the transaction, stock determination strategy rule, material, and various inventory parameters. The transaction or event for various types of stocks such as consignment, unrestricted use, pipeline material, project, or sales order has to be defined. Then you have to define the storage location from where the stock has to be issued. You can make a stock determination strategy online or in background. When a list of probable stock storage locations is found, you have to define the sort criterion so that the most preferred locations are selected first. You can also link this sort criterion to parameters such as batch determination or storage type search. If split valuation is active, you can include the valuation of stocks in the search criteria.

SAP has also built enhancements so that the search criteria can take vendor or valuation type into consideration.

Material Valuation

Any material for any organization is procured from different sources. It can also be built in-house. Due to differences in procurement, a material can have different prices for different kinds of sourcing. To handle this functionality, in SAP split valuation concept for materials is implemented.

In SAP, there is a concept called valuation category. Using valuation category, you can differentiate various sources from where the material is procured. A material can be either procured externally or built in-house. Similarly, different vendors will have different prices for the same material. Again, a batch of material will have a different price compared to another batch. All these factors can determine the valuation category for a material.

Within each valuation category, there could be differentiating factors. For example, due to proximity of one supplying location of a vendor, the price for a material is lower compared to that for another location. This differentiation in price of the material can be taken into consideration in a concept called valuation type.

In SAP, material valuation helps in determining the value of any stock stored at any storage location. It also helps in determining new value if a stock of a material is transferred from one location to another. Material valuation is done using the concepts of valuation category, valuation type, value string, and valuation class.

Valuation category. It is the top-level structure for valuation. It determines whether the same material at different storage locations can be valued together or separately. For example, if the material is procured externally as well as produced internally, the price for the two will be different.

Valuation type. It is a subtype of valuation category. It is used in conjunction with split valuation. Together with split valuation, there is also a batch concept involved. So one batch of material will have a different price than another batch of material.

Value string. Value string is the key combination of valuation type, valuation class and valuation category. It is formed automatically by SAP and is used internally by SAP for identifying the correct G/L account for any inventory transaction.

Valuation class. It is used for assigning G/L accounts to materials. So the same material with different batch numbers will be assigned to different G/L accounts. At the same time, different materials belonging to the same material type can be assigned to the same G/L account. For example, all externally procured raw materials, whether same or different, can be assigned to the same G/L account maintained for one vendor. Similarly, all semifinished goods can be assigned to the same G/L account.

Joint Valuation

Joint valuation is the opposite of split valuation. Here, all stocks of a material are valuated (priced) exactly the same. So at any given point of time, value of all stocks of a material for a plant or storage location will be the average value derived from standard calculation. Whenever any goods issue is done from any of the stocks, the valuation will be done based on this average value and not on individual value of any stock.

Implementing Split Valuation

In split valuation, each stock of the material is valuated separately. If you are keeping stock of the material at five places separately, you have five separate valuations for the same material. In material master, you can define the valuation category and valuation type. To do it, first create a

material master record that will serve as a template to create material masters for each valuation type. In this material master, you will enter the valuation category. This material master is known as valuation header record. You will have to create one valuation header record for each of your plant or company code. This will depend on how your system is customized for valuation. If your valuation level is at company code, there will be one valuation header record per company code. If the valuation level is at plant, each plant will have one valuation header record. In the valuation header record, the price control is "V" (moving average price).

Now extend the material master. On the "Organization levels" dialog box, enter your plant, storage location, valuation category, and valuation type, and save your data. You will extend the material master for each of the valuation type.

Valuation type data contain three sets of data: One set of data contains valuation data such as valuation price, total stock quantity, and total stock value. Each valuation category will have one such set of data at valuation area level. The other set of data is stored at storage location level. If batch management is also active for the material, a third level of data will also be present at the batch level.

Serial Numbers in Goods Movements

If assignment of serial numbers is mandatory and you enter a goods movement, a dialog box will appear where you either enter your own serial number for each serialized material or have the numbers assigned by the system. For example, if you post three pieces of a material, you must enter three serial numbers (or have them assigned by the system).

A stock transfer (plant to plant) of materials with serial number management is only possible if the same profile is assigned to the material in both plants. For goods movements for STOs with no involvement of the Shipping component, you must enter the serial numbers manually.

When goods movements for STOs involve Shipping, there are two scenarios. When a GI is posted for a delivery, the serial numbers are taken from the delivery. When a GR is posted for a delivery, the serial numbers are also taken from the delivery. If you enter the GR referencing the PO and not the delivery, however, you must enter the serial numbers manually.

Goods Movement via Shipping

Goods movements with shipping are required when you want to have activities such as picking, packing, and transportation in the goods movements. For goods movements via shipping, there must be some prerequisite data in the system. These include plant data, sales organization, distribution channel, shipping point, and division in SAP SD module. SD data should also be there in material master. The customer field in vendor master as the vendor is also a customer in this case.

In goods movement via shipping functionality you can issue goods for a delivery, stock transfer using STOs, returns from customers, return deliveries to vendors, and returns for STOs. You enter these goods movements from the Shipping menu (transaction code VL01N for Create Outbound Delivery with Reference to Order or transaction code VL01NO for Create Outbound Delivery Without Reference to Order). Goods movements via shipping are represented in the system by the movement type 6XX. You can find an overview of all the movement types in the Copy/Change Movement Types step in the Implementation Guide (IMG) for Inventory Management.

Materials Requirement Planning

There are many ways to plan the requirement of materials But first let us understand the concepts of safety stock and reorder point, which are central to MRP in SAP.

Safety Stock and Reorder Point

In some industries, confirmed sales orders make the basis for calculating the required quantity of raw materials and semifinished materials. In this case, there is no need to keep safety stocks. But it rarely happens because there is a lead time involved in getting the raw materials from vendors. To cover for this lead time, a buffer in the form of safety stock is required at the production site.

In many industries, forecast of sales orders makes the basis for calculating the required quantity of raw materials. Based on this forecast of sales orders, a forecast of required raw materials is calculated. Due to the lead time in procurement process, a safety stock is calculated. But more importantly, a safety stock is also needed to cover for uncertainty in the forecast. For instance, if the forecast accuracy is predicted at ±10%, the safety stock should also be ±10% more or less than the forecasted quantity of raw materials required.

One more kind of raw MRP is based on consumption. From the past consumption of raw materials, future required quantities of materials are calculated. In this case, the MRP does not take into consideration the sales orders or forecasted sales orders.

In SAP, various kinds of MRP methods are available. But all of these are basically variations of consumption-based planning. MRP is not based on master production schedule (MPS). So the MRP calculations are not driven by MPS planned independent or dependent requirements. Instead, it is triggered when the stock falls below a safety stock level or when a material is planned in MRP by including it manually.

Chapter 6

Customizing in Material Masters

Introduction

In SAP, there are many features by default which can be immediately used when you install it. SAP generates the default data for all the masters that can be used immediately. However, your customer may have different requirements from what is available in this standard installation of SAP system. In such cases, you need to customize your installation of SAP system.

SAP system customization is done using SAP Customizing Implementation Guide (IMG) using the command SPRO → IMG.

Any SAP system can be customized in many ways, some of which are as follows:

- Changing or creating settings in IMG
- Using variants (screen variant, standard variant, and transaction variants)
- Using field selection (hide, display, required entry or optional entry)
- Using Business Add Ins (BAdI)
- Through programming using Application Linking and Embedding (ALE), Business Application Programming Interface (BAPI), and other Advanced Business Application Programming (ABAP) workbench components

ABAP programming is out of scope for this book. We will only cover non-programming methods for changing standard user screens. We will show you examples of using variants and field selections to customize your implementation of SAP system. But before that, we will show complete listing of settings available in IMG for materials management and how to change those settings and what it means to change those settings. Whatever you see in the SAP standard system is the result of the default settings in the IMG. As per the requirement of your customer, you can change these settings and achieve a desired functionality in your SAP implementation.

SPRO and IMG for SAP MM

In SAP, if you want to customize the user screen from the standard SAP, you have to use SPRO. SPRO stands for SAP project reference object. Inside SPRO, you can find any SAP object or source code to modify. It is the complete repository of not only what SAP has provided but also the changes the customer has brought by introducing new source code or linking third-party applications.

IMG stands for Implementation Guide for R/3 Customizing. Inside IMG, you can see the entire directory of each and every source code and object and their settings. It is the place where you need to do new settings of objects and insert new source code. In IMG, there are three menu paths where settings related to SAP MM are done:

1. SPRO → IMG → Enterprise Structure
2. SPRO → IMG → Logistics General → Material Master
3. SPRO → IMG → Materials Management

In the SPRO → IMG → Enterprise Structure command, you can define and maintain various SAP MM-specific organization entities such as plants, purchase organizations, and vendors. Other top-level organization entities such as company codes, controlling structure, profit center, and sales organization are also created and maintained here by consultants in SAP finance (FI), SAP controlling (CO), SAP sales and distribution (SD), and so on.

Apart from creating and maintaining organization entities, there is also a facility to link the entities by assigning these entities to higher level entities so that complete organizational structure can be made.

Apart from these three menu paths, you also need to use the menu path SPRO → IMG → SAP NetWeaver when you have to set variants of transactions and screens.

Transaction Variants in Material Master

An example of a transaction variant could be configuring a purchase order (PO) type which your company uses and which is not available in the standard configuration. You can make this transaction variant as default so that when the user runs the transaction code, he/she gets this variant in place of the standard transaction. For example, if you have created a transaction variant named "Call-off order" which you have created from standard PO, when you run the transaction code ME21N, this "Call-off order" will be displayed instead of the standard PO. This functionality is known as standard variant.

Field Display Characteristics

There are two menu paths in SAP IMG to change standard screens, transactions, and fields:

1. SPRO → IMG → SAP NetWeaver → General Settings → Field Display Characteristics → Configure Application Transaction Fields
2. SPRO → IMG → Logistics General → Material Master → Configuring the Material Master → Field Selection

In fact, at SPRO → IMG → Logistics General → Material Master, there are loads of settings which you as the SAP MM consultant can use to configure SAP in many ways. We will see how this is done in the section on material master field selection section later in this chapter.

Enterprise-Level Setup

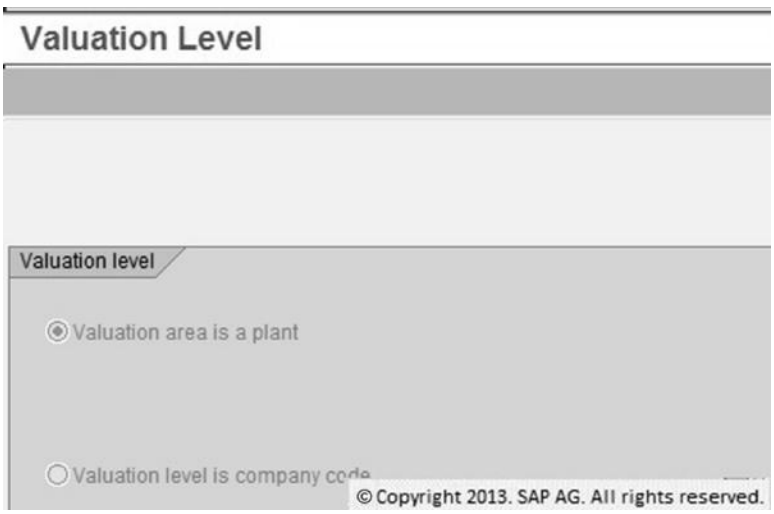
At enterprise level, valuation level, plant, storage location, and purchasing organization are set up from SAP MM. Other entities, such as company code, charts of accounts, sales organization, and so on, are set up by the respective SAP module teams.

Plant and Valuation Area Setup

Menu path: SPRO → IMG → Enterprise Structure → Definition → Logistics–General

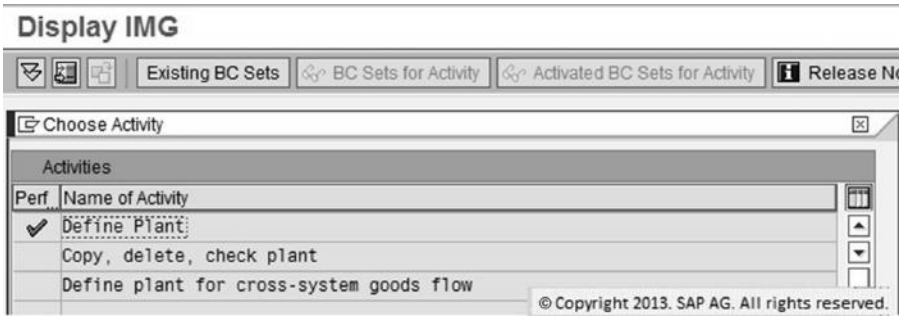
Define Valuation Level

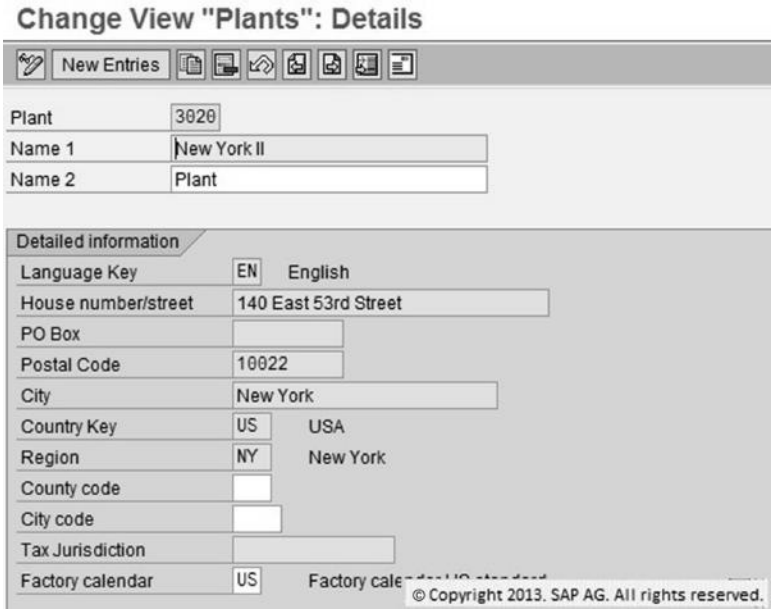
Valuation level can be set up either at company code level or at plant level. Once it is set up, it cannot be changed. If valuation level is set up at plant, each plant can have its own valuation of stock of materials. So the prices of the same material at different plants can be different. If the valuation is at company code level, the prices of the same material across all plants belonging to the company code will be the same



Define, Copy, Delete, and Check Plant

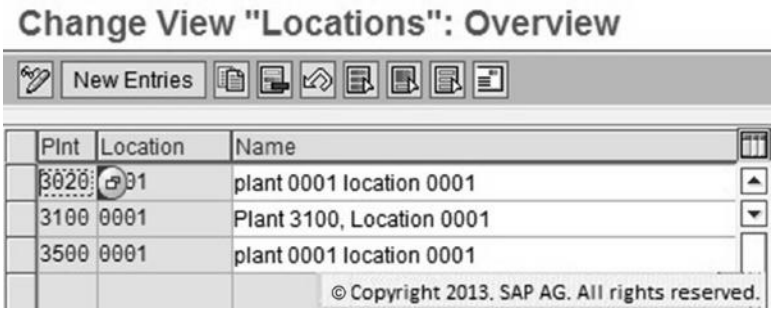
You can create, maintain, and delete the plants here. When you define a new plant, it is better to copy from an existing one.





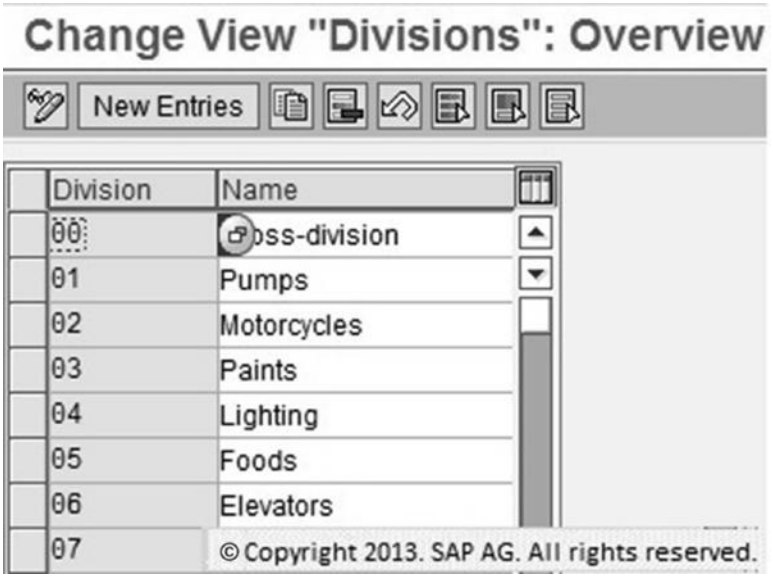
Define Location (for Plant)

You can define the location of the plant.



Define, Copy, Delete, and Check Division

You can define the division here. The division could be a line of business.

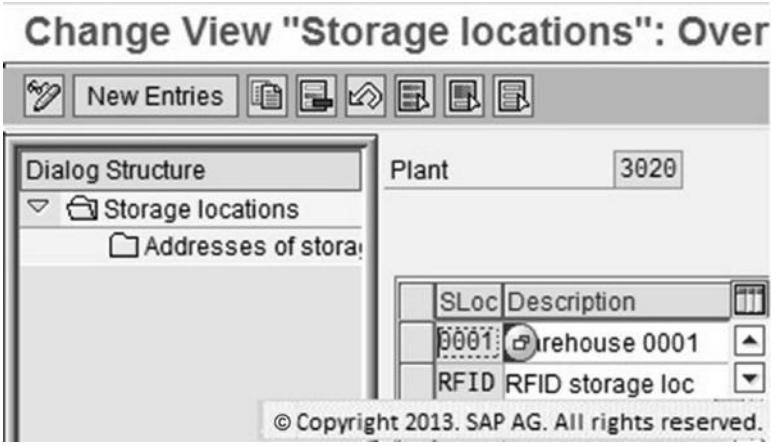


Storage Location and Purchasing Organization Set Up

Menu path: SPRO → IMG → Enterprise Structure → Definition → Materials Management

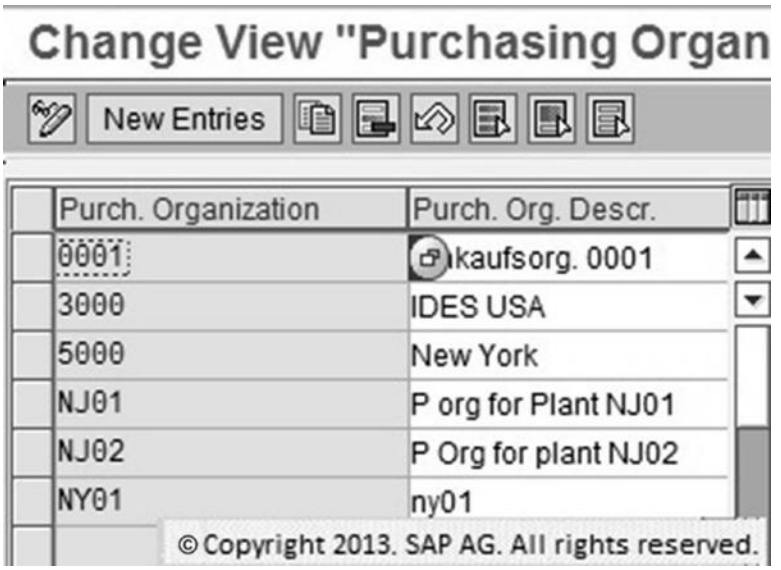
Maintain Storage Location

Storage location is a place where inventory is kept. All stocks of any material must be kept at one of the storage locations. You can define and maintain the storage locations for each plant.



Maintain Purchasing Organization

You can create and maintain the purchasing organizations here. Purchasing organizations are responsible for all external procurement needs of any company.

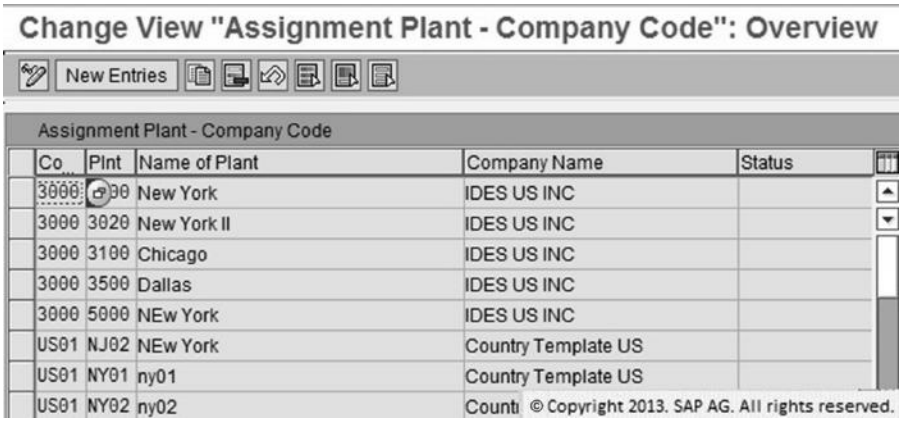


Assigning Plant and Valuation Area

Menu path: SPRO → IMG → Enterprise Structure → Assignment → Logistics–General

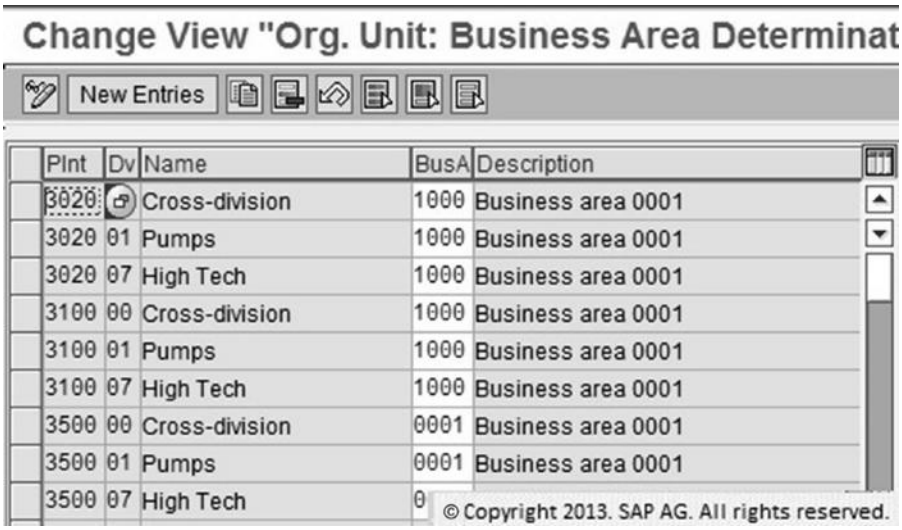
Assign Plant to Company Code

After defining the plants, you need to assign each plant to one of the company codes. Only then the plant can be used for transactions in the SAP system.



Assign Business Area to Plant/Valuation Area and Division

You can assign the business areas to plants, valuation area, and division here.

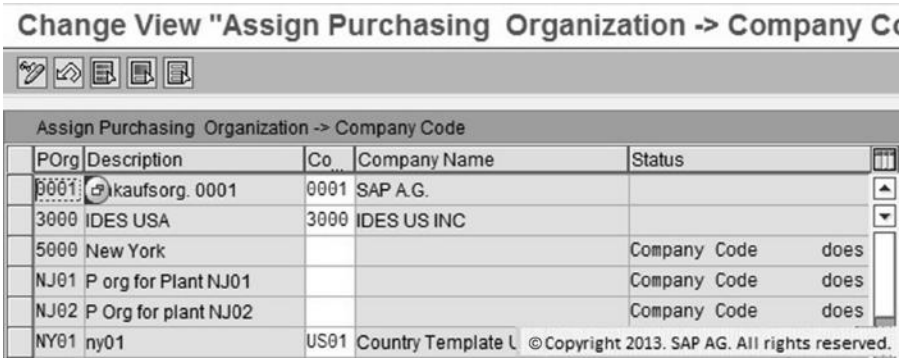


Assigning Purchase Organization

Menu path: SPRO → IMG → Enterprise Structure → Assignment → Materials Management

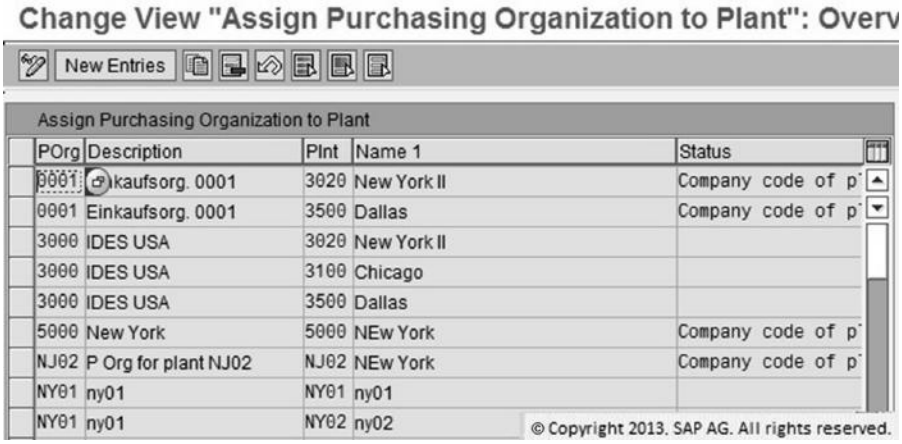
Assign Purchase Organization to Company Code

Purchasing organizations can be used under a client at many levels. But in general a purchasing organization belongs to one company code. So in this IMG activity, you assign a purchasing organization to a company code. In this scenario, a purchasing organization can procure for many plants.



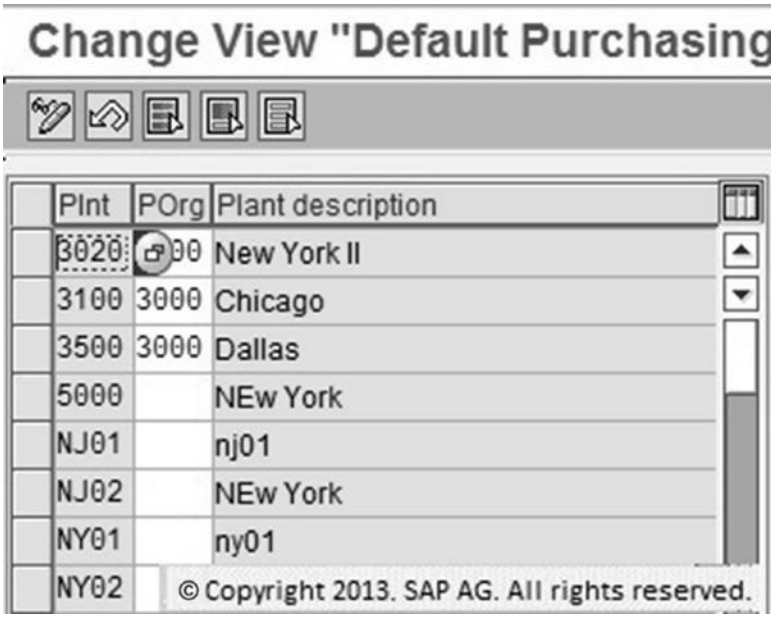
Assign Purchase Organization to Plant

It is possible that a purchasing organization is not attached to a company code, and instead it is attached to a plant. In this scenario, a purchasing organization can procure for just one plant.



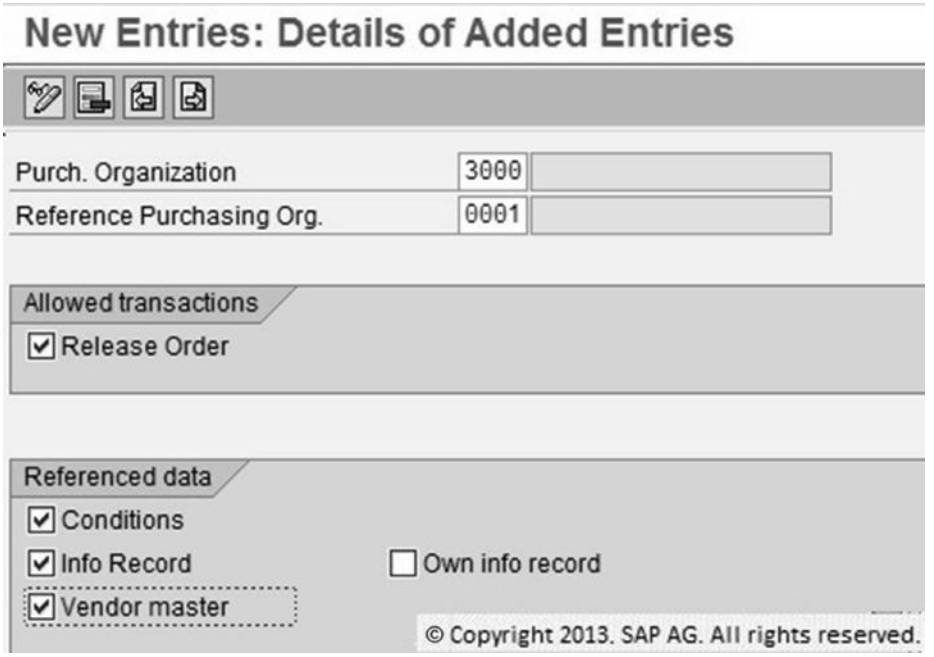
Assign Standard Purchase Organization to Plant

Standard purchasing organization is used when a pipeline, consignment, or stock transfer order is used and you want to ensure that a particular purchasing organization will do the procurement for the plant (out of all purchase organizations which can do procurement for that plant). In such case, you make this purchase organization as the standard purchase organization for that plant.



Assign Purchase Organization to Reference Purchase Organization

In central procurement organizations where a central purchase organization is responsible to make central contracts for all purchase organizations that are attached to all company codes inside the client code, you create a reference purchase organization and assign all other purchase organizations to this purchase organization. Now the central contracts created by the reference purchase organization will be available to all purchase organizations.



Material Master in Logistics General Setup

Field Selection for Changing Material Master View

In SAP, there are many screens that are cluttered with too many fields. This makes the users get confused and also reduces their productivity. Many of these fields in fact are not used by the end users. So it is better to have screens with less fields so that the users will have a better experience.

This functionality can be achieved by using field selections. We can add necessary fields and delete unnecessary fields from each user screen. A good place to apply this strategy is the material master views. These views contain a lot of fields, most of which are not required by the end users. We can remove all the fields that are not required.

The steps that are required to be performed for achieving this functionality are as follows:

- Assigning fields to field selection groups
- Maintaining field selection for data screens

- Defining industry sectors for specific industry field selection
- Defining plant specific field selection
- Defining plant-specific screens
- Specifying lock relevant fields

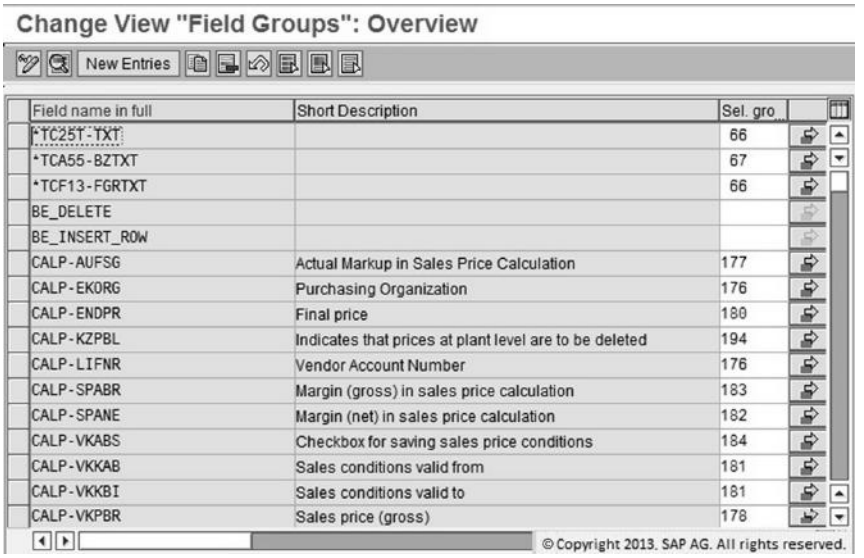
Let us discuss one example of field display customization. Use the transaction code SPRO and choose the menu path IMG → Logistics General → Material Master → Field Selection → Assign Fields to Field Selection Groups. Now click on "New entries" button. On this screen, enter your data and then save it. This will create a new group field that can later be used to group fields on any screen to either display or hide when you include it in your customization. In SAP, you can have a dummy field on any screen that can contain all information of the screen in a long text. Thus, you can in fact hide the entire screens if no input is required on that screen. In such case, the system will take the user from the previous screen to the next screen without showing the current hidden screen.

The next step is about creating data screens. Data screens define how field selection groups behave. Any field selection group can be hidden, optional, display only or required. These field values are known as field reference values. These field references can apply to a material type, an industry sector, or a transaction code. A field can be found on many user screens. For example, the field "batch managed" can be found on the material master views. On some of the screens, this field can be "optional," on some other screens, it can be "required," and so on. In the database, there can be only one value out of these field references. Which one will be saved in the database and thus will be the correct value for the field out of all these values? To solve this problem, in SAP there is a priority associated with these field references. The top priority value will be written to the database and will thus be the actual value for the field. The top priority field reference value is "Hide" followed by "Display," "Required," and finally "Optional." So if a field has a field reference value of "Hide" on one screen and some other value on other screens, it will have field reference value "Hide" and other values will be discarded.

For data screens, use the transaction code SPRO and then choose the menu path IMG → Logistics General → Material Master → Field Selection → Maintain Field Selection for Data Screen. Here you can create your own data screen. But it is better to copy data screen from the existing transactions. It will be advisable to copy from a transaction that is a default in the standard SAP. This will make sure that your transaction works fine. For example, you can copy from material type KMAT to create your own material type. All the field references of KMAT will be copied to your own material type.

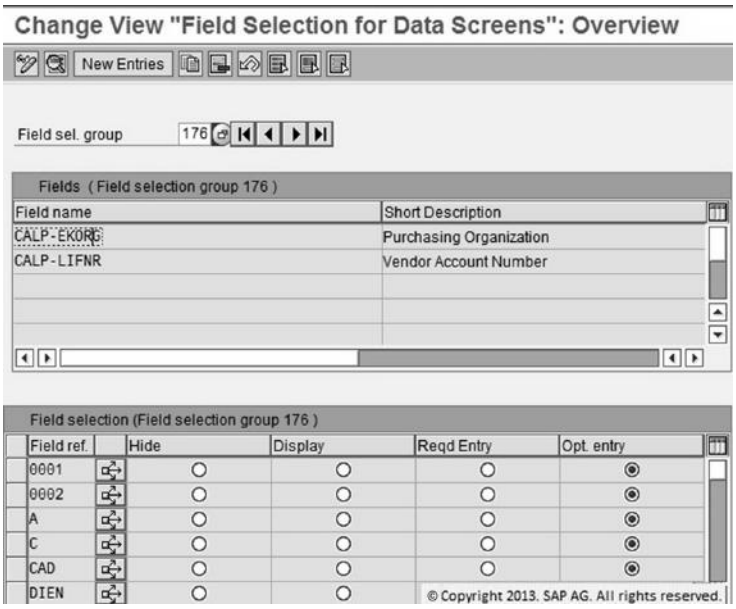
Data Screen for Field Selection Group

Now you will be able to choose which field selection groups will be optional, hidden, required, or for display by selecting the appropriate field reference in the "Change view: fields groups overview" and "Change View: Field Selection for Data Screen" screens as shown in the figures given on next page.



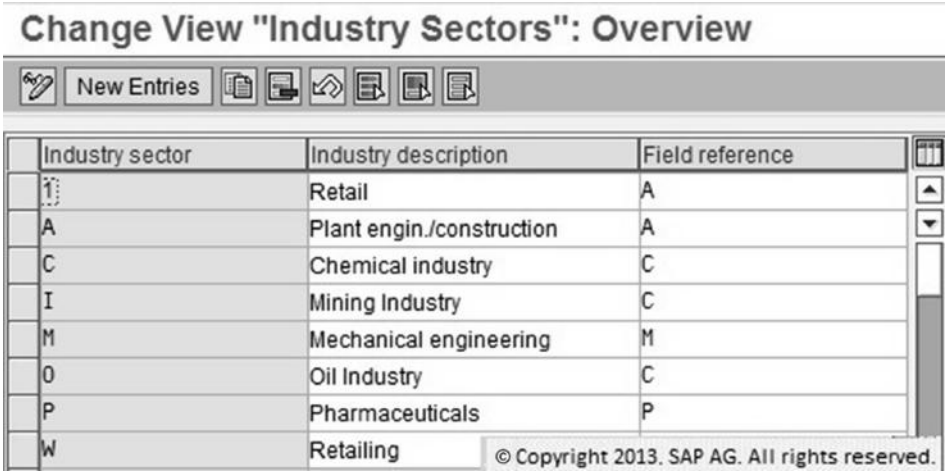
Field Selection for Data Screen

The next step is to define field selection by industry sector. Both industry sector and material type determine the behavior of any field when a material master record is created. Follow these steps to define the field selection by the industry sector.



Define Industry Sector and Industry Sector-Specific Field Selection

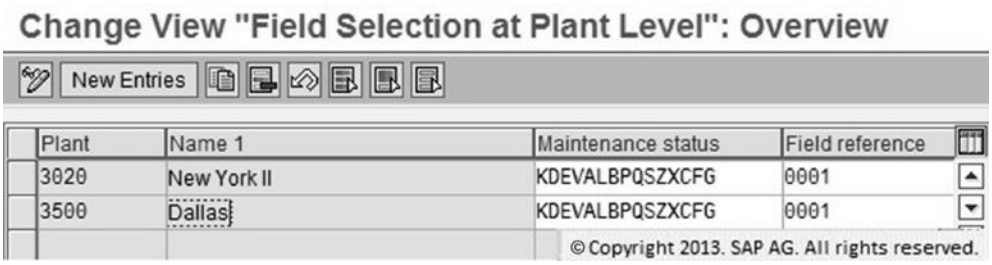
Use the transaction code SPRO and then choose the menu path IMG → Logistics General → Material Master → Field Selection → Define Industry Sector and Industry Sector Specific Field Selection. Here you can create your own industry sector that may differ from the industry sectors defined in the standard SAP. You can either create field selection from scratch or copy from an existing industry sector.



In the next step, you define field selection for plant. Use the transaction code SPRO and then choose the menu path IMG → Logistics General → Material Master → Field Selection → Define Plant-Specific Field Selection and Plant-Specific Screen Selection.

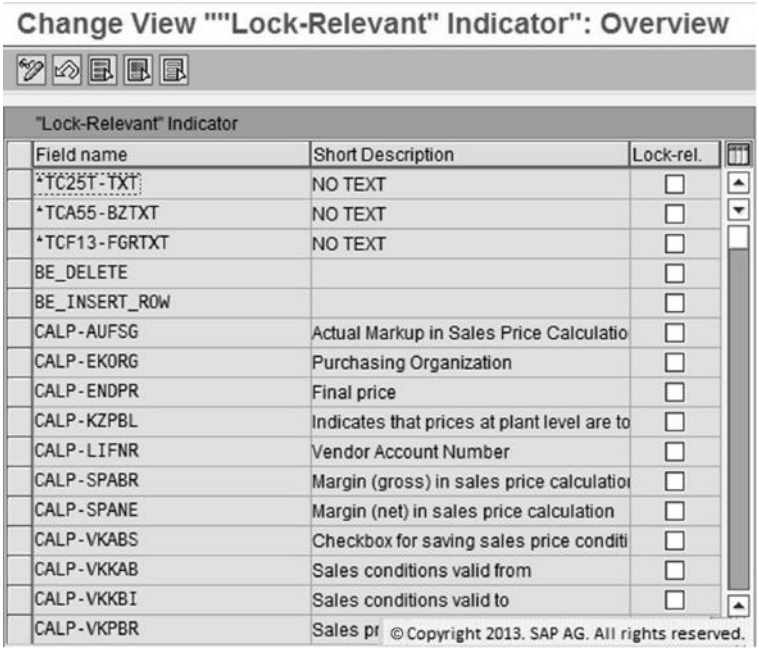
Define Plant-Specific Field and Screen Selection

Here you can restrict maintenance statuses of plant-specific fields. The maintenance statuses pertain to views, tabs, or user departments available for entry on the material master.



Define Lock Relevant Indicator

In the next step, you define the lock relevant fields. Lock relevant fields are the fields in which you define a specific value for the field only once, and this value will remain the same and cannot be changed.



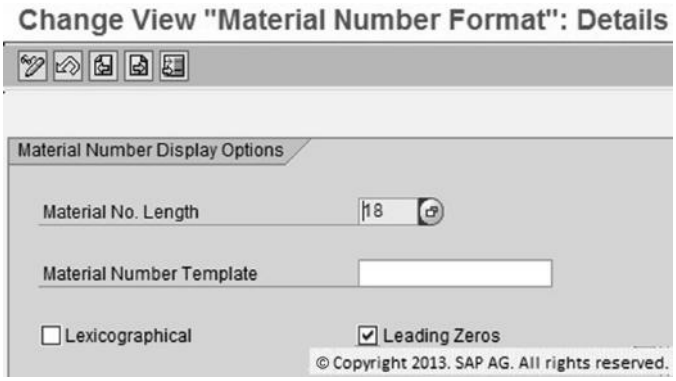
Material Master Basic Settings

The material master basic setting section includes defining output format of material numbers, making global settings, maintaining company codes for materials management, defining attributes of system messages, and so on.

Menu path: SPRO → IMG → Logistics General → Material Master → Basic Settings

Define Output Format of Material Numbers

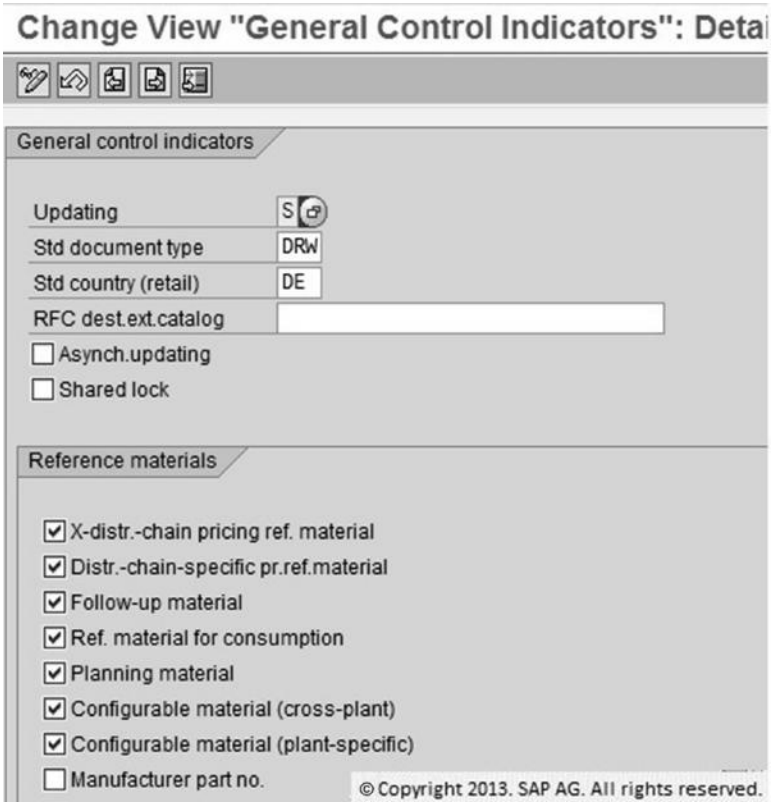
You can define how long and in what pattern the material numbers should be kept in the system. In this IMG activity, you define the material number template and the length of the material number.



Make Global Settings

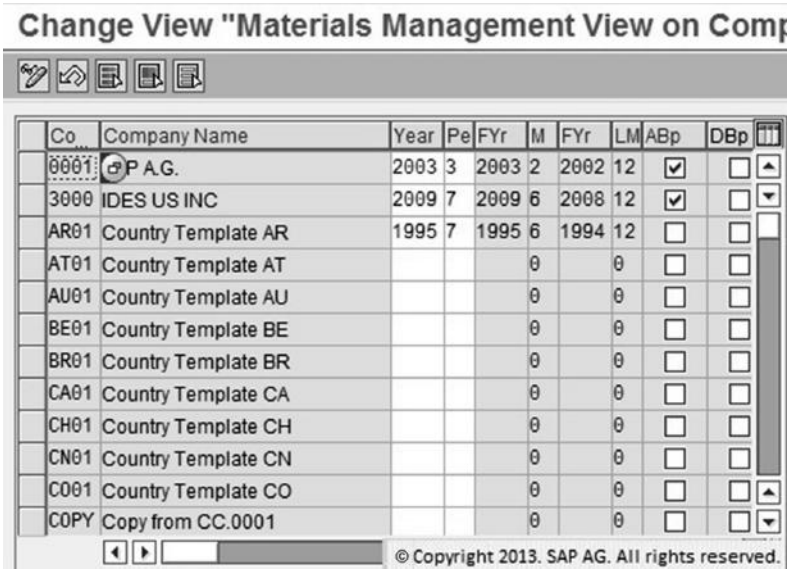
Global setting is the place where you define many characteristics that are available when you create a material in the material master. This setting determines how the administrative data for technical data are updated when material master records are processed, defines the document type for design drawings if your company uses the document management system, specifies the remote function call (RFC) destination used to access the external purchasing catalog or search help function module, and determines whether the administrative data for a material are updated asynchronously for outstanding maintenance statuses and for technical data when transferring data in the background. The setting is also done for what materials may be used as a reference, for example, when the consumption values of another material may be used as a basis for forecasting.

If you do not want to use a particular reference material, that is, to cancel the indicator for the material concerned, the corresponding fields are hidden in the material master. The system can also dispense with certain checks, thus improving performance. You can set the indicator again at any time.



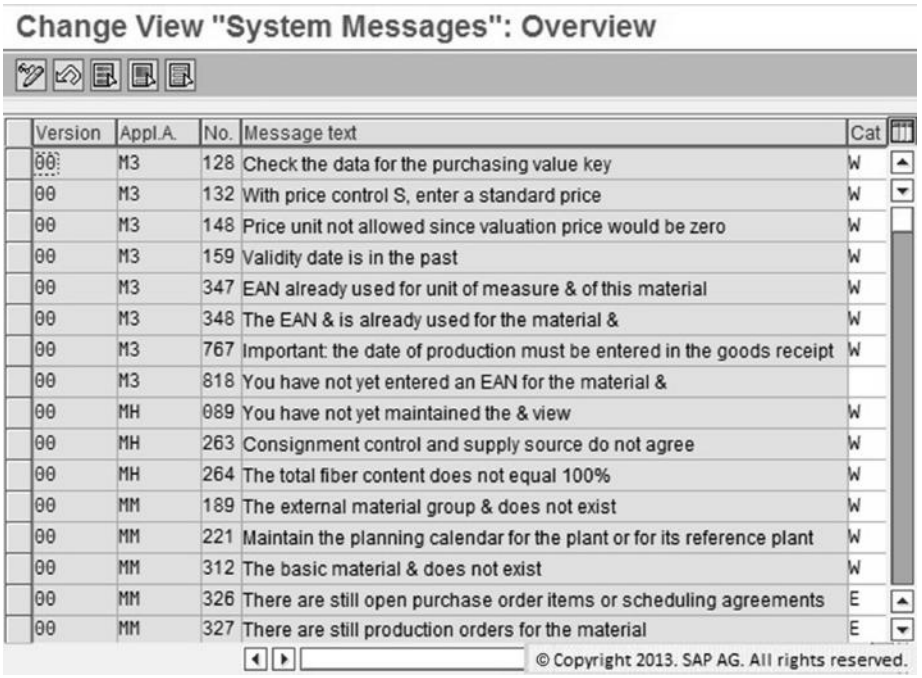
Maintain Company Codes for Materials Management

In SAP system, for financial documents the financial module takes care of year closing, year start month, monthly closing, and so on. For materials management, the same functionality associated with year closing, year start month, monthly closing, and so on is defined for each company code in this IMG activity.



Define Attributes of System Messages

System messages can be set as warning, error, or no messages when any error is encountered during transactions in the system. In this IMG activity, you can define these attributes of system messages when any error is encountered during transactions related to materials management.



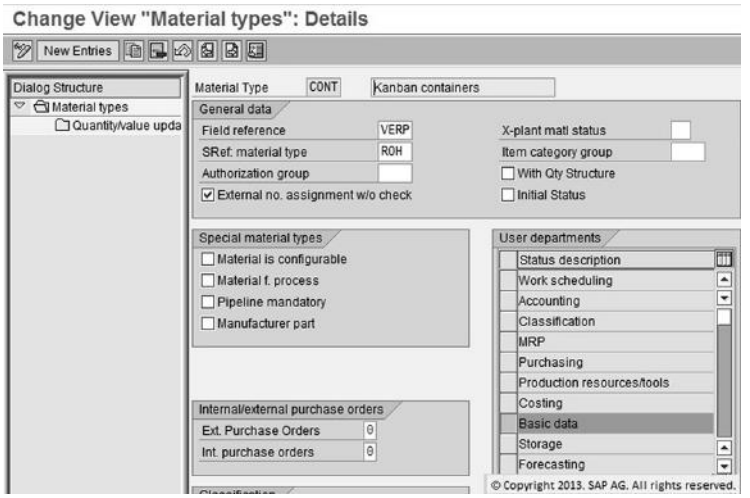
Material Type Setup

Material type is the most important attribute for any material because it determines how a material behaves and how the material can be handled in the system. For example, a finished material has attributes that help the sales department to create orders for this material. A raw material has attributes that helps the procurement department to procure it from internal or external sources. A packaging material has attributes that help to take care of this material during shipping because if it has to be returned, the system allows the user to do so.

Menu path: SPRO → IMG → Logistics General → Material Master → Basic Settings → Material Types

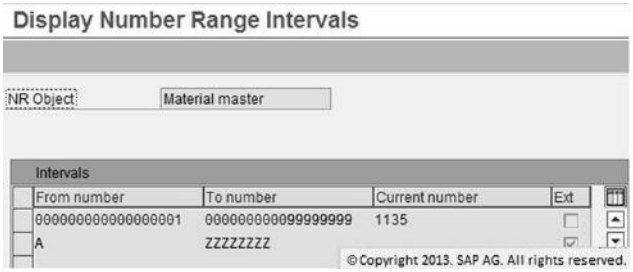
Define Attributes of Material Types

In this IMG activity, you need to do a lot of settings to control a material type that you create or modify a default material type. You can define here what material views will be available to the user departments (accounting view, purchasing view, sales view, plant view, etc.), material status, price control, material quantity and value updating in valuation areas, and so on.



Assign Material Types to Special Material Creation Transactions

In this IMG activity, you can create a special material creation transaction in which you do not have to specify the material type when you create a material master. The material type will be supplied automatically.



Define Number Ranges for Each Material Type

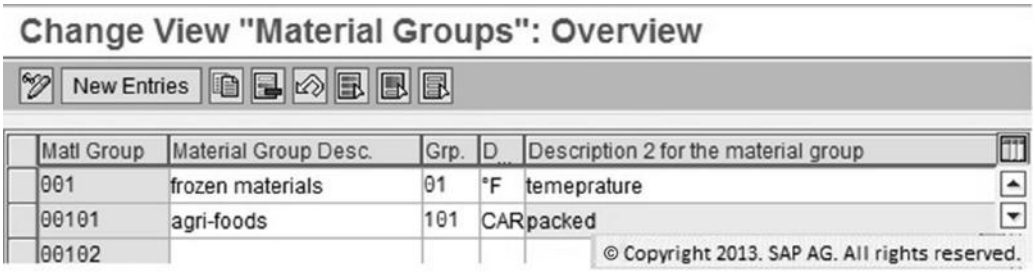
You can define a material type group, which may contain material types. You can then define external and internal number ranges for this group. Whenever you create a new material master, you either assign an external number from the number range or let the system assign an internal number from the number range.

Key Material Master Field Settings

Menu path: SPRO → IMG → Logistics General → Material Master → Settings for Key Fields

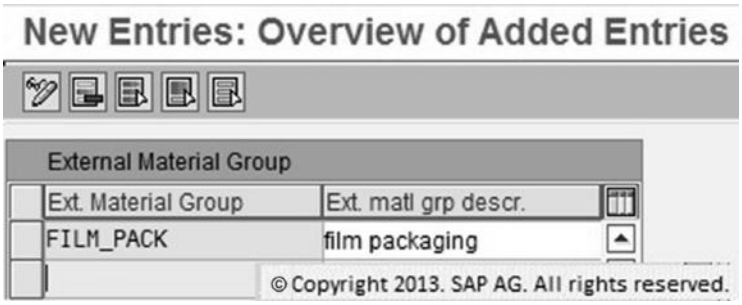
Define Material Groups

Material groups are different from material types. They are used to group together similar materials. On any purchase document, if material master is not created for the material you want to procure, you can use the material group along with material description to create the purchase document.



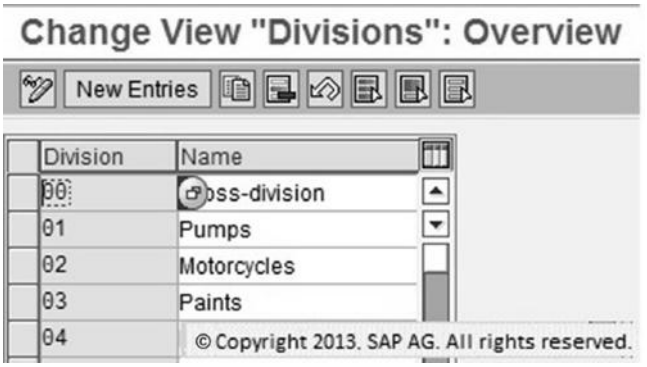
Maintain External Material Groups

Sometimes, material groups are not defined internally and are kept externally. In such cases, these externally maintained material groups can be defined here.



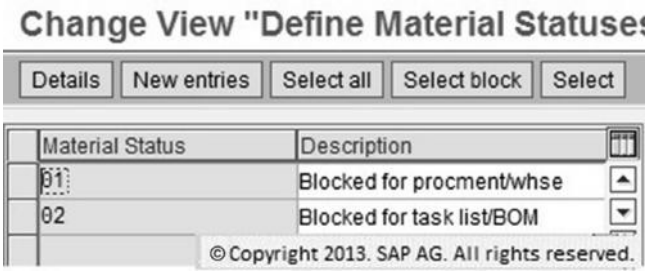
Define Divisions

You can define business divisions in your company. Material groups can be assigned to these divisions.



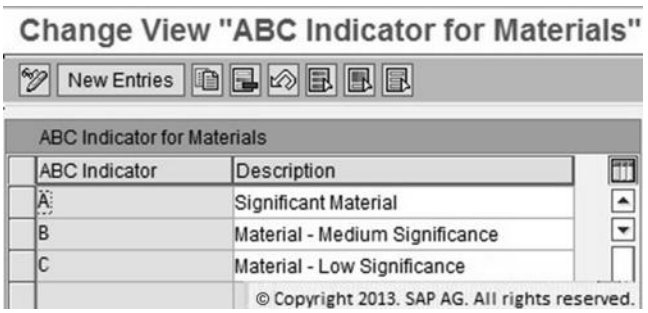
Define Material Statuses

You can define material statuses to denote if a material is blocked for some reason or if a material is not to be used for some purpose.



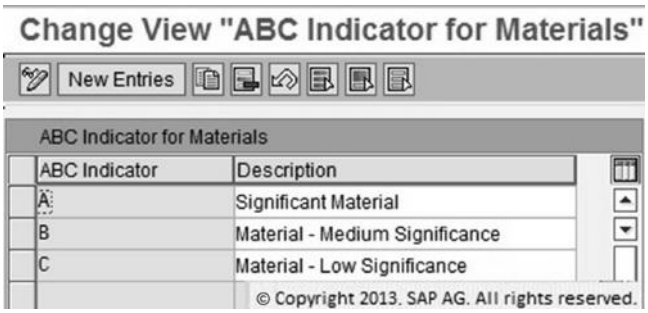
Extend ABC Indicator

ABC analysis is used to find out a detailed accounting of costs occurred in production or any internal or external activity, which results in the occurrence of costs to the company. Cost occurrence can be classified as very costly (A category), costly (B category), or least costly (C category). All materials can be classified in the ABC analysis if ABC indicator is used for all materials.



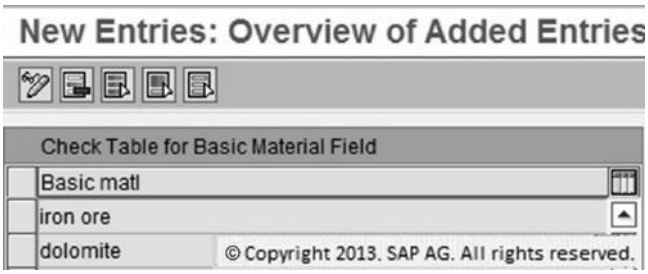
Define Laboratories and Offices

You can define laboratories and offices in this activity. These laboratories and offices can then be used in conjunction with quality management.



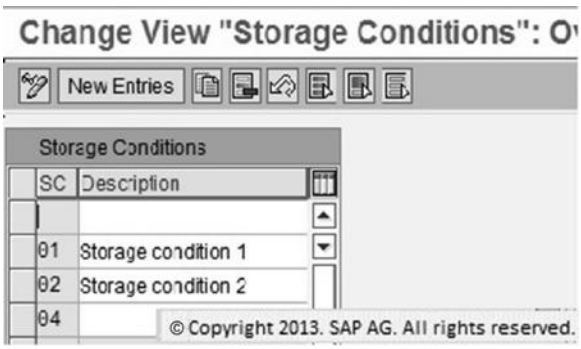
Define Basic Materials

You can define basic materials. Based on these basic materials, you can define other materials that will be considered as secondary materials. This is often used with materials that are batch managed.



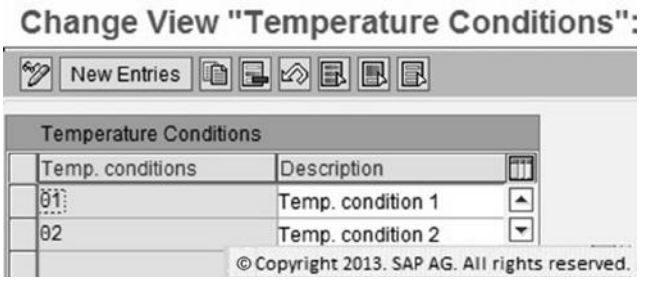
Define Storage Conditions

You can define storage conditions. These definitions can then be used to store materials in a warehouse.



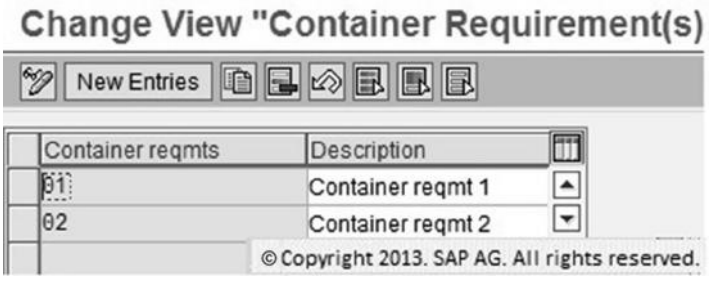
Define Temperature Conditions

Perishable materials need to be kept in frozen or temperature-controlled environments. You can define the temperature conditions that can be used to indicate which materials are to be kept in temperature-controlled environments in the warehouse.



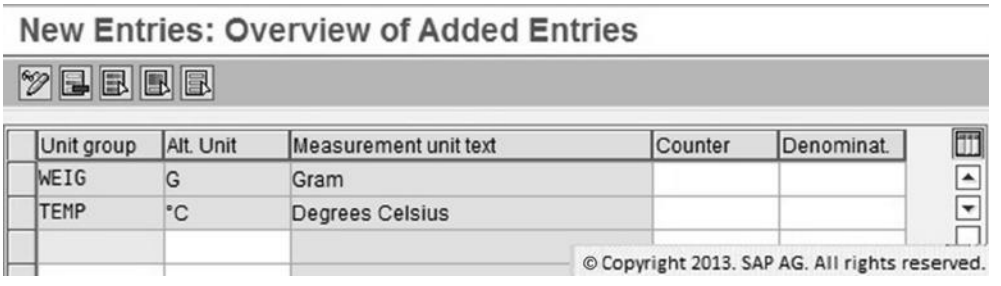
Define Container Requirements

Many types of materials need to be placed in a specific manner inside containers for transportation. You can define these container requirements here.



Define Units of Measures Groups

You can define and maintain the units of measure groups that help in assigning the units of measure to materials for various purposes.



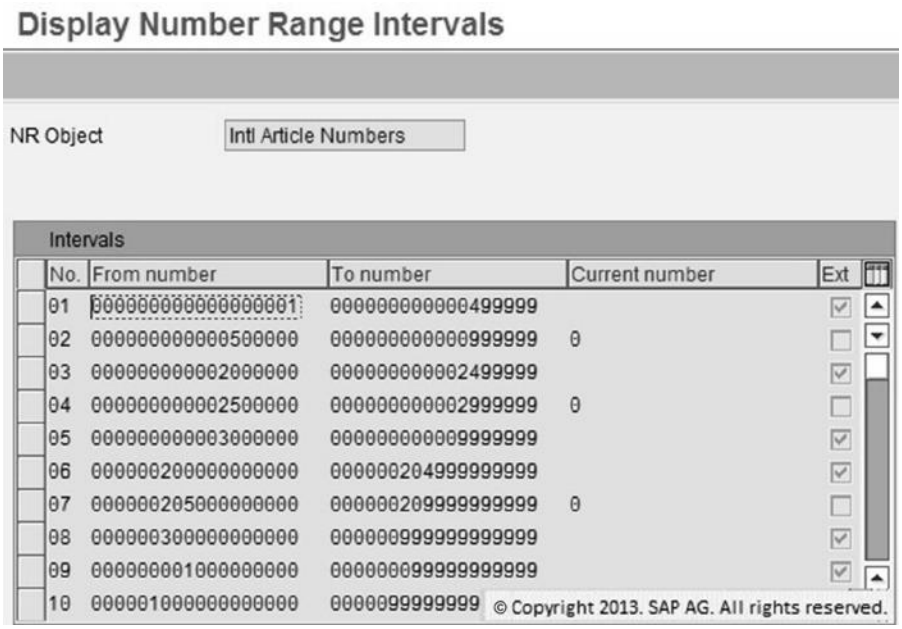
International Article Numbers

International article numbers (EANs) are used to assign specific numbers to various materials for identification.

Menu path: SPRO → IMG → Logistics General → Material Master → Settings for Key Fields → International Articles Numbers (EANs)

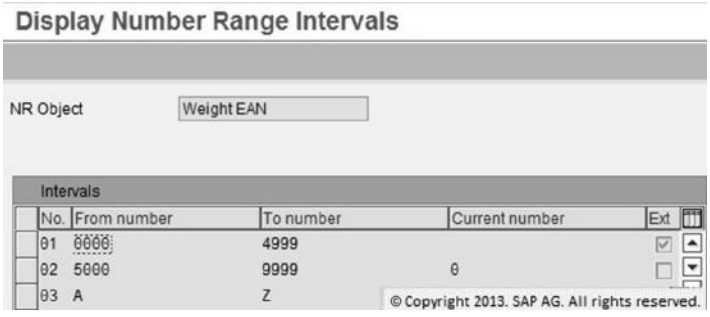
Define Number Ranges for EANs/Universal Product Codes (UPCs)

You can define the number ranges for the EANs here.



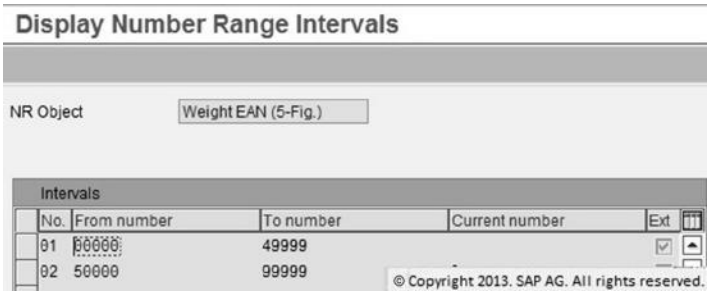
Define Number Ranges for Perishable EANs (Four Digits)

Perishable materials have a different set of EANs. In this IMG activity, you can define EANs of four digits.



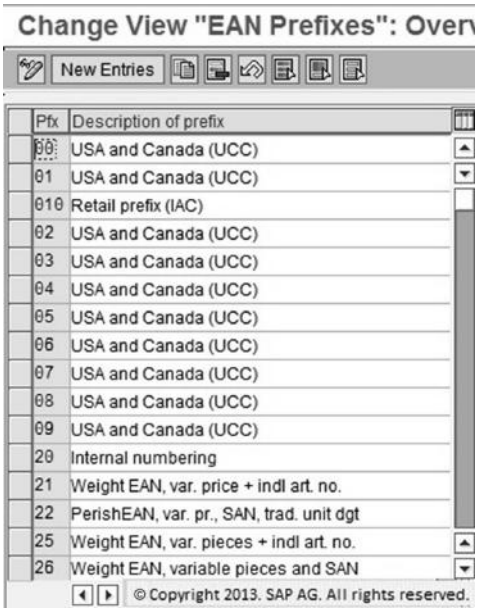
Define Number Ranges for Perishable EANs (Five Digits)

Perishable materials have a different set of EANs. In this IMG activity, you can define EANs of five digits.



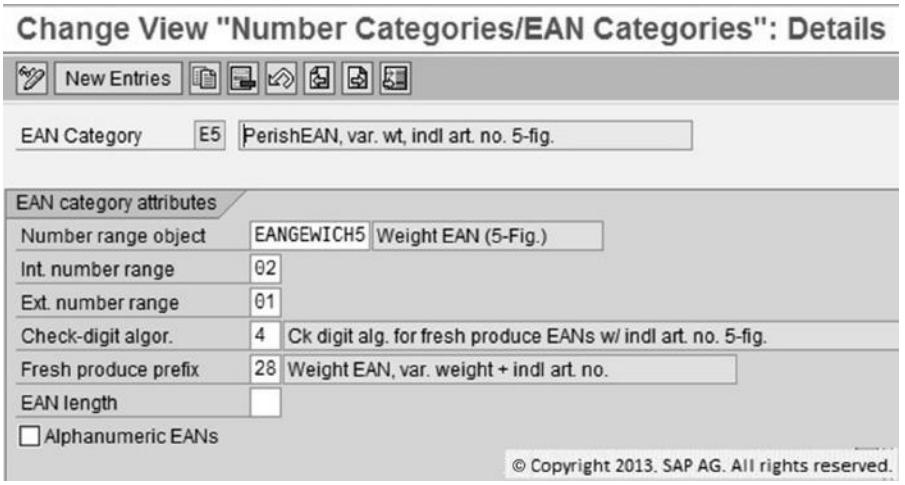
Define Prefixes for EANs

EANs can have a prefix. Here you can define the prefix which you use.



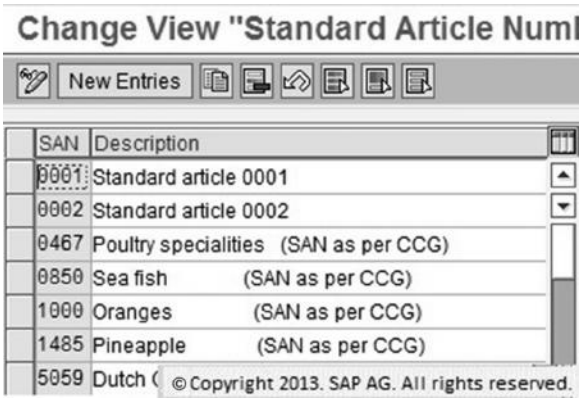
Define Attributes of EANs

You can define the attributes of EANs that can be used to segregate materials based on origin, manufacturing/trading, or any other criteria. At the same time, similar materials can have similar EANs.



Enter Standard Article Numbers

Standard article numbers (SANs) are used in retail industry. They are similar to EANs.



Maintain Process Mapping

Process mapping is used to map the messages to basic message types and the direction of the message (customer/vendor or inbound/outbound).

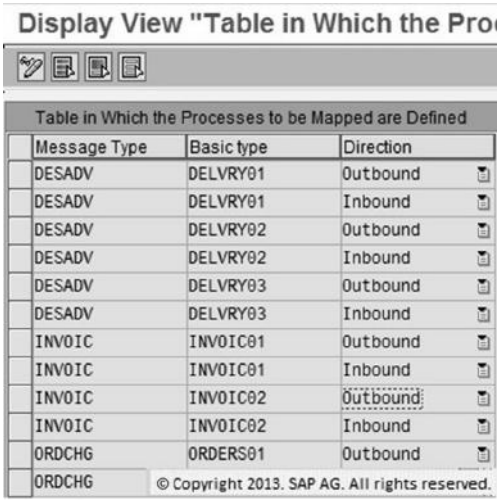

Display View "Table in Which the Pro

Table in Which the Processes to be Mapped are Defined

Message Type	Basic type	Direction
DESADV	DELVRY01	Outbound
DESADV	DELVRY01	Inbound
DESADV	DELVRY02	Outbound
DESADV	DELVRY02	Inbound
DESADV	DELVRY03	Outbound
DESADV	DELVRY03	Inbound
INVOIC	INVOIC01	Outbound
INVOIC	INVOIC01	Inbound
INVOIC	INVOIC02	Outbound
INVOIC	INVOIC02	Inbound
ORDCHG	ORDERS01	Outbound
ORDCHG		

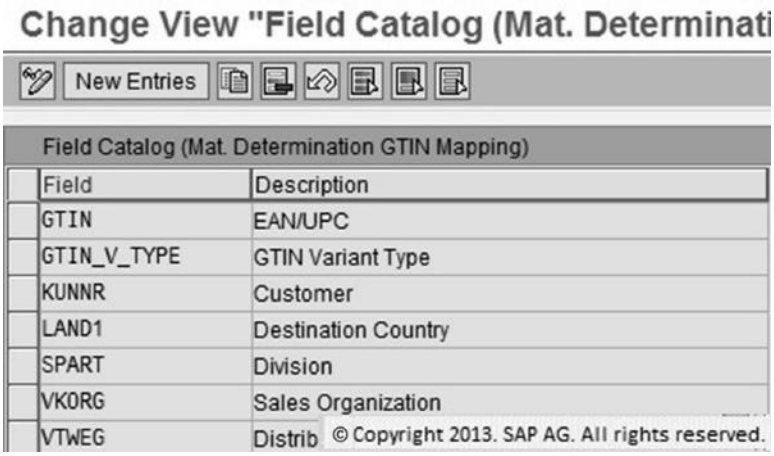
GTIN Mapping

Global trade item number (GTIN) is an identifier for trade items developed by GS1 (comprising among others of the former EAN International and Uniform Code Council) to identify, and classify trading goods for international trade.

Menu path: SPRO → IMG → Logistics General → Material Master → Settings for Key Fields → International Articles Numbers (EANs) → GTIN Mapping

Maintain Field Catalog

GTIN field catalog contains entries for customer information, originating country, destination country, sales organization, distribution channel, and so on. Entries in the field catalog are then used for making condition tables.


Change View "Field Catalog (Mat. Determinati

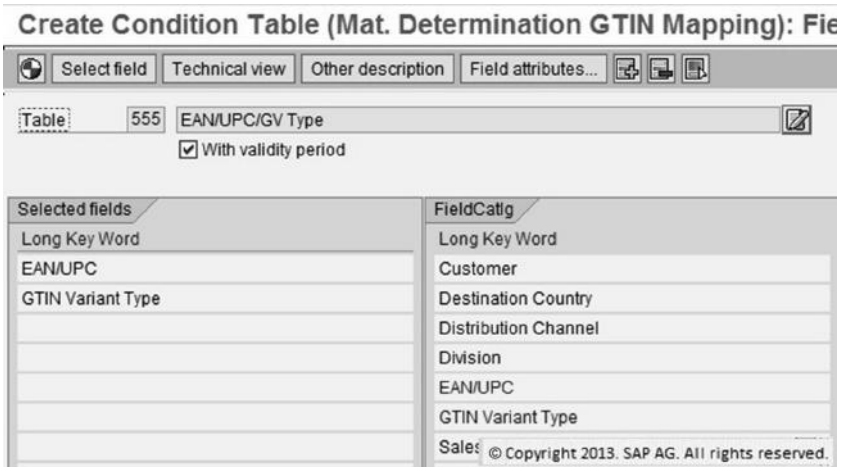
New Entries

Field Catalog (Mat. Determination GTIN Mapping)

Field	Description
GTIN	EAN/UPC
GTIN_V_TYPE	GTIN Variant Type
KUNNR	Customer
LAND1	Destination Country
SPART	Division
VKORG	Sales Organization
VTWEG	Distrib

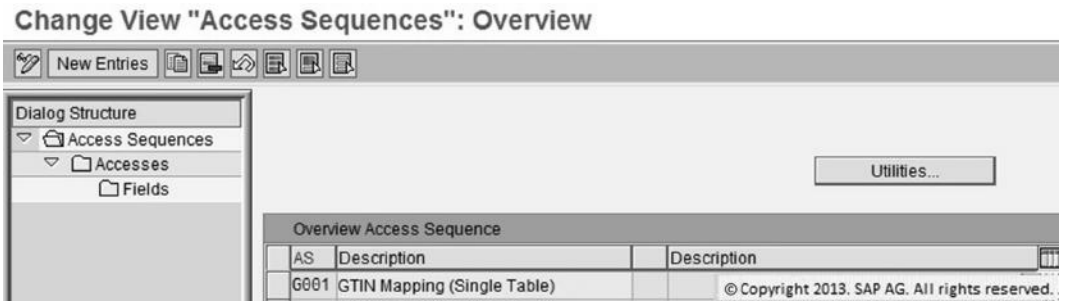
Maintain Condition Tables

The condition table of GTIN contains fields that are defined in the field catalog.



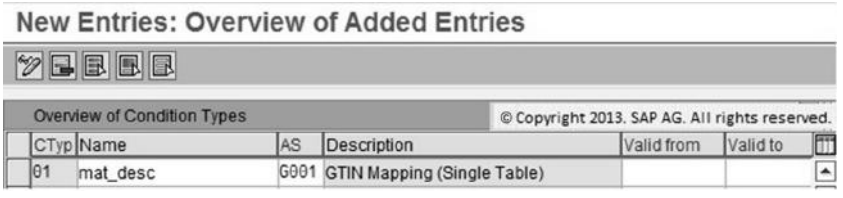
Maintain Access Sequences

An access sequence contains condition tables with access sequence defined for them. How and when any of the condition tables are accessed depends on the access sequence defined.



Maintain Condition Types

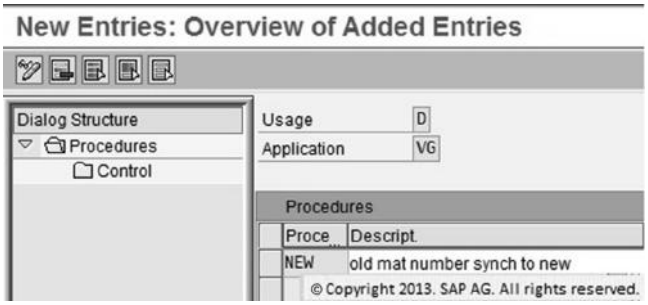
In this IMG activity, you can define the condition types for GTIN mapping. You can also define the access sequence for each condition type and specify the fields that the SAP system checks while searching for valid condition records.



Maintain Determination Procedures

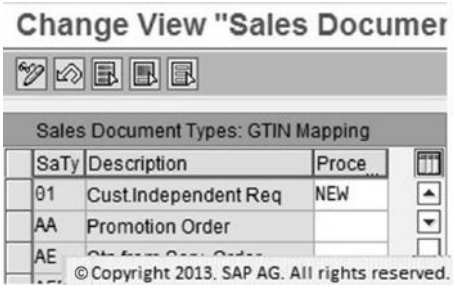
The determination procedure defines the condition types that must be used during the determination process. The sequence of condition types is defined using the classification properties: step and counter. While executing the determination process, the system processes the condition types in the sequence of these properties.

The system stops GTIN mapping as soon as it finds a condition record. If the system finds several condition records for the same access, it uses the condition record having the highest priority.



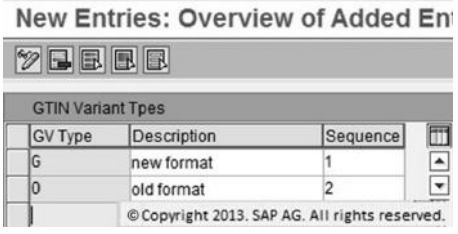
Assign Procedure to Document Type

The system performs GTIN mapping during the IDoc inbound process for the specified sales document types. In this step, you can specify if GTIN mapping should be performed for each individual sales document type.



Maintain GTIN Variant Type

GTIN variant types can be used in condition tables and can be filled in during maintenance of condition records. You can use them to control the order in which the condition records for GTIN mapping are applied.



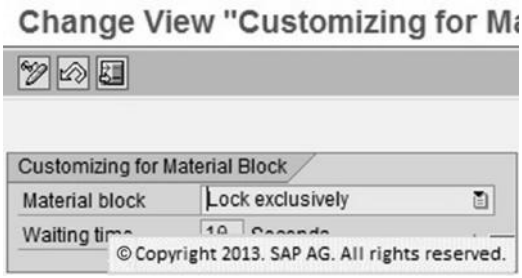
Materials Management General Settings

Materials management general settings are top-level settings at materials management level. They are above purchasing and inventory management levels.

Menu path: SPRO → IMG → Materials Management → General Setting for Materials Management

Set Material Block for Material Movement

The system uses the material block to prevent more than one goods movement being posted at a time for the same material, thereby preventing inconsistencies between the stock quantities and the stock values. There are two types of material block: exclusive material block and late material block.



Exclusive Material Block

In this procedure, when the material master data are read for the first time for a goods movement, the plant data and the accounting data are locked exclusively up to the end of the goods movement posting. Another user cannot work with the material during this time. This ensures that the goods movement is valuated correctly and that the stock quantities and values are updated correctly. The disadvantage of this procedure is the long locking time (from the time when the material master data are read for the first time during the entry of the goods movement up to the closing of the update posting).

Late Material Block

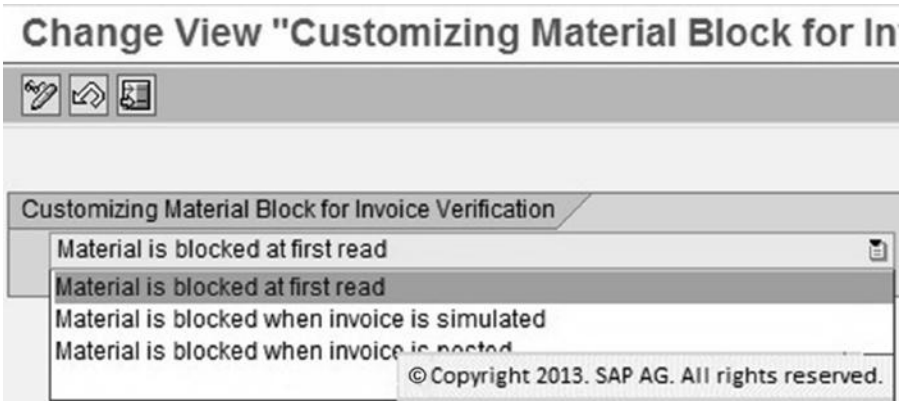
This procedure provides for optimization of the material block due to the following reasons:

- The materials are no longer blocked exclusively, the only exception being when actual data is to be saved.
- The material is blocked exclusively at the latest time possible to keep the blocking time as short as possible.

The advantage of this procedure is that several users can enter goods movements at the same time. The disadvantage of this procedure is that the material master record is read several times and, in the case of an outward movement, lock entries of other users in the available to promise (ATP) server must be taken into consideration. These additional accesses have a negative effect on performance.

Set Up Material Block for Invoice Verification

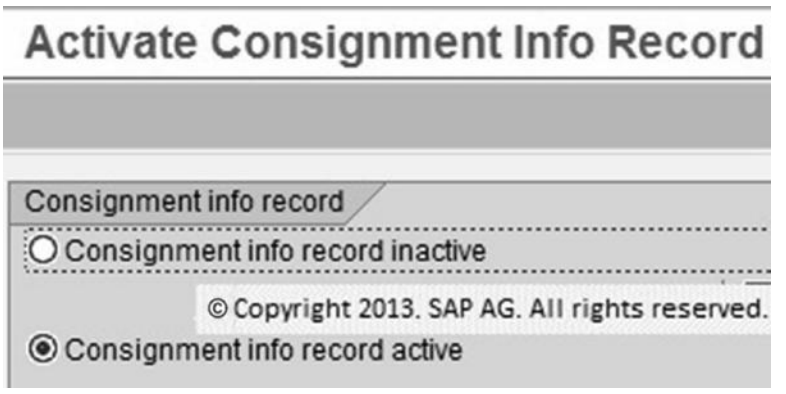
In this step, you specify at what point materials are blocked in invoice verification. During the allocation phase, all materials present in the invoice are blocked. During simulation or posting, materials whose stocks are to be changed are blocked and are read again when you post. When you post directly to a material, the given material is blocked immediately in all settings.



Activate Consignment Prices via Info Records

When you have consignment arrangement with any of your vendors, the price of the materials will be different from the price of the same materials when procured conventionally. This is because the vendor gives you an extra service by providing an inventory of the material and you do not have to keep the inventory yourself. The vendor in exchange charges you extra for this service.

To invoke special pricing for consignment, you need to activate the consignment prices via info record in this IMG activity.



Chapter 7

SAP MM Customizing—MRP

Introduction

Material requirements planning (MRP) is a system that is responsible for finding out purchasing requirements for any plant. MRP takes the quantities of finished products to be made to fulfill the customer orders. From these quantities, it calculates the required quantities of raw materials to make the production order quantities of finished products.

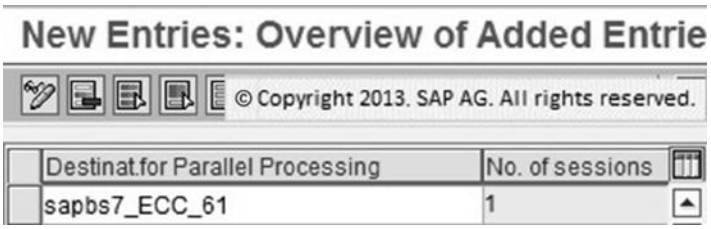
MRP generates planned orders for required raw material quantities on dates. These planned orders can be manually or automatically converted into purchase requisitions. The purchase requisitions can in turn be manually or automatically converted into purchase orders or any other external purchasing documents such as contracts and request for quotation (RFQ).

Consumption-Based Planning

Menu path: SPRO → IMG → Materials Management → Consumption-Based Planning

Define Parallel Processing in MRP

By using the parallel processing techniques, you can significantly improve the run time of the total planning run. For this purpose, you can choose various sessions on one server or several servers. The parallel processing procedure runs according to packages using the logic of the low-level codes: A package (size to be defined) is distributed over the individual servers/tasks. Once the server/session has processed one package, it starts processing the next one of the same size.



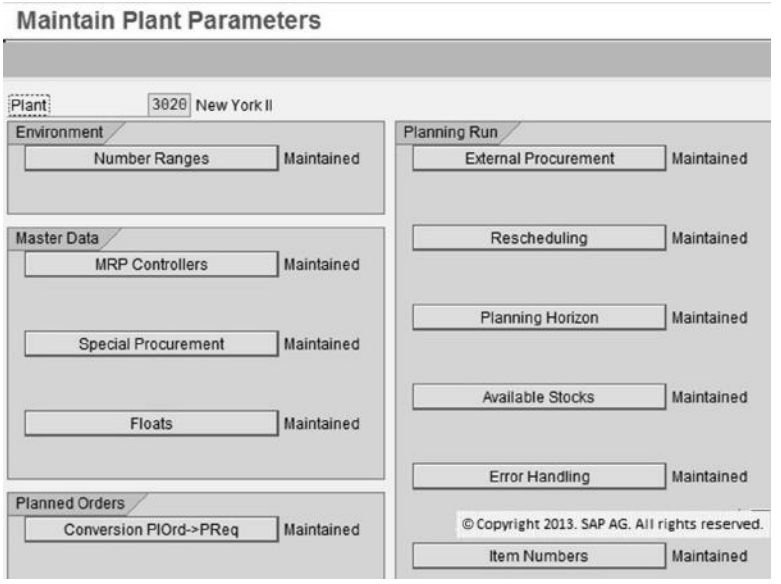
Once the low-level code has been completely processed, the finished tasks must wait until the last task in the package has finished processing to avoid inconsistencies. Then the next low-level code is processed package by package. The parallel processing technique is switched on from the initial screen of the total planning run.

Plant Parameters

Menu path: SPRO → IMG → Materials Management → Consumption-Based Planning → Plant Parameters

Carry Out Overall Maintenance of Plant Parameters

In this IMG activity, you perform several tasks. These tasks include defining the number ranges, MRP controllers, special procurement, floats for time horizons in planning, conversion of planned orders to purchase requisitions, conversion of purchase requisitions to purchase orders, rescheduling, planning horizons, stock availability checks, error handling during planning, and so on.



Whenever there is a change in any parameter related to these tasks, you maintain these tasks.

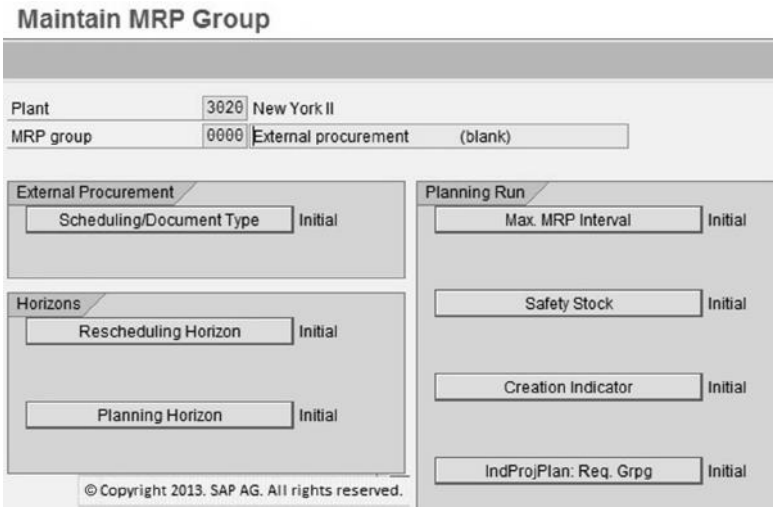
MRP Groups

Menu path: SPRO → IMG → Materials Management → Consumption-Based Planning → MRP Groups

Carry Out Overall Maintenance of MRP Groups

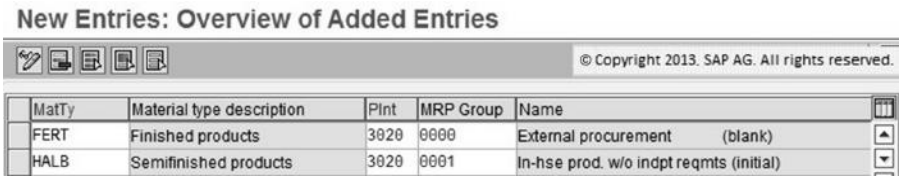
For each MRP group, you need to do maintenance of planning tasks regularly because one planning parameter or the other gets changing from time to time. These planning tasks include

scheduling document type for external procurement, rescheduling horizon, planning horizon, maximum MRP interval for MRP runs, safety stock check, MRP planning creation indicator, project plan inclusion in MRP planning run, and so on.



Define MRP Group for Each Material Type

Each material type needs to have an MRP group defined. This is done in the IMG activity.

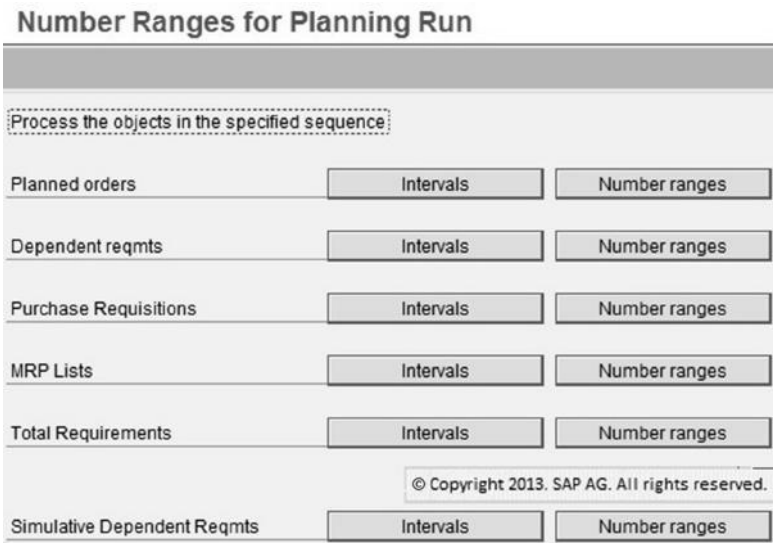


Number Ranges

Menu path: SPRO → IMG → Materials Management → Consumption-Based Planning → Number Ranges

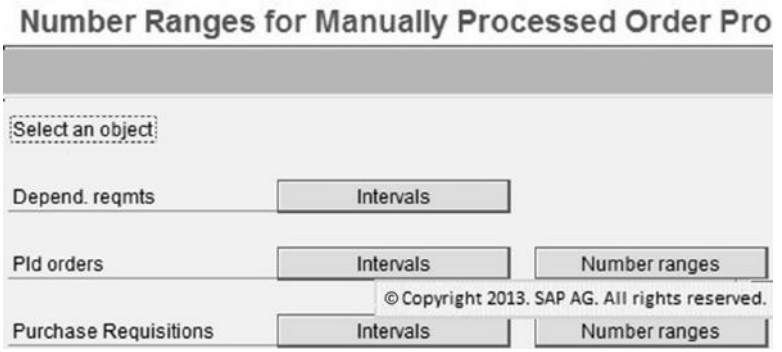
Define Number Ranges for Planning Run

The planning run for MRP generates a lot of documents. These documents include planned orders, purchase requisitions, MRP lists, dependent requirements, total requirements, simulative dependent requirements, and so on. Each of these kinds of document needs to be tracked. The system generates a unique number that is attached to the generated documents. These unique numbers help in tracking these documents. You can define the number ranges for each kind of documents in this IMG activity.



Define Number Ranges for Manual Processing

In the preceding IMG activity, we defined the number ranges for documents wherein the numbers are automatically generated. But it is also possible that you can maintain an external number range and assign the numbers manually to the documents generated during MRP planning. In this IMG activity, you can define the number ranges which you assign to the documents manually.

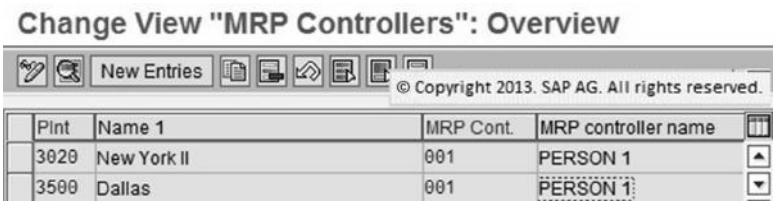


Master Data

Menu path: SPRO → IMG → Materials Management → Consumption-Based Planning → Master Data

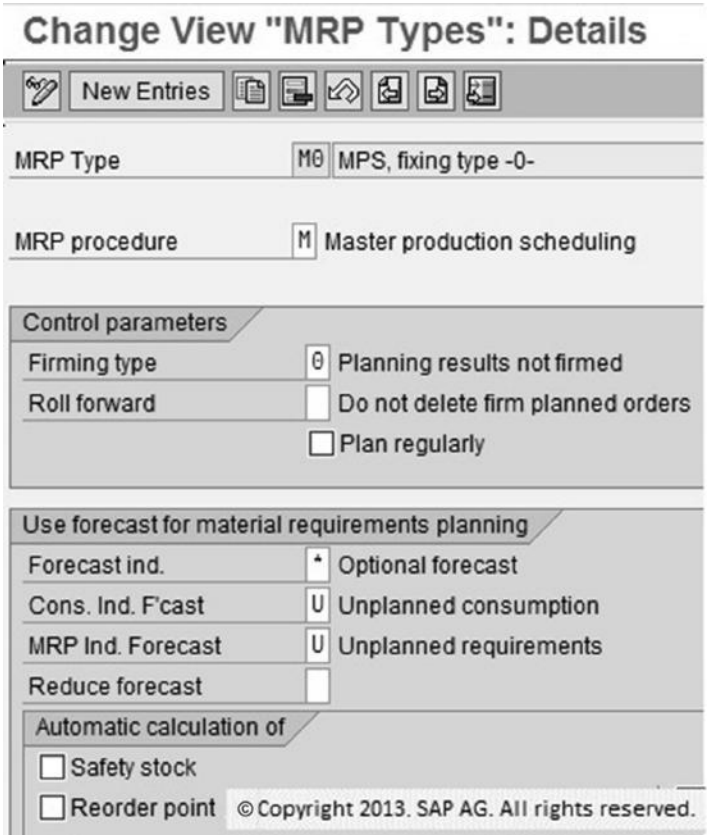
Define MRP Controllers

MRP tasks are performed by an MRP controller who maintains MRP parameters and runs MRP. In this IMG activity, you define the roles of MRP controller for all MRP areas and assign them to users who will act as MRP controllers.



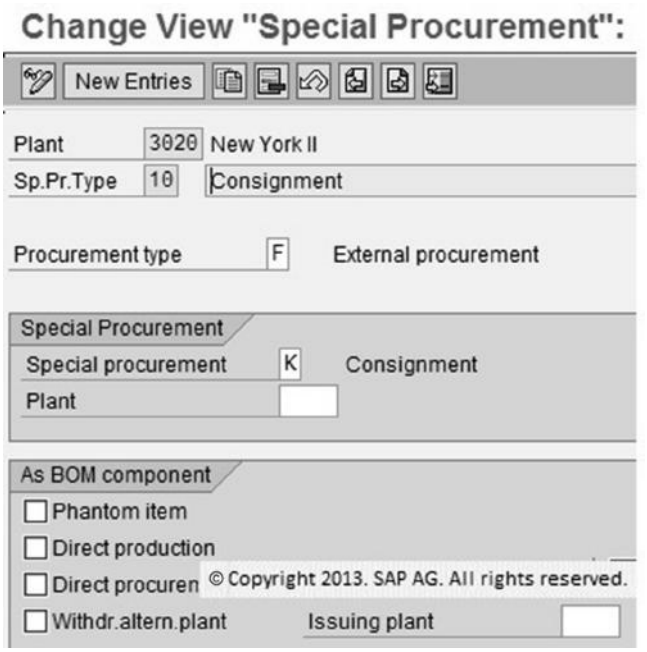
Check MRP Types

In this IMG activity, you can define various types of MRP in the system. MRP types are defined by selection of MRP procedure, firming of plan type, forecast inclusion in planning, calculation of safety stock and reorder point, and so on.



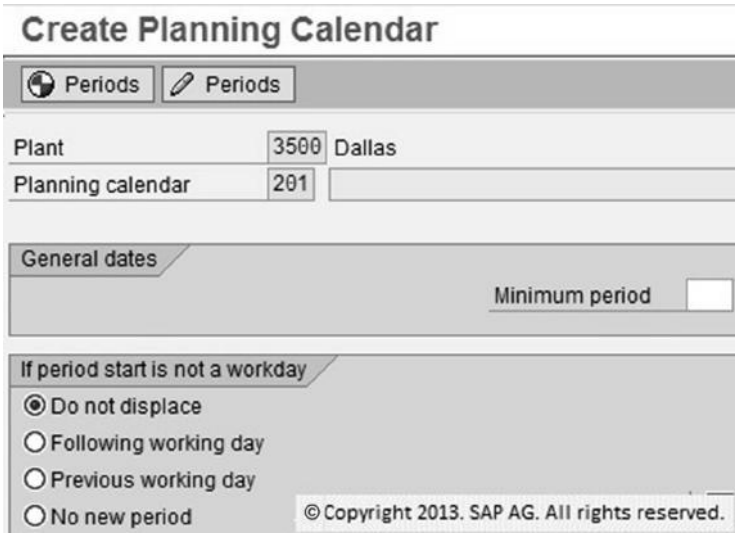
Define Special Procurement Types

Procurement types can be special when you have consignment, subcontracting, and pipeline type of procurement. In this IMG activity, you can define for which plant special procurement type needs to be created. Additionally you can also define if any of the procured material needs to be part of a Bill of Materials (BOM).



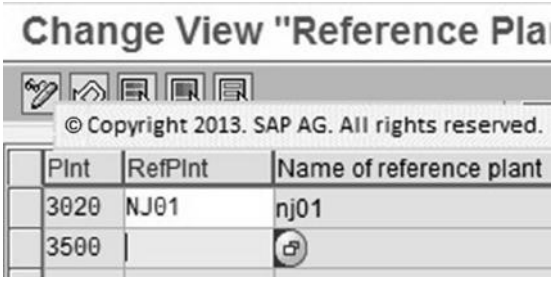
Maintain Planning Calendar

For MRP planning purpose, you need to create a planning calendar for each plant or MRP area. You can name the calendar and specify the dates for planning run, planning periods, and so on.



Reference Plant for Access to Central Master Data Tables

The reference plant is used to reduce maintenance effort for the master data including planning calendar, planning cycle, range of coverage profile, and rounding profile.



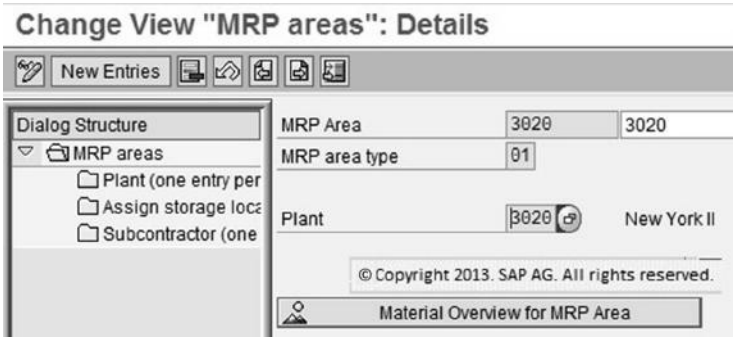
Using the function, "reference plant," you only need to maintain this master data in one plant (in the reference plant). The other plants that use the same master data only need to refer to the reference plant. In this way, all the master data that have been maintained in the reference plant are automatically available for the assigned plants.

MRP Areas

Menu path: SPRO → IMG → Materials Management → Consumption-Based Planning → Master Data → MRP Areas

Define MRP Areas

In this IMG activity, you define the MRP area for every plant for which you would like to carry out MRP separately. You assign the materials to the MRP areas by creating a segment for the MRP area in the material master record.



There are three types of MRP areas: type 01 for plant, type 02 for storage locations, and type 03 for subcontractors.

Type 01 for Plant

The plant MRP area initially contains the plant together with all its storage locations and stock with subcontractors. It is created automatically when you convert the existing planning file entries to the planning file entries for MRP areas.

When you have defined MRP areas for storage locations and subcontractors, and assigned the materials, the plant MRP area is reduced by exactly this number of subcontractors and storage locations, as they are now to be planned separately.

If you have not assigned a material to an MRP area, that is, you have not created an MRP area segment in the material master record, the material will continue to be planned in the plant MRP area.

Type 02 for Storage Locations

You choose this type for MRP areas that consist of one or more storage locations. A storage location can only be assigned to one MRP area.

Type 03 for Subcontractors

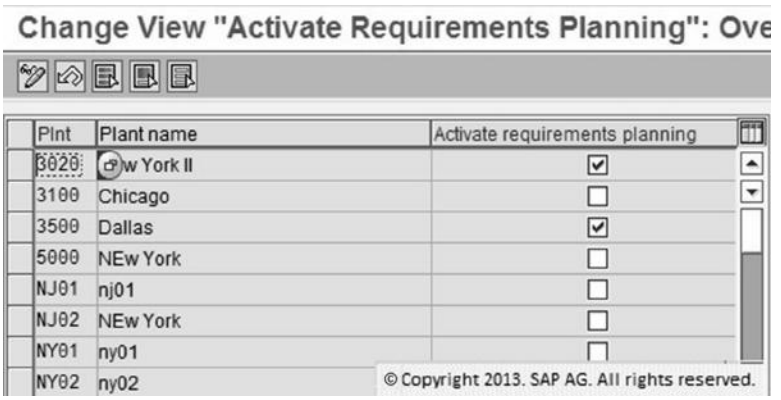
You choose this type if you would like to define an MRP area for a subcontractor. You can only assign one subcontractor to an MRP area of the subcontractor type.

MRP Planning Settings

Menu path: SPRO → IMG → Materials Management → Consumption-Based Planning → Planning

Activate MRP

In this step, you make the settings for activating MRP, setting up planning file, and carrying out consistency check for planning file. These are required for carrying out the planning run. MRP planning will be made for which plants, if incremental or complete planning run will be done, and so on, considerations are thought out for the planning run.

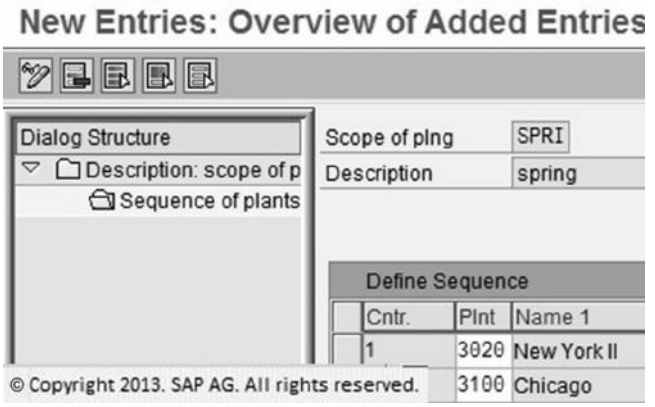


The planning file controls the total planning run for the planning procedures "net change planning" and "net change planning in the planning horizon." It contains all materials that can be relevant for the planning run. A material is automatically recorded in the planning file with the valid MRP type when it is created. The planning file uses various indicators to control whether the material is included in the planning run.

Check for planning file is done to ensure that whether MRP is deactivated, materials planning for material master records by using the MRP type "No planning" are deactivated, or material master records that were previously set to "No planning" with a valid MRP type are activated.

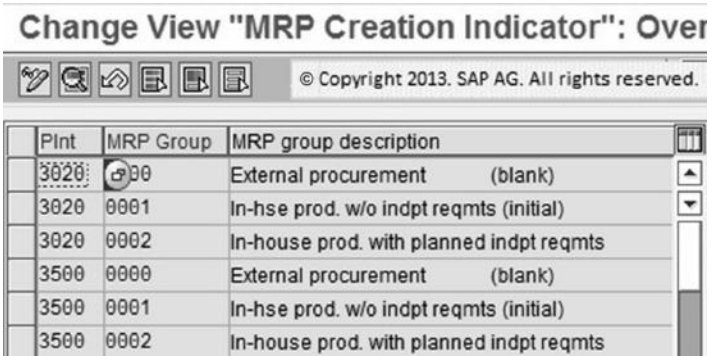
Define Scope of Planning for Total Planning

In this IMG activity, you define all plants and all MRP areas that will be included in the planning run. For example, you can exclude an MRP area that belongs to a plant but include other MRP areas for the same plant in the planning run. If a plan has many MRP areas and you have selected only plant, MRP run will be done for all the MRP areas for that plant.



Define Creation Indicator

On the initial screen for the planning run, you can use creation indicators to determine whether purchase requisitions are always to be created in the planning run, whether they are only to be created in the opening period, or whether schedule lines are to be created. In this step, you can define special creation indicators for the MRP groups for purchase requisitions, MRP lists, and schedule lines.

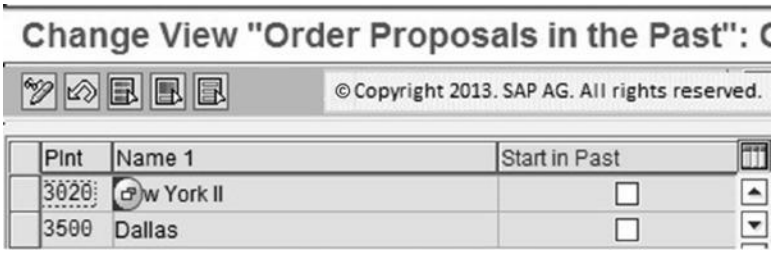


Define Floats (Scheduling Margin Key)

Floats are schedule margins for production because the required parts are available on time for departments that consume these parts as raw materials. Floats can be time period either before production or after production.

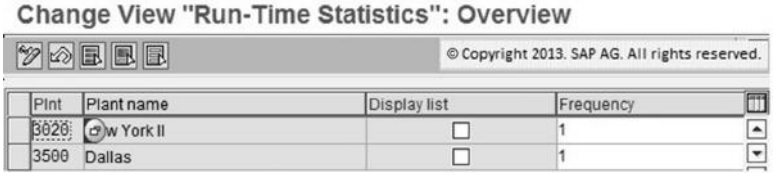
Parameters for Determining Basic Dates

In this step, you can determine per plant that the system will not automatically switch to the forward scheduling for calculating the basic dates if the planned start date lies in the past. If this indicator is set, the system will only use the backward scheduling procedure for calculating the basic dates, even if the start date ends up in the past.



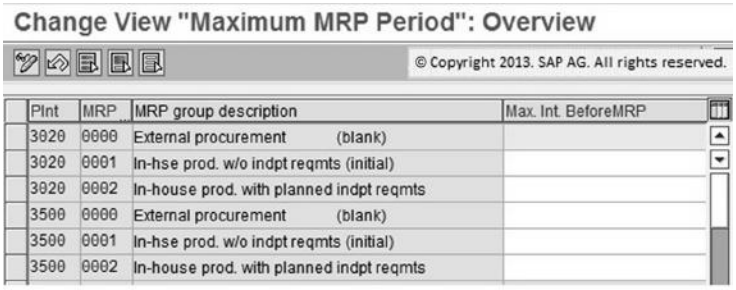
Activate Runtime Statistics

In this step, you define and activate the runtime statistics. These statistics are used to check the run time of the planning run. For every plant, you can determine whether a statistic check is to be carried out or for which materials an entry should be made in the runtime statistics list during the planning run. An entry in the statistics is then made for the multiple of this value.



Define the Maximum MRP Period

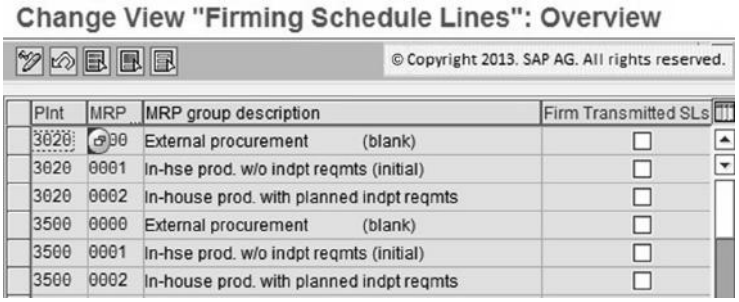
Maximum MRP period is the regular period for which you make MRP plan for external or in-house production procurement. The implication is for the lot size of the planned materials. You can use the maximum MRP period to avoid a situation where order proposals that were created with the long-term lot size move into the short-term area as no changes have been made which are relevant to the planning run.


Change View "Maximum MRP Period": Overview

Plnt	MRP	MRP group description	Max. Int. BeforeMRP
3020	0000	External procurement (blank)	
3020	0001	In-hse prod. w/o indpt reqmts (initial)	
3020	0002	In-house prod. with planned indpt reqmts	
3500	0000	External procurement (blank)	
3500	0001	In-hse prod. w/o indpt reqmts (initial)	
3500	0002	In-house prod. with planned indpt reqmts	

Indicator for Only Firm Transmitted Schedule Lines

For scheduling agreements, the firmed schedule lines are those which come within the planning time horizon. All other schedule lines that are outside the planning time horizon are still tentative. They will become firm when the planning horizon moves within the dates in which these schedule lines fall. This is a continuously moving phenomenon.

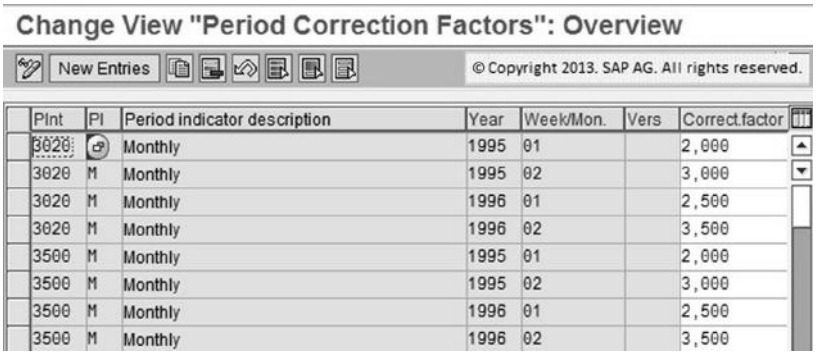

Change View "Firming Schedule Lines": Overview

Plnt	MRP	MRP group description	Firm Transmitted SLs
3020	0000	External procurement (blank)	☐
3020	0001	In-hse prod. w/o indpt reqmts (initial)	☐
3020	0002	In-house prod. with planned indpt reqmts	☐
3500	0000	External procurement (blank)	☐
3500	0001	In-hse prod. w/o indpt reqmts (initial)	☐
3500	0002	In-house prod. with planned indpt reqmts	☐

The firmed schedule lines can be transmitted to the vendor if the indicator is set in this activity.

Maintain Correction Factors for Forecast

The forecast used in MRP planning is based on past consumption. To make the forecast more accurate, a correction factor can be applied over the result of the required materials obtained from the forecast. This correction factor is based on experience taking into account seasonal, promotional, and other factors. So in this IMG activity, you maintain correction factors for each plant for each time period of the year.

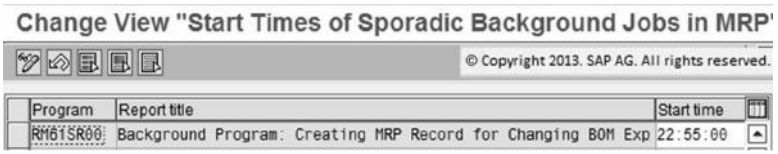

Change View "Period Correction Factors": Overview

New Entries

Plnt	PI	Period indicator description	Year	Week/Mon.	Vers	Correct.factor
3020		Monthly	1995	01		2,000
3020	M	Monthly	1995	02		3,000
3020	M	Monthly	1996	01		2,500
3020	M	Monthly	1996	02		3,500
3500	M	Monthly	1995	01		2,000
3500	M	Monthly	1995	02		3,000
3500	M	Monthly	1996	01		2,500
3500	M	Monthly	1996	02		3,500

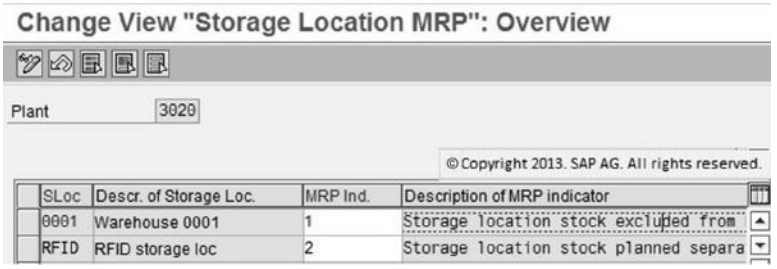
Define Start Time of Sporadic Background Jobs

Background jobs in the MRP include MRP record for changing BOM explosion numbers. In this IMG activity, you can define at what time of the day this background job can start.



Define the Storage Location MRP per Plant

The storage locations of each plant which should be considered for MRP planning can be defined in this IMG activity. Some storage locations can be completely excluded and some can be considered for separate stock replenishment per MRP run.

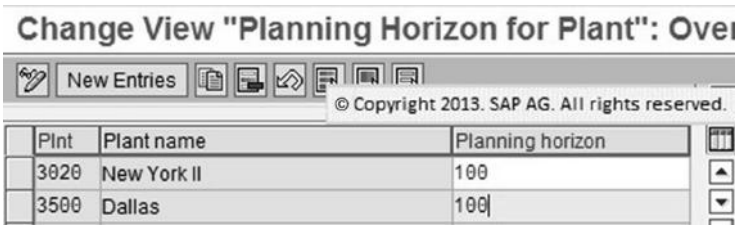


MRP Calculation

Menu path: SPRO → IMG → Materials Management → Consumption-Based Planning → Planning → MRP Calculation

Define Planning Horizon

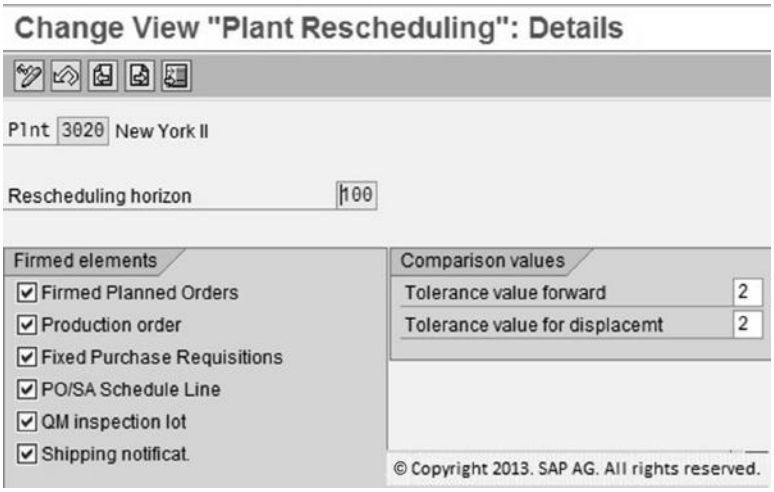
You can define planning horizon for each plant or MRP group. In this kind of planning run, the system only plans the materials that have undergone a change in the planning horizon that is relevant to MRP. In such cases, the material receives a net change planning indicator in the planning file. You make this specification for a plant. You can determine an alternative planning horizon for the MRP groups. The length of the planning horizon should at least include the period in which sales orders are received, the delivery times, or the total lead times of the materials.



Define Rescheduling Horizon

For each plant, you can define rescheduling time horizon to make net changes for requirement. The net changes in requirement may result in change or creation of a scheduling time horizon.

The rescheduling horizon is the period in which the SAP system checks whether the existing dates still suit the requirements situation for the elements received which can no longer be automatically changed in the planning run. If the dates of a particular element are no longer suitable, exception messages are created depending on the requirements situation. If the date of the requirement lies before the date of the receipt element, bring the element forward. If the date of the requirement lies after the date of the receipt element, postpone the element. If the requirement no longer exists, delete the element.

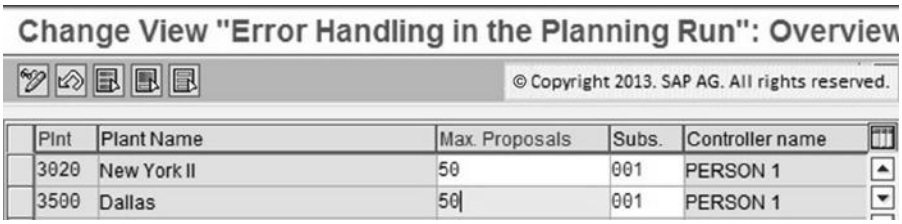


Define Error Handling

In the standard SAP system, the following error handling is defined by default:

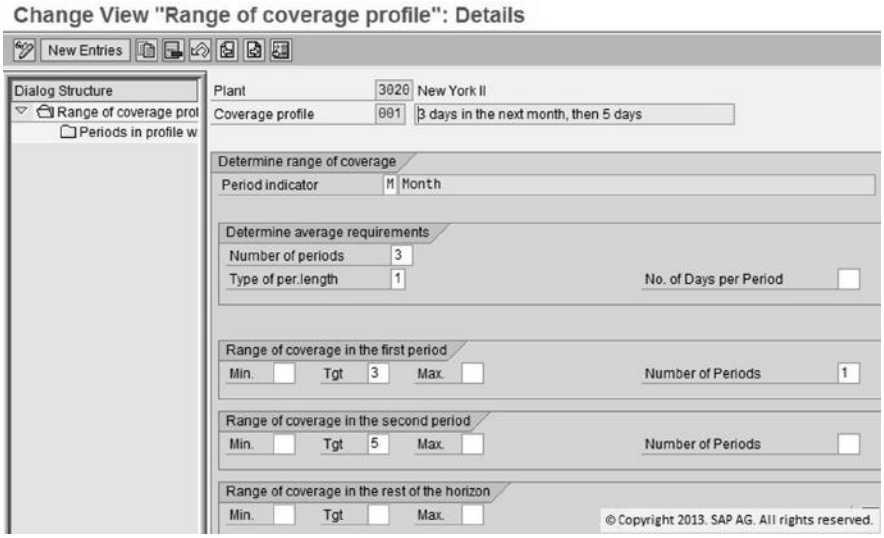
1. Material does not exist
2. Error reading the forecast parameters
3. Error reading the forecast values

In these three cases, the system generates the error and MRP planning run is stopped. You can define error messages for other types of situations.



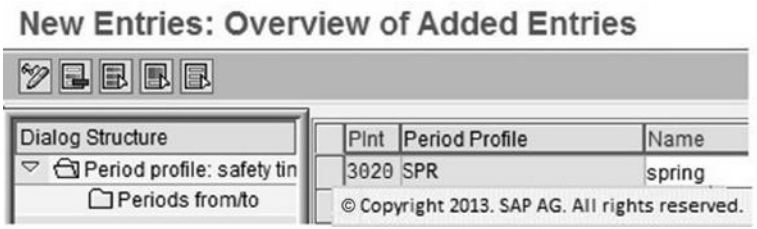
Define Range of Coverage Profiles (Dynamic Safety Stock)

Using the range of coverage functions, you can determine a safety stock level that is based on the requirements and the range of coverage. The dynamic safety stock is automatically adjusted to make changes in requirements and is fully available for MRP. The calculation of the dynamic safety stock can be limited—by entering the maximum and minimum ranges of coverage and by determining the various periods for the validity of the range of coverage.



Define Period Profile for Safety Time/Actual Range of Coverage

During promotions or seasonal demand, safety time or actual range of coverage is higher because of higher demand compared to normal demand at other times of the year. So you define the period profile for normal and peak demand periods accordingly.



Safety Stock Planning

Menu path: SPRO → IMG → Materials Management → Consumption-Based Planning → Planning → MRP Calculation → Stocks

Define Safety Stock Availability

In this IMG activity, you define the percentage of the safety stock to be available for planning. This function is used to avoid a situation where orders proposals are created unnecessarily by the

system to cover small shortage of quantities. In MRP, the system usually carries out the lot-size calculation for every shortage and creates an appropriate order proposal or, if already available, a firm receipt with a rescheduling proposal.


Change View "Safety Stock Availability": Overview

Plnt	Plant Name	MRP group	Share SStk
3020	New York II	0000	
3020	New York II	0001	
3020	New York II	0002	
3500	Dallas	0000	
3500	Dallas	0001	
3500	Dallas		

Define Stock in Transfer and Blocked Stock Availability

When calculating the required quantities of material in MRP, you should also indicate if some stock is in transfer state or a plant or some stock is in blocked state so that MRP can take care of these quantities and calculate the material quantities accordingly.


Change View "Available Stocks": Overview

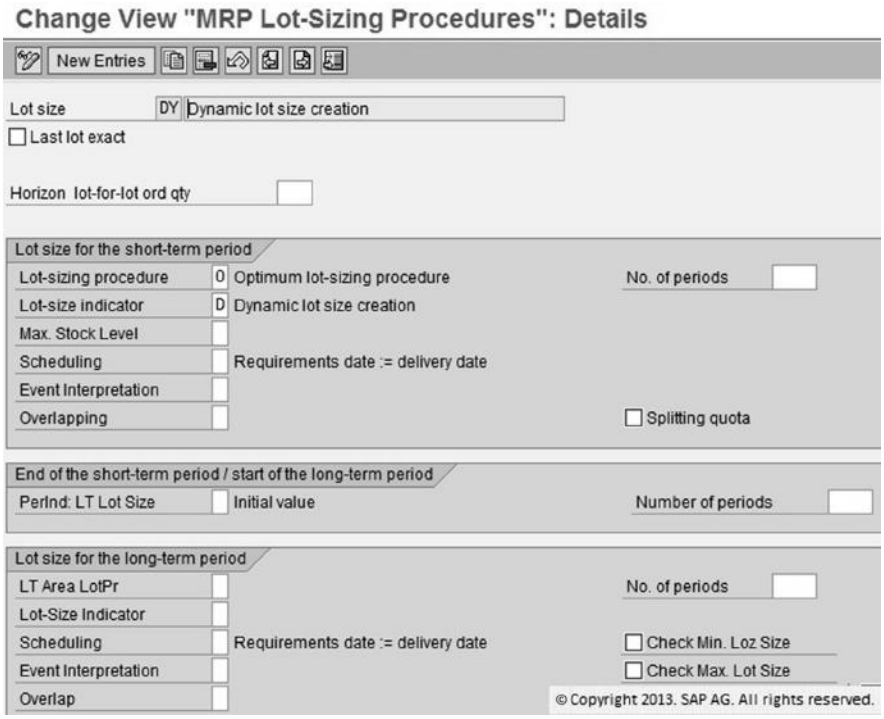
Plnt	Name 1	Stock in transfer	Blocked Stk	Restricted-use stock
3020	New York II	☑	☑	☑
3500	Dallas	☑	☑	☑

Lot-Size Calculation

Menu path: SPRO → IMG → Materials Management → Consumption-Based Planning → Planning → Lot-Size Calculation

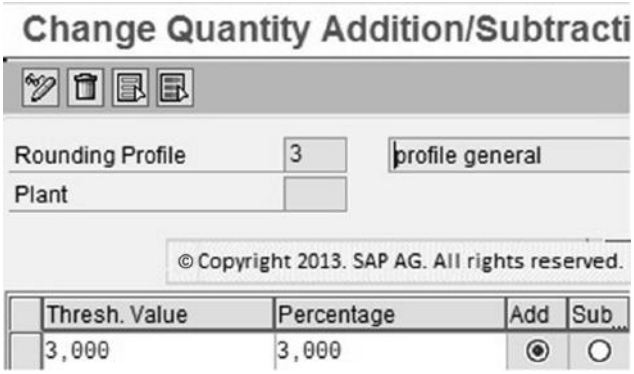
Define Lot-Sizing Procedure

Apart from actual quantities of the required material, it is also important to consider lot sizes because many materials cannot be delivered in just any quantity but they are handled in lot sizes. It makes sense because the economie costs of transportation, order, and so on are involved. So even if the actual quantity required is say 35 pieces of a component but from an order economics point of view a minimum of 100 pieces needs to be ordered. In such a situation, the MRP will generate a required quantity of 100 pieces.



Maintain Rounding Profile

If many units of measures are maintained for a material, converting them during planning may require rounding the quantity. For example, if the order unit is kilogram but stock-keeping unit is pieces, the number of pieces that may fit into 1 kg may not be a round figure. The system will then calculate the conversion as per the rounding profile. Two types of rounding values are maintained: (1) threshold value and (2) rounding value. The threshold value is the value from which the system rounds up to the next deliverable quantity. If the threshold value is not reached, the system rounds the quantity according to the next lower level. If the lowest level is not reached, the system rounds up to a multiple of the rounding value; in such case, the requirements quantity is larger than the threshold quantity. Otherwise, the requirements quantity remains unchanged. The rounding value is the value to which the system rounds the quantity if the threshold value is exceeded.

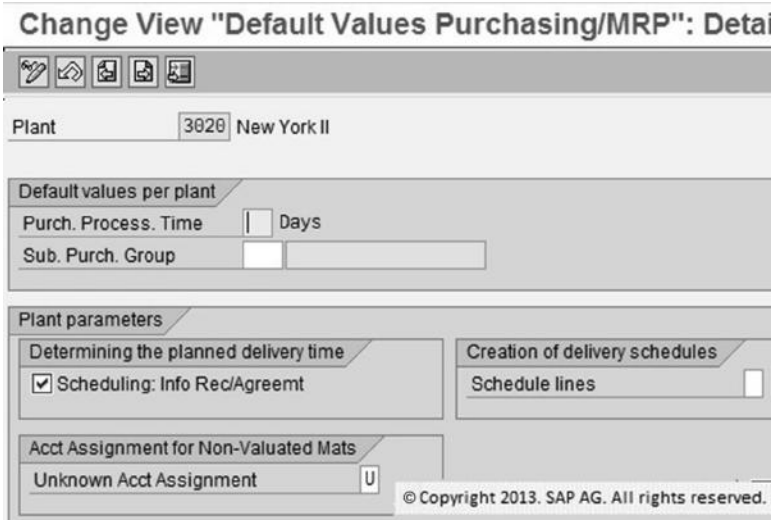


Procurement Proposal

Menu path: SPRO → IMG → Materials Management → Consumption-Based Planning → Planning → Procurement Proposals

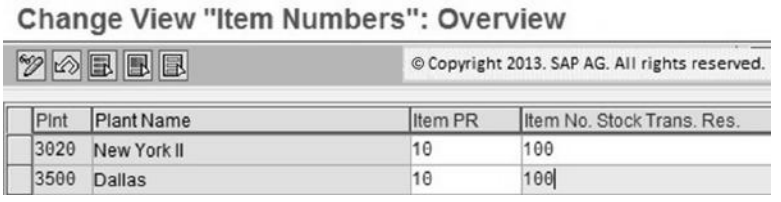
Define External Procurement

For each plant, you can define an external procurement profile in which you define the purchase process time, planned delivery time, account assignment for nonvaluated materials, and so on.



Define Line Item Numbers

If you define line item numbers for each plant, these line item numbers will be assigned to the automatically created purchase requisitions and reservations.

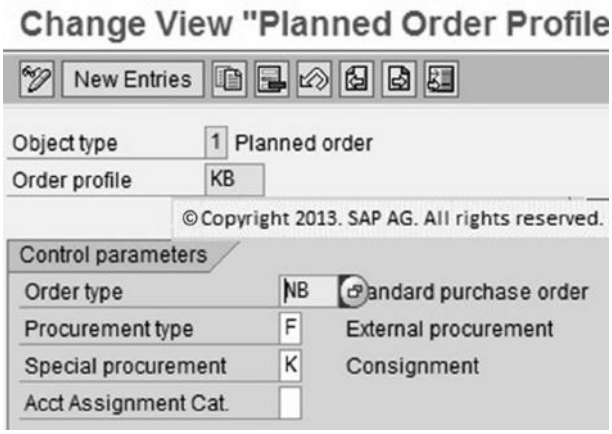


Procurement Proposals

Menu path: SPRO → IMG → Materials Management → Consumption-Based Planning → Procurement Proposals

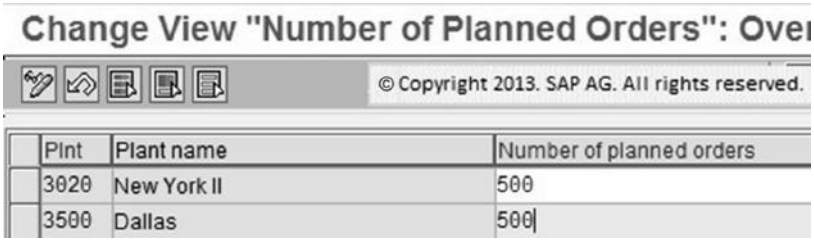
Define Order Profile

Order profile consists of parameters such as order type, procurement type, special procurement type, and account assignment category. You must group together these parameters to control procurement.



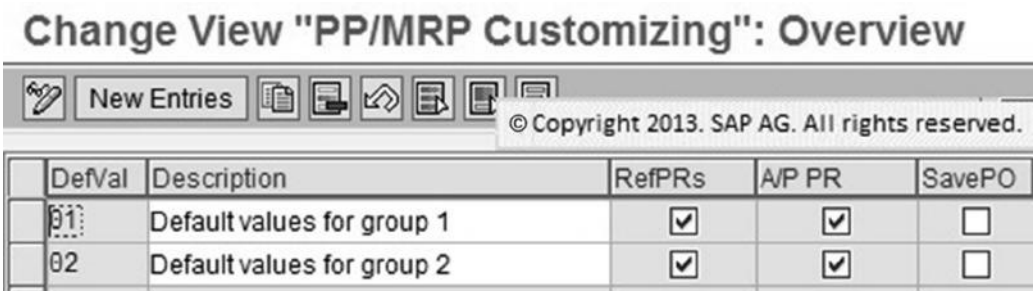
Define Conversion for Planned Orders into Purchase Requisition

You need to specify the number of planned orders that will form one purchase requisition.



Define Conversion of Purchase Requisitions into Purchase Orders

In this IMG activity, you define as to how conversion of purchase requisitions to purchase orders will take place and which steps in the conversion process will be automatic and which steps will be manual. The steps involved in the conversion process include selecting the purchase requisition items before the transfer, transferring the purchase requisition items into the purchase order, and transferring the purchase requisition items into the purchase order and post the document.

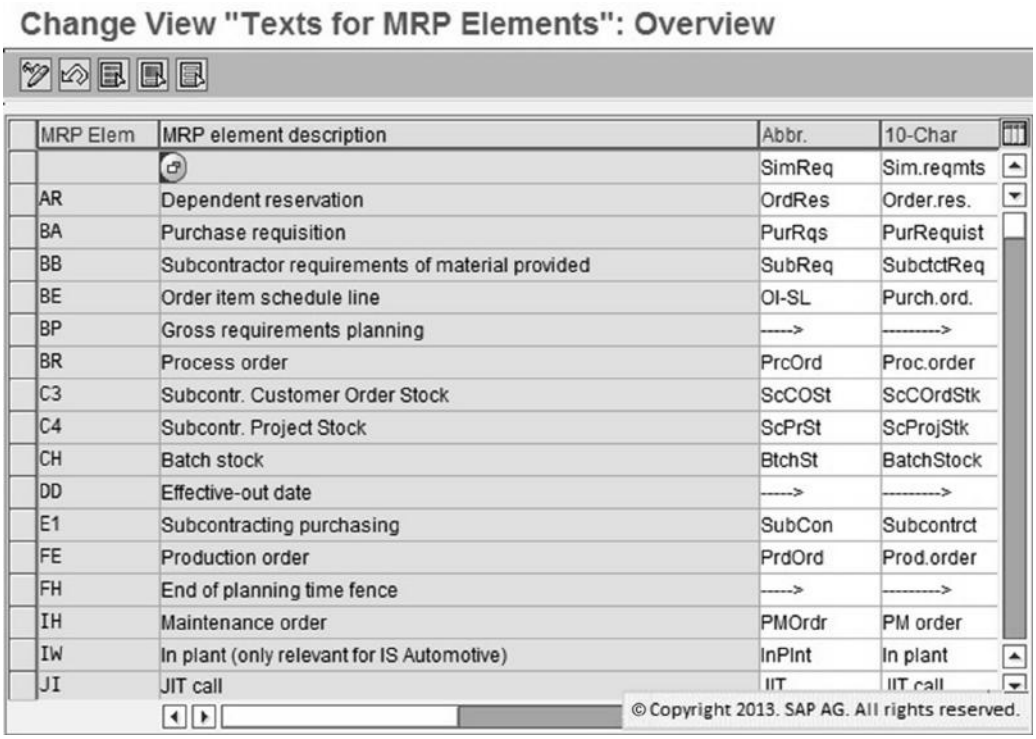


Evaluations

Menu path: SPRO → IMG → Materials Management → Consumption-Based Planning → Evaluations

Check Texts for MRP Elements

In this IMG activity, you will define texts that will be used for MRP elements.

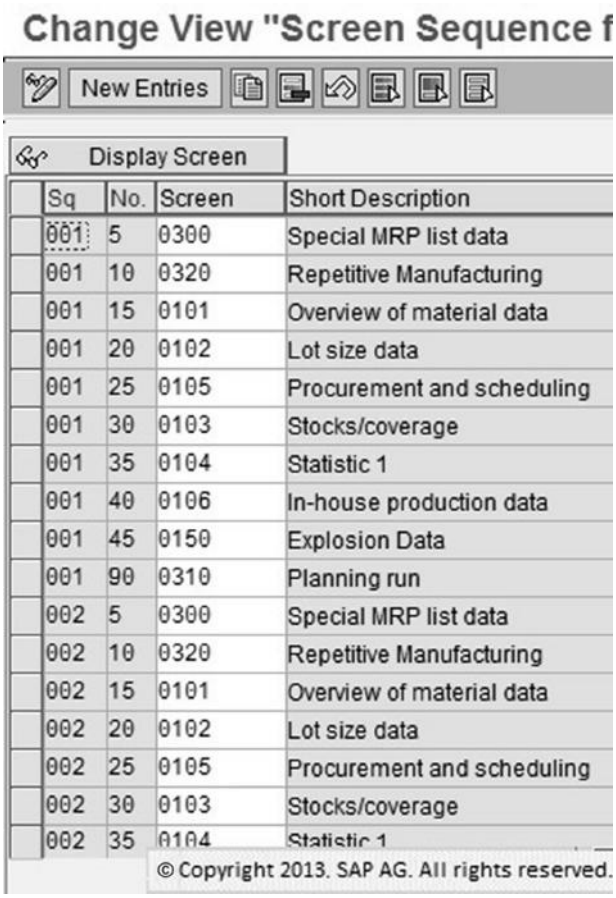


Define Receipt Elements for Receipt Days' Supply

The receipt days' supply is calculated in each MRP run and when the stock/requirements list is accessed or changed online. Two receipt days' supplies are displayed in the evaluations of the MRP run. They are calculated using different receipt elements. In the safety stock field, you can also define that the days' supply is calculated up until the physical warehouse stock is fallen short of. You can define this for the range of coverage and the receipt days' supply. The system then documents the number of days until the stock sinks below 0. The standard setting is such that the days' supply is calculated until the safety stock is fallen short of.

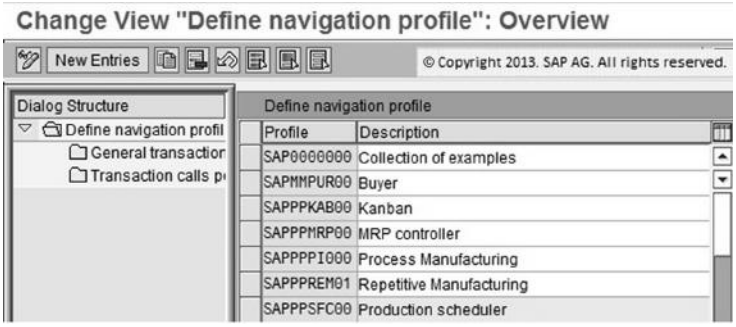
Define Screen Sequence for Header Details

The MRP type controls the screens that are displayed in the evaluations of MRP. The screen sequences are given a number, which is assigned to the MRP type. This enables you to display different master data for the evaluation of consumption-based materials from the evaluation of planning-based materials.



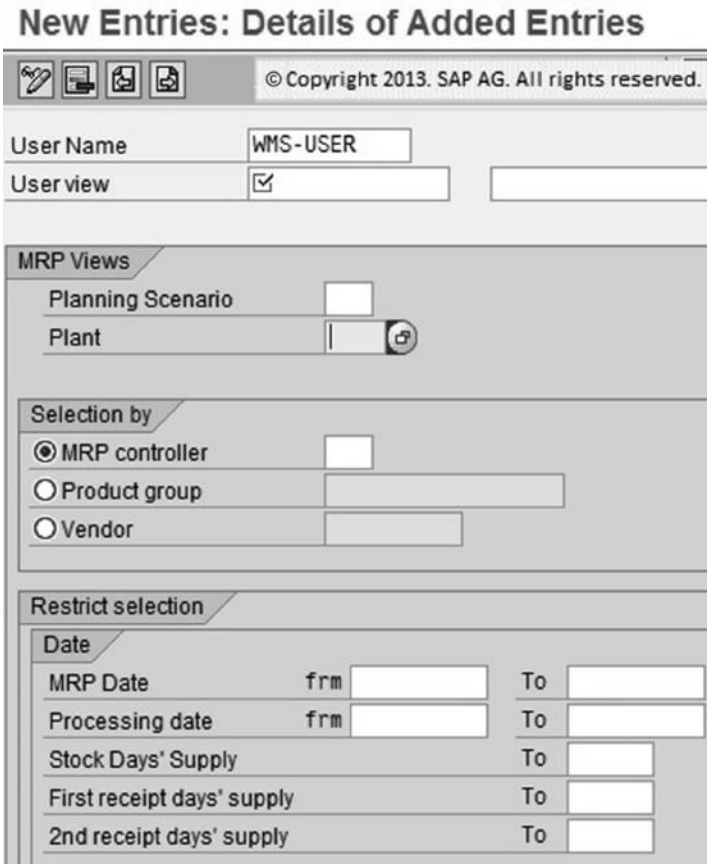
Define Navigation Profiles

The navigation profile can be created for individual MRP roles. The navigation profile contains the number of the transaction call (if applicable), the indicator for the MRP element (only for transaction calls per MRP element), the transaction code (if applicable), the icons, the icon text, the menu text, the information text, the parameters (which enable you to skip the initial screen of the transaction), the conditions (which must be given for the transaction call to be offered—only for general transaction calls), and the application component (operational and/or long-term planning).



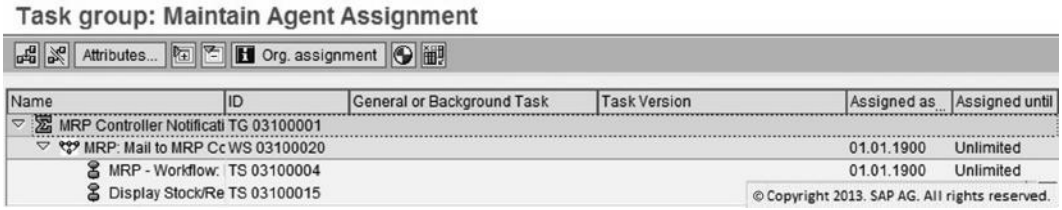
Define MRP Views

You can create separate MRP views for MRP controllers, vendors, or product groups. The view can be restricted for fields such as MRP date, processing date, stock days' supply, and first receipt days' supply or second receipt days' supply.



Activate Workflow for Mail to MRP Controller

MRP controllers can receive all notifications related to MRP messages and issues through e-mail if you activate this functionality.

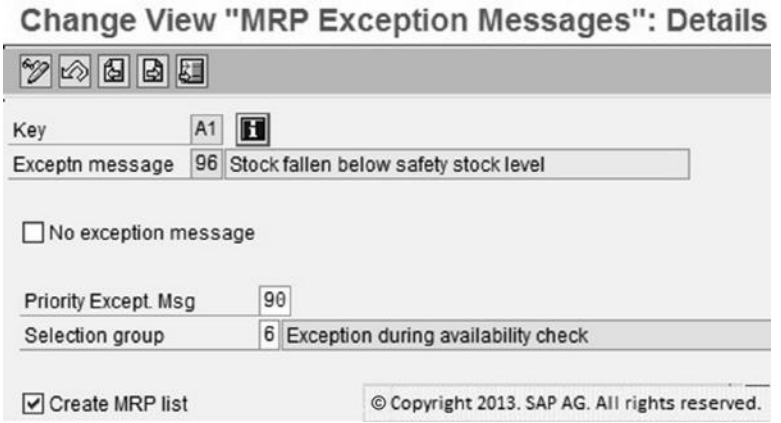


Exception Messages

Menu path: SPRO → IMG → Materials Management → Consumption-Based Planning → Evaluations → Exception Messages

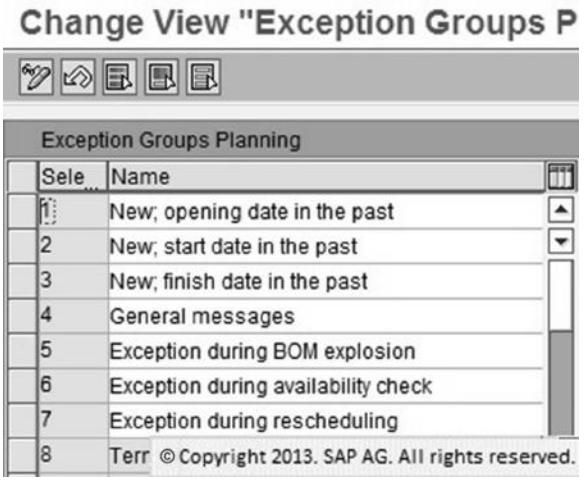
Define and Group Exception Messages

In this IMG activity, you can define exception messages for MRP runs and handle the errors. You can also group exceptions so that one message handling can handle all related exceptions.



Check Exception Group Texts

In this IMG activity, you can define the texts for exceptions. One text line can be defined to handle a group of exceptions.

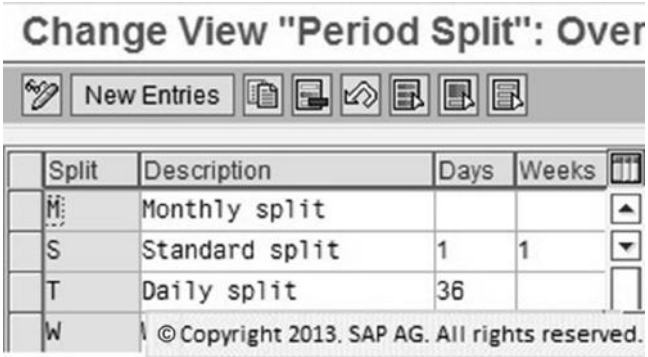


Period Totals

Menu path: SPRO → IMG → Materials Management → Consumption-Based Planning → Evaluations → Period Totals

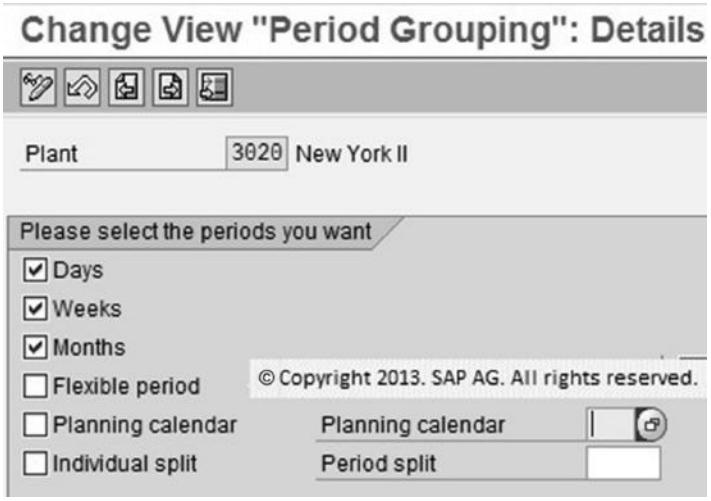
Define Individual Period Split for Period Totals

In this step, you can define whether a period split takes place for the period totals display in the MRP list and the stock/requirements list. This means whether a less-detailed period split is divided and displayed in a more detailed period split at particular time intervals. These time intervals can be in months, weeks, or even days.



Define Period Display for Period Totals

In this step, you can specify which periods are to be displayed in the period totals display of the MRP list and the stock/requirements list. If you want to split the monthly or the weekly display into a finer split, you must define this split in the section "Define Individual Period Split for Period Totals."

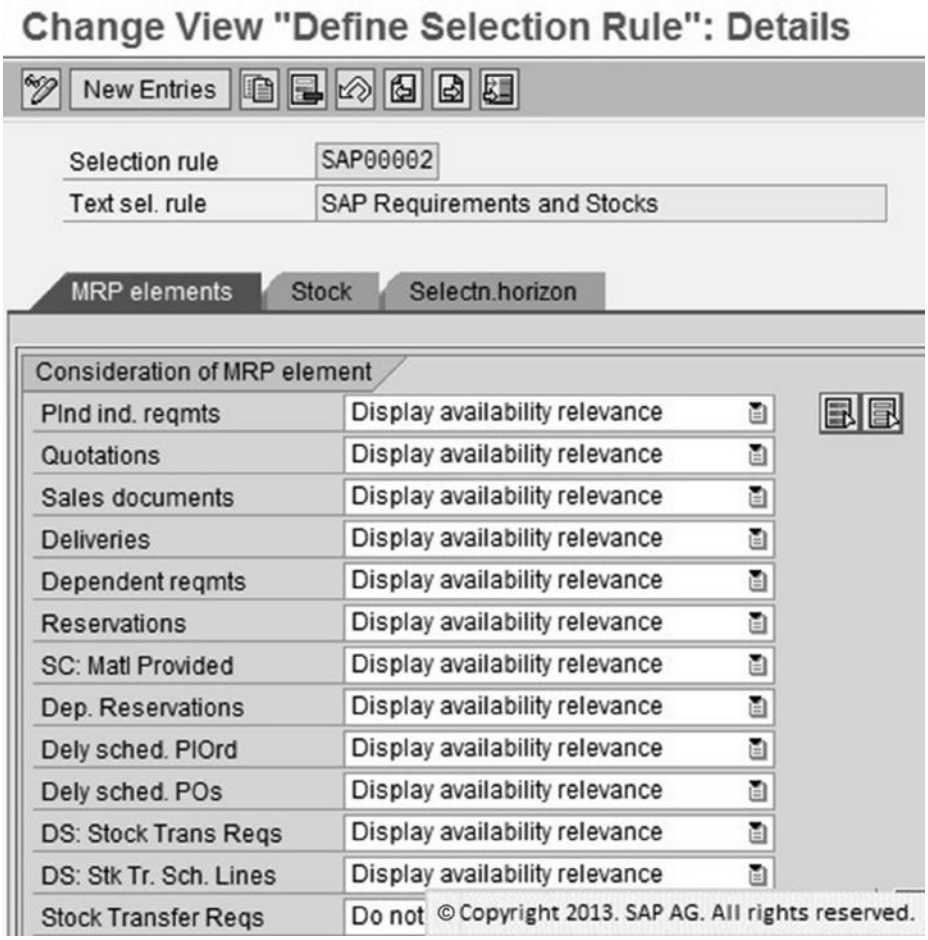


Filters

Menu path: SPRO → IMG → Materials Management → Consumption-Based Planning → Evaluations → Filters

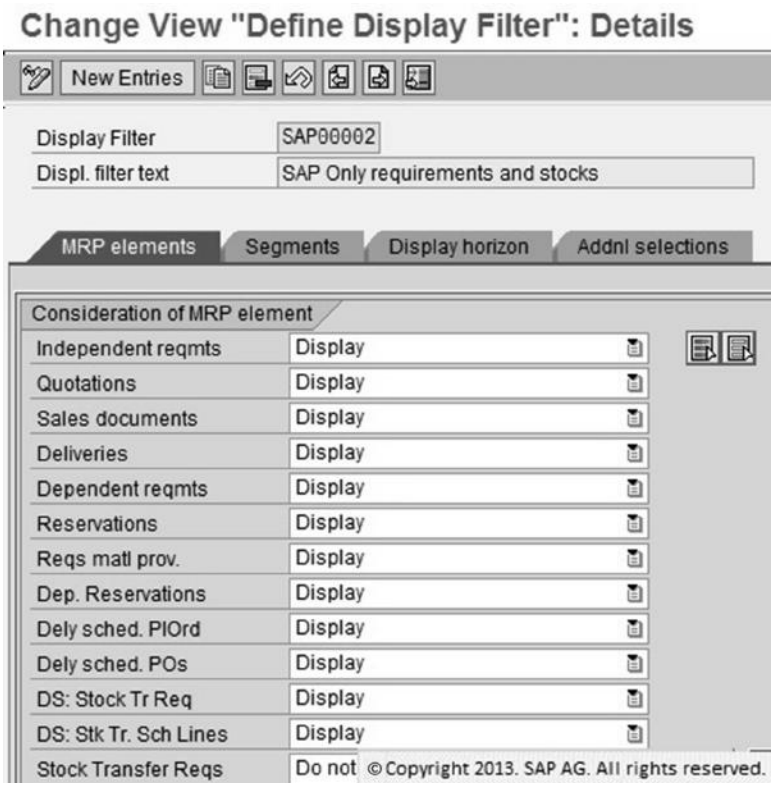
Define Selection Rules

In this step, you can define specific business views in selection rules for all the information in the stock/requirements list and the planning table in repetitive manufacturing. The MRP elements for which you can define selection rules include planned order requirements, quotations, sales documents, dependent requirements, reservations, and so on.



Define Display Filters

In this IMG activity, you can define display filters for MRP elements.

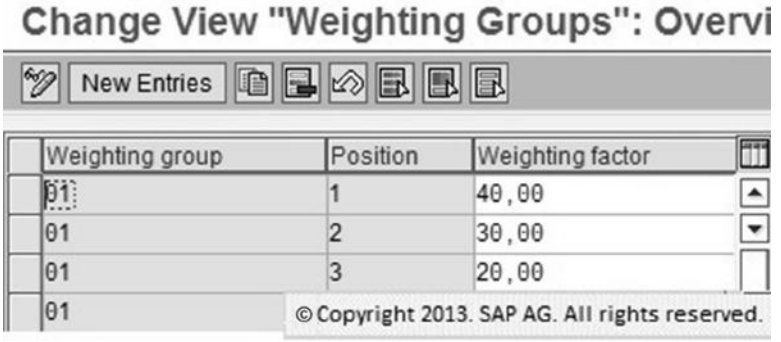


Forecast

Menu path: SPRO → IMG → Materials Management → Consumption-Based Planning → Forecasts

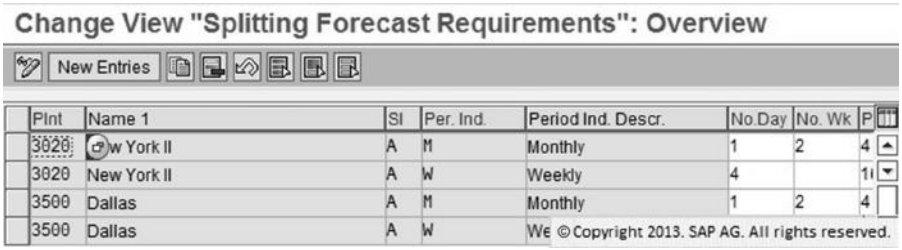
Weighting Groups for Weighted Moving Average

For forecasting purpose, you assign weight to various forecasting elements. In this IMG activity, you can define the weighting groups for weighted moving average values for forecasting elements.



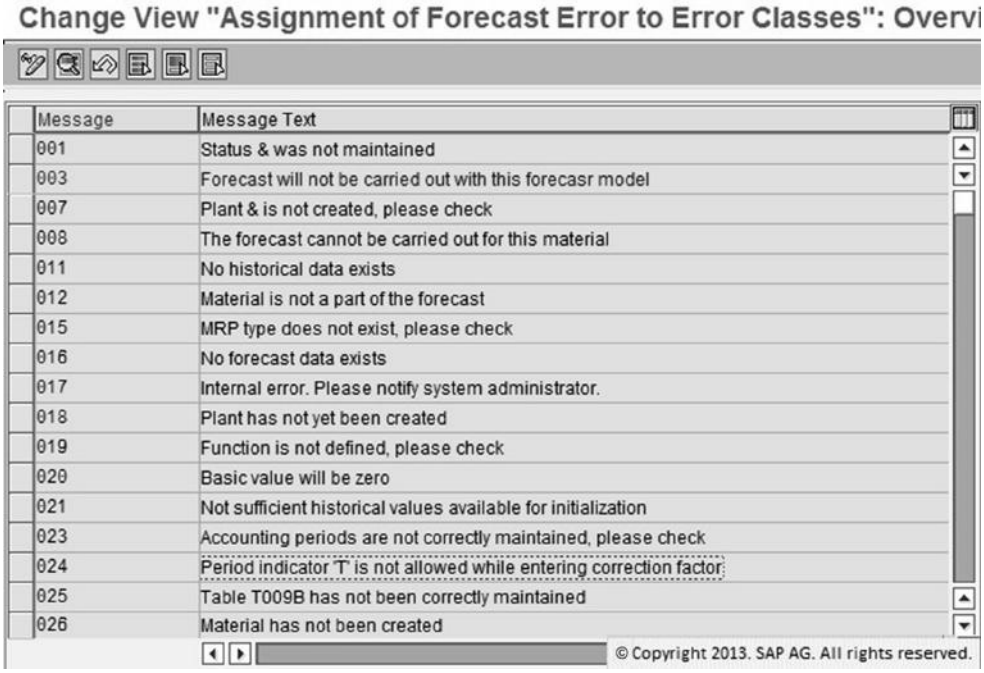
Define Splitting of Forecast Requirements for MRP

For each plant, you can define the future time periods that you want to forecast. You also define how minutely you want to define the forecasts in terms of days or weeks.



Assign Forecast Errors to Error Classes

You can maintain error classes and assign forecast errors to these classes.

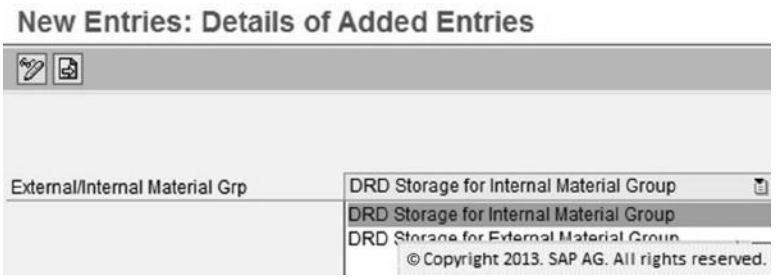


Historical Data and Postdistribution Forecast

Menu path: SPRO → IMG → Materials Management → Consumption-Based Planning → Forecast → Alternative Historical Data and Postdistribution Forecast → General Setting

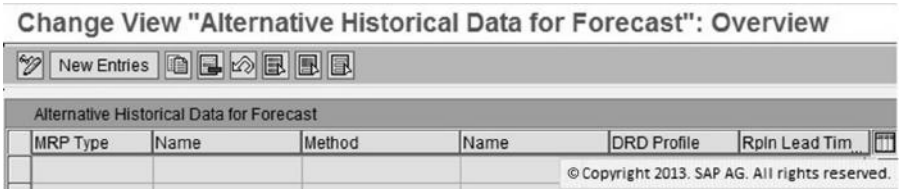
Delivery Relationship for External or Internal Material Group

Accuracy of forecast is important for making realistic MRP planning. To create accurate forecasts, you need to consider historical data to correct the forecast data. In this IMG activity, you create a delivery relationship for material groups either externally or internally.



Control of Alternative Historical Data and Postdistribution Forecast

If you want to use alternative historical data, define it at MRP-type level. You use the method to determine how and which data are to be loaded from a SAP business (data) warehouse (SAP BW) system. You define a method using closed loop customizing. If you do not select a method, you can load data using a Business Add-In (BAdI).



Define Profile for Determining Delivery Relationship

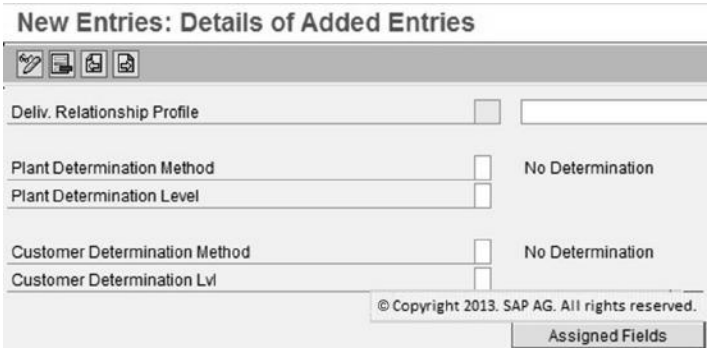
In the delivery relationship profile, you define whether and how recipients are to be included in the process.

Delivery Relationship for Plants

Menu path: SPRO → IMG → Materials Management → Consumption-Based Planning → Forecast → Alternative Historical Data and Postdistribution Forecast → Delivery Relationship for Plants

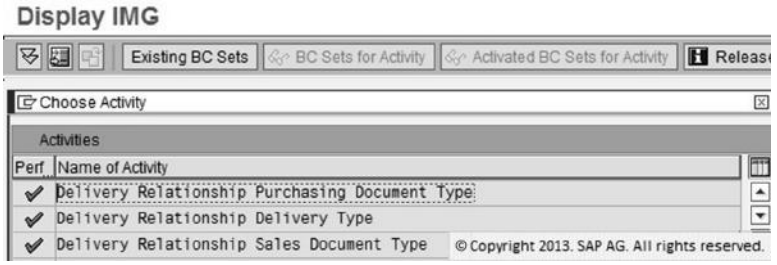
Profile for Determining Delivery Relationship for Plants

In this IMG activity, you can define the method for determining plants, the level for determining plants, the method for determining customers, and the level for determining customers. You use the profile for determining the delivery relationship to define which recipients are to be determined and which method is to be used to do this.



Document Types for Delivery Relationship Determination

If you have set the method "determination using existing documents," you use the document type for determining the delivery relationship to define which document types are relevant for each document category. The document types include purchasing document types and sales document types. The purchasing document types are used for delivery relationship with vendors and the sales document types are used for delivery relationship with customers.

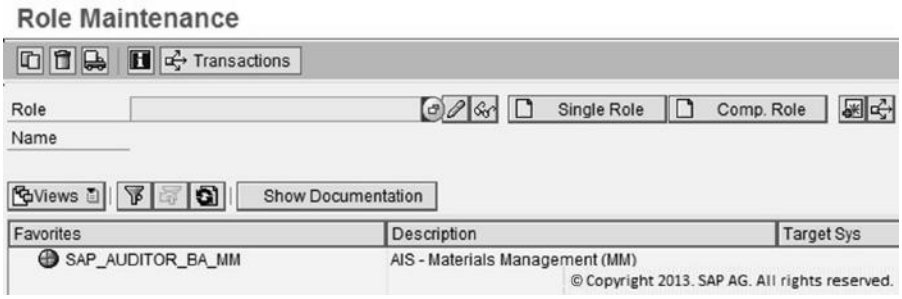


Authorization and Performance

Menu path: SPRO → IMG → Materials Management → Consumption-Based Planning → Authorization Management

Material Requirements Planning

There are many authorization objects for controlling access to various MRP and MRP-related objects in the system. In this IMG activity, you can use the authorization objects to restrict access to information such as display of stock/requirement lists, display planned orders, and firming planned orders for MRP.

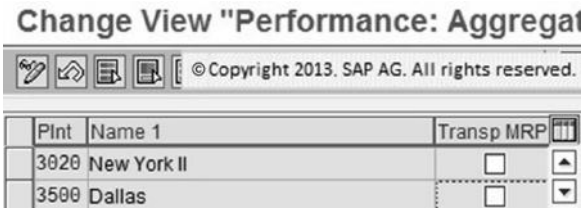


Check for Performance Settings

Menu path: SPRO → IMG → Materials Management → Consumption-Based Planning → Check for Performance Settings

Check Storage Mode for MRP List

In this IMG activity, you can check the storage mode for MRP lists. The system is set as standard to aggregate the MRP lists for storage in the database. The indicator Transp.MRP (Transparent storage: MRP lists) is not selected. In this case, the whole table is stored in a standard format as a data cluster and can no longer be read immediately. Aggregated storage has the advantage that less memory space is needed and higher performance is achieved. However, if you would like to store the MRP lists in a transparent format (table), that is, not aggregated, you have to set the indicator Transp.DL.



Chapter 8

SAP MM Customizing—Purchasing

Introduction

In SAP, procurement or purchasing is one of the two main functions available in SAP materials management (MM) along with inventory management. The purchasing part of SAP MM consists of purchase requisitions (PRs), purchase orders (POs), contracts, scheduling agreements, and so on.

Document types of all the documents (PRs, POs, contracts, etc.) can be customized as per customer needs in many ways. Similarly, the material masters included in SAP MM purchasing (vendor, info records, source lists, purchase organization, purchasing group, etc.) can also be customized as per customer needs. In this chapter, we discuss most of the customizations that can be done.

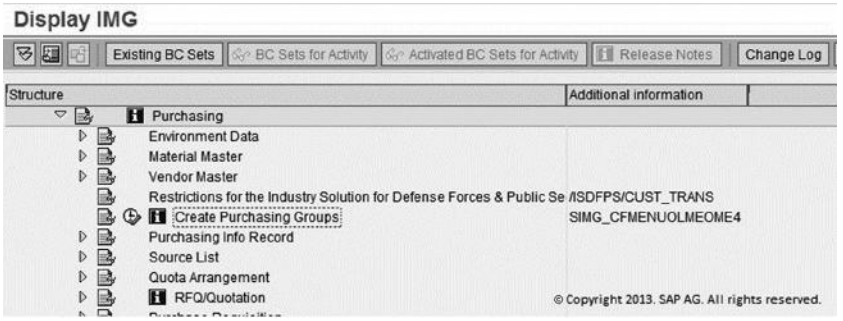
This chapter consists of the hierarchy of the menu structure and its functionalities that are grouped in the customization part of SAP system. So it will be easier for you to look at and practice these customization tasks, and thus to learn faster.

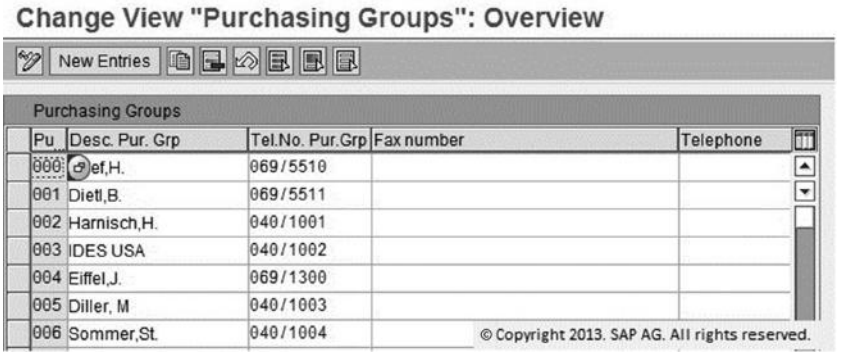
General Purchasing Functions

Create Purchasing Groups

Purchasing customization starts with customizing purchasing groups. In this activity, you create purchasing groups. Purchasing groups are the organization elements that are responsible for purchasing similar kinds of materials or services. So we can have a purchasing group that is responsible for procuring all services for the corporate office procuring materials for the production department.

Menu path: SPRO → IMG → Materials Management → Purchasing

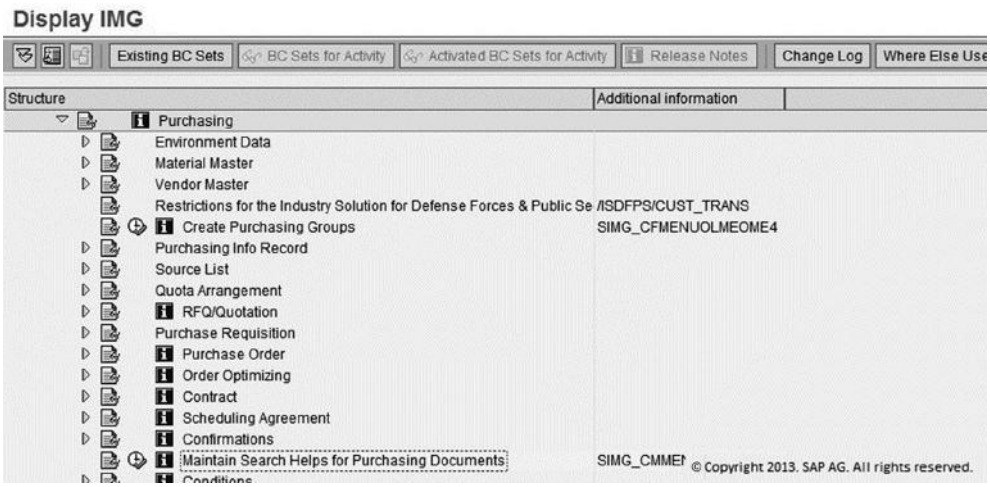




Maintain Search Help for Purchasing Documents

Search help enables the user to find all kinds of purchase documents that satisfy certain criteria sought by the user. The user can search for request for quotation (RFQ)/quotation, contract, PR, PO, scheduling agreement, and service entry sheet in the system. When you maintain or create any search help, you are actually making the fields on the purchase document searchable, that is, you are assigning any field on any purchase document to the search help. Then you limit your search function for a type of purchase document. For example, you can create a search help so that all POs containing a specific material should come in a search list.

In SAP, there is a default search help ASH_MEKK that belongs to a collective search help MEKK.

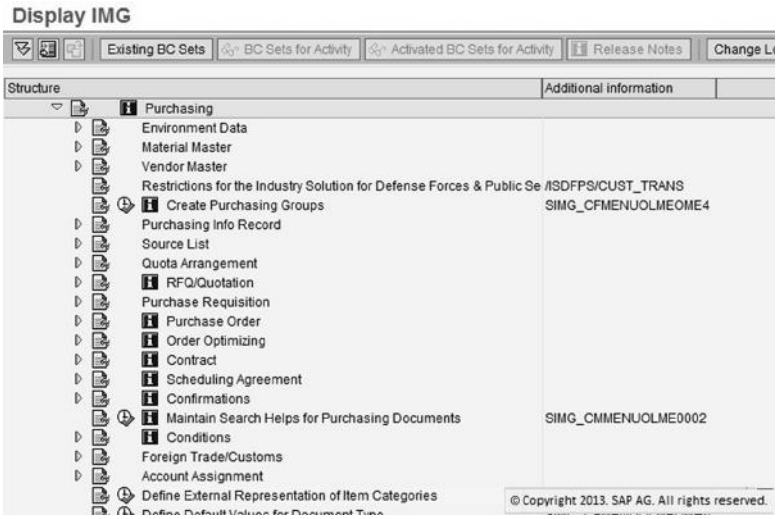


Define External Representation of Item Categories

Item categories define how a material is procured. For example, an item category "Consignment" defines that the material having this item category is procured from vendors using consignment strategy.

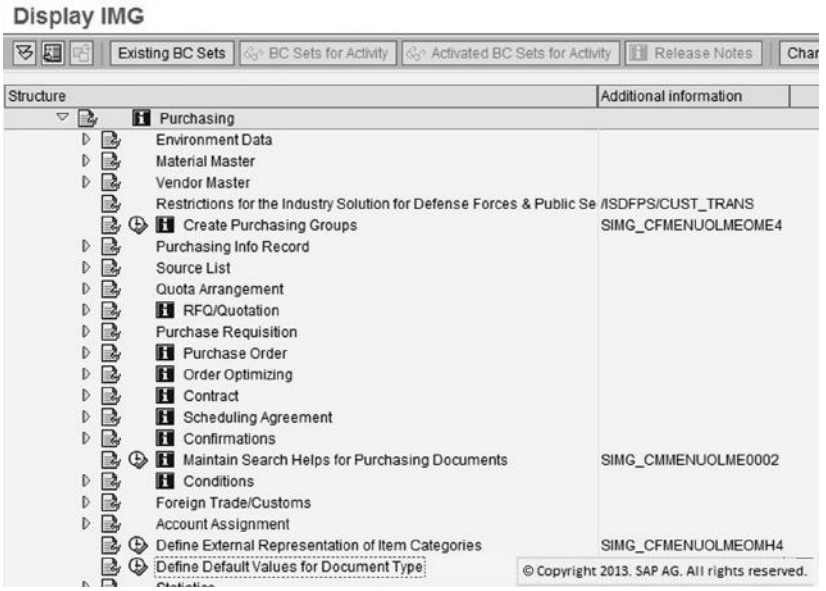
Internally, in SAP, item categories are represented by a one-character field (e.g., "3" for the Subcontracting item category). When you define an external representation of the item category, you can use a different identifier for the item categories (e.g., "L" for the Subcontracting item category).

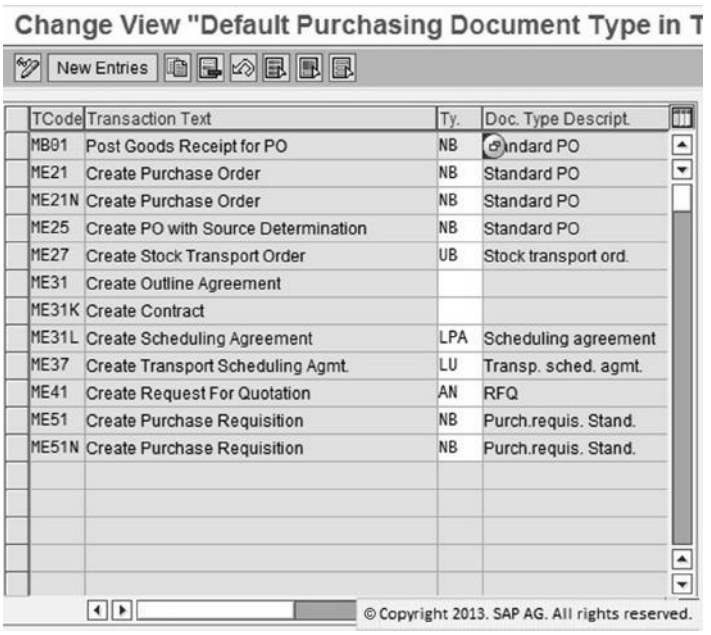
External representation of item categories is displayed on SAP screens.



Define Default Values for Document Type

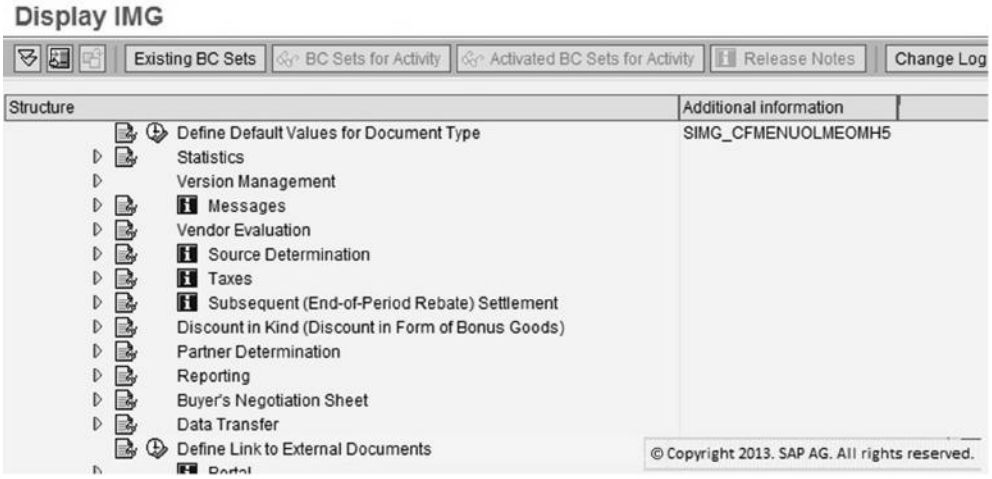
In SAP, all purchase documents have a default document type. When a user uses a transaction code or the menu to open a purchase document, this default document type is opened. Using customization, you can change and set a new document type. Now when the user uses the transaction code to open the document, he will open this new type of document instead of the previous default type. For example, the default PO document type in standard SAP is "NB" document type. This document type gets opened when the user uses the transaction code ME21N. If you change it to some defined document type, say "NB10," the users will open this document type instead of "NB" type.

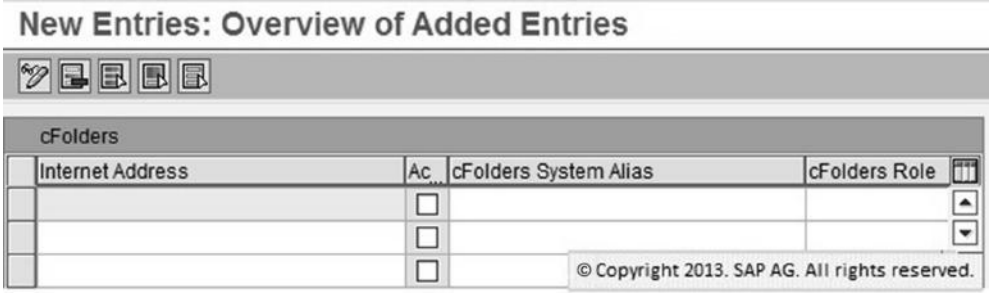




Define Link to External Documents

If you have external documents that are related to a purchase document, you can provide a link on the purchase document so that these external documents can be accessed from the purchase document.



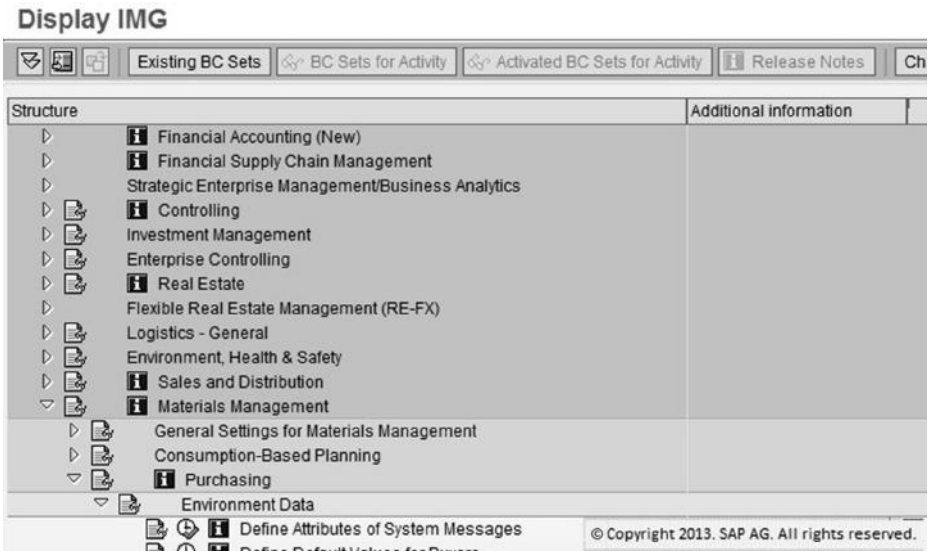


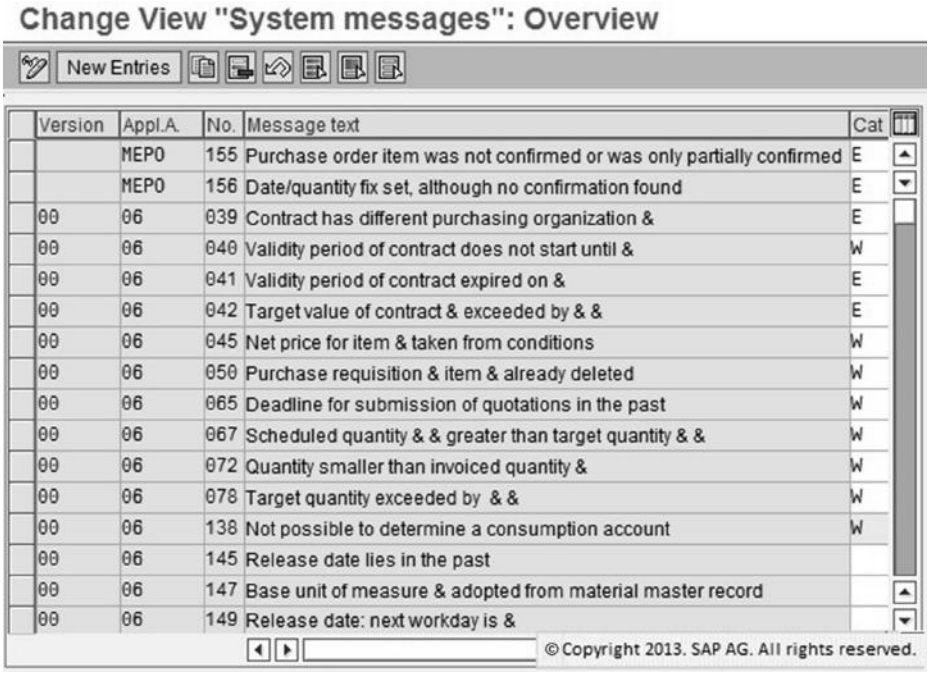
Purchasing Functions: Environment Data

Menu path: SPRO → IMG → Materials Management → Purchasing → Environment Data

Define Attributes of System Messages (SIMG_CFMENUOLMEOME0)

You can create custom messages for purchase documents so that when the user encounters any problem in processing the document, an appropriate message is displayed as either a warning or an error. Here you give a message number, application component to which the message is to be linked, message text, and message category (warning or error).





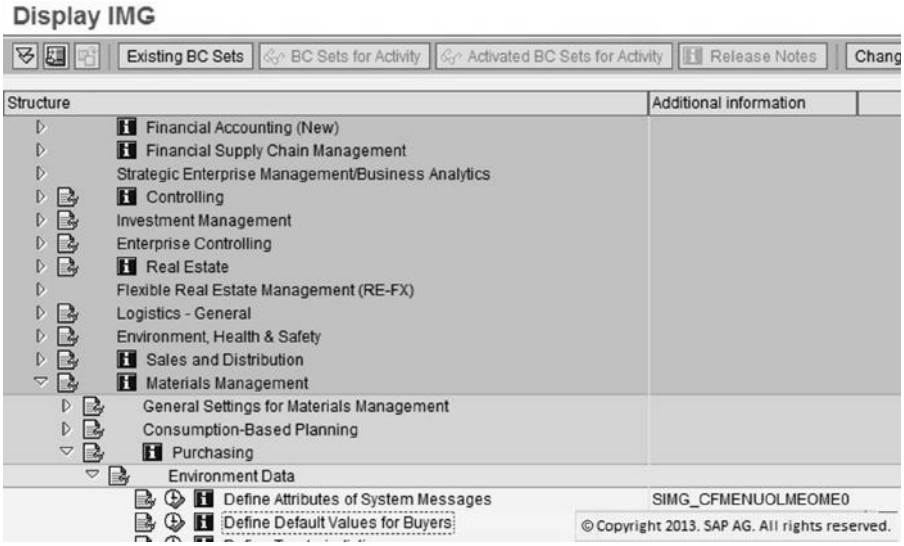
Define Default Values for Buyers

Each user can be presented with different screens or fields on the screens of purchase documents depending on the default values you provide here. You enter the name or key of the default value and select the screens or fields. Now you save this default value. You can invoke the user profile of a user and save this default value key in the user profile. When this user

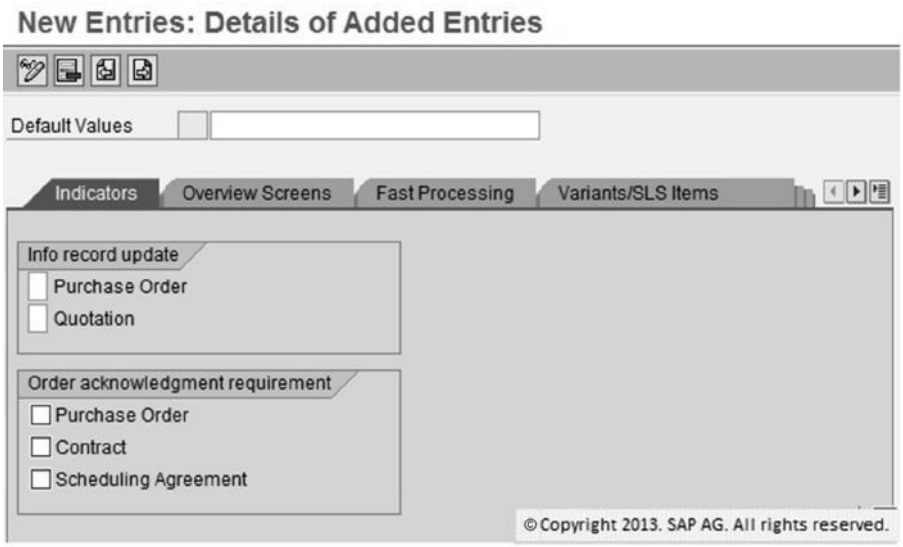
works with the purchase documents, these user preferences will always be applied and he will see different screens and fields.

Similarly, in the tab "Fast processing," there are settings for copying and adopting documents. For example, you can make settings such that a PR is adopted to a PO with all fields of the PR being copied to the PO.

You go to the menu in the IMG. When the initial screen appears, click on "New entries." You will see a screen with seven tabs. On the first tab "Indicator," you see choices for "Info record update" and "Order acknowledgement requirement." If you check "Purchase order" or "Quotation" for "Info record update," the user will see "Info record update" field on the PO or the quotation. It updates the PO price history for the combination of vendor, material, plant, purchase organization, and also item category of PO (Standard, Subcontracting, Consignment, etc.).

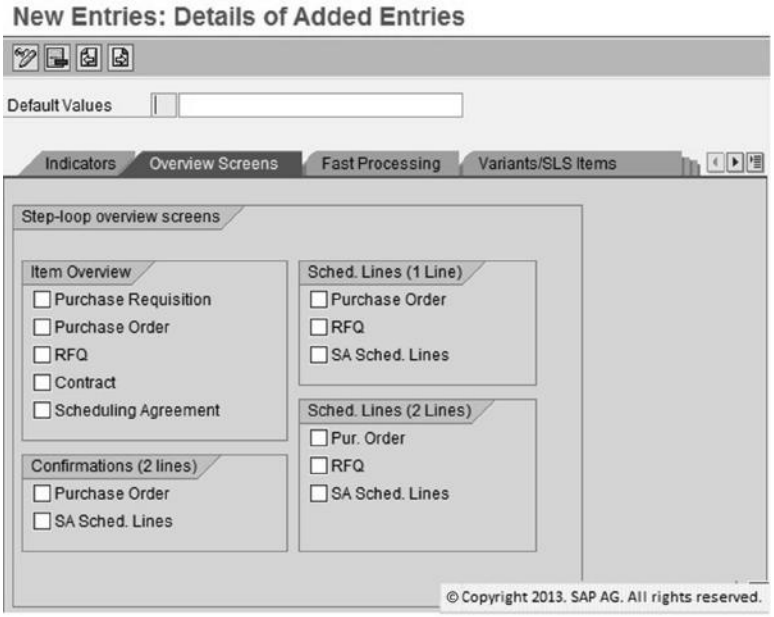


When you click on the "Define default values for buyers" menu in the IMG activity, you will get a pop-up screen with two values: Settings for default values and Maintain users. When you double click the "Settings for default values" menu, you get a list of settings for the sets of default values. On the same screen, there is a button "New entries." Clicking on this button, you will get a new screen that has seven tabs. The first tab is titled "Indicators" as shown in the below figure. The indicator screen is divided into two parts: "Info record update" and "Order acknowledgement requirement." "Info record update" has "purchase order" and "quotation" records. You can set values for both POs and quotation. For example, you can set values of either "No update" or "Update with or without plant" or "Update with plant" or "Update without plant." If you (the consultant) select "No update" for PO and save the record, then for the buyer (whose default values are set as "No update") the info record values on all his POs will never be updated when any info record is updated. This means that the buyer will be purchasing goods or services at older prices than the current prices that are set in the info record currently. This kind of functionality is required when the buyers do purchases at the price negotiated with a vendor and not at the current prices.



Similarly, the buyers use the functionality update with plant of info record in cases when there exists an info record for plants as well as for purchase organization, and the buyer wants to update the info record at plant level as well as at purchase organization level.

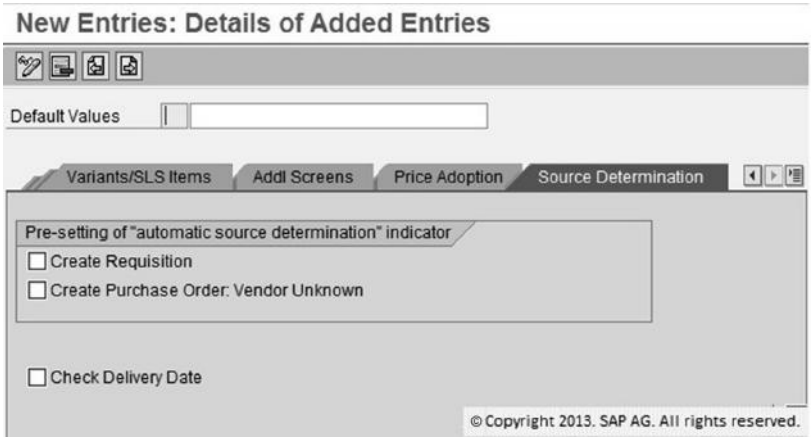
"Overview Screen" tab is divided into four parts: Item Overview, Confirmation, Sched. Lines (1 Line), and Sched. Lines (2 Lines). If you set any entries by selecting any of the options given inside any part of this screen, all buyers whose purchase screen options are set by the set of values maintained in this group will see the screen options set here. For example, if "Item Overview" for PO is selected and saved, all buyers will have PO screens with "Item Overview" in open mode when they open a PO.



The "Fast Processing" tab contains values to be set for purchasing documents for the group of buyers so that adopting functions from one purchase document type to another can be done, and thus, the values of screen elements in purchase document type can be copied over to another purchase document type.

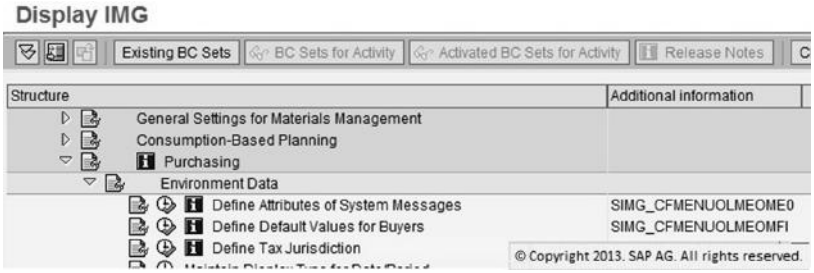
The options available here enable the buyers to set their prices by either copying from another document type or entering manually in the purchase document.

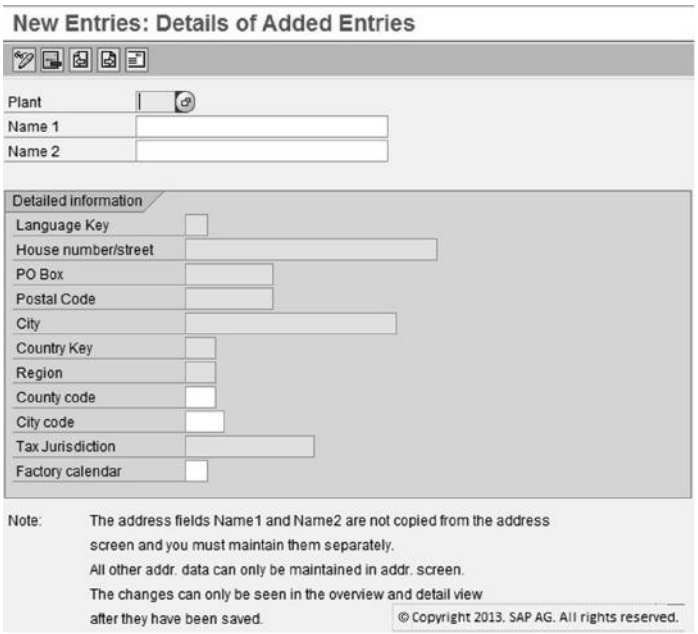
When you create a PR or PO (when vendor is unknown), you need to select the source from where the goods or services will be procured. This functionality can be achieved automatically or can be done manually by the buyer. If you select the "automatic source determination" here, the system will search and find the source for your procurement automatically.



Define Tax Jurisdiction

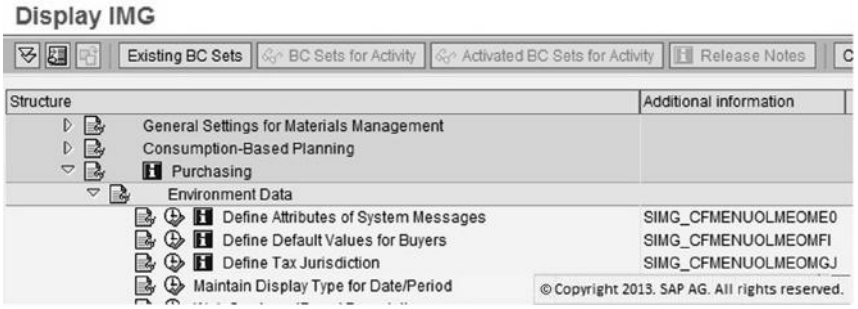
For determining taxes applicable for each procurement, you need to define the address and tax jurisdiction for each plant or distribution center.

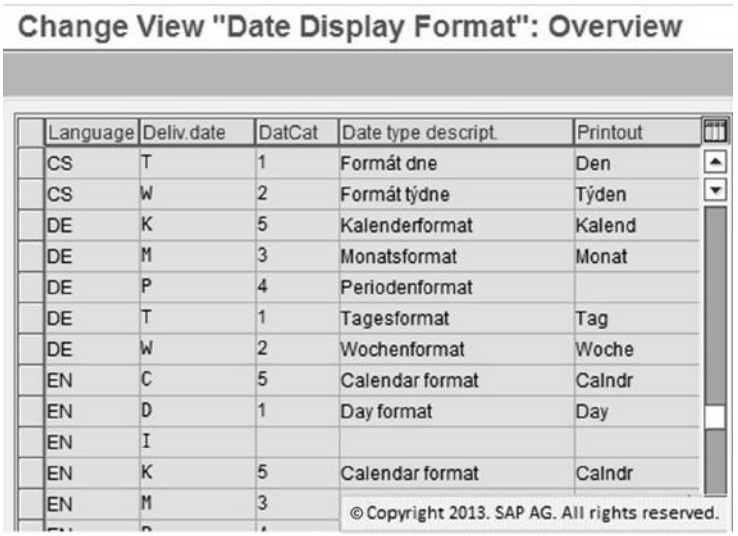




Maintain Display Type for Date/Period

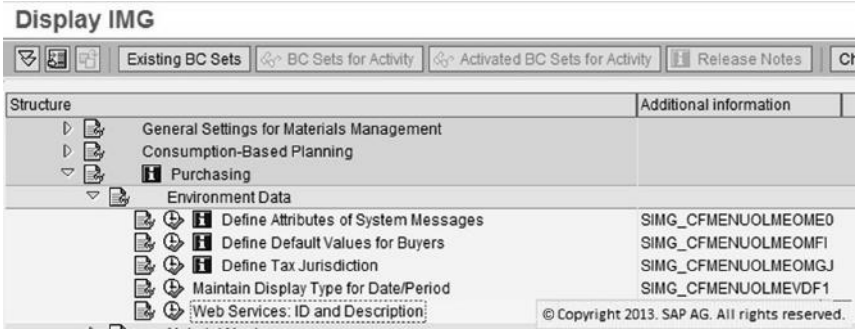
For printing and on-screen display purpose, you need to set up the day and date format for purchase documents. These settings are done here.

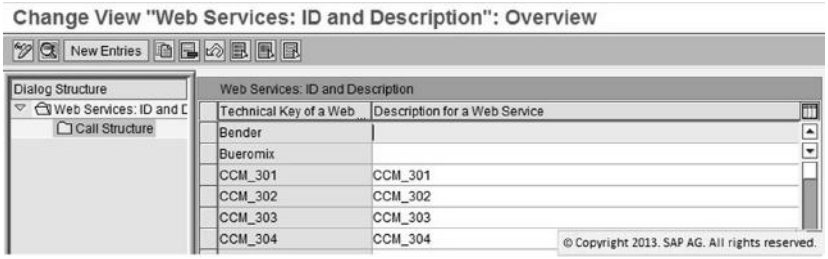




Web Services ID and Description

If you use Web services for displaying documents or elements of any document, you need to set up a connection with the portal where the required element or information is stored with the purchase document. You will provide all this information here.





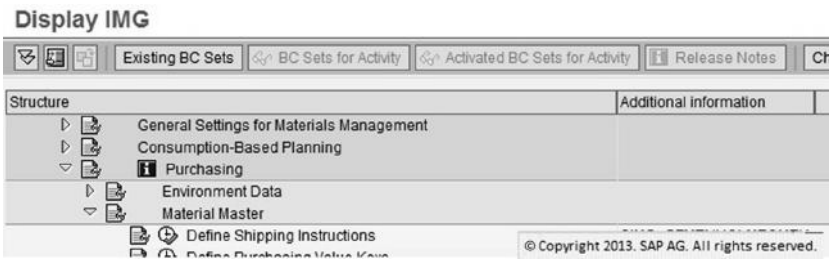
Purchasing Functions: Material Master

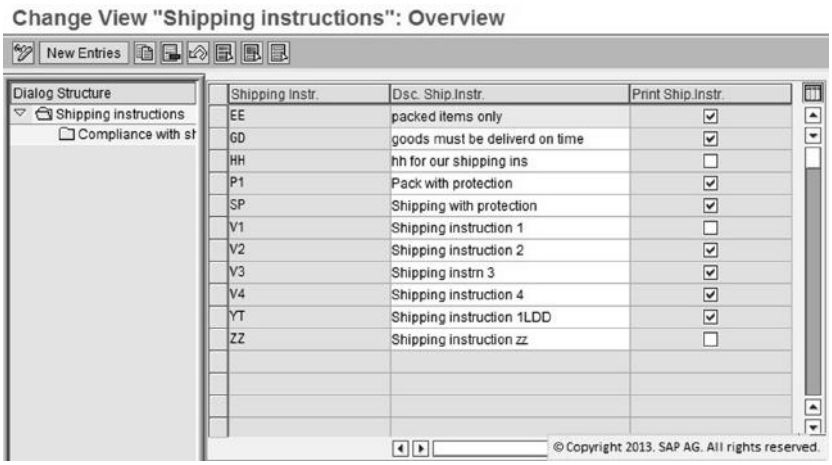
In this section, we discuss about setting up our environment for material master-related entries that are required on purchasing documents.

Menu path: SPRO → IMG → Materials Management → Purchasing → Material Master

Define Shipping Instructions

Some of the options you set here include printable shipping instruction, default shipping instruction, and whether short and long text is allowed or not.

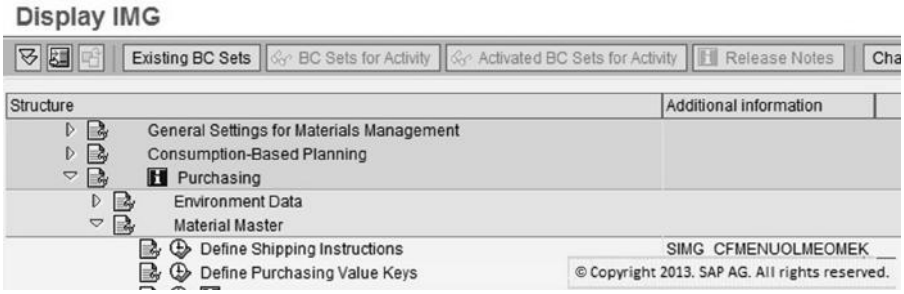


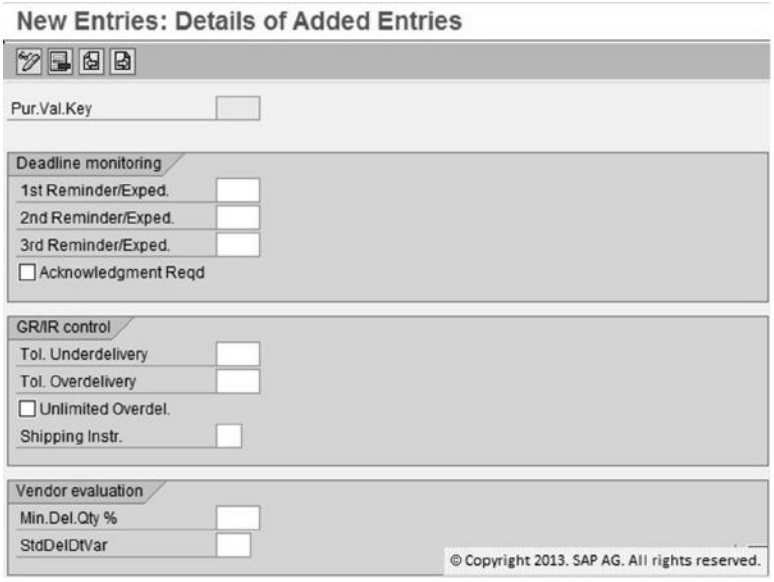


Define Purchasing Value Keys

Purchasing value keys include delivery date deadline monitoring, goods receipt/invoice receipt (GR/IR) control, and vendor evaluation. In deadline monitoring, you can define things such as

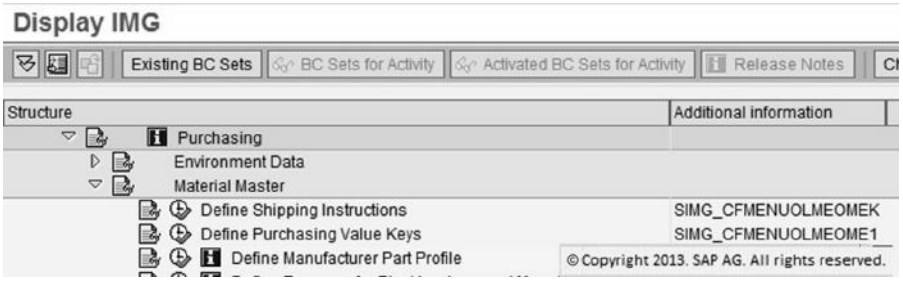
after how many days of sending PO to the vendor, the buyer can send remainder to the vendor about the delivery. In GR/IR control, you can define how much percentage a delivery quantity can be tolerated for under as well as over delivery.

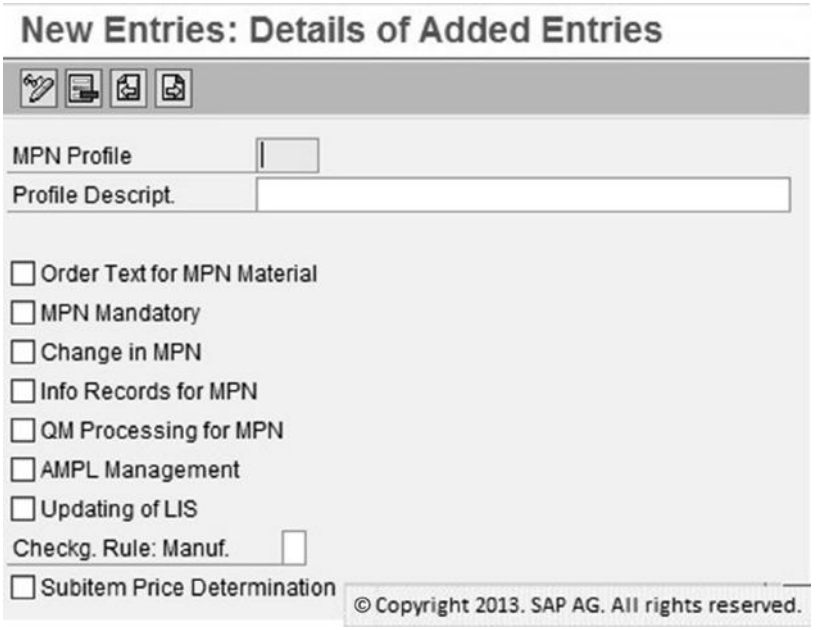




Define Manufacturer Part Profile

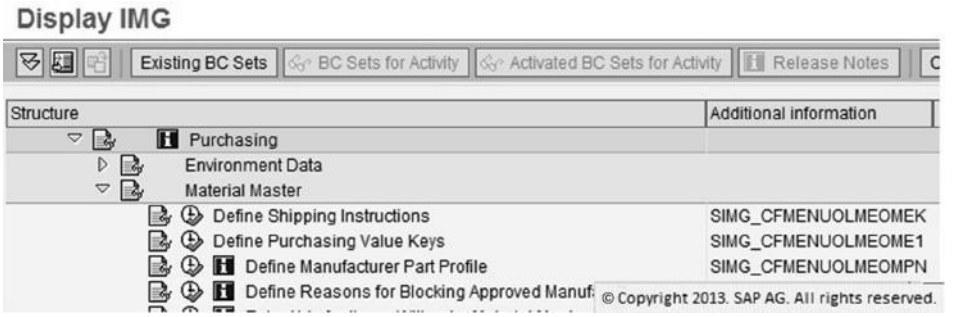
Whenever a manufacturer part profile is required to be attached with the material you are procuring, you need to define manufacturer part profile and attach it to the material. The options available to define a manufacturer part profile include defining whether changes are allowed in manufacturer part number (MPN) or not, info record creation for MPN, quality management processing for MPN, and so on.

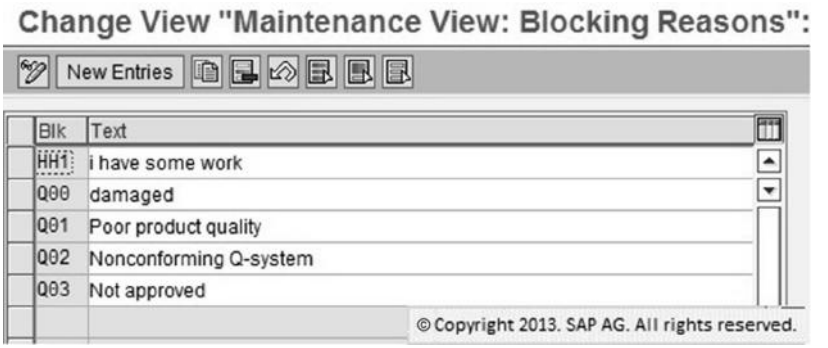




Define Reasons for Blocking Approved Manufacturer Part

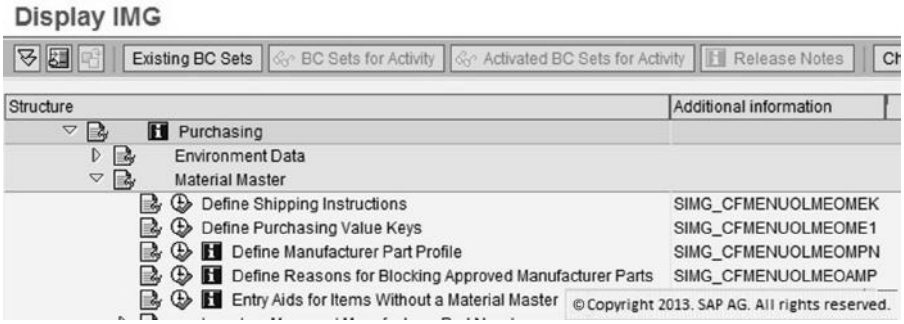
Here you can maintain a list of reasons for blocking any approved manufacturer part.





Entry Aids for Items without a Material Master

Many times when the buyer creates purchase document, he does not have the material number available because the material master is not created for the material at that time. In such cases, it is possible to still create the purchase document without entering the material number on the document.



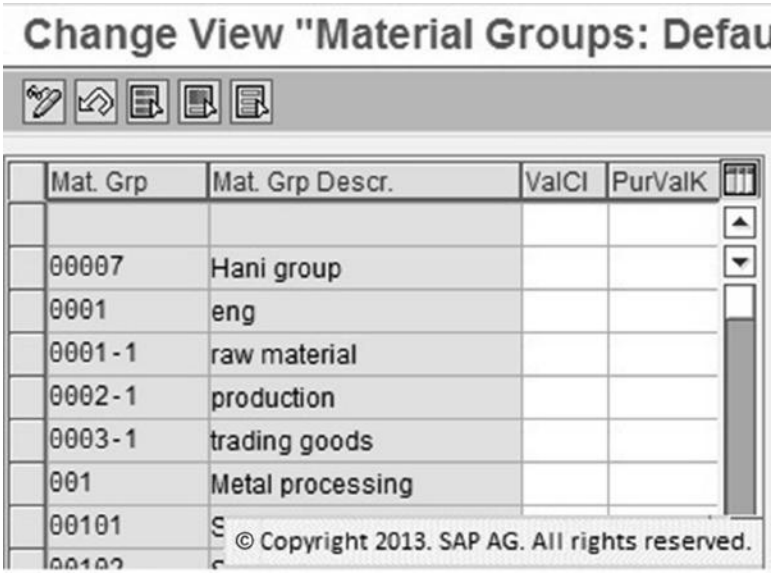
To help the users, you can define valuation class, purchase value key, and so on at the material group level. When you create the purchase document with only entering the material group on the document, all these values associated with the material group become available to the document while saving.

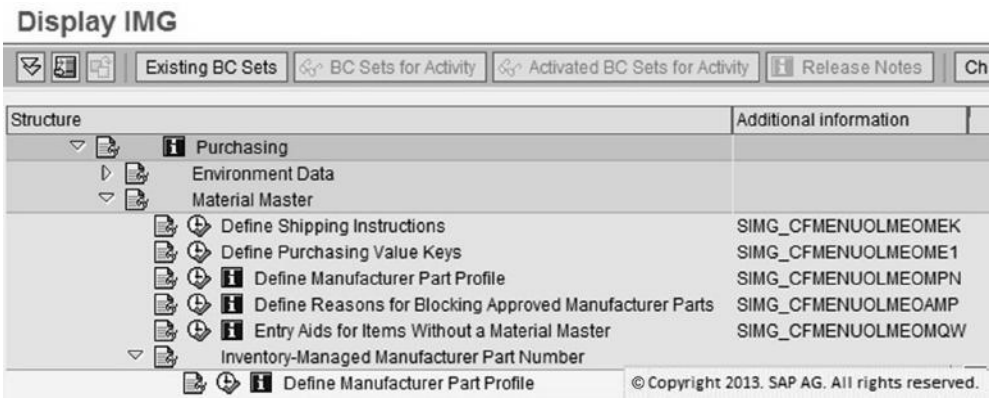
Inventory Managed MPN

Menu path: SPRO → IMG → Materials Management → Purchasing → Material Master → Inventory Managed Manufacturer Part Number

Define Manufacturer Part Profile

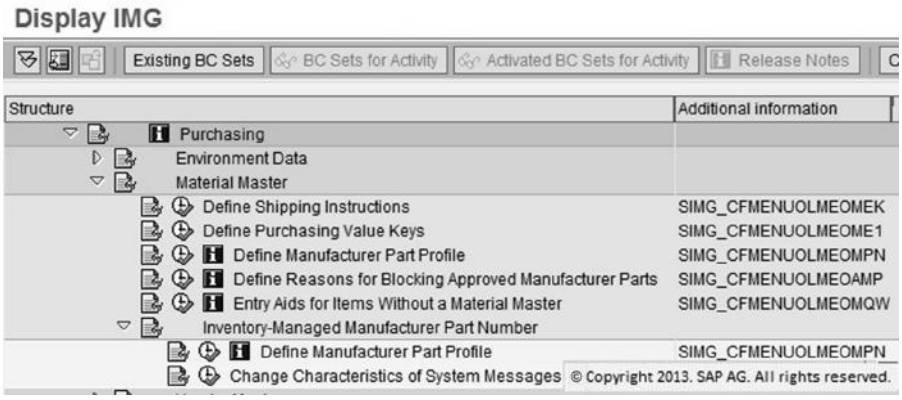
This functionality is the same as that explained earlier in this chapter in the section "Define Manufacturer Part Profile."





Change Characteristics of System Messages

System messages are extremely important to control the usage of the application and warn users when some system problem is encountered. In cases when it is not possible to provide any option to the end user to proceed further in executing his transaction, it is better to present him with an error message so that the user has to abort the transaction. However, if there are options available so that the user can still proceed with his transaction, a warning message can be invoked. If the user feels to proceed ahead with his transaction, he can dismiss the warning message.



In SAP, default messages are set at transaction points when something goes wrong. You can change these default messages and set them as per the requirement of the customer.

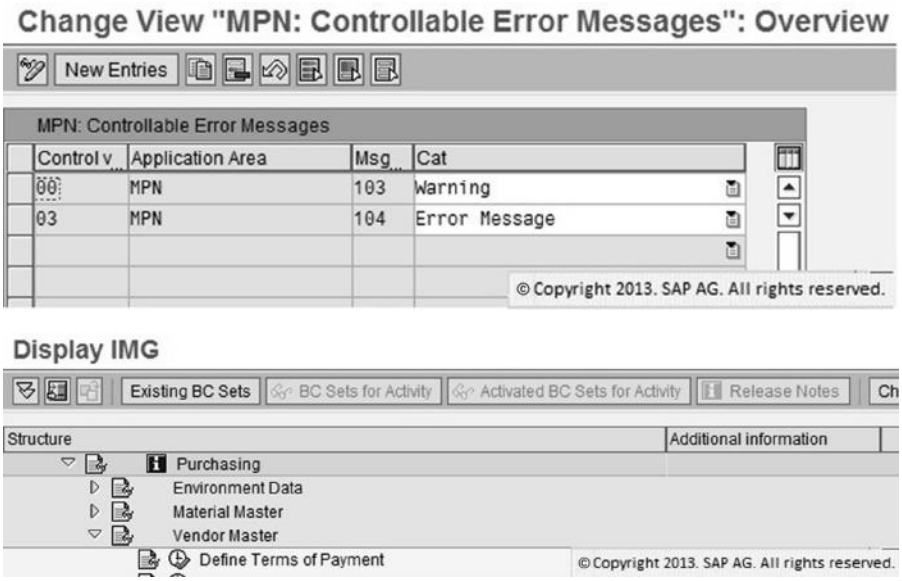
Purchasing Functions: Vendor Master

Many functions that are relevant for purchasing are available in the standard SAP related to vendor master. You can change these default vendor master functions as well as create one in this section.

Menu path: SPRO → IMG → Materials Management → Purchasing → Vendor Master

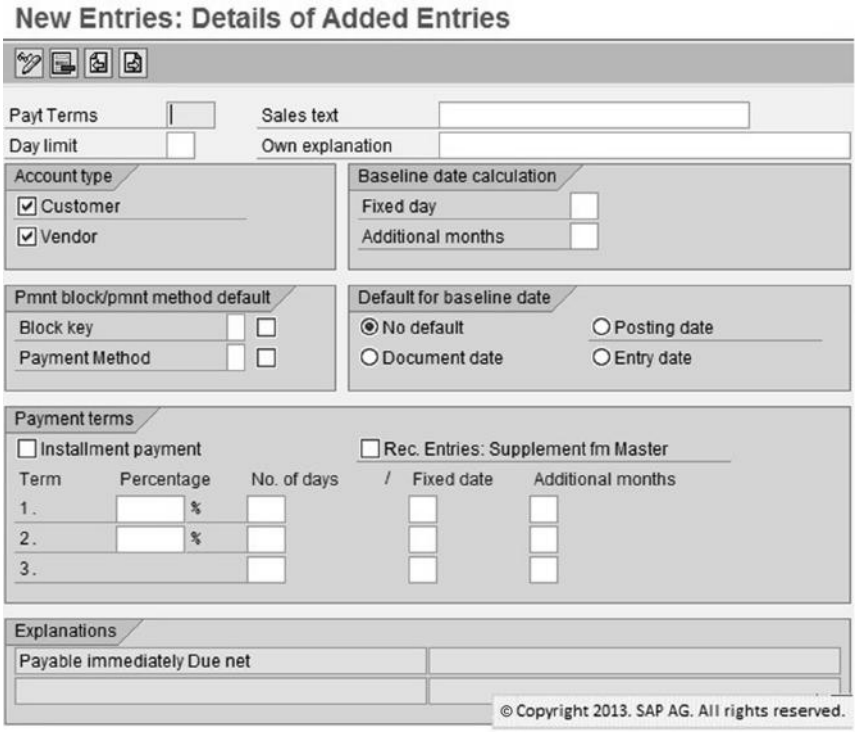
Define Terms of Payment

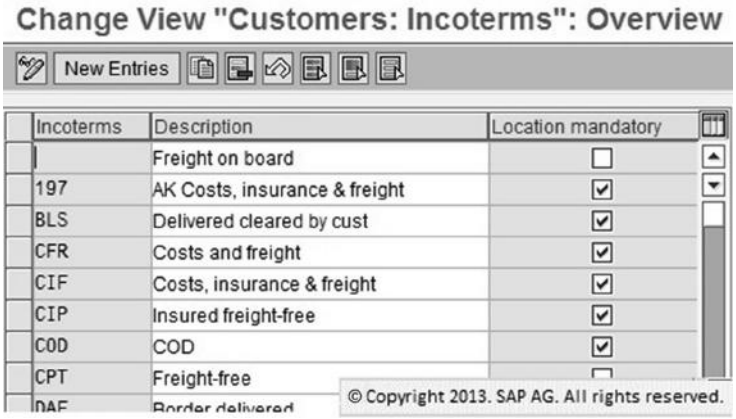
In this IMG activity, you can define many terms of payment options to the vendor. The options can include installment payment, payment method, payment blocking mechanism, and so on.



Check Incoterms

Incoterms are used to define the mode of payment over delivery. It defines how delivery for an order is made and how payment for the order is paid. Some popular Incoterms include FOB (free on board), EXW (ex works), and so on.

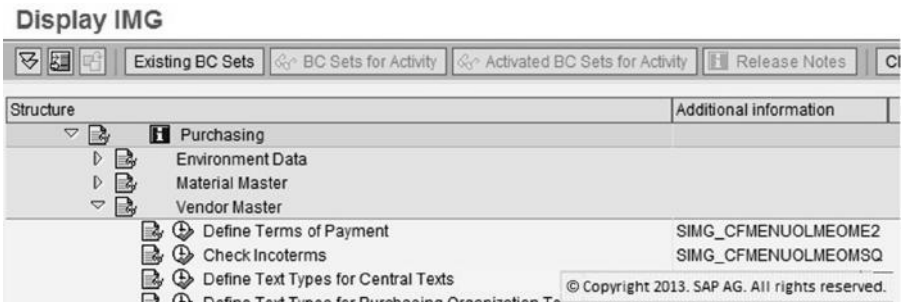




You can define the list of Incoterms that can be used on purchase documents.

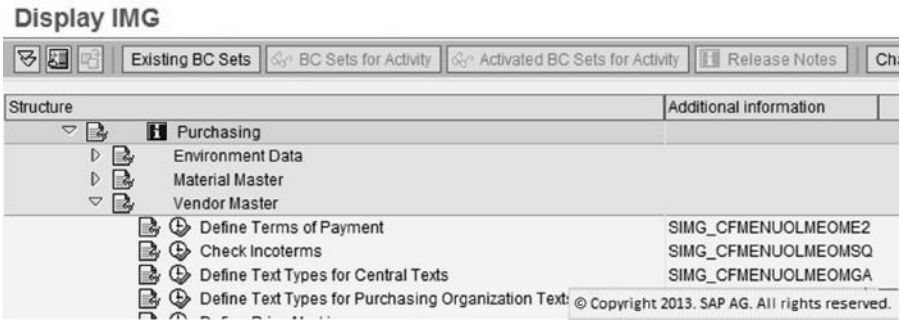
Define Text Types for Central Texts

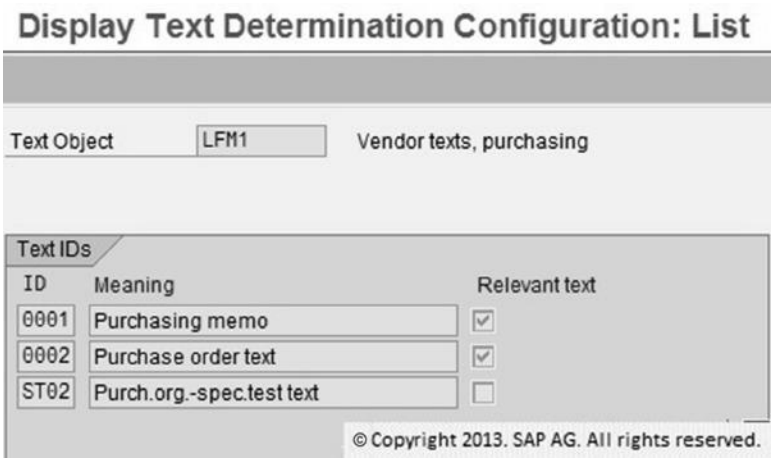
Here you can define the text types that can be used on purchase documents. The text type can be accounting texts, purchase memos, and so on.



Define Text Types for Purchasing Organization Texts

Here you maintain a list of text types that can be used to purchase organization-specific information.





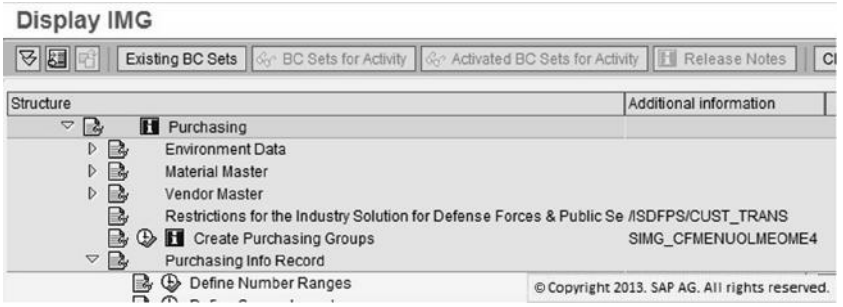
Info Record

Info records need to be maintained in the system so that they can be used properly.

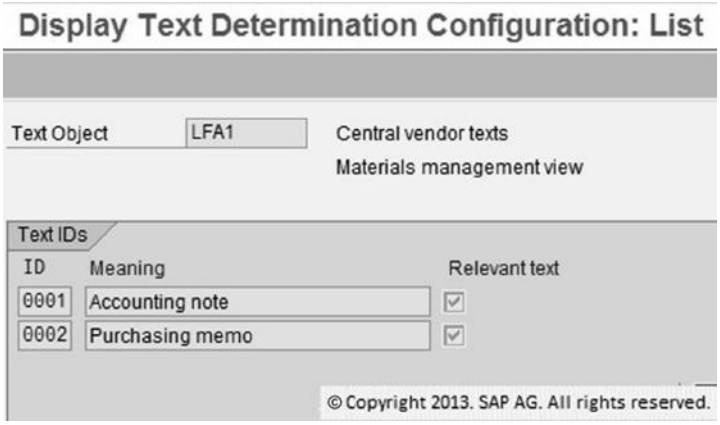
Menu path: SPRO → IMG → Materials Management → Purchasing → Info Records

Define Number Ranges

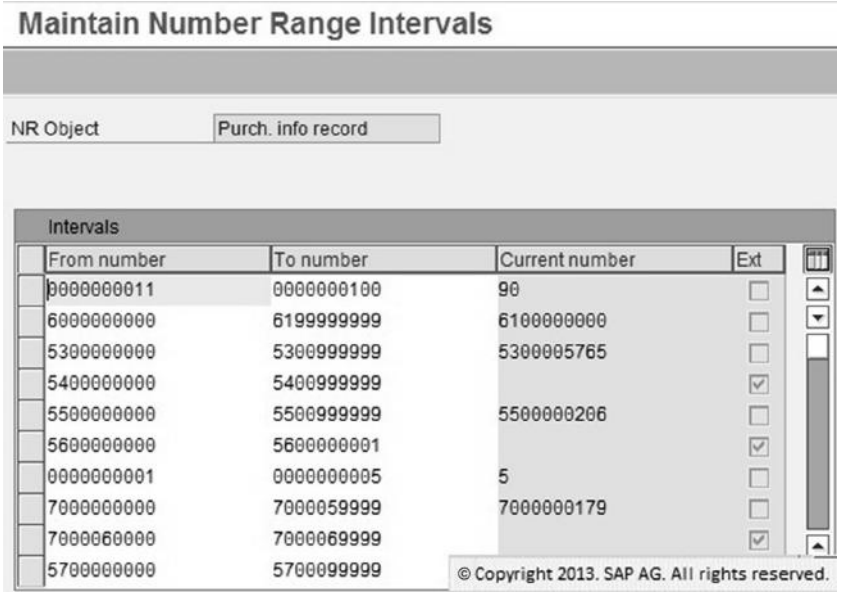
The first thing which can be used to manage info records effectively is to define number range and their intervals for different kinds of info records.



You can define the number ranges for info records for different kinds of materials, for instance, a number for stockable materials and another number range for nonstock materials.

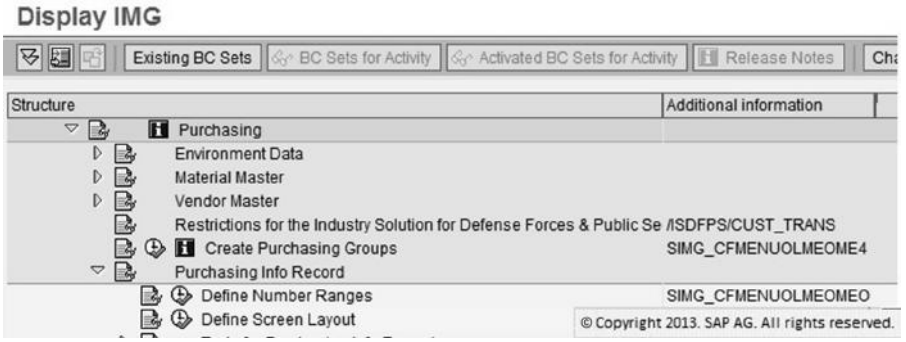


You can thus group the number ranges for info records and use the numbers in different number ranges.

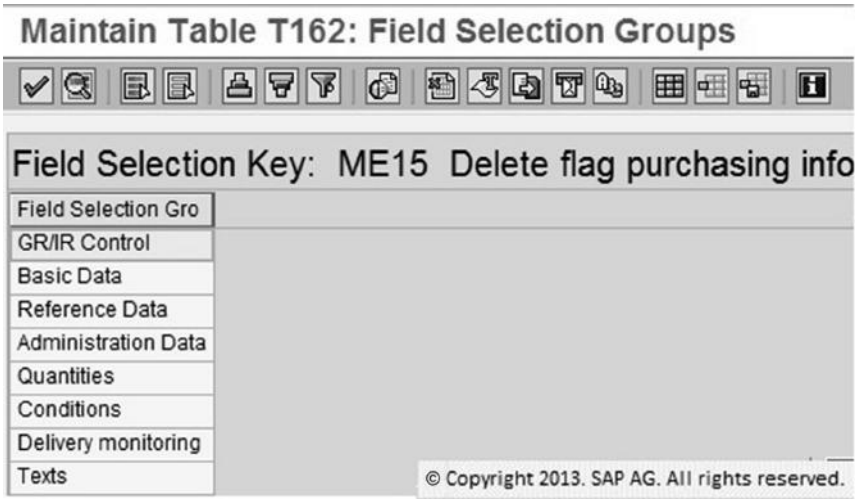


Define Screen Layout

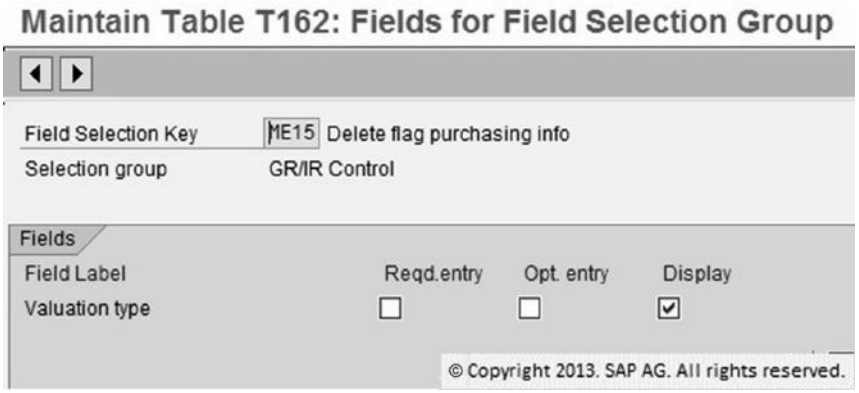
In this IMG activity, you can set up each screen used in creating, maintaining, and deleting info records. You can set each screen element as required entry, optional, or display only on these info record screens.



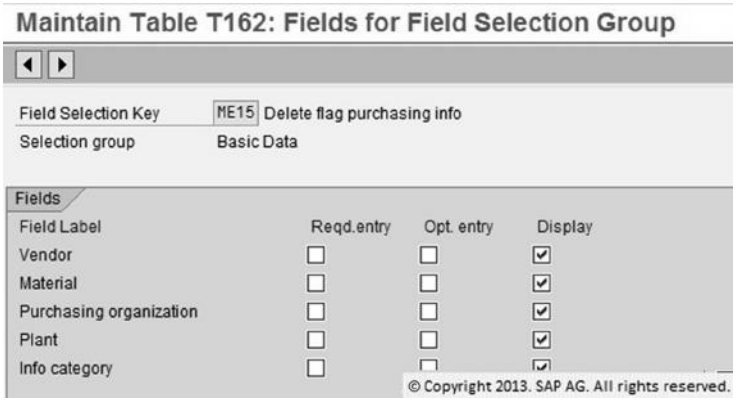
On this screen, you see a list of field selection groups. These groups include GR/IR control, basic data, reference data, administrative data, quantities, delivery monitoring, and texts. You can select any of the groups by clicking on it, and on the next screen, you can set the behavior of individual screen elements.



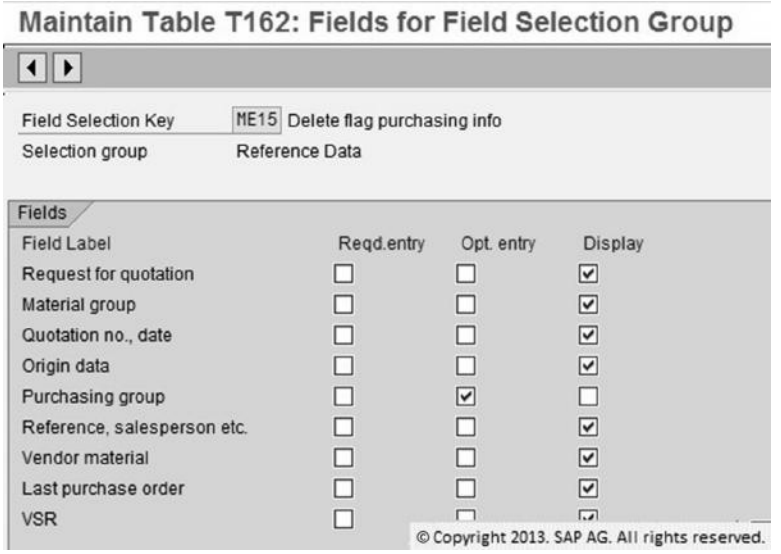
The GR/IR control group of fields only includes valuation type. You can set it as required, optional, or display only.



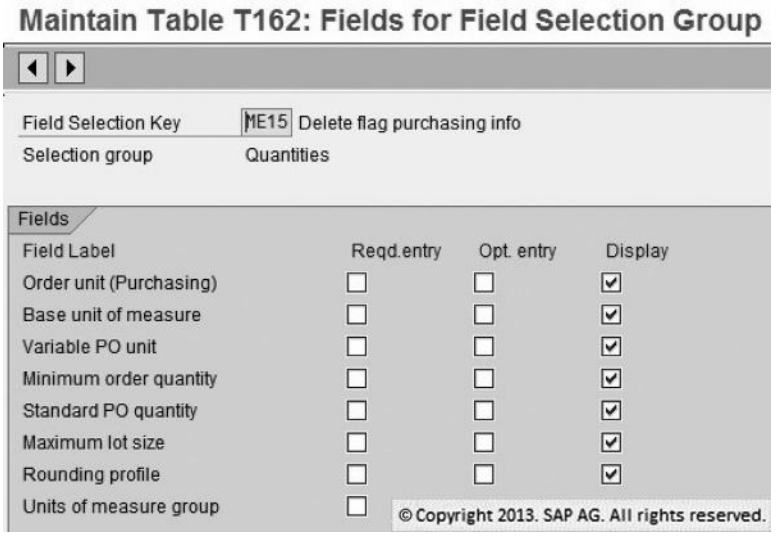
The basic data field selection group contains fields such as vendor, material, purchase organization, plant, and info category. You can set these fields as optional, required, or display only as per your requirements.



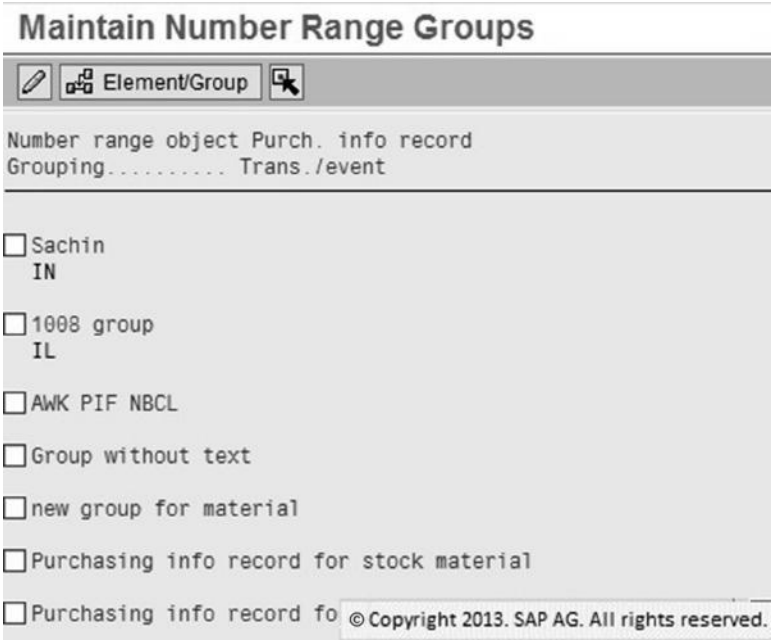
The reference data field selection group contains fields such as RFQ, purchase group, material group, and quotation date. You can set these fields as optional, required, or display only as per your requirements.



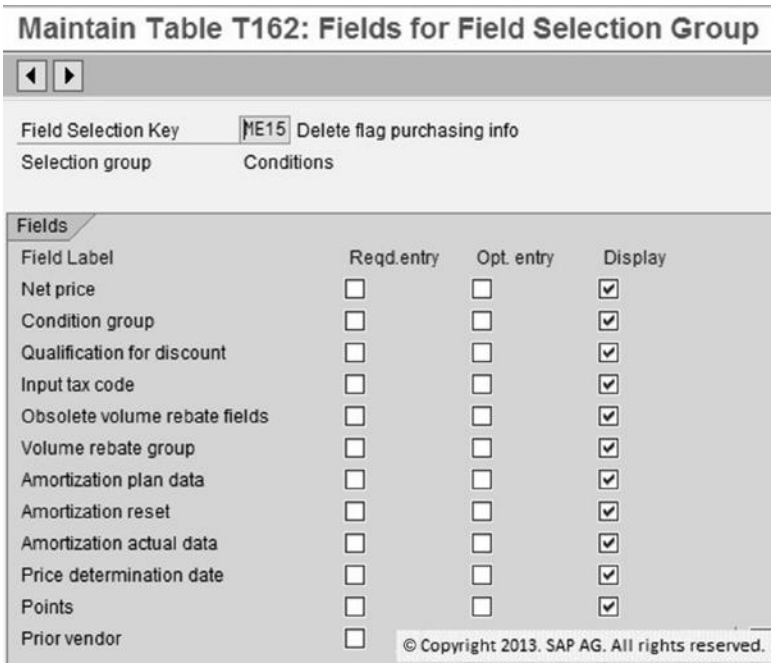
The administrative data field selection group contains fields such as rejection indicator, vendor material group, return agreement, deletion indicator, and timely consumption. You can set these fields as optional, required, or display only as per your requirements.



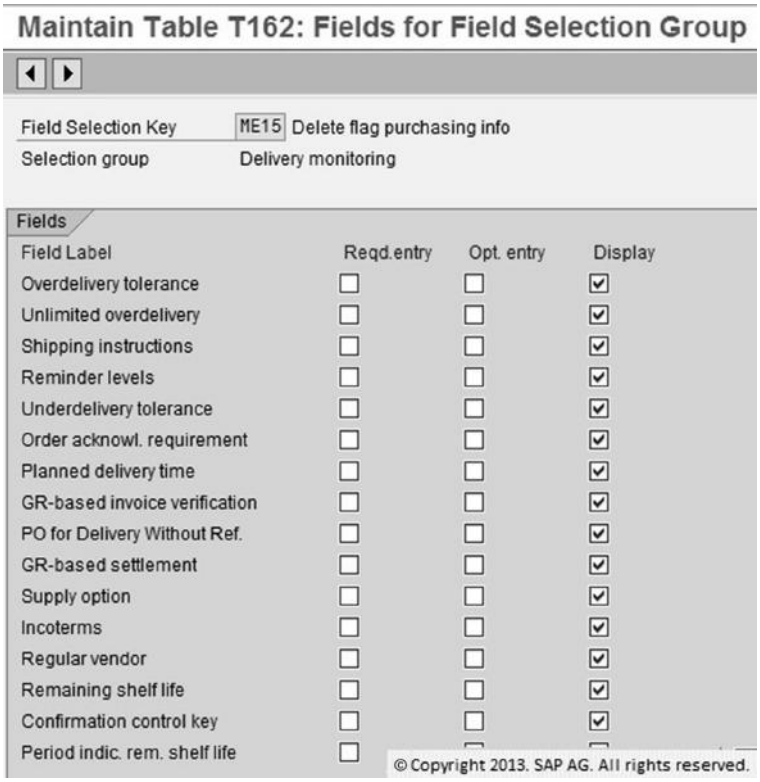
The quantity data field selection group contains fields such as order unit, base unit of measure, variable PO unit, minimum order quantity, and lot size. You can set these fields as optional, required, or display only as per your requirements.



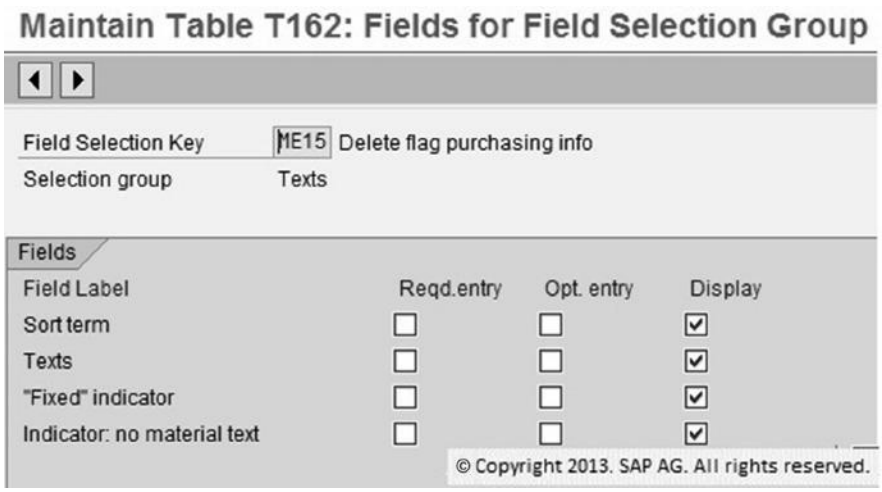
The conditions data field selection group contains fields such as net price, condition group, input tax code, amortization plan data, and price determination date. You can set these fields as optional or required or display only as per your requirements.



The delivery monitoring field selection group contains fields such as over delivery tolerance, unlimited over delivery, shipping instruction, order acknowledgement requirement, and GR-based invoice verification. You can set these fields as optional, required, or display only as per your requirements.

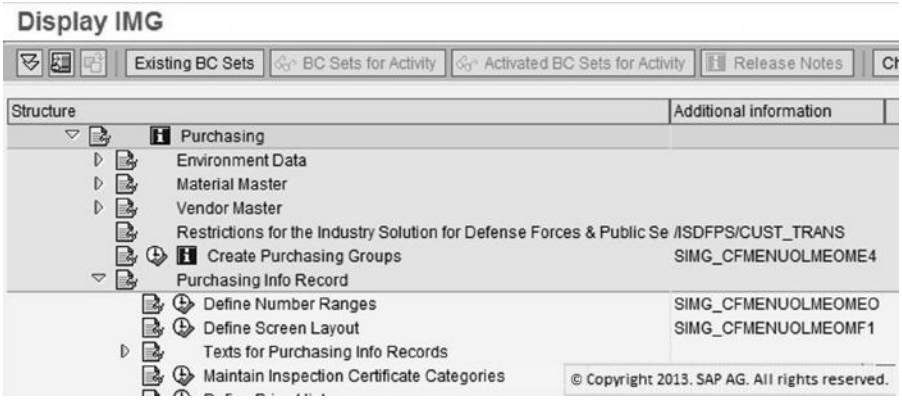


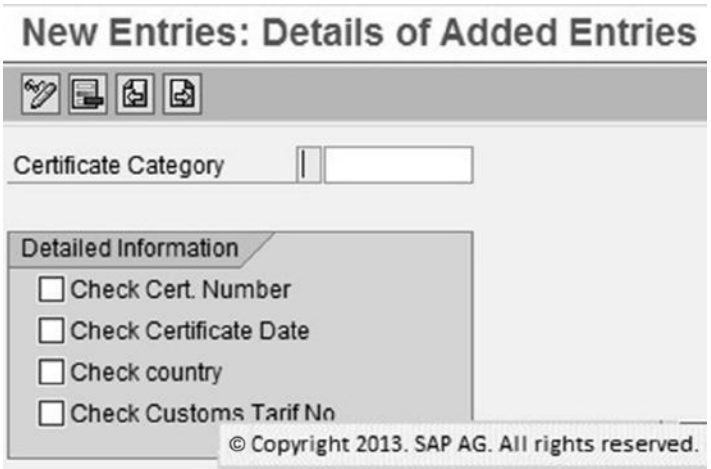
The text field selection group contains fields such as sort term, texts, fixed indicator, and indicator no material text. You can set these fields as optional, required, or display only as per your requirements.



Maintain Inspection Certificate Categories

Here, you can define the inspection certificate categories that can be used to maintain inspection certificates for materials. You can maintain inspection certificate categories based on certificate number, certificate date, country of origin for the material, and custom tariff number.

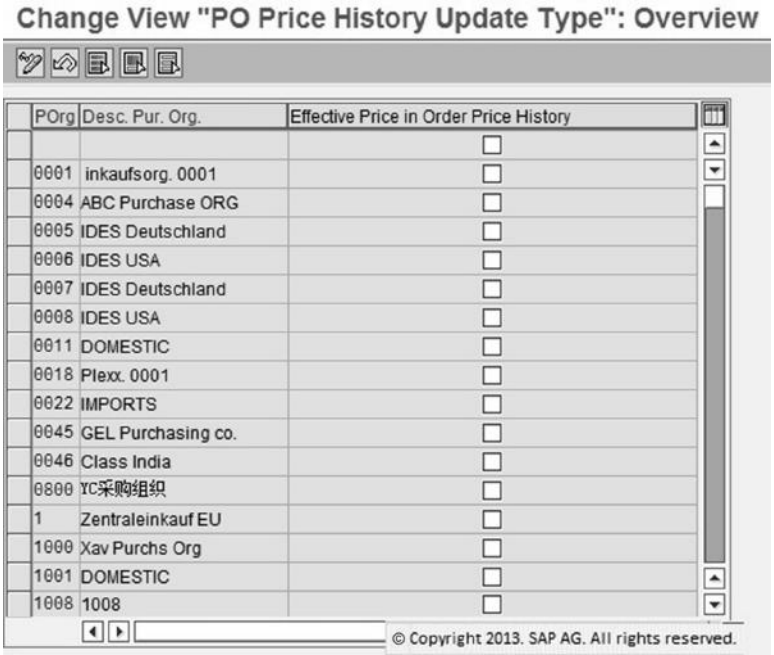




Define Price History

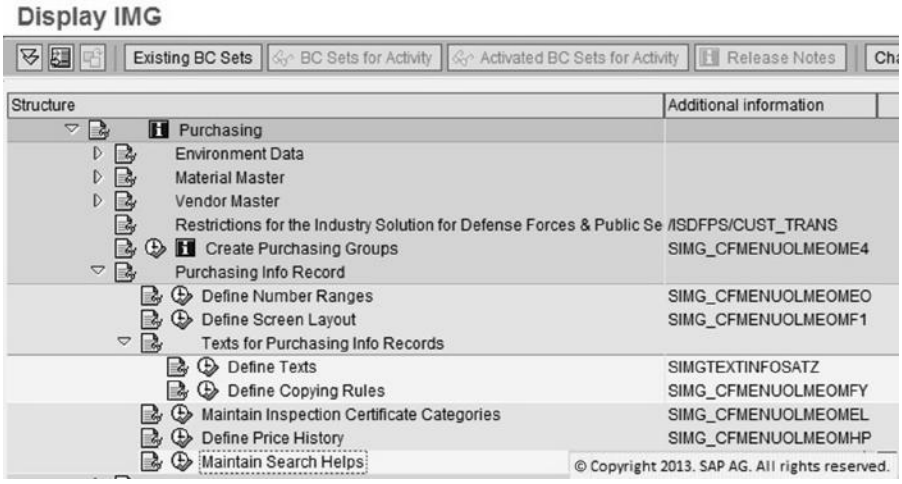
Price history for any material can be maintained at purchase organization level. The price history is also available in purchase documents if it is maintained.

You can choose to maintain the price history for materials at purchase organization level using this functionality here.



Maintain Search Helps

To facilitate searching and finding info records, you can maintain search help texts.

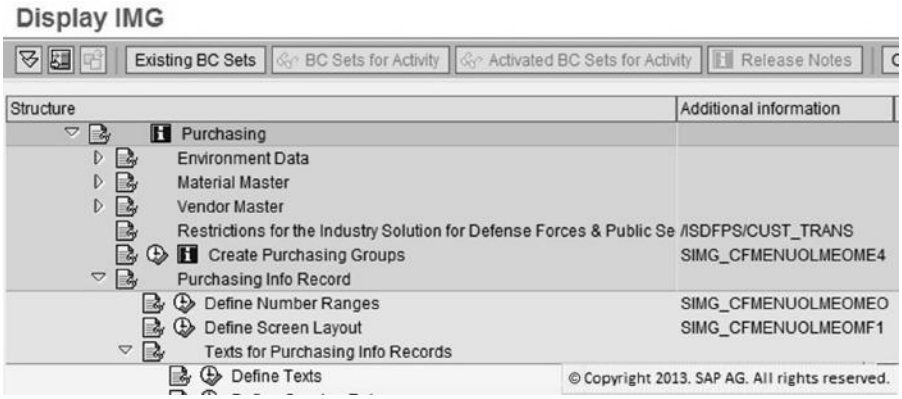


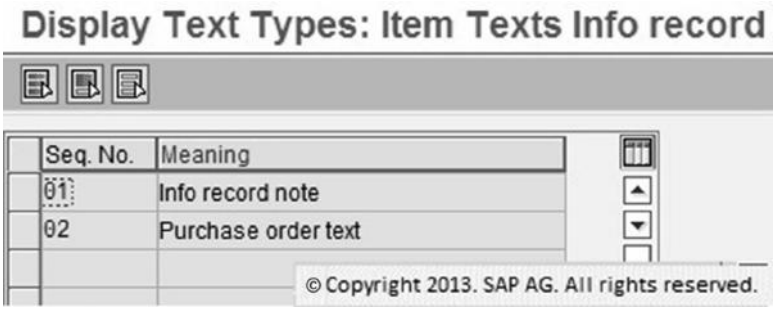
Text for Info Records

Menu path: SPRO → IMG → Materials Management → Purchasing → Info Records → Text for Info Records

Define Texts

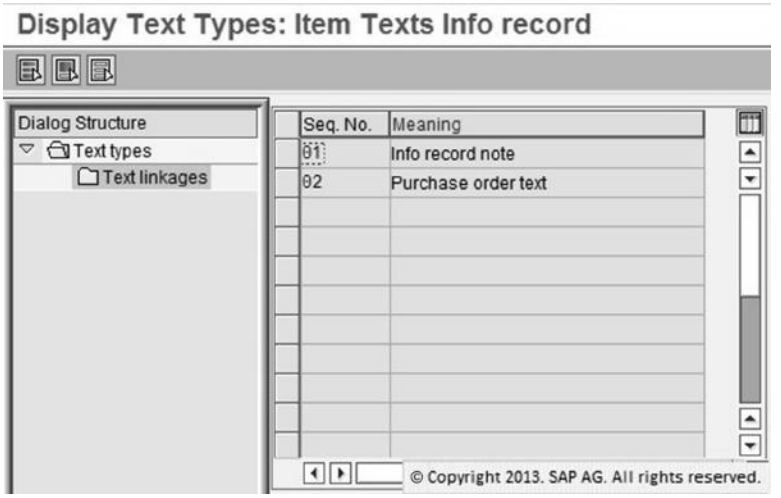
You can maintain search text for both info records and POs.





Define Copying Rules

You can define the copying rules for info records as well as POs. When you copy info records or POs from other purchase documents, info records, or POs, it is not required to copy every element from the source document to the copied document. You can make rules here for copying the elements you want to copy from the source documents to destination documents.

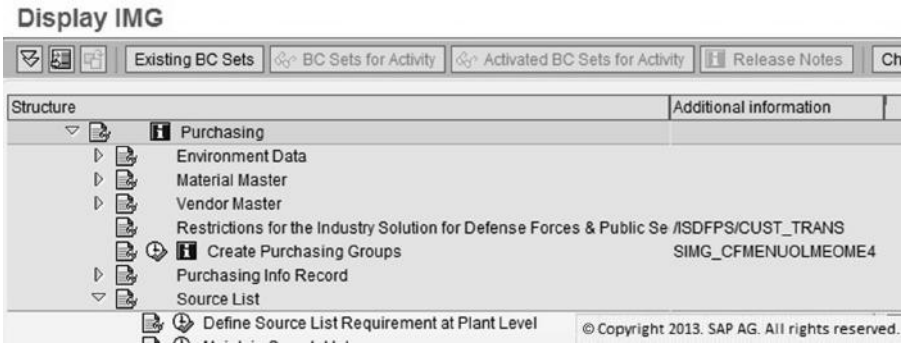


Source list

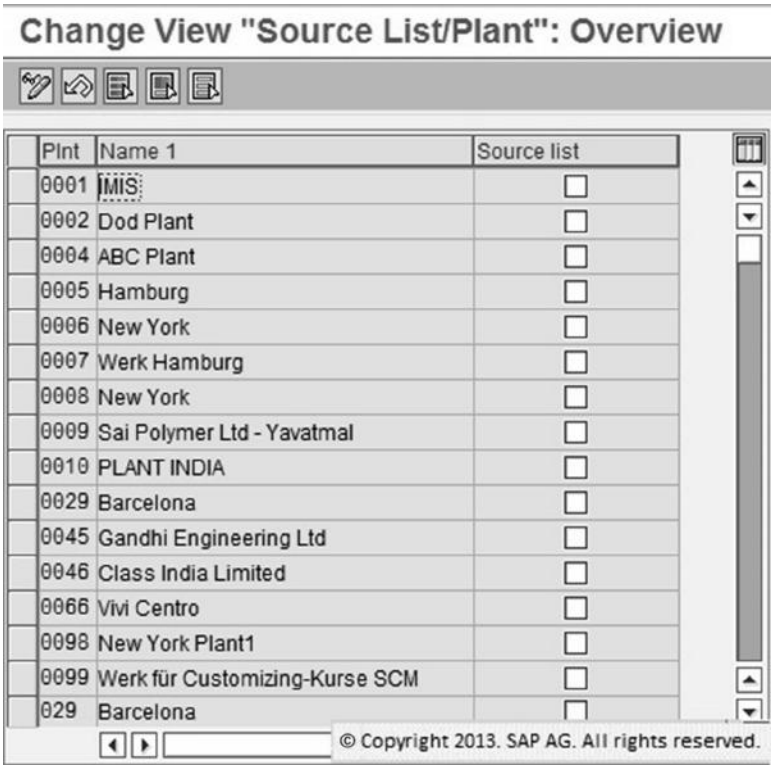
Menu path: SPRO → IMG → Materials Management → Purchasing → Source List

Define Source List Requirements at Plant Level

Source lists contain sources from where procurement can be done for particular materials of specific plants. For optimizing purchasing functions, source lists are required to be maintained in the system. Source lists allow the system to find the best possible source for procurement of any material for any plant.



In this IMG activity, you can define whether you want to maintain source lists for specific plants.



Maintain Search Helps

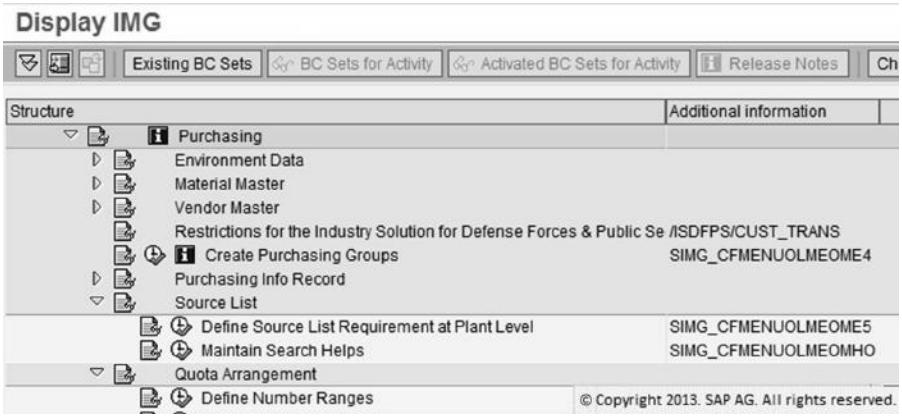
To find sources inside source lists, you can define and maintain search help. You can maintain the rules for creating and maintaining search help here.

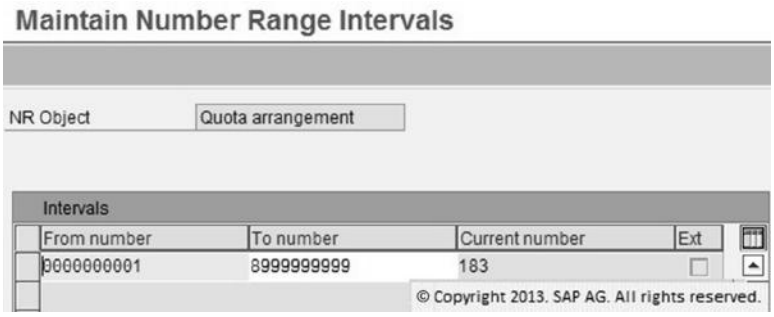
Quota Arrangement

Menu path: SPRO → IMG → Materials Management → Purchasing → Quota Arrangements

Define Number Ranges

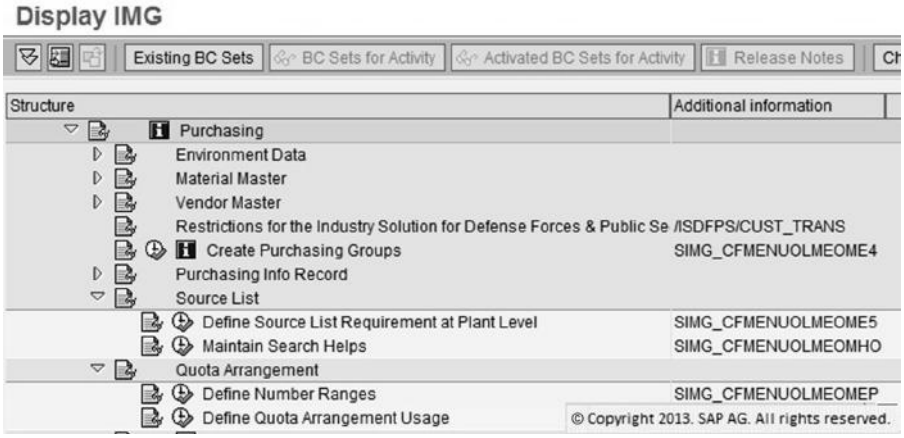
To maintain and search quota arrangements, you need to create and maintain number ranges and range intervals for all quota arrangement lists.



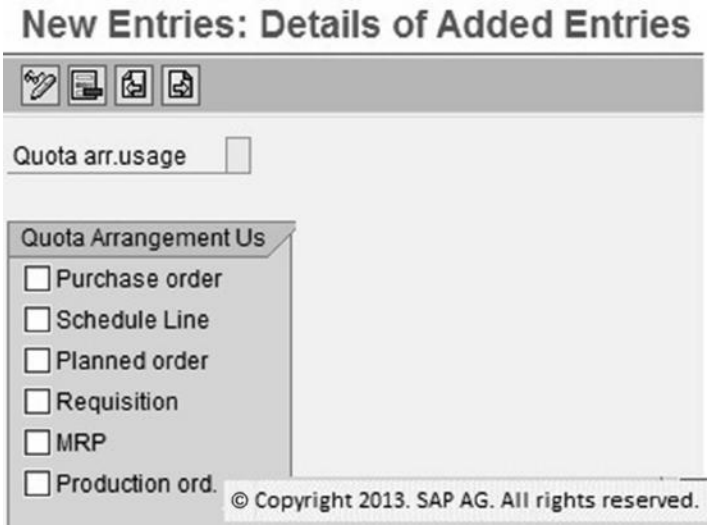


Define Quota Arrangement Usage

Quota arrangement is basically ensuring more than one source for procurement of materials or services. This policy ensures that the customer is not dependent on one supplier (vendor), and thus, any manipulation attempts by the supplier can be easily avoided.



Quota arrangement can be applied for POs, scheduling agreements, planned orders, PRs, MRP, or production order. You can enable any kind of purchasing you want to use quota arrangement in this IMG activity.



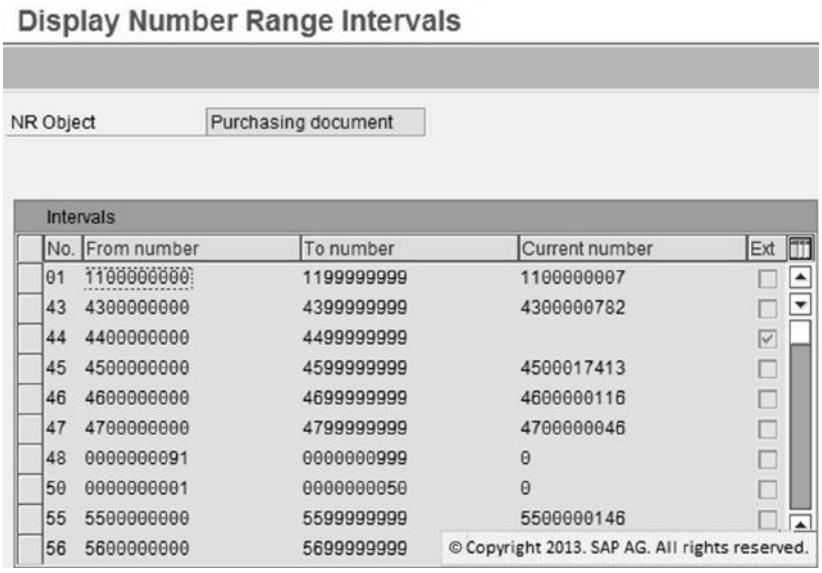
RFQ/Quotation

RFQ is a time-tested procurement method used by manufacturers for a long time. RFQ ensures that the manufacturer gets the best possible sources for its procurements. In this section, we will see how we can customize RFQ functions using IMG.

Menu path: SPRO → IMG → Materials Management → Purchasing → RFQ/Quotation

Define Number Ranges

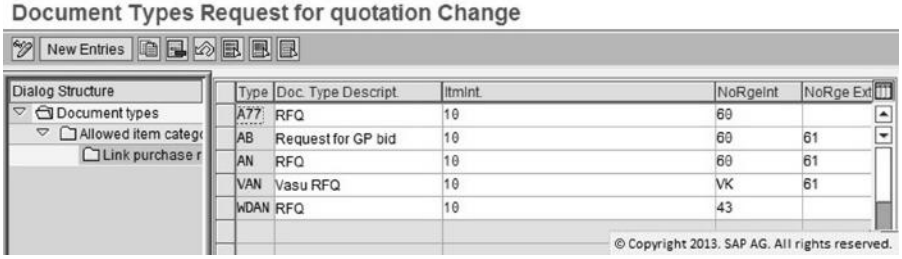
Each RFQ is assigned a unique identity number by the system by default. You can change the default number by using your own number ranges. In this IMG activity, you can create the number ranges for RFQs that suite your purpose.



Define Document Types

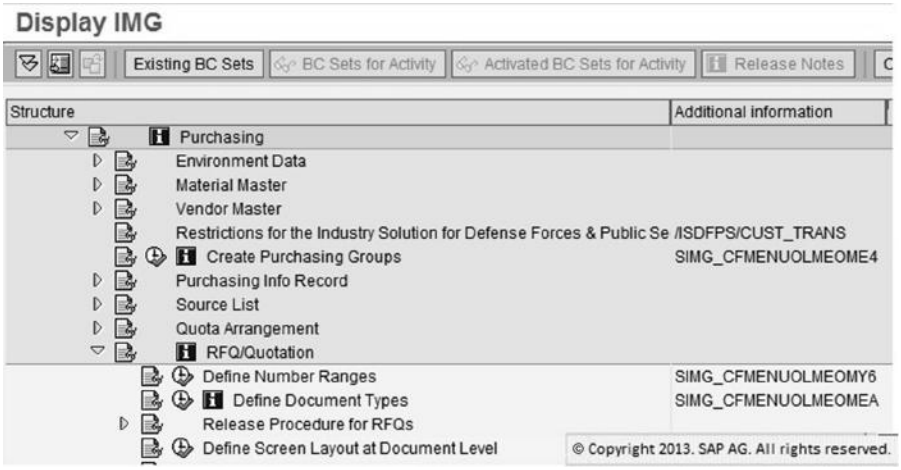
You can create and maintain different types of RFQ document types for various purposes. For example, you can have an RFQ document type for creating consignment-type RFQ documents or third-party RFQ documents, and so on.

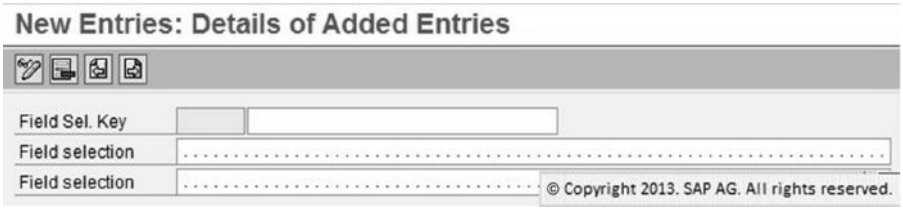
When you create a new RFQ document type, it is added to the existing list of RFQ document types.



Define Screen Layout at Document Level

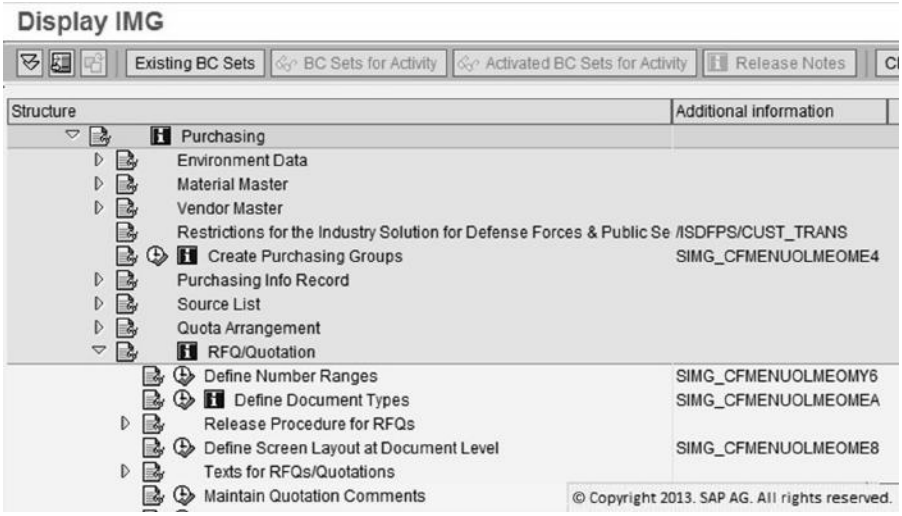
In this IMG activity, you can adjust various screens of RFQ documents so that they become user-friendly as per your needs. This is achieved using screen layout adjustment program in this IMG activity.



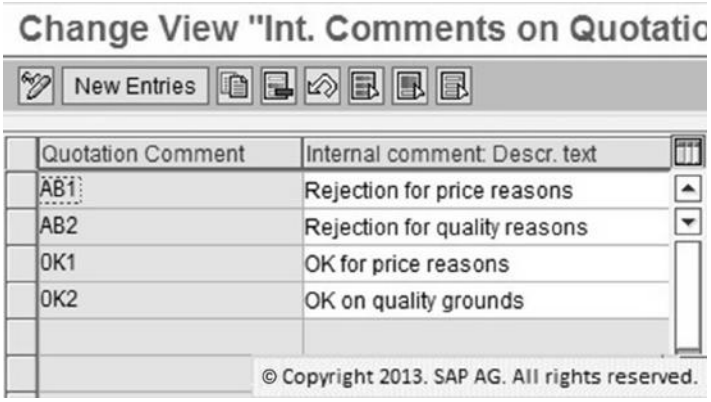


Maintain Quotation Comments

Whenever an RFQ is approved or rejected, you need to keep a reason for taking that action. This statement is kept as a comment attached to that RFQ. You should always keep standard comments to be used on all RFQs.

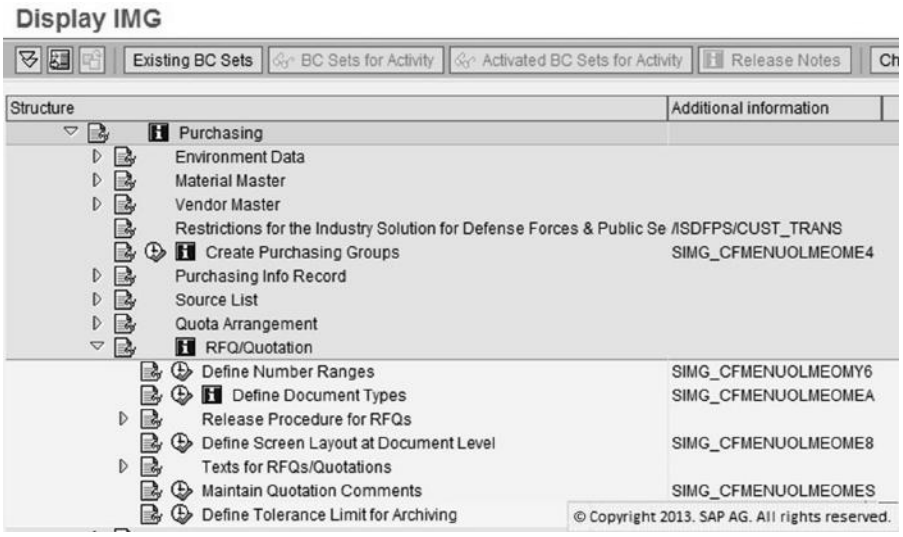


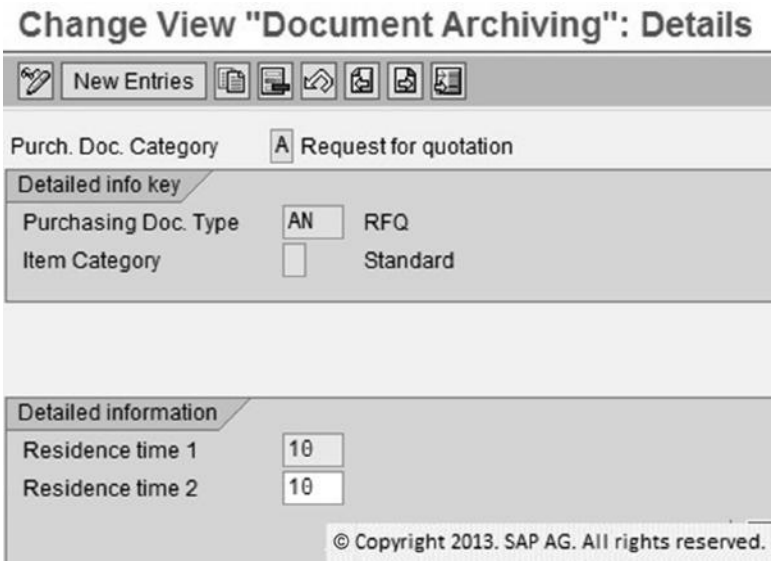
In this IMG activity, you can create standard comments which you can use on RFQs.



Define Tolerance Limit for Archiving

Each RFQ is closed after successful or unsuccessful bidding process. Closed RFQs need to be archived. You need to create a rule as to when an RFQ should be archived. For example, a rule is created to find out the number of days taken to archive an RFQ after it closes. This rule is created in this IMG activity.





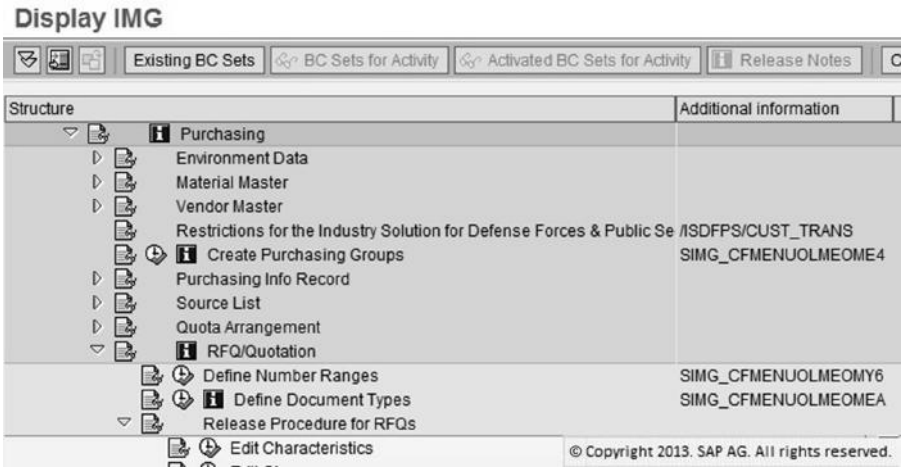
Release Procedure for RFQ

RFQs can be subjected to a release procedure if you want to use a hierarchy of approval authorities for approving RFQs depending on RFQ value, RFQ type, or any other criteria. In this IMG activity, you will be creating framework for release procedures to be used with RFQs. With RFQs, release procedures are always created with characteristics.

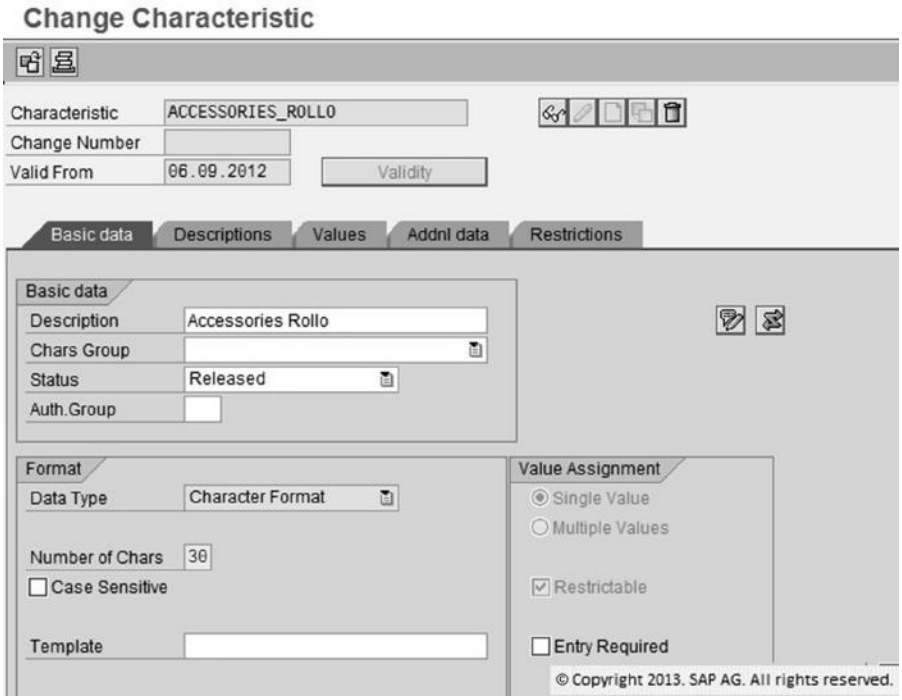
Menu path: SPRO → IMG → Materials Management → Purchasing → RFQ/Quotation → Release Procedure for RFQs

Edit Characteristics

To create a release procedure for RFQ, first you need to create characteristics that will be attached to release classes.

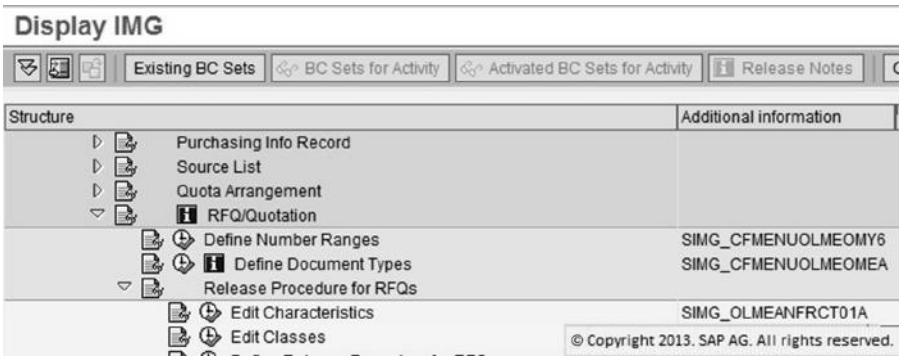


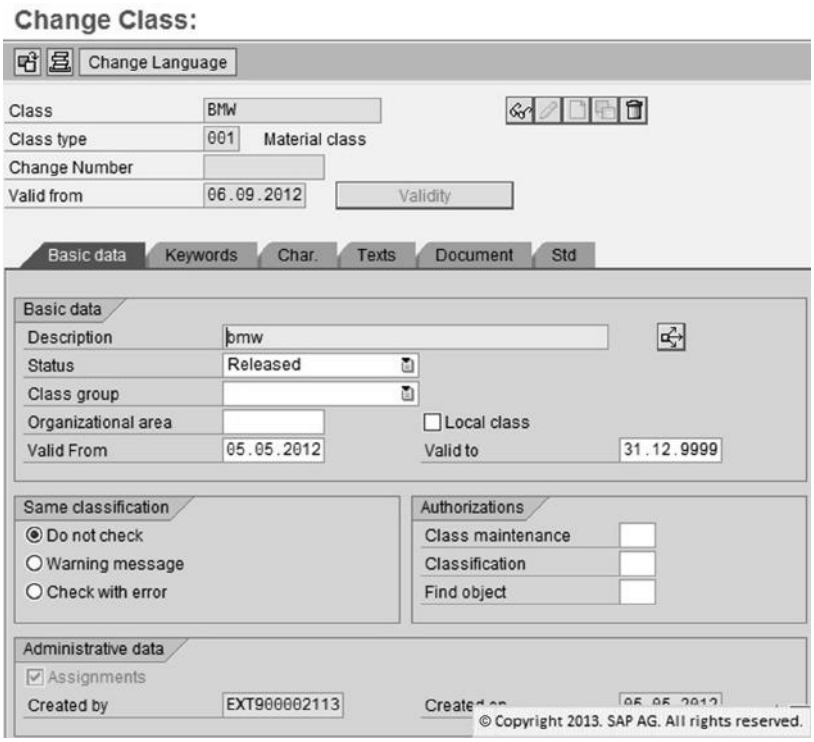
Characteristics play important role in any release procedure. The values defined in the characteristics or values attached to any characteristics (e.g., values coming from some database tables) determine how the workflow associated with the release procedure works. For example, if the release procedure has a workflow where the value of the RFQ (in terms of dollars) determines who in the hierarchy of approval authorities needs to approve a release procedure, a value stored in a characteristic can be compared with the value of the RFQ and the workflow thus determines the next approval authority.



Edit Classes

Classes are the containers that hold the characteristics and their values. You need to create classes that will be attached to the release strategy.

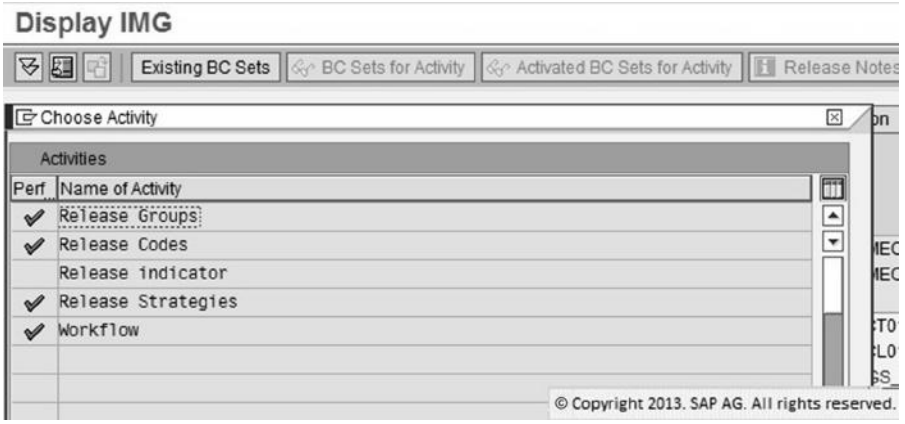




Define Release Procedure for RFQs

This is not a single IMG activity, but instead it is a collection of many activities. You need to create release groups, release codes, release indicator, release strategies, and workflow.

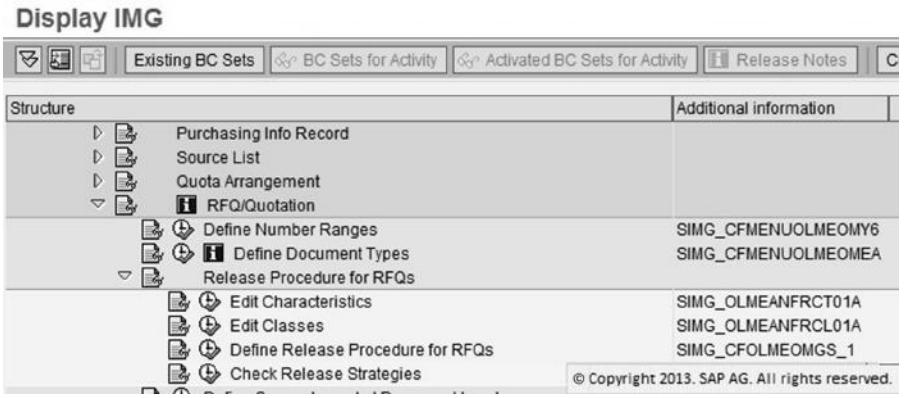
- *Release groups* are the hierarchy of approval levels for any release procedure.
- *Release codes* are the individual releasing authorities.
- *Release indicators* are the status of any release procedure at any given point of time during which the approval hierarchy is invoked depending on the release strategy.
- *Release strategies* are the combination of rules that determine the approval levels and approval hierarchy for any release procedure.
- *Workflow* is a process that governs the passing of approval levels for any release procedure during the entire releasing activity for an RFQ.



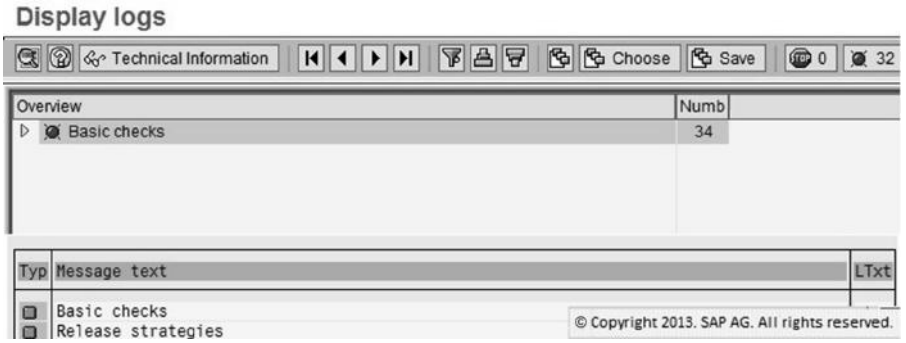
You can find a detailed discussion on release procedures in Chapter 4.

Check Release Strategies

Once you have defined a release strategy, you need to check whether it is working fine. In this IMG activity, a release procedure is run through simulation.



If a release strategy has any logical or consistency problems, detailed errors are shown during the simulation run of the release strategy.



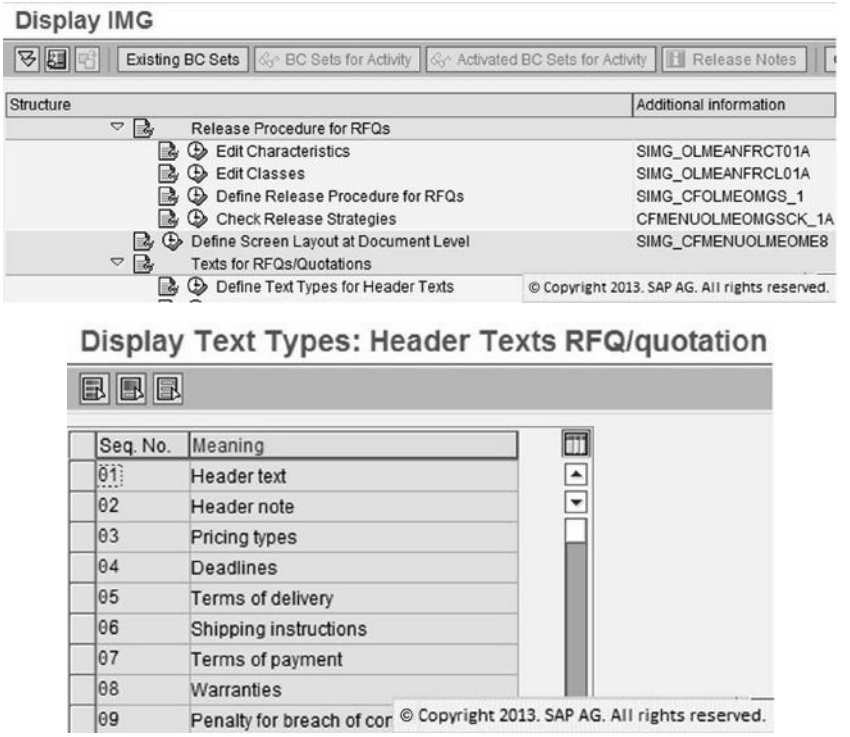
Texts for RFQ/Quotations

For creating and maintaining comments, notes, and important messages during processing of RFQs, we need to create and maintain a list of texts. These texts are used in either header or body of any RFQ.

Menu path: SPRO → IMG → Materials Management → Purchasing → RFQ/Quotation → Texts for RFQs/Quotations

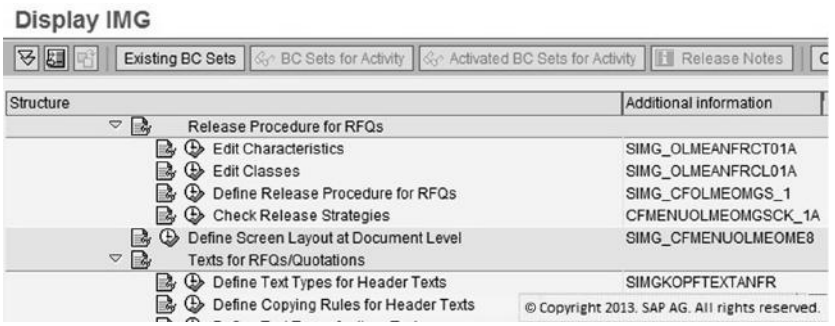
Define Text Types for Header Texts

In this IMG step, we can create text types. These text types are then used to classify various texts.



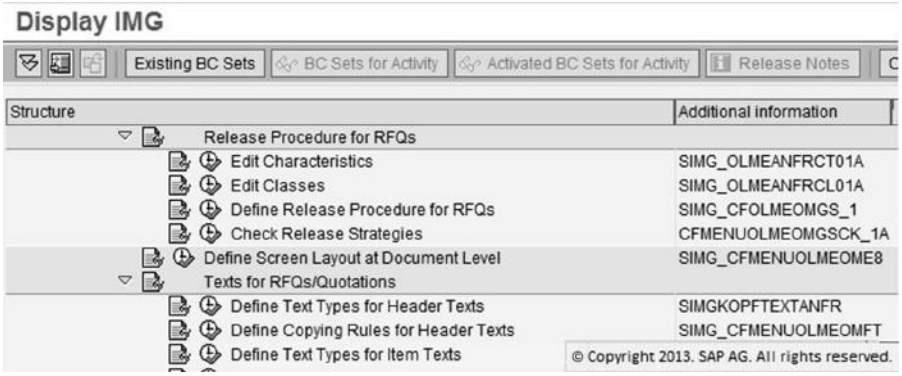
Define Copying Rules for Header Texts

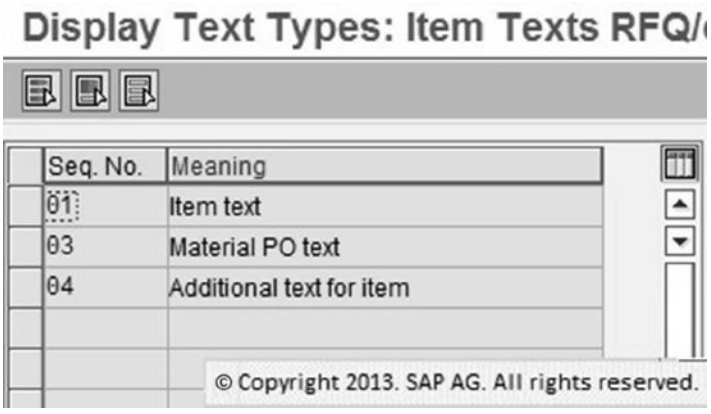
You can define copying rules for header texts so that you can copy header text data from one document to a new document when adoption of the original document is done.



Define Text Types for Item Texts

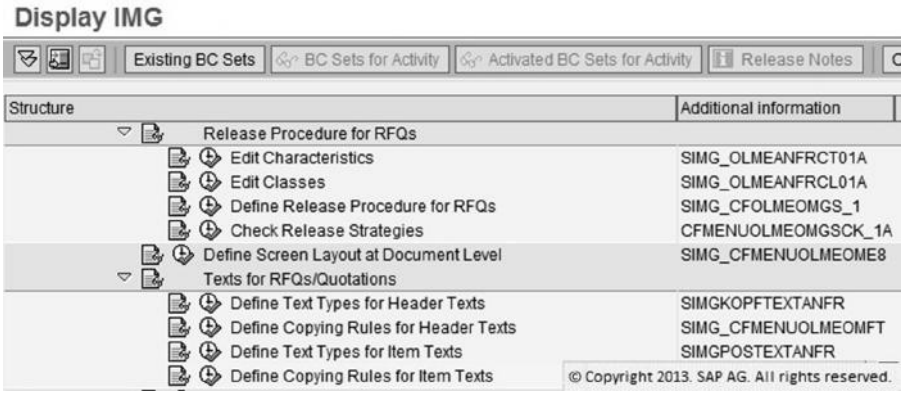
You can define text types that you can attach to any text maintained on RFQ documents. Some examples of text types include material text for POs, instructions to vendors, and so on.

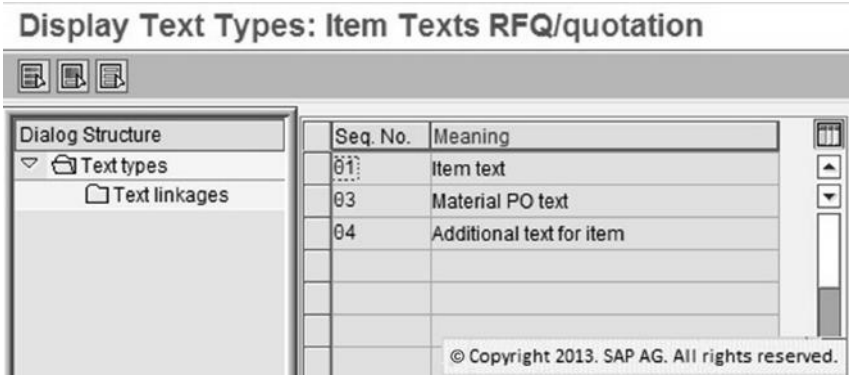




Define Copying Rules for Item Texts

Any item text can be copied from source document to destination document. You can define rules so that the copying of text takes place as per the rules set here. Some options for copying rules include text automatically adopted, text manually adopted, or text never adopted.





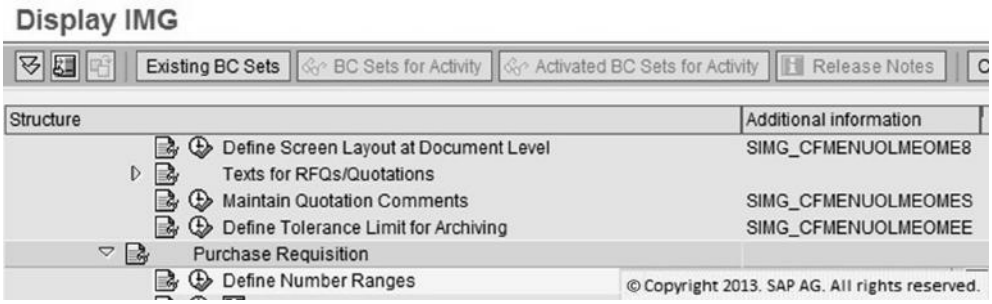
Purchase Requisition

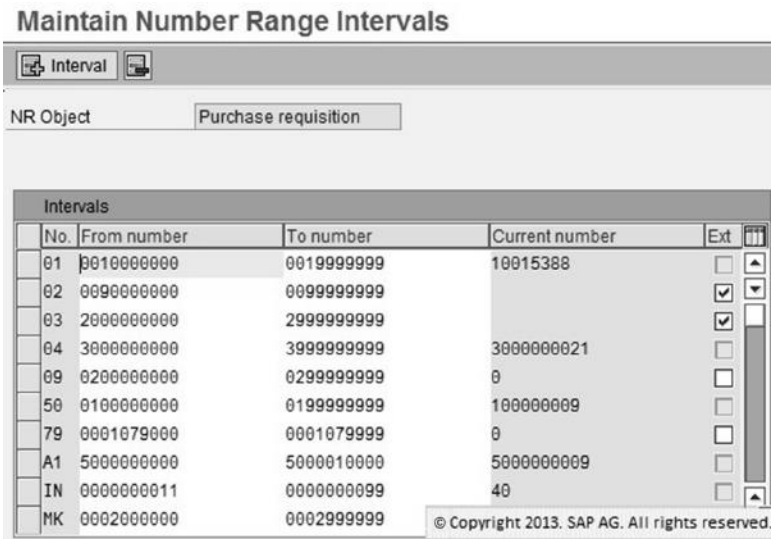
In SAP, PR documents have been developed with a large number of options. PRs can be used in many scenarios easily as SAP has developed many optional features for PRs. Many of these features are already integrated in the standard SAP. Many more features are available which can be customized through the IMG activities which we will discuss in this section.

Menu path: SPRO → IMG → Materials Management → Purchasing → Purchase Requisition

Define Number Ranges

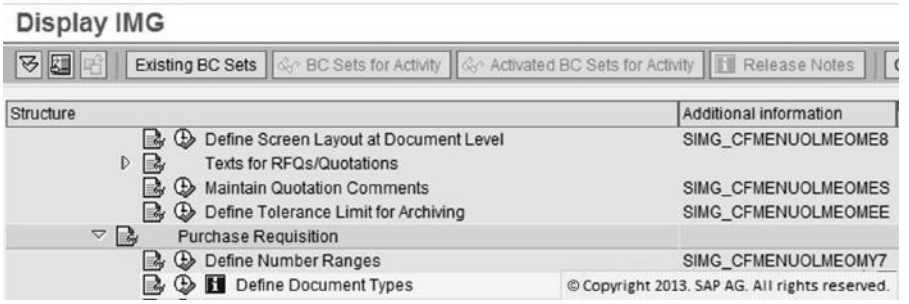
As we have seen in previous sections, purchase documents are assigned with unique identification numbers for managing them internally. Sometimes, users also keep external numbering systems for PRs. You can define all internal and external number ranges in this IMG activity.



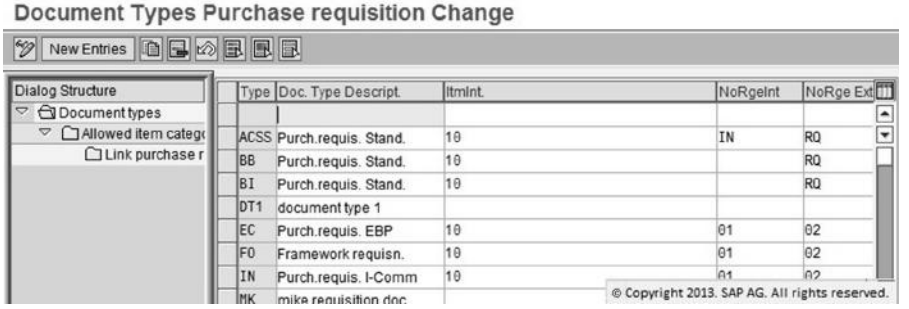


Define Document Types

PR documents are used in many scenarios. To cater to the needs of those scenarios, you can maintain many document types for PRs.

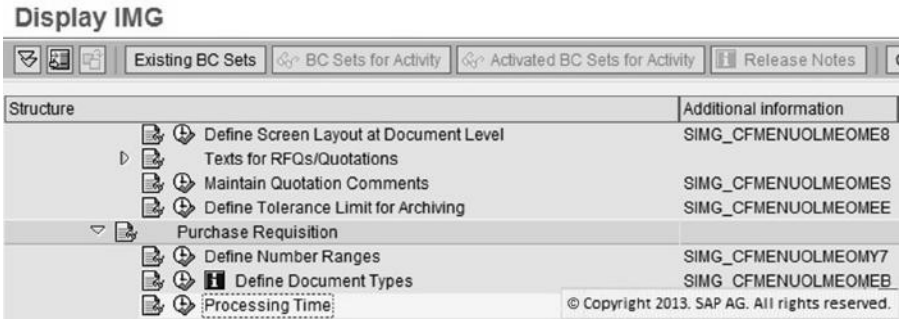


You can differentiate PRs based on item category, document category, and so on. So you can use these factors in creating different document types for your PRs.

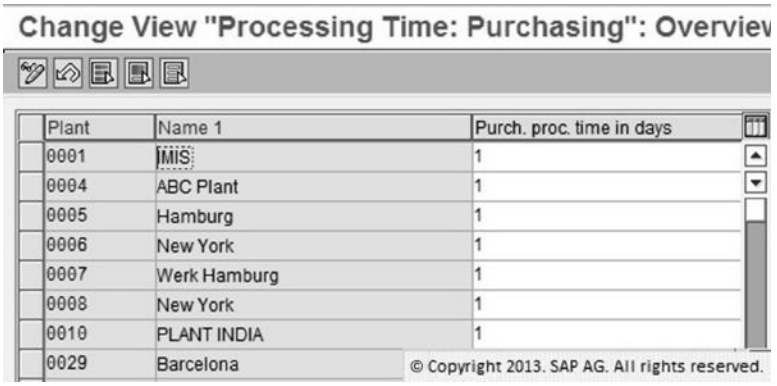


Purchase Processing Time

In this IMG activity, you can define the number of days it takes to process a purchase transaction for each of your plants.

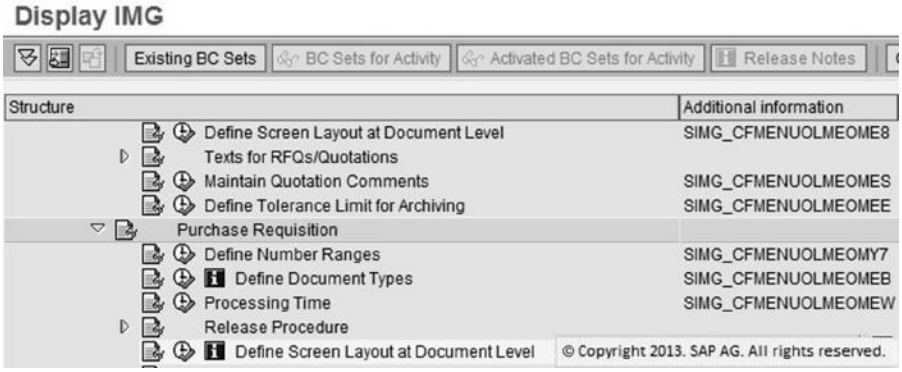


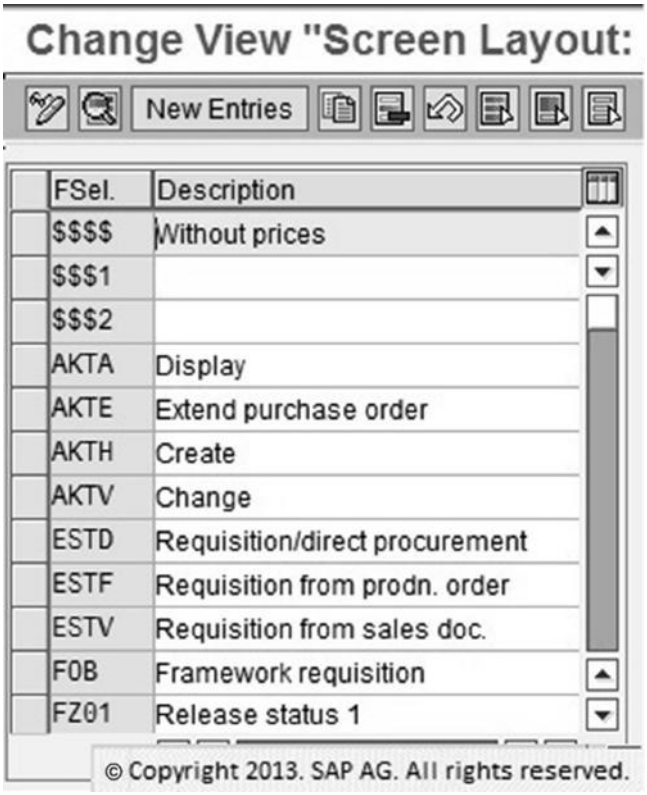
The purchase processing time can then be used to calculate how many days in advance that you need to create PRs for your required materials.



Define Screen Layout at Document Level

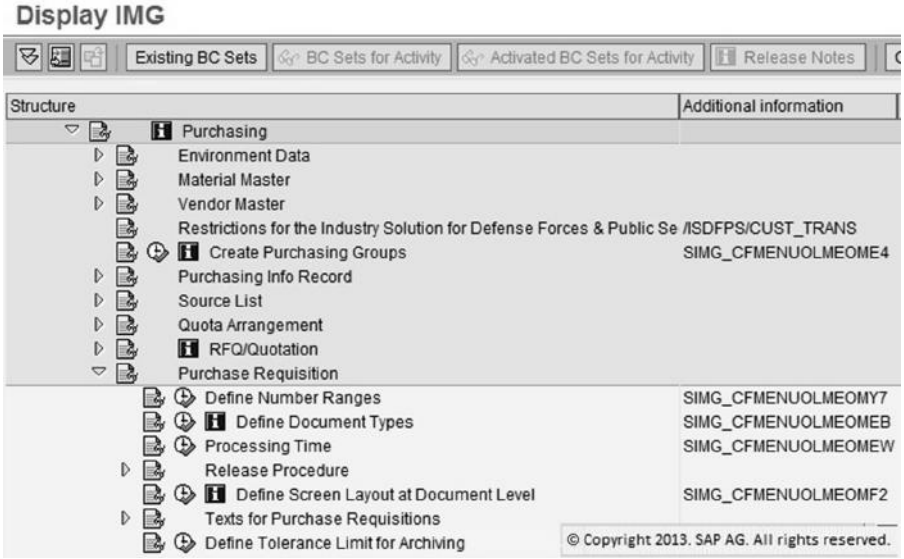
We have already discussed on adjusting the screen layout for purchase documents such as contracts and RFQs. With PRs, you can achieve the same kind of adjustment of screens so that they are more user-friendly and more productive.

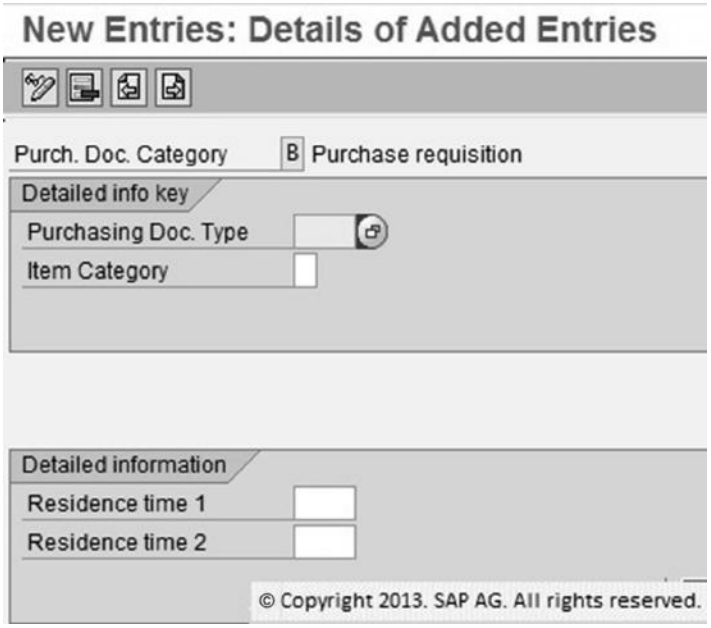




Define Tolerance Limit for Archiving

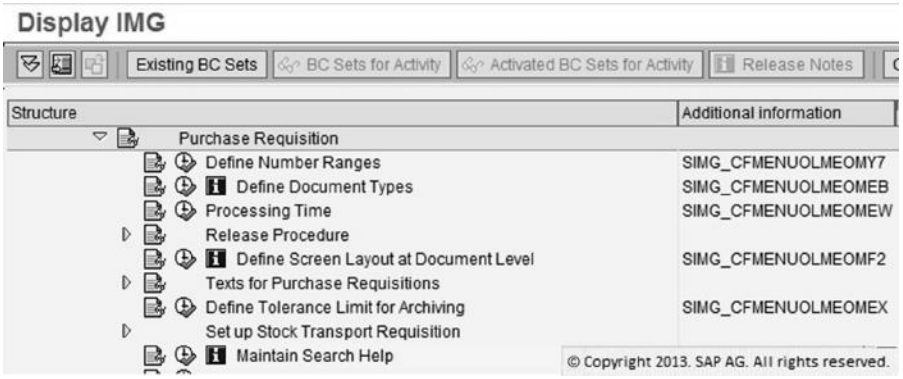
We have already discussed the tolerance limit for archiving for other purchase documents in this chapter. Tolerance limit for archiving of PRs is very similar and so does not need to be discussed separately.





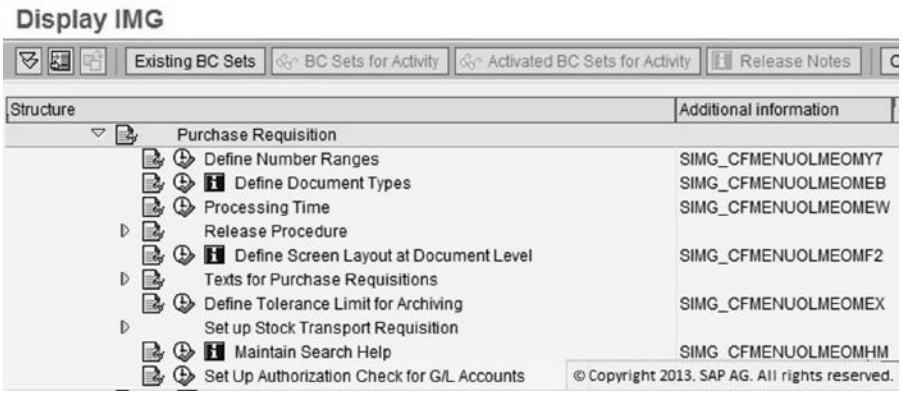
Maintain Search Help

We have already discussed on creating and maintaining search help for purchasing documents in this chapter. Search help for PRs is very similar and thus does not need to be discussed separately.

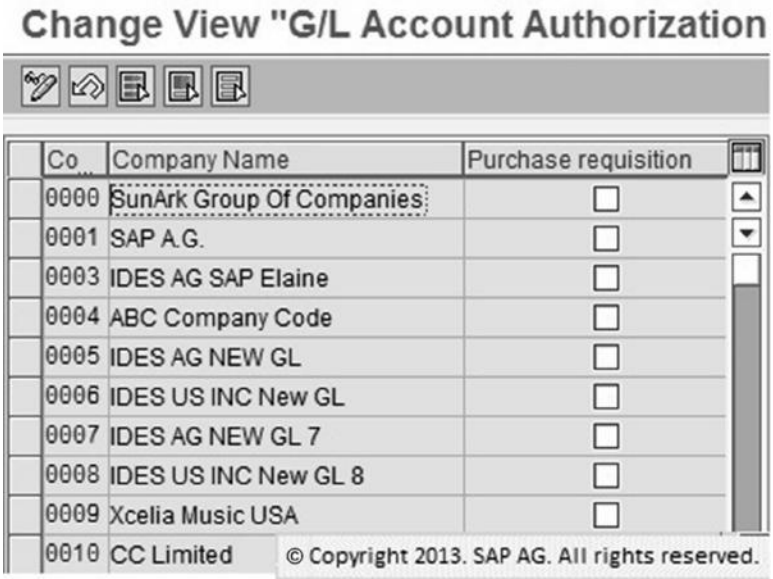


Set Up Authorization Check for G/L Accounts

For vendor and other partner payments for procurement, G/L accounts are maintained in the system. G/L accounts are also maintained for internal management of inventory. For example, when inventory is moved from one storage location to another or transferred from one plant to another, you need to maintain G/L accounts for the inventory so that the valuation of inventory always reflects the current position.



In some company codes, you may not need to make an authorization check for viewing G/L reports. But in some other company codes, you may need to restrict as to who can view which G/L account reports. In this IMG activity, you can set the check for access to G/L accounts at company code level.



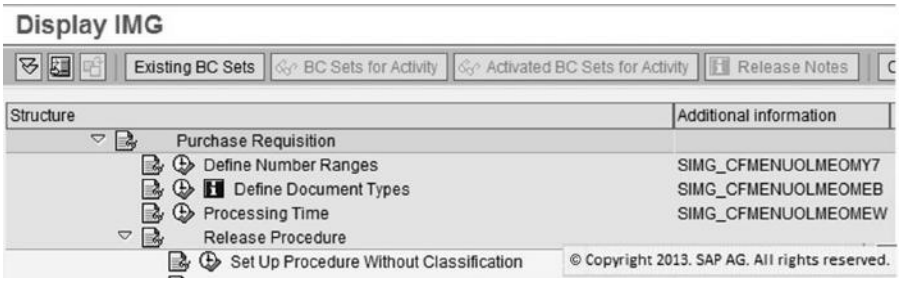
Release Procedure for PR

Release procedure is an important activity for PRs because it enables the management to make a setup so that any PR created must be authorized before procurement operation can take place on it. Generally, in dollar terms, companies make sure that large purchases must be approved by managers who are responsible for procurement or operations of their business lines as well as people from the finance department. In SAP, release procedure for PRs is implemented to take care of many aspects during approval process for PRs.

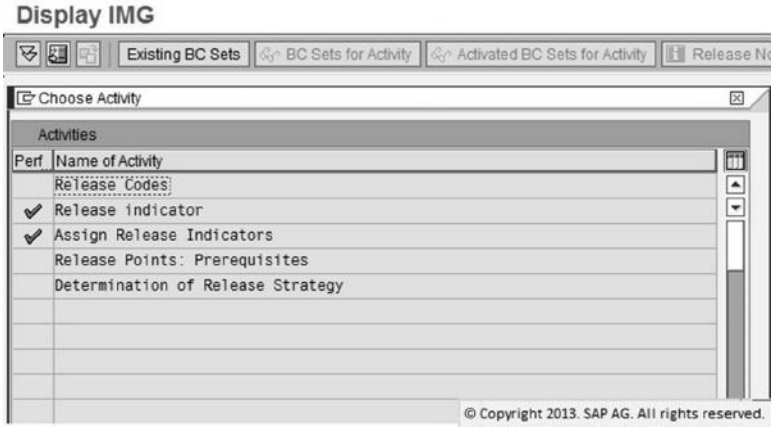
Menu path: SPRO → IMG → Materials Management → Purchasing → Purchase Requisition → Release Procedure

Set Up Release Procedure without Classification

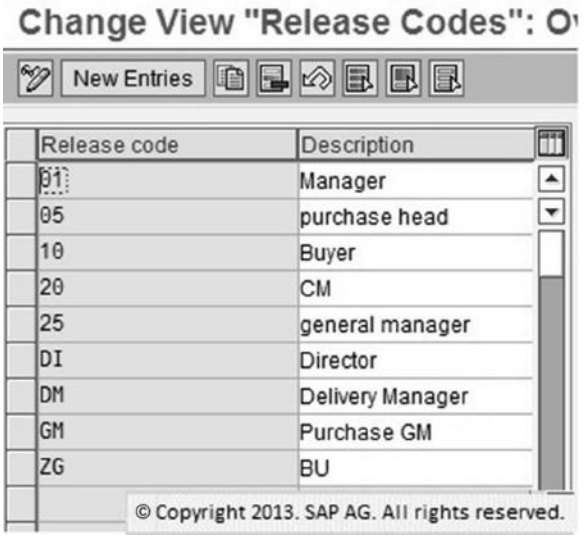
A release procedure for PRs can be implemented in two ways: release procedure without classification and release procedure with classification. Release procedure without classification for PRs is discussed in detail in Chapter 4.



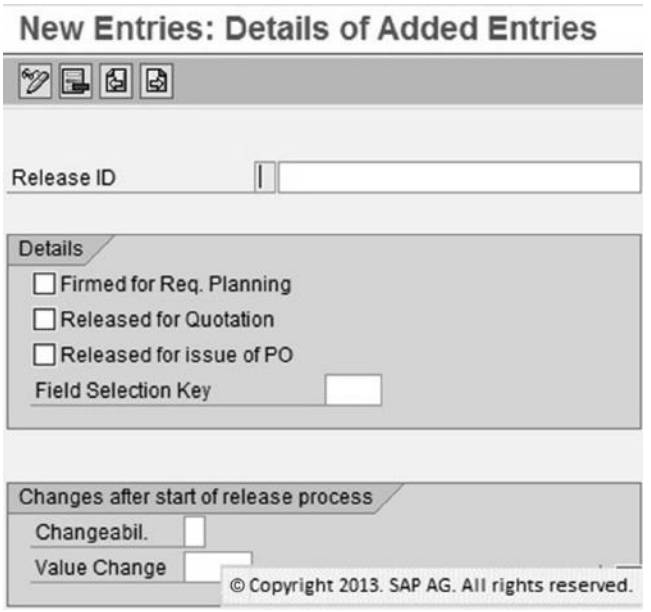
You start this IMG activity using the menu given in the above figure. When you double click the link on the menu, a list of tasks will be displayed.

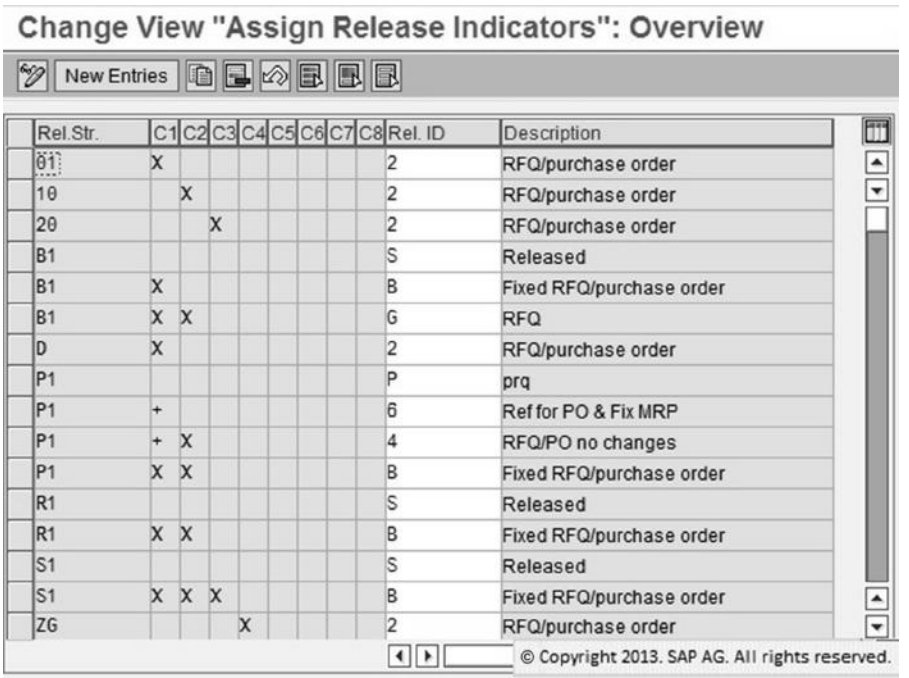


The first thing you need to do is to create release codes.



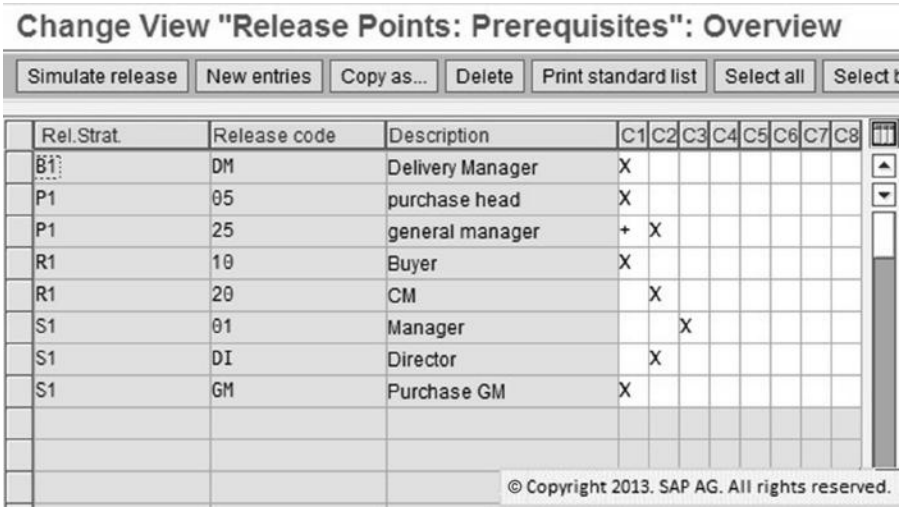
The next activity is to create release indicators. Each release indicator is created using the entry sheet.



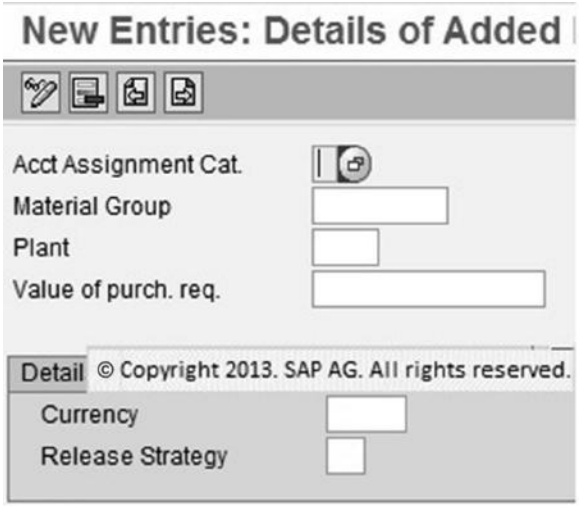


Rel.Str.	C1	C2	C3	C4	C5	C6	C7	C8	Rel. ID	Description
01	X								2	RFQ/purchase order
10		X							2	RFQ/purchase order
20			X						2	RFQ/purchase order
B1									S	Released
B1	X								B	Fixed RFQ/purchase order
B1	X	X							G	RFQ
D	X								2	RFQ/purchase order
P1									P	prq
P1	+								6	Ref for PO & Fix MRP
P1	+	X							4	RFQ/PO no changes
P1	X	X							B	Fixed RFQ/purchase order
R1									S	Released
R1	X	X							B	Fixed RFQ/purchase order
S1									S	Released
S1	X	X	X						B	Fixed RFQ/purchase order
ZG				X					2	RFQ/purchase order

Once you have created release indicators, you have to link the release codes and release indicators by creating release point prerequisites.



The last activity is to create release strategy. Based on prerequisites, release codes and release indicators, you can create release strategy.



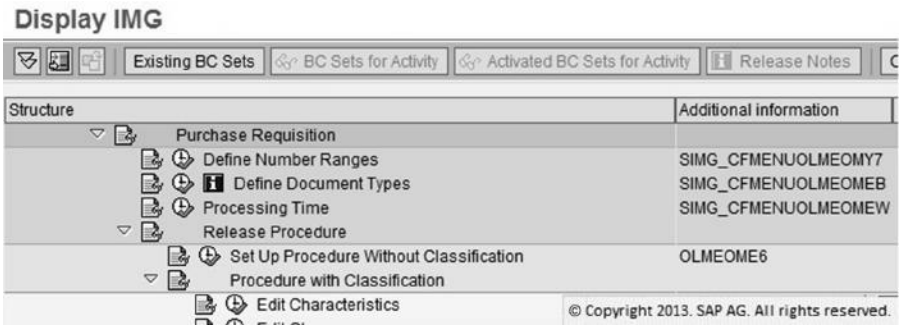
Release Procedure with Classification for PR

Release procedure with classification for PRs is used to create classes and keep the values of certain criteria for invoking the release steps in characteristics. This is discussed in detail in Chapter 4.

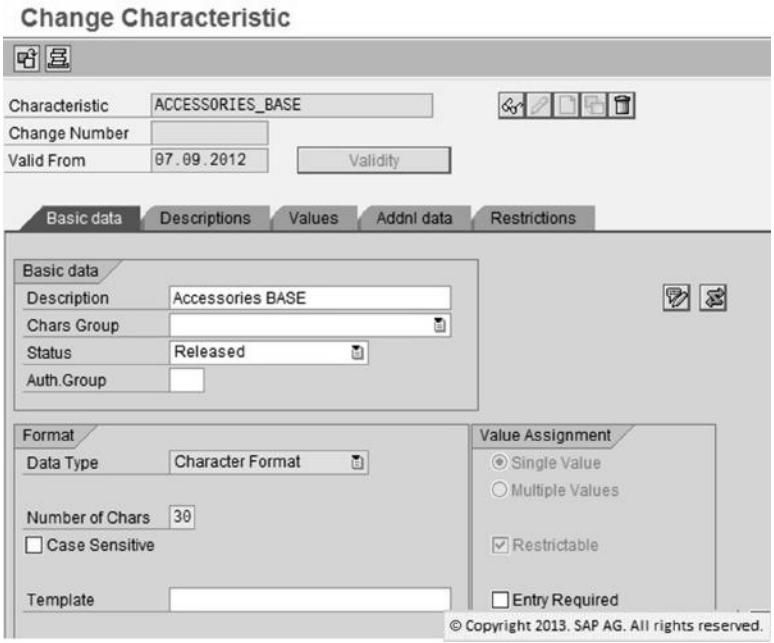
Menu path: SPRO → IMG → Materials Management → Purchasing → Purchase Requisition → Release procedure → Procedure with Classification

Edit Characteristics

You create characteristics based on the values related to the value of PR or any other criteria.

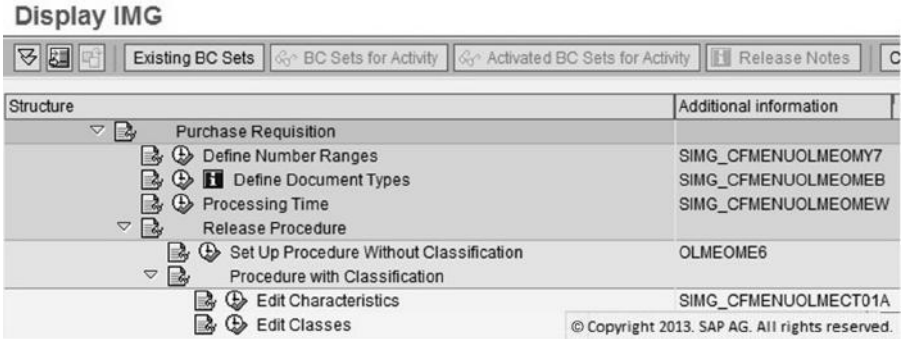


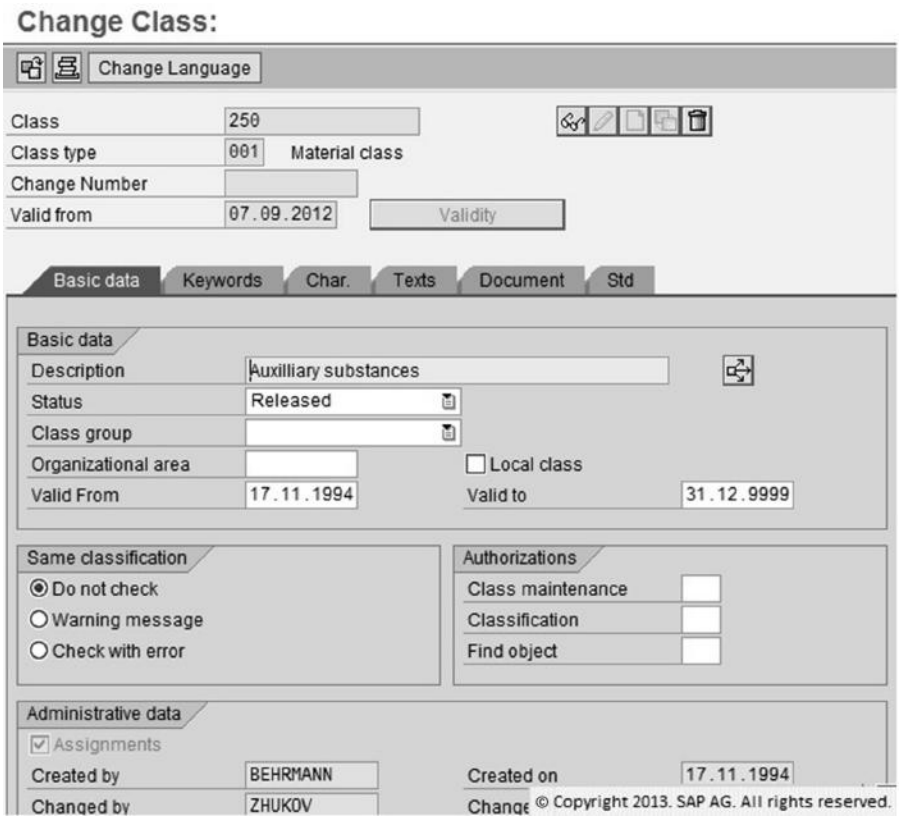
Once characteristics are made, they are attached to classes.



Edit Classes

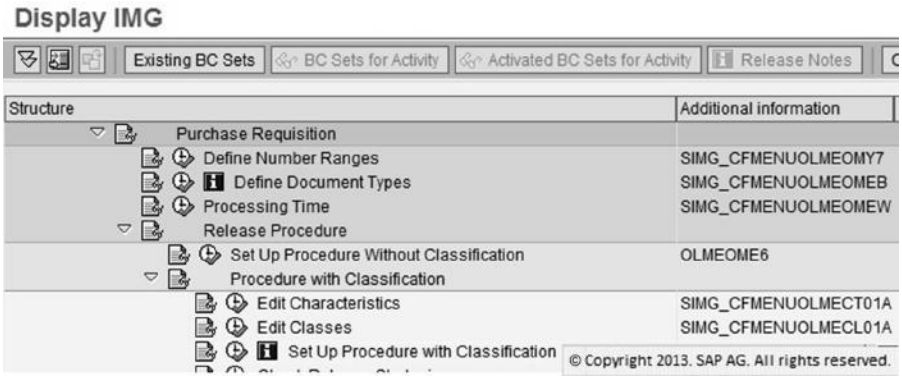
You create a class and attach all your characteristics to this class.



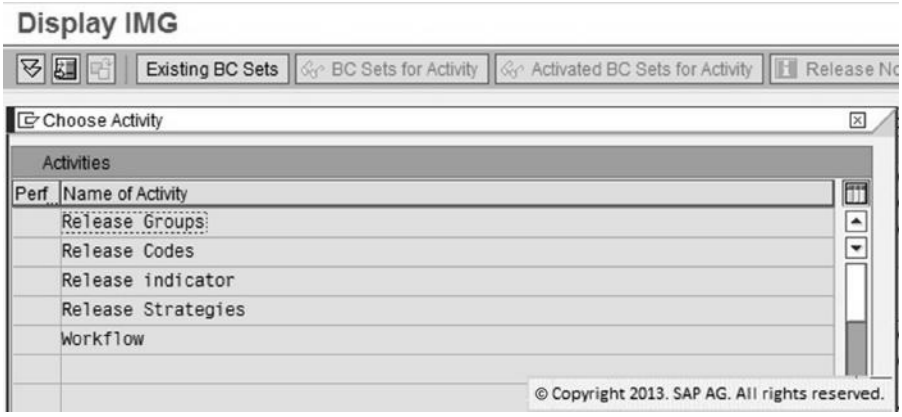


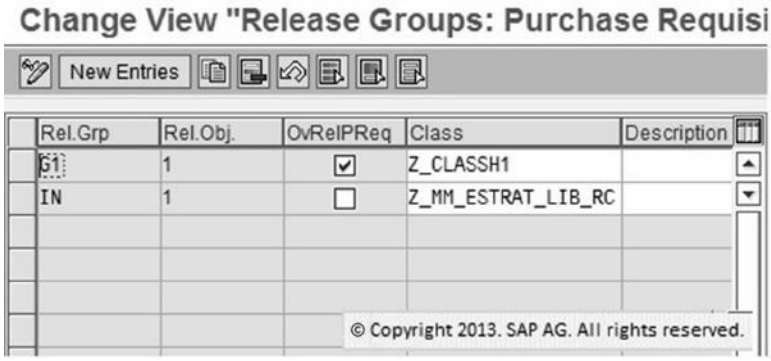
Set Up Procedure with Classification

Once your characteristics and classes are made and saved, you start building your release procedure.

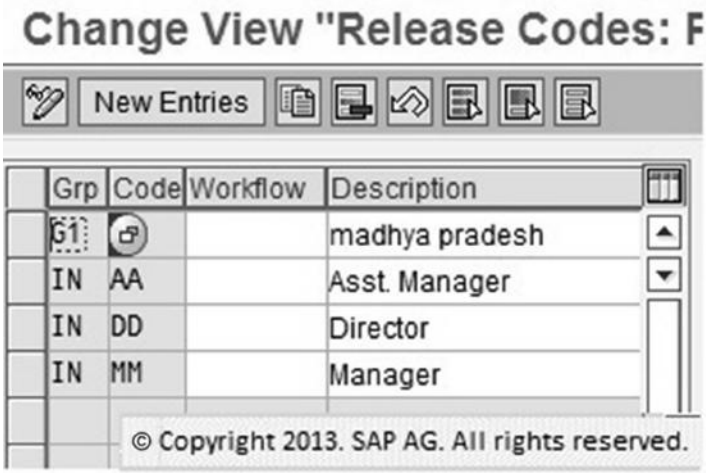


Release group is a group of release codes that form a decision hierarchy for any release procedure. You define the release groups and later add the release codes to each release group.

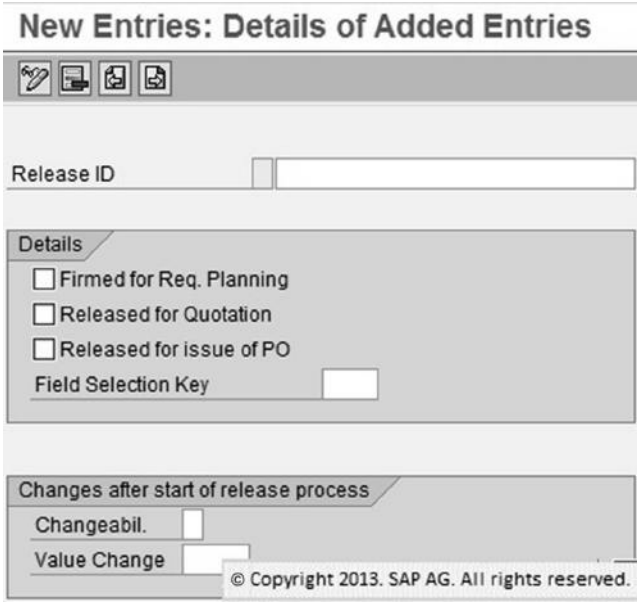




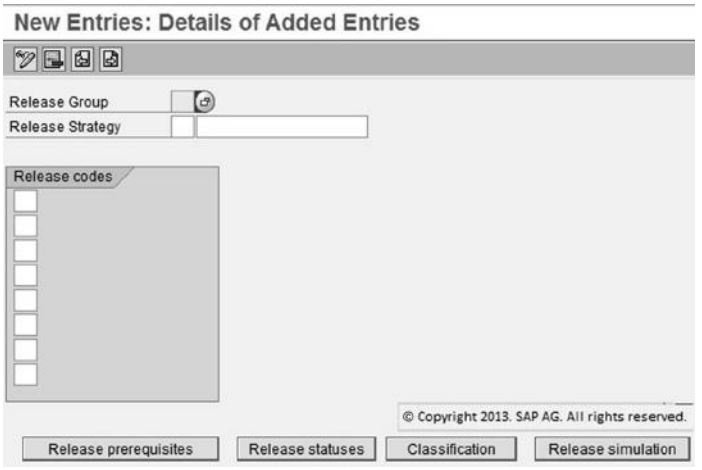
Release codes are the roles defined in SAP using which a decision-making person can authorize or release any PR.

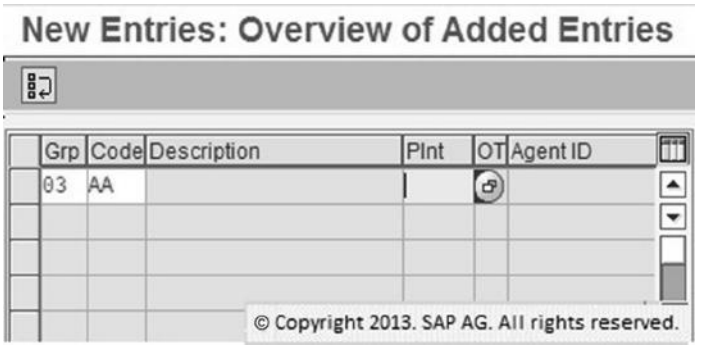


Release indicator is a step in the release procedure and determines when a release procedure is complete for any PR. In the intermediate steps, when a release procedure is still not completed, the release indicator will show the incomplete status of any PR to the user.



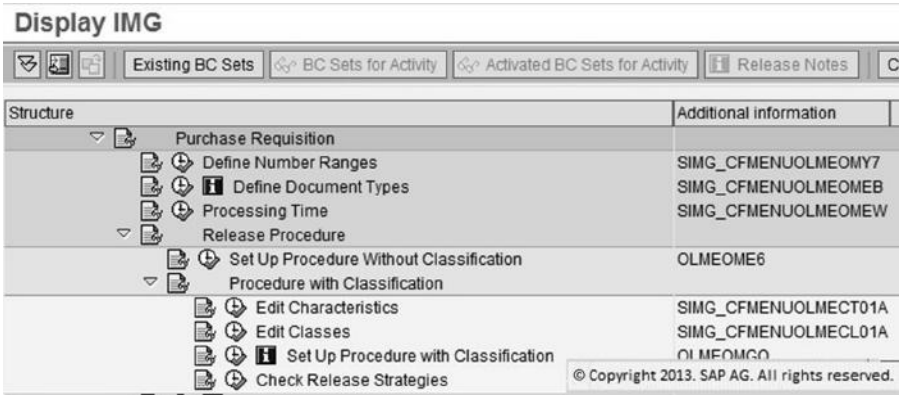
Release strategy is related to release group and release codes to release prerequisites, release statuses, and classification system to make the entire release procedure work.

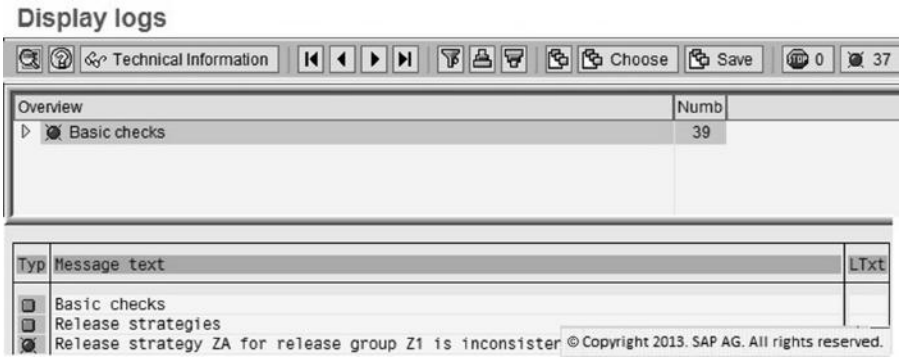




Check Release Strategies

In check release strategy, a release procedure is run in a simulated environment to check if the release procedure works or not. During simulation, if any errors are encountered, a detailed error message is shown in a log sheet.





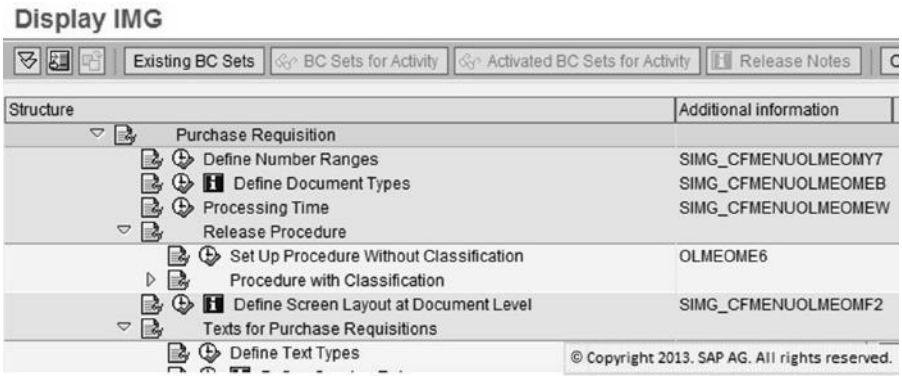
Text for PR

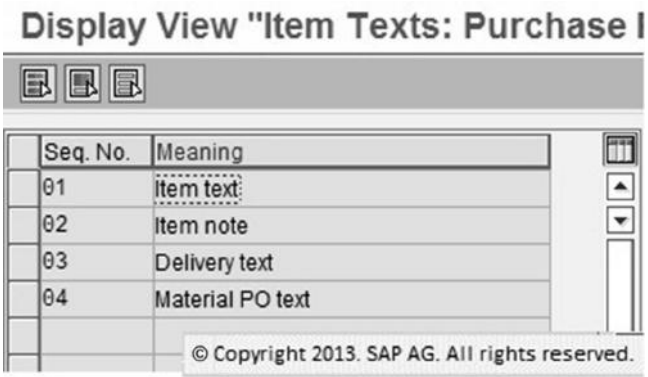
For acknowledgement, instruction, or status of any PR, users write and keep some text messages with PRs. These text messages can be of many types, and in the IMG activity, these types need to be defined.

Menu path: SPRO → IMG → Materials Management → Purchasing → Purchase Requisition → Texts for purchase requisition

Define Text Types

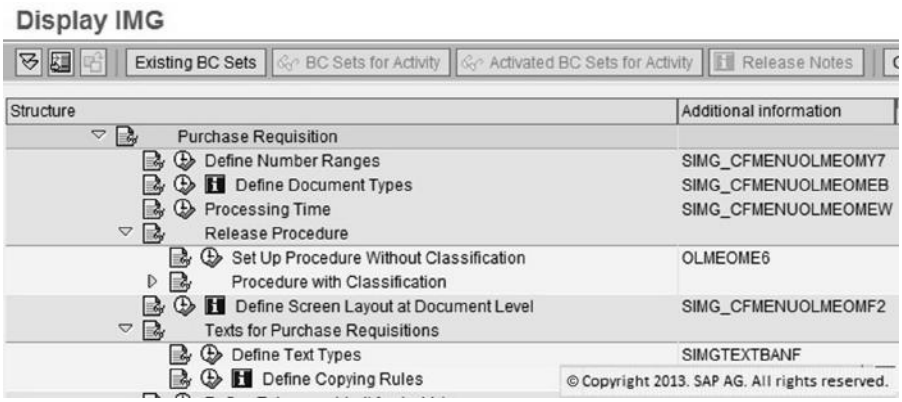
You first create a list of text types that can be used later on PRs and create rules as to how these texts on any PR document can be copied to another kind of documents or to another PRs when you need to adopt a PR to another document.

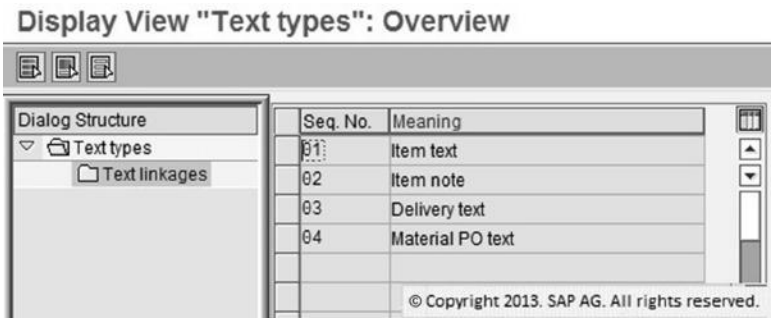




Define Copying Rules

Similarly, how a text associated with a purchase document should be copied to a PR during adopting the document needs to be controlled through some rules. These rules are defined in this IMG activity.





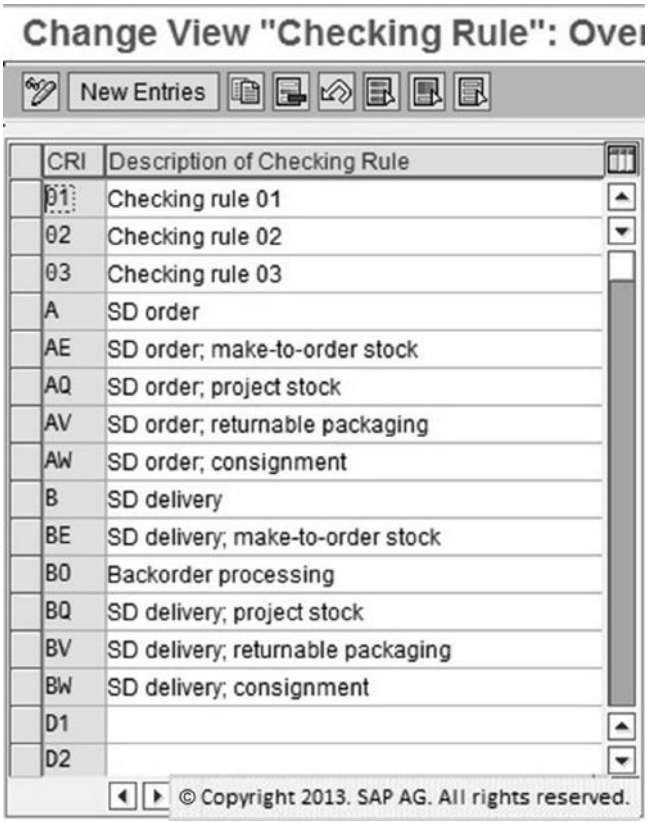
Set Up Stock Transport Requisition

Stock transport requisition is created to transfer inventory from one plant to another plant. Before you can use this feature, you need to set up stock transfer rules between supplying and receiving plants.

Menu path: SPRO → IMG → Materials Management → Purchasing → Purchase Requisition → Set Up Stock Transport Requisition

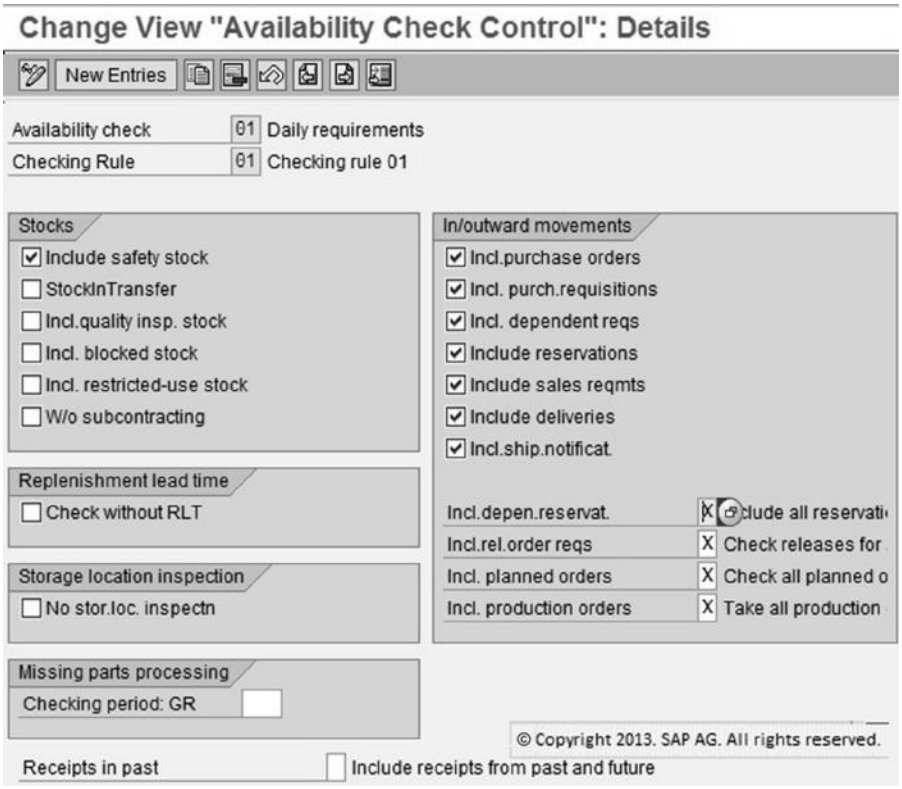
Create Checking Rules

In this IMG activity, we create only the definition of checking rules for stock transport order.



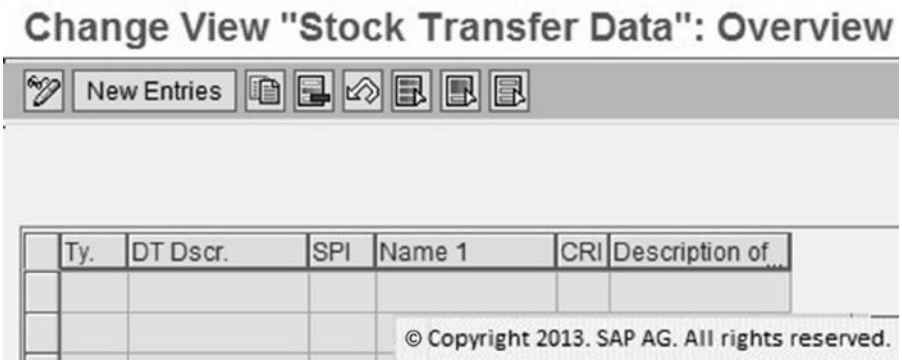
Define Checking Rule

Once checking rules have been defined, you can assign the checking rules to different kinds of PR document types. This makes it easy to create document type-specific availability checks.



Assign Checking Rule

In this step we assign the already defined checking rules for stock transport order (in the previous step) for each destination location.



Purchase Order

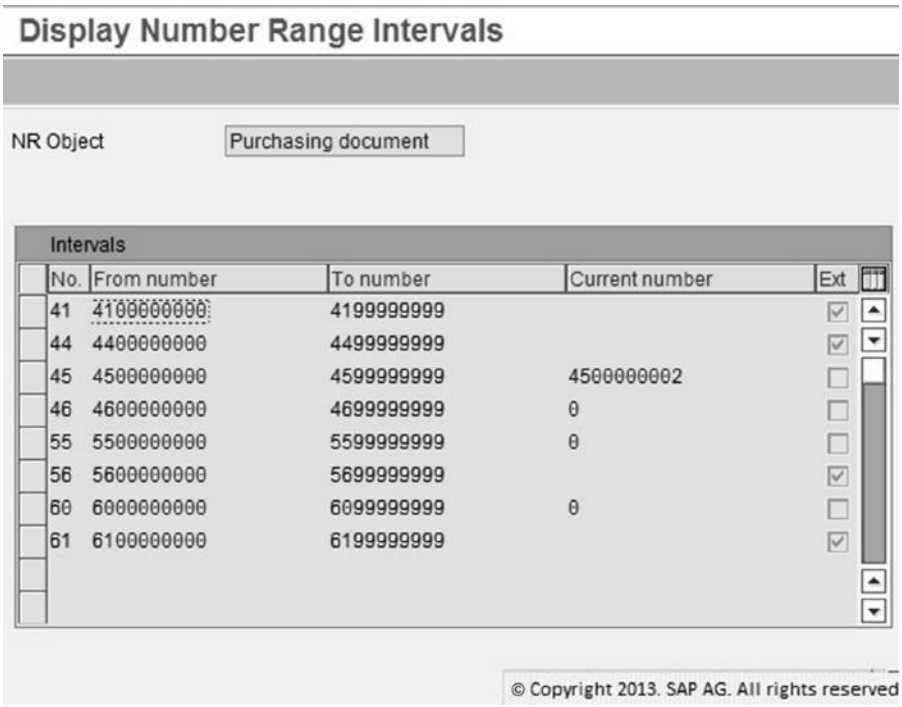
POs are the most widely used external purchasing documents. Even other types of purchasing documents are very often converted into POs or use POs in the purchasing cycle. For example, an RFQ is finally converted into a PO when the selected supplier is offered the contract. Similarly, in outline agreements, call-off orders (a type of POs) are used when actual purchase document needs to be sent to the vendor.

Due to an extensive use of POs, a lot of features have been developed to cater to the various scenarios in which POs are used. In the IMG activity related to POs, you will see a lot of these features in action.

Menu path: SPRO → IMG → Materials Management → Purchasing → Purchase Order

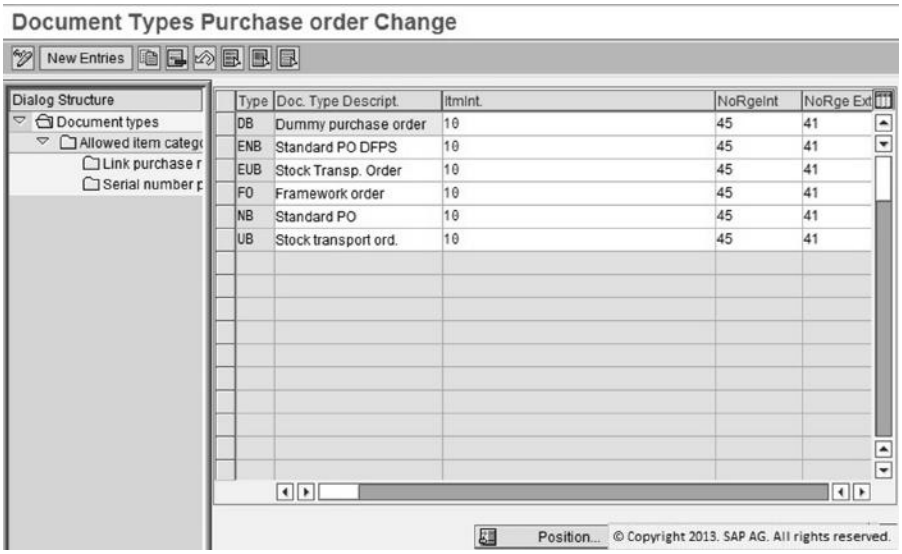
Define Number Ranges

Like other types of documents, in SAP, POs are also assigned a unique number by the system to track them. You can create and maintain both externally maintained PO numbers and internally created and assigned PO numbers. Thus, you can maintain many sets of number ranges for POs.



Define Document Types

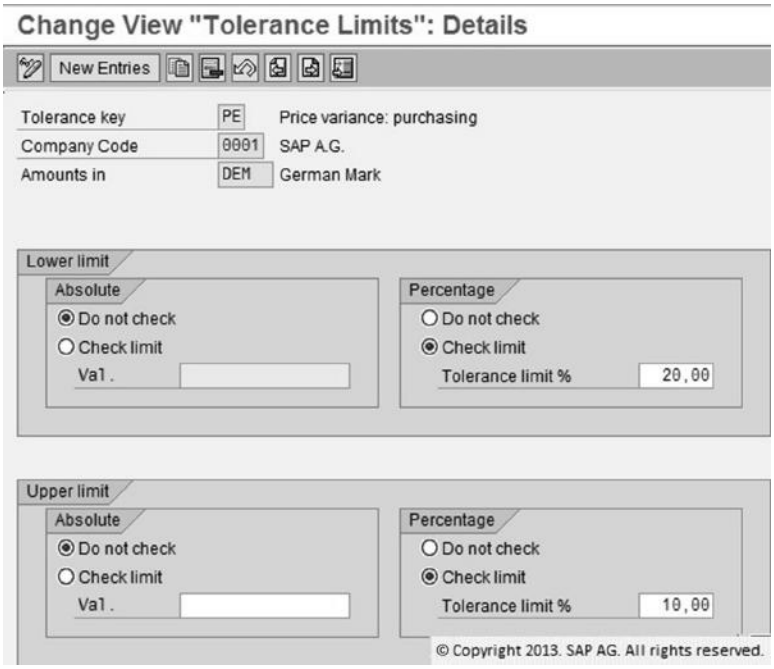
To use POs in many scenarios, it is better to create many types of PO documents. This ensures that user productivity gets increased and it prevents mistakes made by users when they select wrong values for fields such as PO type and account assignment category.



Document types are used to restrict users from selecting values for fields on a PO. This functionality is achieved by giving permission to use only specific types of PO documents to specific user roles.

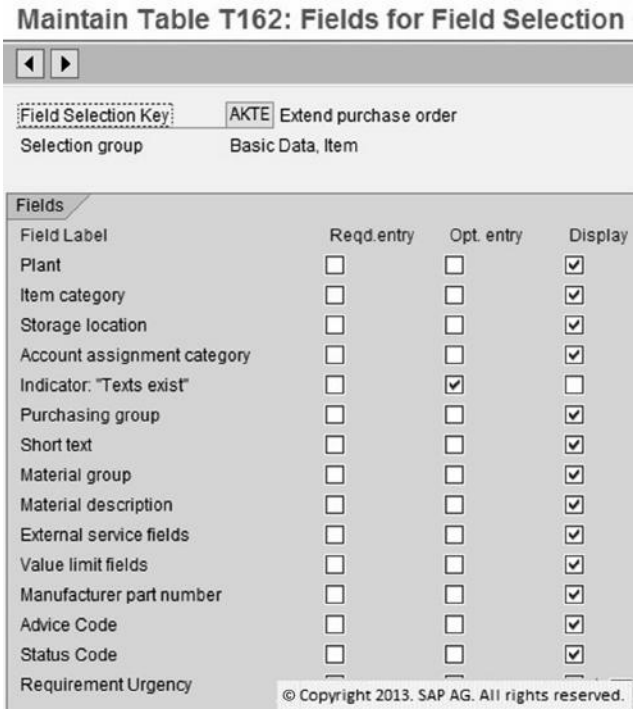
Set Tolerance Limit for Price Variance

When you set tolerance limit for price variance, the system will check the price of material being purchased against the set prices of those materials for a company code.



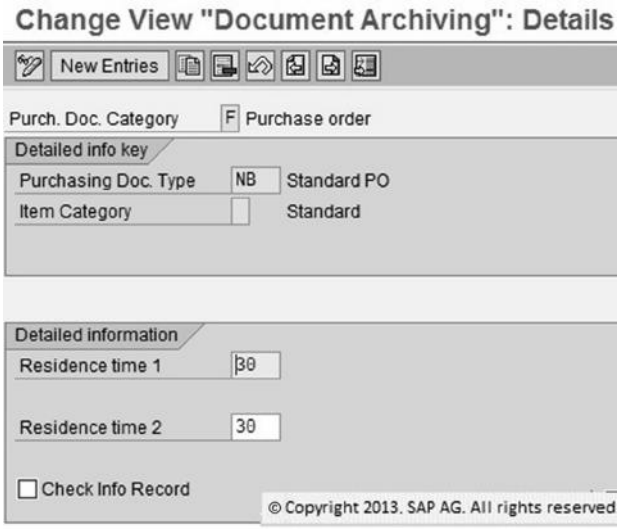
Define Screen Layout at Document Level

The default screen layout for PO documents can be changed as per user requirements by changing the document elements and their characteristics.



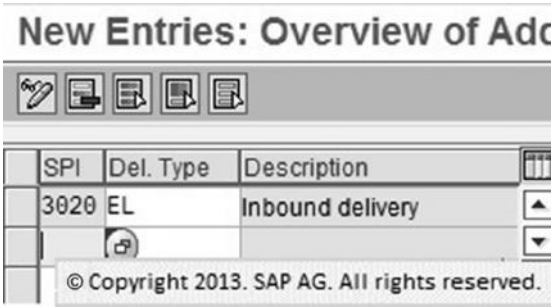
Define Tolerance Limit for Archiving

The closed POs need to be archived. The archiving tolerance limit function helps you define how and when the closed POs should be archived.



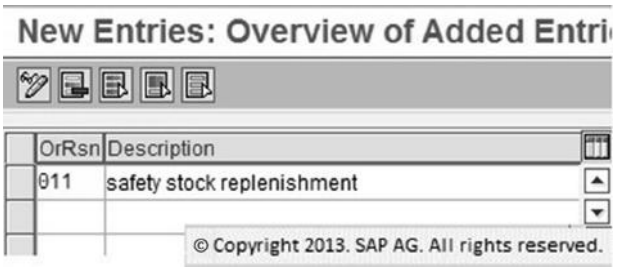
Set Up Subcontract Order

When a subcontract order is used, the PO document carries not only the finished material being sent by the subcontractor but also the raw material sent by the customer to the subcontractor. For this kind of peculiar functionality for the PO, you need to set up the PO to take care of this aspect.



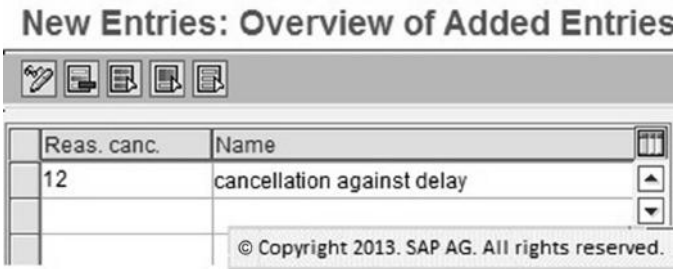
Define Reasons for Ordering

Creating orders for purchasing can be done for many reasons such as safety stock replenishment, urgent material requirement, and material supply at agreed time.



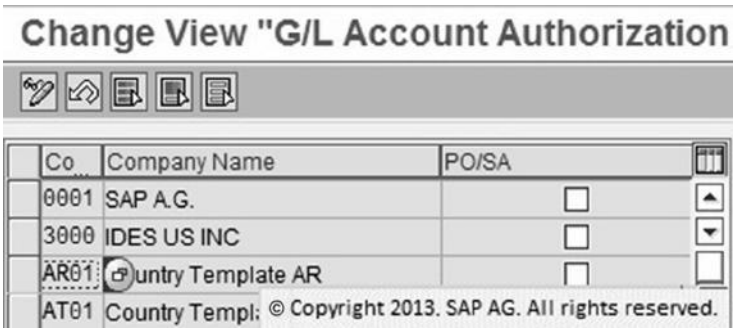
Define Reasons for Cancelling

Cancelling a PO is done in many circumstances. You can create and maintain all kinds of reasons for cancelling purchases.



Set Up Authorization Check for G/L Accounts

Not all POs should be visible to all users. They should be visible to only a certain group of people. Similarly, only a limited group of people should have authorization to execute POs. So access to G/L accounts should be restricted at company level.



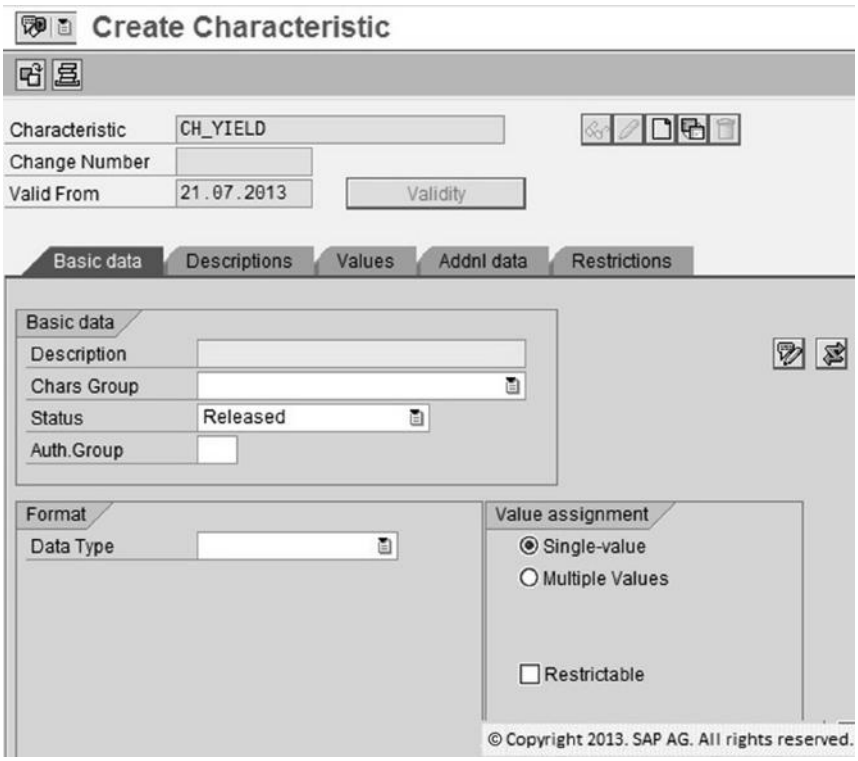
PO Release Procedure

POs use release procedures with classification only. So first you need to create characteristics and then attach these characteristics to classes. Later these classes are compared against release prerequisites to kick release indicators. A detailed discussion on release procedures for POs is discussed in Chapter 4.

Menu path: SPRO → IMG → Materials Management → Purchasing → Purchase Order → Release Procedure

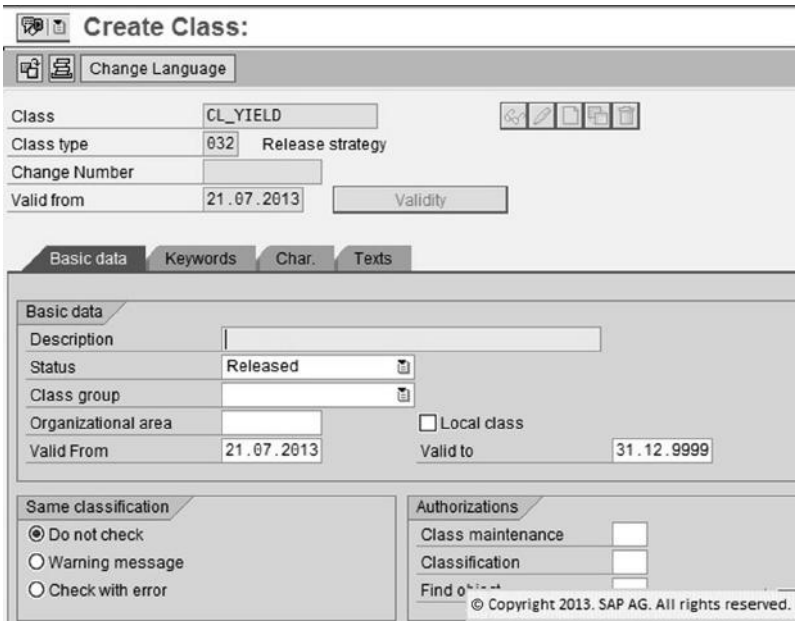
Create Characteristics

Characteristics correspond to what values of POs will require releases by a series of release codes. So characteristics should be created accordingly.



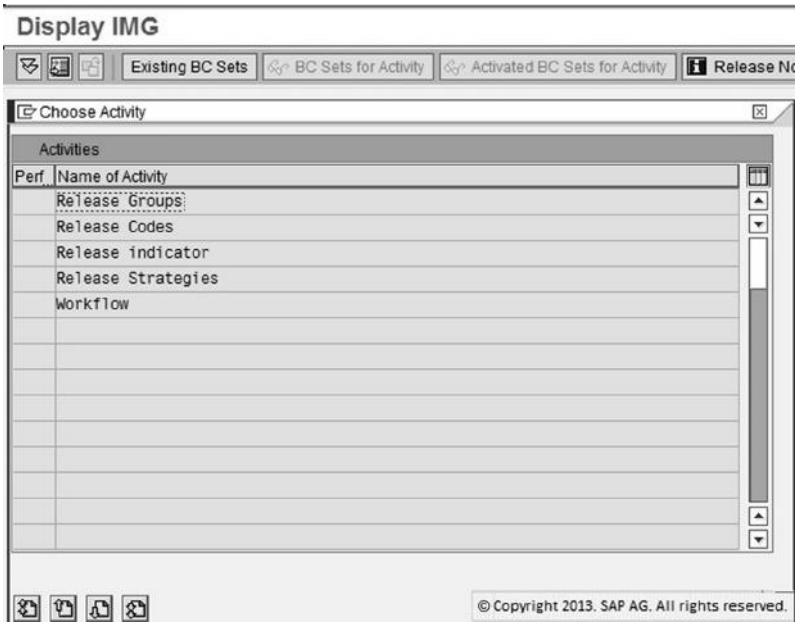
Create Class

All characteristics are attached to a class of release strategy type. So you create a release strategy type class and attach your characteristics to this class.



Define Release Procedure for POs

To define a release procedure for POs, you need to perform a list of tasks according to the figure given below.



The tasks include creating release groups, release codes, release indicators, release strategies, and a workflow.

Check Release Strategies

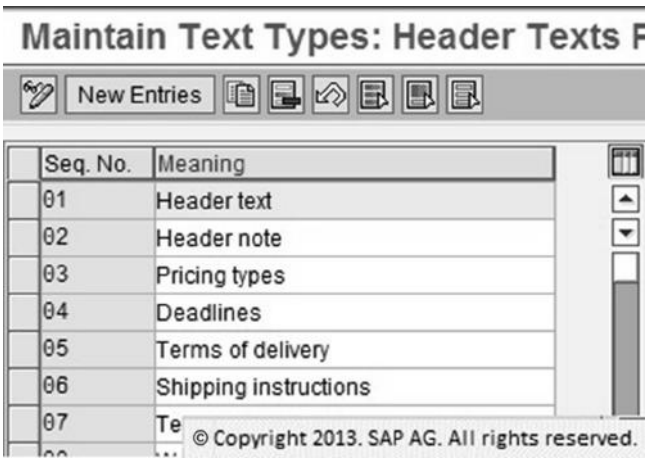
Once your release procedure is created, you need to check whether it is working properly. A simulation facility is available to perform this task.

Text for PO

Menu path: SPRO → IMG → Materials Management → Purchasing → Purchase Order → Text for PO

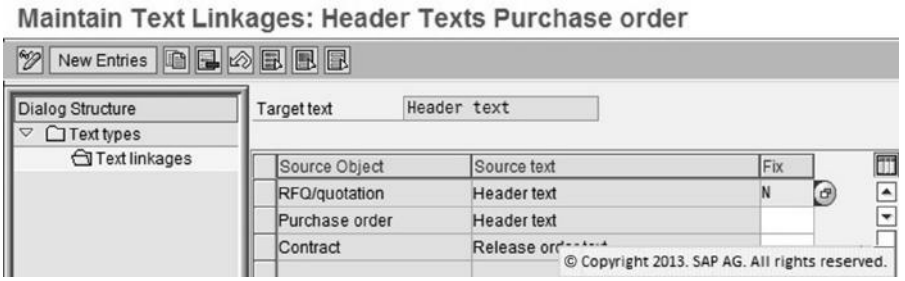
Define Text Types for Header Texts

POs contain informative texts at header level when the text is useful for the entire document. You can define text types that can be used at the header level.



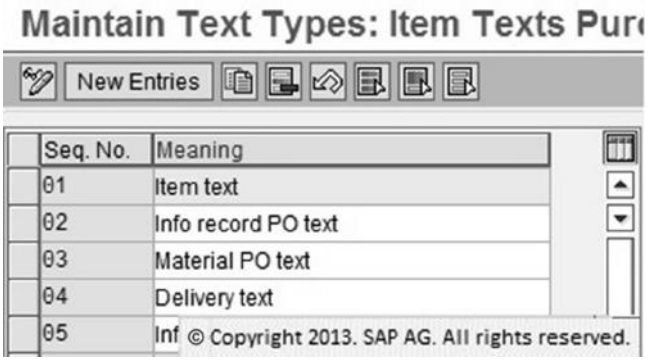
Define Copying Rules for Header Texts

You can define how the inserted text at the header should be copied when the PO document is adopted to create other kinds of documents. Copying rules can be created so that the header text is entirely copied as it is entered in the PO or should not be copied at all.



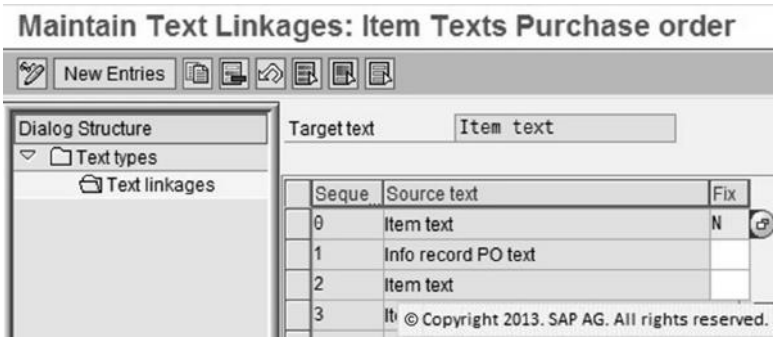
Define Text Types for Item Texts

The text entered at item level is good only for the item for which it is entered. You can define text types that are relevant at the item level.



Define Copying Rules for Item Texts

Similar to the header text, you can define copying rules for the item text.



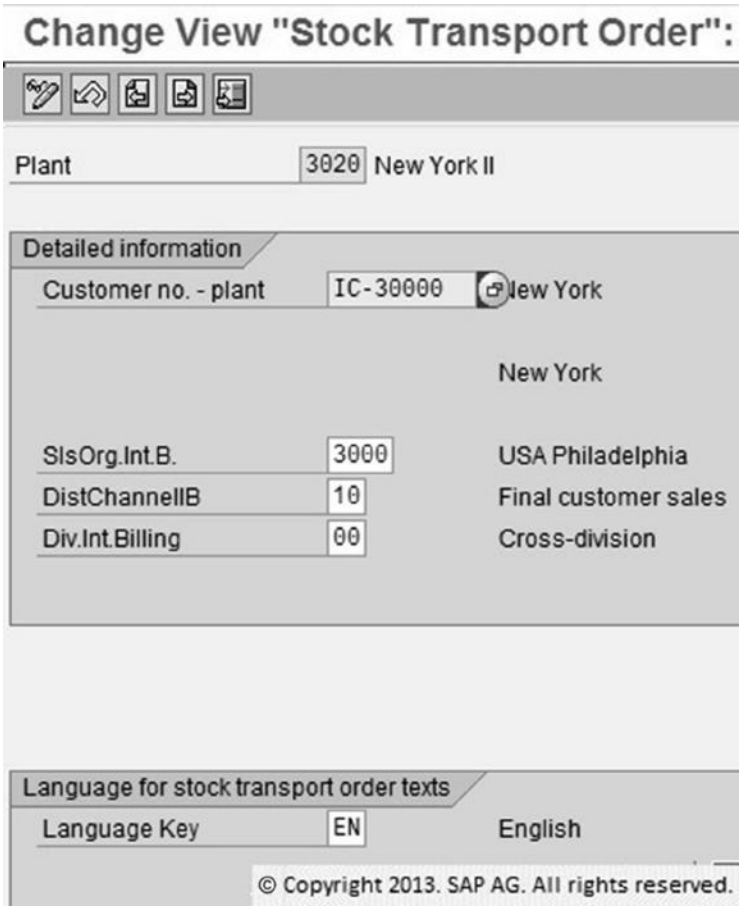
Set Up Stock Transport Order

Stock transport orders are used to transport material from one plant to another. This can be achieved in various ways. Stock transport orders are a type of POs and you can define this type of order by using the steps given below.

Menu path: SPRO → IMG → Materials Management → Purchasing → Purchase Order → Set Up Stock Transport Order

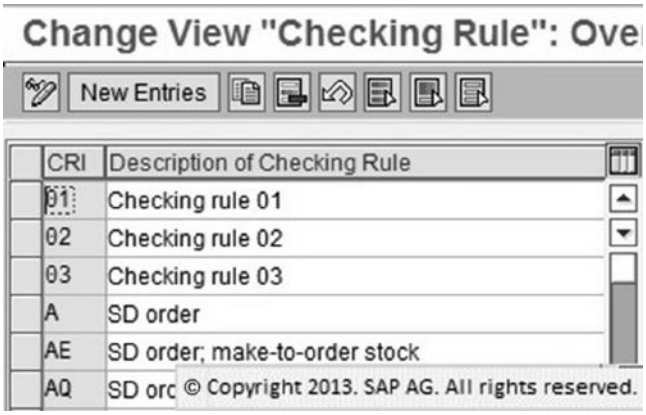
Define Shipping Data for Plants

If any material transfer happens for a plant, shipping data must be created for the respective plant.



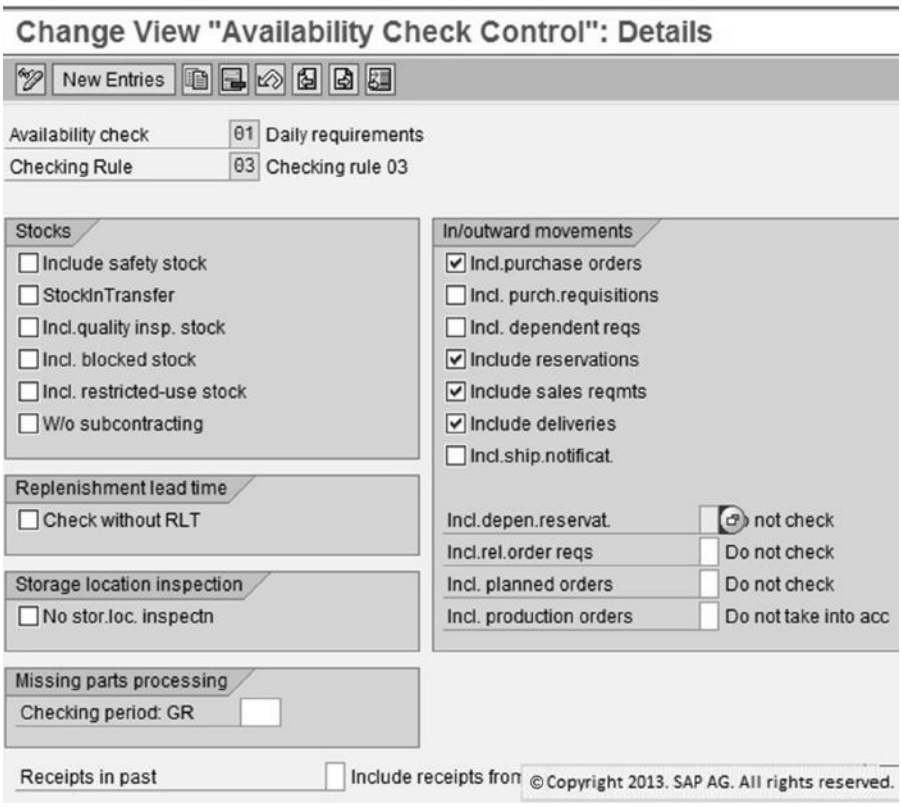
Create Checking Rules

Checking rules enable to perform availability check when transfer is needed from one plant to another.



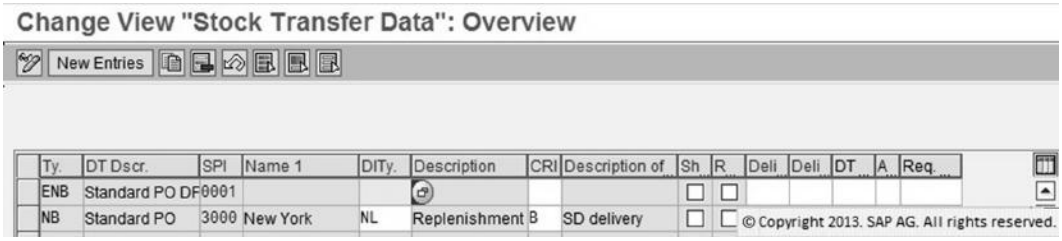
Define Checking Rules

In this step we define checking rules for stock transport order for delivery type.



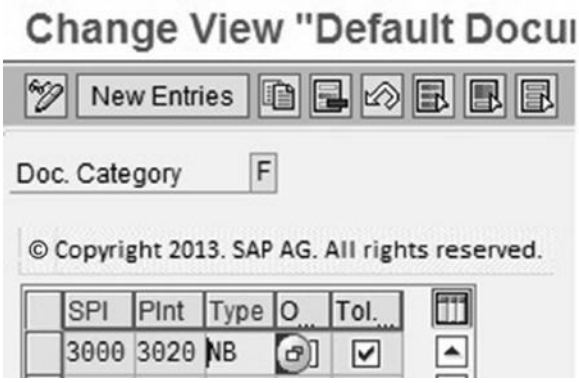
Assign Delivery Type and Checking Rules

Delivery type must be assigned to checking rules so that transfer of material from one plant to another can take place.



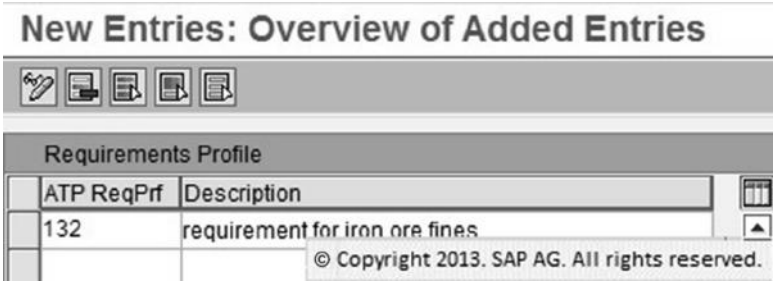
Assign Document Type, One-step Procedure, under Delivery Tolerance

You also need to define delivery tolerance because if more quantity of material is shipped than the tolerance limit, the system will not allow the shipment. You also need to assign the document type to the transport order so that the users can create and manage transport orders productively.



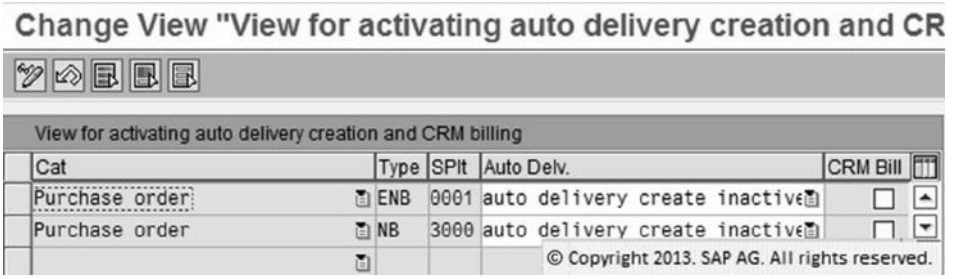
Define Requirement Profile

In this step you define requirement profile for procuring any material from supplying plants.



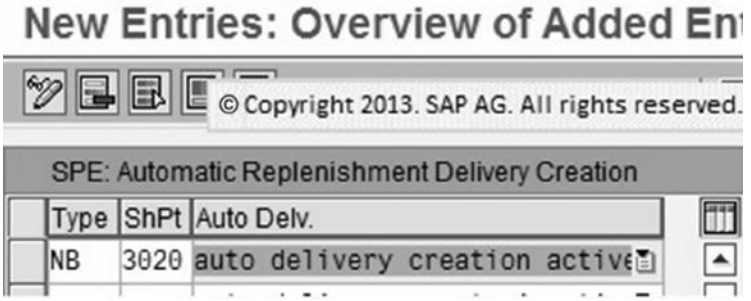
Activate Automatic Delivery Creation and Customer Relationship Management (CRM) Billing

The supplying plant must be defined as the vendor and the receiving plant as the customer in the system. When a transport order is received by the customer plant, it should be able to receive the bill sent by the vendor plant and will be able to process it.



Activate Automatic Delivery Creation for PO Type and Shipping Point

If automatic delivery creation is activated for a shipping point defined for a plant and a transport order is created, the delivery document will be created automatically.



Stock Transfer between Storage Locations

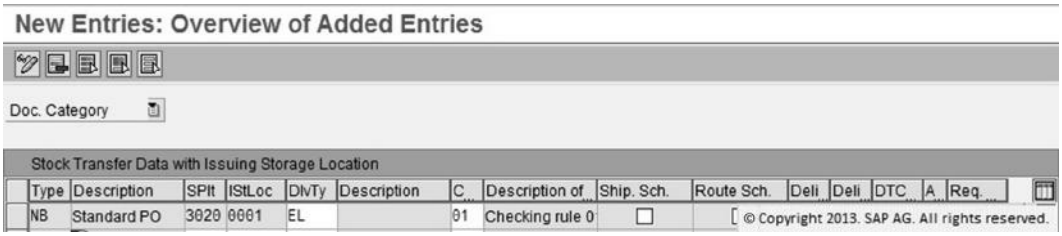
Menu path: SPRO → IMG → Materials Management → Purchasing → Purchase Order → Set Up Stock Transport Order → Stock Transfer between Storage Locations

Activate Stock Transfer between Storage Locations

Stock transfer between storage locations of the same plant can happen if the situation demands it. For this to happen, you need to activate this functionality using this IMG activity.

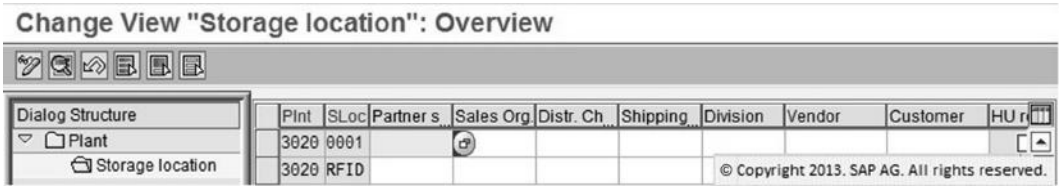
Assign Delivery Type and Checking Rule according to Storage Location

Once you activate the stock transfer between storage locations, you can assign the checking rule to the storage location and then the storage location will come on the search list when the user wants to transfer material to this storage location.



Define Shipping Data for Stock Transfer between Storage Locations

Once storage locations are enabled for stock transfer, you can link the shipping points that are used for sending and receiving material to the storage locations.



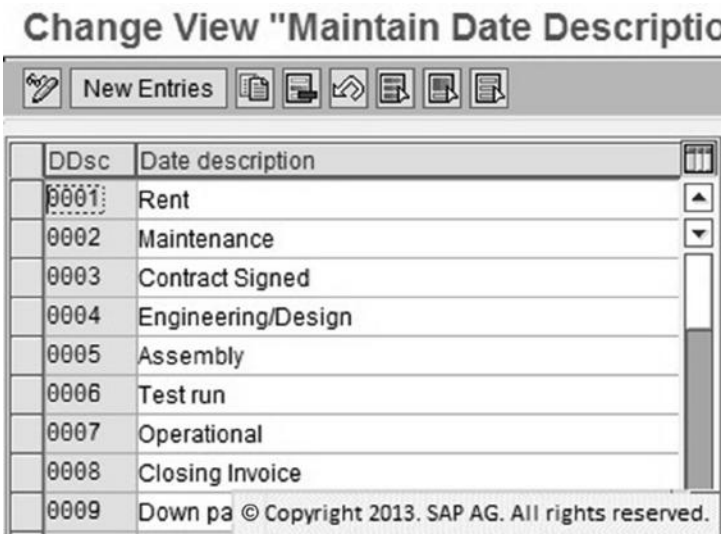
Invoice Plan

For most of the services as well as some kind of manufacturing, invoices are used for receiving payments for the services rendered. Invoice plans are periodic in nature so an invoice plan is in place between the service receiver and the service provider. This service plan agreement consists of fixed or variable payment at mutually agreed fixed time intervals. Let us see the various kinds of customizations that are available in the standard SAP for invoice plans in this section.

Menu path: SPRO → IMG → Materials Management → Purchasing → Purchase Order → Invoice Plan

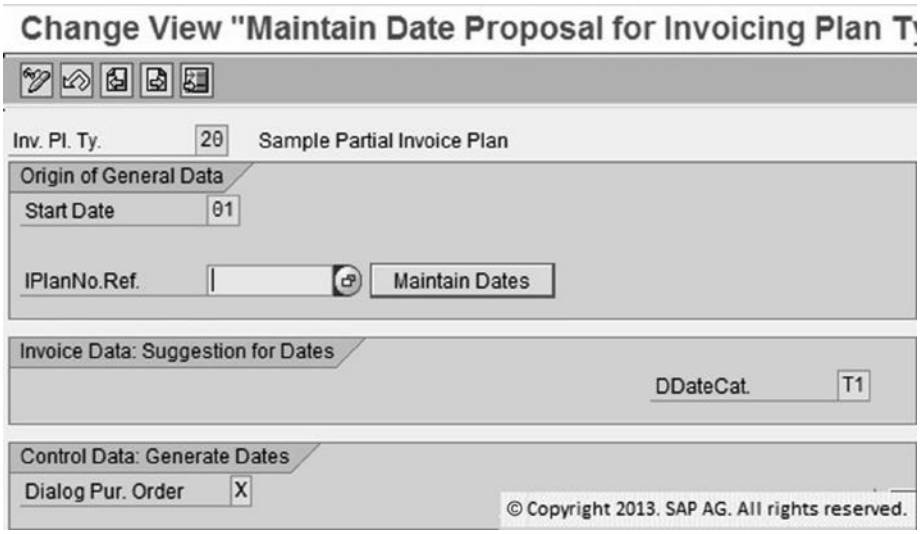
Maintain Data IDs

Data IDs are the heads for any type of services or any kind of payment mode to be used. For example, rent, engineering service, maintenance service, and so on are the different kinds of data IDs you can create and maintain.



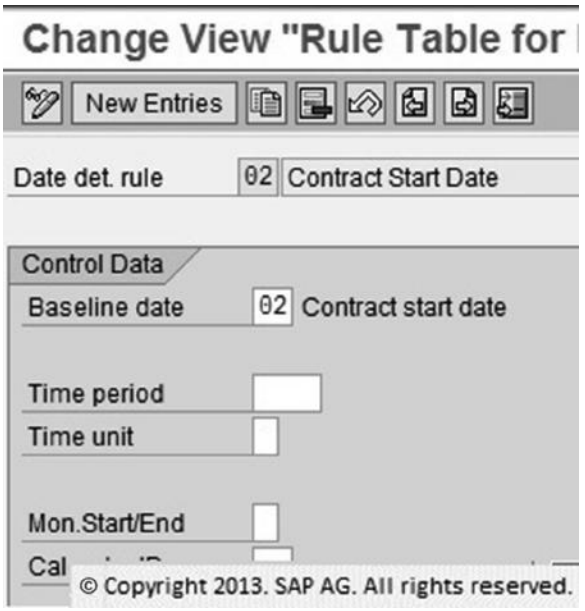
Maintain Date Proposal for Partial Invoice Plan

When you create proposals for invoice plan, you include information such as due dates of partial payments, start date, and if the due date is fixed or can vary. You can maintain all of these data in the proposal for invoice plans.



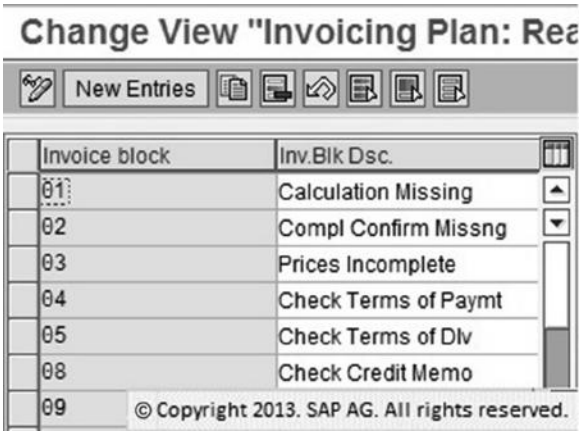
Define Rules for Date Determination

You can create rules for calculating due dates, baseline date, calendar type for fixing due dates when a nonworking day is encountered, and so on.



Define Invoice Blocking

You can also create rules for blocking invoice. You can create reasons and use these reasons to block any invoice when it arrives for payment.



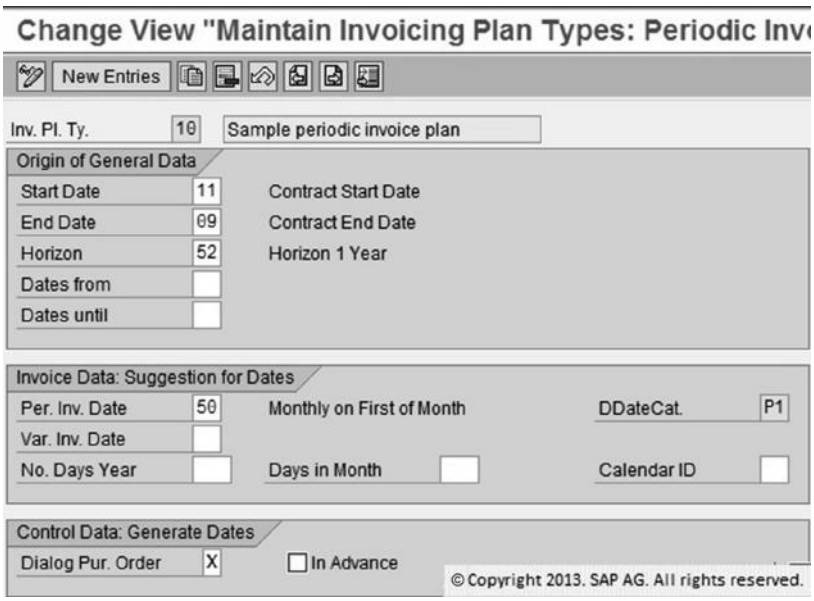
Invoice Plan Type

Invoices are of two types: periodic and partial. In periodic invoice type, invoices are created and paid on regular intervals of time. In partial invoice type, partial invoices are prepared and paid during the course of completion of any service agreement. Generally, partial invoice type is used on projects where there is a definite start date and finish date of the project and partial payments for the project are paid at some fixed dates between the start and end dates of the project.

Menu path: SPRO → IMG → Materials Management → Purchasing → Purchase Order → Invoice Plan → Invoice Plan Type

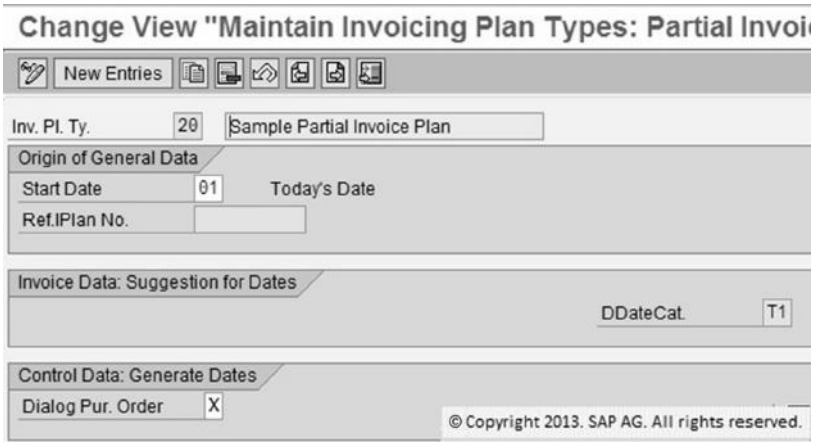
Maintain Periodic Invoice Plan Types

Periodic invoice types must contain the fixed time intervals at which invoices need to be created and paid. Apart from this aspect, other considerations include the start date, the time horizon (contract period), the deadline dates for payments, and so on.



Maintain Partial Invoice Plan Types

Partial invoice plans are simpler in nature than periodic invoice plans. Partial invoice plans must include information regarding percentage or lump sum of the total payment to be paid on what dates; criteria, if any, for these payments; and so on.

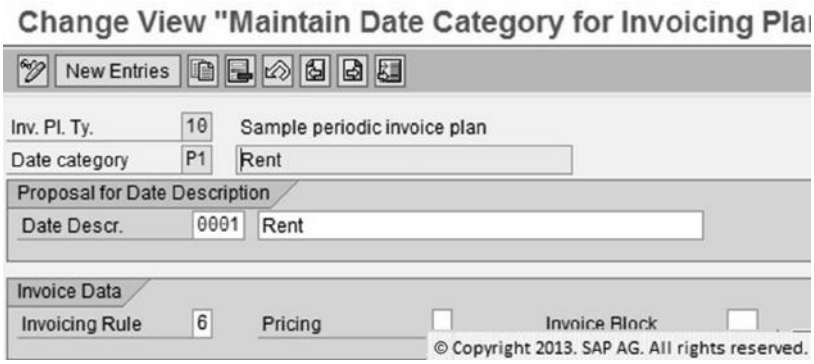


Date Categories

Menu path: SPRO → IMG → Materials Management → Purchasing → Purchase Order → Invoice Plan → Date Categories

Maintain Date Categories for Invoice Plan Type

In this IMG step, you relate data categories to invoice plan types. This makes sure that you can use data categories for both types of invoice plans.



Define Default Date Categories for Invoice Plan Type

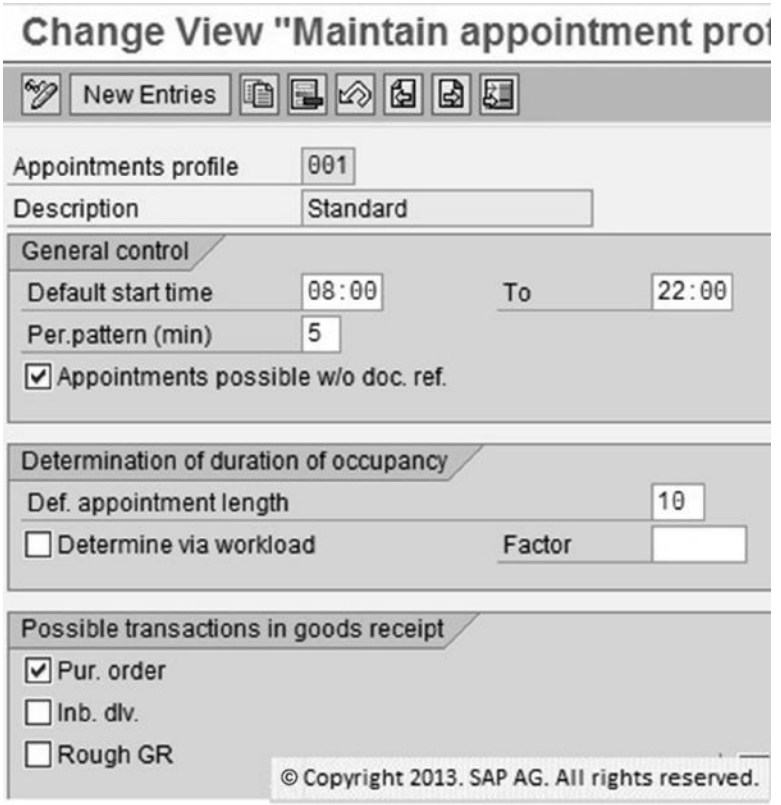
The default data category is selected when you create an invoice plan.

Appointment (Door Usage)

Menu path: SPRO → IMG → Materials Management → Purchasing → Purchase Order → Appointment (Door Usage)

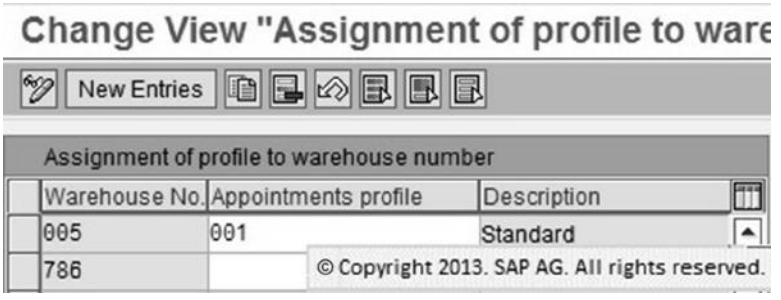
Maintain Appointment (Door Usage) Profile

A door usage profile is used whenever a warehouse is linked to a transportation and shipping plan. In the appointment (door usage) profile, you can define the type of dock doors that can accommodate trucks for loading/unloading, the type of materials that can be received at different dock doors, and so on.



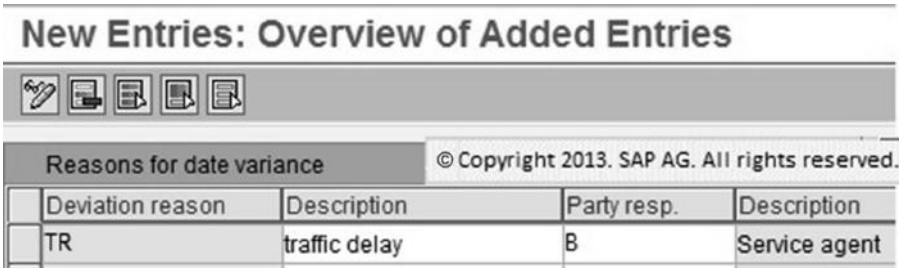
Assignment of Profile to Warehouse Number

Once door usage profile is created, it can be assigned to a warehouse.



Reasons for Date Variance

There can be delays in transportation of goods by any transport mode. All kinds of reasons for the delay can be defined here.

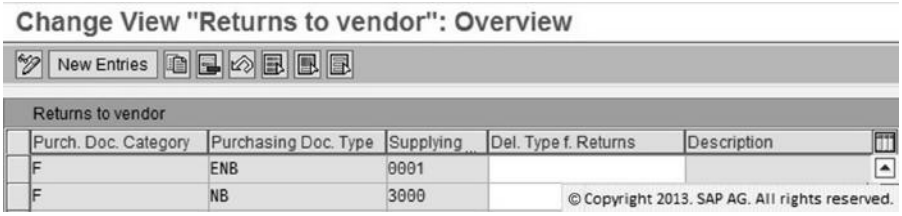


Returns Order

Menu path: SPRO → IMG → Materials Management → Purchasing → Purchase Order → Returns Order

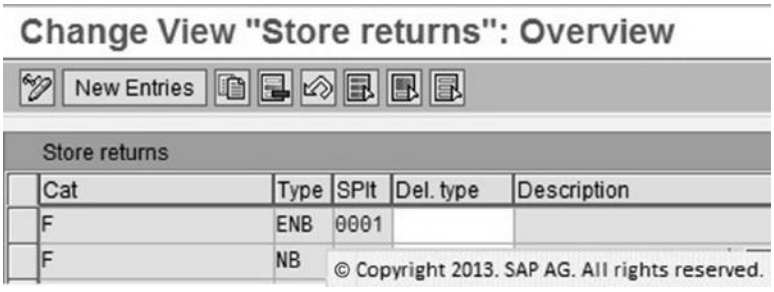
Returns to Vendor

In this IMG activity, you can define the kinds of purchase documents that can be used for goods which are to be returned to vendors.



Store Return/Return Plant to Plant

In this IMG activity, similar to returns to vendor, you can define the kinds of purchase documents that can be used for goods which are to be returned to plants from stores.

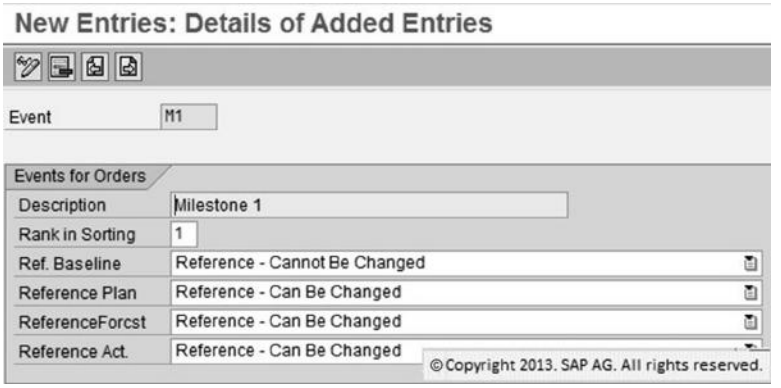


Progress Tracking

Menu path: SPRO → IMG → Materials Management → Purchasing → Purchase Order → Progress Tracking

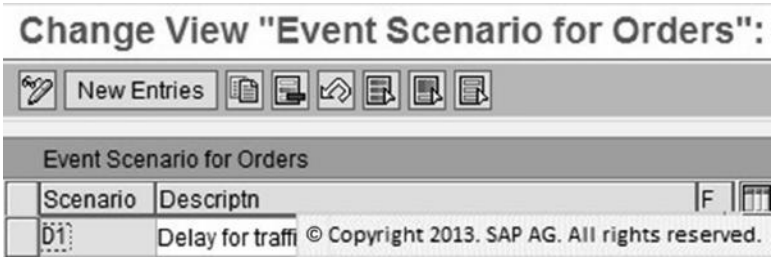
Define Standard Events

During transportation, there could be delays. To understand the cause of any kind of delay clearly, we can create milestones along the travel so that the delays can be avoided in future. If any milestone is missed for some reason, the event that caused the delay can be logged. For this purpose, events are defined in the system.



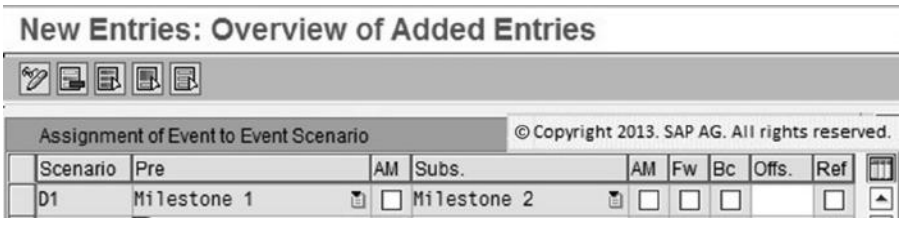
Define Event Scenarios

Delaying events can occur in many scenarios. All these scenarios for each event should be defined and created so that the exact scenario that causes an event can be booked and analyzed later.



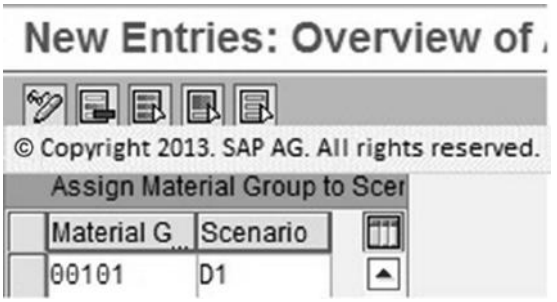
Maintain Relationship between Events in a Scenario

At different times, different events can occur during transportation of goods. In this IMG activity, you can make a relationship among the entities and the scenarios in which they took place.



Assign Default Scenario to Material Group

You can create a relationship between a material group and a scenario for an event.

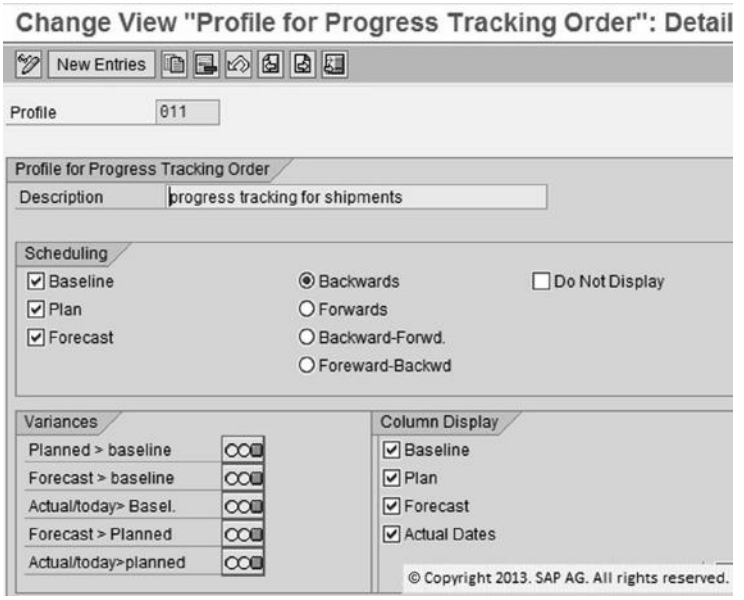


Maintain Profiles for an Event

You can create profiles for events and attach these profiles to the event types so that you do not need to define detail of the event, each time an event occurs. The profile can contain all these details that will be available to the event when the profile is attached to an event.

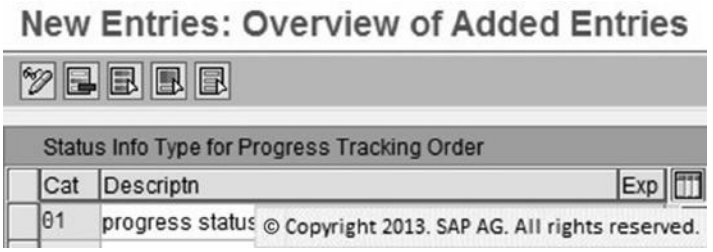
Define Progress Tracking Profile

Profiles for progress tracking can also be created and then attached to different kinds of progress tracking.



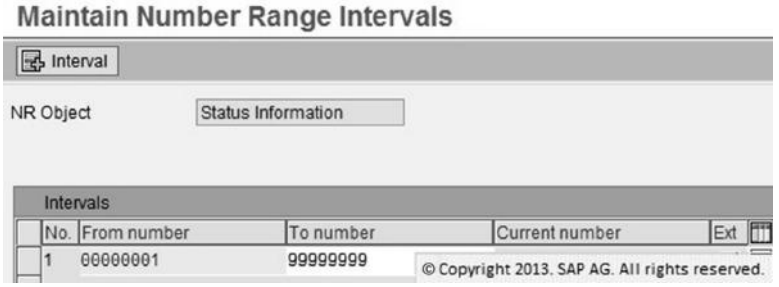
Define Status Info Types

Events or milestones can be achieved during transportation of goods. A status of any event defines whether the milestone is achieved or not.



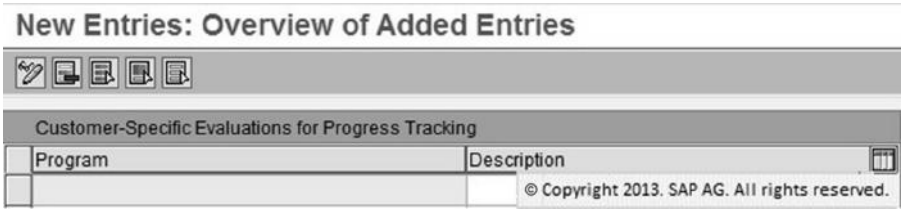
Number Range Status Information

You can maintain the number ranges for defining the event status so that the system can track these events.



User-Defined Evaluation

If the status of any event is managed externally, the user can maintain the status of the event using the externally defined status.



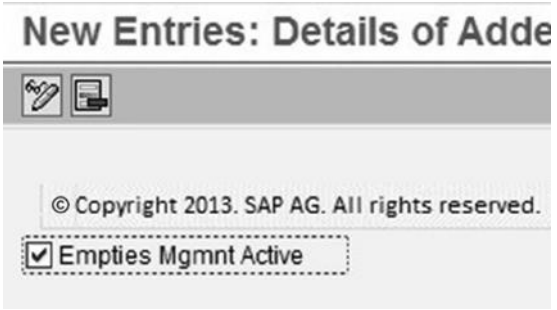
Empties Management

Empties management is different from managing transportation of goods. Empties first go with goods to customer sites and can be either returned to the vendor or kept with the customer. In most cases, empties need to be returned. Tracking the movement of empties thus requires special consideration.

Menu path: SPRO → IMG → Materials Management → Purchasing → Purchase Order → Empties Management

Activate Empties Management

First of all, empties management needs to be activated in the system only then empties can be managed. So in this IMG activity, you have to activate it.



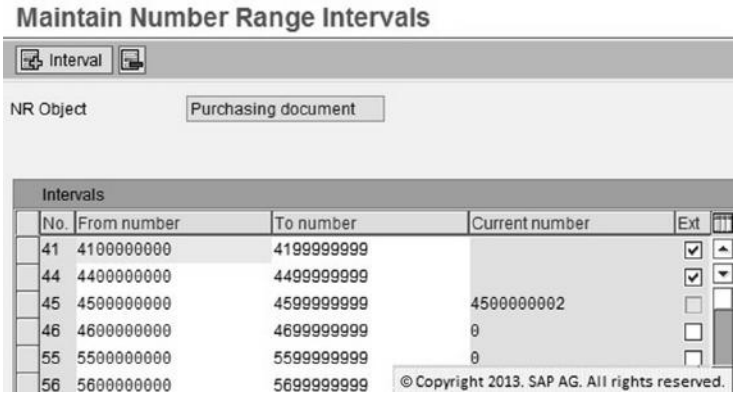
Contract

Contract is a form of purchasing that allows a customer to enter into a long-term purchasing contract with the vendor. In SAP, contracts are also known as outline agreements.

Menu path: SPRO → IMG → Materials Management → Purchasing → Contract

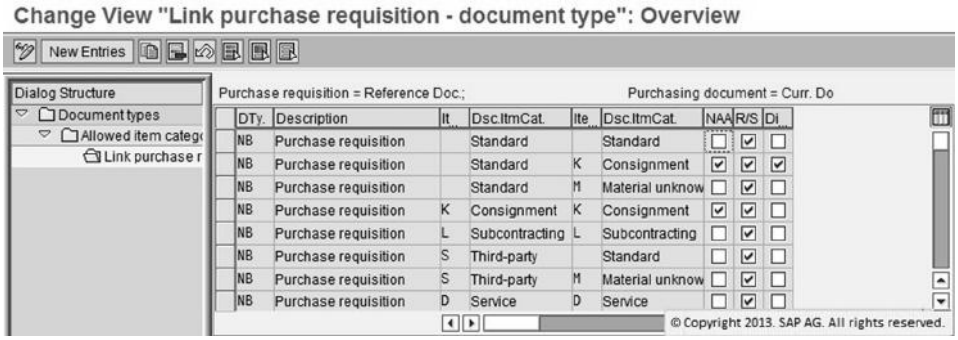
Define Number Ranges

To manage contract documents, you need to maintain either external numbers or depend on the system to generate internal numbers. You can manage both types of arrangements, by creating and managing number ranges.



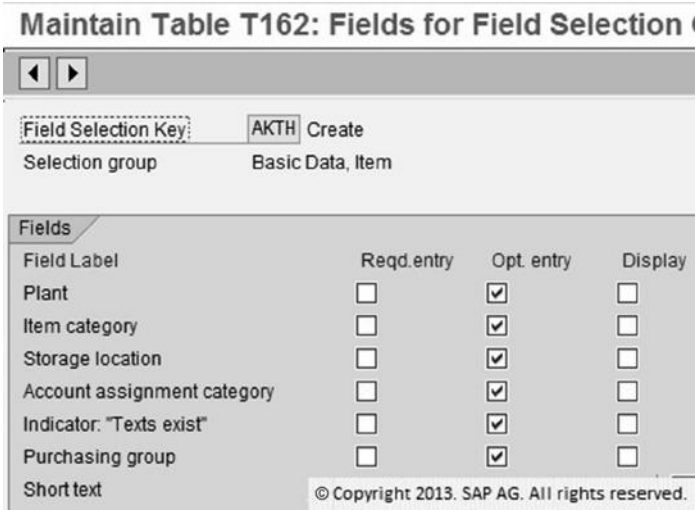
Define Document Types

You can define many document types for contracts to be used in different purchasing scenarios.



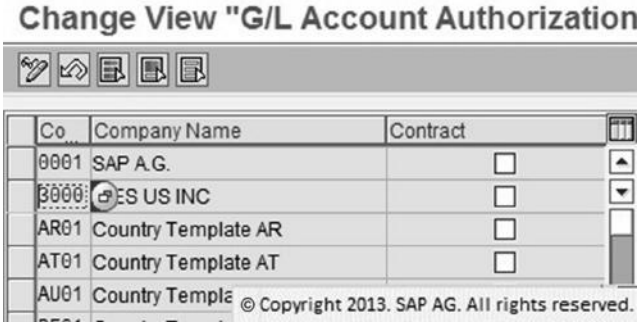
Define Screen Layout at Document Level

You can change the default layout by changing the screen elements in this IMG activity.



Set Up Authorization Check for G/L Accounts

You can define the rules to make sure that only authorized persons can have access to G/L accounts while making purchasing transactions.



Release Procedure for Contract

Like all other types of external purchasing documents, contracts also use release procedure with classification.

Menu path: SPRO → IMG → Materials Management → Purchasing → Contract → Release Procedure for Contract

Release procedure for contract is similar to that for PO as discussed in the section "Define Release Procedure for POs." See Chapter 4 to receive a detailed knowledge on this subject.

Texts for Contract

You can create and maintain many text types so that they can be used for information during execution of contract documents.

Menu path: SPRO → IMG → Materials Management → Purchasing → Contract → Texts for Contract

Criteria for Archiving Contracts

Contracts are archived when they are closed. Like other purchase documents, create or maintain rules as to how the closed contract documents should be archived.

Menu path: SPRO → IMG → Materials Management → Purchasing → Contract → Criteria for Archiving

Scheduling Agreement

Scheduling agreements are a type of contracts that enable vendors to work closely with their customers. This is achieved by engaging the vendors continuously with the expected demand of materials from the customer over a time horizon spanning several months. As the customer keeps firming up his planning for the required material over a period of time, the vendors are kept informed about the same. This enables the vendors to plan for preparing their own manufacturing and procurement so that the customer demand can be met.

Menu path: SPRO → IMG → Materials Management → Purchasing → Scheduling Agreement

- Define number ranges
- Define document types
- Define screen layout at document level
- Set up authorization check for G/L accounts
- Maintenance release creation profile for scheduling agreement with release document

We will not go in depth for each and every IMG activity for customizing scheduling agreements as these IMG activities are similar to customizing other purchasing documents such as POs and contracts that have already been discussed in the sections "Purchase Order" and "Contract," respectively.

Release Procedure for Scheduling Agreements

Menu path: SPRO → IMG → Materials Management → Purchasing → Scheduling Agreement → Release Procedure for Scheduling Agreement

- Edit characteristics
- Edit classes
- Define release procedure for scheduling agreement
- Check release strategies

Release procedure for scheduling agreements are similar to that for contracts and POs, which have already been discussed in the sections "Release Procedure for Contract" and "PO Release Procedure," respectively.

Texts for Scheduling Agreements

Menu path: SPRO → IMG → Materials Management → Purchasing → Scheduling Agreement → Texts for Contract

- Define text types for header text
- Define copying rules for header text
- Define text types for item text
- Define copying rules for item text

Texts for scheduling agreements are similar to those for POs and contracts, which have already been discussed in the sections "Text for PO" and "Texts for Contract," respectively.

Criteria for Archiving Scheduling Agreements

Menu path: SPRO → IMG → Materials Management → Purchasing → Scheduling Agreement → Criteria for Archiving

- Define tolerance limit for archiving
- Set up additional checks
- Further processing for summarized purchase documents

Criteria for archiving scheduling agreements are similar to the ones for contracts, which have already been discussed in the section "Criteria for Archiving Contracts."

Set Up Stock Transport Scheduling Agreement

Menu path: SPRO → IMG → Materials Management → Purchasing → Scheduling Agreement → Set Up Stock Transport Scheduling Agreement

- Define shipping data for plants
- Create checking rules
- Define checking rules

- Assign delivery type and checking rules
- Assign document type

Set up stock transport scheduling agreement is similar to that for POs, which have already been discussed in the section "Set Up Stock Transport Order."

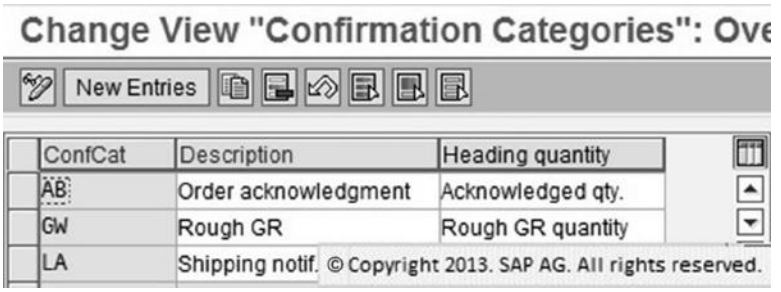
Confirmations

Confirmations are the mechanism through which messages are sent and received after goods are received or during transportation.

Menu path: SPRO → IMG → Materials Management → Purchasing → Confirmations

Define External Confirmation Categories

External confirmation categories are texts which are part of messages. These messages are not managed internally by the system and are user defined.

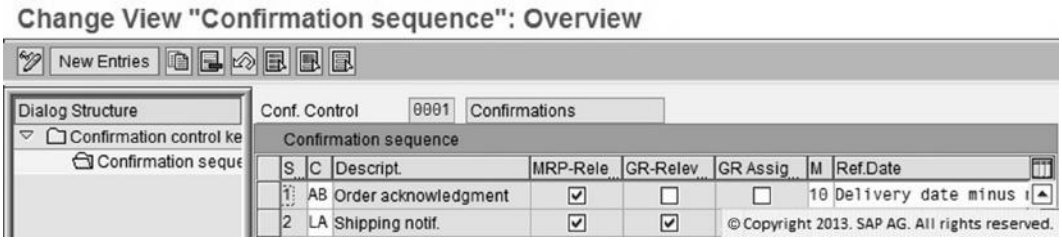


Define Internal Confirmation Categories

Internal confirmation categories for confirmations are the one which are managed internally by the system. You create these categories to categorize your confirmations.

Set Up Confirmation Control

For each company code, you can set up the types of confirmations that will be used by the company code.

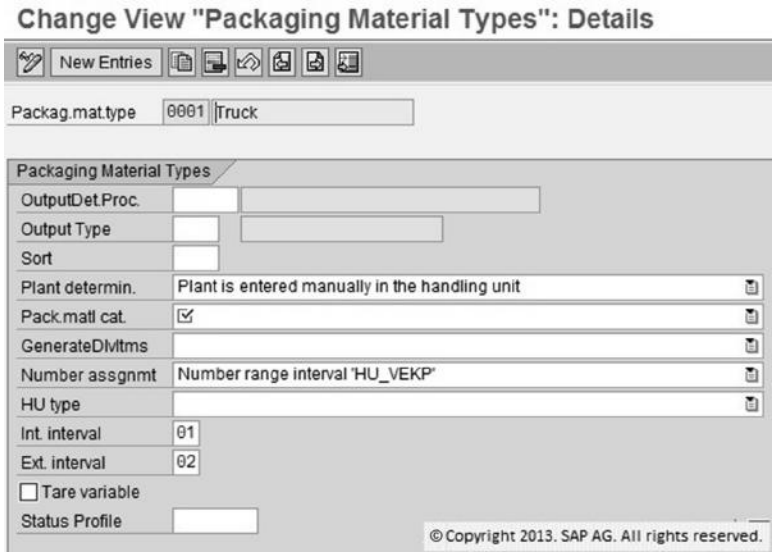


Set Up Quantity Difference Profiles (Automotive)

Quantity difference is the difference between the dispatched quantity and the received quantity. To take care of this aspect, you can set up the quantity difference profiles for different types of goods movements.

Define Packaging Material Type

For transportation purpose, you define various packaging material types. The same packaging material types can then be used in your messages.



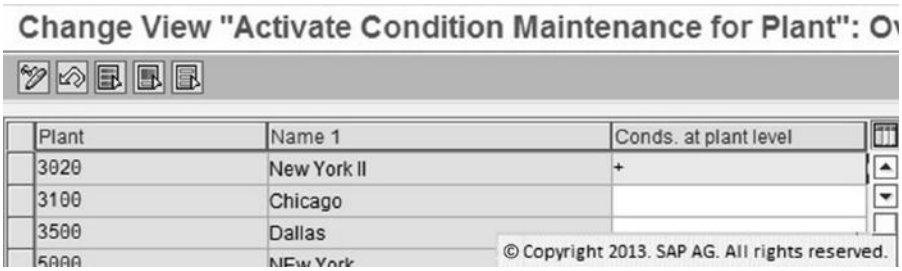
Conditions

Conditions are a mechanism to control the price mechanism of materials and services. Depending on the criteria for calculating the price, the calculated final price from the price components is the price of the material or service. Conditions make the criteria for this price calculation.

Menu path: SPRO → IMG → Materials Management → Purchasing → Conditions

Define Condition Control at Plant Level

Conditions also act as filters for price components to be included or excluded during computation of price. When conditions are allowed at plant level, any material price components will come into picture during price computation of that plant. If conditions are not allowed at plant level, conditions that are defined at purchasing organization level will be applied for all material and services when price for them is calculated.

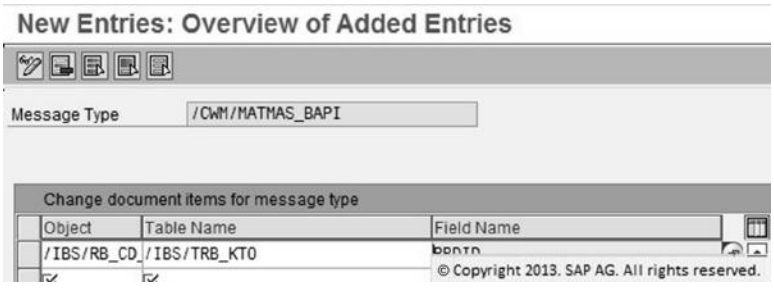


Automatic Document Adjustment

Menu path: SPRO → IMG → Materials Management → Purchasing → Conditions → Automatic Document Adjustment

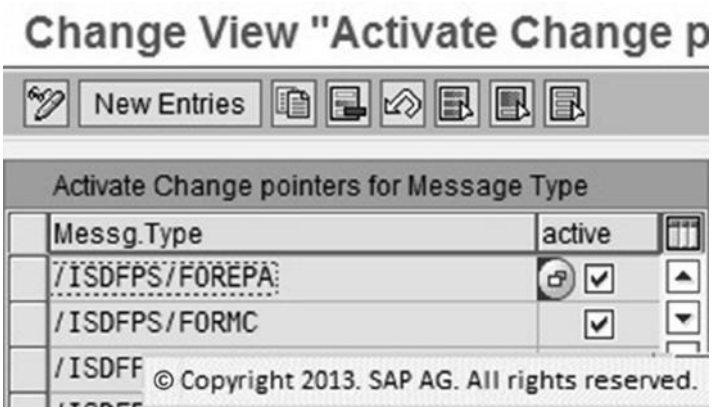
Define Extent of Change for Message Category CONDBI

Message category related to conditions applies when conditions get invoked for price calculation.



Activate Change Pointer for Message Category CONDBI

The condition pointers that have to be activated for price calculations can be controlled using this IMG activity.

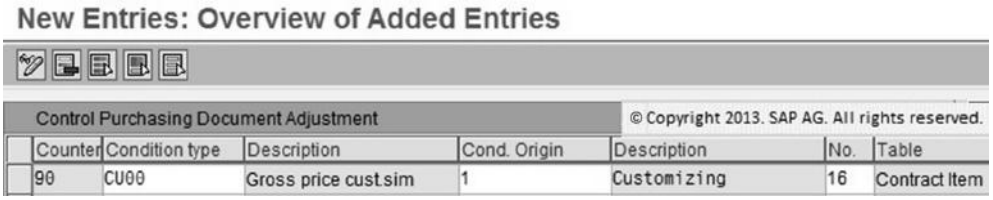


Control Document Adjustment

Menu path: SPRO → IMG → Materials Management → Purchasing → Conditions → Automatic Document Adjustment → Control Document Adjustment

Control Purchasing Document Adjustment

Conditions are part of info records. Info records in turn are used on purchase documents. To control any type of info record that can access a particular condition type, you need to link different info records with different condition types.



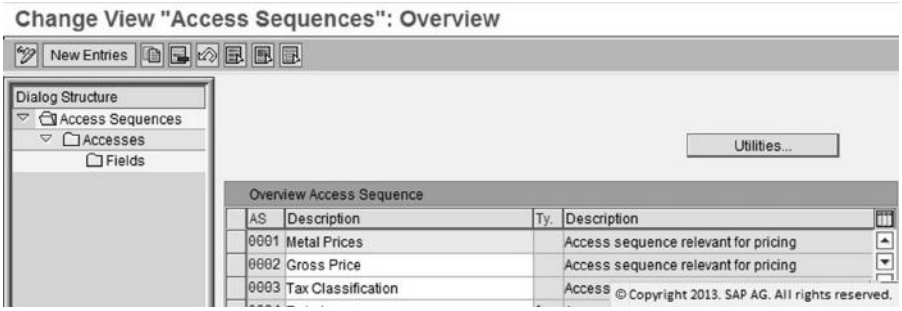
Define Price Determination Process

This IMG activity is the most important aspect about conditions. Conditions determine how price for a material or service should be calculated in the given situation. Price determination process is the most important function of conditions.

Menu path: SPRO → IMG → Materials Management → Purchasing → Conditions → Define Price Determination Process

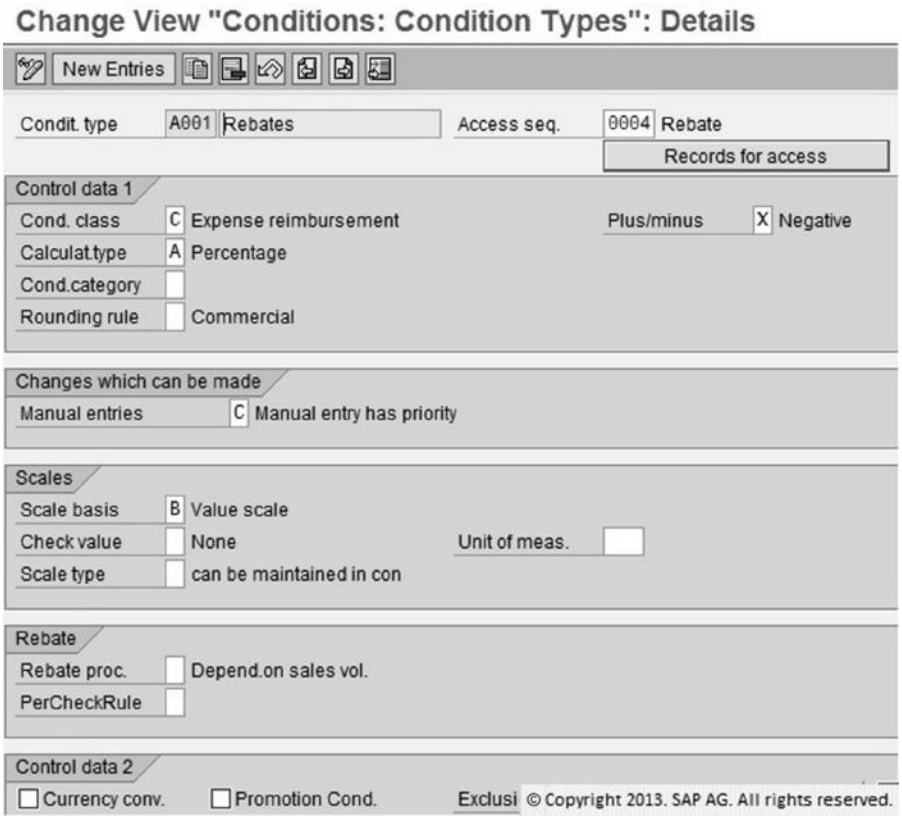
Define Access Sequences

You can define a structure like a profile for prices for material groups. In each profile, you can define how different condition types can be assigned a sequence for price calculation.



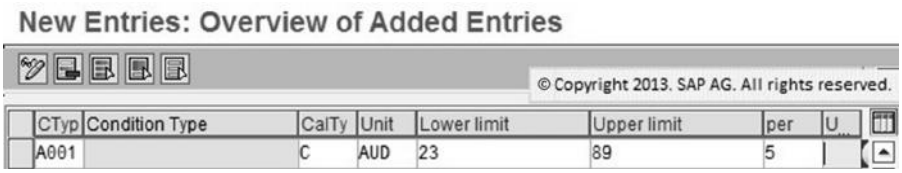
Define Condition Types

A very finely defined condition type is used in complex price calculation scenarios. You can define condition types based on condition class, category, rounding rule, manual changes allowed/not allowed, basis for price scales, rebates allowed, currency conversion formulas, and so on.



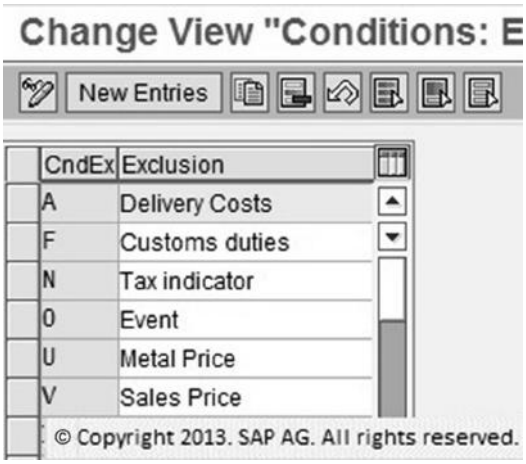
Define Limits

Each condition type for a calculation type should be defined with upper and lower limits so that the actual price after price calculation falls within acceptable limits.



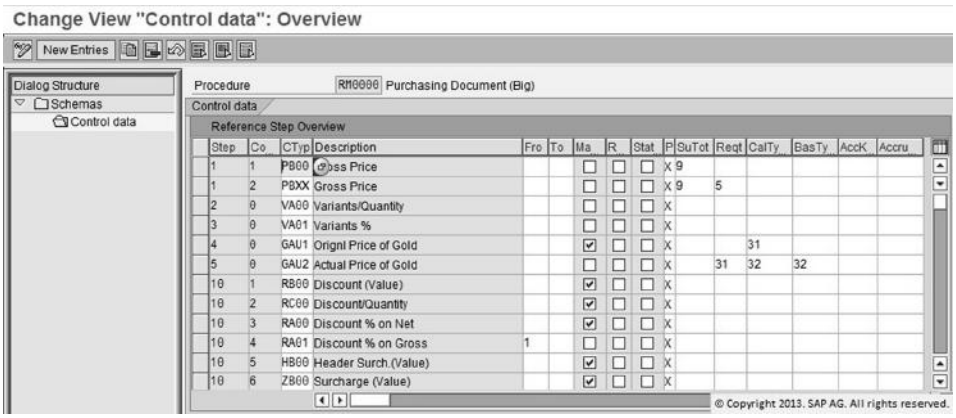
Define Exclusion Indicators

Condition types are part of an access sequence for price calculation. For a particular type of price calculation, some conditions need to be excluded from price calculation. For example, when taxes need to be excluded from price calculation for gross price, the conditions related to taxes should not be used in price calculation. Attaching exclusion indicators to conditions ensures this aspect.



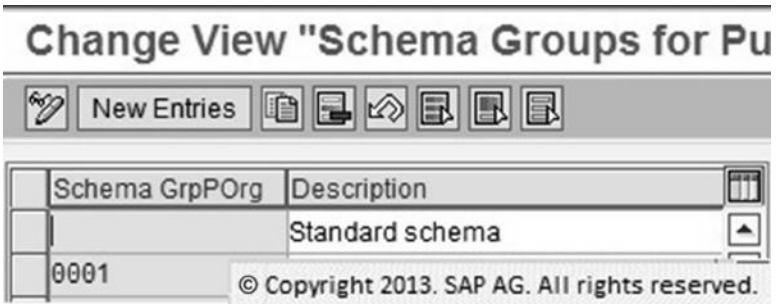
Define Calculation Schema

Calculation schema links a condition type to a calculation type, exclusion indicators, and other factors along with access sequence for the conditions to arrive at a calculated price for any purchasing document. Calculation schema thus acts as the final step in building the formula for calculating price.



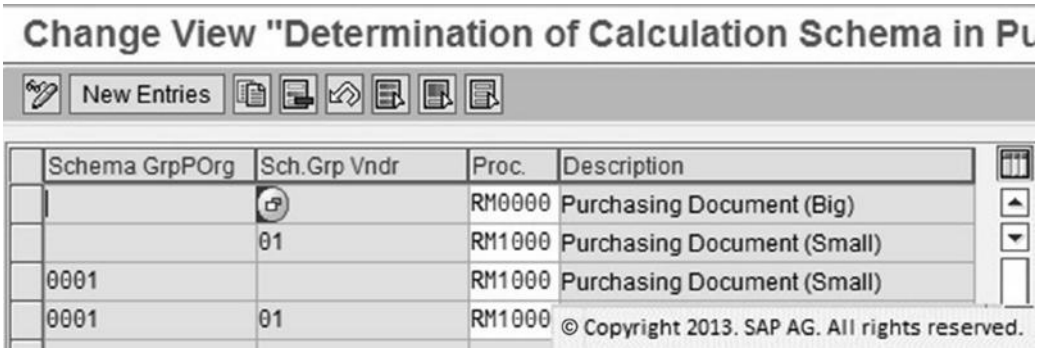
Define Schema Group

Schema groups function as the linking method for calculation schemas to vendors or purchasing organization. There are separate schema groups for vendors and purchasing organization.



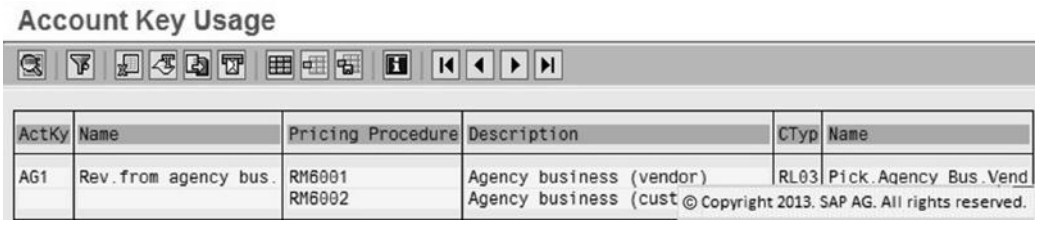
Define Schema Determination

Schema determination links a pricing schema procedure to a vendor and the purchasing organization. It is used to calculate the price on PO or stock transport order, or determine the market price for any material or service.



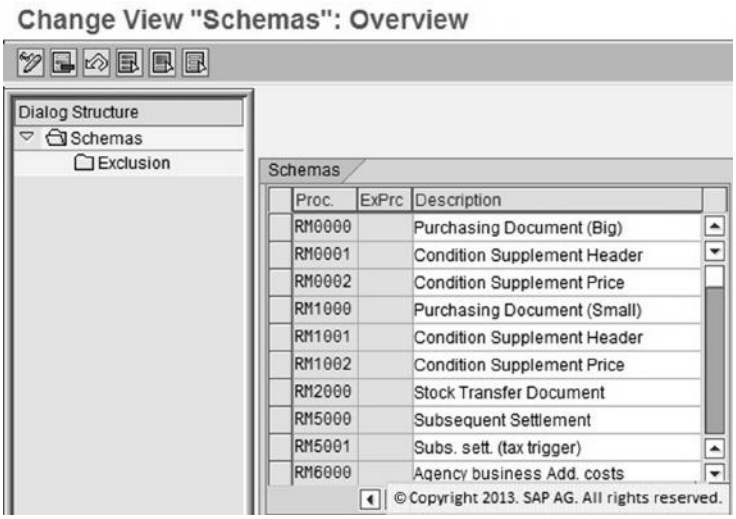
Define Transaction/Event Keys

Transaction/event keys link calculation schemas to pricing procedure.



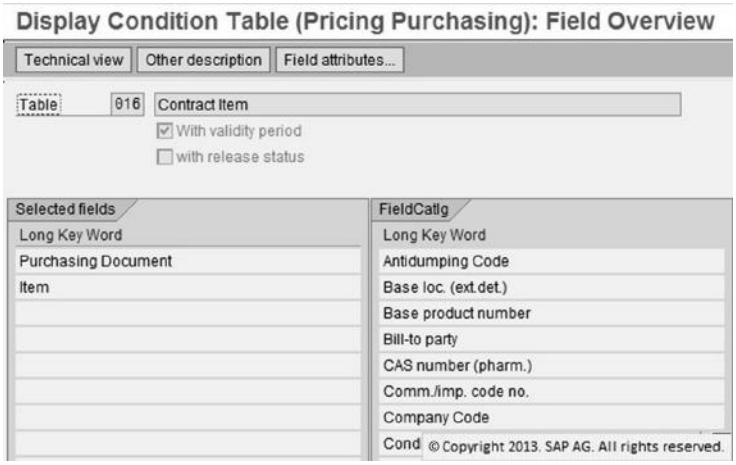
Define Condition Exclusion

You can define the condition exclusion for pricing schemas and condition types.



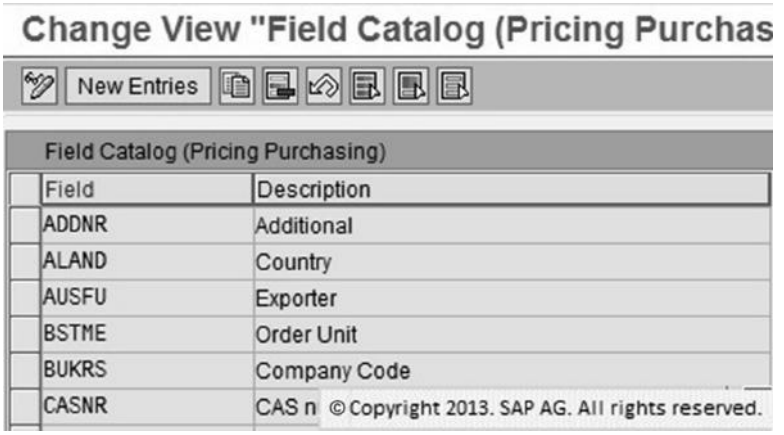
Maintain Condition Table

Condition table holds information about calculation schema, access sequence, and condition types.



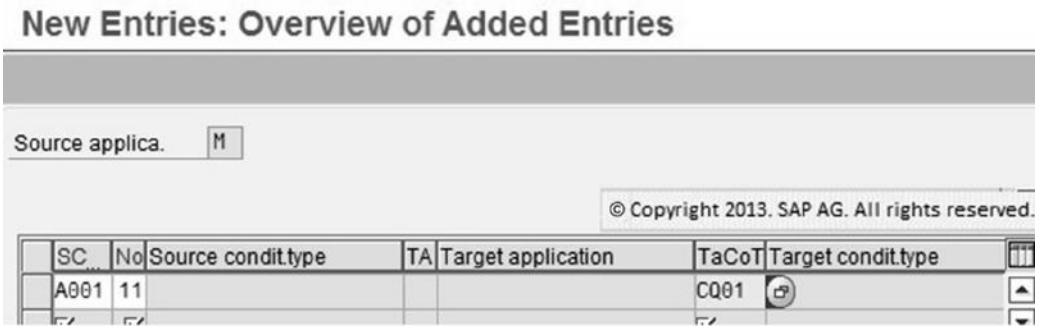
Extend Field Catalogue for Condition Tables

In this IMG activity, you can extend the condition table by adding additional fields in the table.



Copy Control for Conditions

In this IMG activity, you can make copying rules for both condition types and conditions.

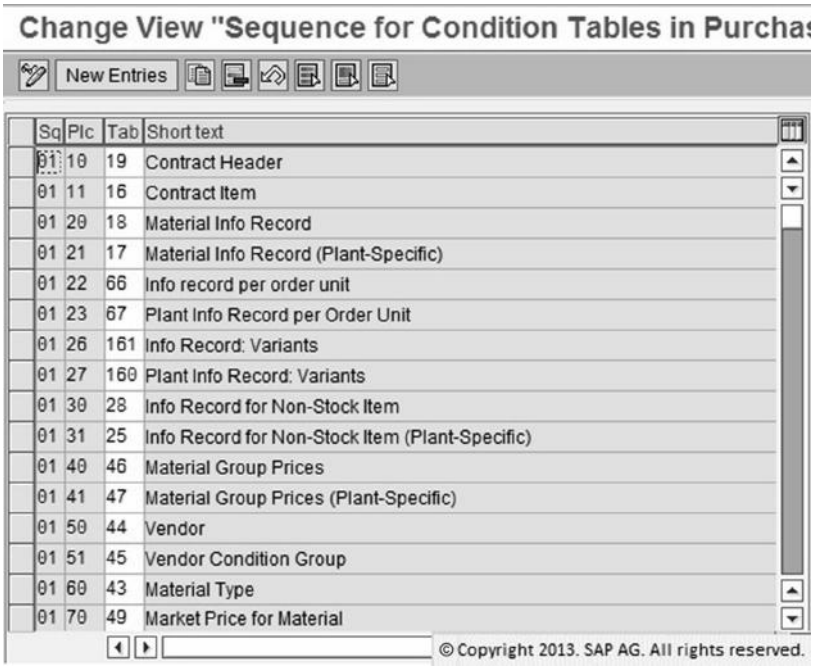


Scope of List for Conditions

Menu path: SPRO → IMG → Materials Management → Purchasing → Conditions → Scope of List for Conditions

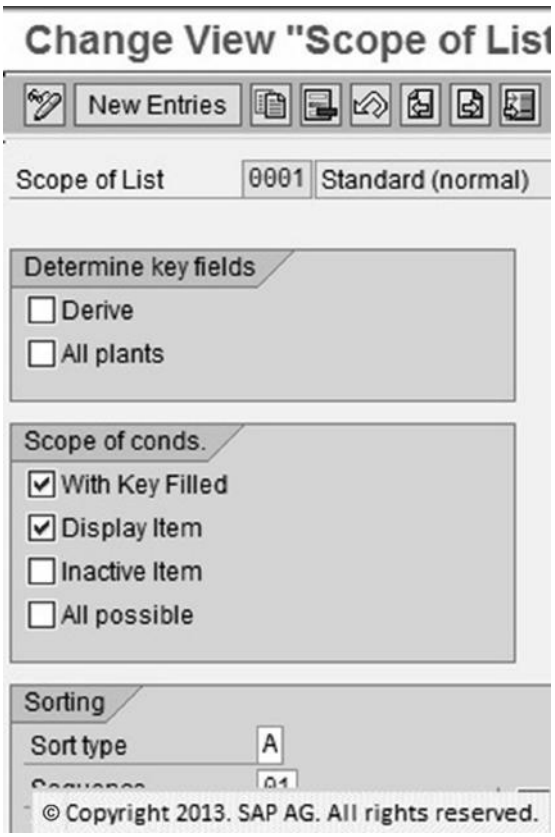
Define Sequence

There are many condition tables defined for various types of info records. These tables are arranged in a sequence with a sequence number assigned to each table.



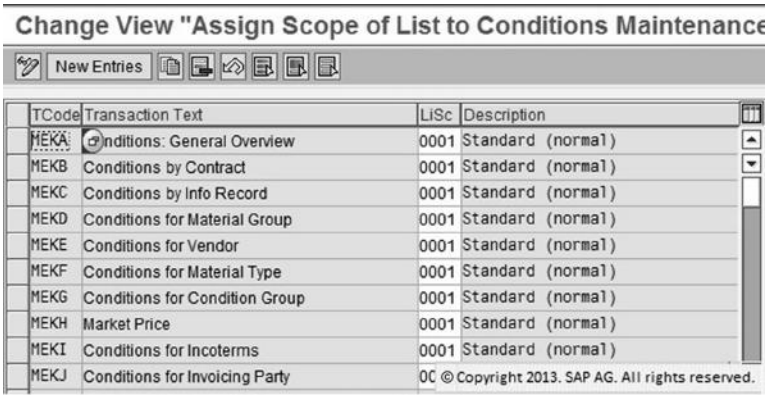
Define Scope of List Parameters

Conditions can be extended by deriving a new condition from an existing condition.



Assign to Conditions

Extended condition can be assigned to original condition. It can then replace the original condition in calculation schema.

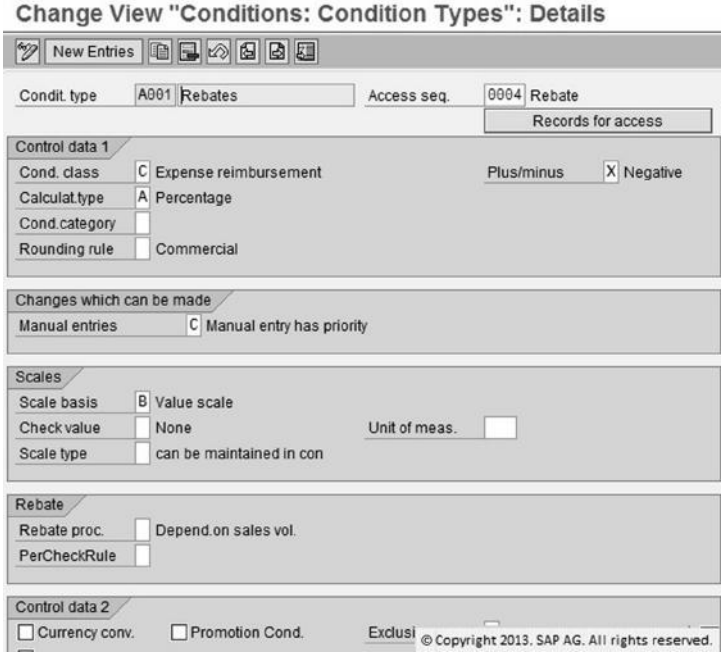


Configure Condition Index

Menu path: SPRO → IMG → Materials Management → Purchasing → Conditions → Configure Condition Index

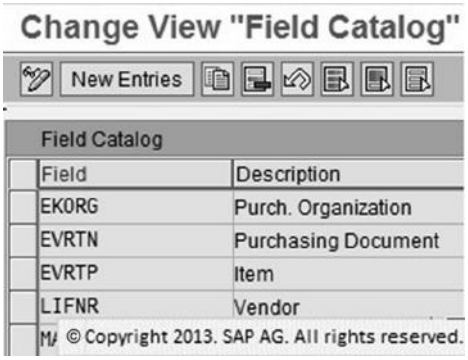
Change Condition Types

Condition types can be maintained or created using the condition components of calculation type, condition class, condition category, rounding rule, manual changed allowed/not allowed, and so on.



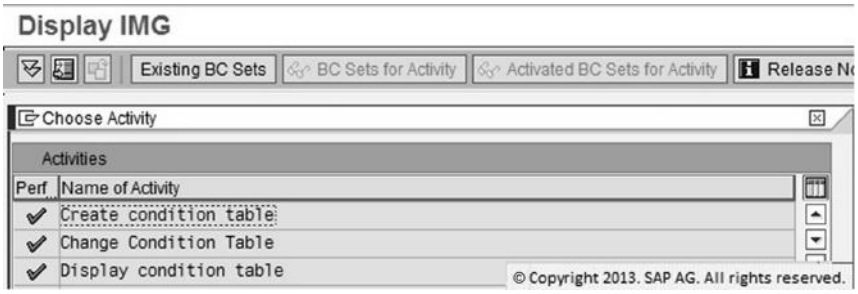
Define Permitted Fields

In this IMG activity, you can define the fields that can be used for building the condition index tables.



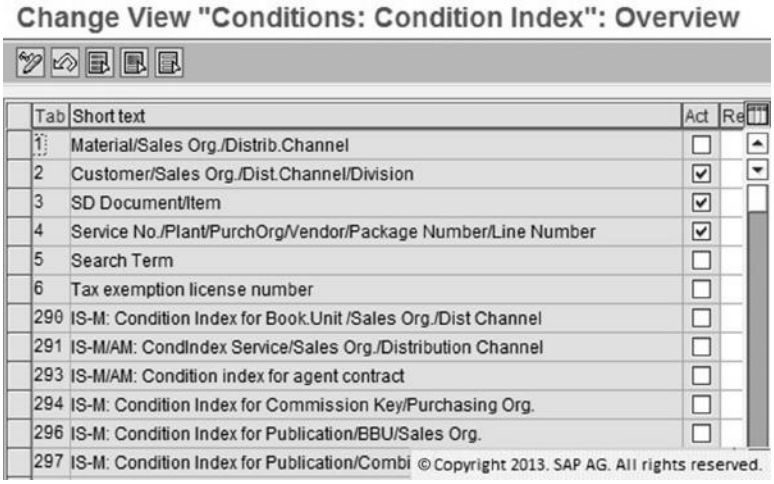
Edit Condition Index Tables

In this IMG activity, you can create, change, or delete the condition index tables.



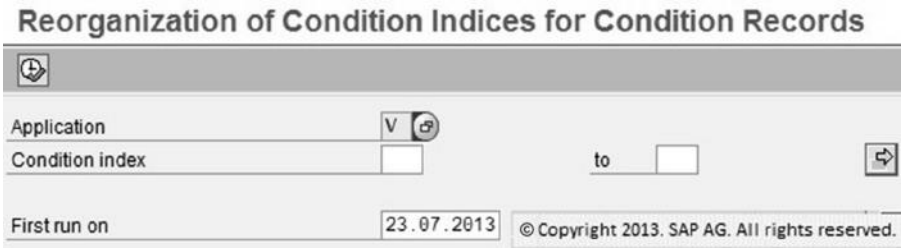
Activate Condition Index Tables

In this IMG activity, you can activate a newly created condition index table.



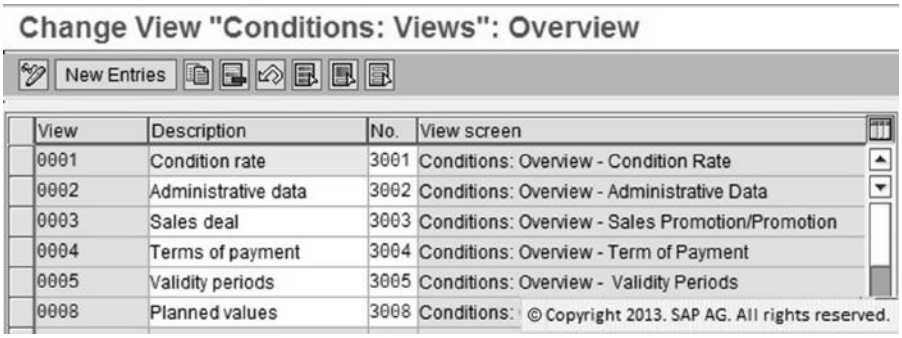
Rebuild Condition Index Tables

If your condition index tables get corrupted, you can rebuild your condition index tables in this IMG activity.



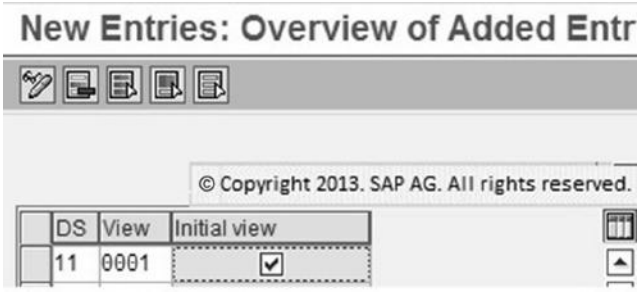
Define Overviews

In this IMG activity, you can define new views for your condition tables.



Assign Overviews

In this IMG activity, you can assign newly created views for your condition tables.



Account Assignment

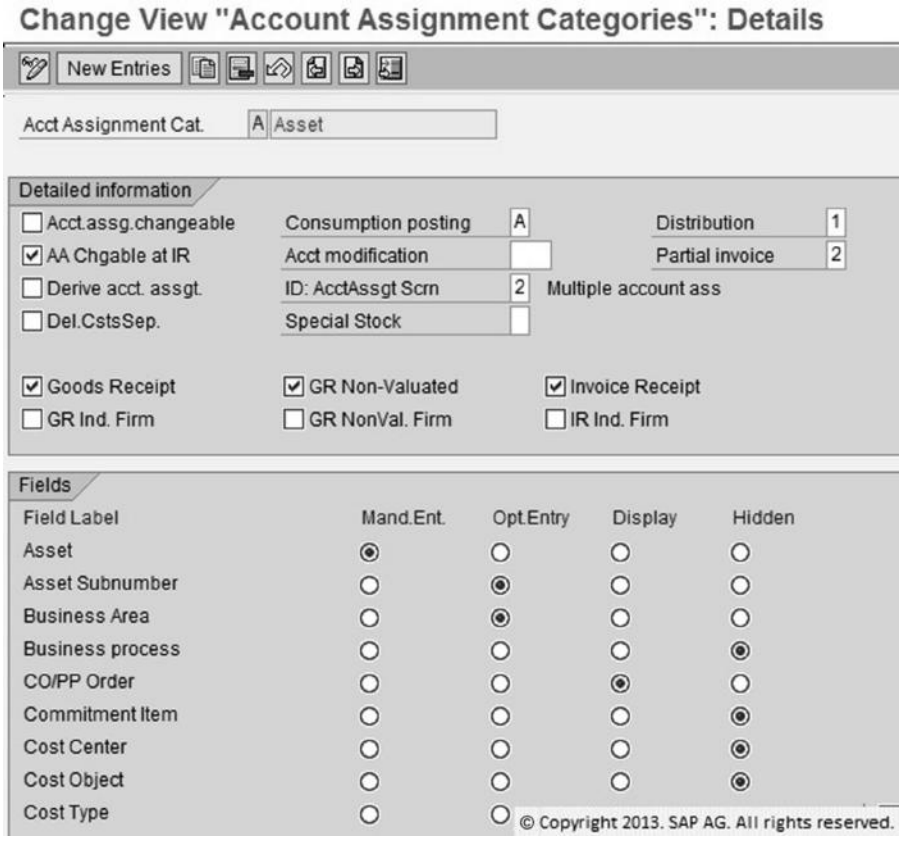
In SAP, account assignment is an activity of linking material groups to G/L accounts so that credit/debit for purchase of the materials can be done to the correct G/L accounts.

Menu path: SPRO → IMG → Materials Management → Purchasing → Account Assignment

Maintain Account Assignment Categories

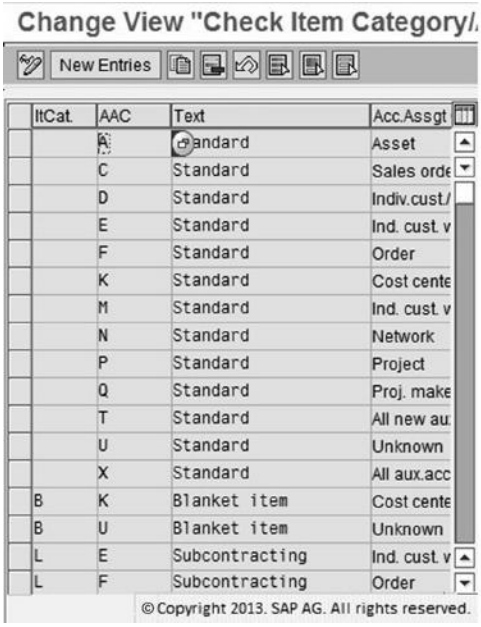
To maintain account assignments, you first create account assignment categories. Later you can assign account assignment categories to each account assignment.

Account assignment categories are very important because the buyers use the account assignment categories during purchasing transactions. They must be made carefully so that correct G/L accounts are credited/debited for all purchasing transactions such as goods receipt, goods issue, and invoice receipts.



Define Combination of Item Categories/Account Assignment Categories

In this IMG activity, you link your item categories (document types) to account assignment categories.



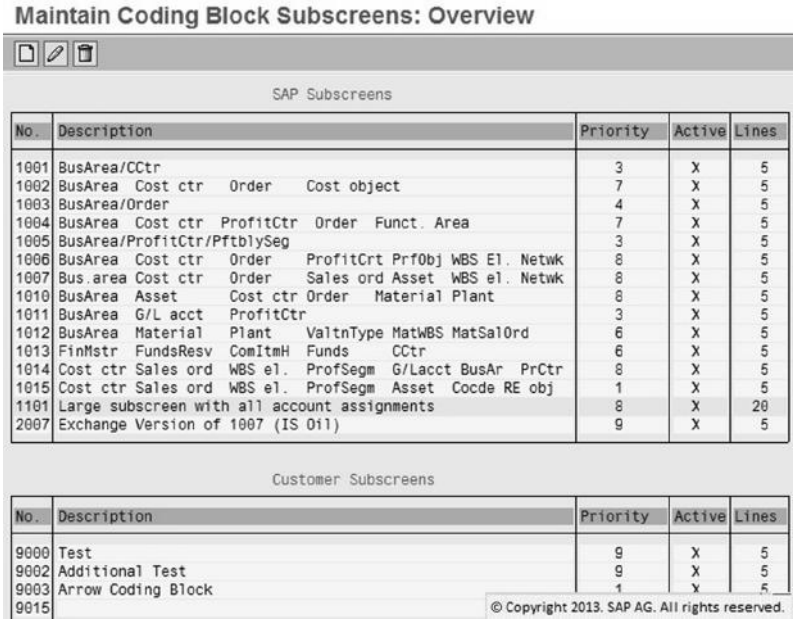
Change View "Check Item Category/

New Entries

ItCat.	AAC	Text	Acc.Assgt
	A	Standard	Asset
	C	Standard	Sales orde
	D	Standard	Indiv.cust./
	E	Standard	Ind. cust. v
	F	Standard	Order
	K	Standard	Cost cente
	M	Standard	Ind. cust. v
	N	Standard	Network
	P	Standard	Project
	Q	Standard	Proj. make
	T	Standard	All new au
	U	Standard	Unknown
	X	Standard	All aux.acc
B	K	Blanket item	Cost cente
B	U	Blanket item	Unknown
L	E	Subcontracting	Ind. cust. v
L	F	Subcontracting	Order

Set Subscreen for Account Assignment Block

When you create account assignment categories, you opt for values for goods movement types, G/L posting types, invoicing types, and so on. You can change the screen elements as per your need.



Maintain Coding Block Subscreens: Overview

SAP Subscreens

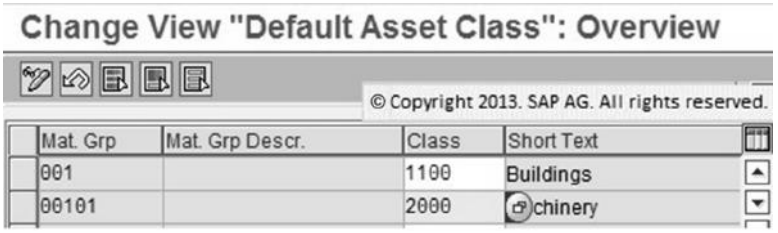
No.	Description	Priority	Active	Lines
1001	BusArea/CCtr	3	X	5
1002	BusArea Cost ctr Order Cost object	7	X	5
1003	BusArea/Order	4	X	5
1004	BusArea Cost ctr ProfitCtr Order Funct. Area	7	X	5
1005	BusArea/ProfitCtr/PftblySeg	3	X	5
1006	BusArea Cost ctr Order ProfitCrt PrfObj WBS El. Netwk	8	X	5
1007	Bus.area Cost ctr Order Sales ord Asset WBS el. Netwk	8	X	5
1010	BusArea Asset Cost ctr Order Material Plant	8	X	5
1011	BusArea G/L acct ProfitCtr	3	X	5
1012	BusArea Material Plant ValtnType MatWBS MatSalOrd	6	X	5
1013	FinMstr FundsResv ComItmH Funds CCtr	6	X	5
1014	Cost ctr Sales ord WBS el. ProfSegm G/Lacct BusAr PrCtr	8	X	5
1015	Cost ctr Sales ord WBS el. ProfSegm Asset Cocde RE obj	1	X	5
1101	Large subscreen with all account assignments	8	X	20
2007	Exchange Version of 1007 (IS Oil)	9	X	5

Customer Subscreens

No.	Description	Priority	Active	Lines
9000	Test	9	X	5
9002	Additional Test	9	X	5
9003	Arrow Coding Block	1	X	5
9015				

Assign Default Values for Asset Classes

In this IMG activity, you can define asset types (asset classes) and link them to material groups.



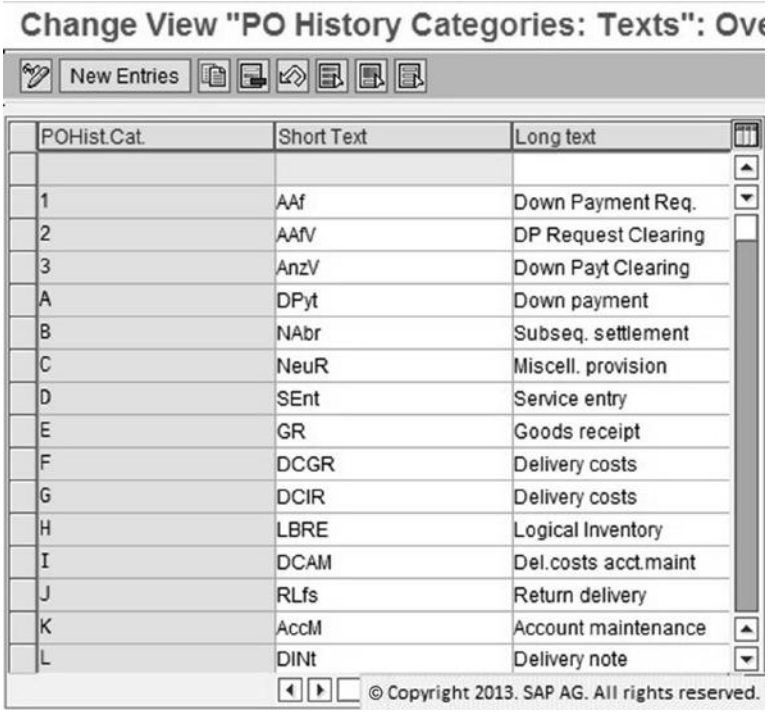
Statistics

Statistics contains the archived data for purchasing documents. You can define how and when purchasing data need to be archived. You can also define how archived data can be accessed when needed.

Menu path: SPRO → IMG → Materials Management → Purchasing → Statistics

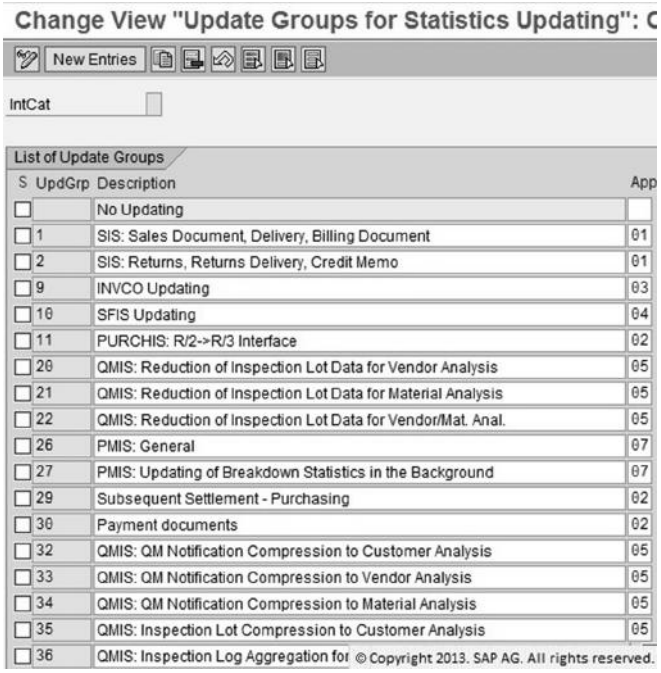
Maintain Purchase Order History Categories

In this IMG activity, you create a definition for PO history categories so that PO data can be archived in these categories.



Define Update Groups

In this IMG activity, you define update groups for statistical updating. In the later IMG activity you assign these update groups to item categories.


Change View "Update Groups for Statistics Updating": C

New Entries

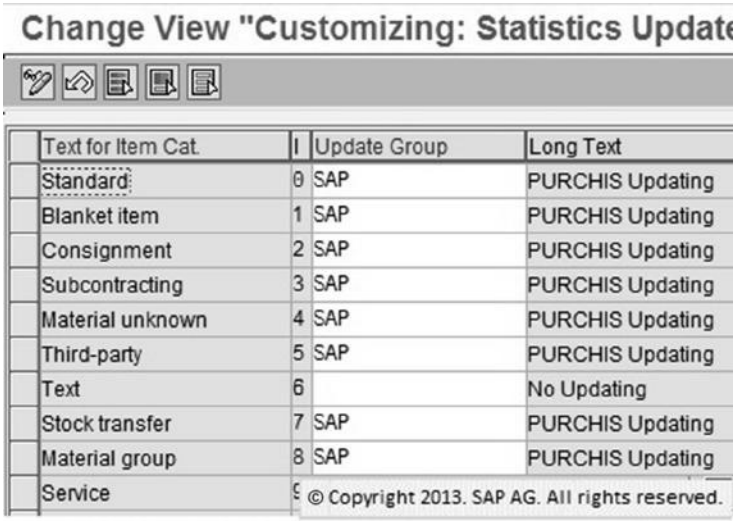
IntCat

List of Update Groups

S	UpdGrp	Description	App
☐		No Updating	
☐	1	SIS: Sales Document, Delivery, Billing Document	01
☐	2	SIS: Returns, Returns Delivery, Credit Memo	01
☐	9	INVCO Updating	03
☐	10	SFIS Updating	04
☐	11	PURCHIS: R/2->R/3 Interface	02
☐	20	QMIS: Reduction of Inspection Lot Data for Vendor Analysis	05
☐	21	QMIS: Reduction of Inspection Lot Data for Material Analysis	05
☐	22	QMIS: Reduction of Inspection Lot Data for Vendor/Mat. Anal.	05
☐	26	PMIS: General	07
☐	27	PMIS: Updating of Breakdown Statistics in the Background	07
☐	29	Subsequent Settlement - Purchasing	02
☐	30	Payment documents	02
☐	32	QMIS: QM Notification Compression to Customer Analysis	05
☐	33	QMIS: QM Notification Compression to Vendor Analysis	05
☐	34	QMIS: QM Notification Compression to Material Analysis	05
☐	35	QMIS: Inspection Lot Compression to Customer Analysis	05
☐	36	QMIS: Inspection Log Aggregation for	

Assign Update Groups to Item Categories

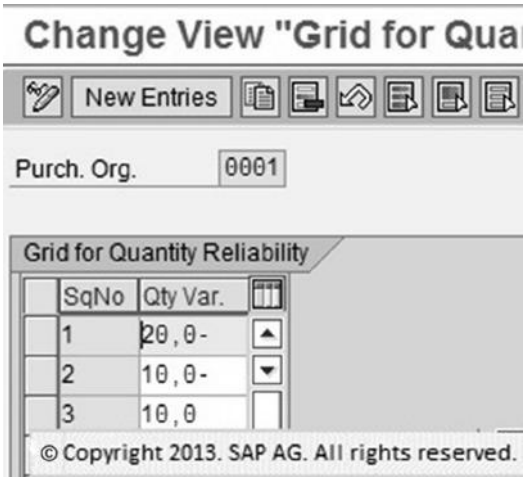
You can archive purchase documents in many ways, but making strategy for searching them is the most crucial aspect. An easy search of archived document is far better than just keeping the archived documents in folders. In this IMG activity, you can create an item category and link it to an update group so that archived documents can be kept according to their item category and update groups.


Change View "Customizing: Statistics Update

Text for Item Cat.	I	Update Group	Long Text
Standard	0	SAP	PURCHIS Updating
Blanket item	1	SAP	PURCHIS Updating
Consignment	2	SAP	PURCHIS Updating
Subcontracting	3	SAP	PURCHIS Updating
Material unknown	4	SAP	PURCHIS Updating
Third-party	5	SAP	PURCHIS Updating
Text	6		No Updating
Stock transfer	7	SAP	PURCHIS Updating
Material group	8	SAP	PURCHIS Updating
Service	9		

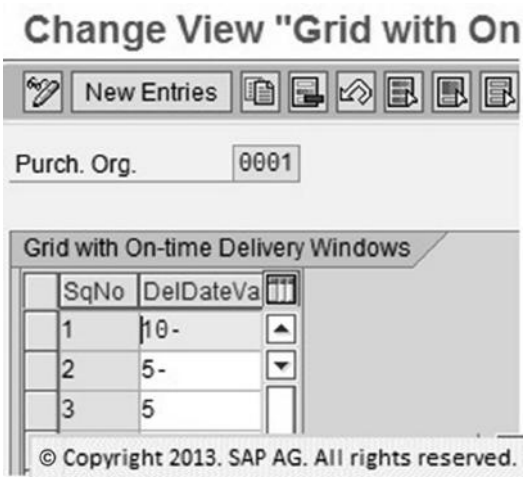
Define Grid for Quantity Variances

For each purchasing organization, you can create a quantity variance grid. All archived documents can now be kept with respect to their quantity variance and can be easily searched based on the criteria related to quantity variance.



Define Grid for Delivery Date Variances

For each purchasing organization, you can create a delivery date variance grid. All archived documents can now be kept with respect to their delivery date variance and can be easily searched based on the criteria related to delivery date variance.



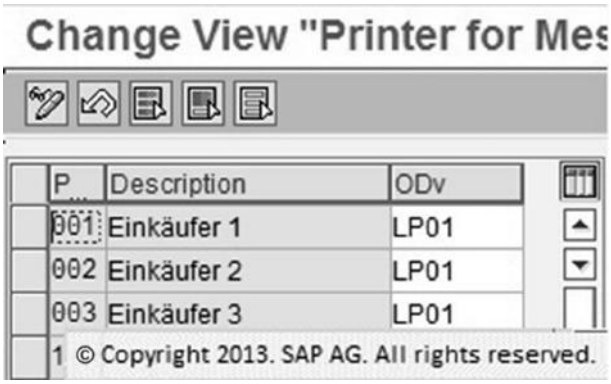
Messages

In SAP, messages are meant for printing devices, display devices, sending electronic date interchange (EDI) messages, and so on.

Menu path: SPRO → IMG → Materials Management → Purchasing → Messages

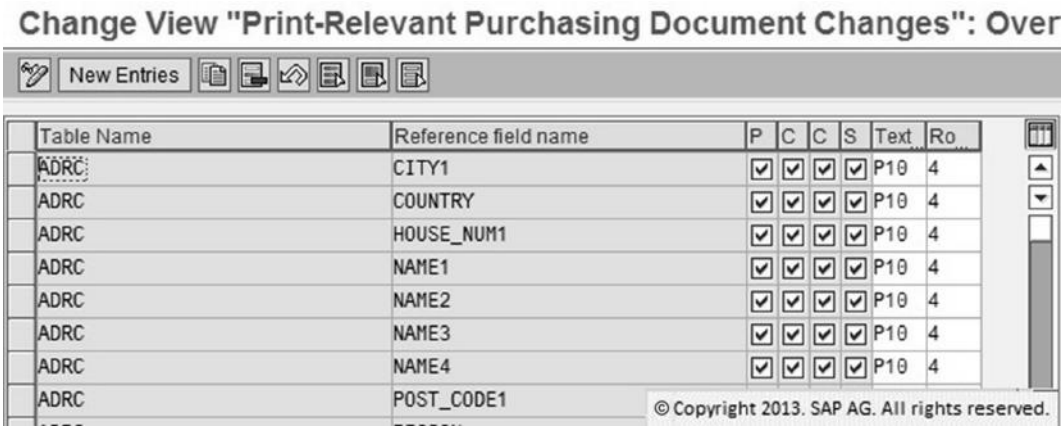
Assign Output Devices to Purchasing Groups

Printing, scanning, or any other device can be assigned to a purchasing group. All of the messages from that purchasing group will now be received by that device only.



Fields Relevant to Printouts of Changes

Purchase documents sometime change after they are created and even sent to the vendor. In these cases, changes need to be made in the original document. It is not possible to change everything in a purchase document. Only a few fields are allowed to be changed. This IMG activity defines which fields can be allowed to be changed.

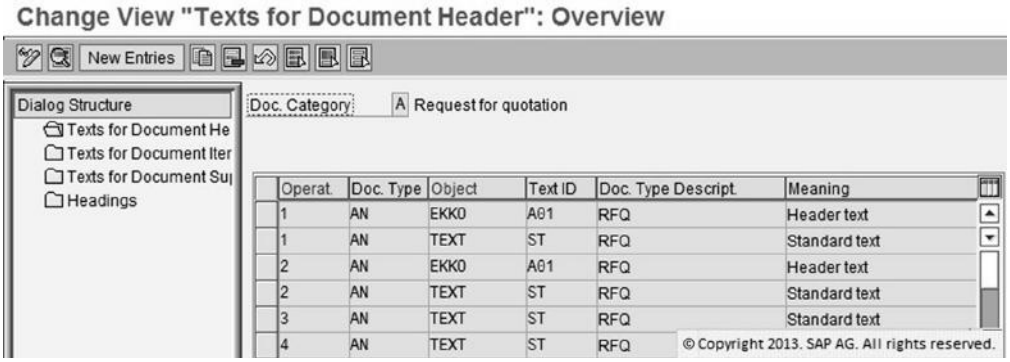


Texts for Messages

Menu path: SPRO → IMG → Materials Management → Purchasing → Messages → Texts for Messages

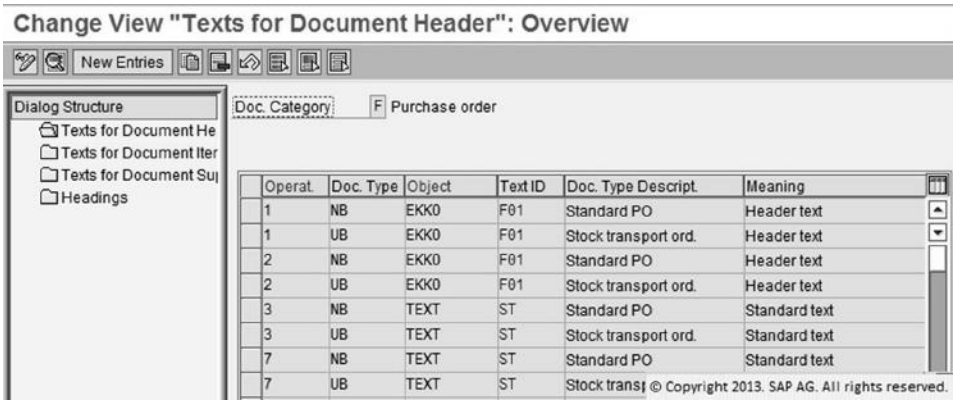
Define Texts for RFQ

RFQ documents have both header and item texts. In this IMG activity, you can define all of the texts at both header and item levels.



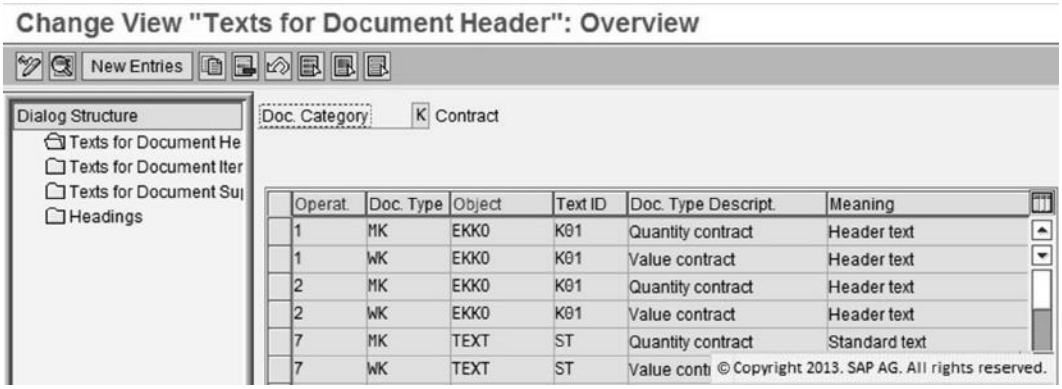
Define Texts for PO

PO documents have both header and item texts. In this IMG activity, you can define all of the texts at both header and item levels.



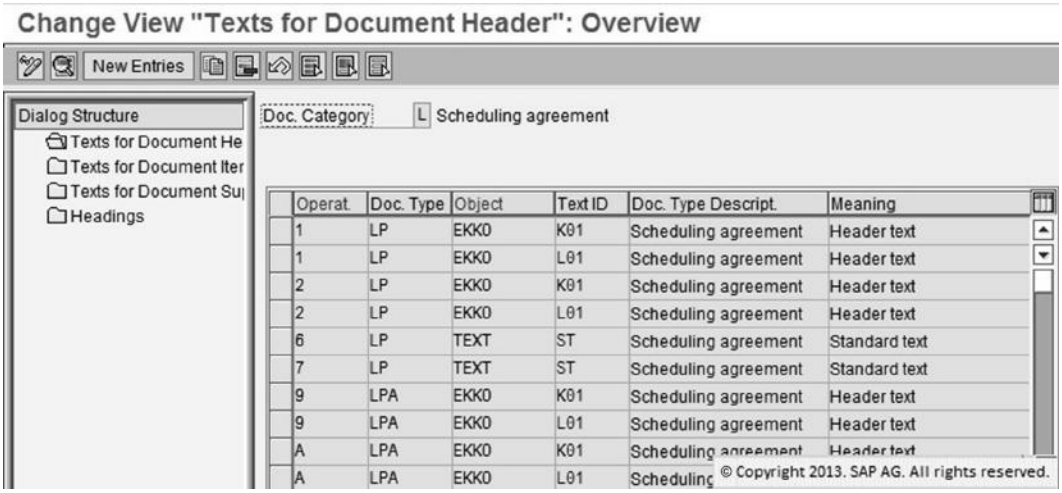
Define Text for Contract

Contract documents have both header and item texts. In this IMG activity, you can define all of the texts at both header and item levels.



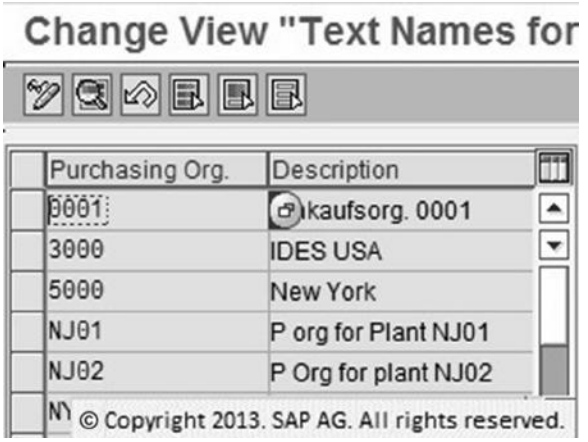
Define Texts for Scheduling Agreements

Scheduling agreement documents have both header and item texts. In this IMG activity, you can define all of the texts at both header and item levels.



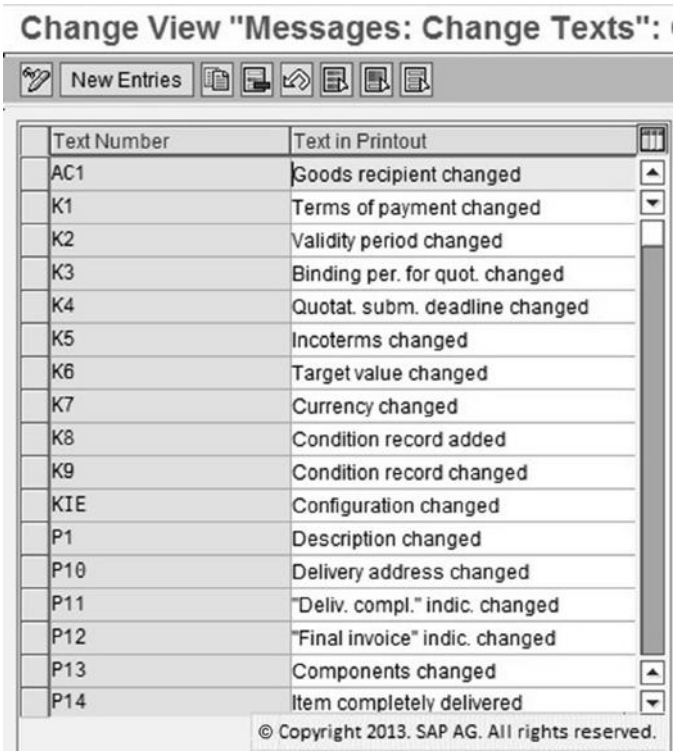
Define Text for Purchasing Organization

Purchasing organization text includes heading, footer, sender, and close types.



Define Change Texts

Sometimes a purchase document is made and sent to vendor or customer. When some changes take place in the document, the document contents need to be changed. You can define a list of standard texts that can then be used in the modified documents.

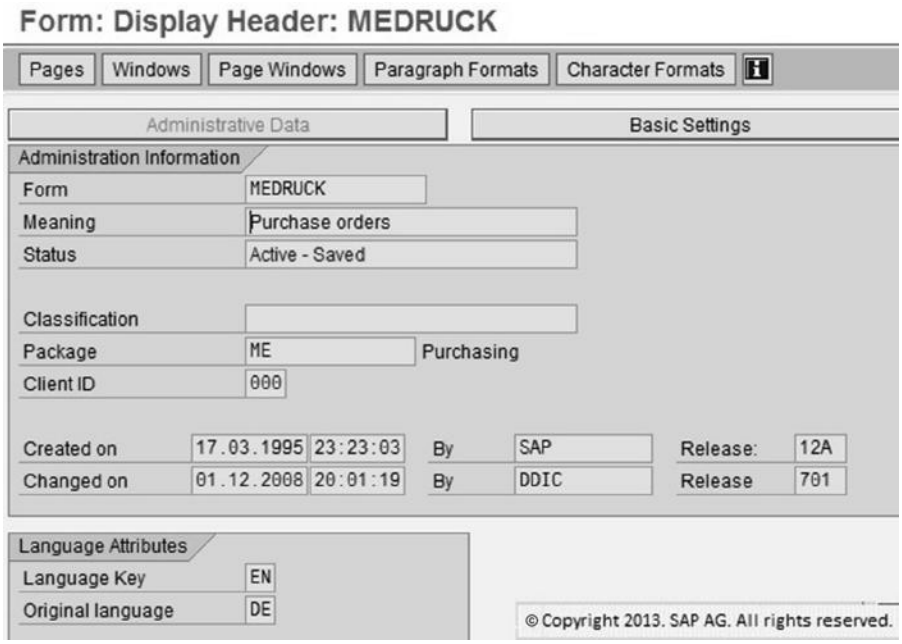


Forms for Messages

Menu path: SPRO → IMG → Materials Management → Purchasing → Messages → Forms (Layouts) for Messages

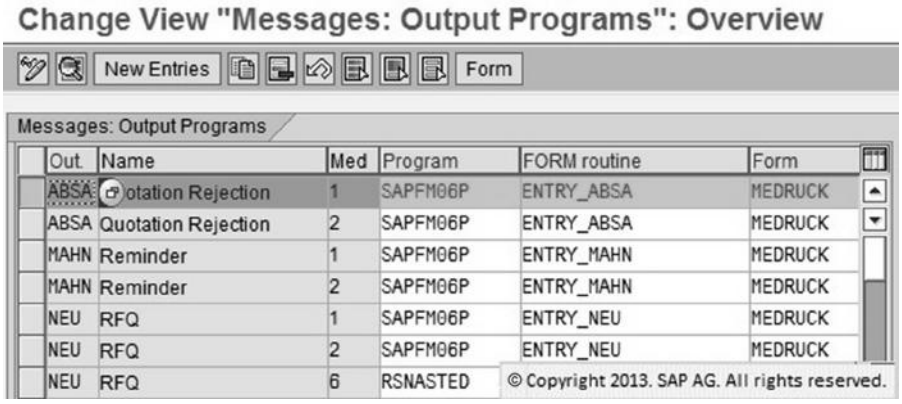
Adjust Form for Purchasing Documents

For printing purpose, you can adjust the purchasing documents by controlling spooling, adjusting cover page, selecting printer, and so on.



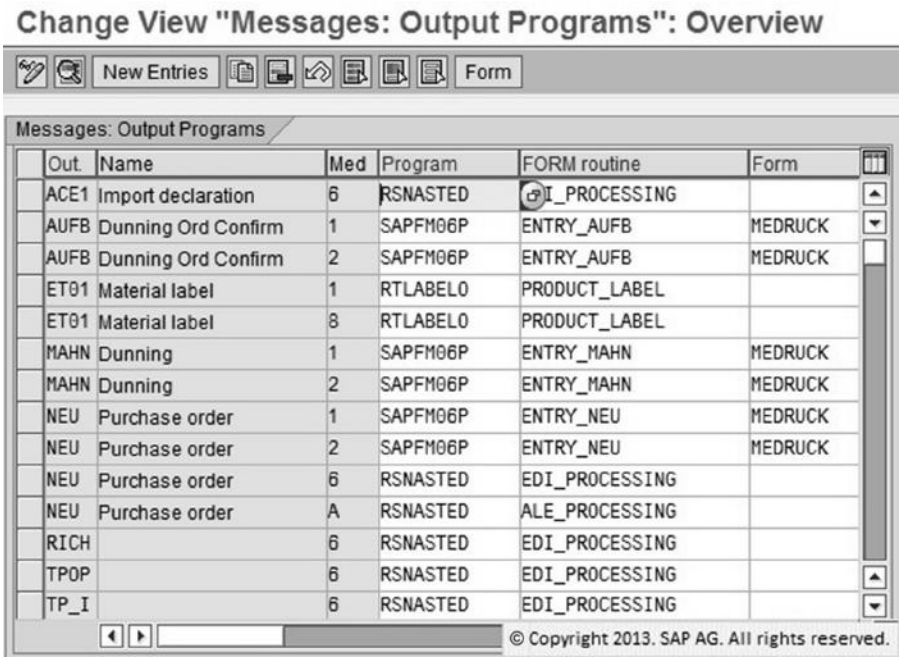
Assign Form and Output Program for RFQ

For RFQ rejection, reminder, acceptance, and so on, you can set the form output so that each of them can be printed out differently.



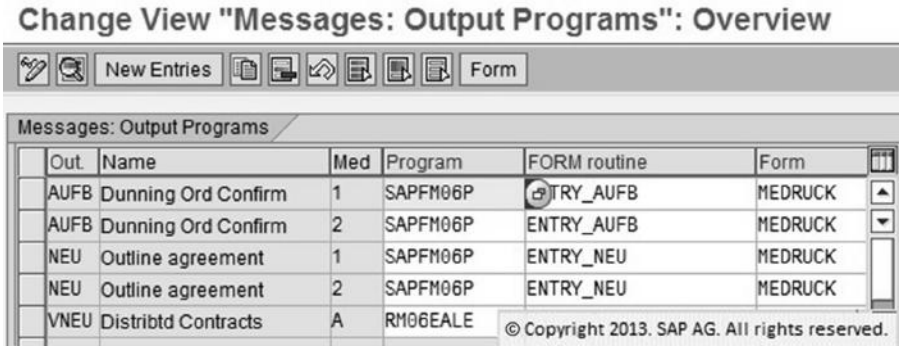
Assign Form and Output Program for PO

For printing material label, dunning, and other forms of POs, you can set the form accordingly.



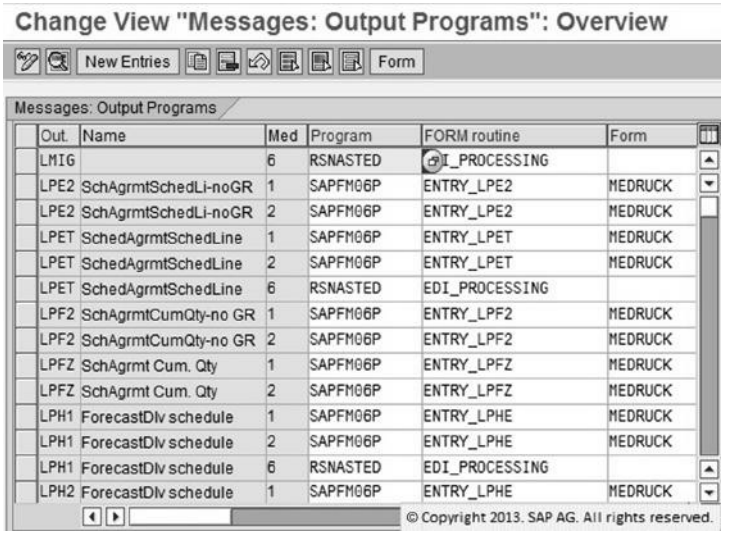
Assign Form and Output Program for Contract

For distributed contracts, dunning, and other types of contracts, you can adjust the form so that different types of contract documents can be printed.



Assign Form and Output Program for Schedule Agreement Delivery Schedule

For printing firmed quantity, forecast quantity, and schedule lines of a scheduling agreement, you can adjust the form for each type of document.

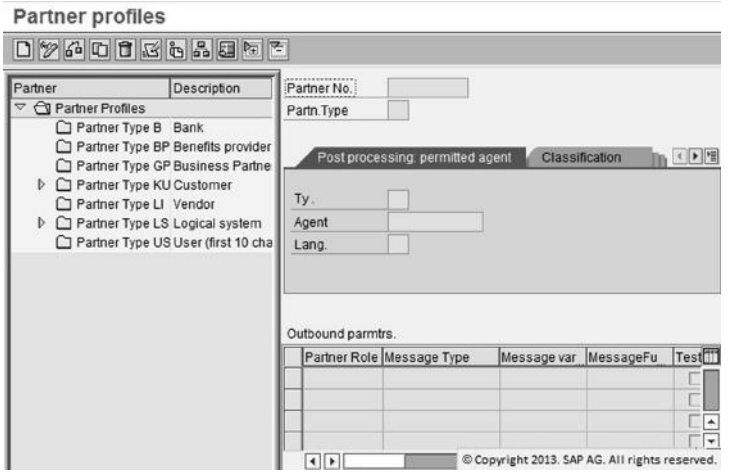


EDI for Messages

Menu path: SPRO → IMG → Materials Management → Purchasing → Messages → EDI

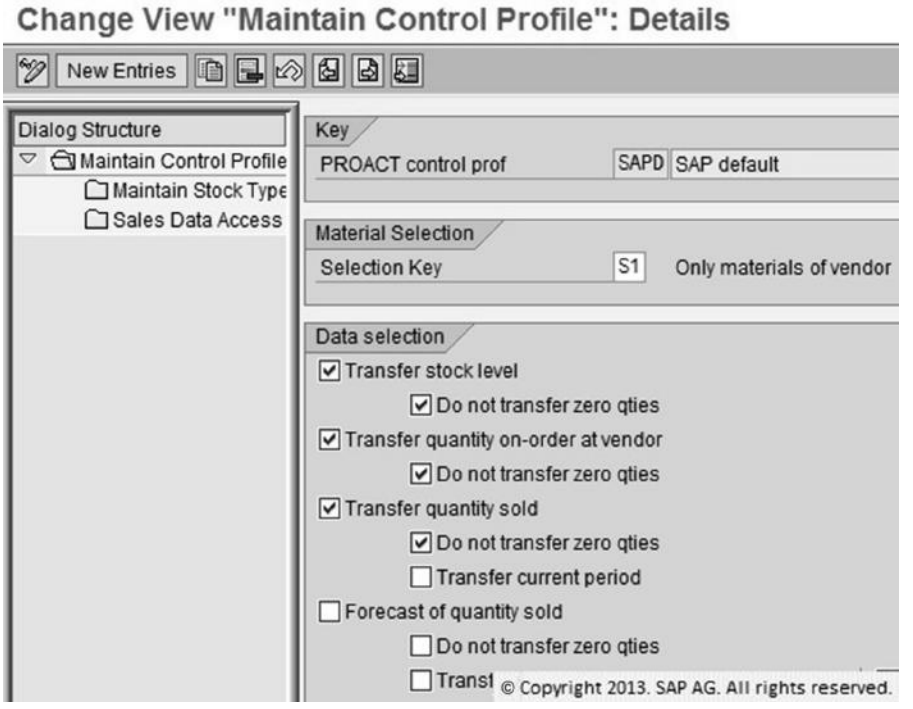
Set Up Partner Profile

For purchasing, you work with different kinds of partners such as banks, third-party providers, and vendors. You need to set up a profile for each type of partners so that EDI can be set up and EDI messages can be sent to and received from partners.



Profiles for Sending Stock/Sales Data

You can set up profiles for sending stock/sales data to partners. The profile can contain the data related to stock/sales that can be sent via EDI.

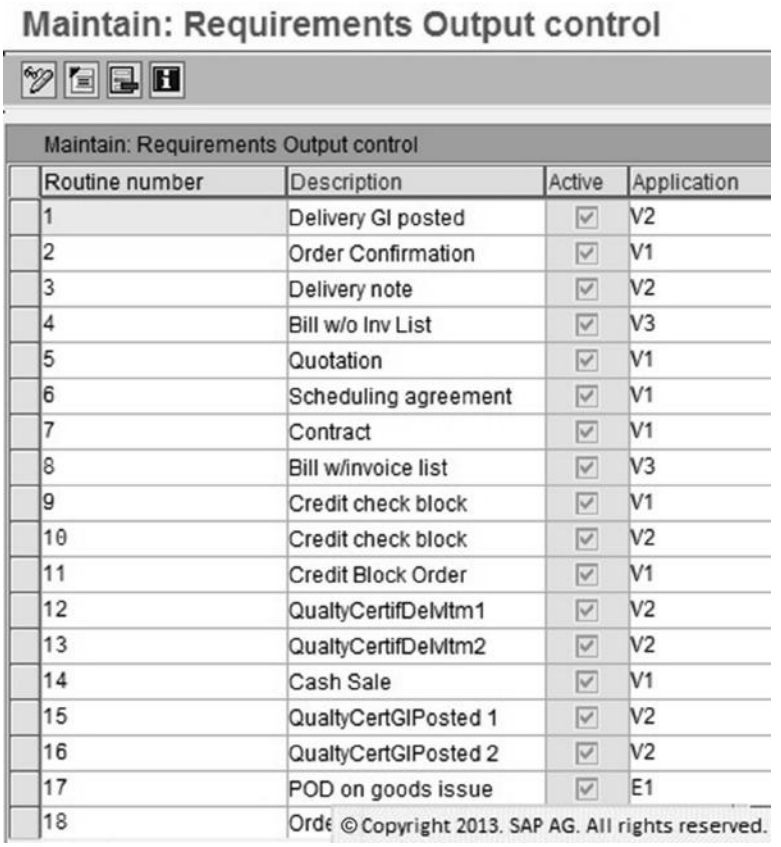


Output Control

Menu path: SPRO → IMG → Materials Management → Purchasing → Messages → Output Control

Maintain Requirement for Message Control

The type of messages that can be sent to partners can be set up in this IMG activity. Some of the message types include order confirmation, delivery note, quotation, and so on.

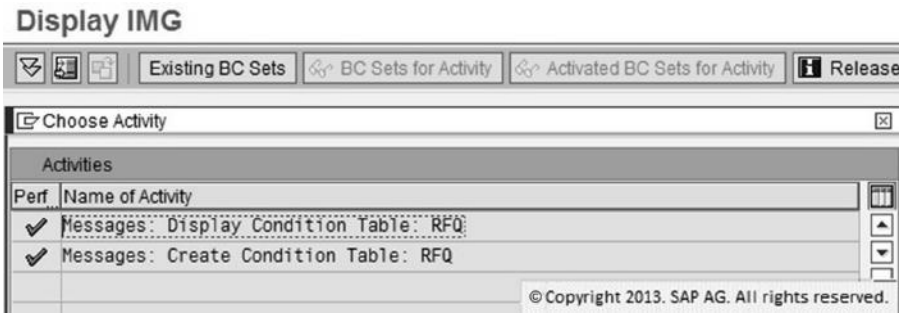


Condition Tables

Menu path: SPRO → IMG → Materials Management → Purchasing → Messages → Output Control → Condition Tables

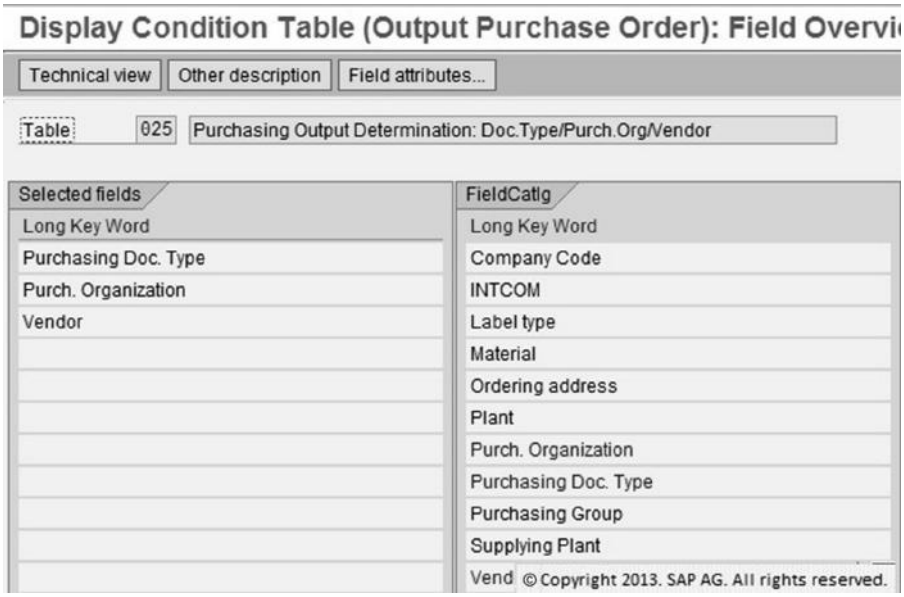
Define Condition Table for RFQ

In the condition table for RFQ, you can choose fields such as plant, material, and ordering address.



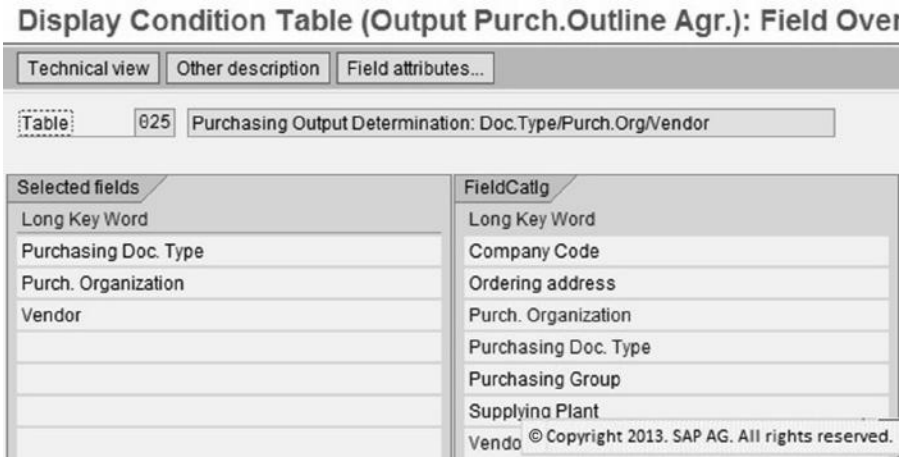
Define Condition Table for Request for PO

In the condition table for PO, you can choose fields such as plant, material, and ordering address.



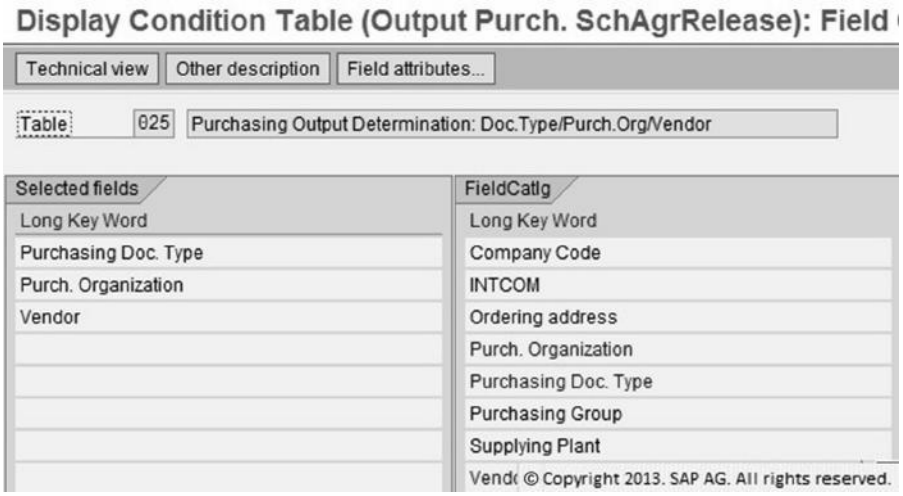
Define Condition Table for Request for Outline Agreement

In the condition table for outline agreement, you can choose fields such as plant, material, and ordering address.



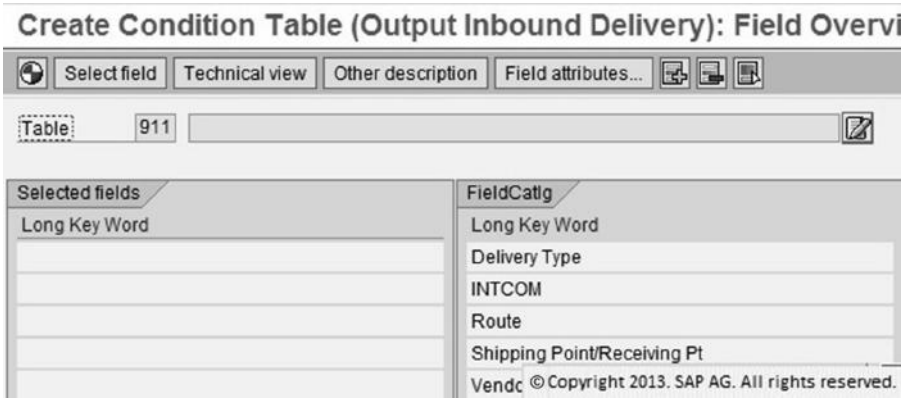
Define Condition Table for Request for Schedule Agreement Release

In the condition table for scheduling agreement, you can choose fields such as plant, material, and ordering address.



Define Condition Table for Inbound Delivery

In the condition table for inbound delivery, you can choose fields such as vendor, material, and ordering address.



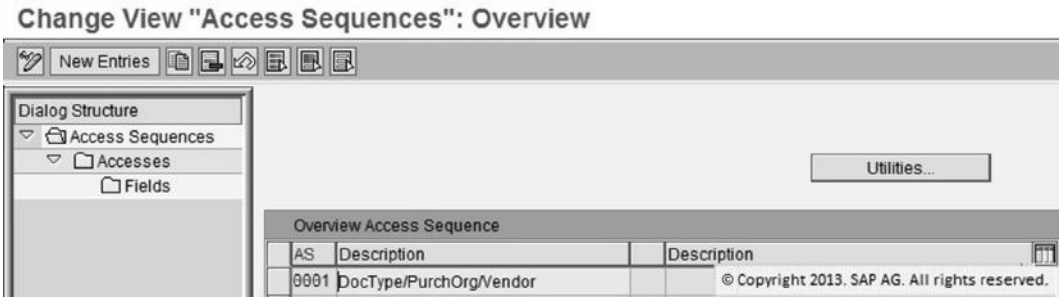
Access Sequence

Access sequences for output control enable the document type that has a higher priority than other document types.

Menu path: SPRO → IMG → Materials Management → Purchasing → Messages → Output Control → Access Sequence

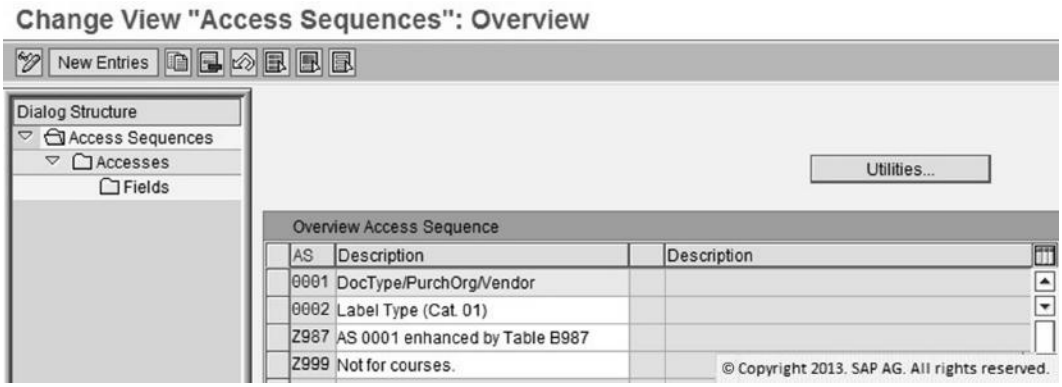
Define Access Sequence for RFQ

All document types of RFQ will be assigned a sequence number based on their priority.



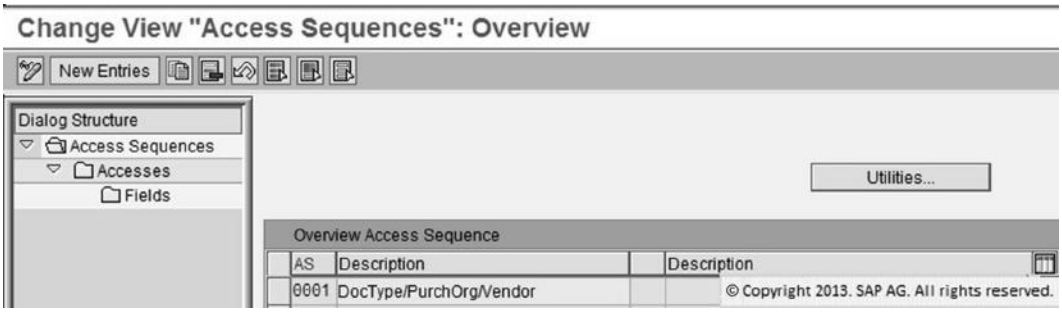
Define Access Sequence for Request for PO

All document types of PO will be assigned a sequence number based on their priority.



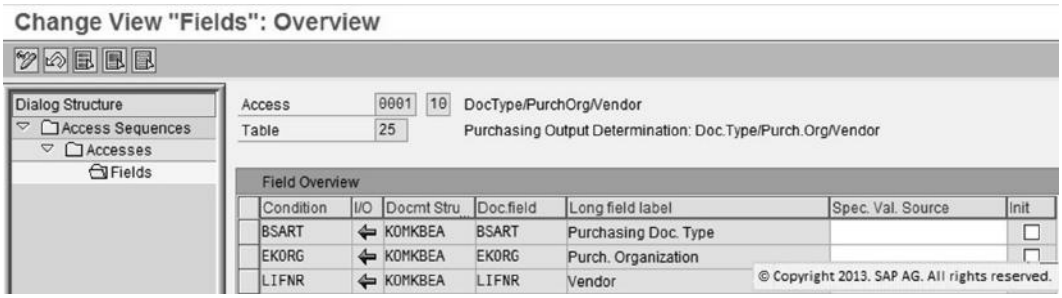
Define Access Sequence for Request for Outline Agreement

All document types of outline agreements will be assigned a sequence number based on their priority.



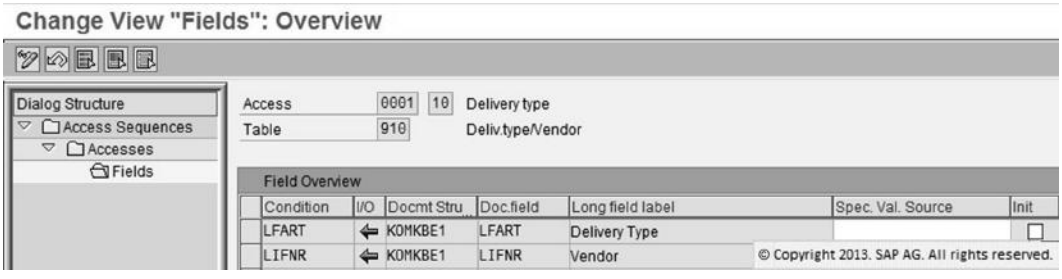
Define Access Sequence for Request for Schedule Agreement Release

All document types of scheduling agreement will be assigned a sequence number based on their priority.



Define Access Sequence for Inbound Delivery

All delivery types of inbound deliveries will be assigned a sequence number based on their priority.

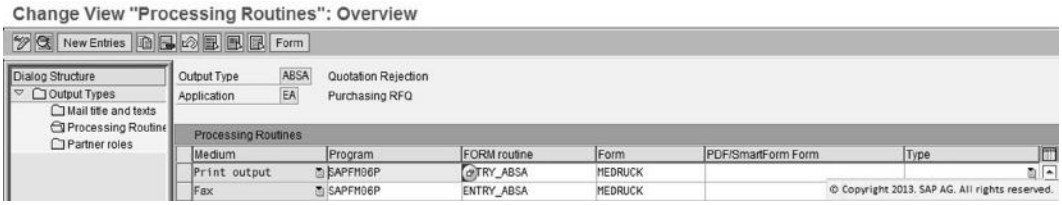


Message Types

Menu path: SPRO → IMG → Materials Management → Purchasing → Messages → Output Control → Message Types

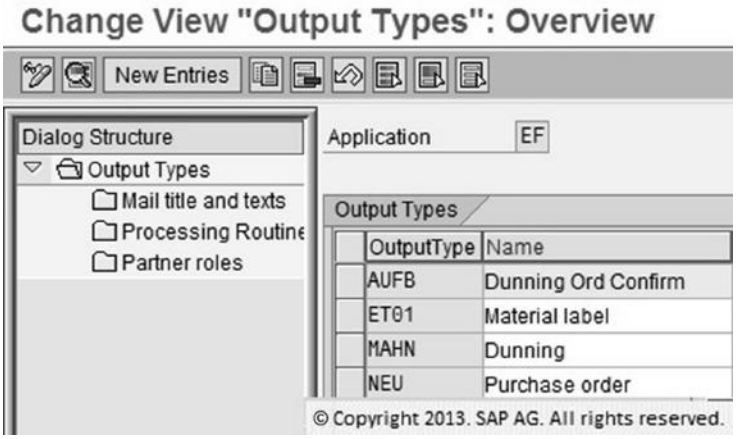
Define Message Types for RFQ

In this IMG activity, you can define the message types for RFQs. Some of the message types for RFQ include reminders, quotation rejection, and so on.



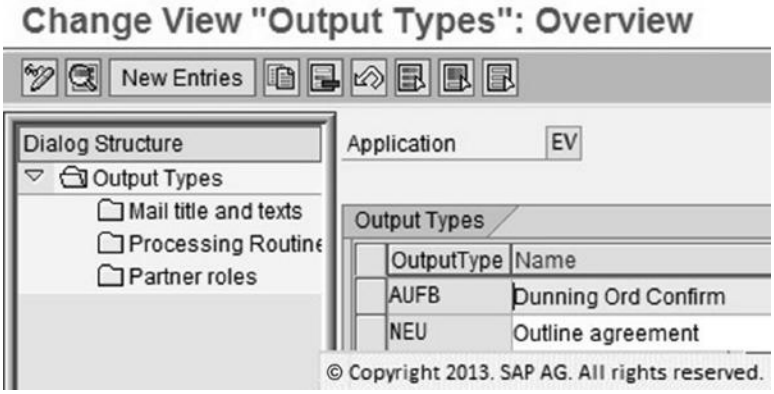
Define Message Types for Request for PO

In this IMG activity, you can define the message types for POs. Some of the message types for POs include reminders, dunning, and so on.



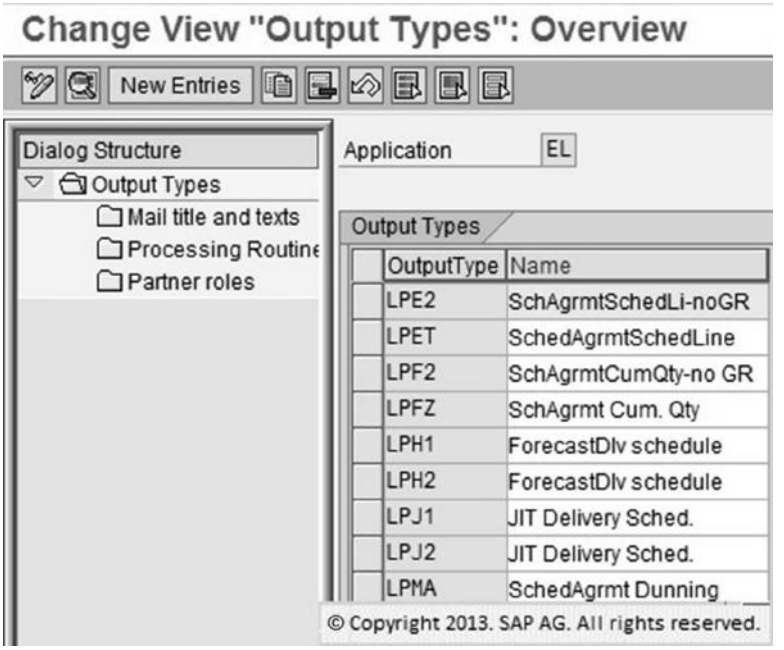
Define Message Types for Request for Outline Agreement

In this IMG activity, you can define the message types for outline agreements. Some of the message types for outline agreements include reminders, distributed contracts, and so on.



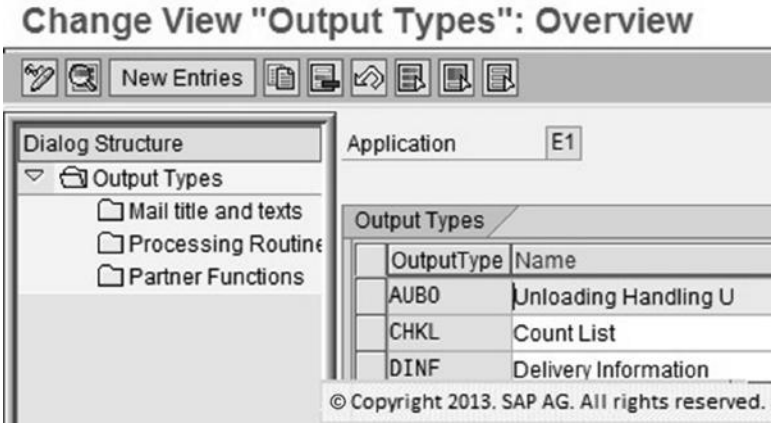
Define Message Types for Request for Schedule Agreement Release

In this IMG activity, you can define the message types for scheduling agreement. Some of the message types for scheduling agreement include schedule lines, firmed demand, forecast demand, and so on.



Define Output Types for Inbound Delivery

In this IMG activity, you can define the message types for inbound delivery. Some of the message types include unloading handling, count list, delivery information, and so on.

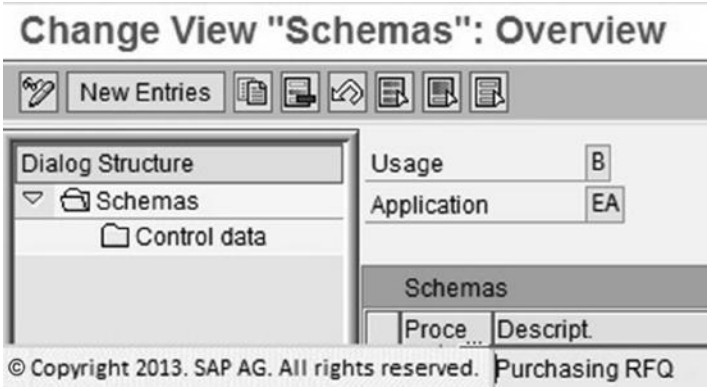


Message Determination Schema

Menu path: SPRO → IMG → Materials Management → Purchasing → Messages → Output Control → Message Determination Schemas

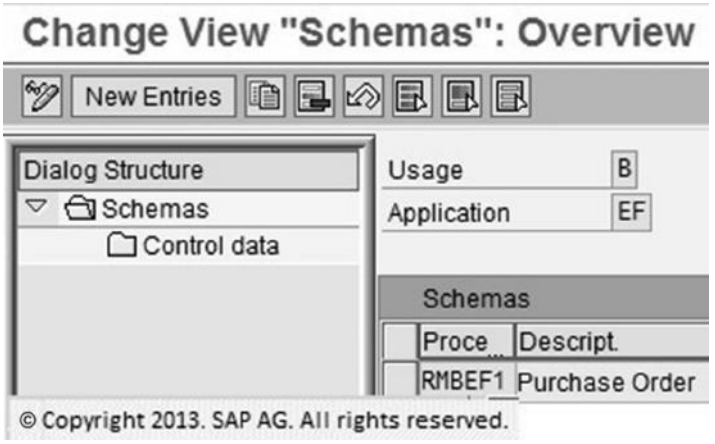
Define Message Schemas for RFQ

You can create a message schema for RFQ documents by linking condition type with document type (rejection, dunning, scheduling line, etc.) and giving priority to this combination.



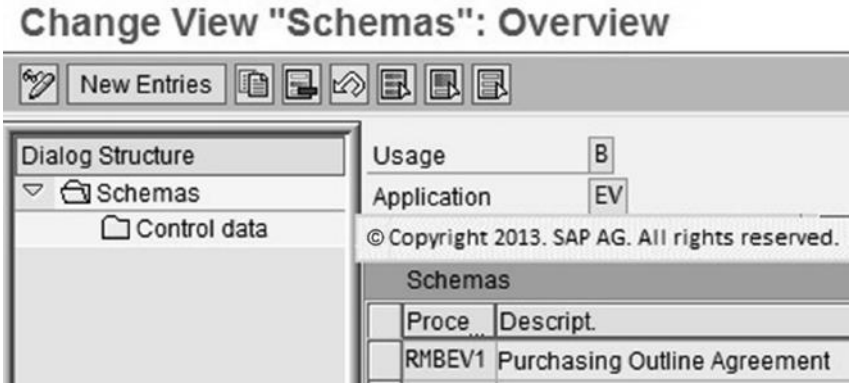
Define Message Schemas for Request for PO

You can create a message schema for PO documents by linking condition type with document type (material label, dunning, scheduling line, etc.) and giving priority to this combination.



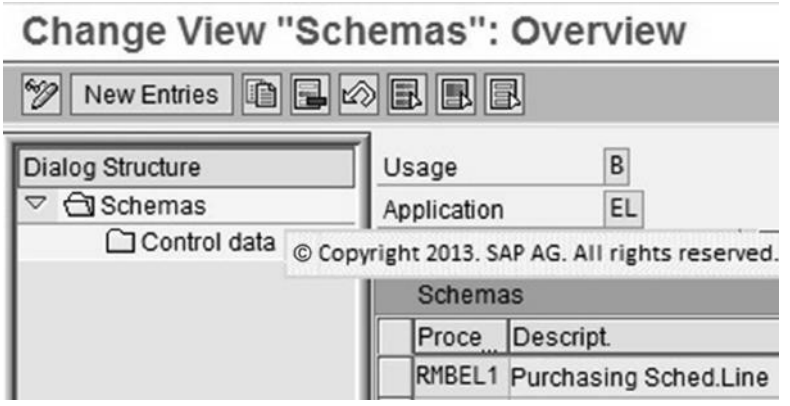
Define Message Schemas for Request for Outline Agreement

You can create a message schema for outline agreements documents by linking condition type with document type (distributed contract, dunning, scheduling line, etc.) and giving priority to this combination.



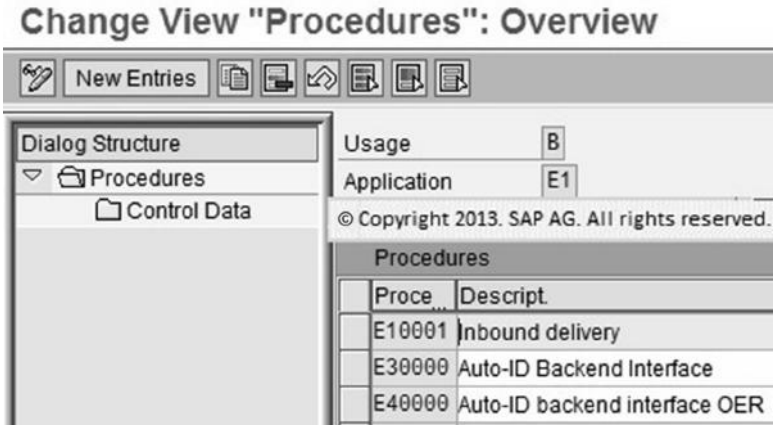
Define Message Schemas for Request for Scheduling Agreement Release

You can create a message schema for scheduling agreement documents by linking condition type with document type (forecast, firmed, scheduling line, etc.) and giving priority to this combination.



Define Message Schemas for Inbound Delivery

You can create a message schema for inbound delivery documents by linking condition type with delivery type (count list, delivery information, unloading, etc.) and giving priority to this combination.

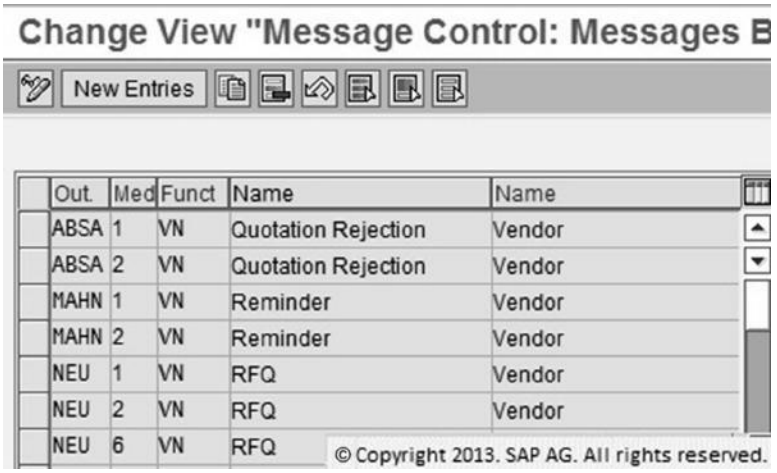


Partner Roles per Message Type

Menu path: SPRO → IMG → Materials Management → Purchasing → Messages → Output Control → Partner Roles per Message Type

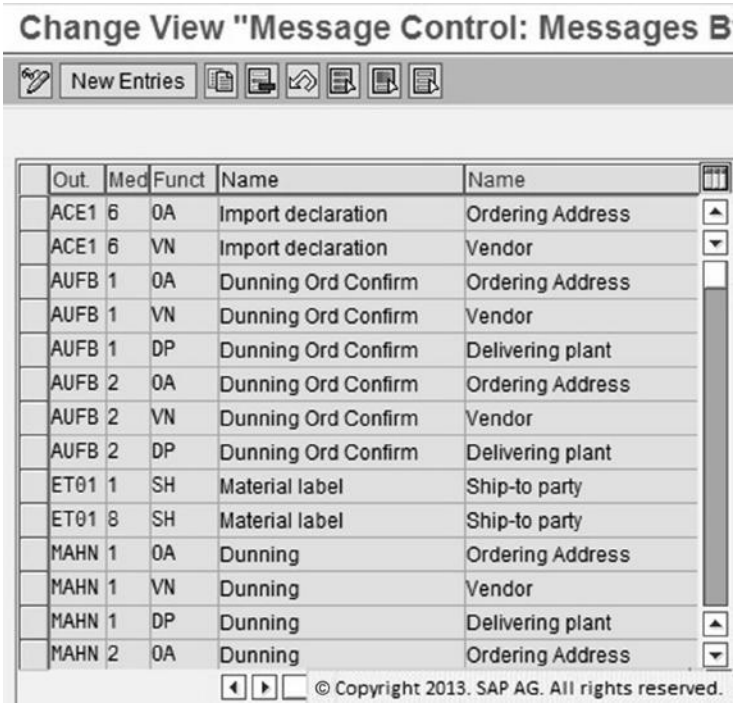
Define Partner Roles for RFQ

Partner roles can be linked to condition types available for RFQs.



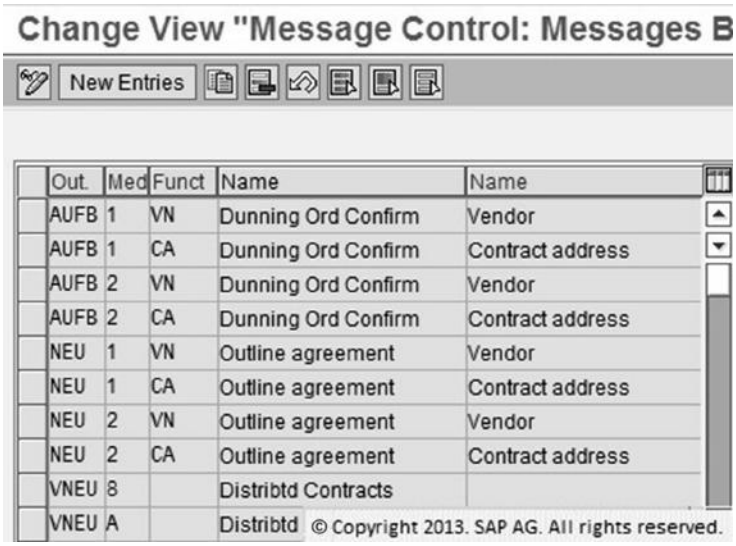
Define Partner Roles for Request for PO

Partner roles can be linked to condition types available for POs.



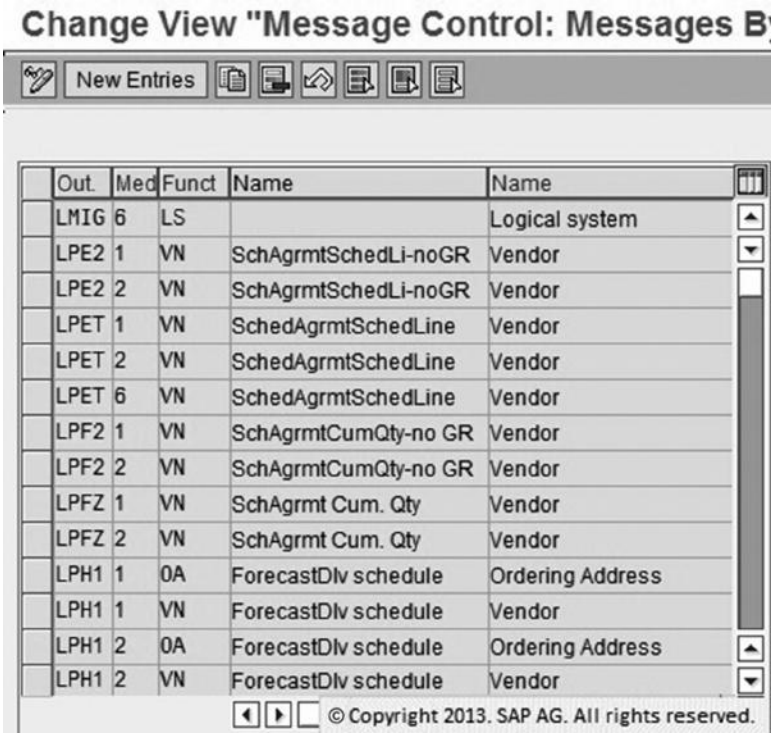
Define Partner Roles for Request for Outline Agreement

Partner roles can be linked to condition types available for outline agreements.



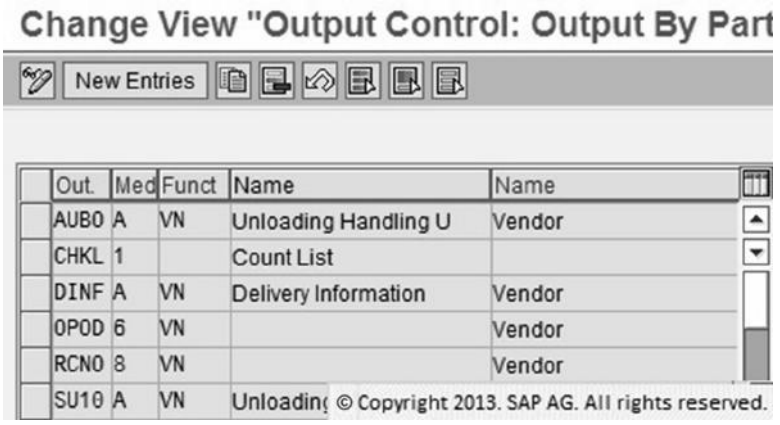
Define Partner Roles for Request for Scheduling Agreement Release

Partner roles can be linked to condition types available for scheduling agreements.



Define Partner Roles for Inbound Delivery

Partner roles can be linked to condition types available for inbound deliveries.

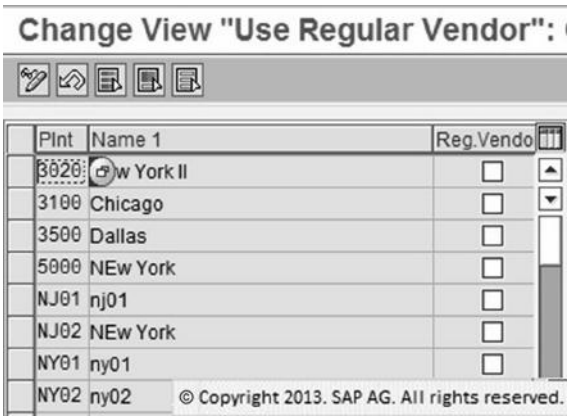


Source Determination

Menu path: SPRO → IMG → Materials Management → Purchasing → Source Determination

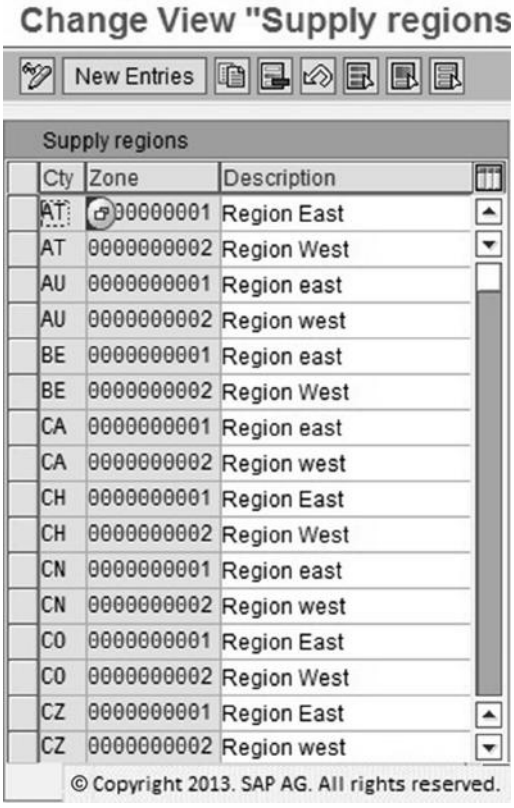
Define Regular Vendor

For each plant in your company, you can define a regular or default vendor. This vendor will be automatically selected on purchase documents whenever a purchase is made for that particular plant.



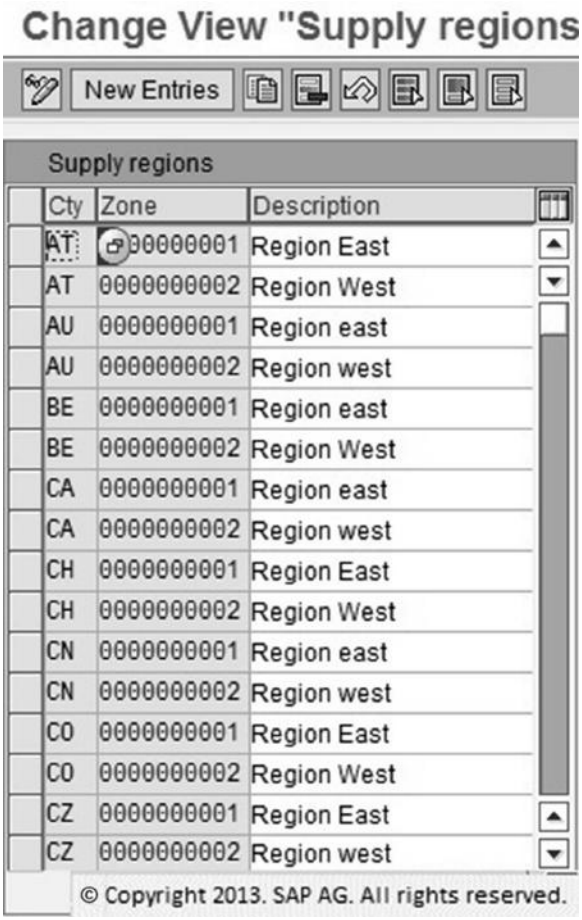
Define Supply Regions

You can define the supply regions for each vendor. The vendor will be selected for plants that appear in the supply region.



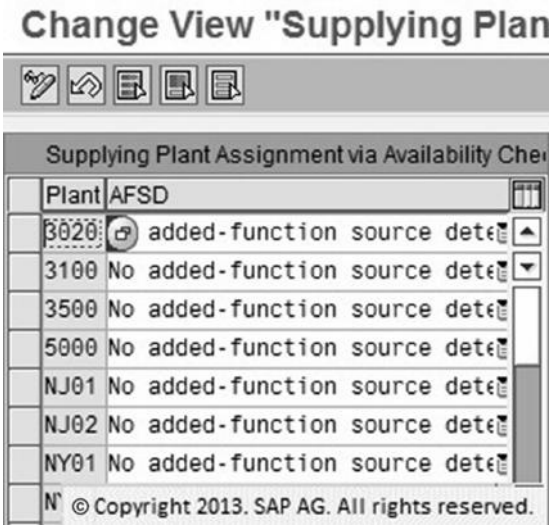
Assign Plants to Supply Regions

You can assign plants to supply regions. All of their purchasing requirements will be met from the selected supplying region.



Set Up Determination of Supplying Plant via Availability Check

If no source is defined for a plant and material is available at the supplying plant, the requirement can be fulfilled from this supplying plant.



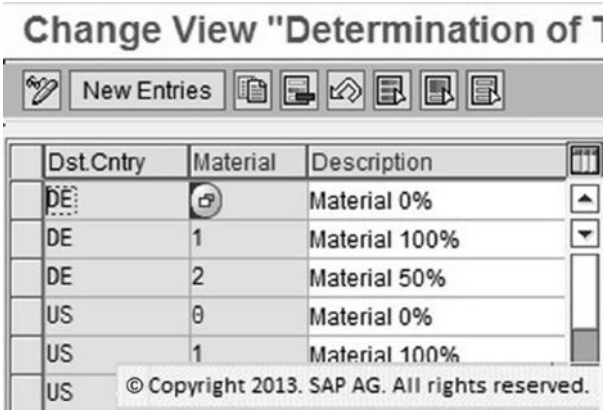
Taxes

Price of materials and services include applicable taxes. The taxes that will be applicable to a purchase are determined by the location of the vendor and the plant.

Menu path: SPRO → IMG → Materials Management → Purchasing → Taxes

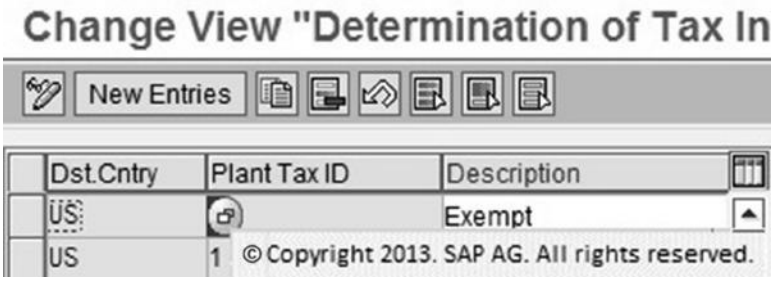
Set Tax Indicator for Material

You can set the indicator for tax for a material. For each material, you can define the tax rate depending on the country or region of destination.



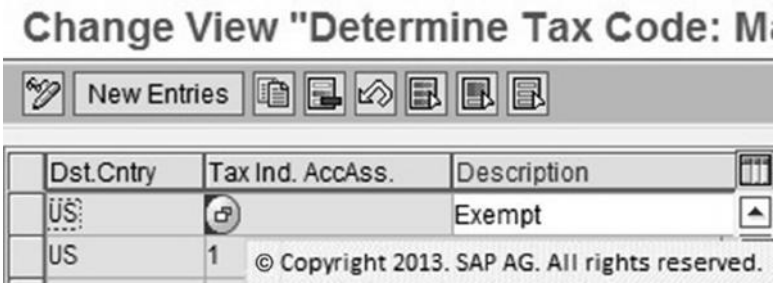
Set Tax Indicator for Plant

Depending on the region of country where a plant is located, the tax rate can be set.



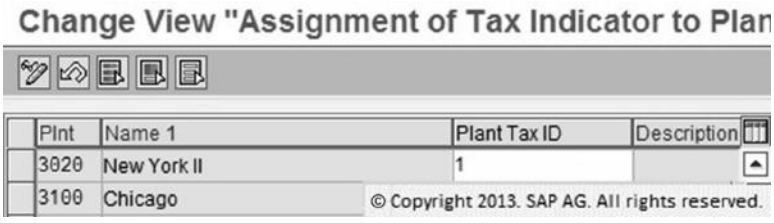
Set Tax Indicator for Account Assignment

When an account assignment category is defined for a purchase, you can set the corresponding tax rate.



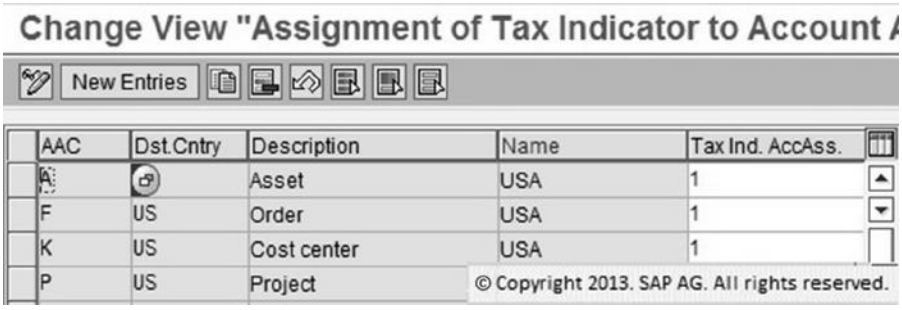
Assign Tax Indicator for Plant

The defined tax indicator can now be assigned to the plant in this activity.



Assign Tax Indicator for Account Assignment

The defined tax indicator can now be assigned to the account assignment category in this activity.



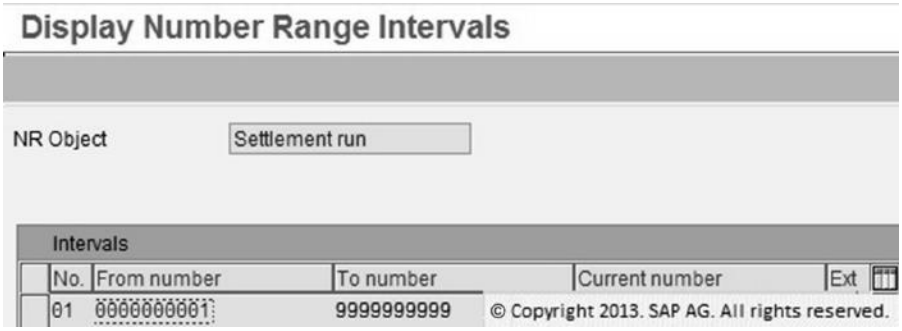
Subsequent Settlement

In SAP, subsequent settlement is a term used for cash rebates at the end of a promotion period.

Menu path: SPRO → IMG → Materials Management → Purchasing → Subsequent (End of Period) Settlement

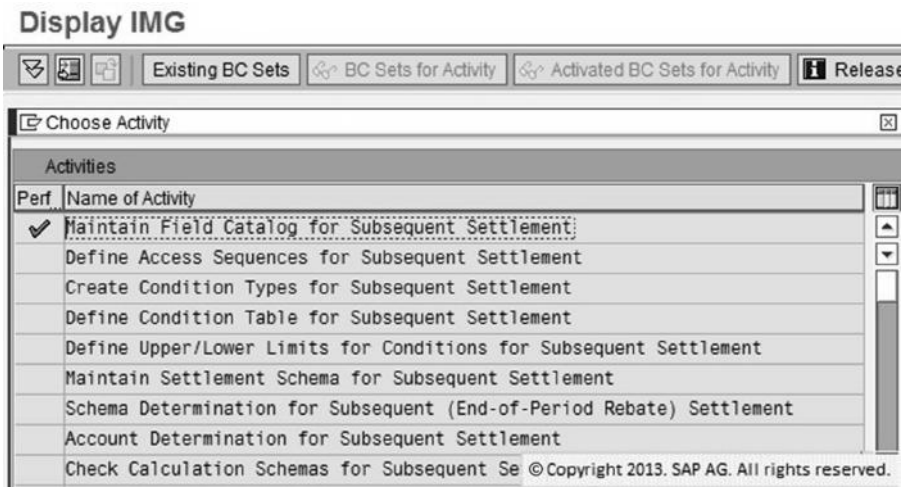
Define Number Ranges

Subsequent settlements can be managed internally when the system generates an automatic number and assigns this number to the subsequent settlement. External numbers can also be assigned to subsequent settlements. You can define the number ranges for both internal and external numbers.



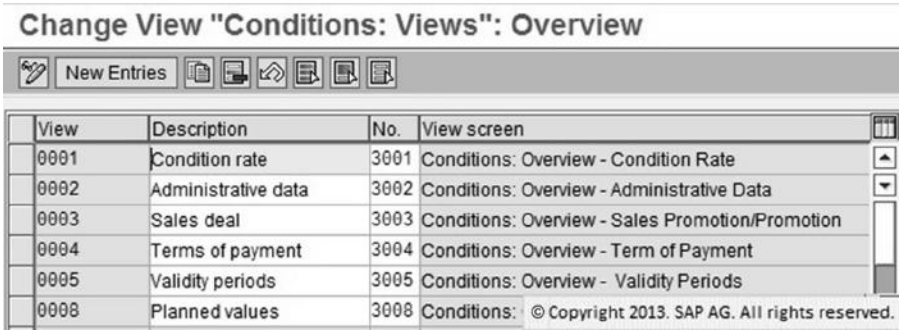
Set Up Condition Techniques for Subsequent Settlement

You can create a condition technique for subsequent settlements. You need to maintain a field catalog, define access sequence, create condition types, define condition table, define upper/lower limits for conditions, and maintain settlement schema, schema determination, and account determination.



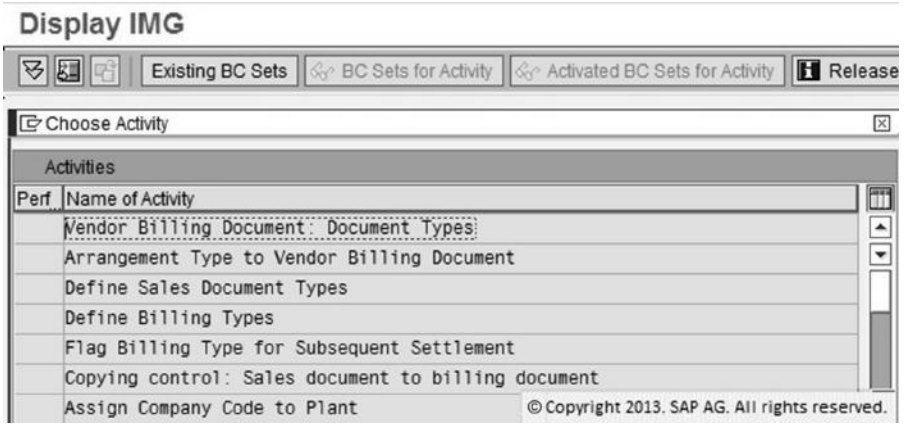
Define Overview Condition for Subsequent Settlement

You can create views for conditions for subsequent settlement. Some condition overviews include condition rate, sales promotion, term of payment, and so on.



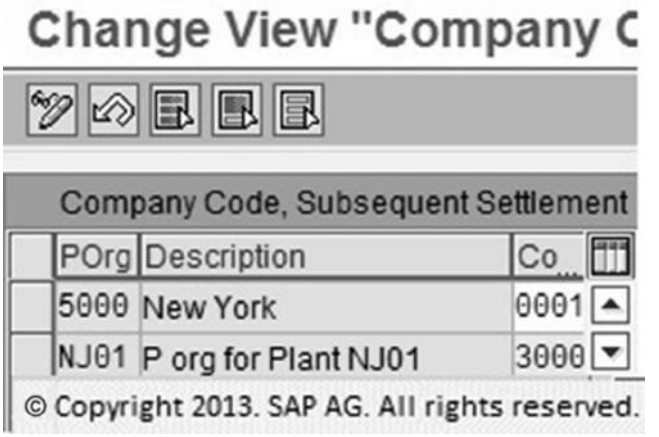
Control of the Subsequent Settlement Process

There are a lot of activities to define the control of subsequent settlement process. You need to define the document types for vendor billing, create the arrangement type for vendor billing document, define the sales document types, define the billing types, flag the billing types for subsequent settlement, copy the control for sales documents to billing documents, and assign the company code to plants.



Maintain Company Code for Subsequent Settlement at Purchasing Organization Level

Purchase organization needs to be linked to the company code for subsequent settlement.



Maintain Residence Time for Archiving

An archiving rule is created to find out the following: for how long closed subsequent settlement documents need to be kept in the live system and how these documents need to be archived.

Agreements

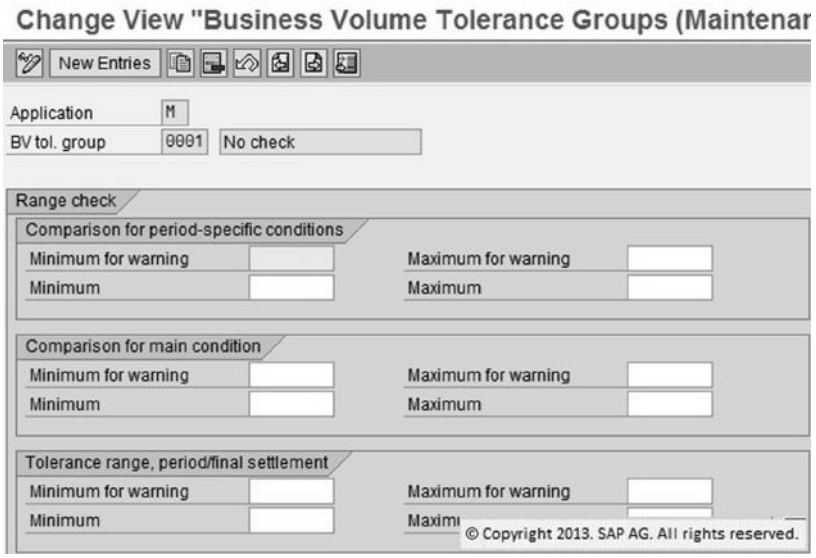
Menu path: SPRO → IMG → Materials Management → Purchasing → Subsequent (End of Period) Settlement → Agreements

Maintain Calendar for Rebate Arrangements

You can use standard calendars available in the system for rebate arrangement.

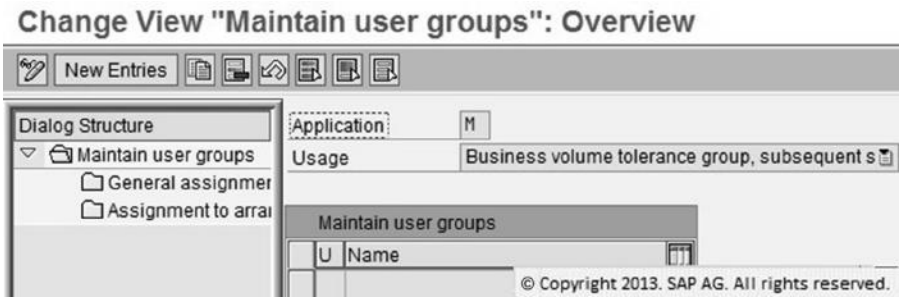
Define Business Volume Tolerance Groups

For long-term agreements with vendors, you can define the minimum and maximum business volumes per agreement period to make sure that vendors are delivering as per agreements.



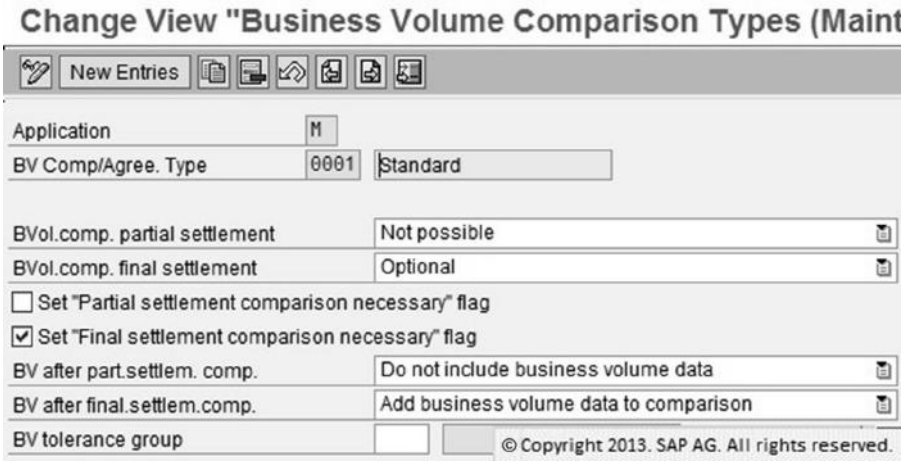
Maintain User Groups and Assign Business Volume Tolerance Groups

For each defined business volume tolerance group, you can maintain user groups.



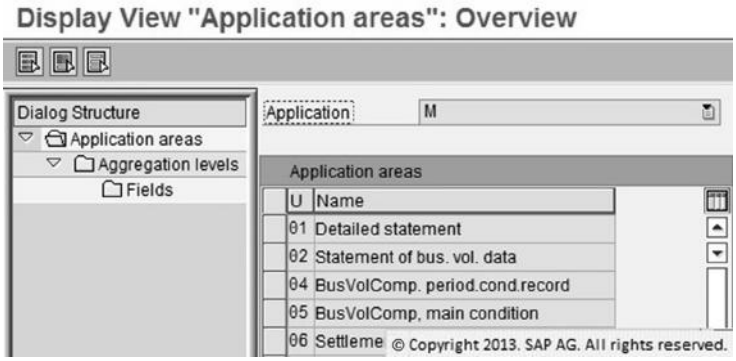
Define Business Volume Comparison Type

Business volumes for each vendor can be compared with desired business volume or with business volume with other vendors.



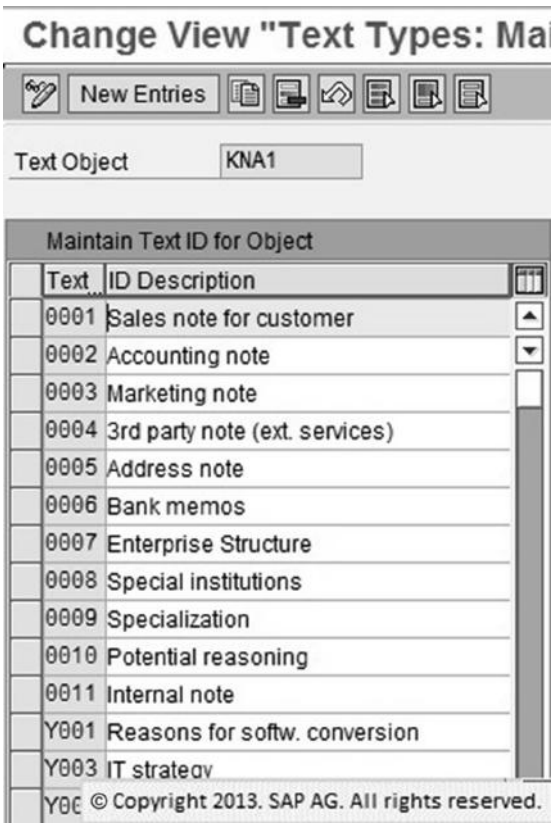
Maintain Aggregation Level and Sort Sequence

You can set aggregation levels for business volumes and also create a sorting rule to compare business volumes of different vendors.



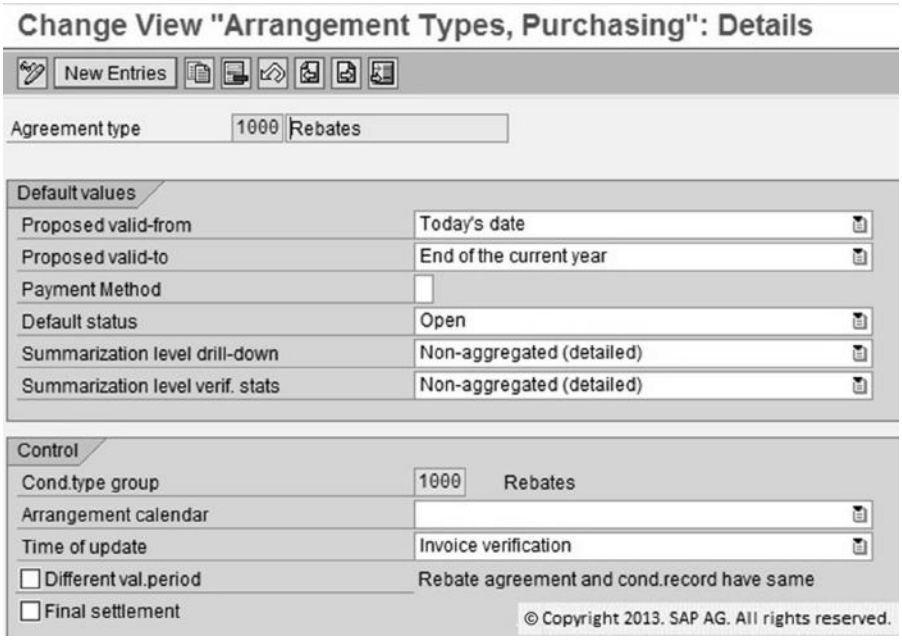
Define Text Types

You can define various types of texts for subsequent settlements at header, item, material, and so on levels for info records, pricing conditions, sales documents, and so on.



Define Rebate Agreement Types for Subsequent Settlement

You can define and fine-tune various types of rebate agreements for subsequent settlements.

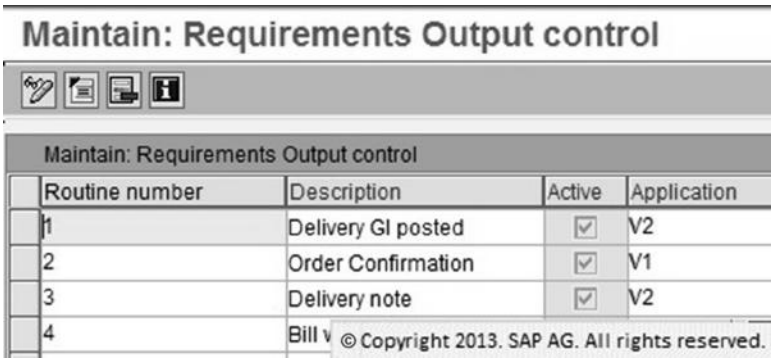


Output Determination

Menu path: SPRO → IMG → Materials Management → Purchasing → Subsequent (End of Period) Settlement → Output Determination

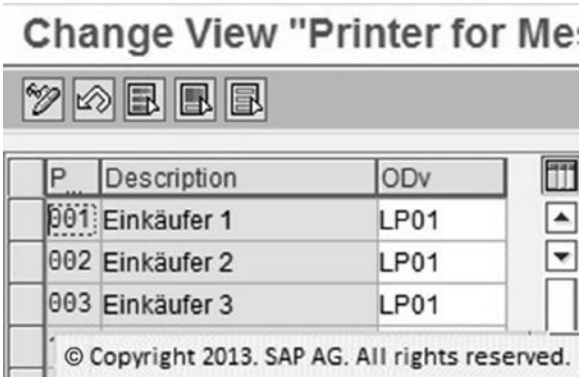
Define Requirements

You can define the requirements for output determination by linking application area (cost center, ship to party, customers, etc.) to routine or document type (delivery note, contract, order confirmation, etc.).



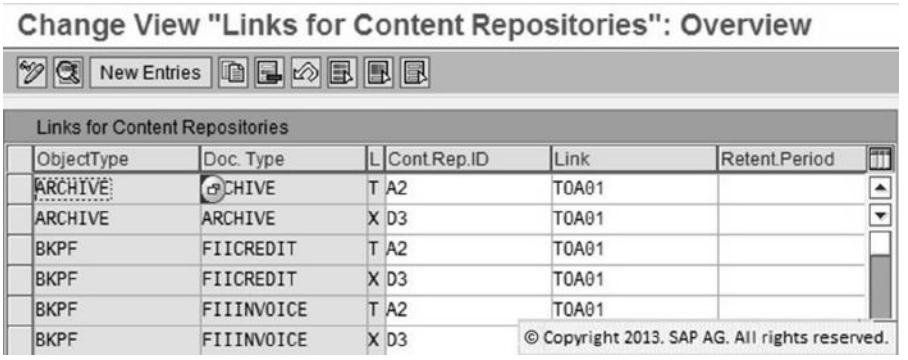
Assign Output Devices and Printer Parameters

In this IMG activity, you can define your printers and output devices that will be used for printing or display of purchase documents.



Storing Printouts

Scanned copies of printouts or a copy of transmitted documents needs to be stored in the system. In this IMG activity, you can define the folder structure and document types for which they need to be stored in the system.

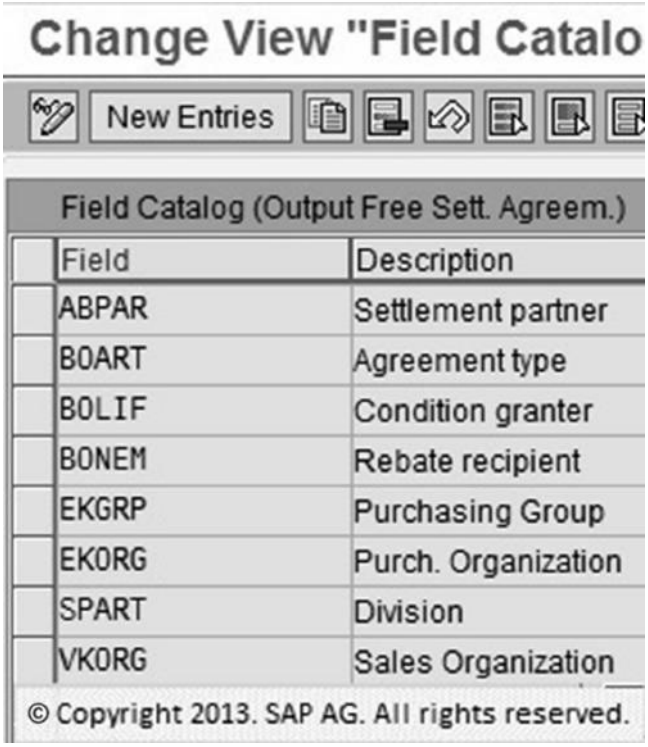


Message Determination for Rebate Arrangement

Menu path: SPRO → IMG → Materials Management → Purchasing → Subsequent (End of Period) Settlement → Output Determination → Maintain Message Determination for Rebate Arrangement

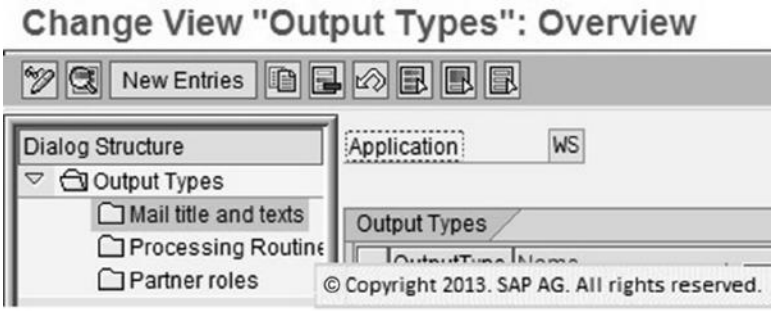
Maintain Condition Tables

In the condition table, you maintain a condition schema for rebate arrangement and a field catalog of messages for rebate arrangement.



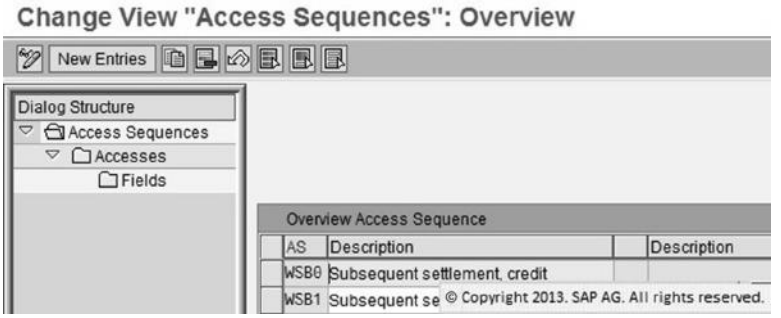
Maintain Message Types

You create message types for partner roles, material, and routine (document types).



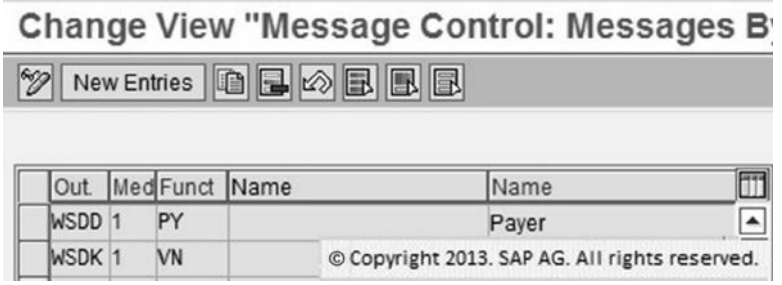
Maintain Access Sequence

You need to maintain access sequence for all subsequent settlement (a settlement arrangement for periodic invoice settlement) credit and debit.



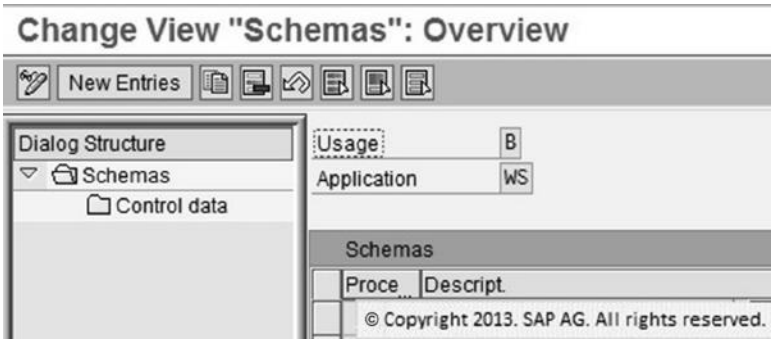
Assign Partner Roles to Message Types

Partner roles are assigned to partner functions (approver, shipping point, vendor hierarchy, customer hierarchy, etc.).



Maintain Message Determination Schema

Message determination schema connects message usage (pricing, output, account determination, rebate, material determination, etc.) to application (cost centers, customers, vendors, ship to party, etc.) and control data in procedures for subsequent settlement.

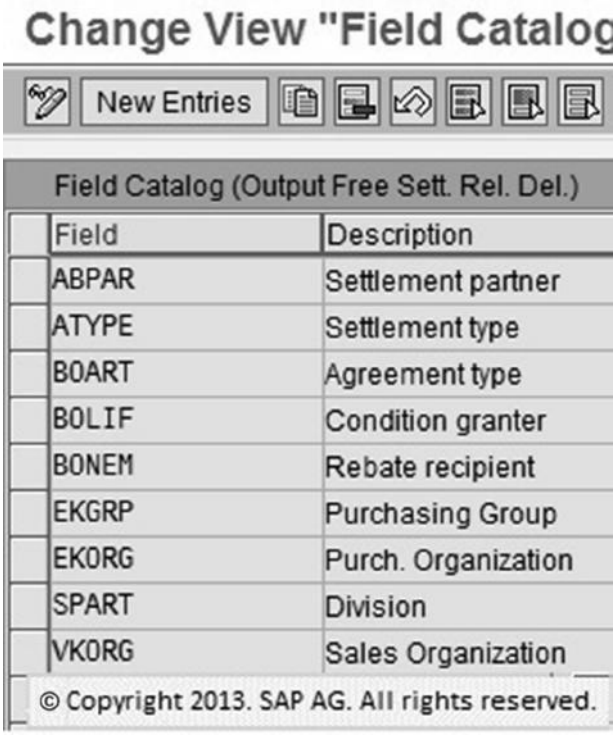


Message Determination for Settlement Run

Menu path: SPRO → IMG → Materials Management → Purchasing → Subsequent (End of Period) Settlement → Output Determination → Maintain Message Determination for Settlement Runs

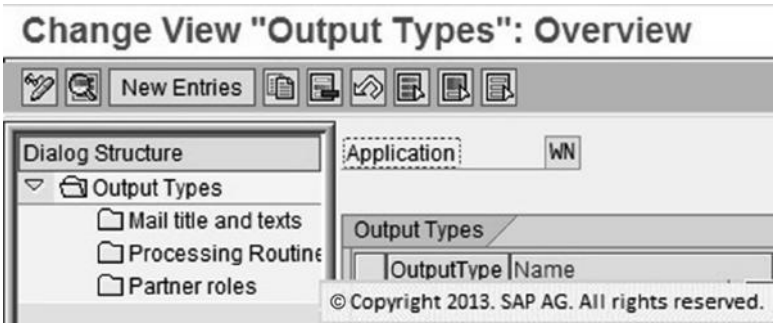
Maintain Condition Tables

Similar to maintain message determination for rebate processing, you need to create condition tables for message determination for actual settlement run.



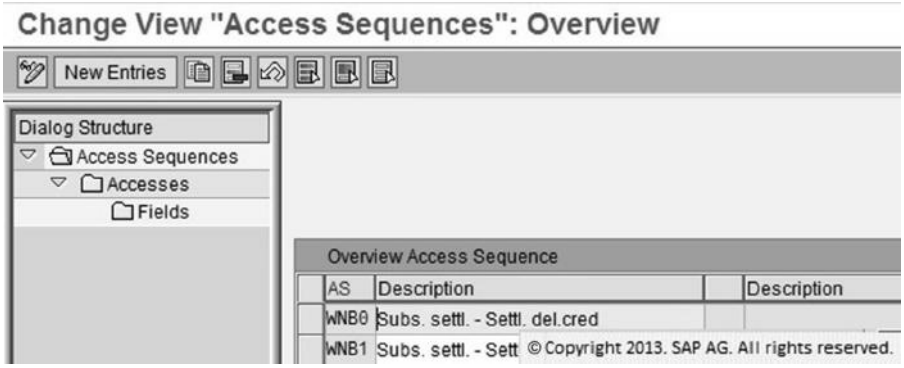
Maintain Message Types

Message types for subsequent settlement runs by combining partner roles, routines, and so on with application.



Maintain Access Sequence

Access sequence for settlement run is similar to the one for rebate arrangement.



Assign Partner Roles to Message Type

Assigning partner roles for settlement run are similar to the one for rebate arrangement.

Note

Purchasing is one of the most comprehensive subjects in SAP. The customizing section itself is vast and covering all of the topics in purchasing customizing is next to impossible. I have tried to cover as many topics as possible in this chapter.

Chapter 9

SAP MM Customizing—Inventory Management

Introduction

Inventory management and physical inventory part of materials management in SAP have many important functions that are used extensively. The main components of inventory management are goods issue, goods receipt (GR), reservation, sampling, stock overview, movement types, and so on.

In this chapter, we will see the customization part of valuation, account assignment, account determination, and so on, although they are separate from inventory management.

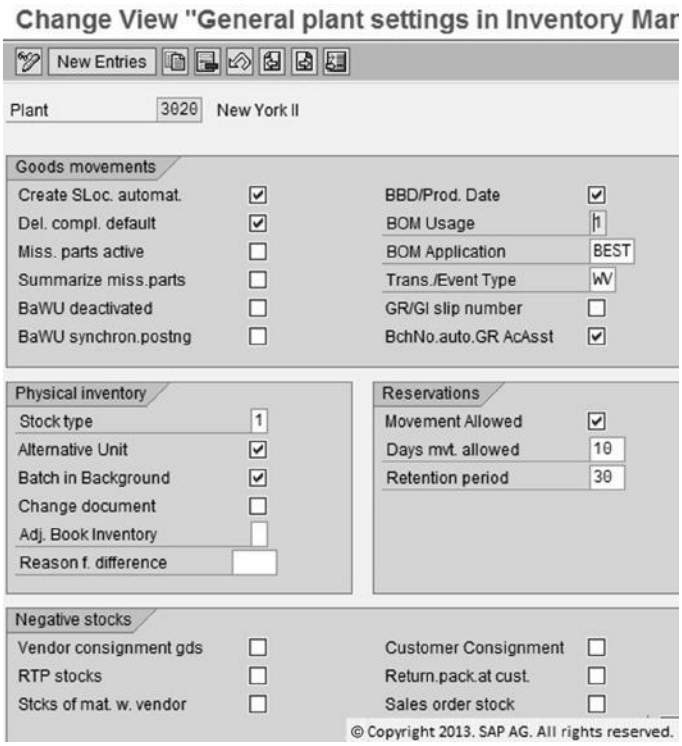
General Settings

General settings for inventory management include plant parameter setup, message setup, field selection setup for inventory screens, inventory management document archiving setup, number range setup for inventory documents, and so on.

Menu path: SPRO → IMG → Materials Management → Inventory Management and Physical Inventory

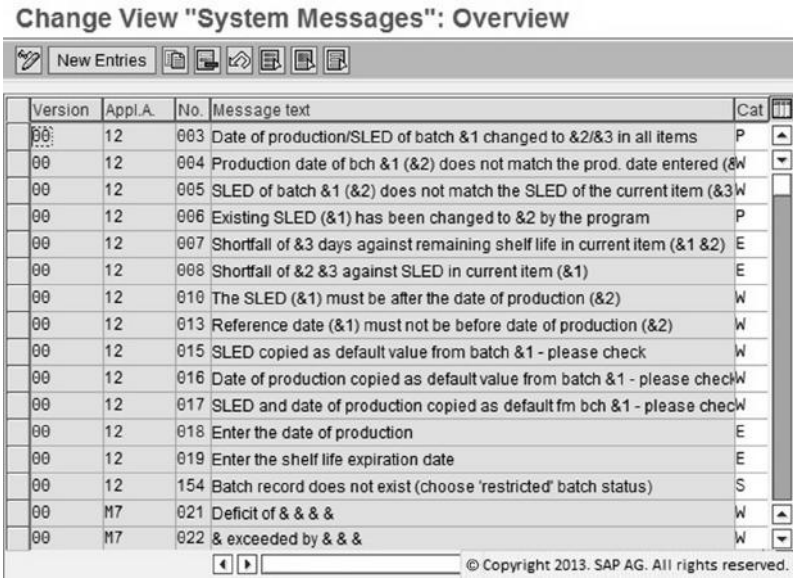
Plant Parameters

Many settings need to be done related to inventory management for each plant in your company organization. These settings are very important as they influence the behavior of inventory management functions for each plant. Some of the settings required to be done for each plant include automatic creation of storage locations, missing parts, automatic GR account assignment, negative stocks allowed, movement types allowed, and so on.



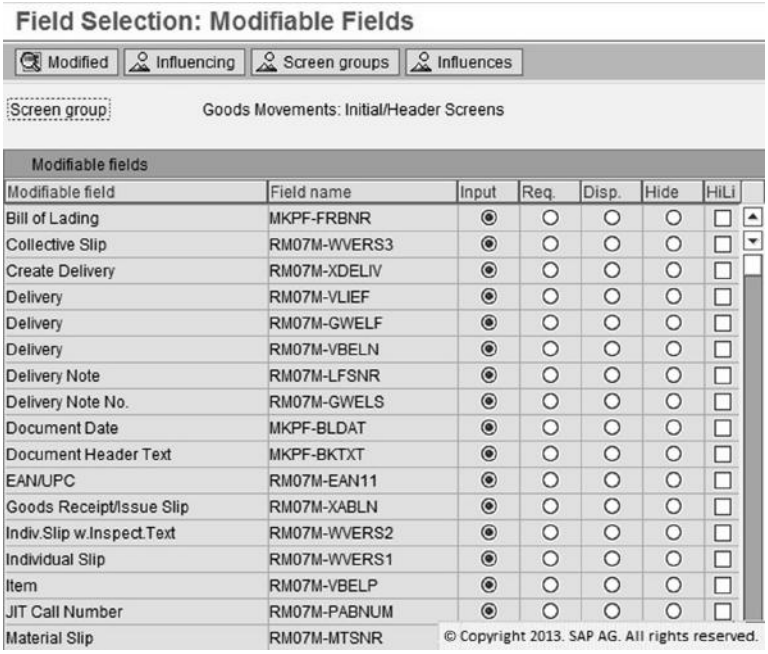
Define Attributes of System Messages

It is very important to set up system messages for taking care of the errors encountered during transactions related to inventory management. You will set up errors and warning messages for various inventory management transactions here.



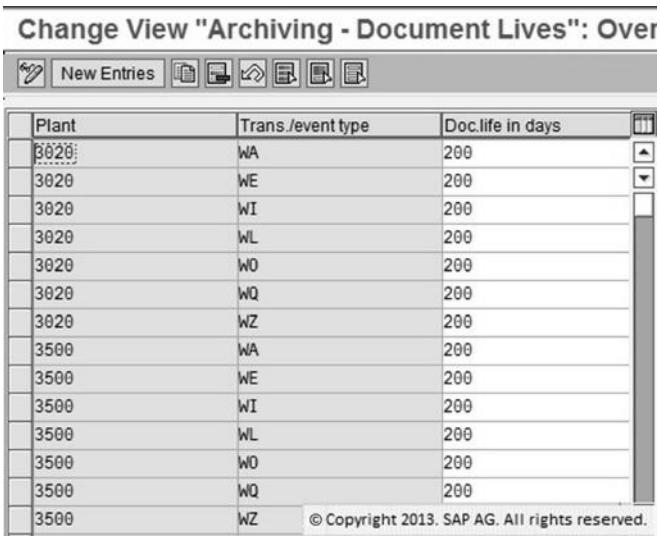
Field Selection for Goods Movement Initial/Header Screens

In this IMG activity, you will set up field selection for initial/header screens for create delivery, bill of lading, GR, goods issue, reservation, and so on.



Define Document Life

Inventory management documents such as material document, financial document, GR, goods issue, reservation, and so on need to be archived after they get closed. You will create archiving rules for these documents here.

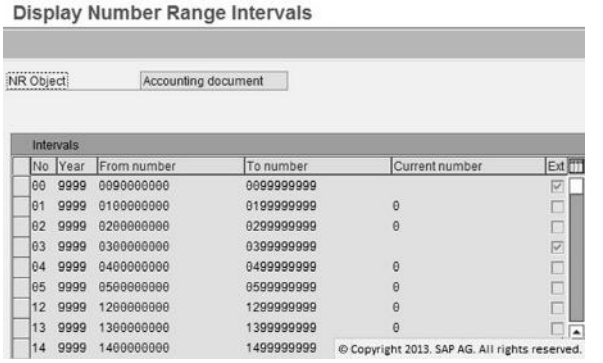


Number Assignment

Menu path: SPRO → IMG → Materials Management → Inventory Management and Physical Inventory → Number Assignment

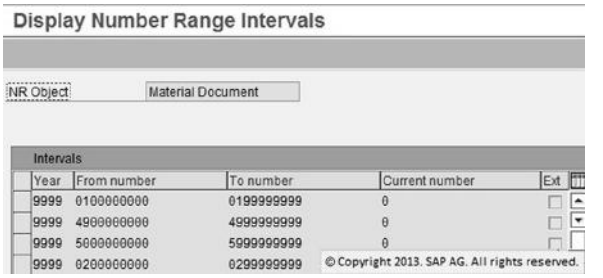
Define Number Assignment for Accounting Document

You can manage accounting document by assigning external numbers or internally generated numbers. You can create and maintain the number ranges for both external and internal number ranges.



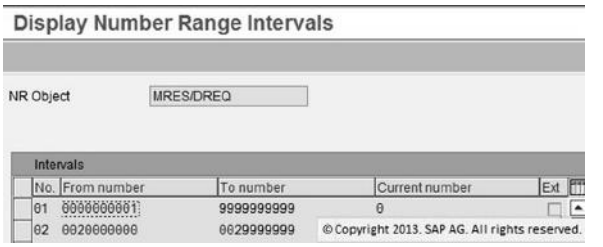
Define Number Assignment for Material and Physical Inventory Documents

You can manage material and physical inventory document by assigning external numbers or internally generated numbers. You can create and maintain the number ranges for both external and internal number ranges.



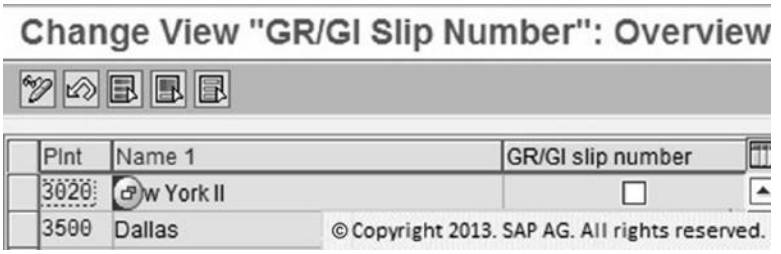
Define Number Assignment for Reservations

You can manage reservation document by assigning external numbers or internally generated numbers. You can create and maintain the number ranges for both external and internal number ranges.



Define Number Assignment for Goods Receipts/Issue Slips

You can manage GR/goods issue document by assigning external numbers or internally generated numbers. You can create and maintain the number ranges for both external and internal number ranges.

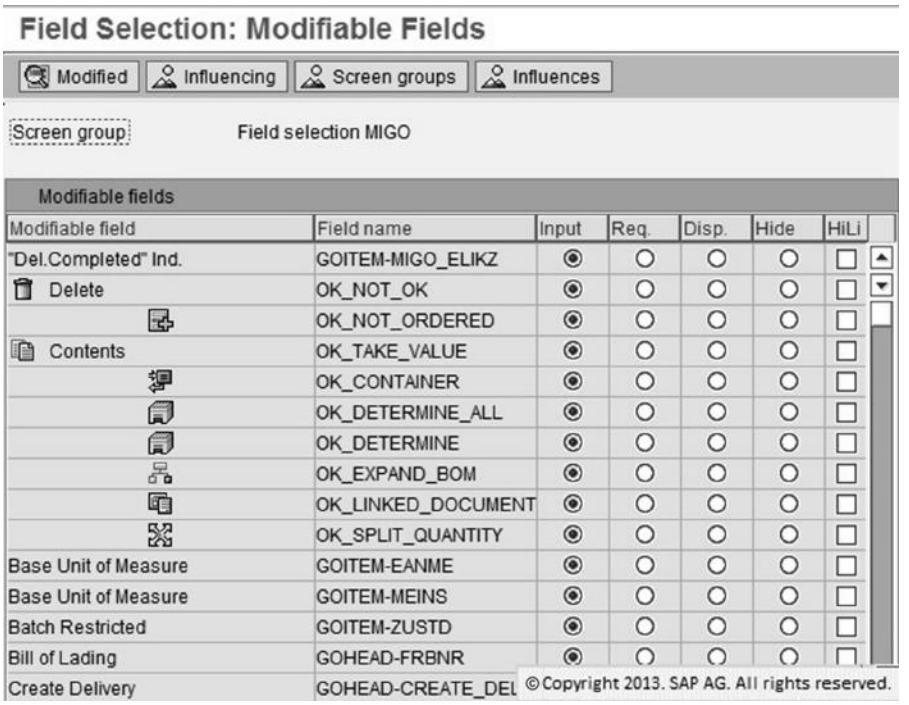


Goods Movement Settings

Menu path: SPRO → IMG → Materials Management → Inventory Management and Physical Inventory → Settings for Enjoy Transactions → Settings for Goods Movements

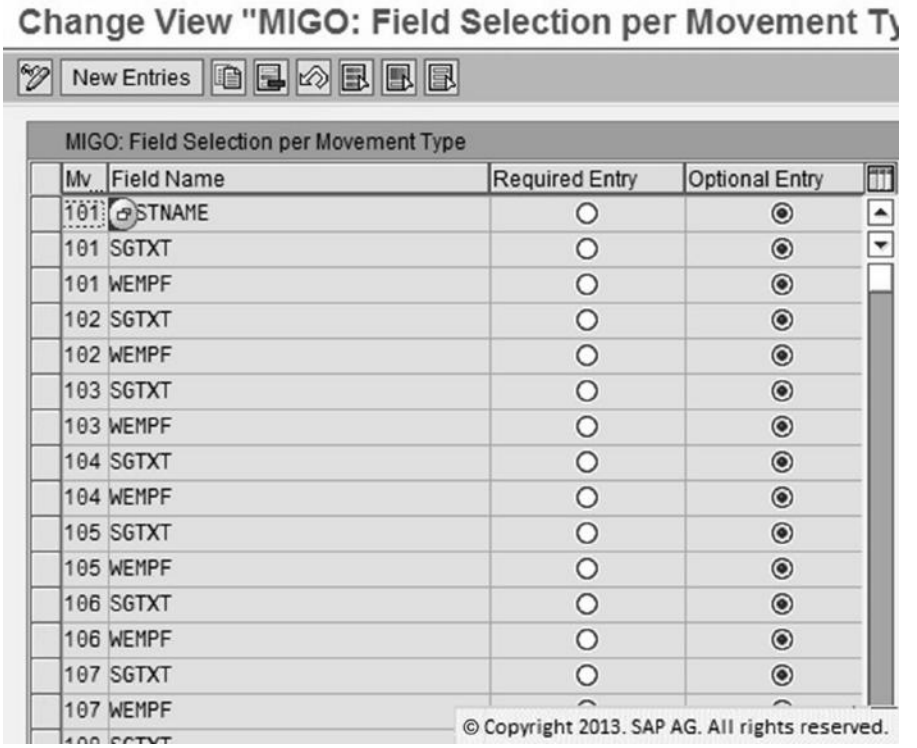
Field Selection for MIGO

MIGO screen is used for all kinds of movement types, especially for goods issue/GR transactions. In this IMG activity, you can change the MIGO screen as per your requirement.



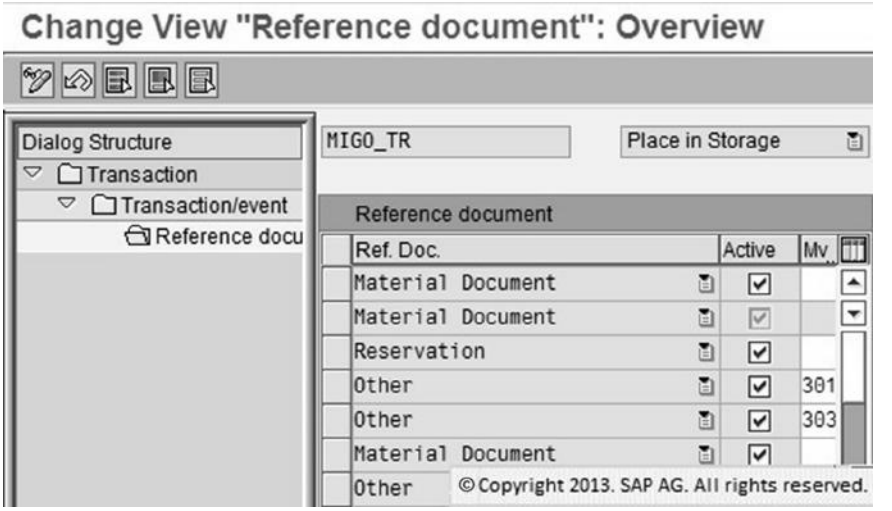
Field Selection per Movement Type

In this screen, for each movement type, you can set the MIGO screen by changing/setting fields as per your requirement.



Settings for Transactions and Reference Documents

For each MIGO transaction, you can set the reference document used/required.



Goods Issue/Transfer Posting

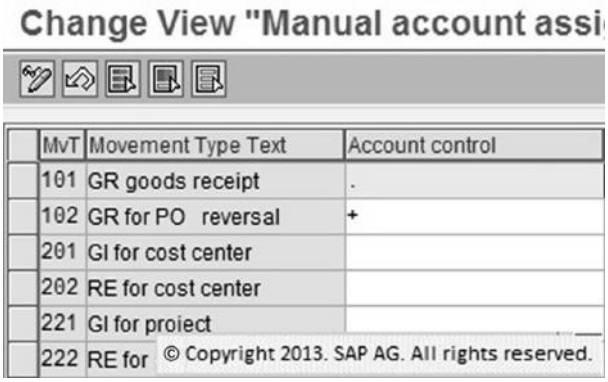
Menu path: SPRO → IMG → Materials Management → Inventory Management and Physical Inventory → Goods Issue/Transfer Posting

Create Storage Location Automatically

For each plant or movement type, you can set the storage locations can be created automatically.

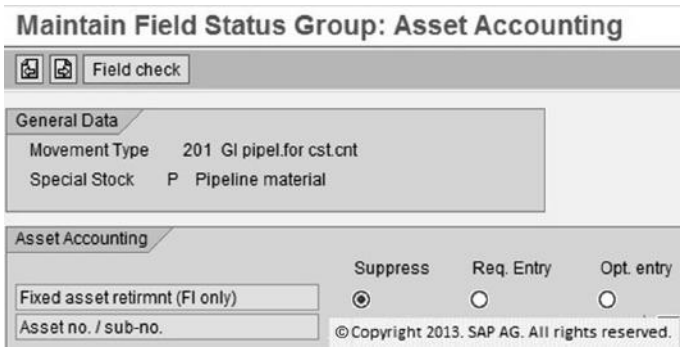
Set Manual Account Assignment

For each movement type, you can control the account assignment is to be done automatically or to be set manually.



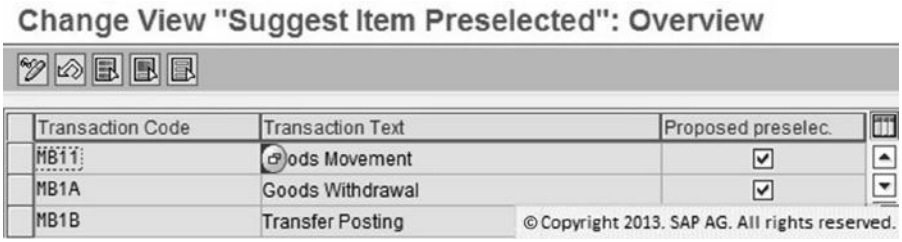
Define Screen Layout

For each kind of inventory management transaction, you can set the screen layout by changing field attributes.



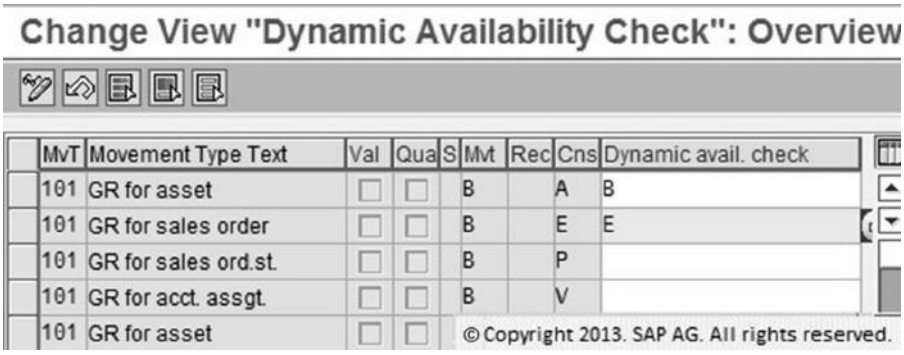
Maintain Copy Rules for Reference Documents

For each inventory management transaction, you can set the copying rules for copying the data of reference documents to screen elements.



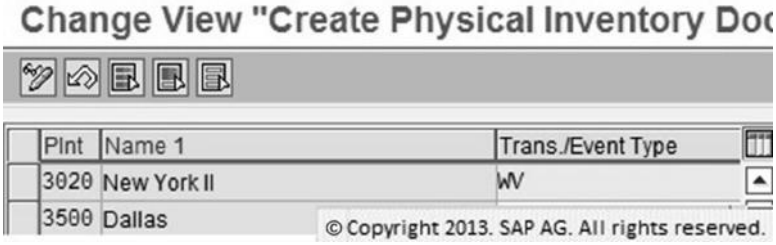
Set Up Dynamic Availability Check

For each movement type, you can set the availability check that is to be done automatically.



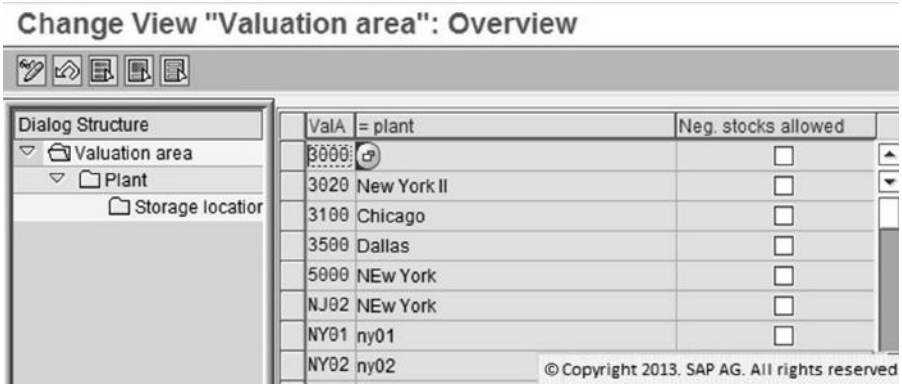
Generate Physical Inventory Documents for Goods Movements

For each plant or movement type, you can set the physical inventory document that is generated whenever any goods movement happens.



Allow Negative Stocks

Negative stocks are helpful when a GR is done after actual arrival of goods, and at the same time, you need to issue goods. Even though you have goods in stock, it is not shown in stock balances. In these circumstances, you should allow negative stocks.

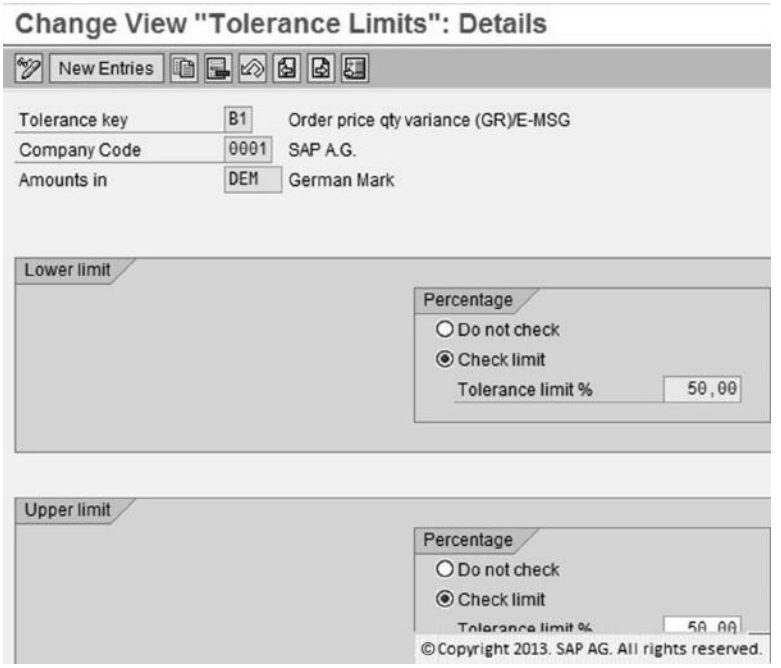


Goods Receipt

Menu path: SPRO → IMG → Materials Management → Inventory Management and Physical Inventory → Goods Receipt

Set Tolerance Limits

Many times, vendors send materials in quantities that do not match with the quantity mentioned on purchase order (PO). To receive goods in these circumstances, we need to set tolerance limits for under and over delivery. If goods received in quantities that are within these tolerance limits, the goods should be allowed to be received.

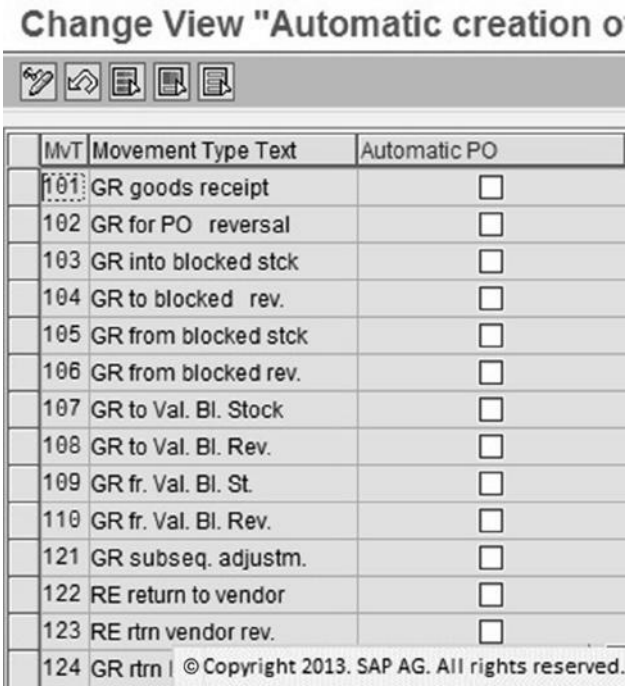


Create Storage Location Automatically

In the system, you define storage locations for various materials. Sometimes a new material that is received will have no defined storage location. In such cases, you either have to create the specific storage location manually or let the system to create it automatically.

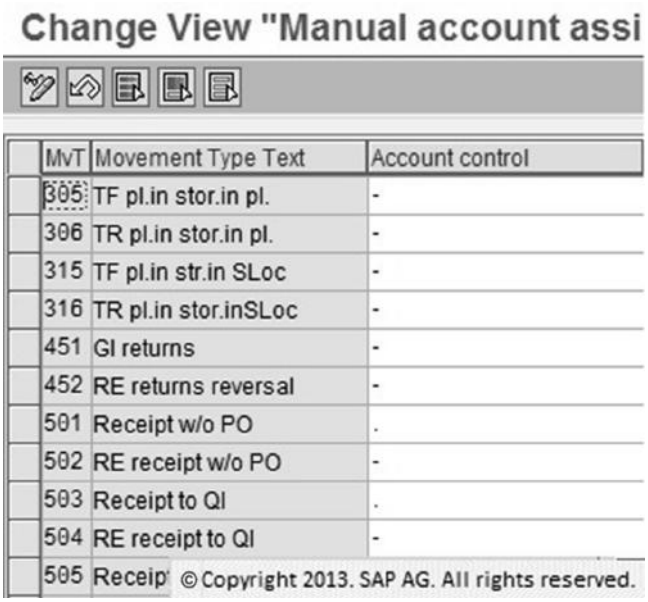
Create PO Automatically

For various goods movements, you can set up the system to create PO automatically. In such a scenario, no manual creation of PO is needed and the system will create PO automatically.



Set Manual Account Assignment

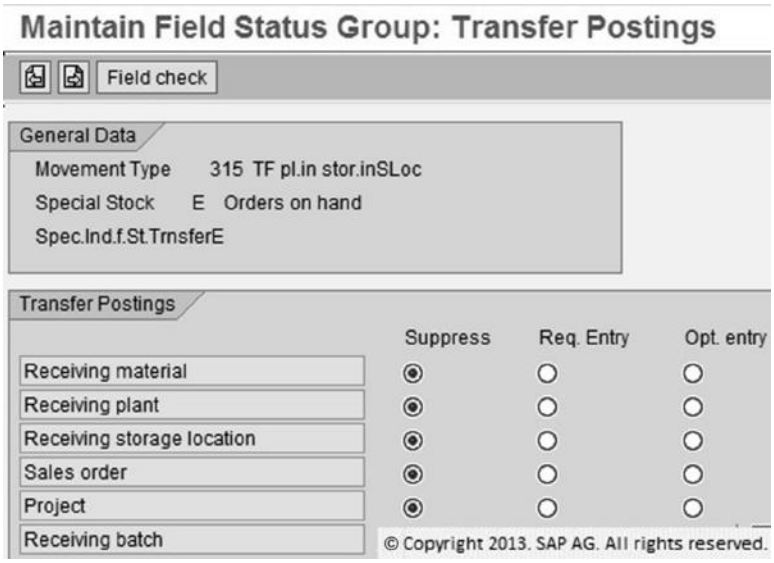
For each movement type, you can set the account assignment as automatic or manual. Automatic account assignment is practical for goods that are stored as well as valuated. Stored goods can have automatic assignment because for both GR and goods issue, there will be distinct movement types to ensure that account assignment is happening correctly. In cases when goods are directly consumed or when goods are stored without valuation, account assignment should be done manually.


Change View "Manual account assi

MvT	Movement Type Text	Account control
305	TF pl.in stor.in pl.	-
306	TR pl.in stor.in pl.	-
315	TF pl.in str.in SLoc	-
316	TR pl.in stor.inSLoc	-
451	GI returns	-
452	RE returns reversal	-
501	Receipt w/o PO	.
502	RE receipt w/o PO	-
503	Receipt to QI	.
504	RE receipt to QI	-
505	Receip	

Define Screen Layout

Screen layout can be changed as per user requirements for all kinds of goods movements.


Maintain Field Status Group: Transfer Postings

Field check

General Data

Movement Type 315 TF pl.in stor.inSLoc

Special Stock E Orders on hand

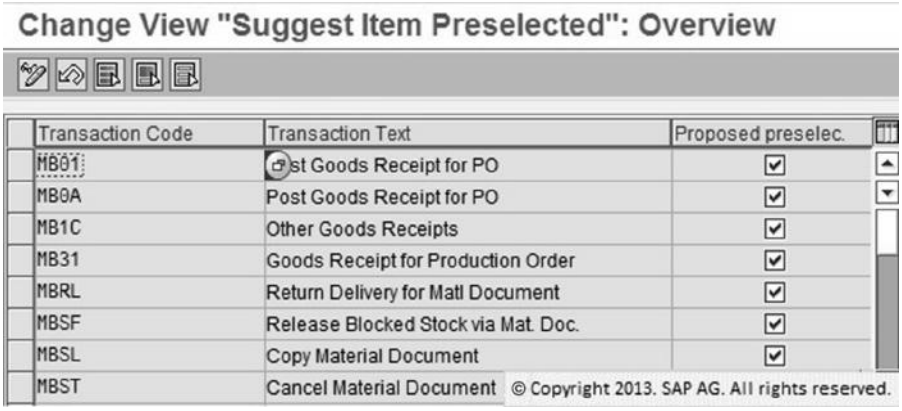
Spec.Ind.f.St.TrnsferE

Transfer Postings

	Suppress	Req. Entry	Opt. entry
Receiving material	◉	○	○
Receiving plant	◉	○	○
Receiving storage location	◉	○	○
Sales order	◉	○	○
Project	◉	○	○
Receiving batch			

Maintain Copy Rules for Reference Documents

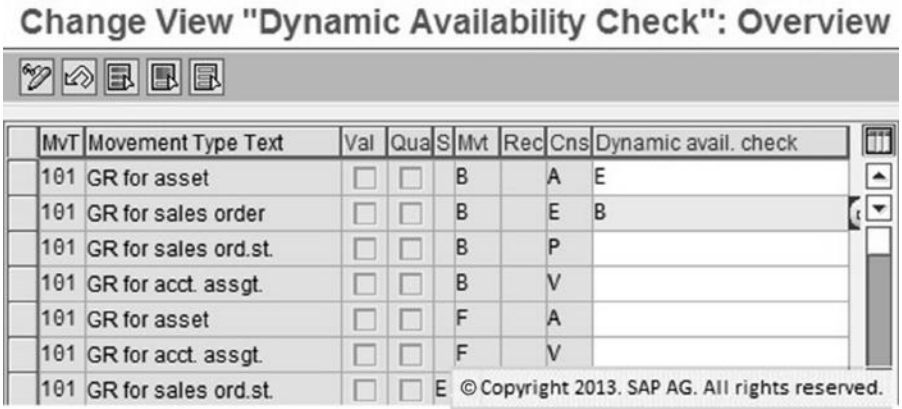
Reference documents are needed for transactions and the data are copied from the reference documents. In this IMG activity, you can do this functionality for each plant.


Change View "Suggest Item Preselected": Overview

Transaction Code	Transaction Text	Proposed preselec.
MB01	st Goods Receipt for PO	☑
MB0A	Post Goods Receipt for PO	☑
MB1C	Other Goods Receipts	☑
MB31	Goods Receipt for Production Order	☑
MBRL	Return Delivery for Matl Document	☑
MBSF	Release Blocked Stock via Mat. Doc.	☑
MBSL	Copy Material Document	☑
MBST	Cancel Material Document	

Set Dynamic Availability Check

For each plant or movement type, you can set dynamic availability check so that the system can check whether the required material is available at any storage location for the goods movement transaction to happen.


Change View "Dynamic Availability Check": Overview

MvT	Movement Type Text	Val	Qua	S	Mvt	Rec	Cns	Dynamic avail. check
101	GR for asset	☐	☐		B		A	E
101	GR for sales order	☐	☐		B		E	B
101	GR for sales ord.st.	☐	☐		B		P	
101	GR for acct. assgt.	☐	☐		B		V	
101	GR for asset	☐	☐		F		A	
101	GR for acct. assgt.	☐	☐		F		V	
101	GR for sales ord.st.	☐	☐	E				

Set Delivery Completed Indicator

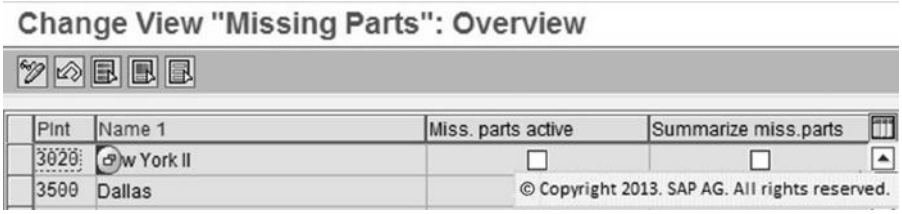
Delivery completed indicator can be automatically set when the total quantity in the GRs becomes equal to the stated material quantity in the PO. In automatic delivery completed indicator, the user does not have to set the delivery completed indicator manually. You can do this functionality for each plant.


Change View "Default: "Delivery-Completed" Indicat

Plant	Name 1	Del. compl. default
3020	w York II	☑
3500	Dallas	

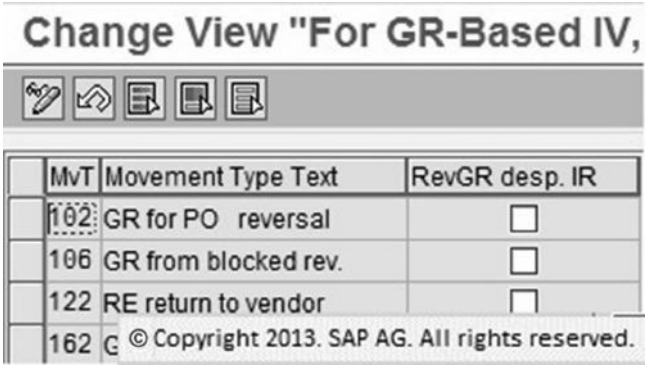
Set Missing Parts Check

When goods are received, they are checked if all pieces of goods are received and no parts are missing. If any parts are missing from the GR compared to shipping note, these missing parts are logged in the system. If missing parts check is enabled for a plant and any parts are found missing in GR, a corresponding PO can be automatically created for them.



For GR-based Invoice Ver. Reversal of GR Despite Invoice

GR-based invoice verification is done in cases where there is more than one GR for a PO. For each movement type, you can decide if GR can be reversed even after invoice verification is done. Goods movement types "GR for PO reversal," "GR from blocked reversal," "return to vendor," and "GR return reversal" can have this option.

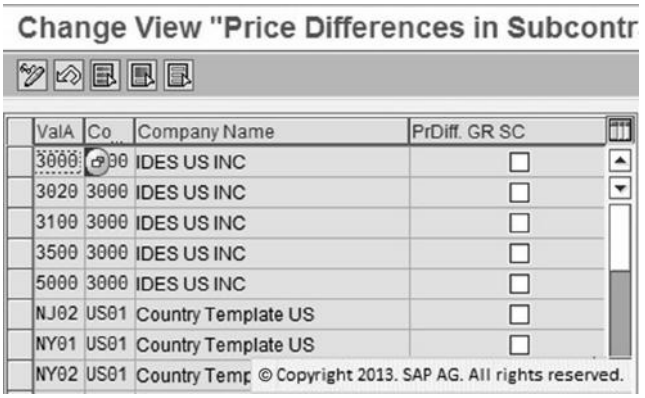


Set Expiration Date Check

Perishable goods have an expiration date. So expiration date check must be enabled for these goods.

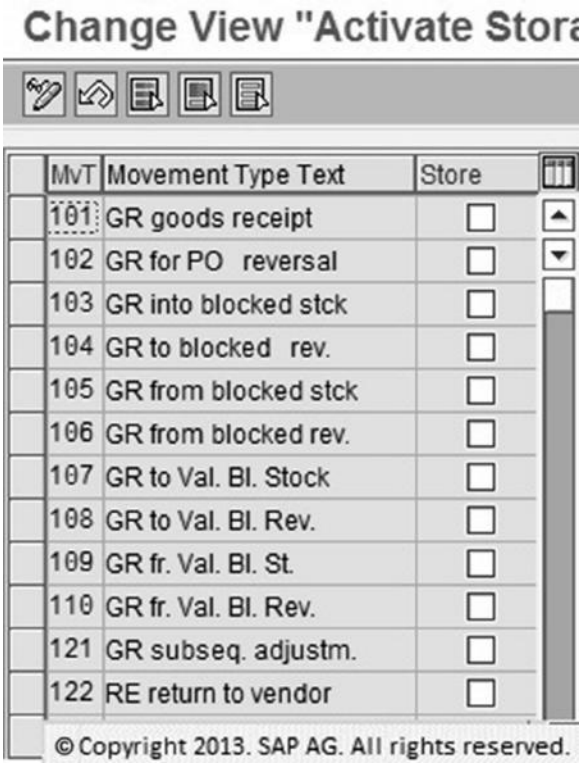
Price Differences for Subcontract Order at Goods Receipt

If the standard price varies for externally performed service (subcontracting service) from the cost of internal manufacturing, this price difference should be reflected in the total cost on the PO and subsequently the GR. Thus, subcontract orders should have this price difference incorporated.



Activate Storage of Incoming Documents

Incoming purchase documents (GRs, GR for PO reversal, GR into blocked stock, GR from blocked stock, etc.) can be stored in the file system. You can activate when you want to store these incoming documents.



Movement and Movement Types

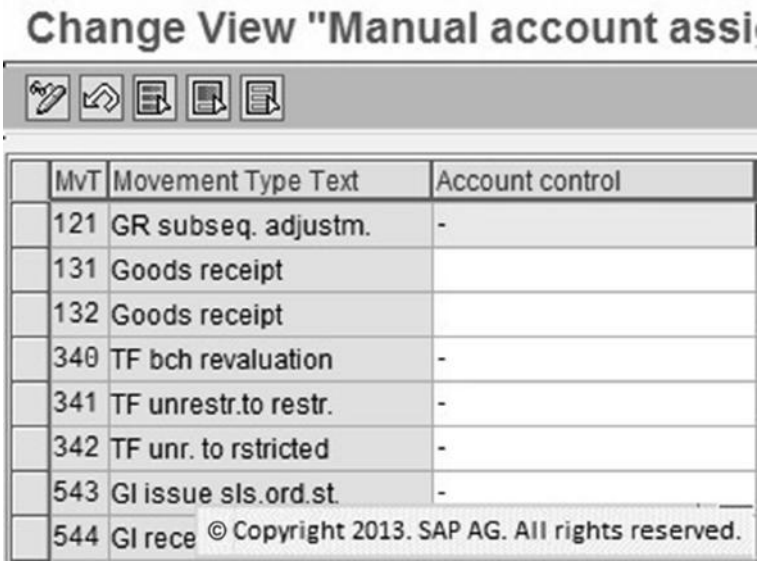
Menu path: SPRO → IMG → Materials Management → Inventory Management and Physical Inventory → Automatic Movements

Create Storage Location Automatically

Whenever a GR happens for a material that is to be stored in a storage location, a designated storage location should be available for the material. If no designated storage location is available, the material cannot be received. You have to either create a storage location manually in the system or define automatic storage location creation in the system.

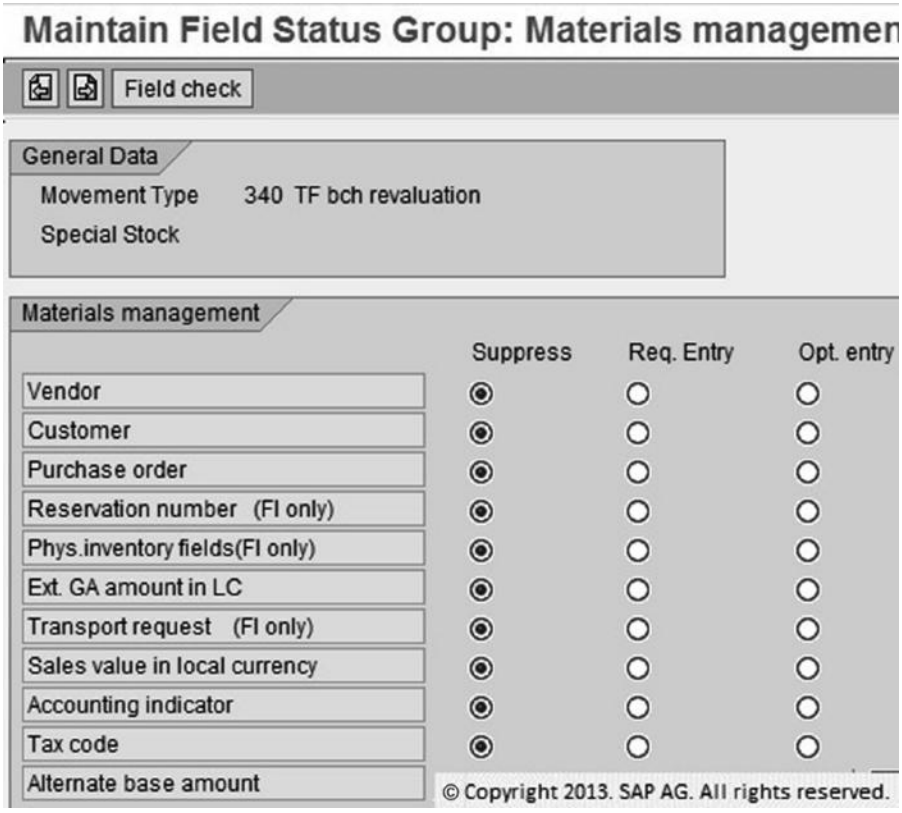
Set Manual Account Assignment

You can set manual account assignment for movement types when automatic account assignment is not possible.



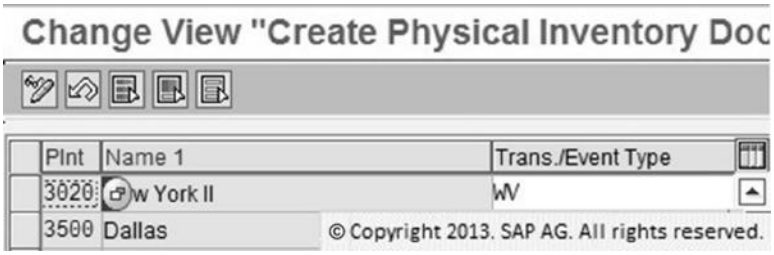
Define Screen Layout

For each movement type, you can change the screen layout as per your requirement.



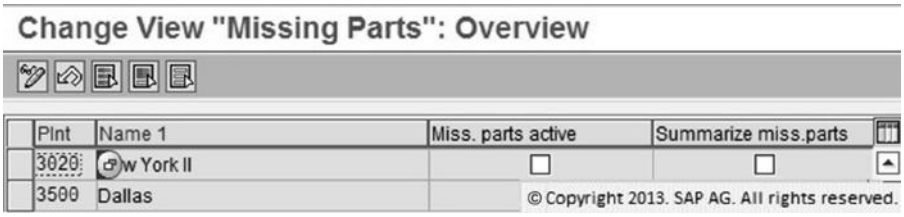
Generate Physical Inventory Documents for Goods Movements

For each movement type, you can generate physical inventory documents if required.



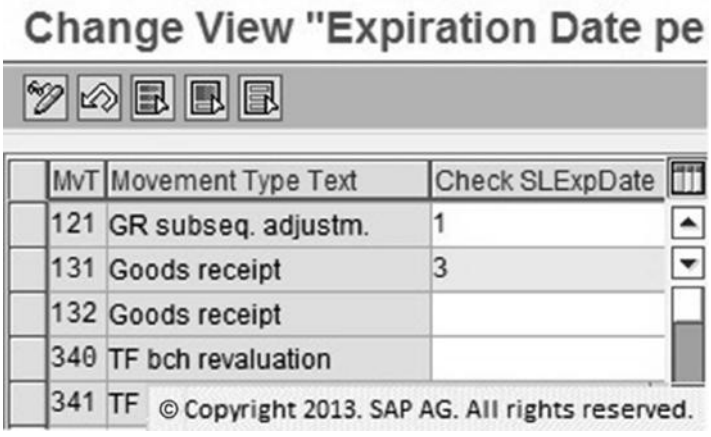
Set Missing Parts Check

For each movement type, you can set the missing part check when a part is found missing during inventory movement. The automatic supplementary material document can then be generated for the missing parts.



Set Expiration Date Check

For perishable goods, you can set the expiration date check active so that you can manage inventories of these goods.



Reservation

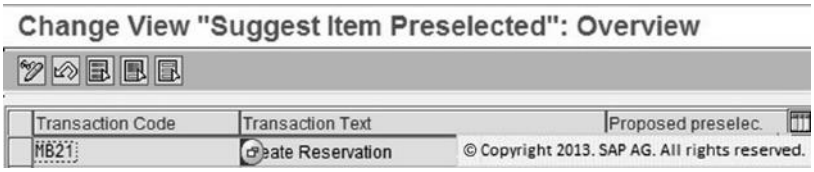
Menu path: SPRO → IMG → Materials Management → Inventory Management and Physical Inventory → Reservation

Define Default Values

You can define default values for reservation to allow goods movements for reservations, delete reservations, create storage location stock data automatically for reservations, and so on.

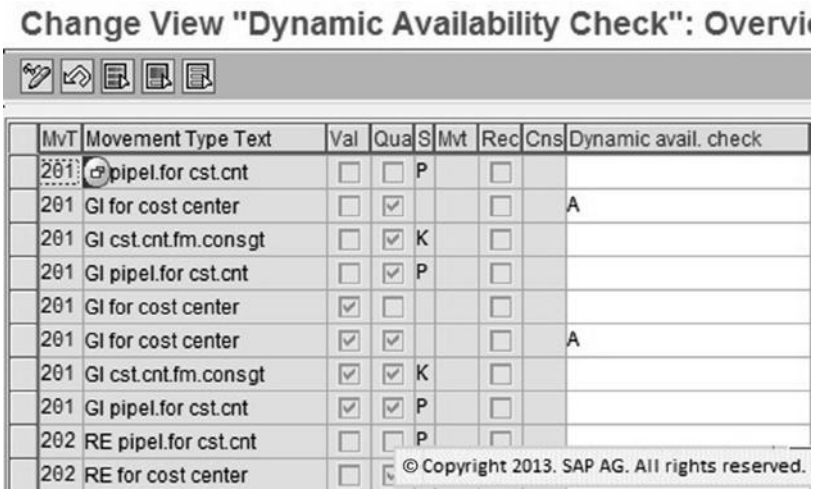
Maintain Copy Rules for Reference Documents

When a reservation is adopted from a reference document, you can set up a copy rule for the data to be copied from the reference document.



Set Dynamic Availability Check

Dynamic availability check allows searching of stock at all storage locations automatically when you want to make reservation for any goods issue.

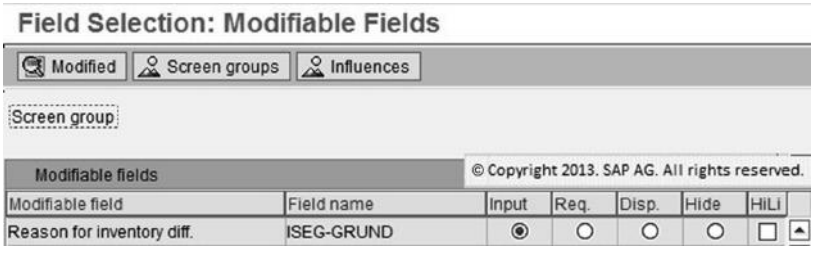


Physical Inventory

Menu path: SPRO → IMG → Materials Management → Inventory Management and Physical Inventory → Physical Inventory

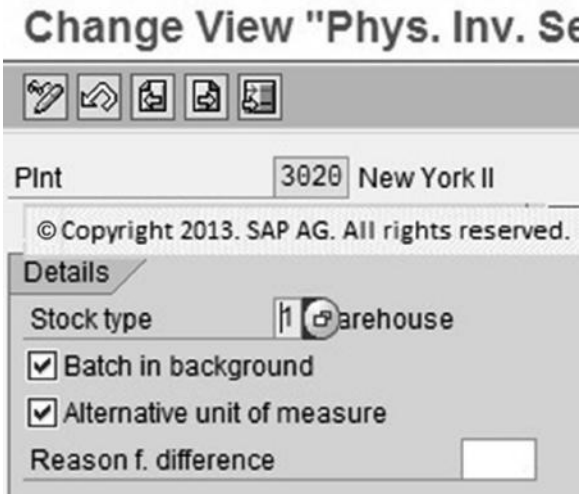
Field Selection for Physical Inventory

You can set the fields that are displayed on the physical inventory screen.



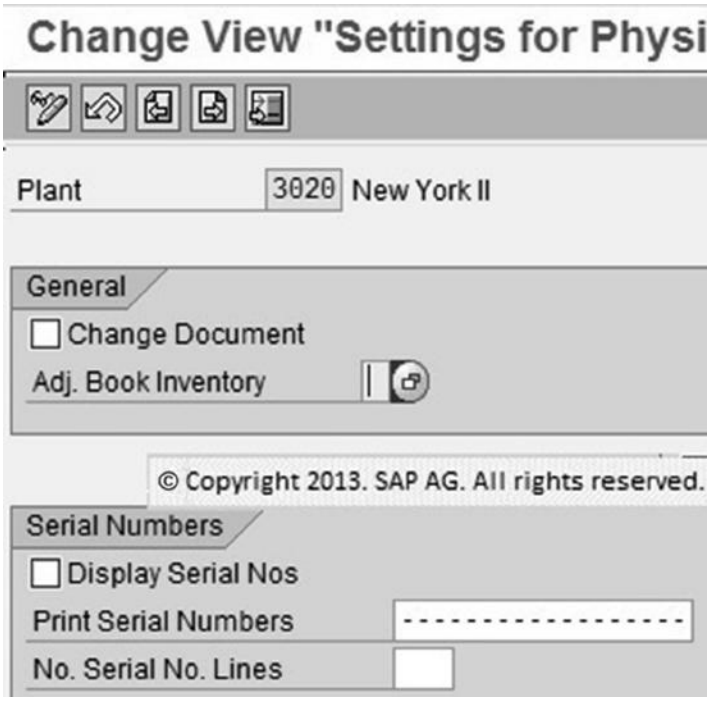
Default Values for Physical Inventory

For doing cycle counting or any other physical inventory task, you can set default values for modifiable fields on these screens.



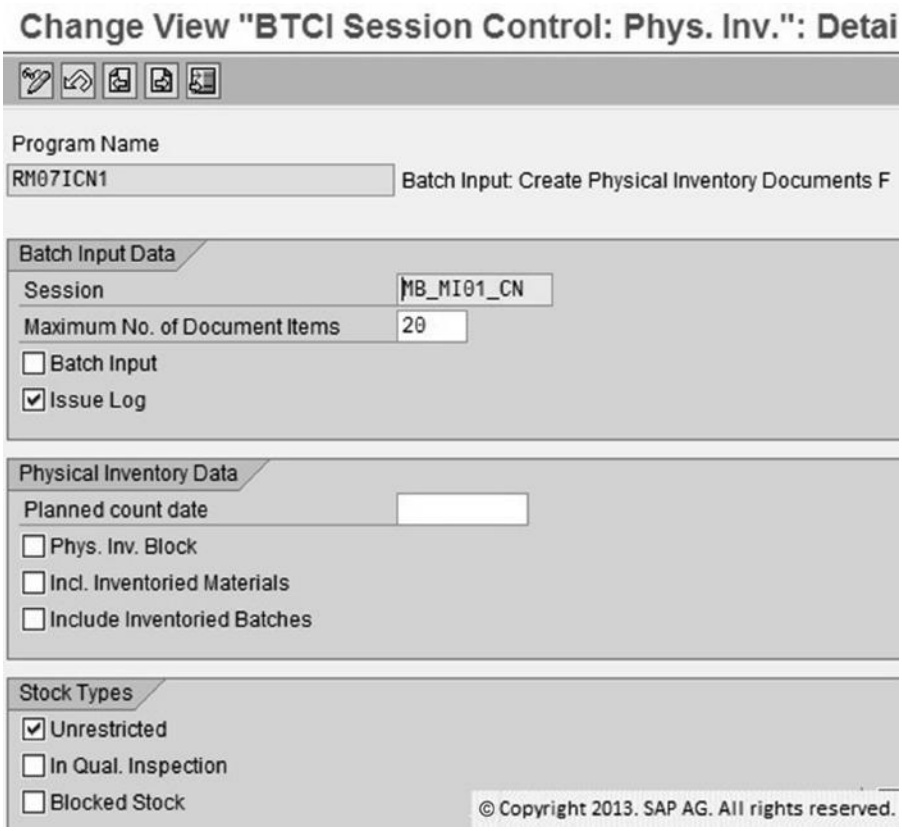
Settings for Physical Inventory

When entering the values for physical inventory for a stock, you can define the alternative unit of measurement, batch jobs in background reason for difference in counted versus reported stock, and so on.



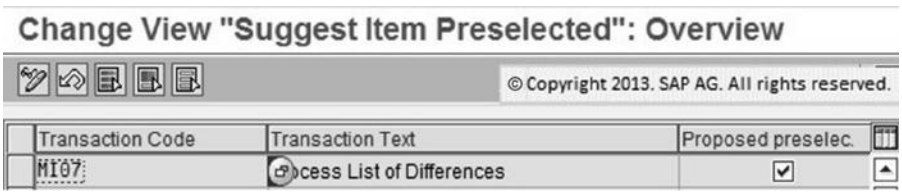
Default Values for Batch Input

For all batch-enabled jobs for physical inventory, you can define the issue log, the maximum number of document items, the planned counting date, the stock types, and so on.



Maintain Copy Rules for Reference Documents

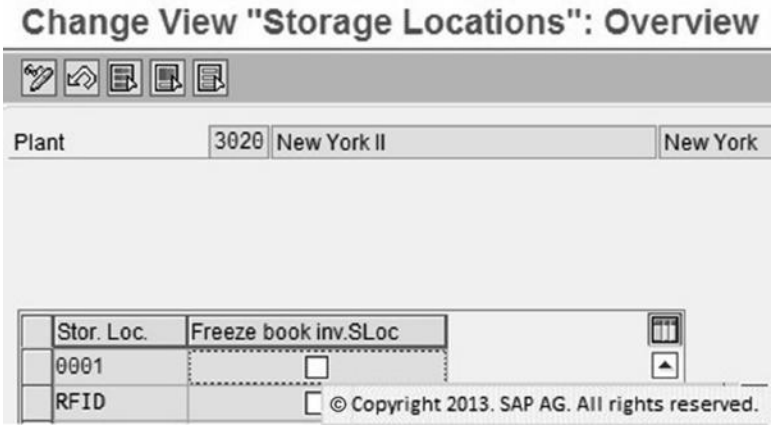
For physical inventory tasks, you can use reference documents from where you can copy data on the physical inventory document. You can define a copy rule for this purpose.



Allow Freezing of Book Inventory Balance in Storage Location

In this step, you determine whether the book inventory balances of items in a physical inventory document, which have not yet been counted, can be frozen in the storage location. The frozen

inventory balance is recorded in the physical inventory document. It is relevant to the calculation of inventory differences.



For example, you have physically counted all items in a physical inventory document but have not yet entered the count results in the system for all items. For one of these items, the book inventory balance is 100 pieces. Only 90 pieces were counted, corresponding to a difference of 10 pieces. You freeze the book inventory balance of 100 pieces in the physical inventory document.

Before you enter the count, a GR of 20 pieces is posted. The current book inventory balance is now 120 pieces. For the physical inventory document, however, the book inventory balance of 100 pieces continues to be relevant. If the inventory balance had not been frozen, there would have been a difference of 30 pieces for the item.

Define Tolerances for Physical Inventory Differences

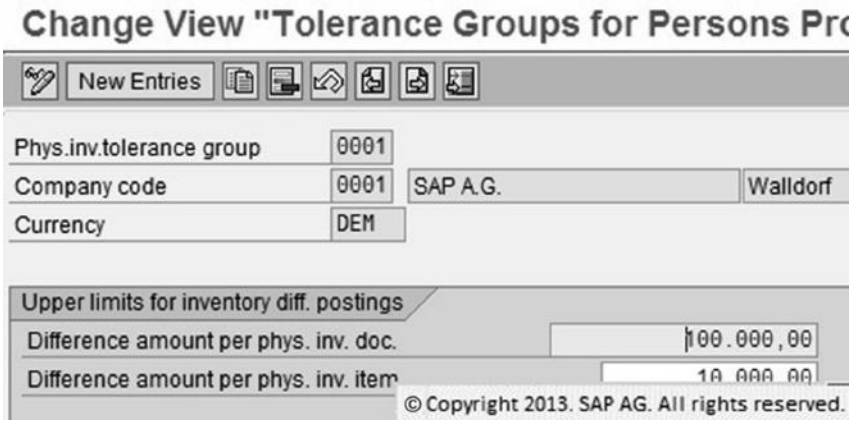
In this step, you can create user groups and define value tolerances for the user groups for the posting of inventory differences. You can specify two tolerances:

1. Maximum amount per physical inventory document
2. Maximum amount per document item

If a document exceeds the document tolerance defined for the user group, the user is not allowed to post any inventory differences for this document. If the total value of the document lies below the document tolerance, but some items exceed the maximum amount per item, the user may not post the differences for these items and can process the other items.

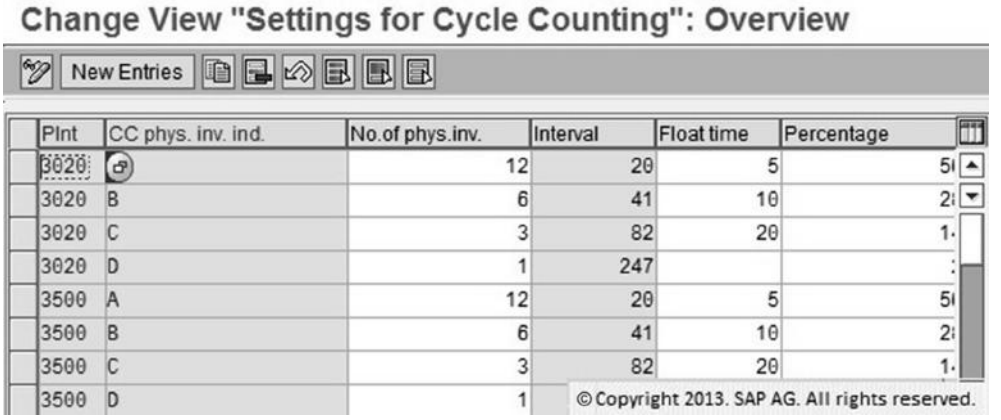
Activities

Under Physical inventory tolerance group, you define the individual user groups with the corresponding value tolerances per company code and currency. Under User name, you assign the individual users to a group. If you want to assign an inventory tolerance group to all existing users, you can enter "*" instead of entering the users individually.



Cycle Counting

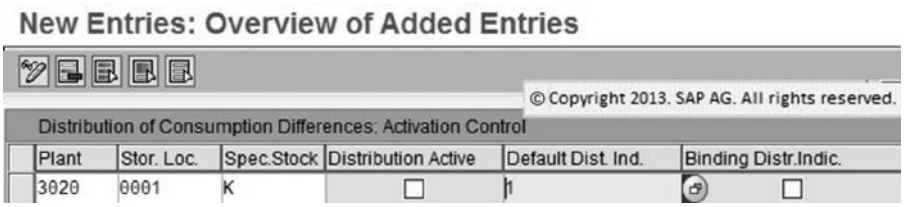
In this step, you complete the system settings for the physical inventory method of cycle counting by defining the individual cycle counting indicators for the given plant. The cycle counting indicators are used to group the materials together into individual categories.



Activate Distribution of Consumption Differences

You can only select inventory documents for distribution if you have activated distribution of usage variances. The settings for distribution of usage variances appear only on the Create inventory document screen if the default indicator 1 is set. If you set the hide distribution indicator, the settings cannot be changed on the Create inventory document screen.

For some applications such as warehouse management or Business Application Programming Interface (BAPI), create your inventory documents in the background. If the revaluation of consumption is active and the indicator is set as "1" (binding) then these inventory documents are automatically relevant for distribution.

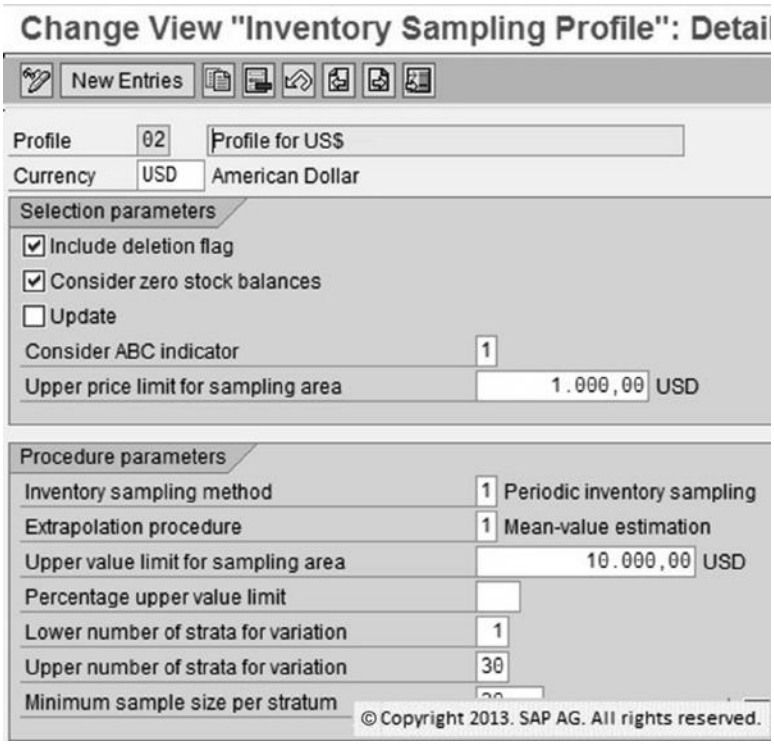


Inventory Sampling

Menu path: SPRO → IMG → Materials Management → Inventory Management and Physical Inventory → Physical Inventory → Inventory Sampling

Create Inventory Sampling Profiles

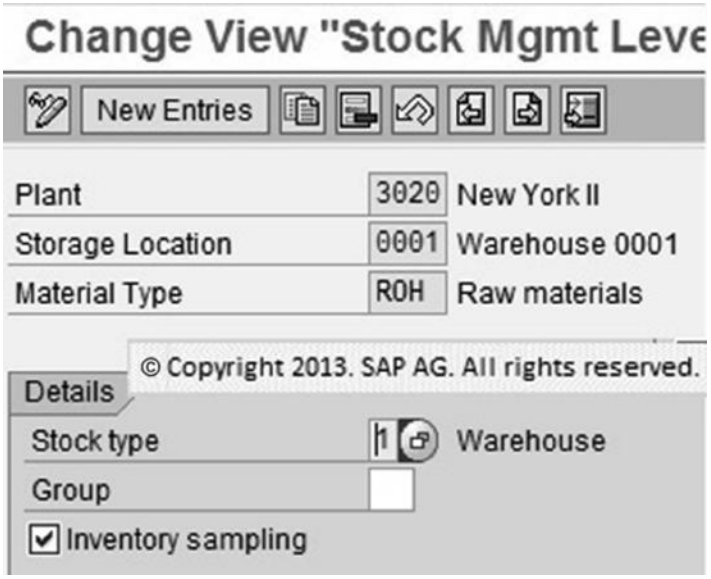
When creating an inventory sampling, the user has to specify an inventory sampling profile. Here, the currency and the default values for the parameters of the inventory sampling are defined.



Define Stock Management Levels

When creating an inventory sampling, the user has to specify the stock management units that are covered by the given inventory sampling. This allocation of stock management units to an inventory sampling is carried out through stock management levels.

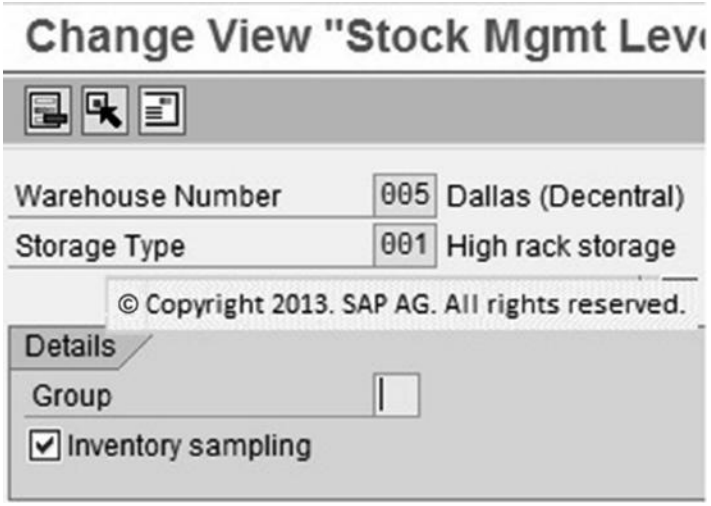
Under "allocation of stock management units to an inventory sampling", you define the stock management levels that can be selected when creating an inventory sampling. These specifications apply only to inventory sampling in the inventory management area.



Define Stock Management Level in WMS

When creating an inventory sampling, the user has to specify the stock management units that are covered by the given inventory sampling. This allocation of stock management units to an inventory sampling is carried out through stock management levels.

Under "allocation of stock management units to an inventory sampling", you define the stock management levels that can be selected when creating an inventory sampling. These specifications apply only to inventory sampling in the warehouse management system (WMS).



Movement Types

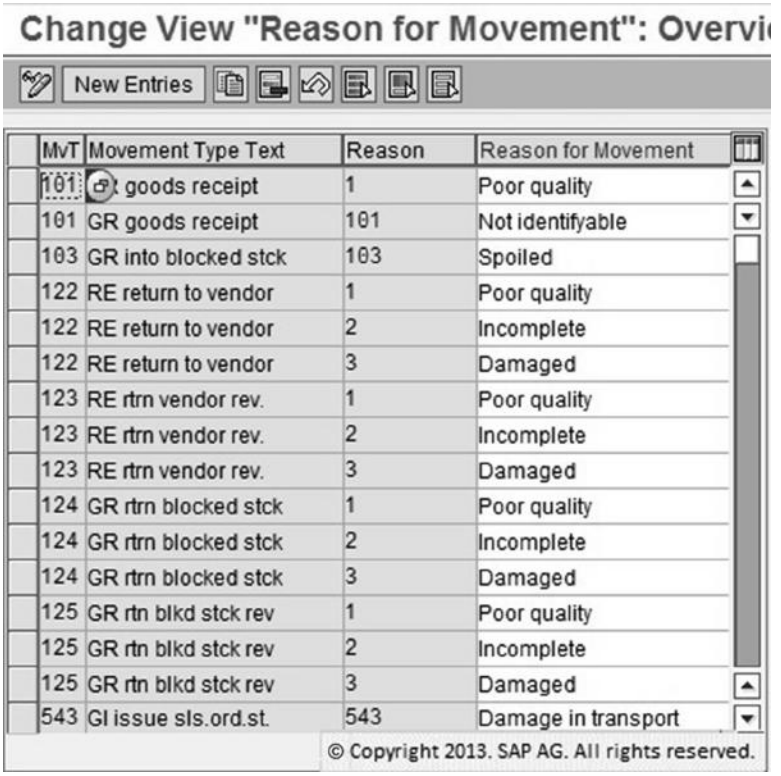
Menu path: SPRO → IMG → Materials Management → Inventory Management and Physical Inventory → Movement Types

Record Reason for Goods Movements

In this step, you can carry out the following for each movement type:

1. Maintain the input status of the Reason field
2. Store a key that gives a reason for the movement (e.g., reason for return delivery) and a corresponding text

When you enter a goods movement, you can only enter reasons that have been defined for the movement type here.



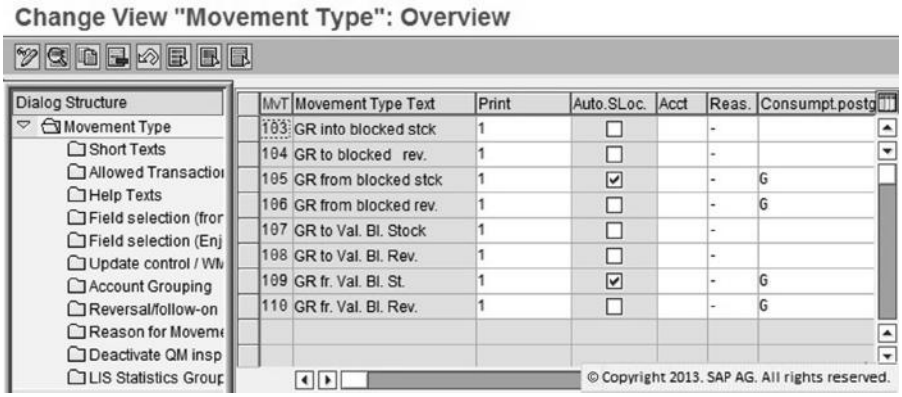
Copy Change Movement Type

In this step, you can do the following:

1. Change the setting of existing movement types
2. Define new movement types

When you enter a goods movement, you must always enter the movement type. The movement type has important control functions in inventory management. It is essential for

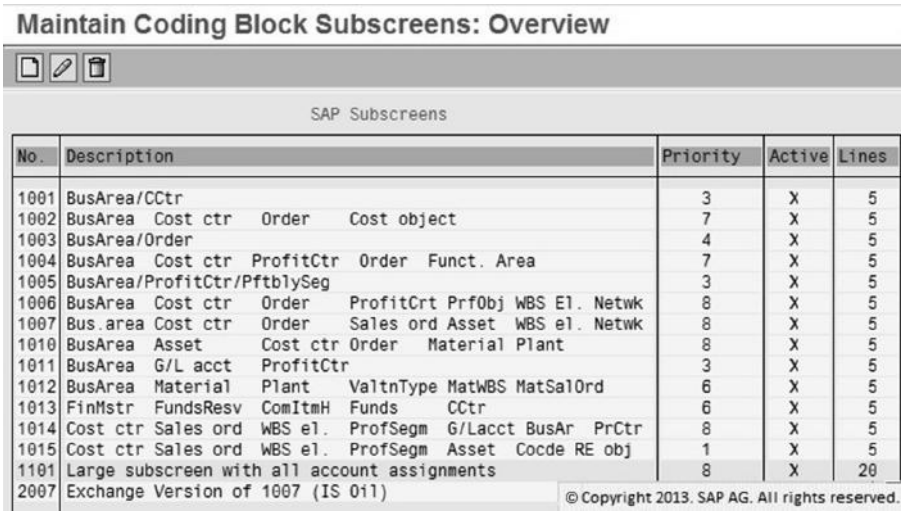
1. Updating the quantity fields.
2. Updating the stock and consumption accounts.
3. Selecting the fields used for entering documents.
4. Printing GR/issue slips.



Set Subscreen for Account Assignment (Coding) Block

In SAP system, account assignment transactions use subscreens that contain the various account assignment fields. When generating the screens for these transactions, the system searches for the most suitable subscreen, that is, the one containing the most required fields. If there is no subscreen that contains all the necessary fields, you have to enter the additional fields in a separate dialog box.

You can define your own subscreens in this step, that is, you can structure your subscreens to suit your own requirements and thus avoid entering the account assignment fields in an additional dialog box.



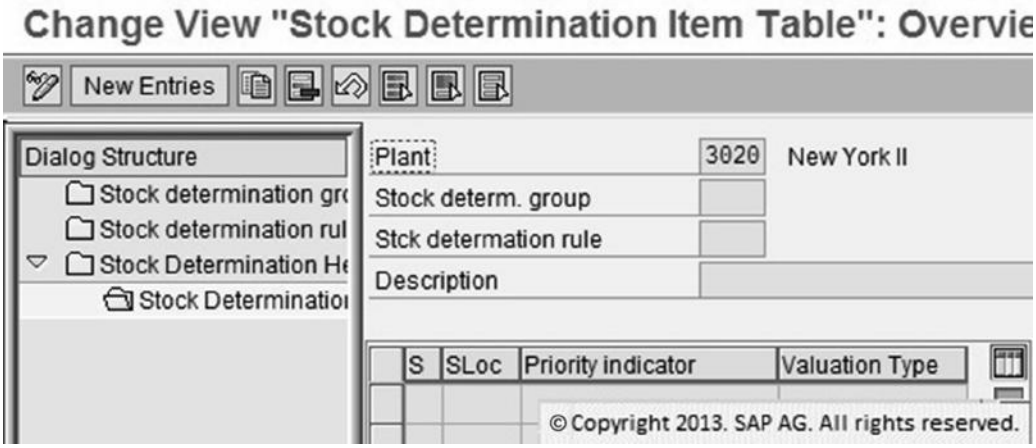
Stock Determination

Menu path: SPRO → IMG → Materials Management → Inventory Management and Physical Inventory → Stock Determination

Define Strategies for Stock Determination

In this step, you make all the settings that are required for a stock determination strategy. You determine a strategy at plant level using the stock determination group and the stock determination rule. (The terms "rule" and "group" correspond to the checking group and the checking rule logic in the availability check, respectively.)

The stock determination group is assigned to the material in the material master record. However, you maintain the stock determination rules in the individual applications, that is, you can use different strategies depending on the material or on a business event.

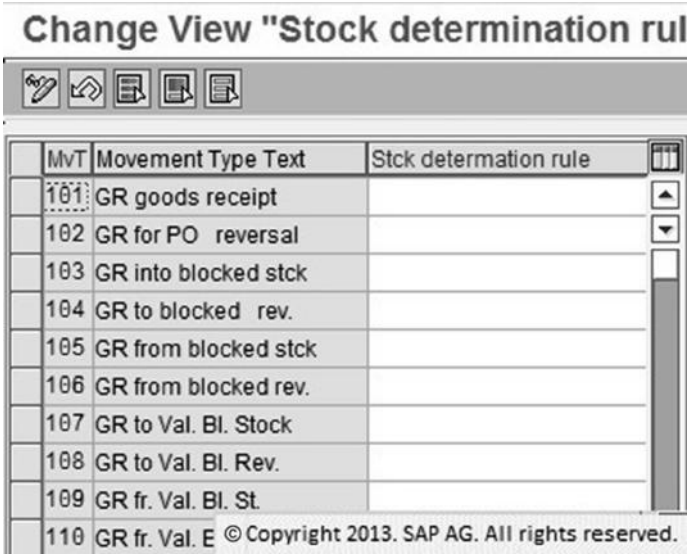


Stock Overview

Menu path: SPRO → IMG → Materials Management → Inventory Management and Physical Inventory → Stock Determination → Assign Stock Determination Rule in the Application

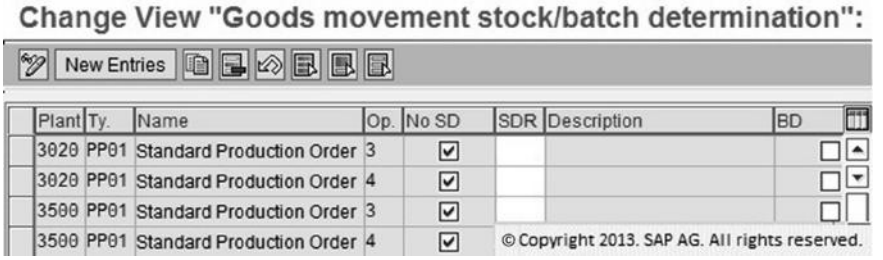
Inventory Management

You assign a stock determination rule to each movement type for which you want to allow automatic stock determination. You can establish only one stock determination rule for each movement type. The strategy that is used in the application is determined in combination with the stock determination group for each material.



Production Order

In this step, you define parameters for the automatic stock and batch determination for each plant, order type, and business transaction, and assign a stock determination rule. You can switch stock or batch determination off.



The business transactions for production orders are as follows:

1. Backflushing of components for confirmations
2. Picking

Repetitive Manufacturing

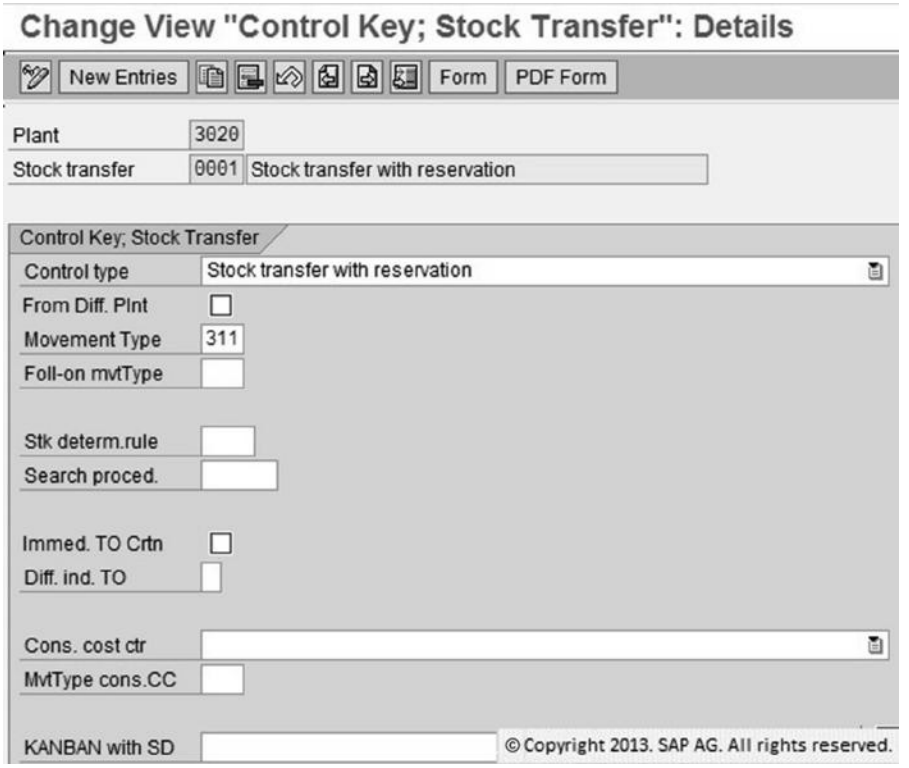
In this step, you assign a stock determination rule to a predefined repetitive manufacturing profile.

Pull List

In this step, you assign a stock determination rule to a predefined pull list for each plant.

KANBAN

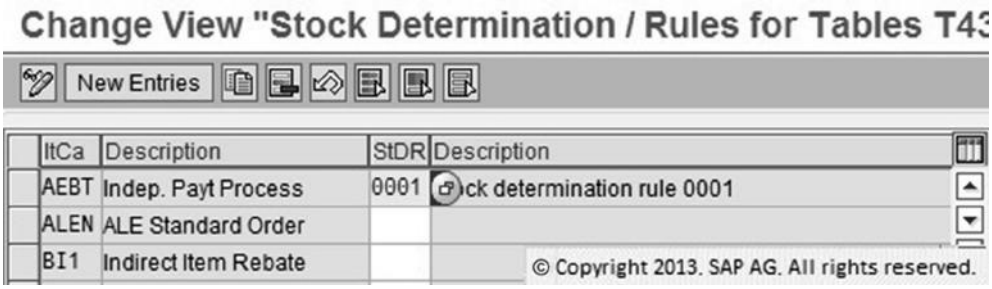
In this step, you assign a stock determination rule to a predefined stock transfer strategy for each plant.



Delivery

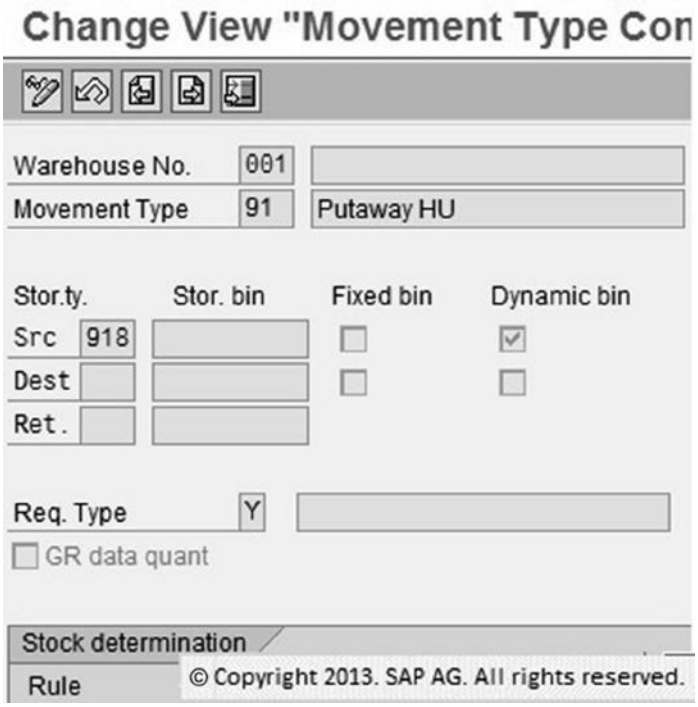
In this IMG activity, you assign a stock determination rule to a delivery item category. There are four possible scenarios in delivery processing:

1. There is no stock determination using stock determination module.
2. Stock determination is performed in WM during picking.
3. The vendor is manually predefined in LEAN-WM during confirmation.
4. Stock determination is performed by goods issue.



Warehouse Management

In this step, you assign a stock determination rule for each warehouse to each movement type.

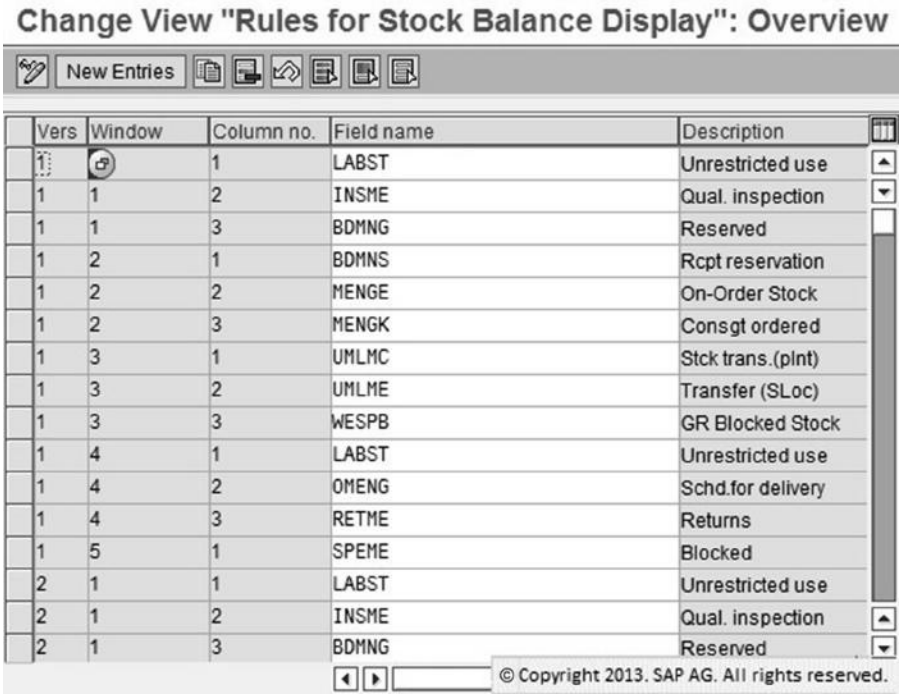


Reporting

Menu path: SPRO → IMG → Materials Management → Inventory Management and Physical Inventory → Reporting

Define Stock List Display

In this step, you define the fields that are displayed in stock lists. The SAP system distinguishes between stock lists using version numbers. For each version number, you can open up to three windows in which you can display different stock lists. For each window, you can define up to three stock types (e.g., blocked stock returns or unrestricted-use stock).


Change View "Rules for Stock Balance Display": Overview

New Entries

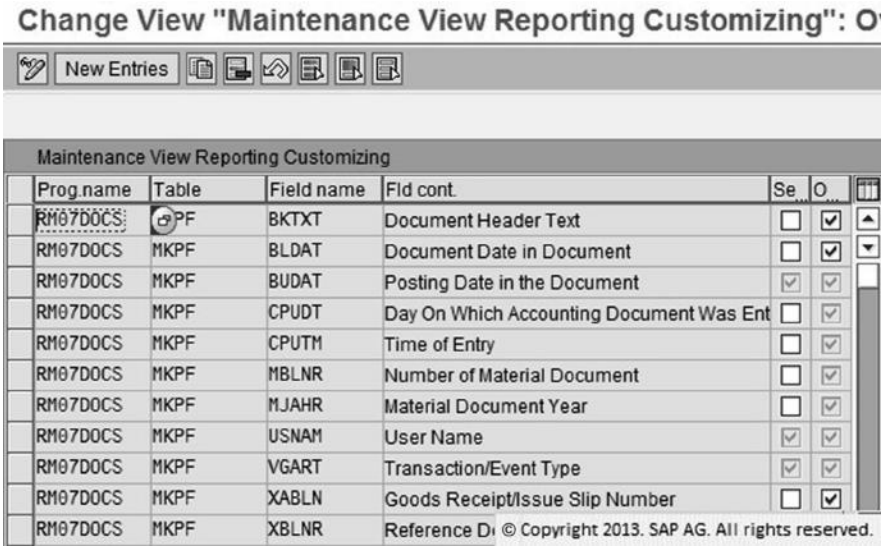
Vers	Window	Column no.	Field name	Description
		1	LABST	Unrestricted use
1	1	2	INSME	Qual. inspection
1	1	3	BDMNG	Reserved
1	2	1	BDMNS	Rcpt reservation
1	2	2	MENGE	On-Order Stock
1	2	3	MENGK	Consgt ordered
1	3	1	UMLMC	Stck trans.(plnt)
1	3	2	UMLME	Transfer (SLoc)
1	3	3	WESPB	GR Blocked Stock
1	4	1	LABST	Unrestricted use
1	4	2	OMENG	Schd.for delivery
1	4	3	RETME	Returns
1	5	1	SPEME	Blocked
2	1	1	LABST	Unrestricted use
2	1	2	INSME	Qual. inspection
2	1	3	BDMNG	Reserved

The following list versions are preset in the standard SAP R/3 system:

1. Standard display, long
2. Standard display, short
3. Special display

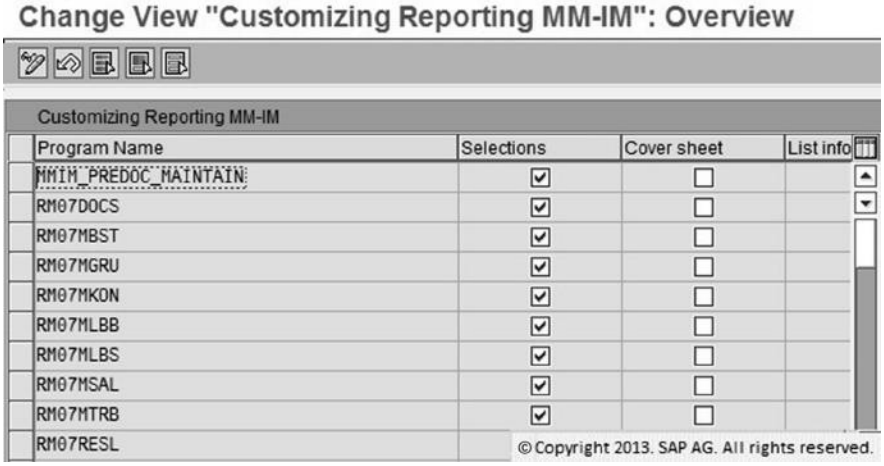
Define Field Selection for Material Document List

The fields that are ready for input on the selection screen for the reports include material number, plant, storage location, batch number, vendor account number, customer account number, movement type, special stock indicator, posting date in document, user name, and transaction/event type.



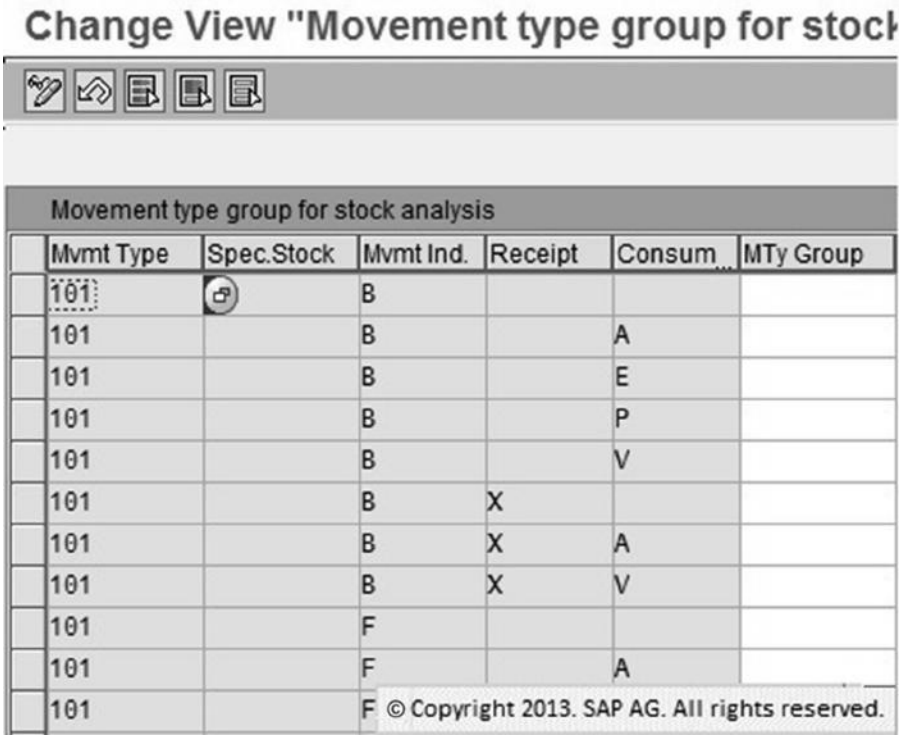
Set Up Print Functions for Reporting

In this step, you can define the additional information that should be included when the output list is printed for the reports in inventory management. You also specify whether the detail list (nonhierarchical list) of a report should be printed in a different format (ALV Grid Control). The alternative format means that detail lists are more convenient to work with and offer more options, such as those that are familiar with from spreadsheet programs, which include changing the columns using drag and drop, adjusting column width using drag and drop, scrolling using the vertical scroll bar, using the context menu via the right-hand mouse button for column headers and lines, selecting multiple columns with the Control and Shift keys, and calculating subtotals via item characteristics.



Group Movement Type for Stock List

Movement types can be grouped in particular movement type groups for analysis purposes. For example, you can group all movement types pertaining to purchasing under PUR or all movement types relating to sales and distribution under SD.


Change View "Movement type group for stock

Movement type group for stock analysis

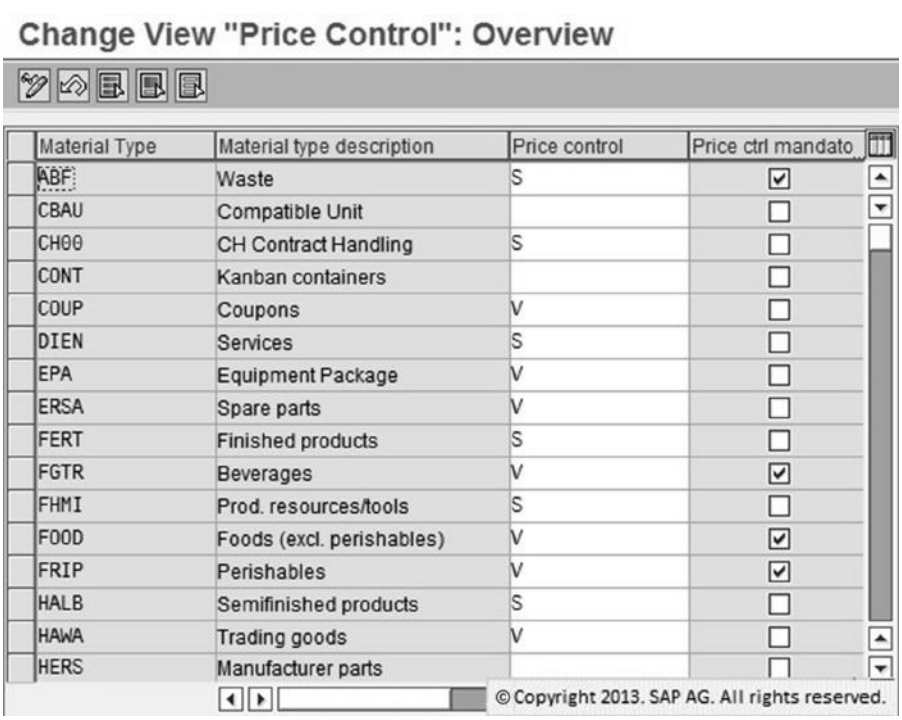
Mvmt Type	Spec.Stock	Mvmt Ind.	Receipt	Consum...	MTy Group
101		B			
101		B		A	
101		B		E	
101		B		P	
101		B		V	
101		B	X		
101		B	X	A	
101		B	X	V	
101		F			
101		F		A	
101		F			

Account Assignment and Valuation

Menu path: SPRO → IMG → Materials Management → Account Assignment and Valuation

Define Price Control for Movement Type

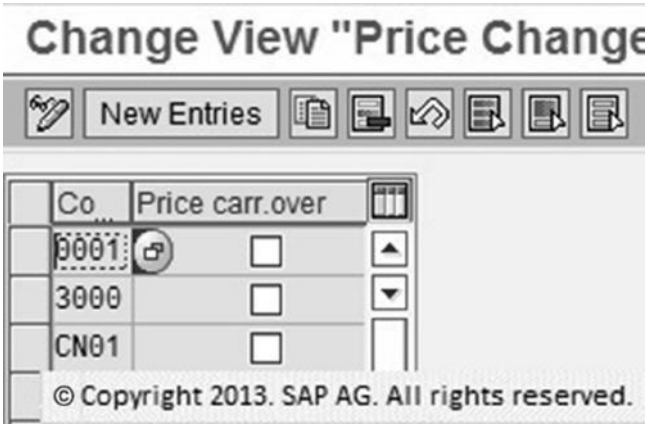
There are two types of price control in the SAP R/3 system: V stands for moving average price/periodic unit price and S for standard price. For each material, you must specify the price control in the material master record according to which the material is to be valuated. You do so using the price control indicator. Under the menu option "Price control," you can specify for each material type that, when creating a material of this material type, a certain price control indicator is either proposed or stipulated.



Configure Price Change in Previous Period

In case of a price change in the previous period or the previous year, you must define whether the change also applies to the current period. You have two options:

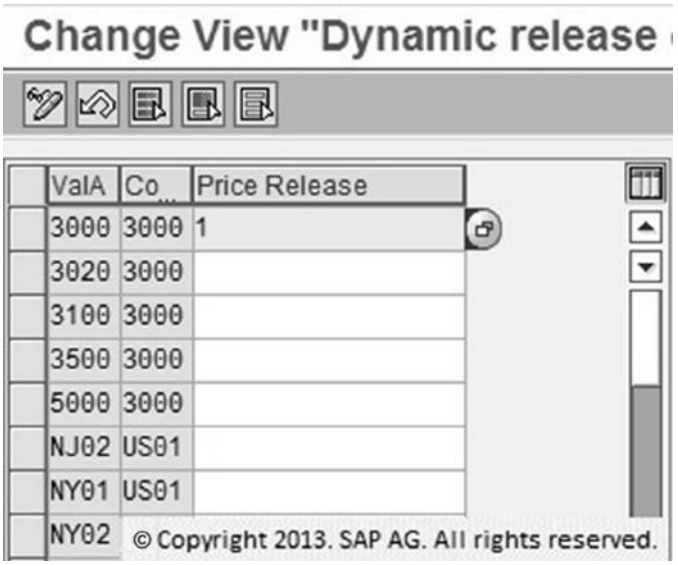
1. The price change applies only in the previous period or previous year and does not affect the current period.
2. The price change also applies to the current period and the price in the current period is thus also changed automatically.



Configure Dynamic Price Changes

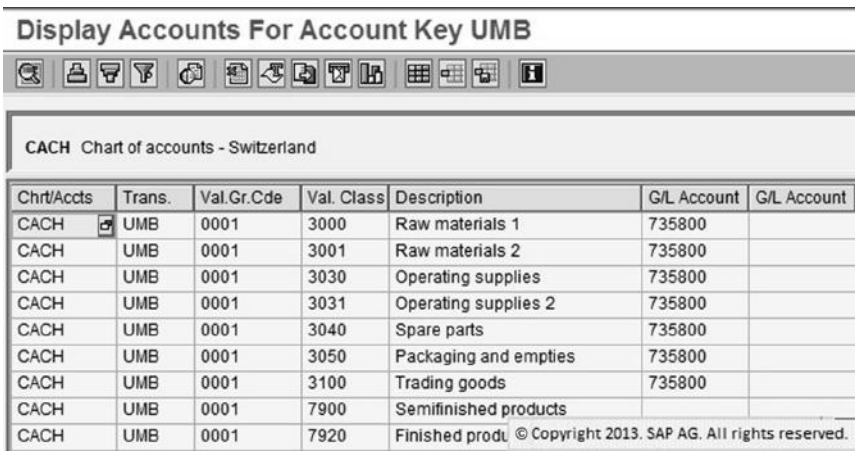
In this activity, you can specify in each valuation area that a planned price is activated as the valuation price on the first goods movement in a new posting period as long as the validity date of the planned price has been reached. The planned prices are handled by the system with the following priority:

1. Marked standard cost estimates
2. Future valuation prices



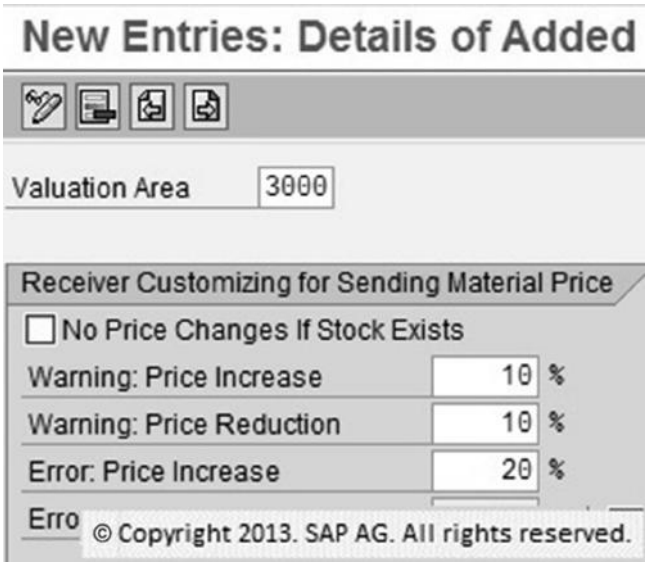
Reasons for Price Changes

In this step, you enter the reasons for a price change. You can assign one posting reason and one account grouping code to the transactions MR21 Price Changes and MR22 Credit/Debit Material. The account grouping code allows you to post the booking, irrespective of the booking reason, to a revaluation account that differs from the one in the standard settings.



Set Up Material Price Dispatch

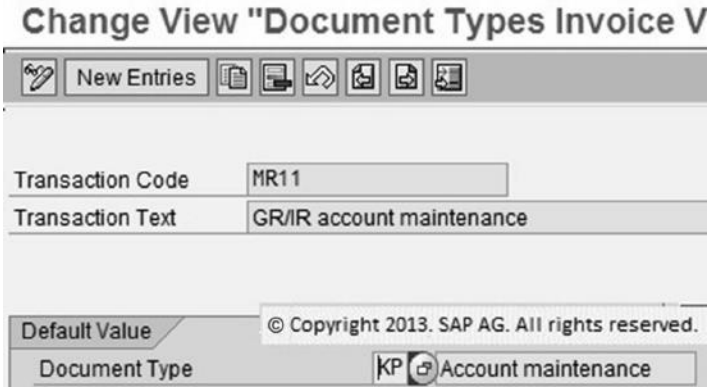
Material price dispatch is accomplished using Application Link Enabling (ALE). This is done when material prices are to be distributed among many instances of SAP systems.



Define Document Type and Number Ranges for Price Change

When a price is changed, the SAP R/3 system creates a document in financial accounting. For this, you must define a document type for the price change and assign it to a number range.

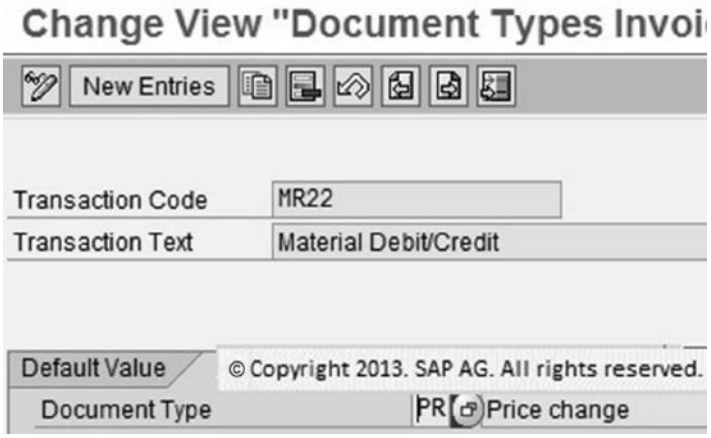
In the standard SAP system, the document type "PR" is preset for price changes. The number range 48 from 4,800,000,000 to 4,899,999,999 is assigned to this document type for 1 year.



Define Document Type and Number Ranges for Material Debit

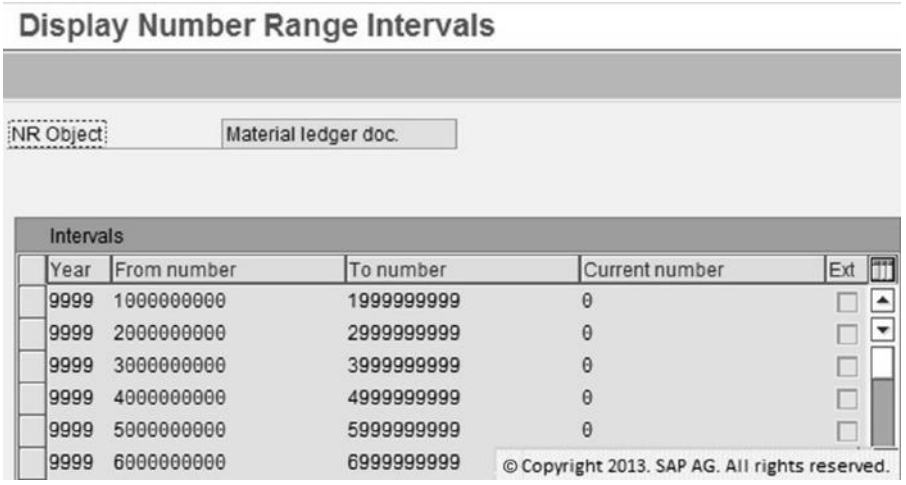
The R/3 system creates a document in financial accounting when a material has been debited or credited. Under the menu option "Deb./cred.material," you define a document type for the material debit/credit and allocate it to a number range.

In the standard SAP system, the document type "PR" is preset for material debit and credit. The number range 48 with the year-related interval 4,800,000,000 to 4,899,999,999 is assigned to this document type.



Maintain Number Ranges for Material Ledger Documents

Even if you do not use the actual costing/material ledger component, you still have to define the number ranges for price changes and material debits and credits. In addition to creating an accounting document for these transactions, the system also creates a material ledger document.



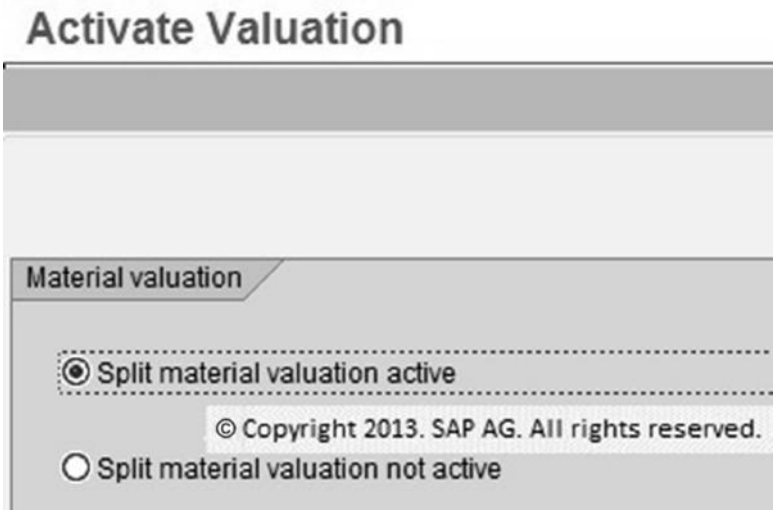
Split Valuation

Split valuation of material stocks is a technique in the SAP R/3 system for valuating different material stocks within a plant differently depending on their origin. It is often used with batch management. Thus, each batch of a material will have a different price compared to other batches of the same material.

Menu path: SPRO → IMG → Materials Management → Account Assignment and Valuation → Split Valuation

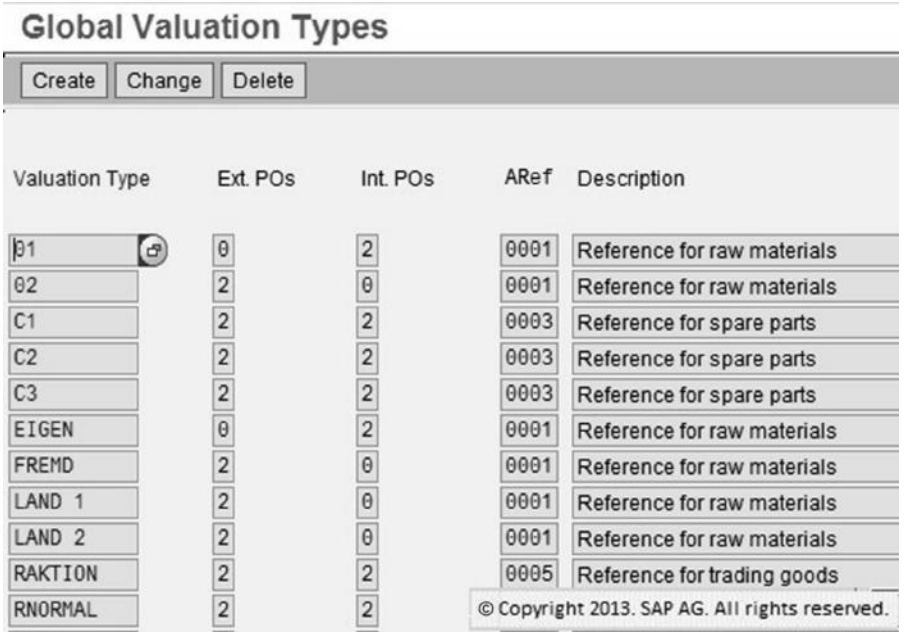
Activate Split Valuation

In this step, you activate split valuation for the entire client (a client encompasses all company codes, plants, purchasing organizations, etc.). You can distinguish between partial stocks of a material according to certain criteria and valuate them separately. The material stock is divided according to valuation category and valuation type.



Configure Split Valuation

For each valuation category, you define valuation types. The valuation category determines how the partial stocks are divided, that is, according to which criteria. The valuation type describes the characteristics of the individual stocks.



Using the function "Setting," you can determine the following:

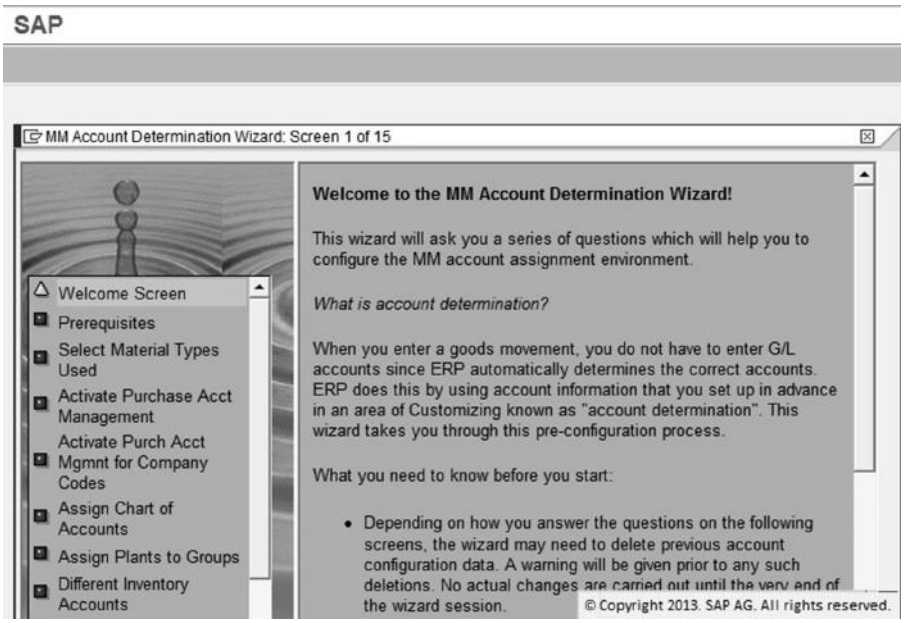
1. Which valuation categories exist in your company (global categories)
2. Which valuation types exist in your company (global types)
3. Which valuation types belong to which valuation category
4. Which valuation categories exist in a valuation area (local categories)

Account Determination

Menu path: SPRO → IMG → Materials Management → Account Assignment and Valuation → Account Determination

Account Determination Wizard

Account determination wizard allows you to determine the accounts for movement types, material groups, grouping of valuation areas, valuation classes, automatic postings, and so on.

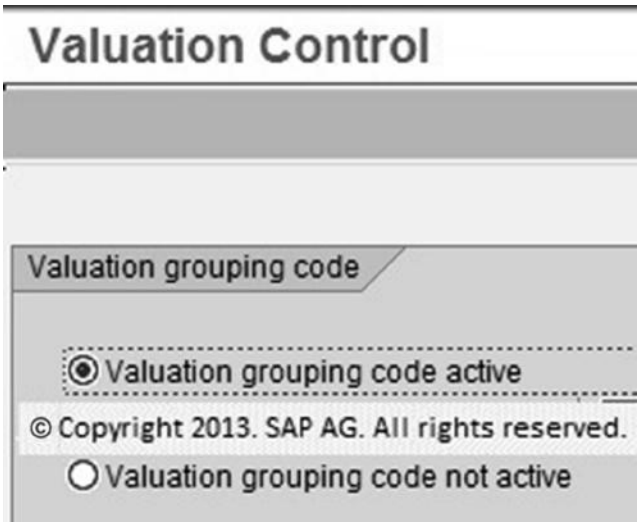


Account Determination without Wizard

Menu path: SPRO → IMG → Materials Management → Account Assignment and Valuation → Account Determination → Account Determination without Wizard

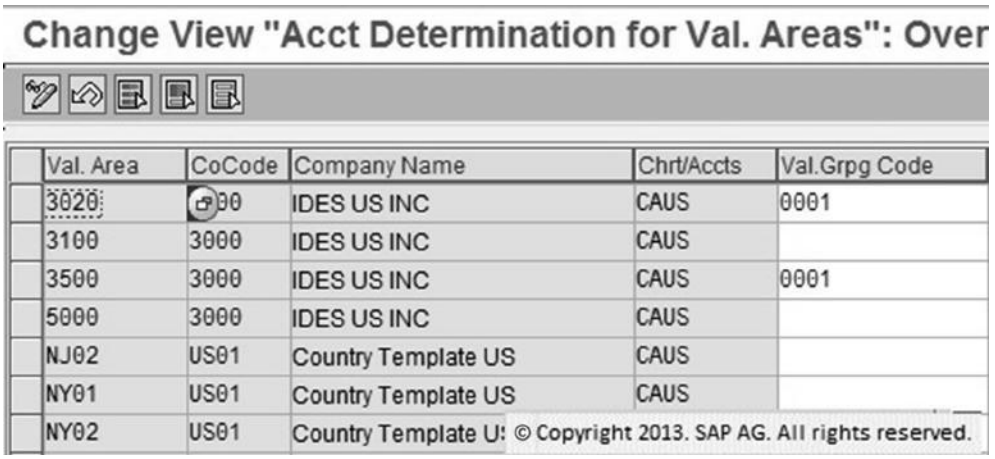
Define Valuation Control

For account determination, you can group valuation areas together by activating the valuation grouping code. This makes the configuration of automatic postings much easier.



Group Together Valuation Areas

In this step, you assign valuation areas to a valuation grouping code. The valuation grouping code makes it easier to set automatic account determination. Within the chart of accounts, you assign the same valuation grouping code to the valuation areas of the same account. Valuation grouping codes either reflect a fine distinction within a chart of accounts or correspond to a chart of accounts. Within a chart of accounts, you can use the valuation grouping code to define individual account determination for certain valuation areas (company codes or plants) or to define common account determination for several valuation areas (company codes or plants).

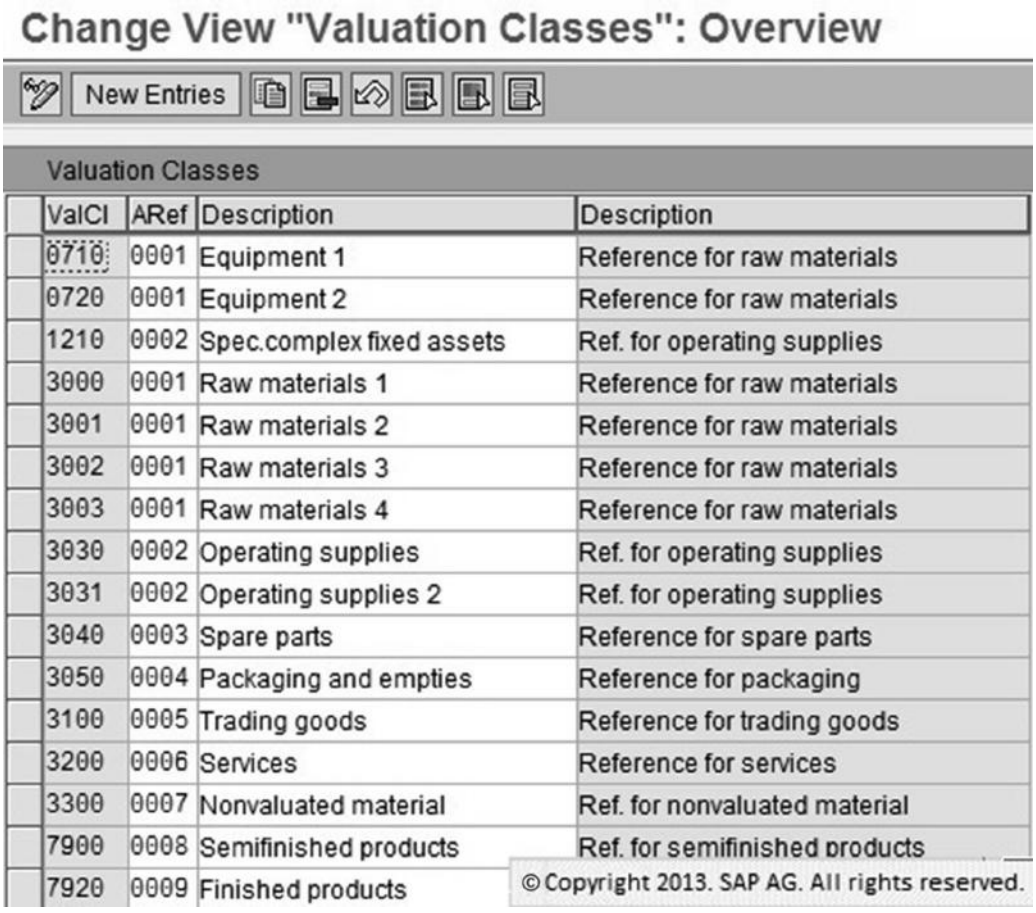


Define Valuation Classes

In this step, you define the valuation classes that are allowed for a material type. If a user creates a material, he or she must enter the material's valuation class in the accounting data.

The enterprise resource planning (ERP) system uses your default settings to check whether the valuation class is allowed for the material type. The valuation class is a group of materials with the same account determination. If a transaction is to be posted to different accounts depending on the valuation class, you create an account determination for each valuation class in the "Create Automatic Postings" step.

The valuation classes that are allowed depend on the material type. Several valuation classes are generally allowed for one material type. A valuation class can also be allowed for several material types. The link between the valuation classes and the material types is set up via the account category reference. The account category reference is a combination of valuation classes. Precisely, one account category reference is assigned to a material type.


Change View "Valuation Classes": Overview

New Entries

Valuation Classes

ValCl	ARef	Description	Description
0710	0001	Equipment 1	Reference for raw materials
0720	0001	Equipment 2	Reference for raw materials
1210	0002	Spec.complex fixed assets	Ref. for operating supplies
3000	0001	Raw materials 1	Reference for raw materials
3001	0001	Raw materials 2	Reference for raw materials
3002	0001	Raw materials 3	Reference for raw materials
3003	0001	Raw materials 4	Reference for raw materials
3030	0002	Operating supplies	Ref. for operating supplies
3031	0002	Operating supplies 2	Ref. for operating supplies
3040	0003	Spare parts	Reference for spare parts
3050	0004	Packaging and empties	Reference for packaging
3100	0005	Trading goods	Reference for trading goods
3200	0006	Services	Reference for services
3300	0007	Nonvaluated material	Ref. for nonvaluated material
7900	0008	Semifinished products	Ref. for semifinished products
7920	0009	Finished products	

Define Account Grouping for Movement Types

In this activity, you can assign an account grouping to movement types. The account grouping is a finer subdivision of the transaction/event keys for the account determination.

Change View "Account Grouping": Overview

MvT	S	Val.Update	Qty update	Mvt	Cns	Val.strng	Cn	TEKey	Acct modif	C
101		☐	☐	B	A	WE06	1	KBS		☑
101		☐	☐	B	A	WE06	3	KDM	ERA	☐
101		☐	☐	B	E	WE06	1	KBS		☑
101		☐	☐	B	E	WE06	3	KDM	ERA	☐
101		☐	☐	B	P	WE06	3	KDM	ERA	☐
101		☐	☐	B	V	WE06	1	KBS		☑
101		☐	☐	B	V	WE06	3	KDM	ERA	☐
101	E	☐	☐	B		WE01	3	PRD		☐
101	E	☐	☐	B	E	WE06	1	KBS		☑
101	E	☐	☐	B	E	WE06	3	KDM	ERA	☐
101	E	☐	☐	B	P	WE06	1	KBS		☑
101	E	☐	☐	B	P	WE06	3	KDM	ERA	☐
101	Q	☐	☐	B		WE01	3	PRD		☐
101	Q	☐	☐	B	P	WE06	1	KBS		☑
101	Q	☐	☐	B	P	WE06	3	KDM	ERA	☐
101		☐	☑	B	A	WE06	1	KBS		☑
101		☐	☑	B	A	WE06	3	KDM	ERA	☐
101		☐	☑	B	© Copyright 2013. SAP AG. All rights reserved.					

Configure Automatic Postings

In this step, you enter the system settings for inventory management and invoice verification transactions for automatic postings to general ledger accounts. You can then check your settings using a simulation function.

Maintain FI Configuration: Automatic Posting - Procedures

Group RMK Materials Management postings (MM)

Procedures

Description	Transaction	Account determ.
Rev.from agency bus.	AG1	☑
Sales fr.agency bus.	AG2	☑
Exp.from agency bus.	AG3	☑
Expense/revenue from consign.mat.consum.	AK0	☑
Expense/revenue from stock transfer	AUM	☑
Subsequent settlement of provisions	B01	☑
Subsequent settlement of revenues	B02	☑
Provision differences	B03	☑
Inventory posting	BSD	☑
Change in stock account	© Copyright 2013. SAP AG. All rights reserved.	

Chapter 10

Business Scenarios

Introduction

In SAP, business scenarios are a series of transactions for a particular business cycle. For example, a business scenario in SAP MM could be a procurement cycle in which a customer chooses a vendor for a material, makes and sends a purchase order (PO) for the material to the vendor, receives material against the PO, and finally makes payment to the vendor. Similarly, a business scenario could be as follows: A customer procures material from a vendor on behalf of his/her own customer, and thus the material needs to be shipped to the customer of the customer but not to the customer.

Business scenarios depict real-world examples as to how to use SAP system to perform everyday business tasks. So a business analyst needs to know both sides of the coin so that he knows which features of SAP solve a particular business scenario. He also knows well about the features of SAP and can thus find out ways to use them in different business transactions.

In this chapter, we will see some business scenarios and how they are implemented in SAP. We will have a scenario for consignment, a scenario for subcontracting, a scenario for third-party sales, a scenario for pipeline sales, a scenario for intercompany stock transfer, and so on. Each of these business scenarios will be demonstrated completely with all the configuration settings required in the system.

Standard and Customized Business Scenarios

SAP has built-in business scenarios for many business functions available in the standard SAP. Various types of business scenarios can be implemented by customizing the SAP system. If any business scenario cannot be mapped even by customizing, either custom development is needed or a third-party solution that is available can be used.

In real life, there can be so many variations in the business model or the way a local business unit does its business; mapping all these business models and providing prebuilt solution are neither possible nor cost-effective.

A novice business analyst first learns and implements simple and standard business scenarios. After gaining some experience, he can map and implement more complex business scenarios. Seasoned business analysts are capable of mapping and implementing almost any business scenario in their field.

Likewise SAP consultants also do mapping and implementation of simple and standard business models to most complex ones based on the experience level. Entry-level SAP consultants get engaged on mapping and implementing simple business scenarios, whereas seasoned SAP consultants take on the most complex ones.

The most difficult business scenarios to implement in SAP MM include approval release procedure for purchase documents, setting pricing procedure for purchase, subcontracting, consignment, tax procedures for various countries, and so on.

Complete Procurement Process

SAP MM deals with procurement and inventory management functions. The complete procurement cycle is as follows:

1. Determination of requirements: Requirement for materials comes either from material requirement planning (MRP) systems automatically or from user departments manually. The requirement can be in the form of production orders or purchase requisitions (PRs).
2. Source determination: The sources for the required material is then determined once you have the requirements. Sources can be determined by long-term purchasing agreements or past POs. Request-for-quotation (RFQ) facility can be used if known sources are not identified.
3. Vendor selection and quotation comparison: The created RFQs are sent to vendors who return back the RFQs with their quotations. These quotations are compared and the best quotation is selected.
4. PO processing: The selected quotation is converted into a PO and processed to make the purchase. In case of long-term purchase agreements such as contracts, POs are generated against the contract. In case of scheduling agreements, the agreement itself is a PO against which periodic delivery of goods is done.
5. PO follow-up: The SAP system is preconfigured to generate reminders for purchases (goods receiving at predefined time intervals) at the time intervals the user has defined. The user is also provided with status of all POs, PRs, quotations, and so on.
6. Goods receiving and inventory management: Complete inventory management functionality. Goods receiving happens when some material reaches to the customer after the purchase is made. The received material is then consumed after it is issued from inventory.
7. Invoice verification: Invoices can be verified by matching the invoices against POs and goods receipts (GRs).

Inventory Management Cycle

Inventory management cycle consists of the following activities:

1. MRP is run to generate production/procurement orders.
2. Procurement orders are converted into PR → PO and GR is done against PO.
3. Goods issue (GI) is done for production orders.
4. Transfer posting of goods from one plant to another is performed when procurement is done from internal sources.

Consignment Cycle

In many industries such as automotive, retail, and so on, manufacturers prefer a very close association with their vendors. They do not want to manage inventory of the components purchased from their vendors. Instead, they want their vendors to manage the inventory. So the vendors do not ship these components to the manufacturer. Instead, the manufacturer provides a warehouse space for the vendor at the manufacturing site (plant) so that the vendor can keep an inventory of components needed for the plant. The plant uses this inventory and the vendor keeps an account of the number of components used by the manufacturer. Billing for the number of components used by the manufacturer is done by the vendor periodically.

In SAP, complete consignment cycle can be done easily in the standard system because default settings are already done so that the business cycle of consignment can be run without changing or setting any configuration in the Implementation Guide (IMG) area.

The steps required to do the complete consignment cycle are as follows:

1. Create info record of consignment type (mandatory).
2. Create consignment PO with item category "K" and maintain info record number.
3. Create GR movement type "101K."
4. Create GI movement type "201K."
5. Do consignment settlement with Tcode "MRKO."

However, if you want to configure the consignment cycle in the IMG area, the complete business configuration and the subsequent testing steps will be as follows:

1. Activate consignment payment via info records in the IMG.
2. Create info record of consignment type for the material that is to be procured from the consignment vendor.
3. Check general ledger (G/L) account setting for consignment payable and stock posting.
4. Create a consignment contract (with an item category type "K").
5. Create a PR referencing the above-created contract.
6. Create a PO referencing the above-created PR for ordering the consignment material into consignment stock.
7. Post GR for the PO. The material will be received in consignment stock. At this point, a material document will be created.
8. Post GI to withdraw material from consignment stock to customer's own stock. At this point, a material document and an accounting document will be created.
9. Do settlement of consignment payment to vendor.

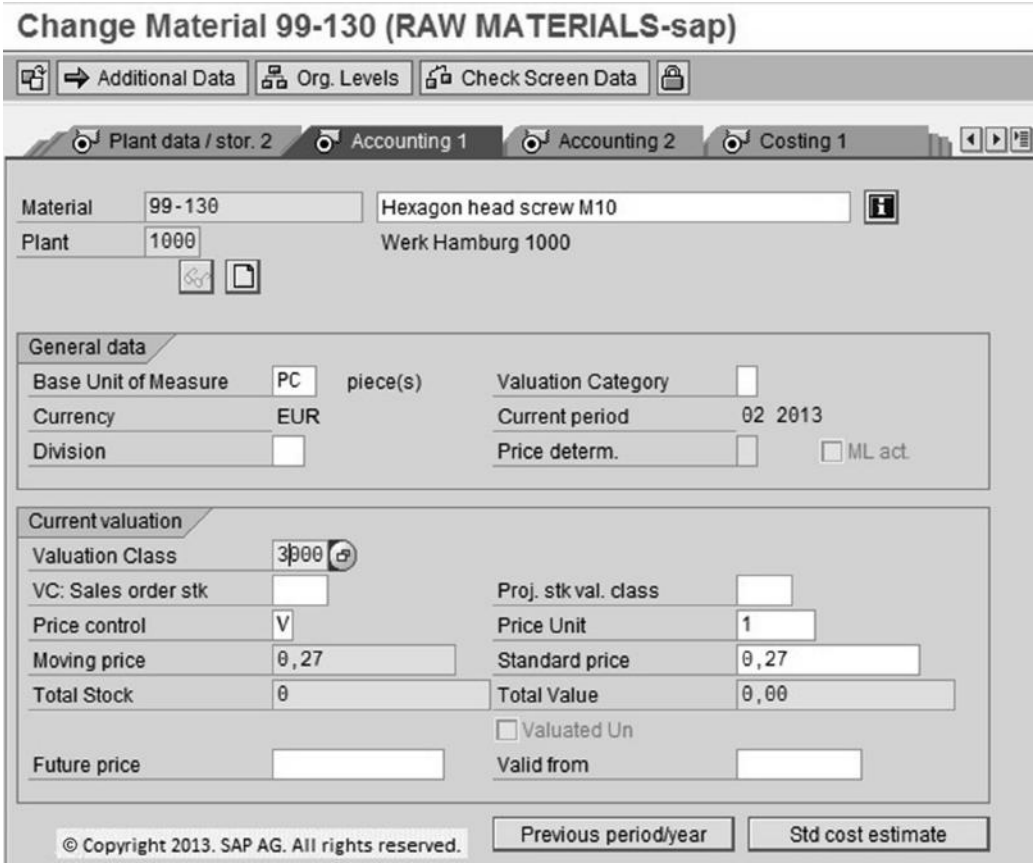
Based on the need for customization and subsequent testing of the configured system, the tasks that need to be done are described in the following sections.

Customization, Configuration, and Master Data Setup

Master data are required for the consignment cycle. You need to create a quantity contract in SAP. The agreement type should be MK. You should have vendor, company code, purchasing organization, and cost center created. You also need to create a PR with document type "NB." Item

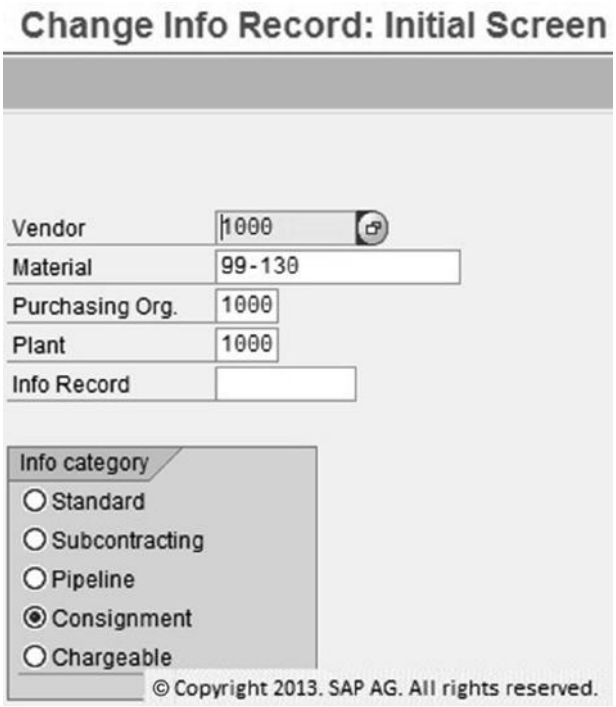
category for both contract and PR should be "K." Material, plant, storage location, and purchasing group should also be created in the system.

First you go to the "Accounting view 1" of the material using the transaction code MM02 or the menu path: SAP Easy Access → SAP Menu → Logistics → Materials Management → Material Master → Material → Change → Immediately (MM02).



On this screen, you can see that the valuation class is "3000." This class of material belongs to raw material and helps to determine the G/L account of the material.

The next task is to create info record of consignment type. If it is already created, you can change the info record using the transaction code ME12 or the menu path: SAP Easy Access → SAP Menu → Logistics → Materials Management → Purchasing → Master Data → Info Record → Change (ME12).


Change Info Record: Initial Screen
Vendor
1000
Material
99-130
Purchasing Org.
1000
Plant
1000
Info Record
Info category
Standard
Subcontracting
Pipeline
Consignment
Chargeable
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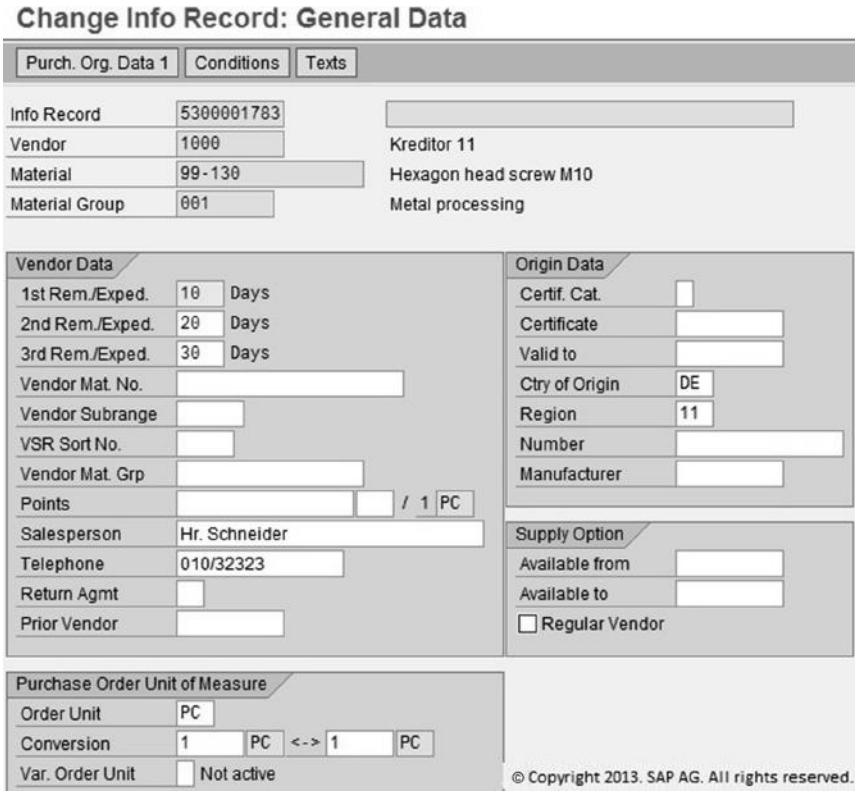
Change Info Record: General Data
Purch. Org. Data 1
Conditions
Texts
Info Record
5300001783
Vendor
1000
Kreditor 11
Material
99-130
Hexagon head screw M10
Material Group
001
Metal processing
Vendor Data
1st Rem./Exped.
10
Days
2nd Rem./Exped.
20
Days
3rd Rem./Exped.
30
Days
Vendor Mat. No.
Vendor Subrange
VSR Sort No.
Vendor Mat. Grp
Points
/ 1
PC
Salesperson
Hr. Schneider
Telephone
010/32323
Return Agmt
Prior Vendor
Origin Data
Certif. Cat.
Certificate
Valid to
Ctry of Origin
DE
Region
11
Number
Manufacturer
Supply Option
Available from
Available to
Regular Vendor
Purchase Order Unit of Measure
Order Unit
PC
Conversion
1
PC
<->
1
PC
Var. Order Unit
Not active
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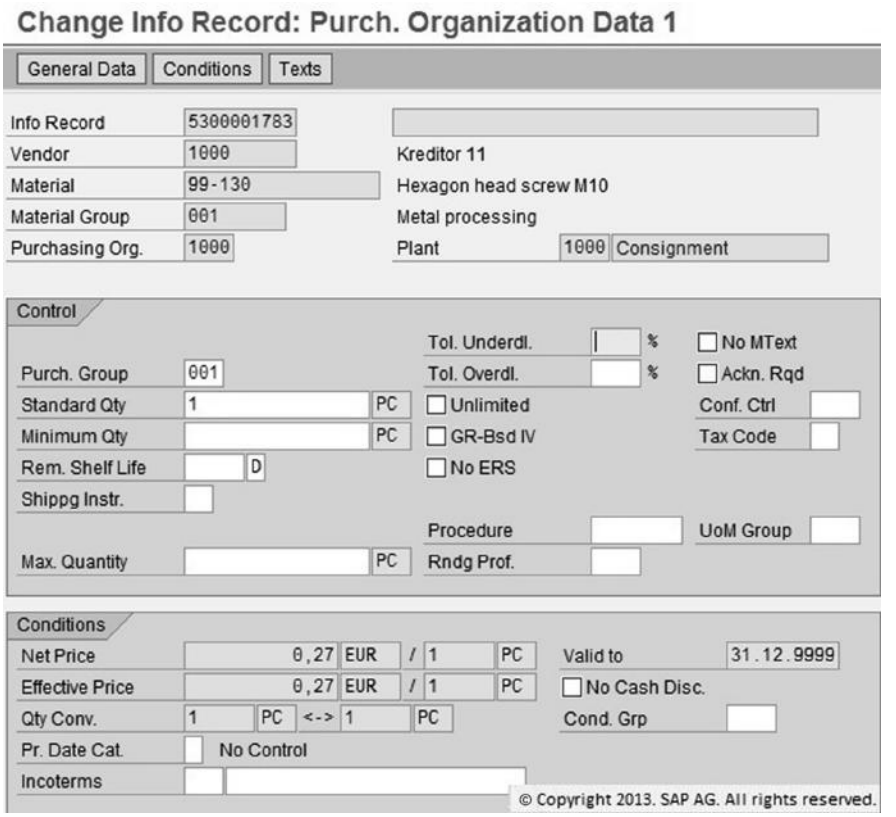
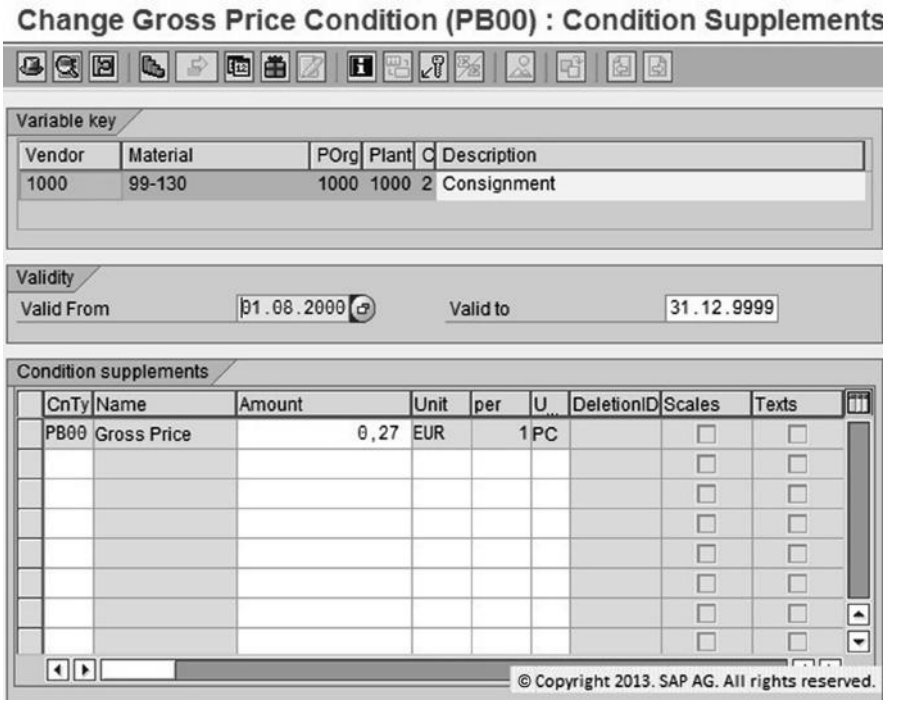

Change Info Record: Purch. Organization Data 1
General Data
Conditions
Texts
Info Record 5300001783
Vendor 1000 Kreditor 11
Material 99-130 Hexagon head screw M10
Material Group 001 Metal processing
Purchasing Org. 1000 Plant 1000 Consignment
Control
Purch. Group 001
Standard Qty 1 PC
Minimum Qty PC
Rem. Shelf Life D
Shippg Instr.
Max. Quantity PC
Tol. Underdl. %
Tol. Overdl. %
Unlimited
GR-Bsd IV
No ERS
Procedure
Rndg Prof.
No MText
Ackn. Rqd
Conf. Ctrl
Tax Code
UoM Group
Conditions
Net Price 0,27 EUR / 1 PC
Effective Price 0,27 EUR / 1 PC
Qty Conv. 1 PC <-> 1 PC
Pr. Date Cat. No Control
Incoterms
Valid to 31.12.9999
No Cash Disc.
Cond. Grp
© Copyright 2013. SAP AG. All rights reserved.


Change Gross Price Condition (PB00) : Condition Supplements
Variable key
Vendor Material POrg Plant C Description
1000 99-130 1000 1000 2 Consignment
Validity
Valid From 01.08.2000
Valid to 31.12.9999
Condition supplements
CnTy Name Amount Unit per U... DeletionID Scales Texts
PB00 Gross Price 0,27 EUR 1 PC
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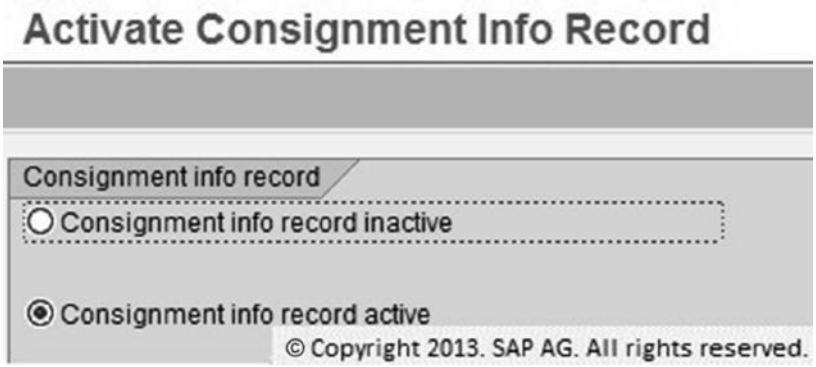
You need to set up a source list. Use the transaction code ME01 to maintain the source list or the menu path: SAP Easy Access → SAP Menu → Logistics → Materials Management → Purchasing → Master Data → Source List → Maintain (ME01).

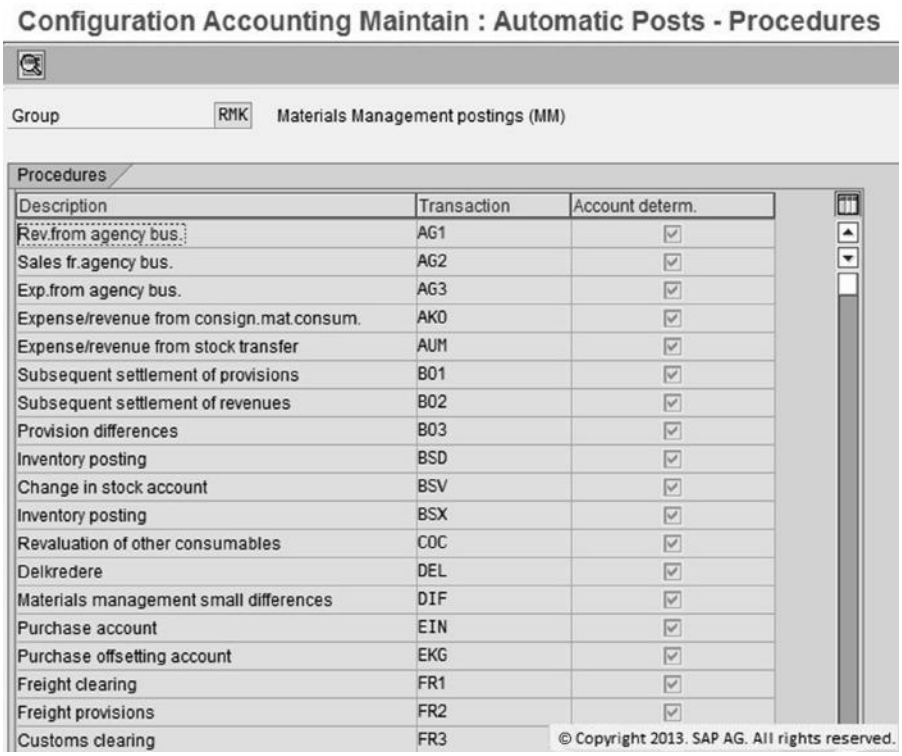
On the initial screen, enter the plant and material. You will then go to overview screen, which is shown in the below figure.

After you have checked master data entries, you need to perform some customizing activities. First, you need to activate consignment prices via info record in this customizing activity. Use the transaction code OMEV. You can also use the transaction code SPRO or the customizing menu path: IMG → Materials Management → General Settings for Materials Management → Activate Consignment Prices via Info Records → Activate Consignment Prices via Info Records.

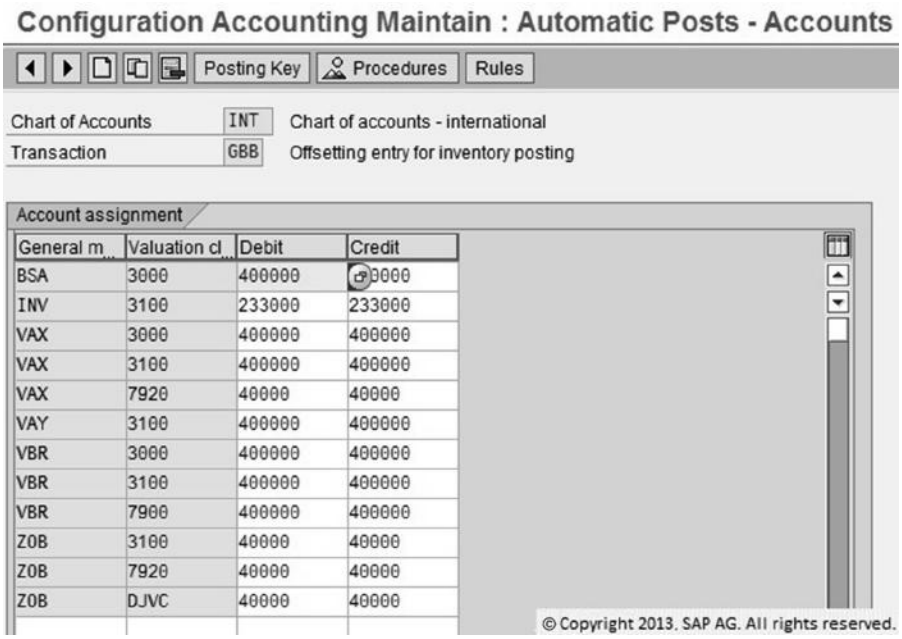


Now you need to configure and check G/L account determination for posting the consignment prices for the material. Use the transaction code OMBW for this purpose. You can also use the transaction code SPRO or the customizing menu path IMG → Materials Management → Valuation and Account Assignment → Account Determination → Account Determination without Wizard → Configure Automatic Postings.

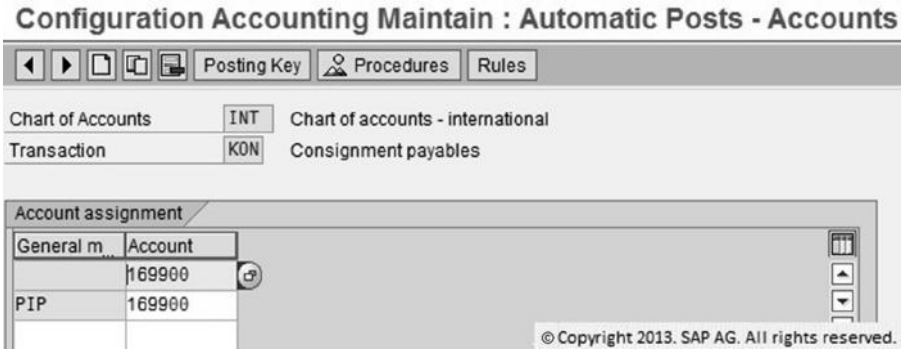
After you hit Enter, you will get the "Configure automatic posting" screen. Click on Cancel button on this screen. Now click on the Account assignment button. Here you will see the "Configuration account maintain: Automatic posts—Procedures" screen as shown in the below figure.



You will get a list of accounts here. We need to configure and check only two accounts: the account settings for inventory offsetting and the account settings for consignment payables. For finding the account settings for inventory offsetting, double click on "GBB" entry in the list (for "Offsetting entry for inventory posting"). A pop-up window will be displayed. Enter "INT" as the chart of accounts here (configurations have been set for this chart of accounts under company code 0001). Now hit Enter. You will get the screen "Configuration accounting maintain: Automatic posts—Accounts" as depicted in the below figure. On this screen, you can see that there is an entry for valuation class "3000." There are entries for debit and credit for this class, which are G/L account numbers. So whenever there is an inventory posting and there is a financial document created, the financial transaction will result in either debit or credit into these G/L account numbers.



We also need to set up G/L account for consignment transaction postings by going back to the "Configuration accounting maintain: Automatic posts—Procedures" screen. Here there is an entry "KON" for "consignment payables." On double clicking this entry, you will get a screen similar to the one given below.

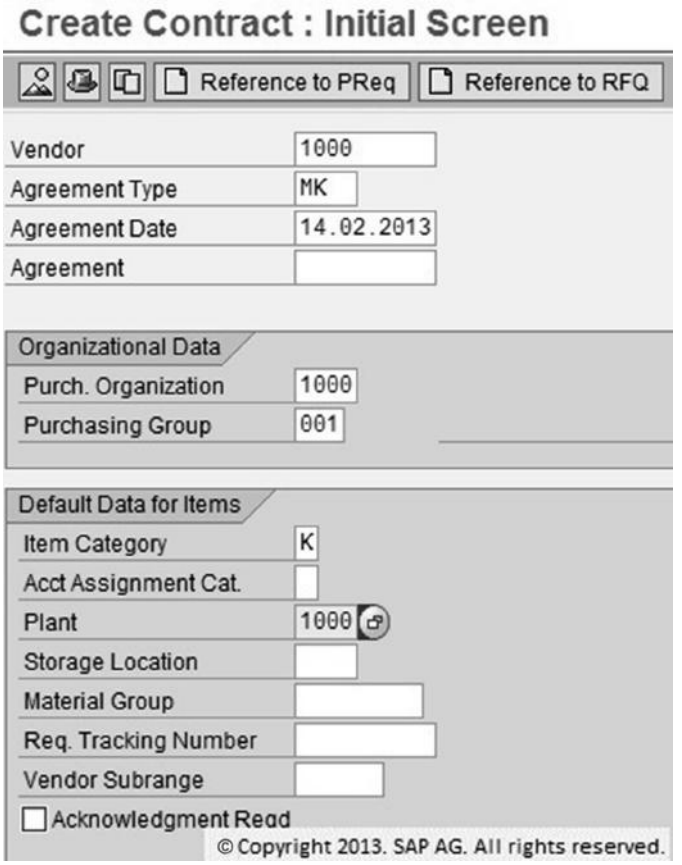


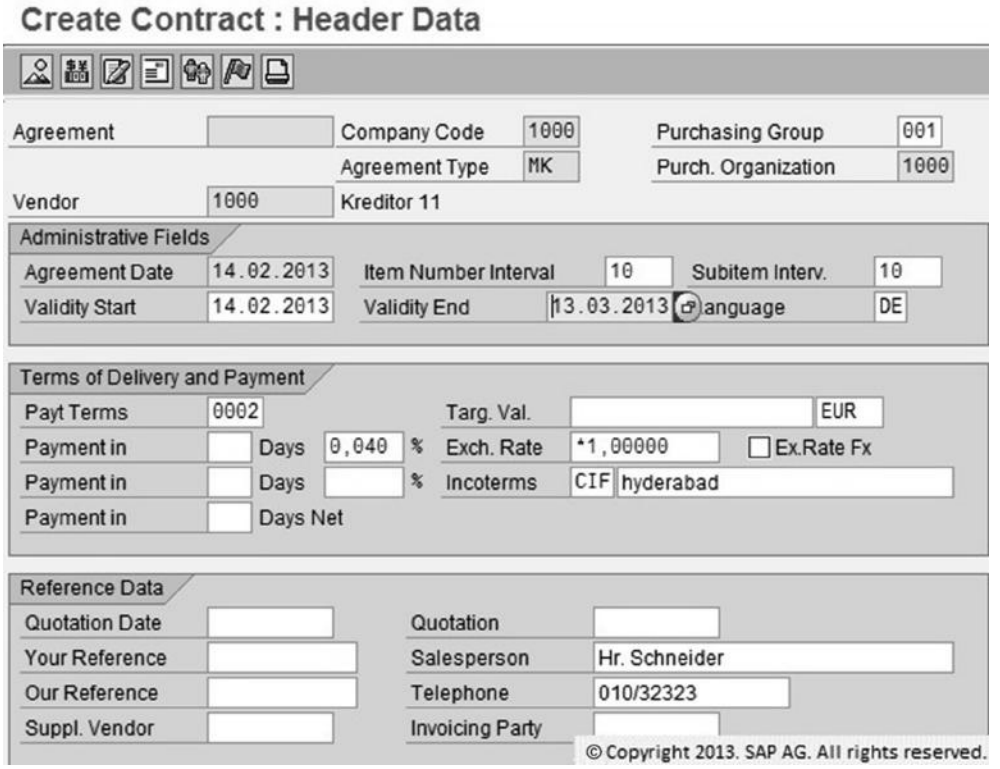
On this screen, there is an entry for general modification as "PIP" and there is an entry for account against "PIP." This is the G/L account that will be credited or debited whenever there is a transaction posting (invoice payment in case of consignment).

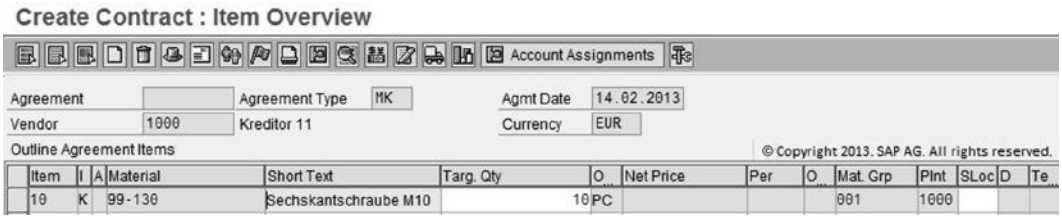
Process Demonstration

Once we have done setup as well as customization for master data, we are ready to demonstrate the consignment cycle.

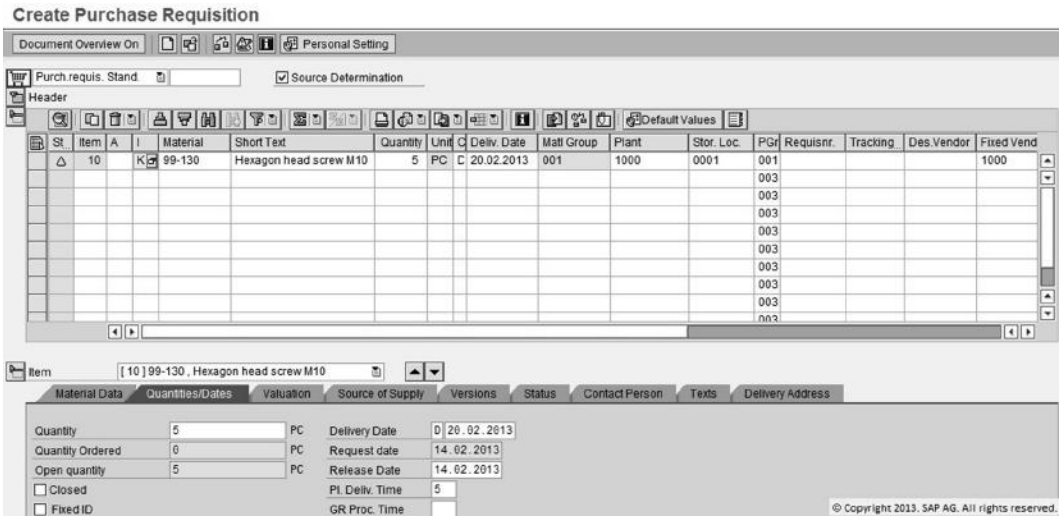
First we need to create a quantity contract. For this, use the transaction code ME31K or the menu path: SAP Easy Access → SAP Menu → Logistics → Materials Management → Purchasing → Outline Agreement → Contract → Create (ME31K).

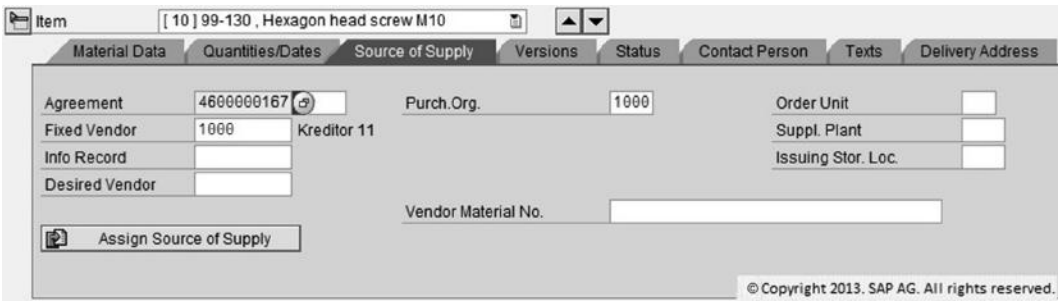






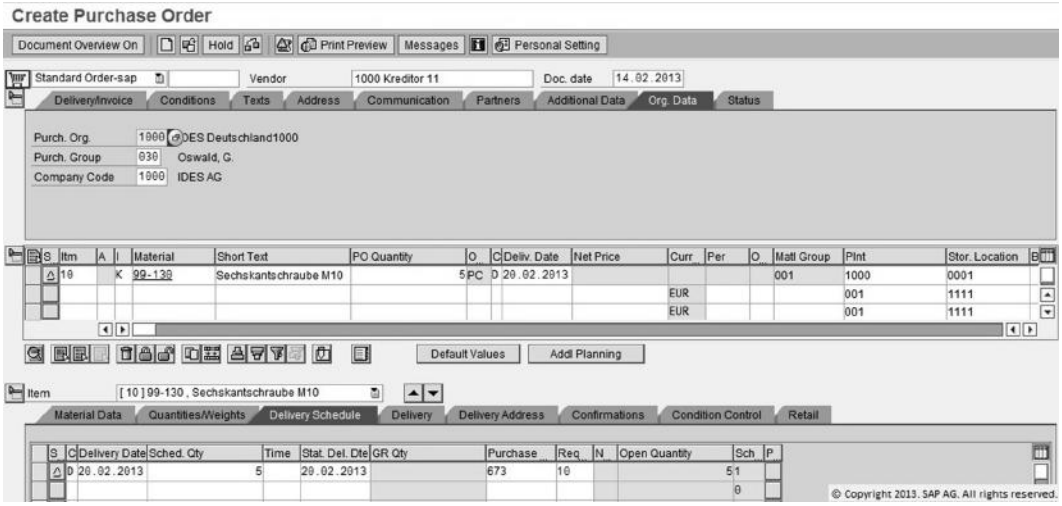
Now you will need to create a PR. For this, use the transaction code ME51N or the menu path: SAP Easy Access → SAP Menu → Logistics → Materials Management → Purchasing → Purchase Requisition → Create (ME51N).



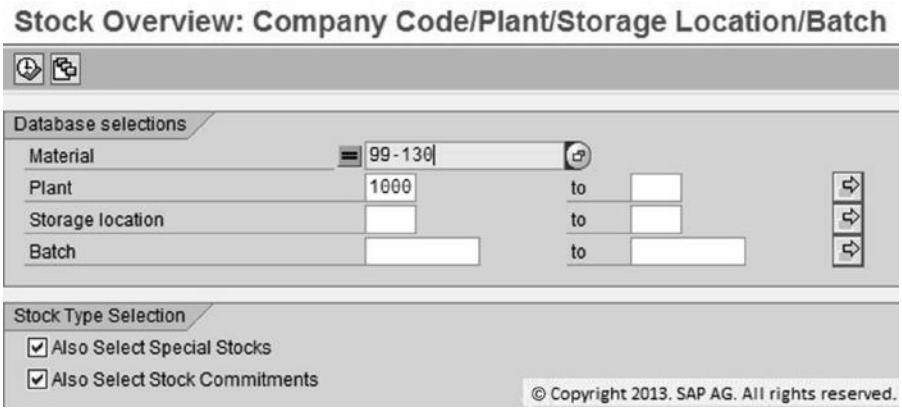


Then you will need to create a PO from the PR you just created. For this, use the transaction code ME21N or the menu path: SAP Easy Access → SAP Menu → Logistics → Materials Management → Purchasing → Purchase Order → Create → Vendor/Supplying Plant Known (ME21N).

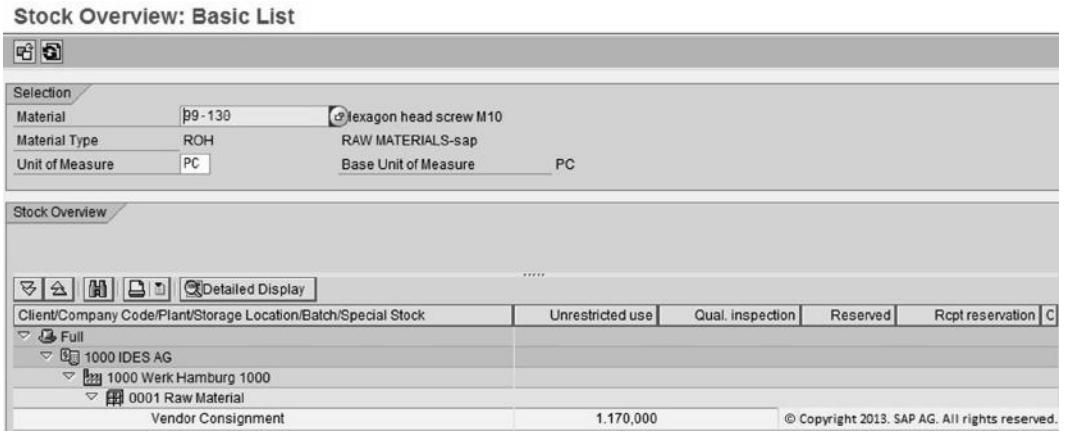
When you select the selection variant "Purchase Requisitions," you will be taken to the selection screen. Enter your PR number and click on the "Execute" button. You will return back to the Create purchase order screen. In the document overview pane, you can see your PR number. Select it and click on the "Adopt" button. Your data from the purchase requisition will be copied to the PO and you will see the screen as depicted in the below figure.



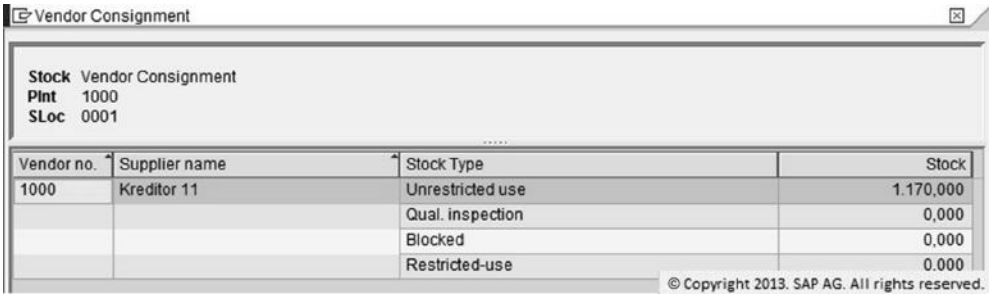
Now you will need to post GR. But before doing GR, you need to check the stock of the material in the consignment stock. You can make sure that the consignment stock gets increased by the amount of material you receive after GR transaction. To do it, you will need to use the transaction code MMBE or the menu path: SAP Easy Access → SAP Menu → Logistics → Materials Management → Inventory Management → Environment → Stock → Stock Overview (MMBE).



Select the plant and material and then push the "Execute" button.

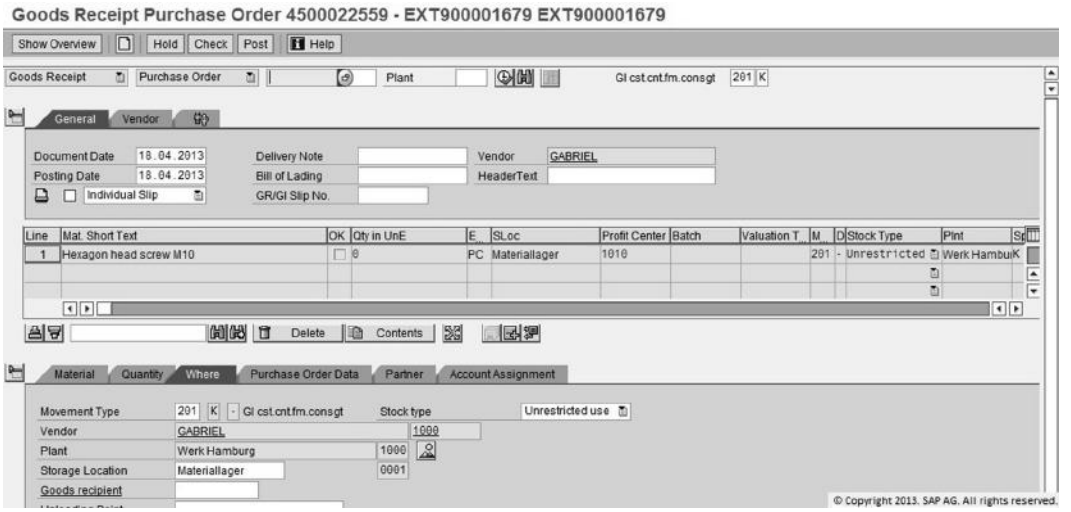


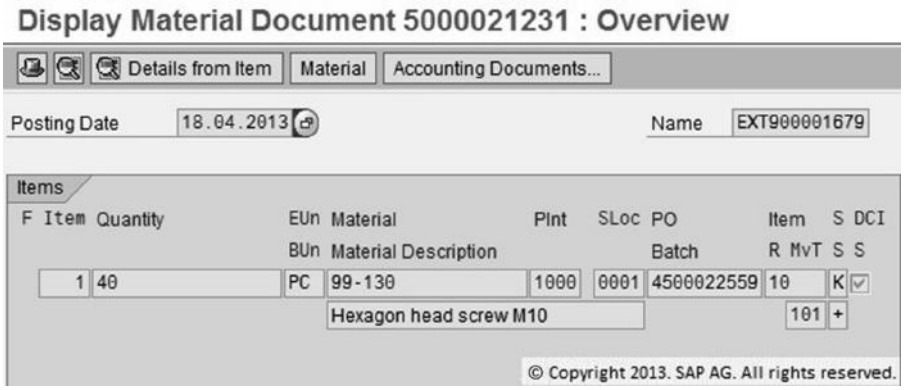
On this screen, you can see that for this material, there is stock available with the vendor as consignment stock. On clicking the Consignment stock button, you will get a detailed report on this consignment stock as shown in the below figure.

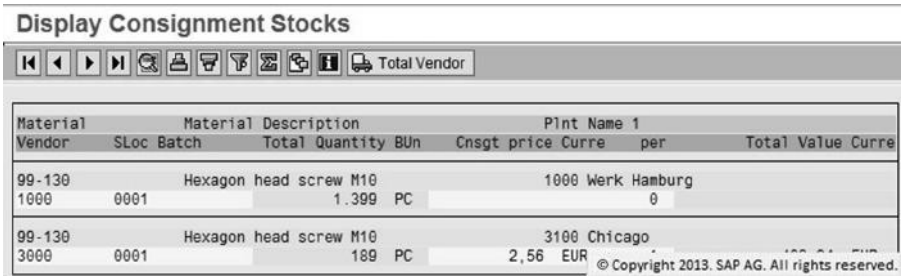


Now use the menu path Logistics → Materials Management → Inventory Management → Goods Movement → Goods Movement (MIGO) to do GR of material into consignment stock.

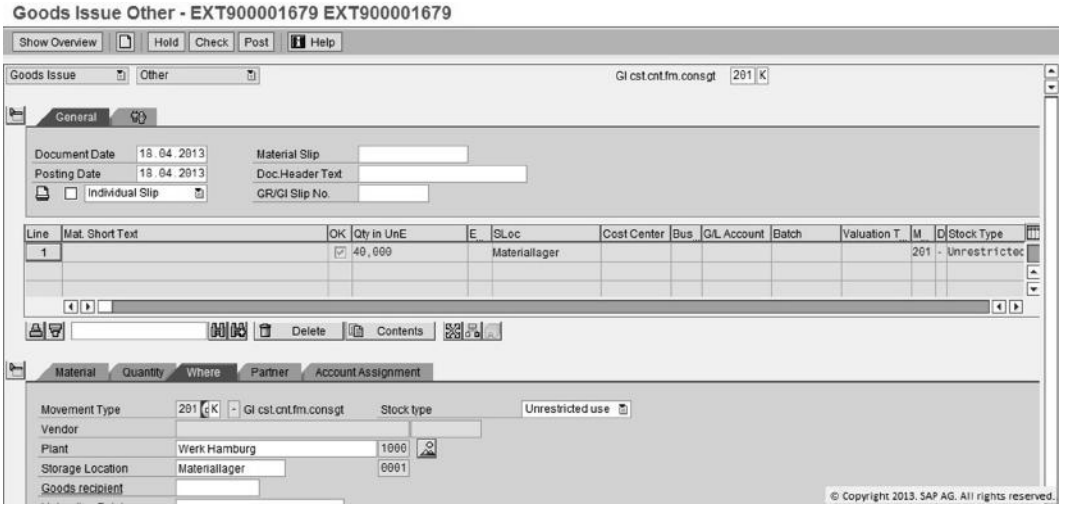
Once goods are received in the consignment stock, the consignment stock quantity will reflect it. You can now use the transaction code MB54 to check it.



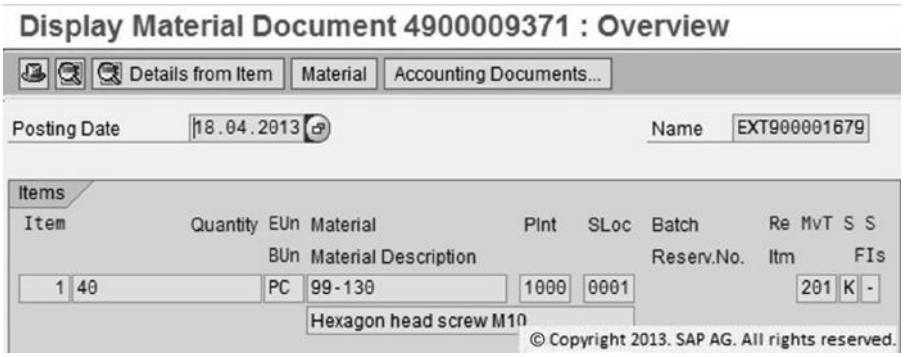




Now you need to transfer some stock from the consignment stock to your own stock when consumption of the material is needed in production. For this, you can do GI to the cost center. Once GI happens, a material document as well as an accounting document is generated.



It is because the consignment stock is owned by the vendor and not by the customer. When a GR is made to this consignment stock, there is no financial transaction. The financial transaction happens when a GI is made from the consignment stock to the customer's own stock.



Subcontracting Cycle

Subcontracting cycle is used when some material needs to be processed by a subcontractor and then the finished material will be returned back to the customer. Subcontracting is also used when assembling of parts needs to be done by a subcontractor and the assembled component is returned to the customer. The standard method of process flow is to create a PO then receive goods (create GR) and finally issue goods (GI). But in subcontracting process this process is not followed. Here, a PO is created on the subcontractor as vendor for the finished goods. In the PO, the parts or the material needed to be sent to the subcontractor is specified. To do this, the PO contains an item category as "L" (subcontracting). Subsequently, a GI needs to be done so that the subcontractor receives the material or assembly parts for his work. Once the subcontractor finishes his work, he will send the finished material or assembly to the customer. This process is done through a GR.

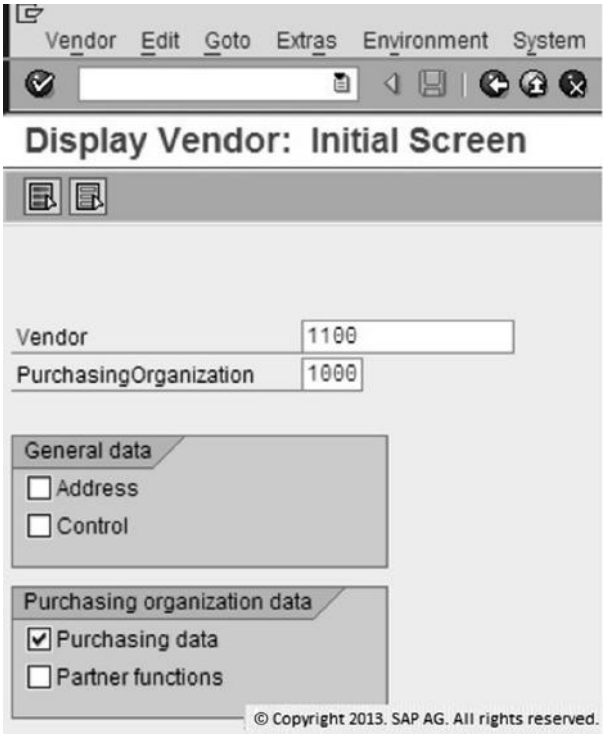
So you can see that the subcontracting process has process elements that are arranged in a very different way compared to a standard purchase process. Now let us discuss the complete subcontracting process as how it is done in SAP.

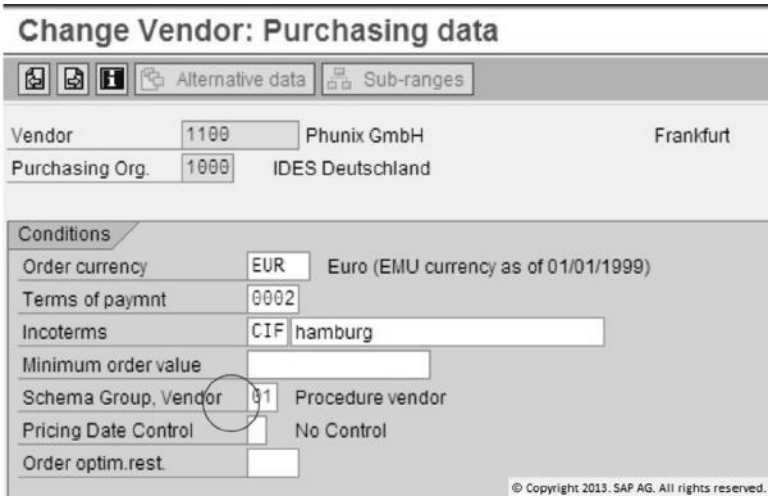
Customizing Settings

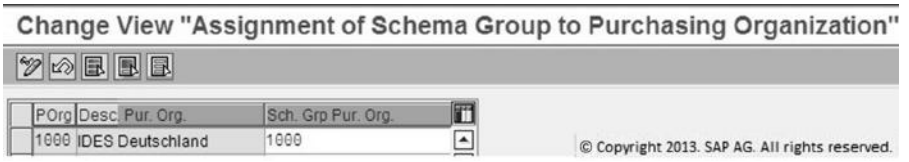
Calculation Schema

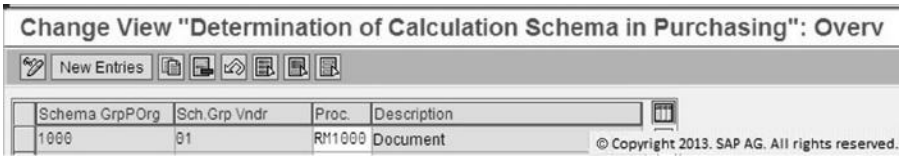
Calculation of price for a purchase transaction is triggered from calculation schema stored at purchase organization and vendor master records. We need to check whether these records exist before we go ahead and do next setup steps.

Use the transaction code MK03 or the menu path Logistics → Materials Management → Purchasing → Master Data → Vendor → Purchasing → Display (Current) to check vendor calculation schema. You need to specify the vendor (subcontractor) and purchasing organization for the schema group which will define the price for subcontracting.





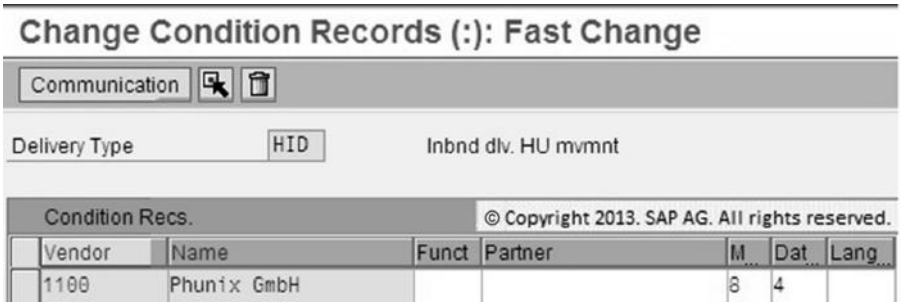




You can see in the above screen that the schema group for vendor 1100 for purchasing organization 1000 is 01.

Now you need to set up schema group for purchasing organization. Use the menu path IMG → Materials Management → Purchasing → Conditions → Define Price → Determination Process → Define Schema Group → Assignment of Schema Group to Purchasing Organization. On this screen, you can see that there is a schema group corresponding to the schema group for the vendor. It means that the schema group for the purchasing organization is defined.

The subcontracting process is demonstrated based on sending delivery from plant to a warehouse through inbound delivery. The condition record for inbound delivery should also be set up.



Document Type

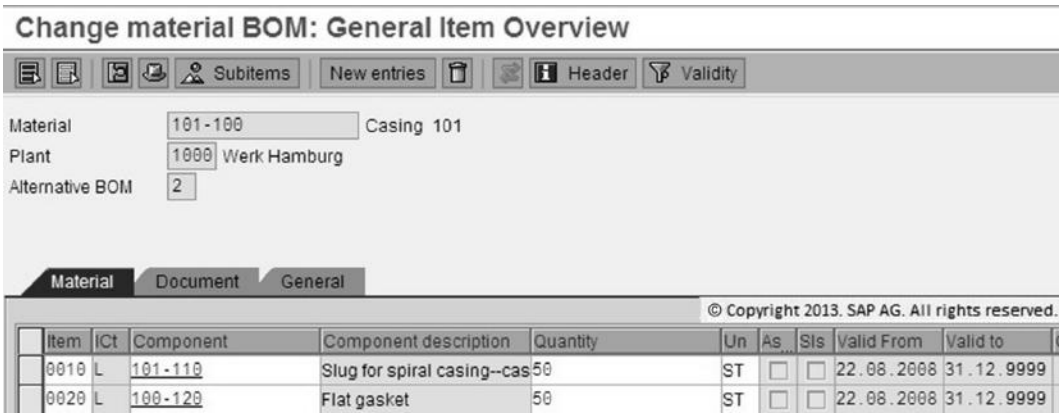
You also need to set up the document type for the subcontract order. This step is optional as you can also use a standard PO of type "NB" with an item category "L" for subcontracting. But if you define a document type exclusively for subcontract order, the end users will not have a chance to make any error when they create a PO for subcontracting.

To set up the document type, use the menu path: IMG → Materials Management → Purchasing → Purchase Order → Set Up Subcontract Order. You need to specify the supplying plant from where the assembly parts or material for processing will be delivered and select the document type. The document type for subcontracting is "ZLB" (also known as delivery type for provision of material for subcontracting).

Master Data Setting

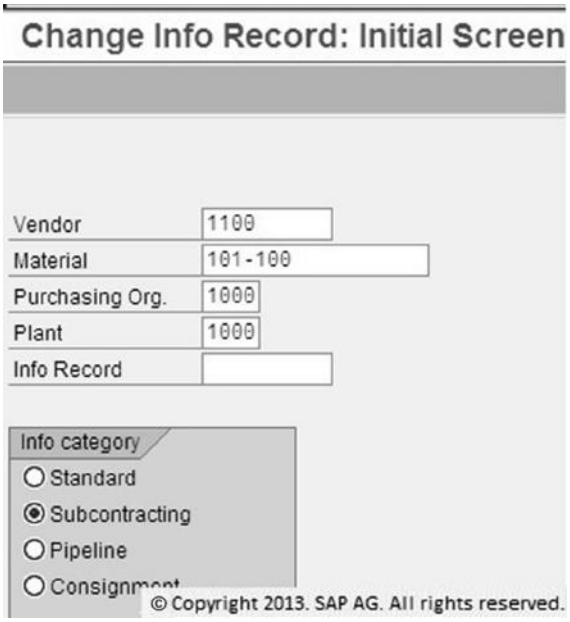
You need to create material master data for the component materials and the assembled or finished materials. If a bill of materials (BOM) is required, it should be created and the relationship of parent material and children material should be defined in the BOM.

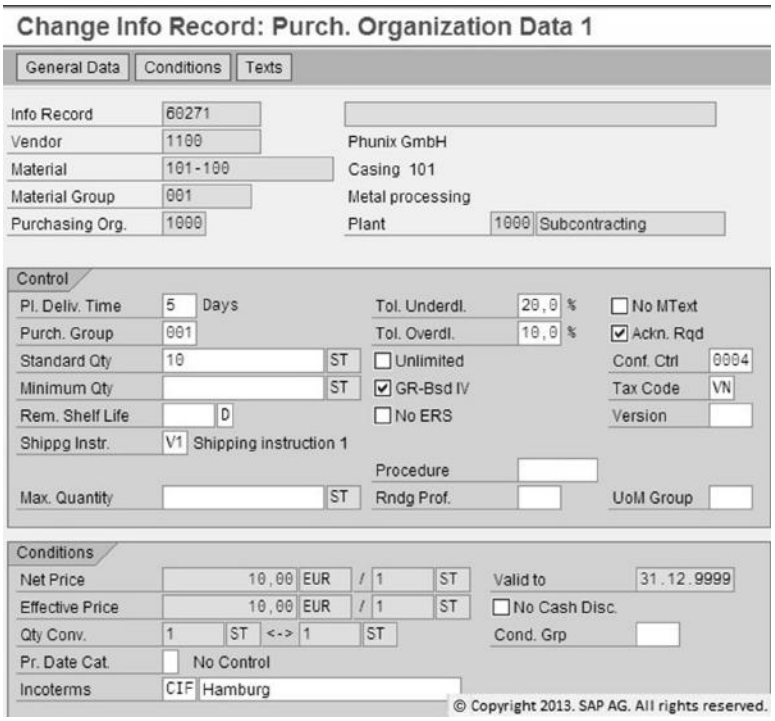
Parent material 101-100 (finished assembly) is created in the system. Assembly components 101-110 and 101-120 are also created in the system.



Info Record

You need to set up info record of subcontracting type for the finished material so that the vendor can charge the customer. Use the menu path Logistics → Materials Management → Master Data → Info Record → Change as there is an info record already created.

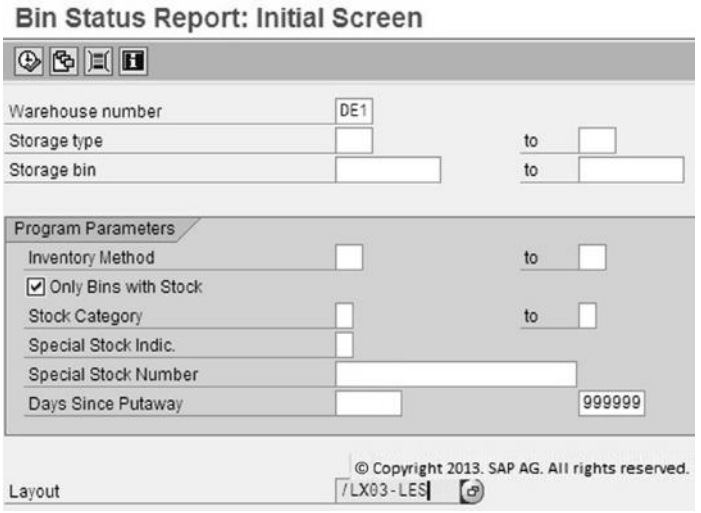




Testing the Subcontracting Cycle

Once your master data and testing transaction data are set up, you can start testing the subcontracting cycle. First, you need to create a PO with an item category "L." In the PO, you need to specify how much quantity of the assembled products needs to be sent by the subcontractor to the customer. The customer needs to supply the parts required for the assembly. These parts and their quantity are mentioned on the PO. If a BOM exists, through BOM explosion the assembly parts and their quantities are determined. If no BOM exists, the assembly parts and their quantities are entered manually on the PO.

We need to check the bin status for the initial stock position in the bin of the warehouse where the material will be sent.



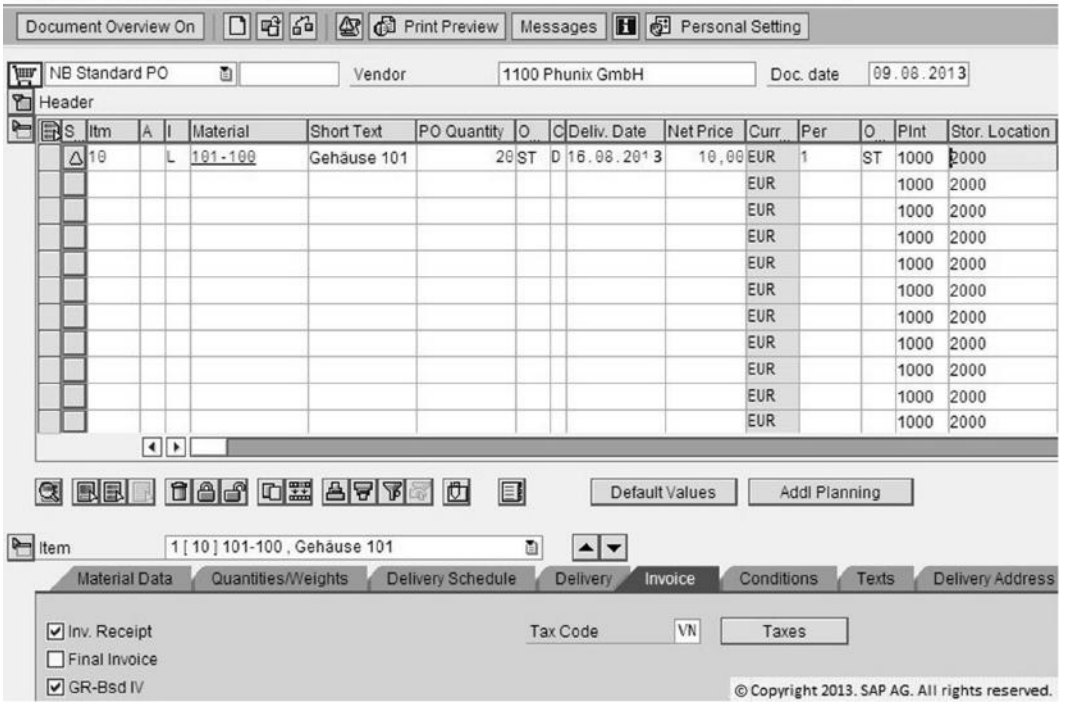
Bin Status Report: Overview

Warehouse Number DE1

Typ	Sec	StorageBin	SUT	Material	Plnt	SLoc	BT	No.stor.un	Available stock	Storage Unit	S	Insp. Lot
001	002	03-01-03	IP	QS6X20	1000	2000	B1	1,000	2.500	00110005670000007401		
001	002	03-01-04	IP	QS6X20	1000	2000	B1	1,000	2.500	00110005670000007418		
002	RND	01-01-01	IP	QS6X20	1000	2000	B1	1,000	2.500	00110005670000007388		
002	RND	01-01-02	IP	101-110	1000	2000	B1	1,000	64	00112345670000007455		
005	FXB	03-01-00	IP	101-110	1000	2000	B1	1,000	60	00112345670000007448		
005	FXB	03-02-00	IP	100-120	1000	2000	B1	1,000	140	00112345670000007462		
005	FXB	03-03-00	IP	101-100	1000	2000	B1	1,000	4	00112345670000007516		
005	FXB	03-05-00	IP	QS6X20	1000	2000	B1	1,000	1.500	00112345670000006953		
*									9.268	© Copyright 2013. SAP AG. All rights reserved.		

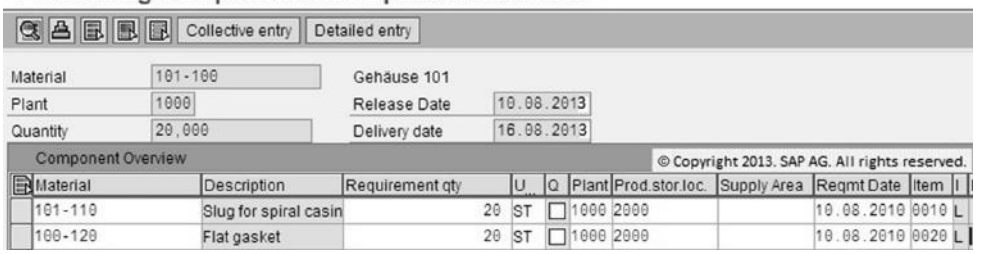
After the PO is entered and saved in the system, the customer can do GI for the assembly parts. These assembly parts are transferred to the subcontractor stock through GI transaction. Once the subcontractor receives the assembly parts, the assembling process is started.

Create Purchase Order



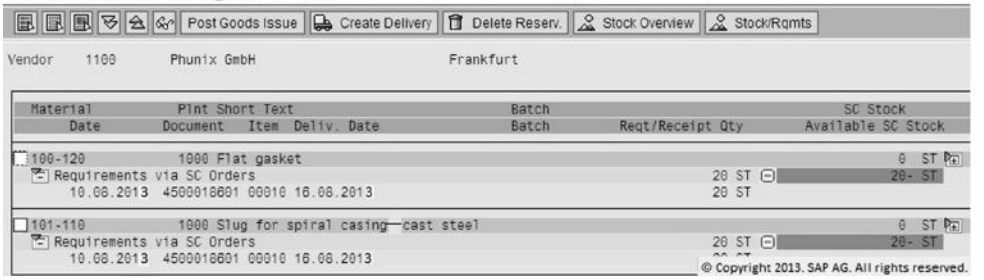
S	Itm	A	I	Material	Short Text	PO Quantity	O...	C	Deliv. Date	Net Price	Curr...	Per	O...	Plnt	Stor. Location
△	10		L	101-100	Gehäuse 101	20	ST	D	16.08.2013	10,00	EUR	1	ST	1000	2000
											EUR			1000	2000
											EUR			1000	2000
											EUR			1000	2000
											EUR			1000	2000
											EUR			1000	2000
											EUR			1000	2000
											EUR			1000	2000
											EUR			1000	2000
											EUR			1000	2000
											EUR			1000	2000

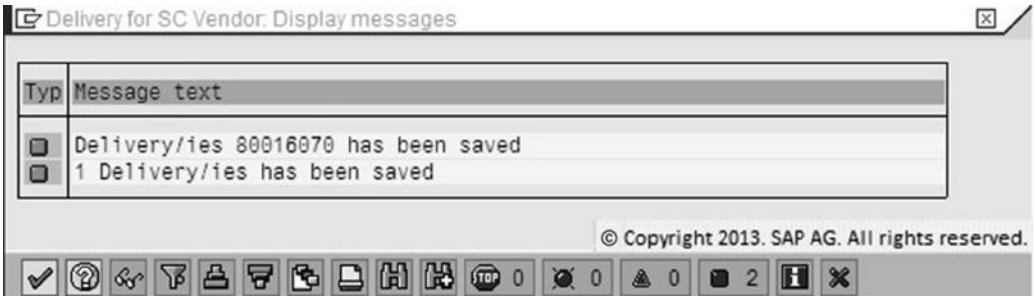
Processing Components: Component Overview

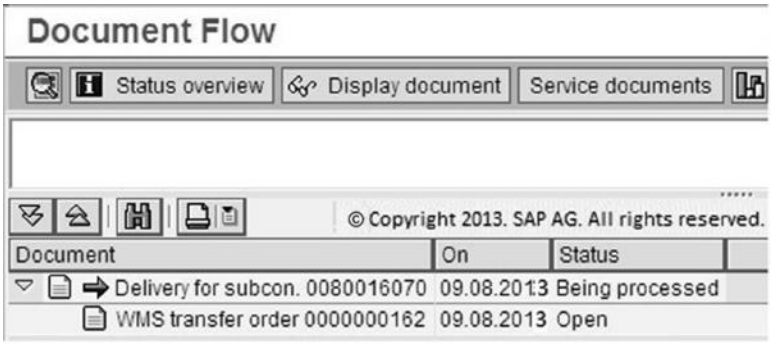


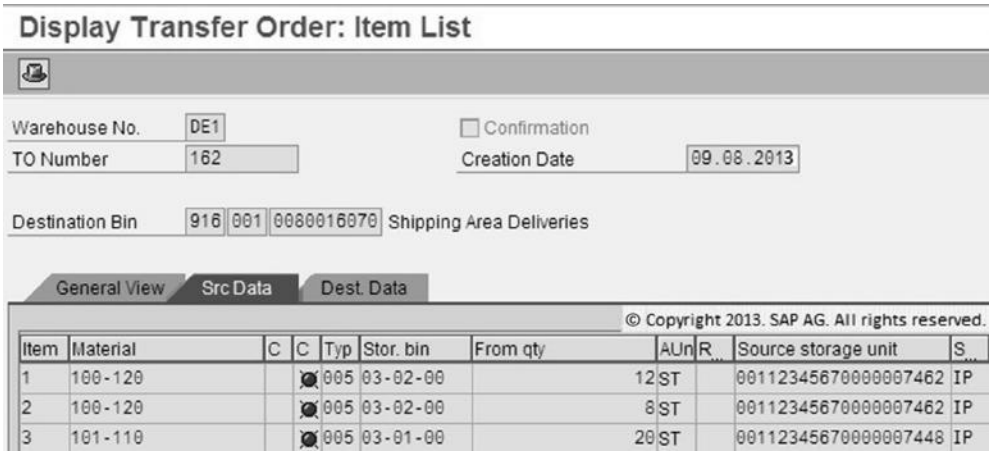
Material	Description	Requirement qty	U...	Q	Plant	Prod.stor.loc.	Supply Area	Reqmt Date	Item	I
101-110	Slug for spiral casin	20	ST	☐	1000	2000		10.08.2010	0010	L
100-120	Flat gasket	20	ST	☐	1000	2000		10.08.2010	0020	L

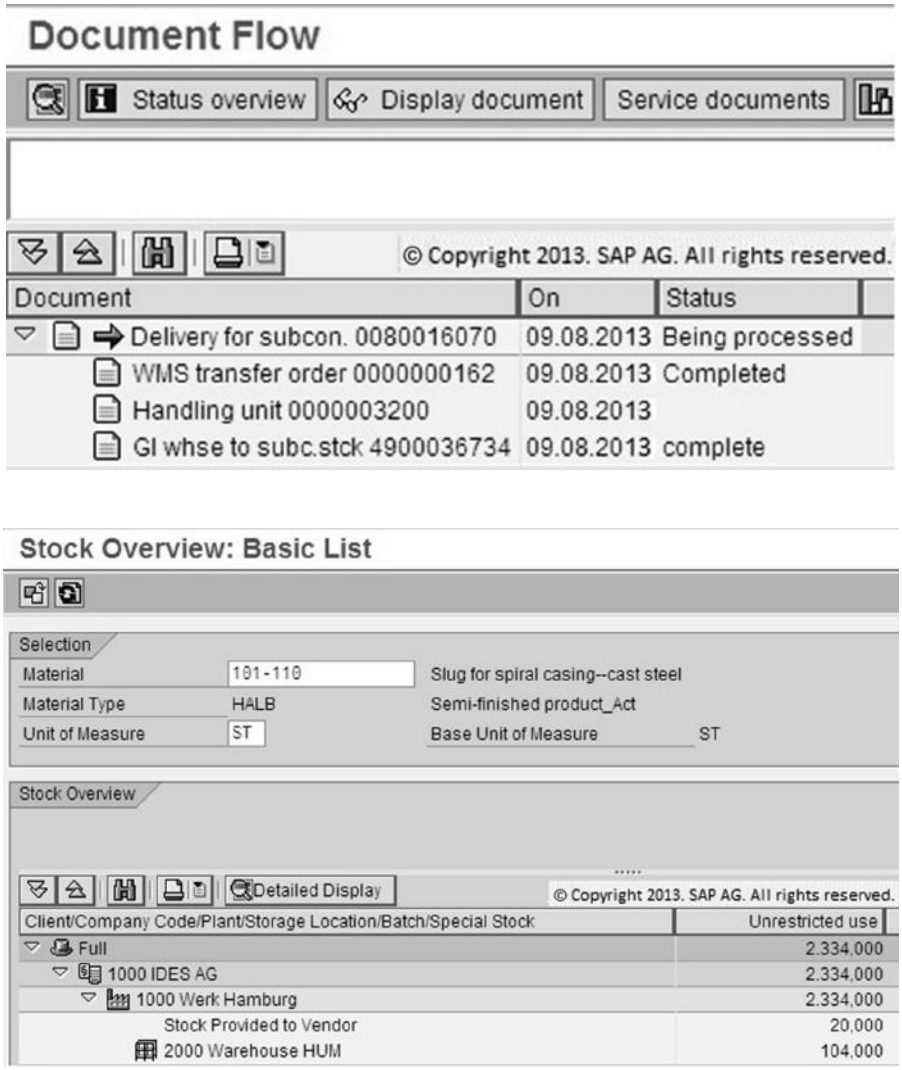
SC Stock Monitoring for Vendor



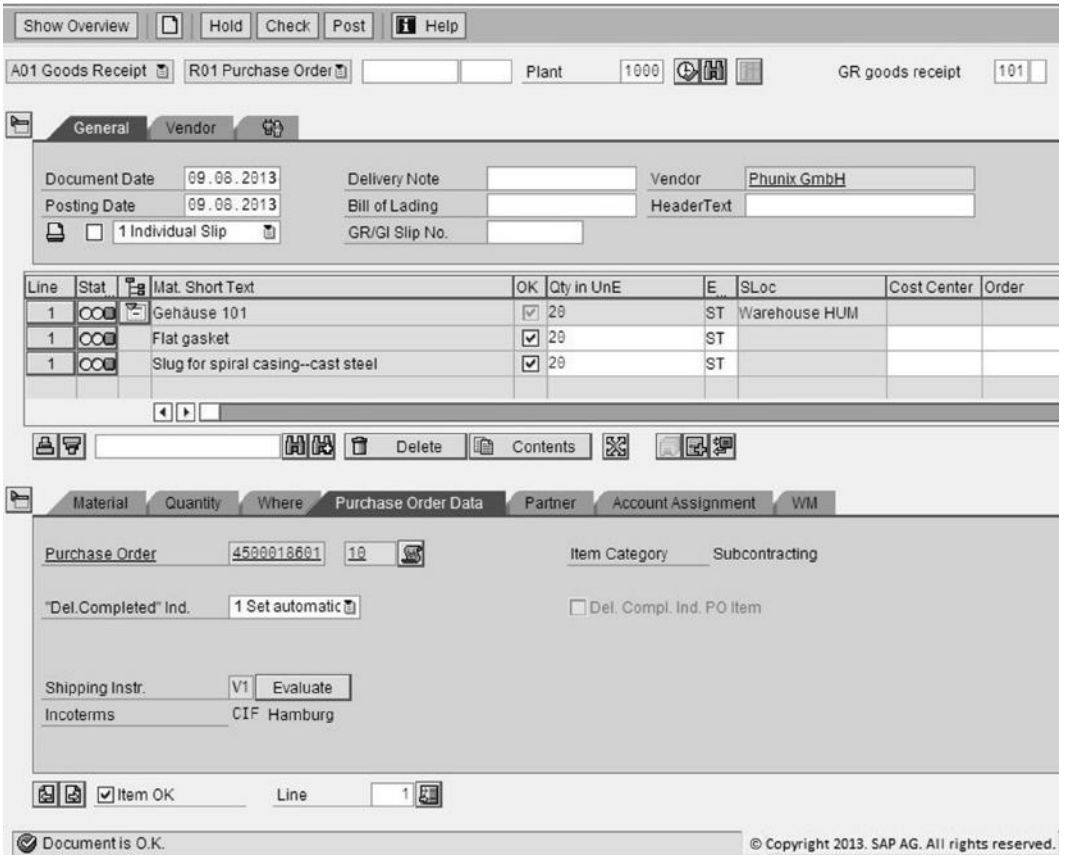

Delivery for SC Vendor: Display messages
Typ
Message text
Delivery/ies 80016070 has been saved
1 Delivery/ies has been saved
© Copyright 2013. SAP AG. All rights reserved.


Document Flow
Status overview
Display document
Service documents
© Copyright 2013. SAP AG. All rights reserved.
Document
On
Status
Delivery for subcon. 0080016070 09.08.2013 Being processed
WMS transfer order 0000000162 09.08.2013 Open


Display Transfer Order: Item List
Warehouse No. DE1
TO Number 162
Confirmation
Creation Date 09.08.2013
Destination Bin 916 001 0080016070 Shipping Area Deliveries
General View
Src Data
Dest. Data
© Copyright 2013. SAP AG. All rights reserved.
Item Material C C Typ Stor. bin From qty AUn R... Source storage unit S...
1 100-120 005 03-02-00 12 ST 00112345670000007462 IP
2 100-120 005 03-02-00 8 ST 00112345670000007462 IP
3 101-110 005 03-01-00 20 ST 00112345670000007448 IP



Once assembling process is complete, the subcontractor will post GR to the customer. The assembled and finished products will be received by the customer through the GR transaction. The subcontractor will be paid for the assembling service. Unused or overconsumed assembly parts will be taken care of by a 541 or 543 movement type.


Show Overview
Hold
Check
Post
Help
A01 Goods Receipt
R01 Purchase Order
Plant
1000
GR goods receipt
101
General
Vendor
Document Date
09.08.2013
Posting Date
09.08.2013
1 Individual Slip
Delivery Note
Bill of Lading
GR/GI Slip No.
Vendor
Phunix GmbH
HeaderText
Line
Stat.
Mat. Short Text
OK
Qty in UnE
E...
SLoc
Cost Center
Order
1
Gehäuse 101
20
ST
Warehouse HUM
1
Flat gasket
20
ST
1
Slug for spiral casing--cast steel
20
ST
Delete
Contents
Material
Quantity
Where
Purchase Order Data
Partner
Account Assignment
WM
Purchase Order
4500018601
10
Item Category
Subcontracting
"Del.Completed" Ind.
1 Set automatic
Del. Compl. Ind. PO Item
Shipping Instr.
V1
Evaluate
Incoterms
CIF Hamburg
Item OK
Line
1
Document is O.K.
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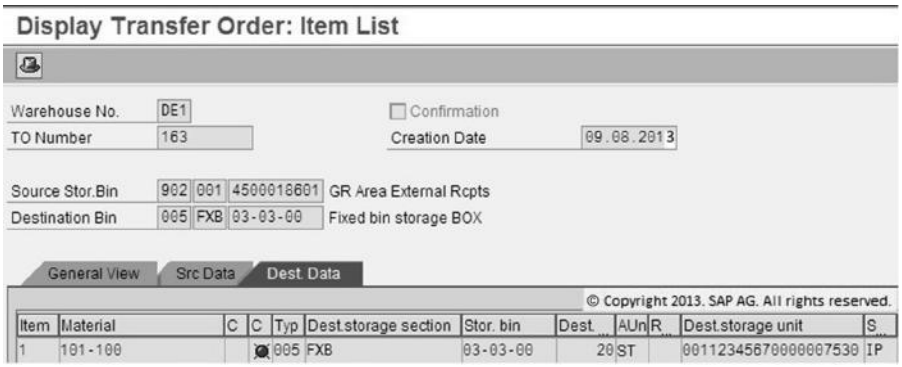
Display Transfer Order: Item List
Warehouse No.
DE1
Confirmation
TO Number
163
Creation Date
09.08.2013
Source Stor.Bin
902
001
4500018601
GR Area External Rcpts
Destination Bin
005
FXB
03-03-00
Fixed bin storage BOX
General View
Src Data
Dest. Data
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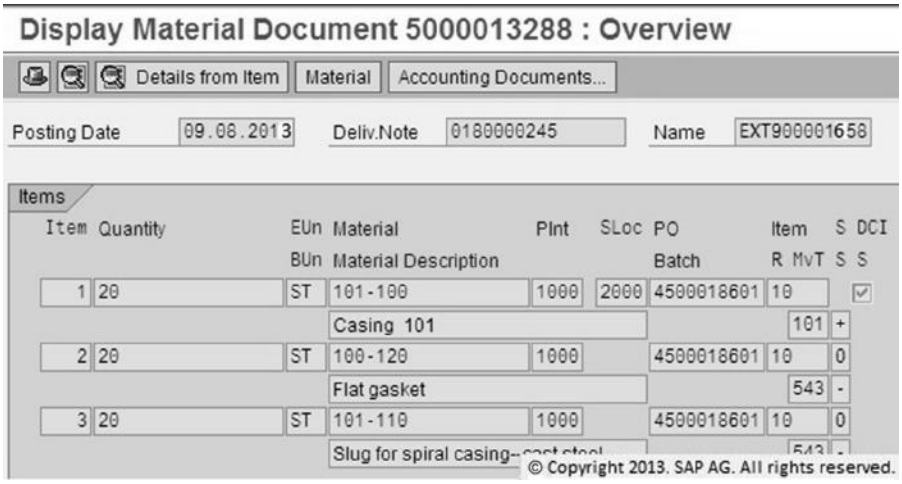
Item
Material
C
C
Typ
Dest.storage section
Stor. bin
Dest. ...
AUn
R...
Dest.storage unit
S...
1
101-100
005
FXB
03-03-00
20
ST
00112345670000007530
IP



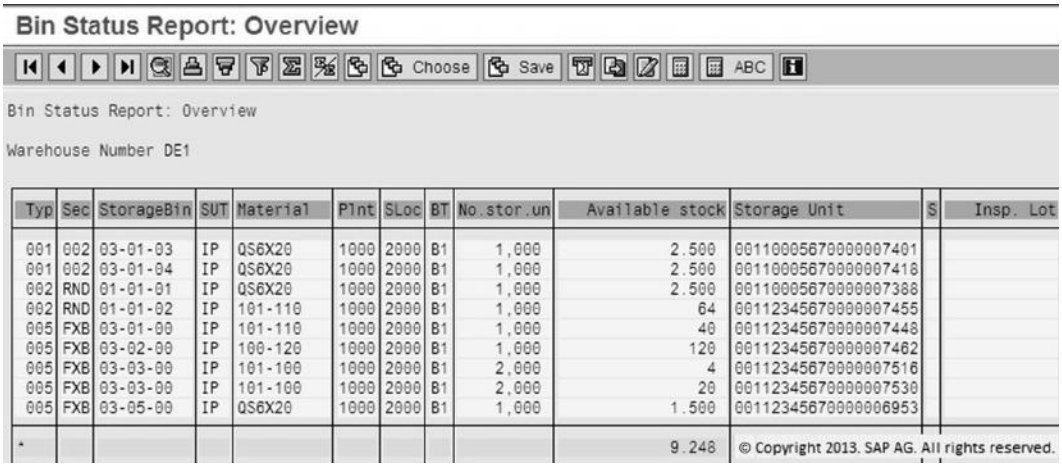
Display Material Document 5000013288 : Overview

Details from Item | Material | Accounting Documents...

Posting Date 09.08.2013 Deliv.Note 0180000245 Name EXT900001658

Items

Item	Quantity	EUn / BUn	Material / Material Description	Plnt	SLoc	PO / Batch	Item / R	MvT	S	DCI S
1	20	ST	101-100	1000	2000	4500018601	10			☑
			Casing 101					101	+	
2	20	ST	100-120	1000		4500018601	10		0	
			Flat gasket					543	-	
3	20	ST	101-110	1000		4500018601	10		0	
			Slug for spiral casing--cast steel					543	-	



Bin Status Report: Overview

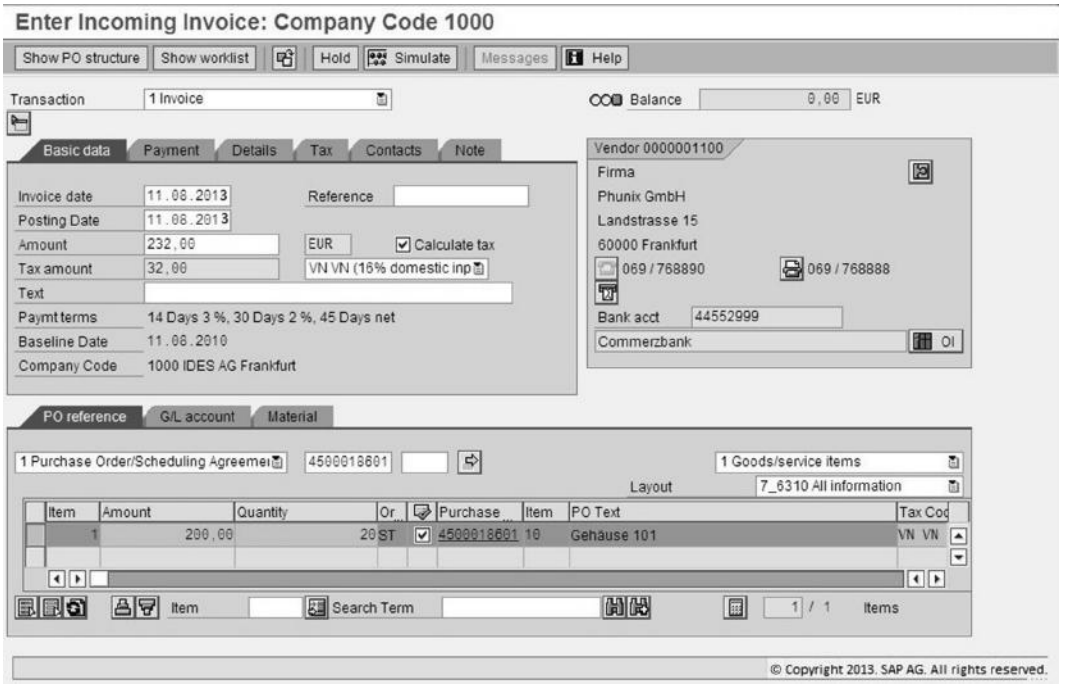
Choose | Save | ABC

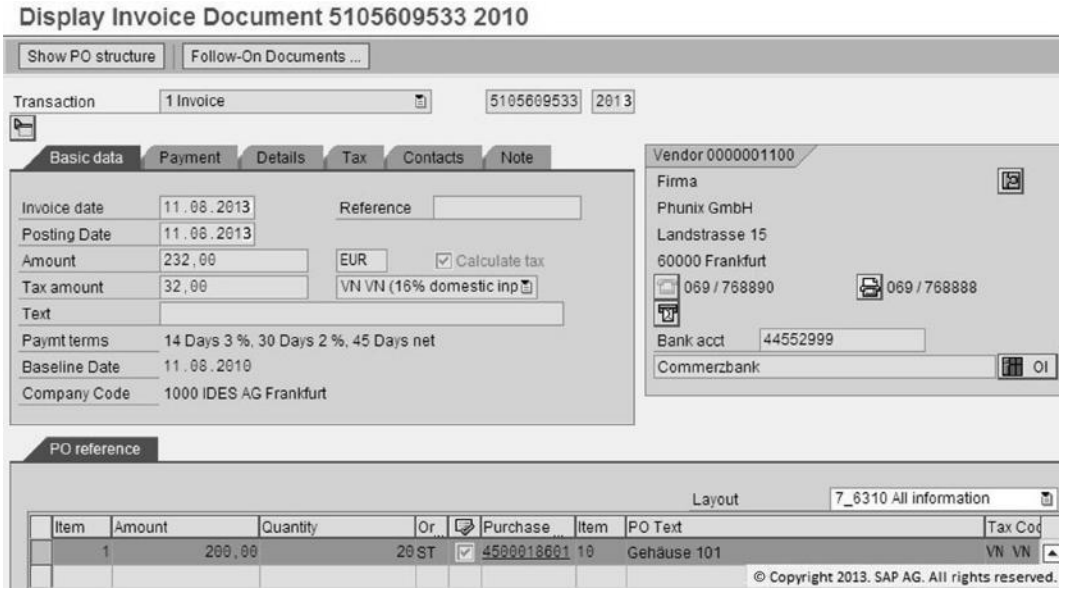
Bin Status Report: Overview

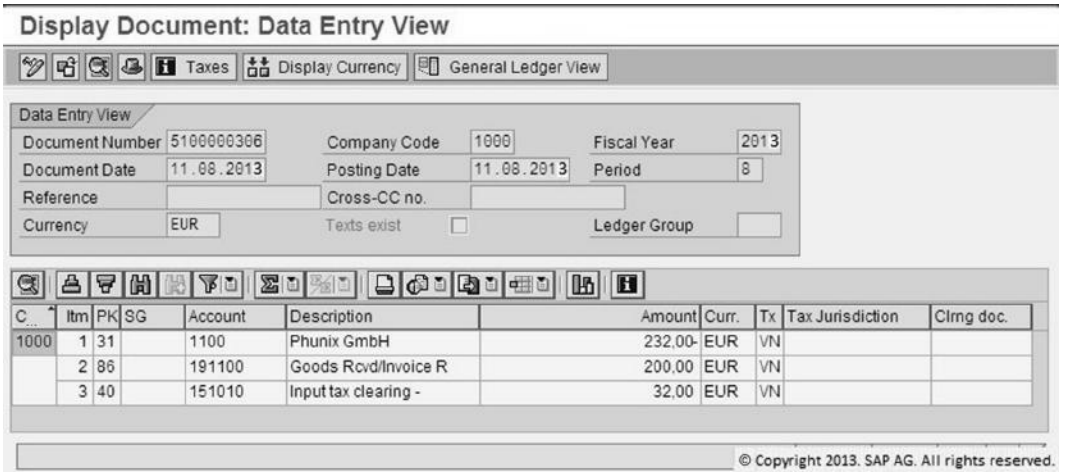
Warehouse Number DE1

Typ	Sec	StorageBin	SUT	Material	Plnt	SLoc	BT	No.stor.un	Available stock	Storage Unit	S	Insp. Lot
001	002	03-01-03	IP	QS6X20	1000	2000	B1	1,000	2.500	00110005670000007401		
001	002	03-01-04	IP	QS6X20	1000	2000	B1	1,000	2.500	00110005670000007418		
002	RND	01-01-01	IP	QS6X20	1000	2000	B1	1,000	2.500	00110005670000007388		
002	RND	01-01-02	IP	101-110	1000	2000	B1	1,000	64	00112345670000007455		
005	FXB	03-01-00	IP	101-110	1000	2000	B1	1,000	40	00112345670000007448		
005	FXB	03-02-00	IP	100-120	1000	2000	B1	1,000	120	00112345670000007462		
005	FXB	03-03-00	IP	101-100	1000	2000	B1	2,000	4	00112345670000007516		
005	FXB	03-03-00	IP	101-100	1000	2000	B1	2,000	20	00112345670000007530		
005	FXB	03-05-00	IP	QS6X20	1000	2000	B1	1,000	1.500	00112345670000006953		
*									9.248			

The invoice settlement will be done after GR.







Pipeline Process

There are many kinds of materials that are consumed in a very different way than what we observe with normal kind of materials. In normal circumstances, any material is first procured using a purchase process, then it is received, and finally it is consumed. In SAP, there are corresponding processes of PO, GR, and GI for taking care of the entire life cycle of these materials.

But materials such as electricity, liquids, and gases are consumed continuously (when liquids and gases are not bottled and instead are supplied through pipes). Since they are continuous in supply, there is no procurement process in batches or in single units at a time. At fixed or regular intervals, the quantity of material consumed is measured and a bill is generated. The customer then pays the bill. So no invoices and GRs are involved. The only regular transaction involved is the GI process.

A list of actions that are need to test a pipeline process is as follows:

1. Create a material master record of material type "PIPE."
2. Create an info record of type "Pipeline" (mandatory).
3. Create GI with movement type "201P."
4. Do settlement with Tcode "MRKO."

Intercompany Transfer

Procurement of materials can be done from either external sources or internal sources. Suppose a company has more than one plant. In one plant, the company manufactures some intermediate products, which are then further processed in some other plant. In such case, the company

transfers the material from one plant to another plant. In SAP, the transfer of material from one plant to another plant can be done in three ways:

1. Stock transfer in one step
2. Stock transfer in two steps
3. Using stock transport order (STO)

Stock transfer in one step is used when plants are located nearby so tracking of in-transit goods is not required. GI and GR are done in the same step in one transaction.

When plants are located far away and in-transit goods need to be tracked, a two-step stock transfer procedure is used. In the first step, goods are issued from one plant. In the next step, goods are received in the receiving plant. After GI is done, the state of material is changed into in-transit. At the time of GR, the state is again changed from in-transit to goods received.

STO is one more option for stock transfer between plants. Here, the supplying plant acts as the vendor and the receiving plant acts as the customer. Just like sales order (SO), the receiving plant creates a transfer order and the supplying plant receives this order. Based on the order, the supplying plant ships the goods to the receiving plant. The receiving plant then receives the goods against the transfer order.

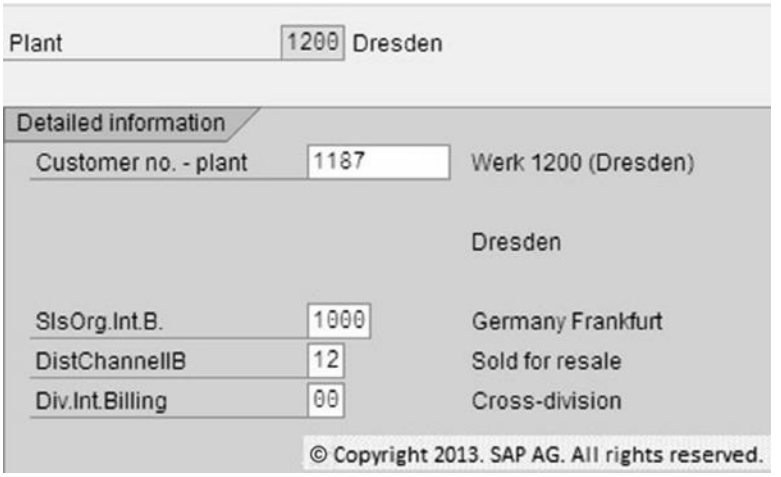
In cases where the stock transfer happens between two plants that belong to two different company codes (though belonging to the same promoters under the umbrella organization structure), STO is the best option. STO helps in keeping accounting and financial entries at both company codes. It is very much like normal sales between a customer and a vendor. STO is also known as intercompany transfer when it happens between plants belonging to two different company codes.

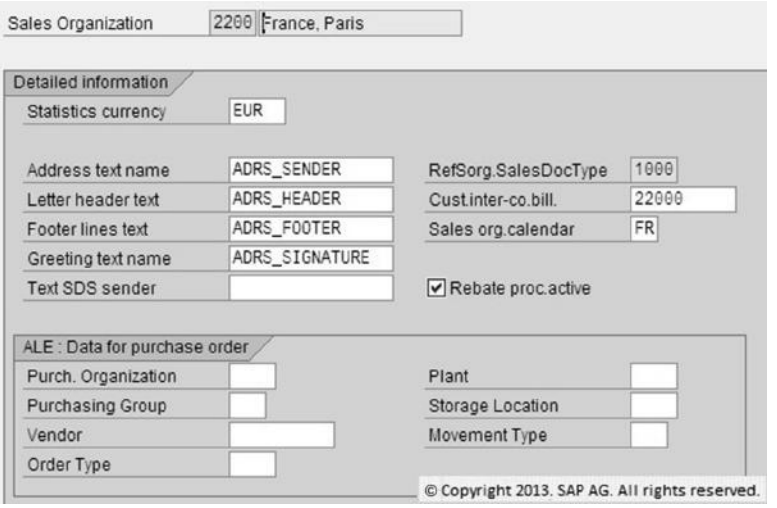
In this tutorial, we will use STO or intercompany transfer to transfer stock from one plant belonging to one company code to a plant belonging to another company code.

Master Data Setting

Sales Area

The supplying plant needs to be set up as a vendor. So in the SAP system, you need to set up a sales area for the vendor (supplying) plant so that goods can be sold. Use the menu path: IMG → Materials Management → Purchasing → Purchase Order → Setup Stock Transport Order → Define Shipping Data for Plants. Using this menu, you can set data for customer number—plant, vendor number—plant, purchasing organization, shipping point, and receiving point.





Document Type

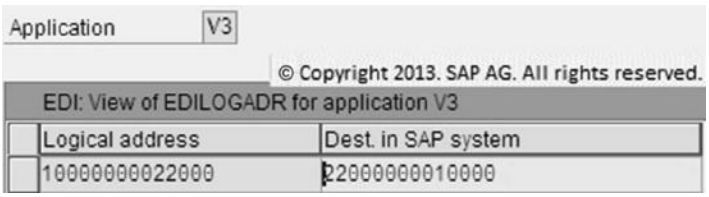
You can define the document type for intercompany transfer billing using the menu path: IMG → Sales and Distribution → Billing → Intercompany Billing → Define Order types For Intercompany Billing. In our case, the assignment of intercompany billing document type (type IV) is of SO type.

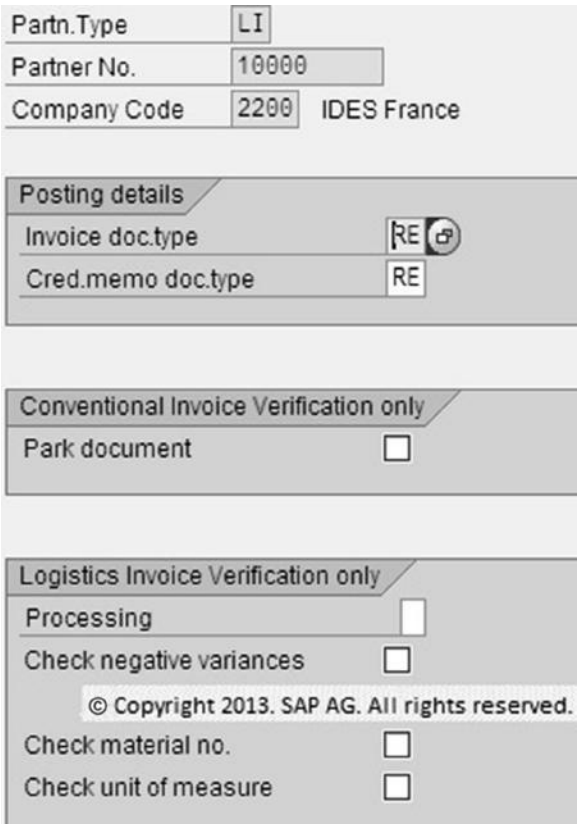
Bill-to Partner

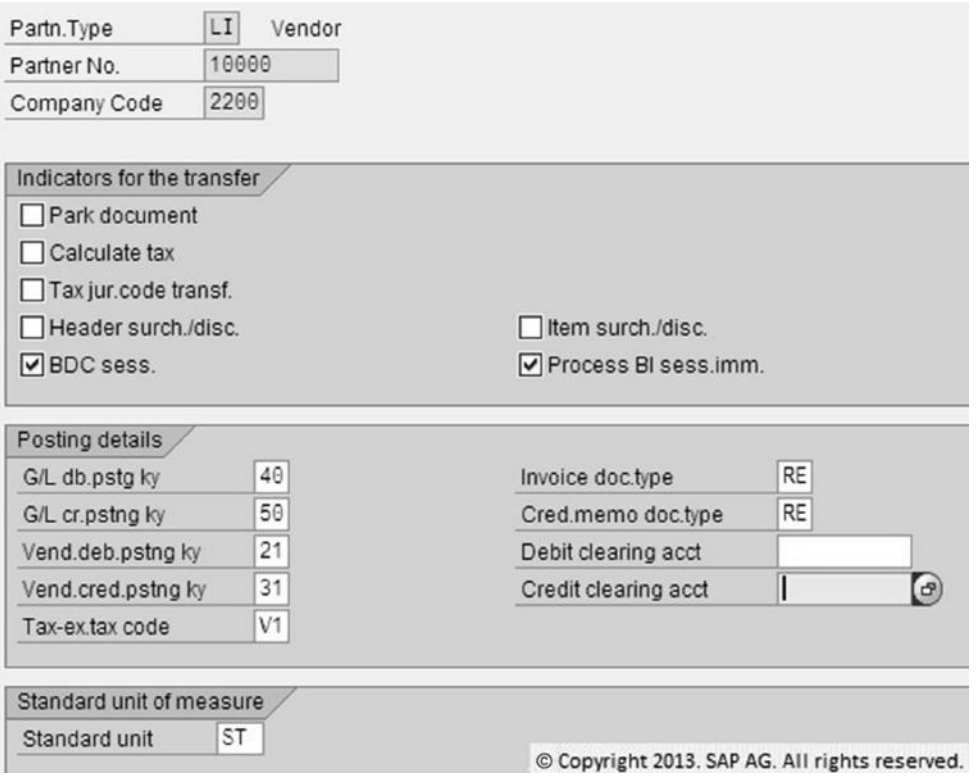
The plant that will receive the goods is the customer so a customer number will be needed for this plant. To create a customer number for the receiving plant, use the menu path: IMG → Sales and Distribution → Billing → Intercompany Billing → Define Internal Customer Number by Sales Organization.

Vendor

The plant that will supply the goods is the vendor so a vendor number will be needed for this plant. Also enterprise data interchange (EDI) message should be set for the vendor plant for billing using the menu path: IMG → Sales and Distribution → Billing Intercompany Billing → Automatic Posting to Vendor Account (SAP-EDI) → Assign vendor. For financial invoice posting, the company code of the plant is needed and this information is obtained here.






Partn.Type
LI
Vendor
Partner No.
10000
Company Code
2200
Indicators for the transfer
Park document
Calculate tax
Tax jur.code transf.
Header surch./disc.
Item surch./disc.
BDC sess.
Process BI sess.imm.
Posting details
G/L db.pstg ky
40
G/L cr.pstng ky
50
Vend.deb.pstng ky
21
Vend.cred.pstng ky
31
Tax-ex.tax code
V1
Invoice doc.type
RE
Cred.memo doc.type
RE
Debit clearing acct
Credit clearing acct
Standard unit of measure
Standard unit
ST
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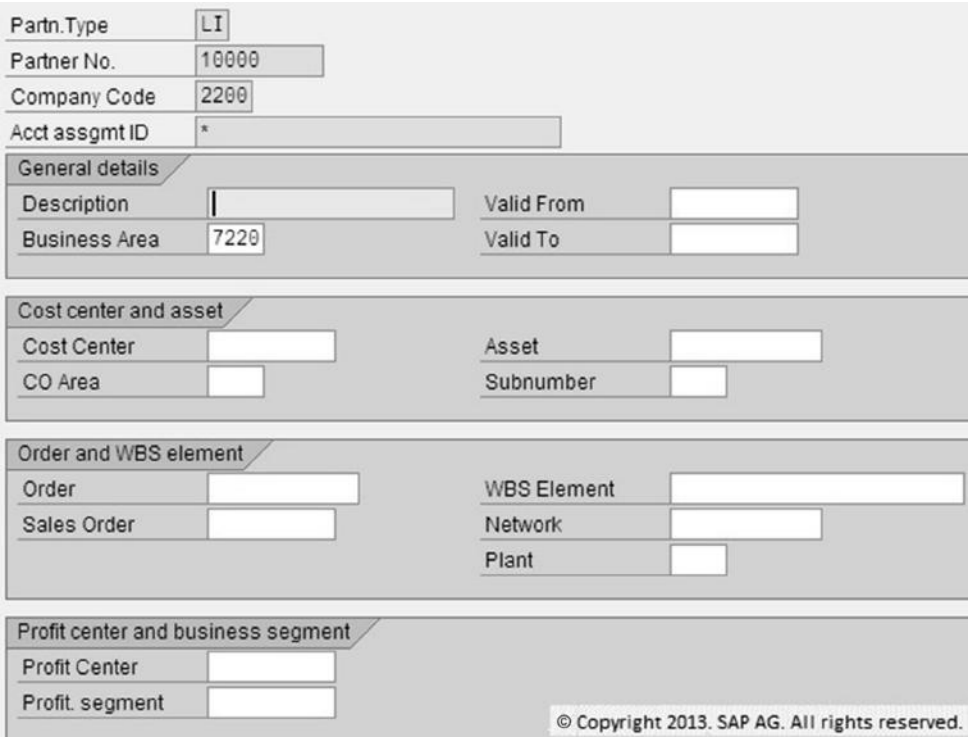
Partn.Type
LI
Partner No.
10000
Company Code
2200
Acct assgmt ID
*
General details
Description
Business Area
7220
Valid From
Valid To
Cost center and asset
Cost Center
CO Area
Asset
Subnumber
Order and WBS element
Order
Sales Order
WBS Element
Network
Plant
Profit center and business segment
Profit Center
Profit. segment
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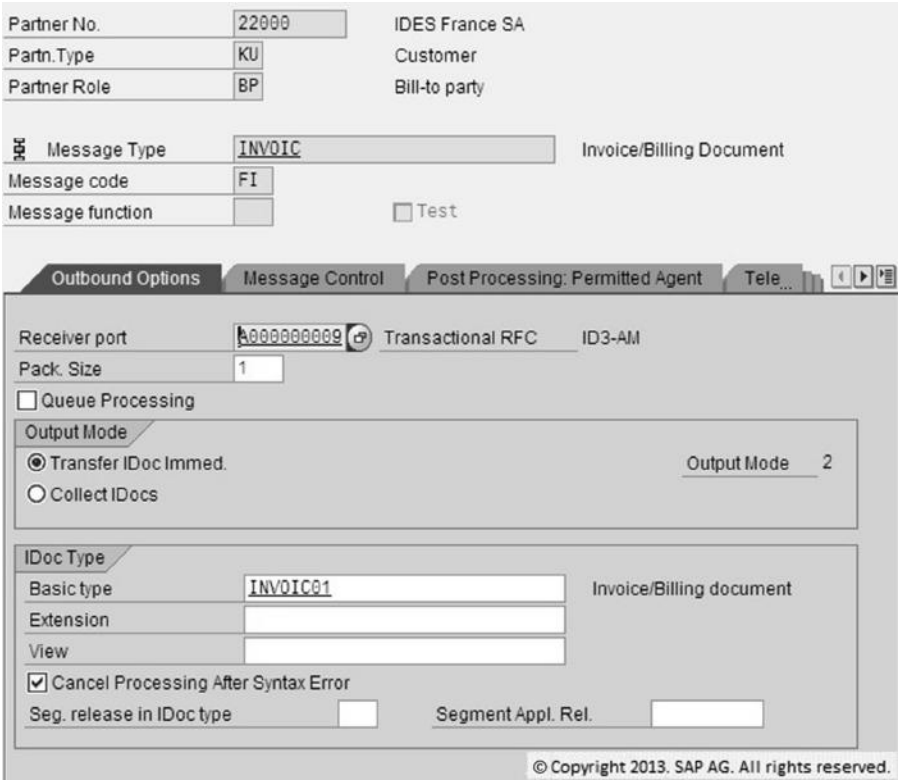


Tax Code and Tax Rate

For financial invoice posting, you need to consider applicable taxes and tax rates for the purchase of goods. To do this, you need to configure the system so that taxes are calculated properly for purchases. Use the menu path IMG → Materials Management → Logistics Invoice Verification → EDI → Assign Tax Codes to set taxes and tax rates.

Program Parameters for Invoice Verification

For invoicing the bill-to partner, the vendor plant uses an invoice document type and posting keys. These are to be set up in customizing. Use the menu path IMG → Materials Management → Logistics Invoice Verification → EDI → Enter Program Parameters to set up the posting keys and choose the document type.

Partner Profile for Bill-to and Vendor Partner and Inbound Parameters

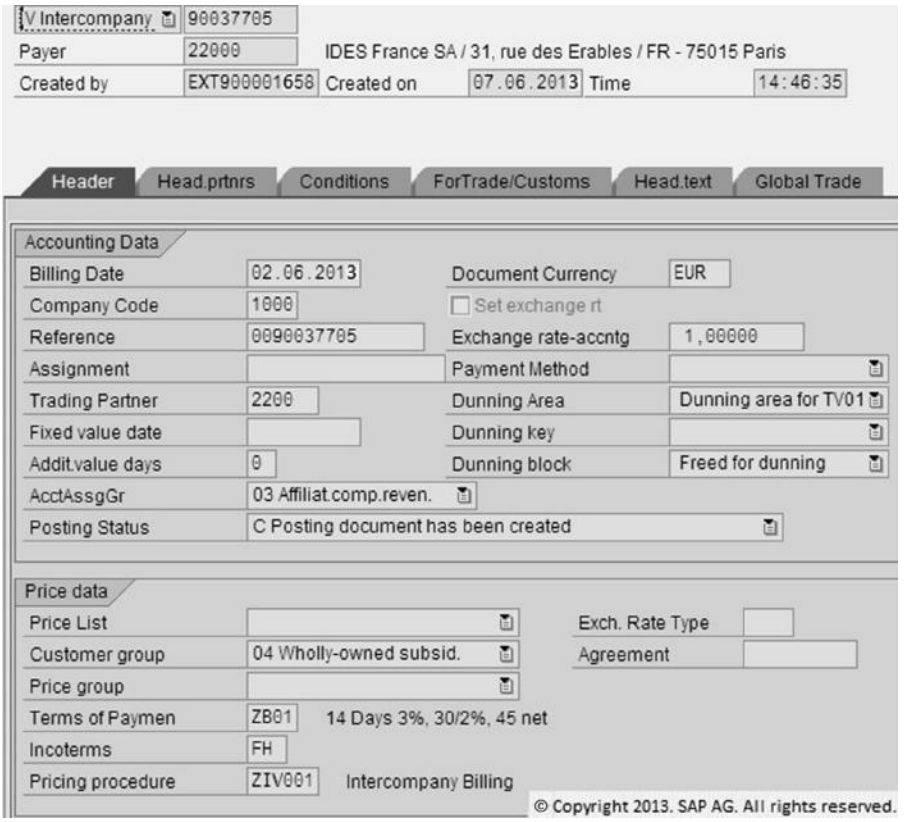
Menu path: Tools → ALE → ALE Administration → Runtime Settings → Partner Profiles

You set up EDI messages for partner profile so that the partner can be billed as well as inbound delivery can be received.

Billing Document

Menu path: Logistics → Sales and Distribution → Billing → Billing Document → Display

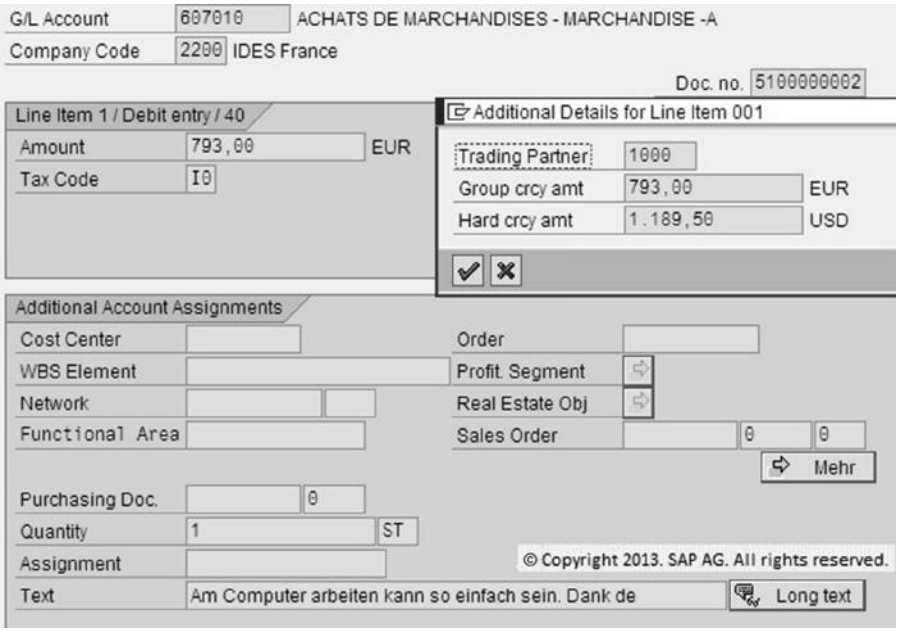
The final step in intercompany transfer is to bill the receiving plant. The supplying plant issues the bill and the receiving plant pays the bill.



The vendor plant can bill the receiving plant for the goods sent. The billing document through EDI message will contain all the billing information.

Invoice Document

Menu path: Accounting → Financial Accounting → General Ledger → Document → Display.



Based on the billing, an invoice document is generated. The invoice can be verified against the GR and the PO.

Business Management / Enterprise Resource Planning

Although tens of thousands of global users have implemented Systems, Applications, and Products (SAP) for enterprise data processing for decades, there has been a need for a dependable reference on the subject, particularly for SAP materials management (SAP MM).

Filling this need, **The SAP Materials Management Handbook** provides a complete understanding of how to best configure and implement the SAP MM module across various types of projects. It uses system screenshots of real-time SAP environments to illustrate the complete flow of business transactions involved with SAP MM. Supplying detailed explanations of the steps involved, it presents case studies from actual projects that demonstrate how to convert theory into powerful SAP MM solutions.

- Includes tips on the customization required for procurement of materials and inventory management
- Covers the range of business scenarios related to SAP MM, including the subcontracting cycle and consignment cycle
- Provides step-by-step guidance to help you implement your own SAP MM module
- Illustrates the procure to pay lifecycle
- Depicts critical business flows with screenshots of real-time SAP environments

This much-needed reference explains how to use the SAP MM module to take care of the range of business functions related to purchasing, including purchase orders, purchase requisitions, outline contracts, and request for quotation. It also examines all SAP MM inventory management functions such as physical inventory, stock overview, stock valuation, movement types, and reservations—explaining how SAP MM can be used to define and maintain materials in your systems.

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