

How to generate customized large Price Tables?

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Pre-requisite

This guideline comes as a complement to the one called **Using Price Matrix Summary**. Please read Using Price Matrix Summary Quick Guideline if not yet done so before reading this one.

The case for large price tables

Some Invitation To Tender, usually for large projects, may require the production of large price tables. Satisfying this requirement so far required extensive manual information handling, both a tedious and error-prone exercise.

Taking benefit of the newly developed feature called **Using Price Matrix Summary**, an extension of it has been implemented to handle such large tables.

The specific context of large tables led to the inclusion of additional two sub-features:

The concept of Matrix size (Regular, Large, X-Large).

Regular Matrix rows and columns are coded on one digit, while a Large Matrix is coded with 2 digit indexes and an X-Large matrix with three digits.

The use of wild card system in ECOS PT/WBS or User Numbering codes

The development of a secondary report 5111 producing the PT/WBS breakdown according to various options. The lists produced are reused to define batch filter lines. The support of lists is necessary considering that typically hundreds of Batch Filter lines will be necessary for large tables.

DISCLAIMER

Unlike the PSS_A formats, the Price Matrix Summary offers a maximum of flexibility in conceiving synthetic tables. **The User remains fully responsible for the numbers produced**. For instance it is possible to aggregate prices from different Price types (f.i. Price Type 1 for Firm Fixed Price and Price type 4 for Ceiling Price to be converted to Fixed Price should normally not be summed up together). Such Mixed Price Type totals may have an interest in presenting and comparing various alternatives but cannot constitute the basis of the formal commitment that remains at each price type level.

Important recommendations

The Price Matrix Summary feature allows to produce very rapidly synthetic tables. The more ECOS is used properly, the more efficient and easy will be the production of these tables. This includes:

- Follow recommendations to build a good PT/WBS (See the Quick Guidelines on this subject).
- Use systematically and properly the Support Functions system
- Define your **ITTs** preferably at **PT node** level and for each **contractual phase** involved.
- Define specific **Budgetary Sub-cos** provisions for each **contractual phase** involved using the **nX Support Functions**.

- Involve systematically your sub-contractors when identified at the time of the proposal elaboration and send them an ITT issued from your ECOS file in order to be able to integrate their ECOS Tender Answers files.

Index numbering system of the various Matrix sizes

The following coding principle applies for indexes depending on Matrix size:

Single digit coding:

From 1 to 9 then A to Z (only capital letters).
This allows to define up to 35 rows or columns.

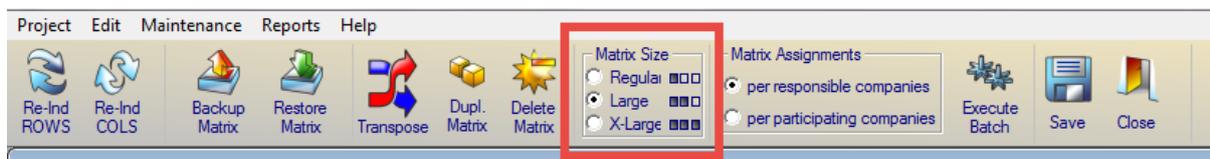
Double digit coding

10 to 19 then 1A to 1Z then 20 till 29 etc...
This allows to define up to 1260 rows or columns.

Triple digit coding

100 till 109 then 10A to 10Z, then 110 to 119 etc...
This allows to define up to 45360 rows or columns.

The Matrix Size can be chosen from the Task Bar Menu of the Matrix Configurator.



Use of Excel in combination with the Price Matrix Configurator

Large matrices inherently require to handle long lists of items or indexes.

Using Excel will prove to be very useful to generate indexes lists, list of companies, and list of Work packages codes (ECOS PT/WBS or User numbering)

Using the Find and Replace feature in Excel will allow to integrate wild card characters in PT/WBS or User Numbering codes thus helping to define efficiently the Batch Filter.

The recommended structure for the Excel File to work with is as follows:

Create a spreadsheet containing the following tabs:



The tab LIST collects the lists of items that will be used to define the large dimension of the Matrix; usually the rows but the transpose is possible.

Wild card system

The wild card system used is the following:

* for any character string

? for any single character

! to negate a character string i.e. exclude records matching the string

Examples:

In ECOS PT/WBS

31A2*-2A*

Will catch Work Packages for the Product Tree branch 31A2 and all subsequent PT nodes and will retain only Project Office Support Function for the Space Segment (-2A series).

Using '*' character on the PT node may prove to be very useful to aggregate in a specific cell all prices related to the Prime and its sub-contractors at any level involved into this specific PT branch. It could be for instance a sub-system of a satellite. It is reminded that there are many choices in displaying cells values. For instance it is possible to display the breakdown per responsible companies in a given cell.

Report 5111 - PT/WBS grid

The main purpose of **Report 5111** is to produce grid-based WP lists i.e. easily transferable to Excel.

It is possible to produce different type of lists depending what is needed for the Batch Filter definition. The Report 5111 is targeting WP lists.

Full WBS will produce a listing that includes:

- The PT Nodes displayed in Blue-Navy
- The intermediary Support Function nodes displayed in Grey
- The active Support Function nodes displayed in Red. These red nodes defines the WPs.

C13	TTC		C/D
C13-2	TTC	*SPAC*	C/D
C13-2A	TTC	*ProjOffi	C/D
C13-2AA	TTC	*Mgmt+PC	C/D
C13-2AC	TTC	*PA&S	C/D
C13-2AD	TTC	*Eng	C/D
C13-2ADD	TTC	*ThermEng	C/D
C13-2ADF	TTC	*ElecEng	C/D
C13-2ADU	TTC	*PartsEng	C/D
C13-2B	TTC	*MAIT	C/D
C13-2BA	TTC	*MAIT_GT	C/D
C13-2BD	TTC	*MAIT_STM	C/D
C13-2BI	TTC	*MAIT_PFM	C/D
C13-2K	TTC	*GSE	C/D
C13-2KA	TTC	*EGSE	C/D
C13-2KB	TTC	*MGSE	C/D
C131	ANTENNA		C/D
C131-2	ANTENNA	*SPAC*	C/D
C131-2X	ANTENNA	*Undefind	C/D

Other options are:

PT Node only that will report at Blue –Navy nodes level of the Product Tree.

PT Nodes + WPs that will report at Blue-Navy and Red levels only.

It is also possible to choose the deepness of the branch both and independently for the PT nodes and the Support Functions.

For instance the filters left at their default values will produce the report with a maximum of details.

Number of PT Levels:	16
Number of SF Levels:	9

8		TTC			2625917
9	B	aggregate level (1)			254902
10	B1	aggregate level (2)			254902
11	B13	TTC		B2	254902
12	B13-2AA	TTC-----*Mgmt+PC		B2	43871
13	B13-2AC	TTC-----*PA&S		B2	8138
14	B13-2ADD	TTC-----*ThermEng		B2	14649
15	B13-2ADF	TTC-----*ElecEng		B2	20346
16	B13-2ADU	TTC-----*PartsEng		B2	34995
17	B131	ANTENNA		B2	15638
18	B131-ZX	ANTENNA-----*Undefind		B2	15638
19	B132	TRSP		B2	67263
20	B132-ZX	TRSP-----*Undefind		B2	67263
21	B133	RFDU		B2	50000
22	B133-ZX	RFDU-----*Undefind		B2	50000
23	C	aggregate level (1)			2371015
24	C1	aggregate level (2)			2371015
25	C13	TTC		C/D	2371015
26	C13-2AA	TTC-----*Mgmt+PC		C/D	62715
27	C13-2AC	TTC-----*PA&S		C/D	63614
28	C13-2ADD	TTC-----*ThermEng		C/D	100238
29	C13-2ADF	TTC-----*ElecEng		C/D	109351
30	C13-2ADU	TTC-----*PartsEng		C/D	103276
31	C13-2BA	TTC-----*MAIT_GT		C/D	96552
32	C13-2BD	TTC-----*MAIT_STM		C/D	146026
33	C13-2BI	TTC-----*MAIT_PFM		C/D	121096
34	C13-2KA	TTC-----*EGSE		C/D	70916
35	C13-2KB	TTC-----*MGSE		C/D	168217
36	C131	ANTENNA		C/D	156384
37	C131-ZX	ANTENNA-----*Undefind		C/D	156384
38	C132	TRSP		C/D	672631
39	C132-ZX	TRSP-----*Undefind		C/D	672631
40	C133	RFDU		C/D	500000
41	C133-ZX	RFDU-----*Undefind		C/D	500000

The **aggregate level (n)** indicates the price grouping at upper PT Node level than defined in the ITT file, (n) indicating the grouping level.

In this case the ITT contained two PT nodes:

B13 for TTC Phase B2

C13 for TTC Phase C/D

The description of the upper nodes B and C at PT Node Level 1 and B1 and C1 at PT Node Level 2 are unknown to the TTC sub-contractor.

This is why the generic descriptions aggregate level (1) and aggregate level (2) are used. These grouping levels may however be required to define lines in the Batch Filter.

While filtering with more restricted values such as:

Number of PT Levels:

Number of SF Levels:

May be used. The report type "PT Nodes only" is rather trivial. Here under are the two other types

With Blue-Navy and Red WBS lines

Report Type:

will produce a report like this:

8	TTC			3735621
9	B	aggregate level (1)		978554
10	B1	aggregate level (2)		978554
11	B13	TTC	B2	978554
12	B13-2AA	TTC	*Mgmt+PC B2	242760
13	B13-2AC	TTC	*PA&S B2	100962
14	B13-2AD	TTC	*Eng B2	619194
15	B13-2X	Substitute Node.....*Undefind	B2	15638
16	C	aggregate level (1)		2757067
17	C1	aggregate level (2)		2757067
18	C13	TTC	C/D	2757067
19	C13-2AA	TTC	*Mgmt+PC C/D	312960
20	C13-2AC	TTC	*PA&S C/D	127762
21	C13-2AD	TTC	*Eng C/D	766781
22	C13-2BA	TTC	*MAIT_GT C/D	294343
23	C13-2BD	TTC	*MAIT_STM C/D	362732
24	C13-2BI	TTC	*MAIT_PFM C/D	488121
25	C13-2KA	TTC	*EGSE C/D	164085
26	C13-2KB	TTC	*MGSE C/D	83899
27	C13-2X	Substitute Node.....*Undefind	C/D	156384

With All PT/WBS lines including Grey ones

Report Type:

will produce the intermediary nodes

8	TTC			3735621
9	B	aggregate level (1)		978554
10	B1	aggregate level (2)		978554
11	B13	TTC	B2	978554
12	B13-2	TTC	*SPAC* B2	978554
13	B13-2A	TTC	*ProjOffi B2	962915
14	B13-2AA	TTC	*Mgmt+PC B2	242760
15	B13-2AC	TTC	*PA&S B2	100962
16	B13-2AD	TTC	*Eng B2	619194
17	B13-2X	Substitute Node.....*Undefind	B2	15638
18	C	aggregate level (1)		2757067
19	C1	aggregate level (2)		2757067
20	C13	TTC	C/D	2757067
21	C13-2	TTC	*SPAC* C/D	2757067
22	C13-2A	TTC	*ProjOffi C/D	1207503
23	C13-2AA	TTC	*Mgmt+PC C/D	312960
24	C13-2AC	TTC	*PA&S C/D	127762
25	C13-2AD	TTC	*Eng C/D	766781
26	C13-2B	TTC	*MAIT C/D	1145195
27	C13-2BA	TTC	*MAIT_GT C/D	294343
28	C13-2BD	TTC	*MAIT_STM C/D	362732
29	C13-2BI	TTC	*MAIT_PFM C/D	488121
30	C13-2K	TTC	*GSE C/D	247984
31	C13-2KA	TTC	*EGSE C/D	164085
32	C13-2KB	TTC	*MGSE C/D	83899
33	C13-2X	Substitute Node.....*Undefind	C/D	156384

Substitute Node indicates a grouping of Support Functions at the chosen PT Node level when several WPs under the same Support Function grouping exists. In the example here above, the Substitute Nodes regroup the 3 Budgetary Sub-cos records (TRSP, RFDU and Antenna) under -2X Support Functions for each Contractual Phase (B13 and C13).

Matrix Headers definition

The Matrix Rows Headers may be copied/pasted from the final table to be produced.

Keeping the description into the first Header line position will generally help to more simply refer to the cells between the RAW and PROCESSED tab by simple copy/paste over ranges of reference cells formulas.

Price Matrix Summary - ROWS Definition						Organizational Breakdown Structure	
Idx	Start	End	Cod	Sub	1st Line Header		
10					Management		
11					Meetings & Reviews		
12					Documentation		
13							
14							
15							

Price Matrix Summary - COLUMNS Definition							
Idx	Start	End	Cod	Sub	1st Line Header	2nd Line Header	
10					Version A		
11					Version B		
12					Version C		
13					Version D		
14					Version E		
15					Management	Reserve	
15				St10	TOTAL	BASELINE	
16					Option 1		
17					Option 2		
18					Option 3		
19							

Batch Filter Definition													
	PT/WBS Number	User Number	Phase	Type	Support	Company	ITT	Start	End	Cou	Sub	Row	Col
1	31A1*3AAA1											10	10
2	31A1*3AAA2											11	10
3	31A1*3AAA3											12	10
4	31A1*3AAA4											13	10
5	31A1*3AAA5											14	10
6	31A1*3AAA6											15	10
7	31A1*3AAA7											16	10
8	31A1*3AADC											17	10
9	31A1*3AAF											18	10
10	31A2*3AA											19	10
11	31A2*3AD*											1A	10
12	31A2*3ADA2											1B	10
13	31A2*3ADA3											1C	10
14	31A2*3ADA4											1D	10
15	31A3*3AAJ											1E	10

WARNING: what is written in the matrix headers is free text.

The coherency between these headers and the settings of the Batch Filter remains the responsibility of the User

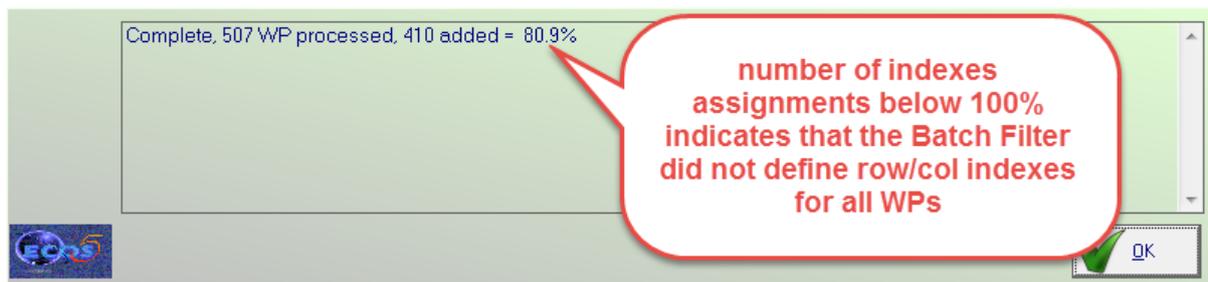
Matrix indexes assignment execution and debugging

Once all Rows and Columns Headers have been defined together with their associated indexes and that the Batch Filter has been obtained by copy/pasting the FILTER Excel tab into ECOS Batch Filter window, the Matrix can be saved and executed.

Depending on the quality of the Batch Filter all WPs will have a row/col index assigned.

WPs with missing Row/Column index assignments can easily be found by using the Matrix tab filter.

Check boxes for Auto-Filtering and Only Zero-Row/Col; the list of WPs will be reduced to those with non-assigned indexes.



WP Number	User Number	Phase	Row	Col	Title	Start	End	Ty	Task	Total EURO	Comp	Part of ITT
31A3-3ADJ5		W01			Security Audit-----*Sec_Eng	17-01	17-12	1	3ADJ	147 695	AAAA	
31A4-3ADA		W01			AIV General-----*Design	17-01	17-12	1	3ADA	147 695	AAAA	
31A4-3ADV		W01			AIV Engineering-----*AIV_Eng	17-01	17-12	1	3ADV	147 695	AAAA	
31A6-3ACA		W01			Product Assurance-----*PA&S_Adm	17-01	17-12	1	3ACA	147 695	AAAA	
31A6-3ACB		W01			Quality Assurance-----*QA	17-01	17-12	1	3ACB	147 695	AAAA	
31A6-3ACCA		W01			Dependability-----*RAM_PA	17-01	17-12	1	3ACCA	147 695	AAAA	
31A6-3ACCB		W01			Safety-----*Safety	17-01	17-12	1	3ACCB	147 695	AAAA	
31A6-3ACD		W01			EEE Components, Materials, Processes-----*Mat&ProA	17-01	17-12	1	3ACD	147 695	AAAA	
31AM-3AC		W01			PA-----*PA&S	17-01	17-12	1	3AC	147 695	AAAA	
31AM-3AD		W01			Design-----*Eng	17-01	17-12	1	3AD	147 695	AAAA	
31AM-3DA		W01			On Site Support-----*Ops_GT	17-01	17-12	1	3DA	147 695	AAAA	
31AM-3DG		W01			Training-----*Train	17-01	17-12	1	3DG	147 695	AAAA	
31A...		W01			ProjAdm	18-01	19-12	1		292 695	AAAA	

Identify erroneous or missing Batch Filter lines. Fix and re-run.

Analyzing commonalities among the items of the list of work packages with missing index assignments usually gives the necessary clues concerning the wrong or missing batch filter lines so the Batch Filter adjustments converge rapidly. It is however important to note that 100% WPs processed does not guarantee that the allocations are correct. Some further validations, for instance using various field selections during the production of Report 5307 is recommended.

Copy/Paste Report 5307 output to the RAW tab

Once all WPs have Row/Col indexes assignments, the Report 5307 can be ran.

Copy result to clipboard and paste on cell A1 of the RAW Excel tab

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
1	ECOS 5.2.0008	Report 5307a				Price Matrix Summary 1									
2										Integrated Project		10-Aug-16	18:07		
3						COMP	NUMBER			LAST CHANGE					
4	TITLE:	TRAINING				ISSUING:	ESAP	AO/1-826	WBS:	AUG		ECON.CON.	Jan-16		
5	PROJECT:	ECOSAT	TRAIN			TENDER:	AAAA		COST:	10-Aug-16		CONV.RATE	1.000000	EUR	
6															
7															
8	Contractual Phases:														
9	PT/WBS Branches:														
10	User Numbers:														
11	Support Functions:														
12	Participating Companies:														
13	(ITT/RFQ Numbers)														
14	Countries:														
15	Period:														
16	Price Types														
17	Subcontractors:														
18	Values per Cell:		Price Value												
19															
20	Annex 6														
21															
22			Unallocated			10	11	12	13	14	15	15	16		
23		Full WP	0			Version A	Version B	Version C	Version D	Version E	Managem	TOTAL	Option 1	Option	
24		Time Periods	0								Reserve	BASELINE			
25		Countries	0												
26															
27			10 Management			147 695	297 609	150 672	151 424	150 671		898 071			
28			11 Meetings & Reviews			147 695	297 609	150 672	151 424	150 671		898 071			
29			12 Documentation			147 695	297 609	150 672	151 424	150 671		898 071			
30			13 Inventories			147 695	297 609	150 672	151 424	150 671		898 071			

Linking the PROCESSED tab cells to the RAW tab cells

The PROCESSED tab includes the fully formatted Price table to be included into the Financial Proposal.

Table cells of the PROCESSED tab need to point to the corresponding RAW cell.

By operating this way and unless the table row/col structure evolves, updating prices will be reliably and rapidly done.

	Work Package ID and Description										Baseline	Management Reserve	Option 1	FFP
	Version A	Version B	Version C	Version D	Version E									
6	Segment													
7	100	Project Management	110	Management	147 695	297 609	150 672	151 424	150 671					
8			120	Meetings & Reviews	147 695	297 609	150 672	151 424	150 671					
9			130	Documentation	147 695	297 609	150 672	151 424	150 671					
10			140	Inventories	147 695	297 609	150 672	151 424	150 671					
11			150	CFI Management	147 695	297 609	150 672	151 424	150 671					
12			160	License Management	147 695	297 609	150 672	151 424	150 671					
13			170	Delivery Management	147 695	297 609	150 672	151 424	150 671					
14			180	Configuration Management	147 695	297 609	150 672	151 424	150 671					
15			190	Procurement Management	147 695	297 609	150 672	151 424	150 671					
16	200	Segment Engineering	210	Segment Engineering Management	147 695	297 609	150 672	151 424	150 671					

Formatting numbers in the RAW tab in case summations are needed

The numbers in the grid of the Report 5307 as displayed with blocks of thousands separated by a space to improve their readability.

Depending on Excel version and general options, the numbers from the RAW tab may in fact end up being string of characters containing spaces instead of proper numbers.

If summations have to be performed into the PROCESSED tab, then the values data from the RAW tab will first need to be converted into number as follows:

Select the range that contains all price figures in RAW tab and use the Find & Replace feature in Excel

Find: Space character

Replace with: nothing

This will remove all spaces in numbers and will convert the format from characters string to number.

It is possible then to format the numbers using custom format: **### ##** to keep blocks of thousands format that allows more readability of large numbers.