**This is an example how the documents for a project looks like.**

# GPS-OPS MinMax

**Presentation:**

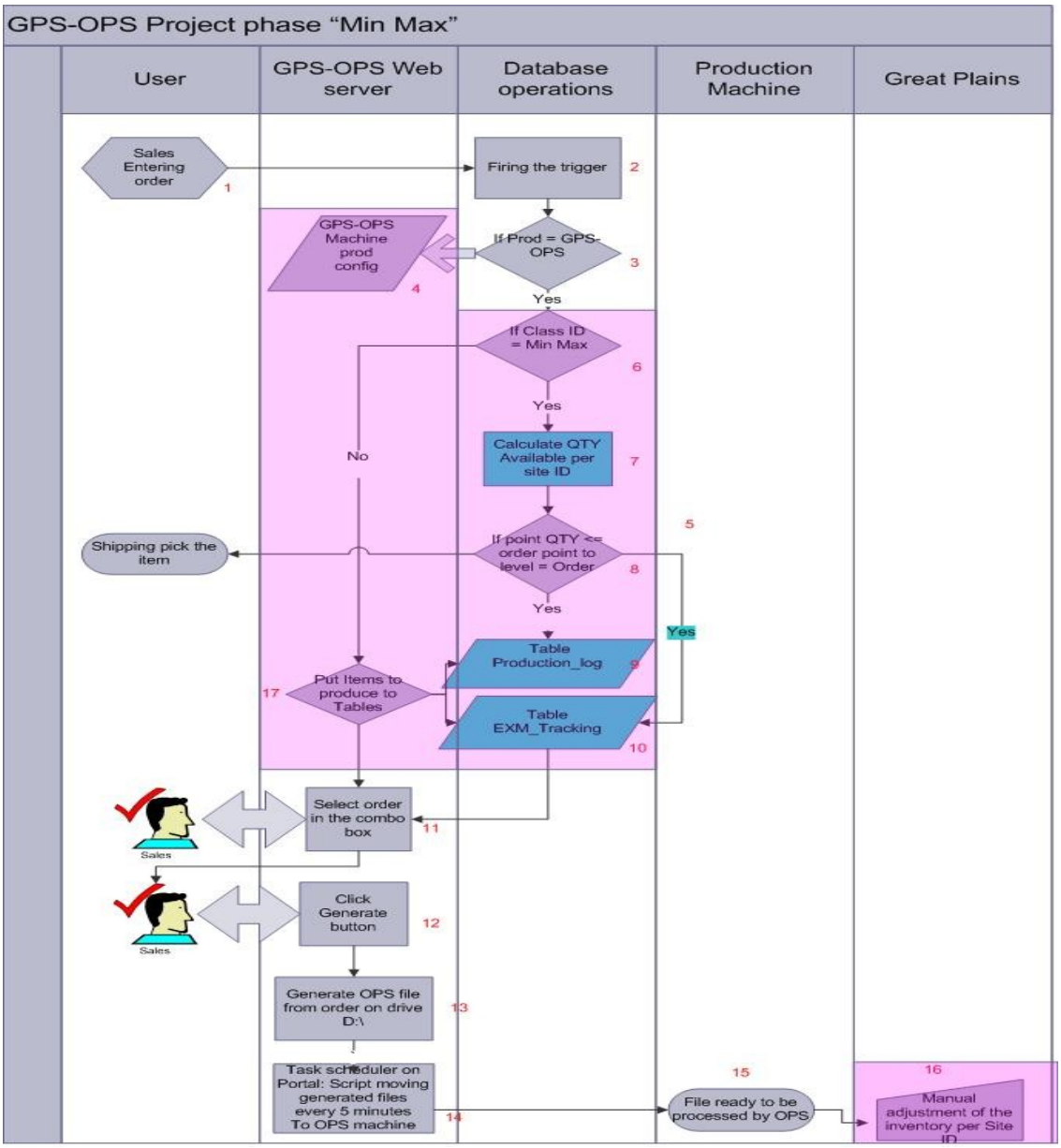
GPS-OPS is a custom software that has been created to automate and handle the production from the order entry to the production. Very efficiant, it limitates handling errors by decreasing considerably the number of human operations in the process.

GPS-OPS Min Max is the second part of the project. The project GPS-OPS is divised in two parts: JIT “Just In Time” and Min Max. The role of “Min Max” is to seize the orders entered in the ERP (Enterprise Ressource Planning) by the sales agents and to define if the order is tagged as a JIT “An item that has to be produced only once” or a MinMax “An Item that has to be produced several time”. Once this step has been defined GPS-OPS sends the Item(s) to the production machines.

This documentation shows concretly how the automation of an entire production can be achieved. This technical paper also shows enough details to allow people who are involved in this project to understand how the software works from A to Z.

# GPS-OPS Phase “Min Max”

1.1




= The items in the pink area are parts of Min Max Project.

| Step numbers | Milestones | Description |
|---|---|---|
| 1 | **A sales person enter an order** | Our sales people enter orders in Great plains which is our ERP system. |
| 2 | **Firing the trigger** | A sales person save the order in Great Plains (ERP system), and the trigger is fired in the database. |
| 3 | **IF prod = GPS-OPS** | A script is parsing the orders to check if the prod machines in the Item numbers are matching the machine names in GPS-OPS configuration. A new field must be added to the WebSite in the set path location folder *(see description 4)*.<br>**4 Add field in Set Machine Name and File Path Location**<br>See description **#1** |
| 5 | **Min Max** | **6 IF Class ID = Min Max**<br>*See description #2*<br>**7 Calculate QTY Available of production site**<br>*See description #3*<br>**8 If order Quantity =< order point to level = Order**<br>*See description #4*<br>**9 QTY Table Production_Log**<br>*See description* **#5**<br>**10 QTY Table EXM_Tracking**<br>*See description #6* |
| 11 | **Select Order in the combo Box** | Sales people select the order number it was working at in Great Plains. |
| 12 | **Click Generate Button** | Click generate to generate the daily file |
| 13 | **Generate OPS file from order on Drive D:** | The file is generated to a local drive of Portal server. |
| 14 | **Task scheduler on Portal: Script moving generated Daily files. Every 5 minutes to OPS Machines.** | The task scheduler has been set to execute a script that copy all files every 5 minutes. |
| 15 | **File ready to be processed by OPS** | The file has been put to the right folder in OPS ”our production machine” to be produce by our Production/Engineering team. |
| 16 | **Inventory adjustment in Great Plains** | **11 Adjustment of the inventory per site ID.**<br>*See description* **#7** |
| 17 | **Add Item to produce through GPS-OPS “Just In Time” into the tables** | **12 Add item to the Tables**<br>*See description* **#8** |

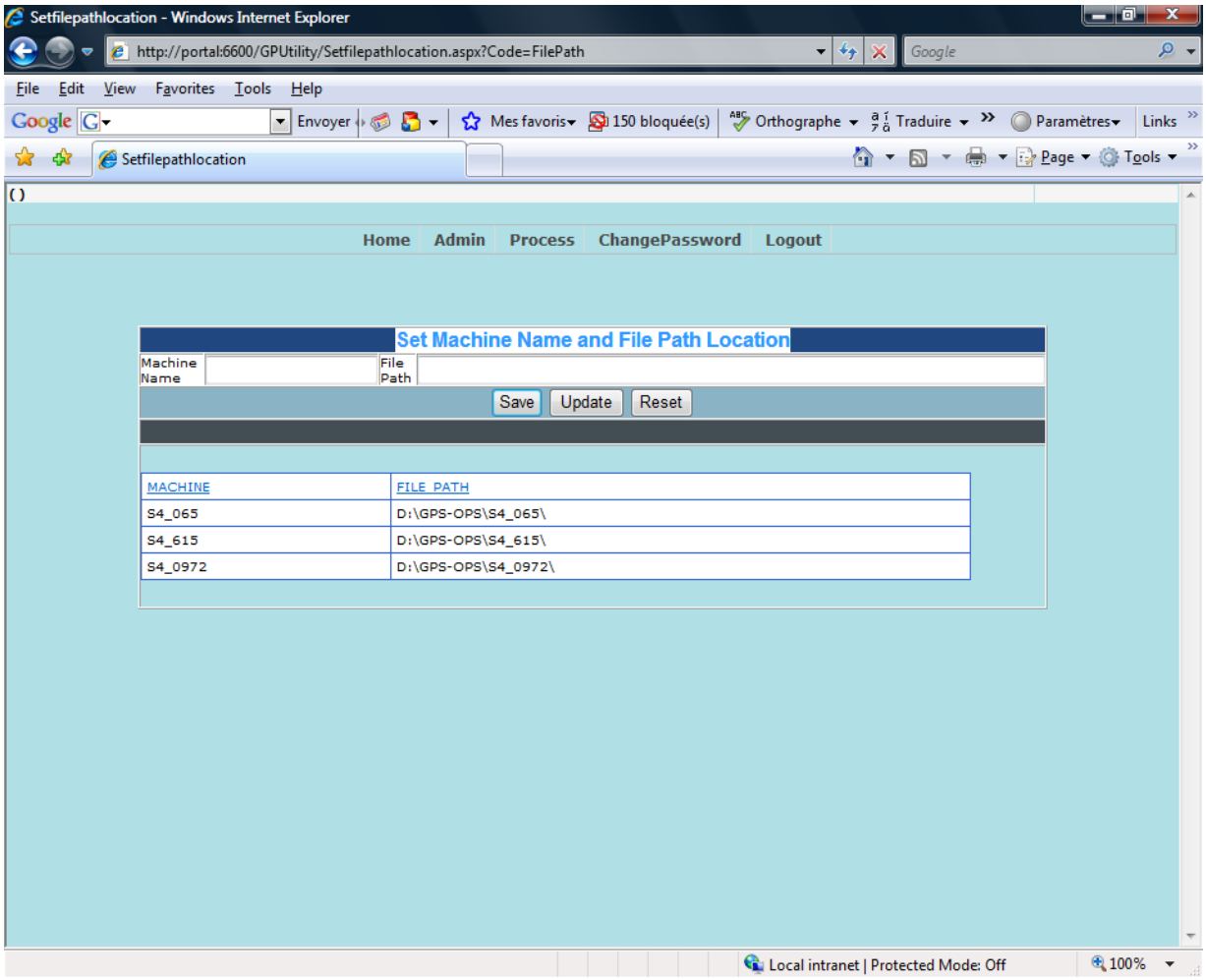
## Description #1- Add field in Set Machine Name and File Path Location:

We need to add another text area into this following page, this field name “Site_ID”. Also another column must be added to the grid to display what is the “Site_id” for each machines. Site_ID is a text field that will contain maximum 15 char, which involve adding another column in the table FILEPATHSET.

.

| Machine name | File path | Site ID |
|---|---|---|

1.2




## Description #2- IF the class ID of the ITEM in the order is a “Min Max” class:

An item is “Min Max” when the field “ITMCLSCD” in the table IV00101 of database EM is filled with “MinMaxIND” or “MinMaxCOM” (I am not quite sure about the capital). If this condition is false this Item is produced through “Just in Time” Module. If the condition is true “If this Item is ”Min Max” then this item must follow the process as described on Image 1.1 above.

**Description #3- How to Calculate "QTY Available":**
To calculate the quantity available we need to perform the calculation below.

QTY available = (QTY OnHand/site_ID) – (QTY Allocated/Site ID + QTY Backorder/Site ID) + (QTY on Production "EXM Tracking")

We must determine first what is the Site_ID to calculate the inventory on the right site. The Site_ID can be determine by which machine will produce the Item number, that's why we added a field to our web configuration (See Description #1).
If The field Site_ID in FILEPATHSET is the same then the site id in field LOCNCODE of table IV00102 (Make sure capital letters will not be an obstacle for the eventual configuration) then we have the right row.

- We can translate this equation with this grid:

| Field (Great Plains) | DB | Table(Physical name) | Field(Physical Name) |
|---|---|---|---|
| Qty on hand | EM | IV00101 | QTYONHND |
| Qty allocated | EM | IV00102 | ATYALLOC |
| Site ID | EM | IV00102 | LOCNCODE |
| | EM | FILEPATHSET | SITE_ID *(ref: description #6)* |
| Qty Backorder | EM | IV00102 | QTYBKORD |

**Description #4- How to calculate "Quantity to produce":**

These steps determine the quantity we will produce through GPS-OPS.

To determine if the items go in production and also determine how many items will produce we need to perform these following conditions:

If the quantity available (*please refer to step description #3*) in the targeted SiteID is bigger than the quantity minimum (Order point quantity) then we do not produce this item.

If the quantity available is equal or bigger than 0 then we produce the quantity Maximum (Order up to Level) and if the quantity available is smaller than 0 we will produce the quantity absolute of the quantity available + the quantity maximum (ORDRUPTOLVL).

We can figure the quantity to produce with the following formula:

**"Quantity to produce" =**

```
If (Quantity available) > (Order point quantity)
 {
 generate 0 Item in Min Max
 }
            Else {
                  If (Quantity available >= 0)
                    {
                     generate order up to level
                     }
                  Else
                       {
                    Produce absolute value of quantity available + Order up to Level
                        }
                }
```

**Reference grid:**

| Field (Great Plains) | DB | Table(Physical name) | Field(Physical Name) | Definition |
|---|---|---|---|---|
| Order point quantity | EM | IV00102 | ORDRPNTQTY | Minimum |
| Order up to Level | EM | IV00102 | ORDRUPTOLVL | Maximum |
| Site ID | EM | IV00102 | LOCNCODE | Site ID |
| | EM | FILEPATHSET | SITE_ID *(ref: description #6)* | |

The order point quantity is a value used as a guideline to know when we have to order/produce more items. For example if we have 4 items in stock and our order point quantity is set to 5 items then we will have to order the maximum(ORDRUPTOLVL). The fields ORDRPNTQTY and ORDUPTOLVL are located in table IV00102. The same Item might be located in several different locations which are represented by a Site ID in Great Plains(Field LOCNCODE in table IV00102).

The field Site_ID in the table FILEPATHSET correspond to where these items will be produced and the field LOCNCODE in the table IV00102 correspond to where these items are stocked. We want to stock all produced items to the same location it will be produced. We will configure the field Site_ID in table FILEPATHSET the same way it is configured in the field LOCNCODE in table IV00102 Ex:(BL,M…) so if Site_ID=BL in table IV00102(This is an example, the Side_ID hasn't been configured yet) and LOCNCODE=BL from table FILEPATHSET are equal and the ITEMNUMB correspond to the item we want to produce.

## Description #5- Table “Production_Log”:

This table will be used as a log, all items that have been put in production will be put in this table**(Including order that are not Min Max).** The records in this table will never being erased.

If an item in an order has a prodmachine that match the “SET FILE LOCATION” grid then we will send the information in two tables (See table in description #6). When we click the generate file button in GPS-OPS this should send all the required information in the tables. I suggest sending the information to the tables after the daily file has been generated so this way if there’s an error with the daily file generation then we will not have to remove some lines from the logs/tables.

**This is how the table will be constructed:**

| Date | STDORDNUMBER | Site_ID | Itemnumber | QTY | Produced |
|---|---|---|---|---|---|

***Date:*** *This field show the date when the order has been put into this table.*

***Stdordnumber:*** *Show the stdord number in which the item has been ordered (Ex: stdord143270)*

***Site_ID:*** *This is the Site_ID where the ITEM will be produced (Table FILEPATHSET)*

***ITEMNUMBER:*** *The Item number that we want to produce (From Order)*

***QTY:*** *The quantity of ITEM we want to produce (Same quantities per items that have been put in the daily file).*

***Produced:*** *Is the item been produce Yes(Y) or No(N) This field will be updated when our production team will set this order as completed (Need will determine how eventually).*

## Description #6- Table EXM_Tracking:

**This table is table that contains temporary fields. This table has for functions to contain all the items in production. This table is very similar to table Production_Log, this table will only contain the Item that are in production and not them that have been produced. Instead of table “Production_Log” this table will not contain the column “Produced”. Instead to have a field that declare if the Item has been produced or not the Item only have to be deleted.**

| Date | STDORDNUMBER | Site_ID | Itemnumber | QTY |
|---|---|---|---|---|

***Date:*** *This field show the date when the order has been put into this table.*

***Stdordnumber:*** *Show the stdord number in which the item has been ordered (Ex: stdord143270)*

***Site_ID:*** *This is the Site_ID where the ITEM will be produced (Table FILEPATHSET)*

***ITEMNUMBER:*** *The Item number that we want to produce (From Order)*

***QTY:*** *The quantity of ITEM we want to produce.*

**When some items from an order are added to the table the qty is added one unit per row. For example the following order:**

| Date | STDORDNUMBER | Site_ID | Itemnumber | QTY |
|---|---|---|---|---|
| 10/17/08 | Stdord143008 | BL | 5412 ESCH060604 | 6 |

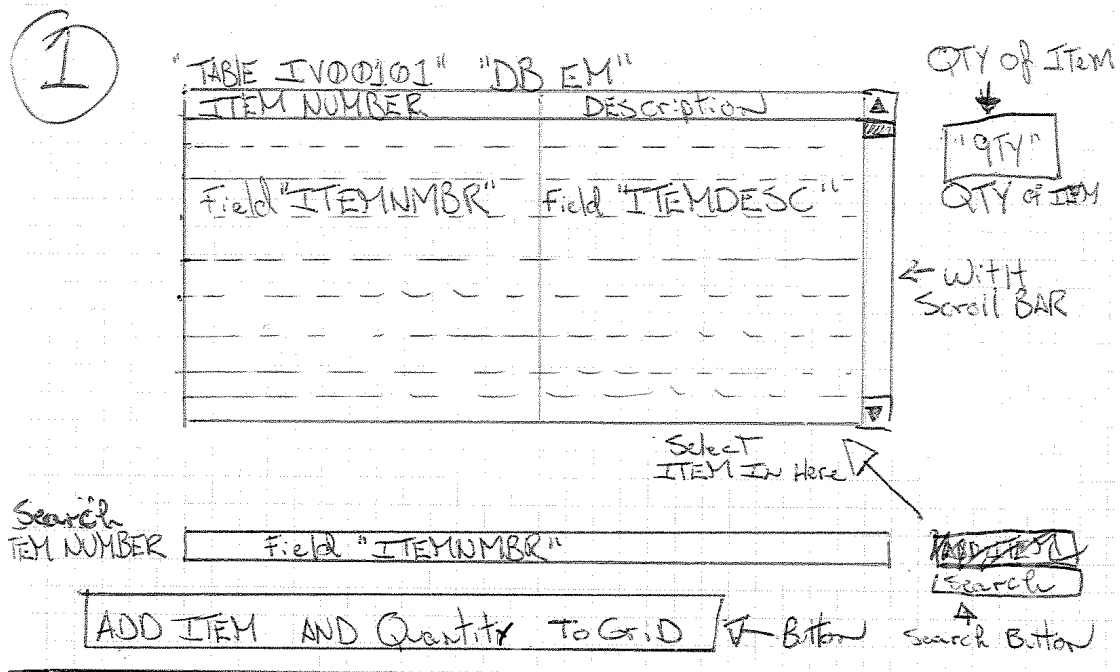
**Becomes:**

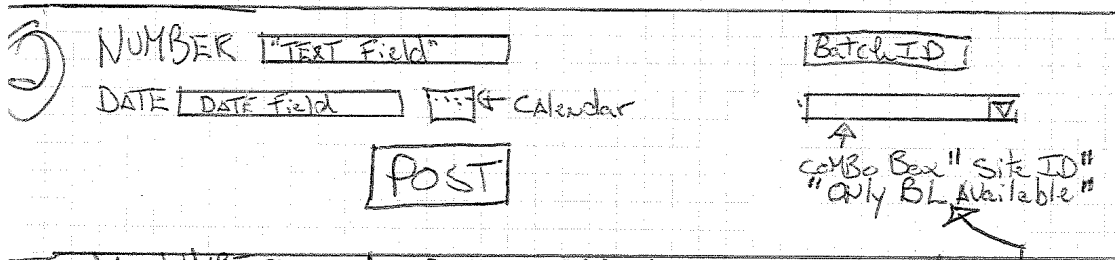
| Date | STDORDNUMBER | Site_ID | Itemnumber | QTY |
|---|---|---|---|---|
| 10/17/08 | Stdord143008 | BL | 5412 ESCH060604 | 1 |
| 10/17/08 | Stdord143008 | BL | 5412 ESCH060604 | 1 |
| 10/17/08 | Stdord143008 | BL | 5412 ESCH060604 | 1 |
| 10/17/08 | Stdord143008 | BL | 5412 ESCH060604 | 1 |
| 10/17/08 | Stdord143008 | BL | 5412 ESCH060604 | 1 |
| 10/17/08 | Stdord143008 | BL | 5412 ESCH060604 | 1 |

**This operation is necessary to remove items from EXM_tracking using the posting tool shown in the Description #7. The quantities put in "Posting" Description #7 are random and will not necessary fit the quantity set in an order. This is the reason why we need to divide the items one by one.**

### Description #7- Adjustment of the inventory per site ID "POSTING":

We need a web page that we will add to the current one able to generate a txt file as GPS utility does to generate daily files. This web page below is segmented in two parts, the first (1) part will be used to enter data and the second (2) will be used to cumulate the added items.




| ITEM NUMBER | DESCRIPTION | UNIT COST | QTY | SITE ID |
|---|---|---|---|---|
| "ITEMNUMBR" | "ITEMDESC" | "STNDCOST" | "QTY Written Below IN QTY field" | "field Site ID" |

**How users will proceed:**

The first thing the user will have to do is to use the gridview that will be filled with all the items and the descriptions from the following fields: ITEMNMBR & ITEMDESC in table IV00101. When the users will have selected the item and the description in the grid it must put a QTY in the text box aside. When the right Item number is selected and the QTY is set in the textbox the user click the button “add item and quantity to grid” button which adds the selected data to the grid in section number 2.

**Search engine:** The search engine function is simple; the user will type an item number in the text area and click the search button. A small form should appear, if the Item does not exist in the table IV00101, field ITEMNMBR a message will be displayed telling the user that the number typed does not exist in the database. In case the Item numbers exist in the table IV00101 a small form will be displayed including all the field added in the first part of the webpage(Ex Field:QTY, ADD ITEM QTY TO FIELD).

The second part of this webpage is used to generate the text file. The text field is used to add a small string to the text file we want to generate. In regard of the date field, the date format must be flexible (Ex: use the client computer format) and it would be interesting to have a small calendar (small button that show a calendar) beside the date field to help people that working on this web page to retrieve the date easily.

The combo box aside the date field is “Side ID” this combo box doesn’t need to be hook up to a database, the only value “BL” need to be added for the moment.

The grid in the second part of the webpage will be used to show the items that have been added from the second windows.

- ITEM NUMBER= field=ITEMNMBR table=IV00101 db=EM
- DESCRIPTION= field=ITEMDESC table=IV00101 db=EM
- UNIT COST= field=STNDCOST table=IV00101 db=EM
- QTY= field=”QTY from part 1”
- SITE ID= must display BL in this field to all rows added

The users at the end of the process click the POST button to generate the txt file. The text format will be defined later.

## Description #8 – Remove items from Tracking

We have to add another function to the Post button shown in description #7. In page 8 the page is divided in two; the top one which is number 1) and the second part; the posting which is number 2). In part number 2) we have a grid where the items we want to post are stacked.

When we click the button post a function put all the information we need into a file and dump it into a predefined directory. We need to add another function to this button; In the posting grid we have items and quantities, we need to remove the Items & quantities that appears in the grid from Tracking table. The STDORD number doesn't matter, we have to remove items or rows from the older to the newer. If an item we want to remove is not present in table Tracking no action must be taken.