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Bill of Material

SAP 1 /Erkki Koskela

3 February 2012

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BILL OF MATERIAL

Ex RT 3 B

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1. Introduction

SAP ECC is an important business enterprise software produced by SAP AG of Germany and it has many business modules operated under its famous SAP Netweaver but herein we are going to concentrate on just one type of module known as SAP ECC formerly called SAP R/3 and the modules or sub -modules under this enterprise module where going to work with are Sales and Distribution (SD), Materials Management (MM) and Production Planning (PP).

2. Purpose

In this exercise where going to look at the customer order to manufacturing the product then delivery the product using SD, MM and PP using SAP ECC. The data below is used in this exercise.

The task of Materials Management is to make materials available for production as and when needed, and to monitor the availability of materials and these tasks occur when the Inventory Management application component is in use. Sales and Distribution has roles that contain all the functions you need for processing sales orders. Alongside sales order processing, it is possible to generate lists with sales orders according to various criteria, and displaying pricing data for a material. This displays pricing conditions, lists for conditions etc. And Production Planning contains functions for processing planned orders. The functions are used to adapt planned orders to the exact current requirements situation and to then trigger the procurement of individual assemblies or components by converting the planned orders.

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3. DATA

Company Code	1000
Plant	1200
Sales Organization	1000
Distribution Channel	10
Division	00
Storage Location	0002
Purchase Organization	1000
Purchasing Group	007
Main product	PH19
Material	PT19 and PI19
Reference Material	KTA98

4. To Create Bill Of Material (BOM)

The creation of the BOM is very important for a company as it is used to request materials to be pulled from inventory in order to fulfill a customer order and it shows the specifications for each item and the customer details for whom the product will be delivered, and the transaction code cs01 is used to create BOM.

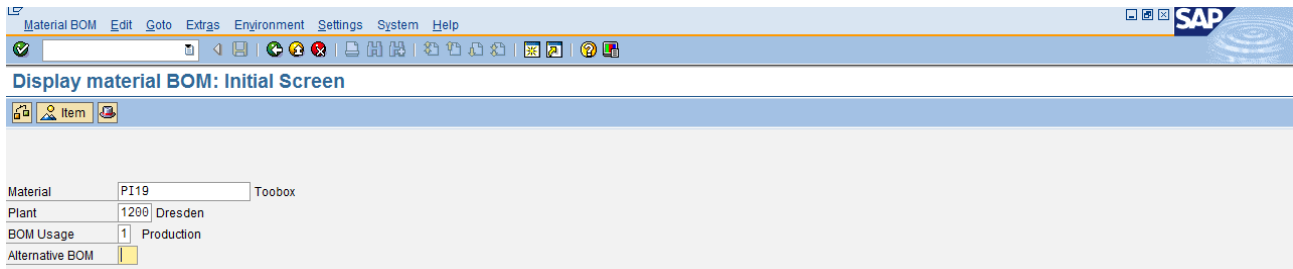
The advantages of BOM is that it describes the raw materials or components and the quantities of each material needed to manufacture the final product thus each finished product has its own bill of material of which in our case the finished product is product PH19 and its components or raw materials are PT19 and PI19 as shown by the print screens below.

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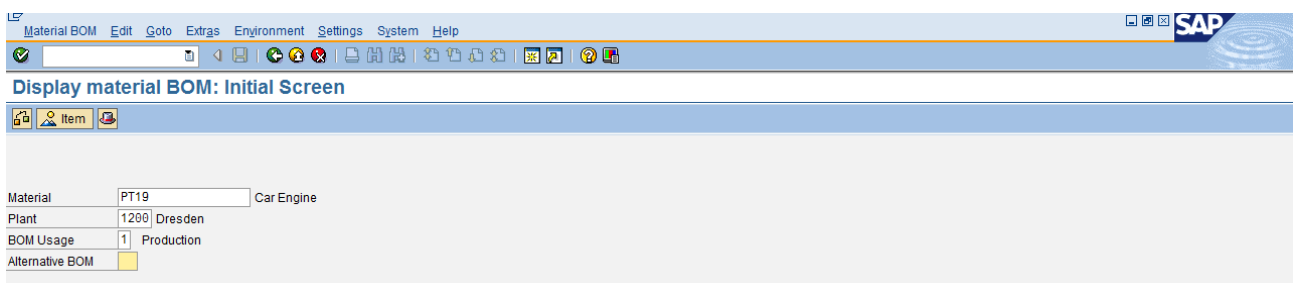
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The above screen shows material PI19.



The above screen shows material PT19 and it is important to bear in mind that this material was created in exercise RT3A and it is being included to manufacture the main product PH19

5. To Maintain Material Prices

It's important to maintain the material prices for materials PI19 and PH19 the same as was created in exercise RT3A for material PT19 before , as it states the conditions of sales and the amount being bought by the customer. In this case the material costs 100€ with a conditional type of PR00. This condition is added as new pricing are carried out that applies to inflation correction to the net price.

5.1 Defining The Purchase Price

Here the purchase price for materials PT19 and PI19 is defined by the use of the transaction code me11.

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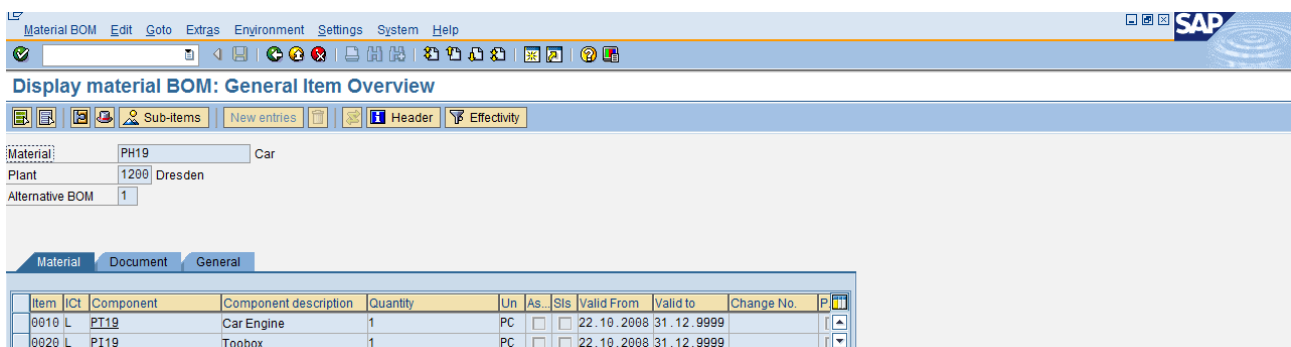
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6. To Maintain The Material PH19 And PI19 To MRP

The material PI19 and PH19 are maintained to MRP which means that the material is now in the MRP system for monitoring automatically i.e. each time a unit is deducted or added the system will be keeping records, also remember that material PT19 was maintained in MRP in exercise RT3A that's why it's not here. Since now all the materials are now maintained in MRP they will appear as the screen shows below and the transaction code md20 is used.



Item	ICt	Component	Component description	Quantity	Un	As	Sls	Valid From	Valid to	Change No.	P
0010	L	PT19	Car Engine	1	PC			22.10.2008	31.12.9999		
0020	L	PI19	Toolbox	1	PC			22.10.2008	31.12.9999		

This is indicating the name of the materials PT19 and PI19 of the quantities of 1 each set for manufacturing product PH19.

6.1 To Create Scheduling And Resources Planning

This is an important part of manufacturing the main product PH19 from components as it allows us to define the routings of the product, the transaction code ca01 will be used.

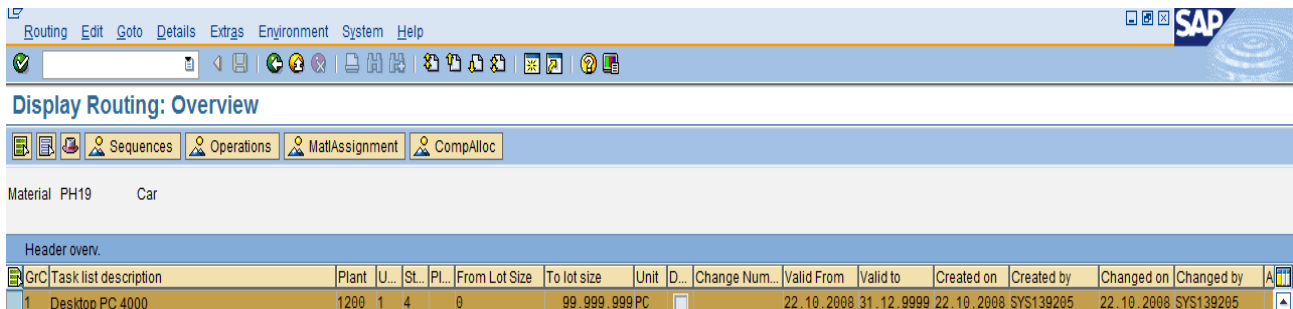
A routing is a description of which operations (process steps) have to be carried out and in which order to produce a material (product). As well as information about the operations and the order in which they are carried out, a routing also contains details about the work centers at which they are carried out as well as about the required production resources and tools, standard values for the execution of individual operations are also saved in routings.

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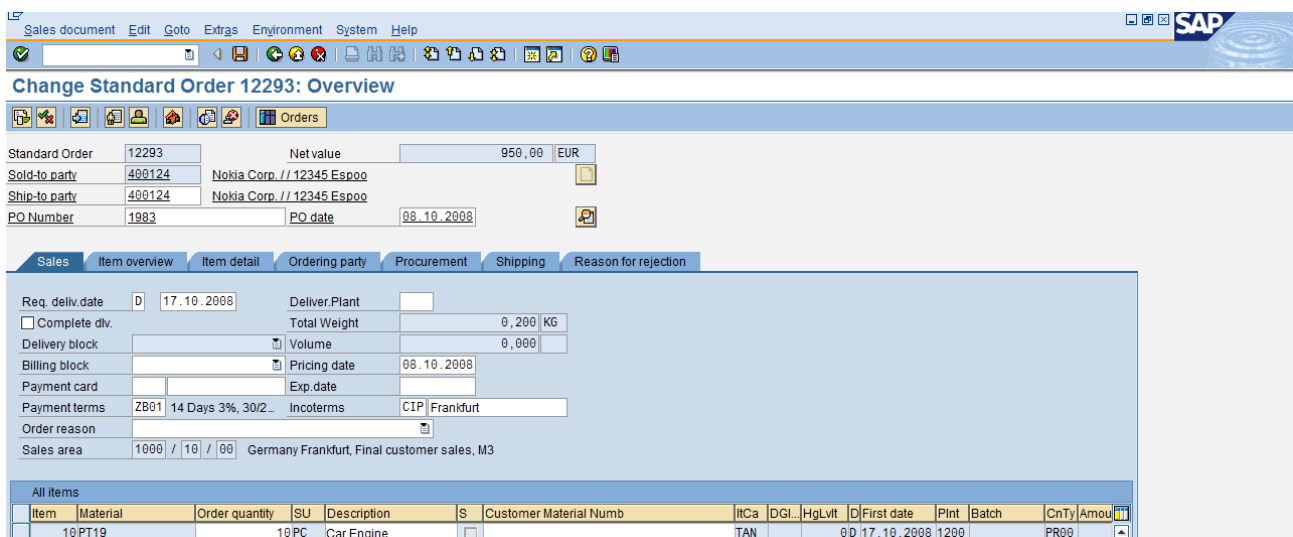
The screenshot shows the SAP 'Display Routing: Overview' screen. At the top, there's a menu bar with 'Routing', 'Edit', 'Goto', 'Details', 'Extras', 'Environment', 'System', and 'Help'. Below the menu is a toolbar with various icons. The main header area displays 'Material PH19' and 'Car'. A sub-header 'Header overv.' is followed by a table of routing data.

GrC	Task list description	Plant	U...	St...	Pl...	From Lot Size	To lot size	Unit	D...	Change Num...	Valid From	Valid to	Created on	Created by	Changed on	Changed by	A
1	Desktop PC 4000	1200	1	4		0	99.999.999	PC			22.10.2008	31.12.9999	22.10.2008	SYS139205	22.10.2008	SYS139205	

The above screen shows the results of the routing for product PH19 in plant 1200 using the default/reference material DPC4000.

7. The Customer Orders Main Product PH19

In this part we will create the customer sales order by using the transaction code va01 using the main product PH19. As you can see the customer has ordered 10 pieces of the product PT19.



The screenshot shows the SAP 'Change Standard Order 12293: Overview' screen. The top menu bar includes 'Sales document', 'Edit', 'Goto', 'Extras', 'Environment', 'System', and 'Help'. The main area displays order details for 'Standard Order 12293' with a net value of 950,00 EUR. It lists the 'Sold-to party' and 'Ship-to party' as 'Nokia Corp. // 12345 Espoo'. Below this, there are tabs for 'Sales', 'Item overview', 'Item detail', 'Ordering party', 'Procurement', 'Shipping', and 'Reason for rejection'. The 'Shipping' tab is active, showing delivery details like 'Req. deliv. date' (17.10.2008), 'Deliver. Plant', 'Total Weight' (0,200 KG), and 'Volume' (0,000). At the bottom, there's a table for 'All items'.

Item	Material	Order quantity	SU	Description	S	Customer Material Numb	ItCa	DGL...	HgLvlt	D	First date	Plnt	Batch	CnTy	Amou
10	PT19	10	PC	Car Engine			TAN			00	17.10.2008	1200		PR00	

The above screen shows the results of the order of the product, as you can see the order part is Nokia Corp. and the net value being €950, 00. Also note from the shipping button below you will notice that the delivery date to our customer corresponds to the one promised on the sales order form.

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Standard Order	12293	Net value	950,00	EUR
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SAP Sales document Edit Goto Extras Environment System Help

Change Standard Order 12293: Overview

Standard Order 12293 Net value 950,00 EUR

Sold-to party 400124 Nokia Corp. // 12345 Espoo

Ship-to party 400124 Nokia Corp. // 12345 Espoo

PO Number 1983 PO date 08.10.2008

Sales Item overview Item detail Ordering party Procurement Shipping Reason for rejection

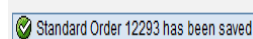
Complete div. ☐ Total Weight 0,200 KG

Delivery block ☐ Volume 0,000

Overall status Completed Delivery status Fully delivered

Item	Material	D...	DivDateFor...	N.	Deliv. date	Mat.av.dt.	Loading D...	Pint	Shi...	Route	P...	D.	Description	Delivery block	RejectionReason
10	PT19		17.10.2008	<input type="checkbox"/>	17.10.2008	15.10.2008	16.10.2008	1200	1200		2		Normal		

By saving the sales order we will get the order number as provided by the system



8. To Start Materials Requirement Planning (MRP) For Ordered Main Product PH19

The screen below shows material PH19 being entered in MRP with specifications to make it ready for manufacturing such as the delivery and date of manufacturing. This is done by the use of the transaction code md02, *Mark Display Results before Saved*. Then use transaction code md04 to check the stock status where material PT19 and PI19 are created to PurRqs. (Purchase Requisition). To double click materials PT19 and PI19 you can convert them to PurOrd (Purchase Order) from Stock/Requirement list.

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Planning Edit Goto Settings Extras System Help

Single-Item, Single-Level

Material PH19

MRP area

Plant 1200

MRP control parameters

Processing key NETCH Net change for total horizon

Create purchase req. 2 Purchase requisitions in opening period

Delivery schedules 3 Schedule lines

Create MRP list 1 MRP list

Planning mode 1 Adapt planning data (normal mode)

Scheduling 1 Basic dates will be determined for planning

Planning date 12.12.2008

Process control parameters

☐ Display results before they are saved

MRP carried out for PH19 1200 1200

A59 (1) (510) a59z INS

And when the MRP run is carried out for this material the system will indicate the results

MRP carried out for PH19 1200 1200

8.1 To Receipt Material PT19 And PI19 To Stock

with the use of the transaction code migo we are going to receipt the two materials PH19 and PI19 of which when the receipting of materials is done the system will issue the unique ID number for each material PT19 **4500017798** and PI19 **4500017594** as shown below for a single material.

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Goods Receipt Purchase Order 4500017798 - SYS139205

Hide Overview | Hold | Check | Post | Help

Goods Receipt | Purchase Order | Plant: 1200 | GR goods receipt: 101

My Documents

- Purchase Orders
 - 4500017798
 - 4500017756
 - 4500017694
- Orders
 - Blank
- Reservations
 - Blank
- Material Document
 - 5000011960
 - 5000011040

General | Vendor

Document Date: 05.11.2008 | Delivery Note: | Vendor: Ankle LTD
 Posting Date: 05.11.2008 | Bill of Lading: | HeadText: |
☐ Individual Slip | GR/GI Slip No.:

Line	Material ShortText	OK	Qty in UnE	E...	S...	Stor.Loc	Profit Center	Batch	Valuation ty.	DB No.	M...	D	Stock type
1	Car Engine	<input type="checkbox"/>	11	PC			1500				101		Unrestrict...

9. To Start To Manufacture Main Product Ph19

From the previous screens we have seen that for all the materials concerned have passed through MRP process, it's now the time to manufacturing the product PH19. As we can see below the system proposed the starting and finishing dates and the number of quantities required to manufacture the product. In this the total quantity is 11 pieces and the system will generate the production order number **60003686**.

Order Functions Edit Goto Header Environment System Help

Production Order Create: Header

Material | Capacity

Order: 60000000000001 | Type: |
 Material: PH19 | Car | Print
 Status: REL MANC SETC |
 User Status: RLAL

General | Assignment | Goods receipt | Control data | Dates/qty's | Master data

Quantities

Total Qty: 11 | PC | Scrap portion: | 0.00
 Delivered: 0 | ExpectYieldVar: 0

Dates

Basic Dates			Scheduled		Confirmed	
Finish	12.11.2008	00:00	11.11.2008	16:00		
Start	07.11.2008	00:00	10.11.2008	14:50		00:00
Release			03.11.2008		05.11.2008	

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Order Functions Edit Goto Header Environment System Help

Production order Create: Header

Order %000000000001 Type PP01
Material PH19 Car Pint 1200
Status REL MANC SETC
User Status RLAL

General Assignment Goods receipt Control data Dates/qrys Master data Long text Administration

Quantities
Total Qty 11 PC Scrap portion 0,00 %
Delivered 0 ExpectYieldVar 0

Dates
BasicDates Scheduled Confirmed
Finish 12.11.2008 00:00 11.11.2008 16:00
Start 07.11.2008 00:00 10.11.2008 14:50 00:00
Release 03.11.2008 05.11.2008

Scheduling
Type Backwards
Reduction Reduction level 3
Note No scheduling note
Priority

Floats
Scheduling margin 001
Float bef. prod 2 Workdays
Float after pro. 1 Workdays
Release period 5 Workdays

Release carried out

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Stock/Requirements List as of 12:55 Hrs

Material: PH19 Car
MRP area: 1200 Dresden
Plant: 1200 MRP type: PD Material type: FERT Unit: PC

A.	Date	MRP ...	MRP element data	Rescheduli..	E	Rec./reqd.qty	Available qty	Sto...
	05.11.2008	Stock					0	
	12.11.2008	PiOrd	0000037250/Stck		05	11	11	0002
	12.11.2008	Order	0000012390/000010/0...			11-	0	

Order number 60003686 saved

By the use of the transaction code md04 we can check the status of the material as shown on the above screen which indicates that on the 12.11.2008 the order will be delivered 11- that's why its showing 0 at the end of the day, and the system will issue out the order number for confirmation.

9.1 To Confirm The Amount Manufactured Main Product PC19

Since we have manufactured the product PH19 and have checked the status of the order in our system as seen on the previous screen it's wise to confirm the manufactured product once more by using the transaction code c015 as shown in the screen below.

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Confirmation Edit Goto Parameters Selection System Help

Confirmation of Production Order Create : Actual Data

Goods movements

Order: 60003686 Status: REL CNF DLV PRC CSER GMPS MA...
Material Number: PH19 Car

Final Confirmation
☐ Partial Confirm. ☒ Final Confirmtn ☐ Aut.Fin.Confirm. ☒ Clear Reservation

Actual Data

	Current to Confirm	Unit	Already Confirmed	Total to Confirm	Unit
Yield to conf.		PC	11		11 PC
Confirmed scrap			0		0
Rework			0		
Reason for Var.					
Personnel no.					

	To Confirm	Already Confirmed	Total to Confirm
Execution start	12.12.2008 14:24:01	05.11.2008	10.11.2008
Execut. Finish	12.12.2008 14:24:01	05.11.2008	11.11.2008
Posting date	12.12.2008		

Confirm. text: ☐ Long Text Exists

The confirmation can only be saved in the goods movements overview

A59 (1) (510) a59z INS

10. To Do The Customer Delivery For Main Product PH19

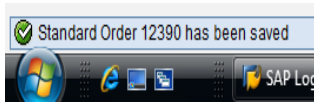
By the use of the transaction code va02 we are going to do the delivery of the manufactured product to our customer by checking the **Complete Delivery** button and we will get the delivery number **12390**.

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the system views the delivery number as the standard order for the ordered material PH19 being successfully completed and delivered, so if you see this order number at the bottom left of you SAP ECC screen after pressing the save button then it means that the delivery has been made to our customer from our system.

It's also important to note here that this is not the physical delivery of goods to our customer but just in our system (its delivered in the system) the physical delivery of the goods is known as **Goods Issue** which is the next step and finally billing (the invoice or bill can be included in the goods) as they go to the customer or be sent separately depending on the organization involved.