White Paper

From SMF to Excel: graphs and reports in one click Part II

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1 Introduction

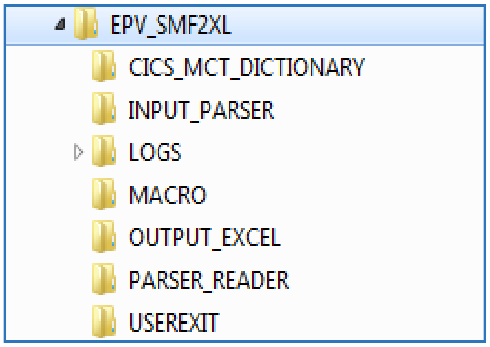
In this paper we will now explain how to use EPV SMF2XL (SMF2XL). If you have not already done so, please read "From SMF to Excel: graphs and reports in one click Part I" first.

SMF2XL is a productivity tool that allows you to read an SMF dump on a PC and automatically load it into Excel spreadsheets—as many as there are input SMF record types and subtypes.

In order to use the tool it must be installed on a PC that also has Excel installed. Move an SMF dump to the input folder, run the tool and you will get the results in the output folder.

Only the IBM standard SMF records are supported, from record 0 to 127.

After installing the tool on your PC, you'll see the folders shown in Figure 1 below.



EPV_SMF2XL
CICS_MCT_DICTIONARY
INPUT_PARSER
LOGS
MACRO
OUTPUT_EXCEL
PARSER_READER
USEREXIT

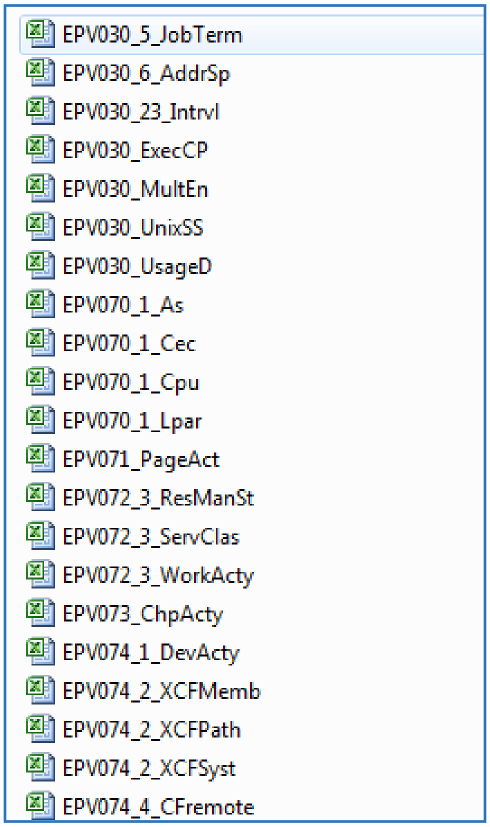
Figure 1

Now take the SMF dump that was selected for analysis, transfer it in binary mode to your PC[1] and then move it to the folder named INPUT_PARSER. You can feed SMF2XL with extremely large SMF dumps, but the tool is really designed to perform a quick ad-hoc analysis, so it is better to make a sub-selection of only the hours and the record types you need to analyze.

[1] Please follow the manual notes when transferring the data to your PC to avoid corrupting the SMF dump.

Once the input SMF dump is in the correct folder, run the EPVsmf2xl.exe program. This step may take some time, depending on the contents of the input file.

When the process has finished, you will find in the OUTPUT_EXCEL folder, as many Excel sheets as there are SMF record types and subtypes in the input (see Figure 2 below). Please, be aware that every time you run SMF2XL, all of the contents of the OUTPUT_EXCEL folder will be erased and replaced.



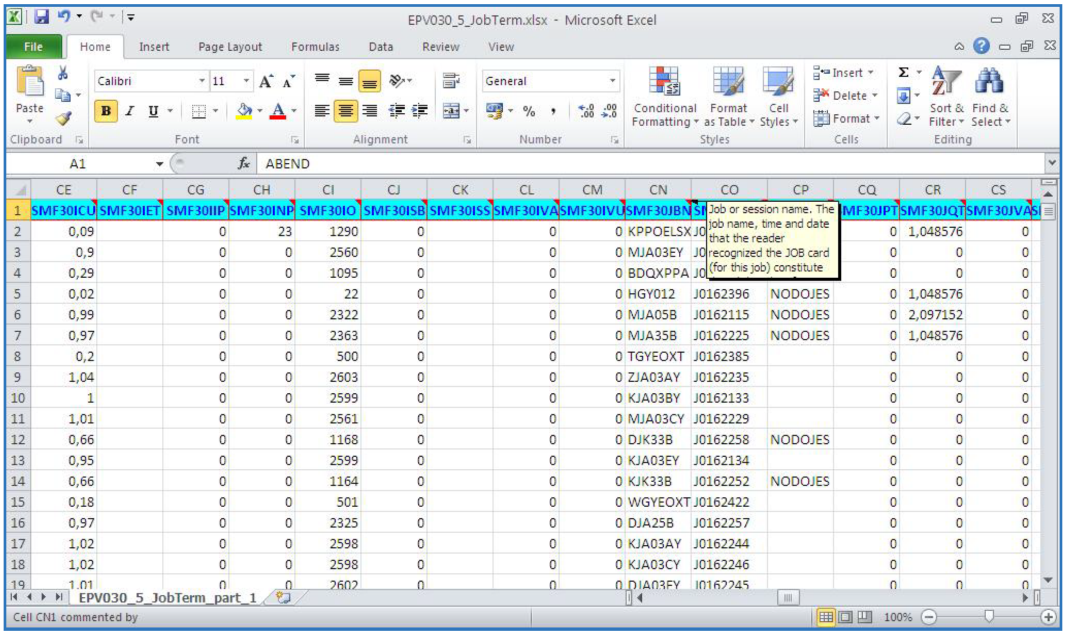
EPV030_5_JobTerm
EPV030_6_AddrSp
EPV030_23_Intrvl
EPV030_ExecCP
EPV030_MultEn
EPV030_UnixSS
EPV030_UsageD
EPV070_1_As
EPV070_1_Cec
EPV070_1_Cpu
EPV070_1_Lpar
EPV071_PageAct
EPV072_3_ResManSt
EPV072_3_ServClas
EPV072_3_WorkActy
EPV073_ChpActy
EPV074_1_DevActy
EPV074_2_XCFMemb
EPV074_2_XCFPath
EPV074_2_XCFSyst
EPV074_4_CFremote

Figure 2

Figure 3 on the next page shows the contents of one of the sheets created; all of the column names have the same name as in the SMF manuals[2].

At this point you can use all of Excel's capabilities to filter the data or create graphs or whatever else may be required.

[2] This is true for all native SMF fields.



A1 | ABEND

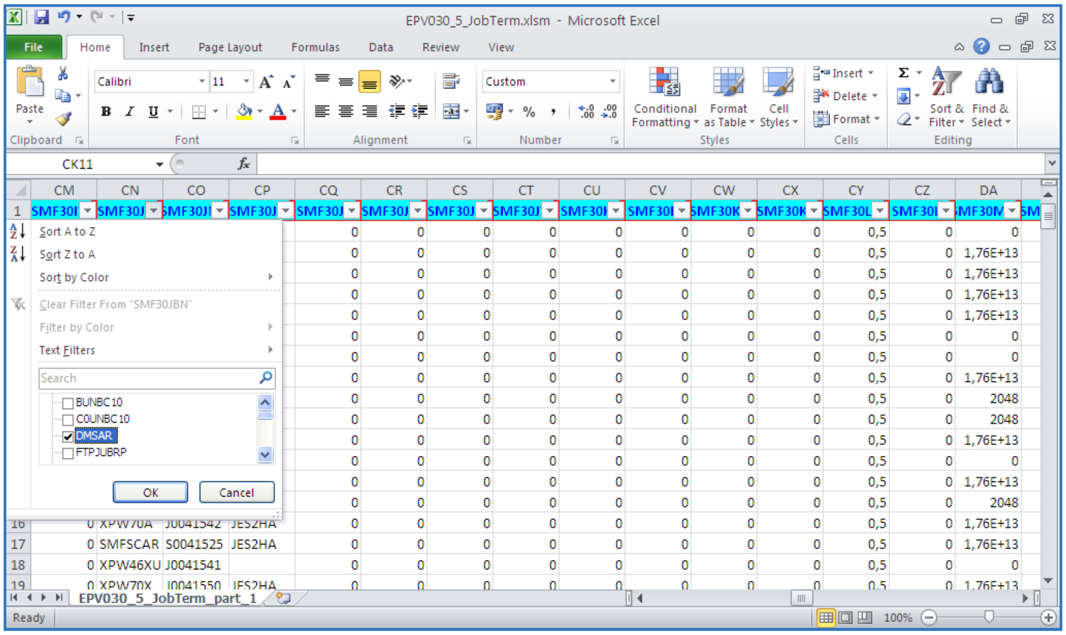
	CE	CF	CG	CH	CI	CJ	CK	CL	CM	CN	CO	CP	CQ	CR	CS
1	SMF30ICU	SMF30IET	SMF30IIP	SMF30INP	SMF30IO	SMF30ISB	SMF30ISS	SMF30IVA	SMF30IVU	SMF30JBN	SM		MF30JPT	SMF30JQT	SMF30JVA
2	0,09		0	23	1290	0		0	0	KPPOELSX	J0		0	1,048576	0
3	0,9		0	0	2560	0		0	0	MJA03EY	J0		0	0	0
4	0,29		0	0	1095	0		0	0	BDQXPPA	J0		0	0	0
5	0,02		0	0	22	0		0	0	HGY012	J0162396	NODOJES	0	1,048576	0
6	0,99		0	0	2322	0		0	0	MJA05B	J0162115	NODOJES	0	2,097152	0
7	0,97		0	0	2363	0		0	0	MJA35B	J0162225	NODOJES	0	1,048576	0
8	0,2		0	0	500	0		0	0	TGYEOXT	J0162385		0	0	0
9	1,04		0	0	2603	0		0	0	ZJA03AY	J0162235		0	0	0
10	1		0	0	2599	0		0	0	KJA03BY	J0162133		0	0	0
11	1,01		0	0	2561	0		0	0	MJA03CY	J0162229		0	0	0
12	0,66		0	0	1168	0		0	0	DJK33B	J0162258	NODOJES	0	0	0
13	0,95		0	0	2599	0		0	0	KJA03EY	J0162134		0	0	0
14	0,66		0	0	1164	0		0	0	KJK33B	J0162252	NODOJES	0	0	0
15	0,18		0	0	501	0		0	0	WGYEOXT	J0162422		0	0	0
16	0,97		0	0	2325	0		0	0	DJA25B	J0162257		0	0	0
17	1,02		0	0	2598	0		0	0	KJA03AY	J0162244		0	0	0
18	1,02		0	0	2598	0		0	0	KJA03CY	J0162246		0	0	0
19	1,01		0	0	2602	0		0	0	DJA03EY	J0162245		0	0	0

Job or session name. The job name, time and date that the reader recognized the JOB card (for this job) constitute

Cell CN1 commented by

Figure 3

For example, you can filter the SMF30JBN column (Address Space Name) in order to select only a specific address space, as shown in the Figure 4, where we selected the DMSAR address space. The results are shown in Figure 5 on the next page.

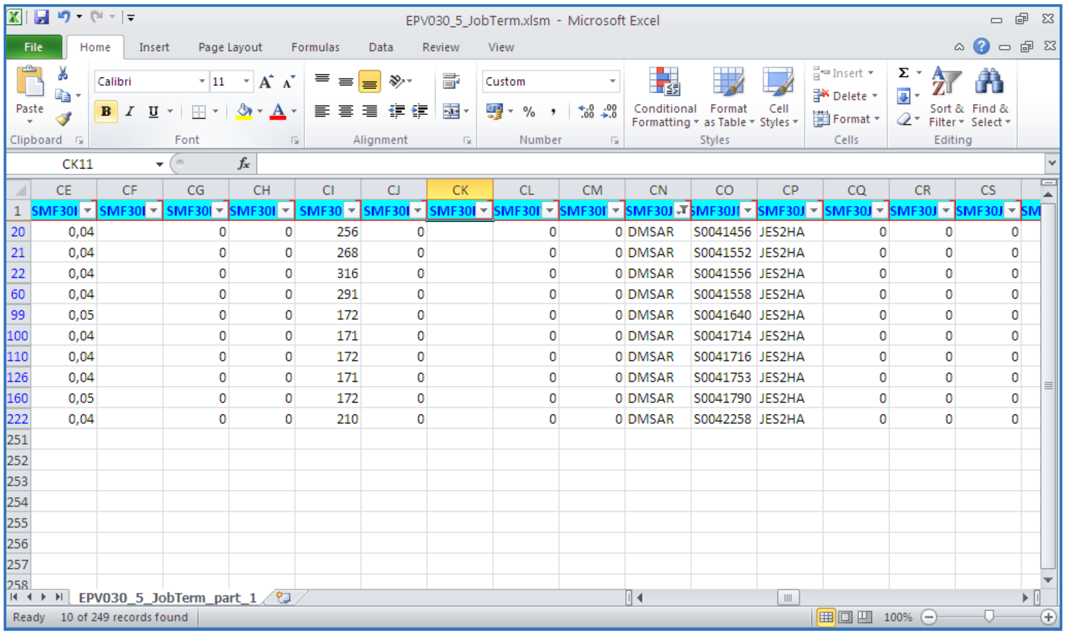


CK11

☐ BUNBC10
☐ C0UNBC10
☑ DMSAR
☐ FTPJUBRP

	CM	CN	CO	CP	CQ	CR	CS	CT	CU	CV	CW	CX	CY	CZ	DA
1	SMF30I	SMF30J	SMF30J	SMF30J	SMF30J	SMF30J	SMF30J	SMF30J	SMF30I	SMF30I	SMF30K	SMF30K	SMF30L	SMF30I	SMF30M
2					0	0	0	0	0	0	0	0	0,5	0	0
3					0	0	0	0	0	0	0	0	0,5	0	1,76E+13
4					0	0	0	0	0	0	0	0	0,5	0	1,76E+13
5					0	0	0	0	0	0	0	0	0,5	0	1,76E+13
6					0	0	0	0	0	0	0	0	0,5	0	1,76E+13
7					0	0	0	0	0	0	0	0	0,5	0	0
8					0	0	0	0	0	0	0	0	0,5	0	0
9					0	0	0	0	0	0	0	0	0,5	0	1,76E+13
10					0	0	0	0	0	0	0	0	0,5	0	2048
11					0	0	0	0	0	0	0	0	0,5	0	2048
12					0	0	0	0	0	0	0	0	0,5	0	1,76E+13
13					0	0	0	0	0	0	0	0	0,5	0	0
14					0	0	0	0	0	0	0	0	0,5	0	1,76E+13
15					0	0	0	0	0	0	0	0	0,5	0	2048
16	0	XPW70A	J0041542	JES2HA	0	0	0	0	0	0	0	0	0,5	0	1,76E+13
17	0	SMFSCAR	S0041525	JES2HA	0	0	0	0	0	0	0	0	0,5	0	1,76E+13
18	0	XPW46XU	J0041541		0	0	0	0	0	0	0	0	0,5	0	0
19	0	XPW70X	J0041550	JES2HA	0	0	0	0	0	0	0	0	0,5	0	1,76E+13

Figure 4



EPV030_5_JobTerm.xlsm - Microsoft Excel

CK11

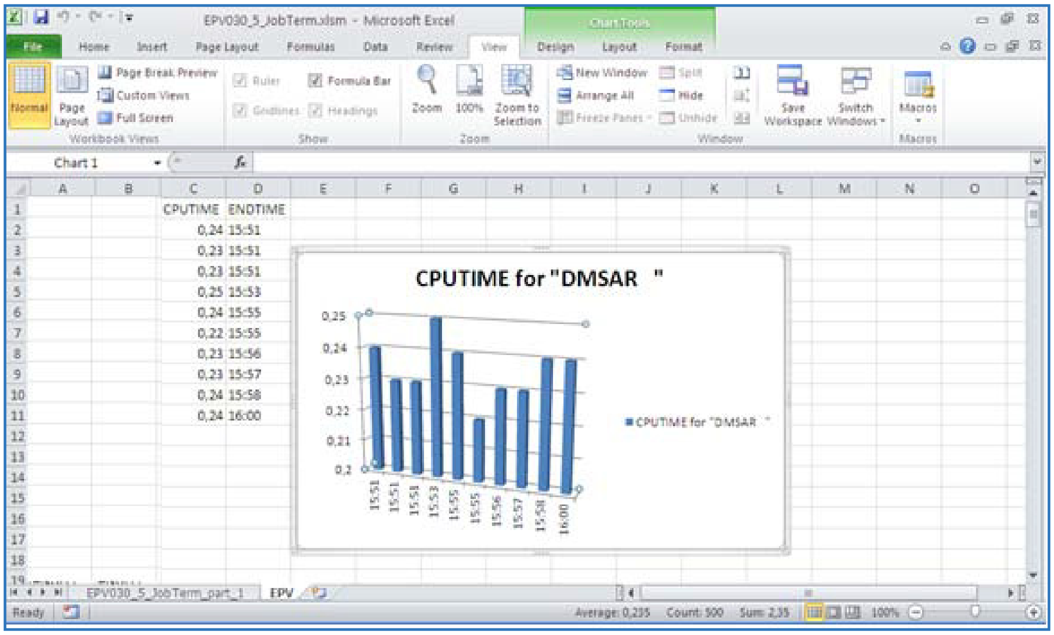
	CE	CF	CG	CH	CI	CJ	CK	CL	CM	CN	CO	CP	CQ	CR	CS
1	SMF30I	SMF30I	SMF30I	SMF30I	SMF30	SMF30I	SMF30I	SMF30I	SMF30I	SMF30J	SMF30JI	SMF30J	SMF30J	SMF30J	SMF30J
20	0,04		0	0	256	0		0	0	DMSAR	S0041456	JES2HA	0	0	0
21	0,04		0	0	268	0		0	0	DMSAR	S0041552	JES2HA	0	0	0
22	0,04		0	0	316	0		0	0	DMSAR	S0041556	JES2HA	0	0	0
60	0,04		0	0	291	0		0	0	DMSAR	S0041558	JES2HA	0	0	0
99	0,05		0	0	172	0		0	0	DMSAR	S0041640	JES2HA	0	0	0
100	0,04		0	0	171	0		0	0	DMSAR	S0041714	JES2HA	0	0	0
110	0,04		0	0	172	0		0	0	DMSAR	S0041716	JES2HA	0	0	0
126	0,04		0	0	171	0		0	0	DMSAR	S0041753	JES2HA	0	0	0
160	0,05		0	0	172	0		0	0	DMSAR	S0041790	JES2HA	0	0	0
222	0,04		0	0	210	0		0	0	DMSAR	S0042258	JES2HA	0	0	0

EPV030_5_JobTerm_part_1

Ready 10 of 249 records found

Figure 5

At this point it is very simple to produce a pivot table and a graph like the ones shown in Figure 6.



EPV030_5_JobTerm.xlsm - Microsoft Excel

Chart 1

	C	D
1	CPUTIME	ENDTIME
2	0,24	15:51
3	0,23	15:51
4	0,23	15:51
5	0,25	15:53
6	0,24	15:55
7	0,22	15:55
8	0,23	15:56
9	0,23	15:57
10	0,24	15:58
11	0,24	16:00

EPV030_5_JobTerm_part_1 EPV

Ready Average: 0,235 Count: 500 Sum: 2,35

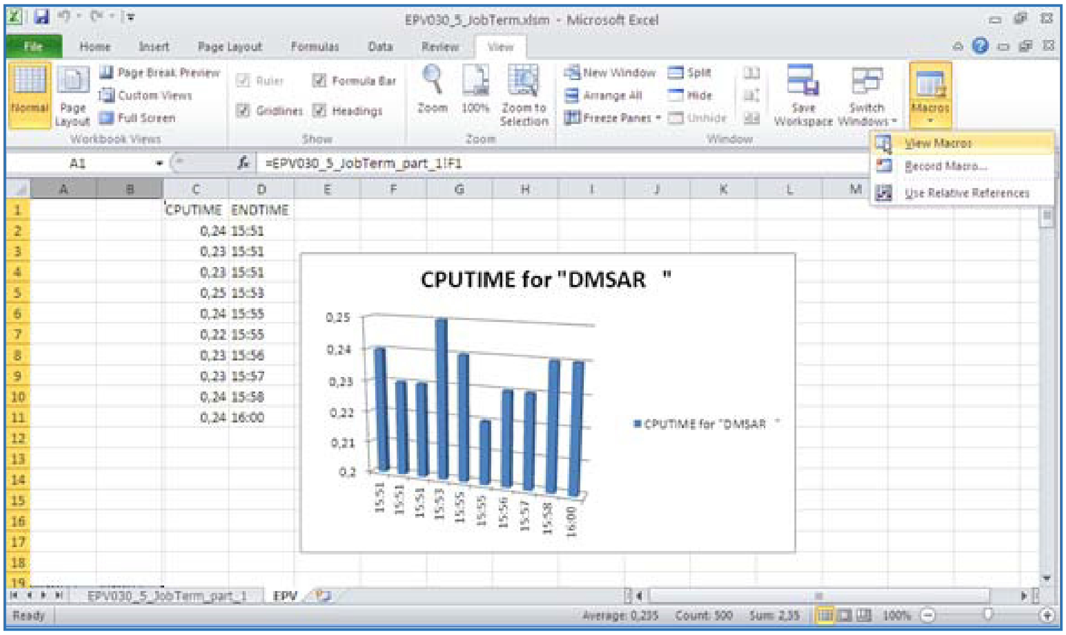
Figure 6

2 SMF2XL Advanced Function

In a similar way to the EPV HTML pages (please refer to Part I, Chapter 3.2), SMF2XL also provides an advanced function to exploit Excel macros. The aim of this function is to fully utilize Excel's capabilities and avoid repetitive steps when performing the same analyses on a specific record type. The more knowledgable you are about Excel, the more you could be interested in the contents of this chapter. Novices, however, can just ignore it, and everything explained in Chapter 1 will be executed anyway.

In this chapter we will provide an example that you may use as a template to implement what you really need.

Open the particular sheet that you're interested in, select VIEW, and then macros, as shown in Figure 7.



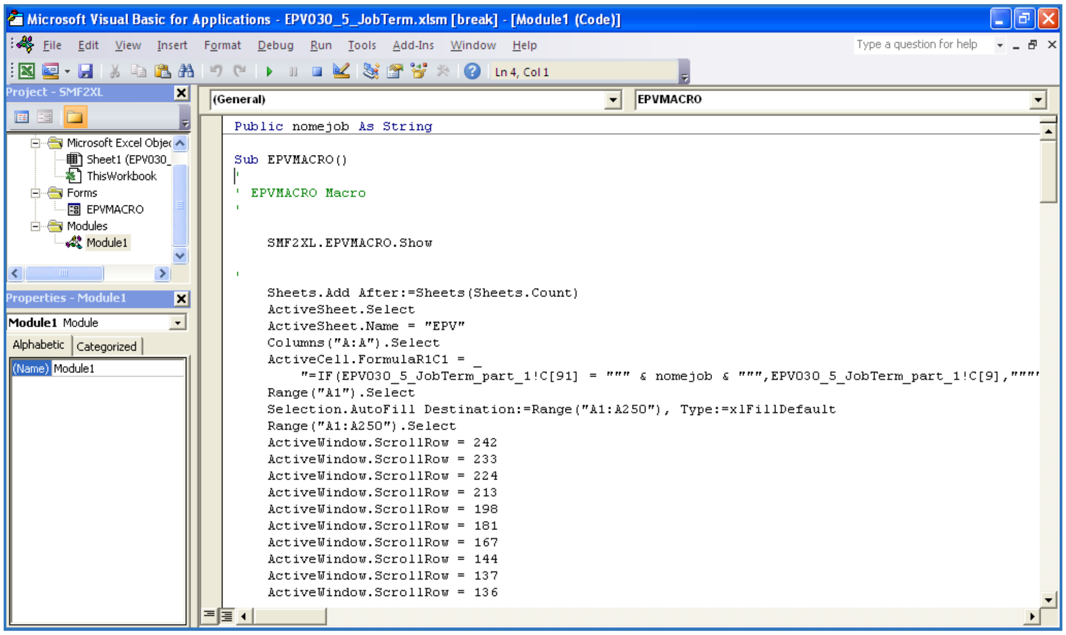
=EPV030_5_JobTerm_part_1!F1

CPUTIME	ENDTIME
0,24	15:51
0,23	15:51
0,23	15:51
0,25	15:53
0,24	15:55
0,22	15:55
0,23	15:56
0,23	15:57
0,24	15:58
0,24	16:00

Figure 7

This will open the macro editor, which can be filled by generating the code using the Excel "record and run" functionality, or by directly writing your own visual basic code.

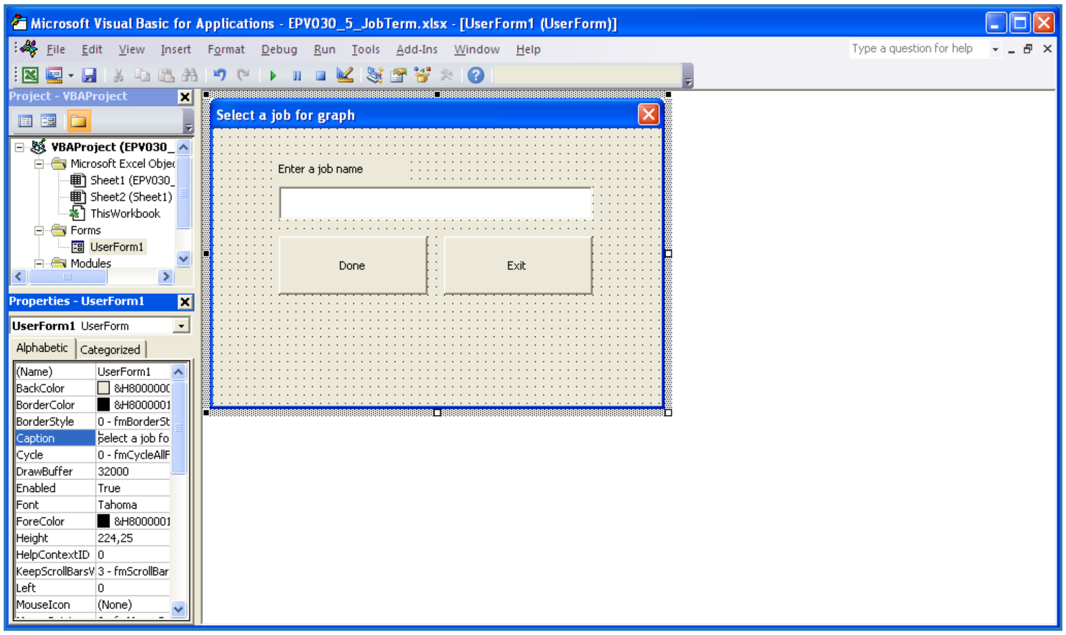
In Figure 8, on the next page, there's an example of some partial code (the full code is available, as an example, in Appendix A).



```
Public nomejob As String

Sub EPVMACRO()
'
' EPVMACRO Macro
'


    SMF2XL.EPVMACRO.Show

'
    Sheets.Add After:=Sheets(Sheets.Count)
    ActiveSheet.Select
    ActiveSheet.Name = "EPV"
    Columns("A:A").Select
    ActiveCell.FormulaR1C1 = _
        "=IF(EPV030_5_JobTerm_part_1!C[91] = """ & nomejob & """,EPV030_5_JobTerm_part_1!C[9],""""
    Range("A1").Select
    Selection.AutoFill Destination:=Range("A1:A250"), Type:=xlFillDefault
    Range("A1:A250").Select
    ActiveWindow.ScrollRow = 242
    ActiveWindow.ScrollRow = 233
    ActiveWindow.ScrollRow = 224
    ActiveWindow.ScrollRow = 213
    ActiveWindow.ScrollRow = 198
    ActiveWindow.ScrollRow = 181
    ActiveWindow.ScrollRow = 167
    ActiveWindow.ScrollRow = 144
    ActiveWindow.ScrollRow = 137
    ActiveWindow.ScrollRow = 136
```

Figure 8

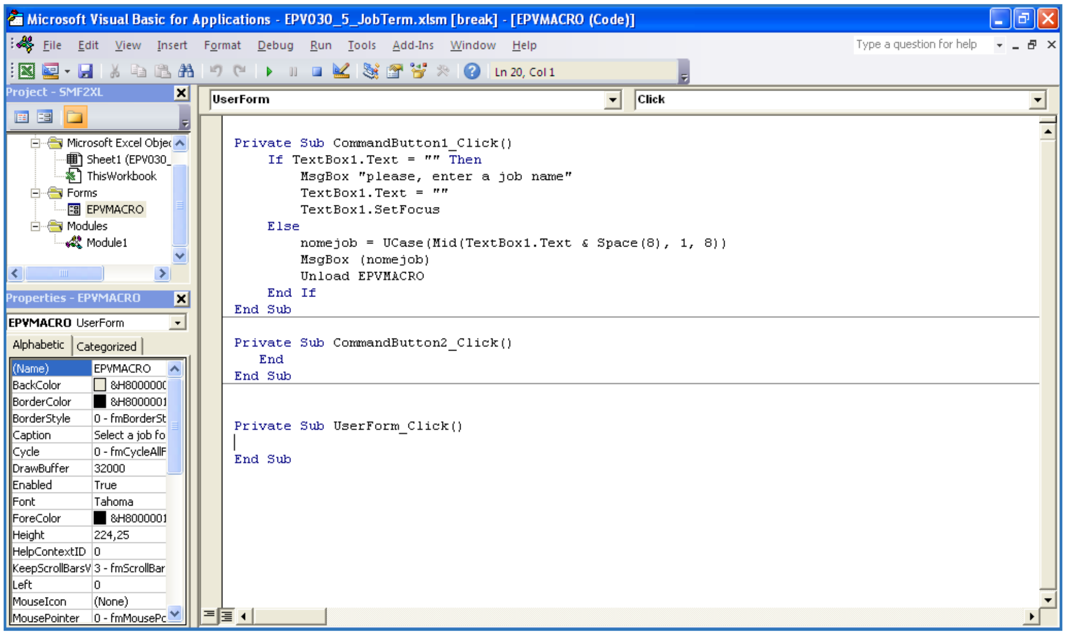
You can even create a form, allowing for even more flexibility in your analysis; see the next figure.



(Name)	UserForm1
BackColor	□ &H8000000
BorderColor	■ &H8000001
BorderStyle	0 - fmBorderSt
Caption	Select a job fo
Cycle	0 - fmCycleAllF
DrawBuffer	32000
Enabled	True
Font	Tahoma
ForeColor	■ &H8000001
Height	224,25
HelpContextID	0
KeepScrollBarsV	3 - fmScrollBar
Left	0
MouseIcon	(None)

Figure 9

In this example, we have created a form that requests the name of the Address Space to be analyzed. The simple code is shown in Figure 10.



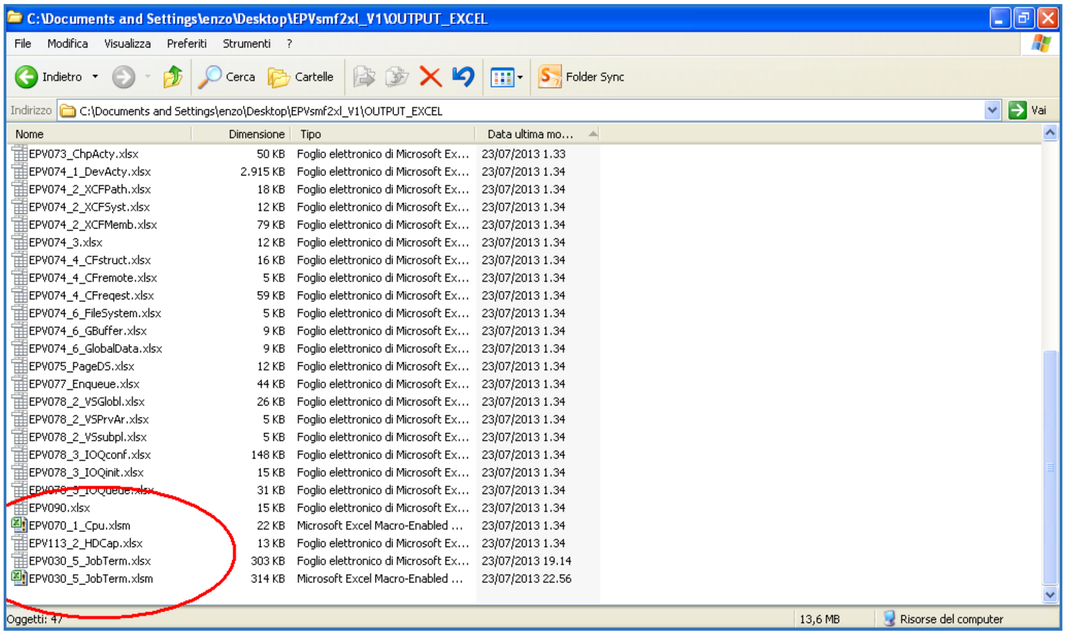
Microsoft Visual Basic for Applications - EPV030_5_JobTerm.xlsm [break] - [EPVMACRO (Code)]

(Name)	EPVMACRO
BackColor	□ &H8000000
BorderColor	■ &H8000001
BorderStyle	0 - fmBorderSt
Caption	Select a job fo
Cycle	0 - fmCycleAllF
DrawBuffer	32000
Enabled	True
Font	Tahoma
ForeColor	■ &H8000001
Height	224,25
HelpContextID	0
KeepScrollBarsV	3 - fmScrollBar
Left	0
MouseIcon	(None)
MousePointer	0 - fmMousePc

```
Private Sub CommandButton1_Click()
    If TextBox1.Text = "" Then
        MsgBox "please, enter a job name"
        TextBox1.Text = ""
        TextBox1.SetFocus
    Else
        nomejob = UCase(Mid(TextBox1.Text & Space(8), 1, 8))
        MsgBox (nomejob)
        Unload EPVMACRO
    End If
End Sub

Private Sub CommandButton2_Click()
   End
End Sub


Private Sub UserForm_Click()

End Sub
```

Figure 10

Once finished, the sheet must be saved with the .xlsm extension. In our example, we have created two different macros, as you can see in Figure 11.



C:\Documents and Settings\enzo\Desktop\EPVsmf2xl_V1\OUTPUT_EXCEL

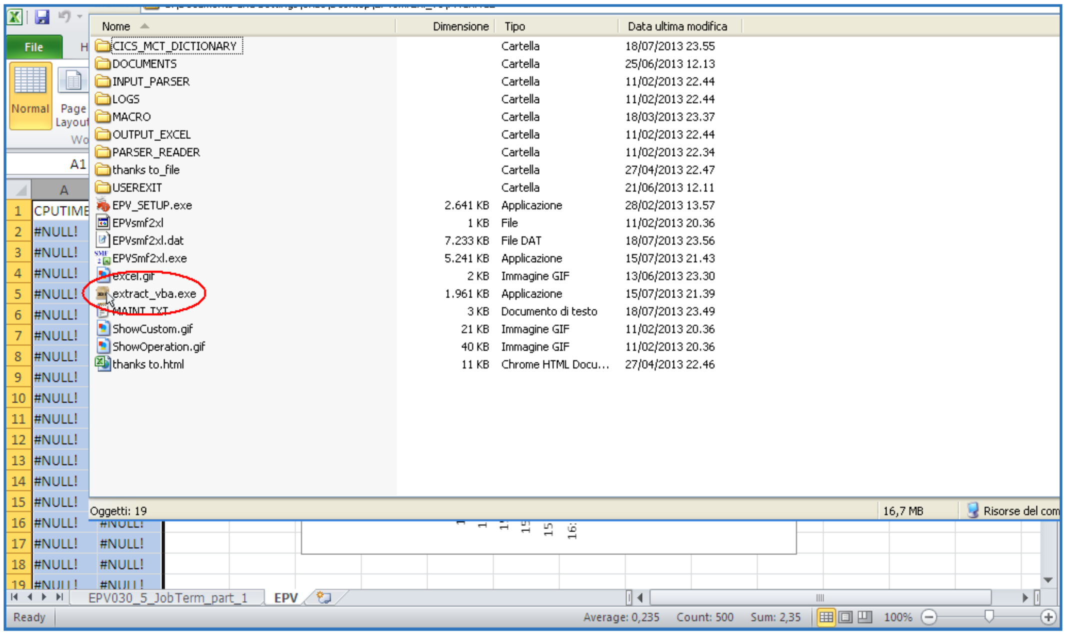
C:\Documents and Settings\enzo\Desktop\EPVsmf2xl_V1\OUTPUT_EXCEL

Nome	Dimensione	Tipo	Data ultima mo...
EPV073_ChpActy.xlsx	50 KB	Foglio elettronico di Microsoft Ex...	23/07/2013 1.33
EPV074_1_DevActy.xlsx	2.915 KB	Foglio elettronico di Microsoft Ex...	23/07/2013 1.34
EPV074_2_XCFPath.xlsx	18 KB	Foglio elettronico di Microsoft Ex...	23/07/2013 1.34
EPV074_2_XCFSyst.xlsx	12 KB	Foglio elettronico di Microsoft Ex...	23/07/2013 1.34
EPV074_2_XCFMemb.xlsx	79 KB	Foglio elettronico di Microsoft Ex...	23/07/2013 1.34
EPV074_3.xlsx	12 KB	Foglio elettronico di Microsoft Ex...	23/07/2013 1.34
EPV074_4_CFstruct.xlsx	16 KB	Foglio elettronico di Microsoft Ex...	23/07/2013 1.34
EPV074_4_CFremote.xlsx	5 KB	Foglio elettronico di Microsoft Ex...	23/07/2013 1.34
EPV074_4_CFreqest.xlsx	59 KB	Foglio elettronico di Microsoft Ex...	23/07/2013 1.34
EPV074_6_FileSystem.xlsx	5 KB	Foglio elettronico di Microsoft Ex...	23/07/2013 1.34
EPV074_6_GBuffer.xlsx	9 KB	Foglio elettronico di Microsoft Ex...	23/07/2013 1.34
EPV074_6_GlobalData.xlsx	9 KB	Foglio elettronico di Microsoft Ex...	23/07/2013 1.34
EPV075_PageDS.xlsx	12 KB	Foglio elettronico di Microsoft Ex...	23/07/2013 1.34
EPV077_Enqueue.xlsx	44 KB	Foglio elettronico di Microsoft Ex...	23/07/2013 1.34
EPV078_2_VSGlobl.xlsx	26 KB	Foglio elettronico di Microsoft Ex...	23/07/2013 1.34
EPV078_2_VSPrvAr.xlsx	5 KB	Foglio elettronico di Microsoft Ex...	23/07/2013 1.34
EPV078_2_VSsubpl.xlsx	5 KB	Foglio elettronico di Microsoft Ex...	23/07/2013 1.34
EPV078_3_IOQconf.xlsx	148 KB	Foglio elettronico di Microsoft Ex...	23/07/2013 1.34
EPV078_3_IOQinit.xlsx	15 KB	Foglio elettronico di Microsoft Ex...	23/07/2013 1.34
EPV078_3_IOQueue.xlsx	31 KB	Foglio elettronico di Microsoft Ex...	23/07/2013 1.34
EPV090.xlsx	15 KB	Foglio elettronico di Microsoft Ex...	23/07/2013 1.34
EPV070_1_Cpu.xlsm	22 KB	Microsoft Excel Macro-Enabled ...	23/07/2013 1.34
EPV113_2_HDCap.xlsx	13 KB	Foglio elettronico di Microsoft Ex...	23/07/2013 1.34
EPV030_5_JobTerm.xlsx	303 KB	Foglio elettronico di Microsoft Ex...	23/07/2013 19.14
EPV030_5_JobTerm.xlsm	314 KB	Microsoft Excel Macro-Enabled ...	23/07/2013 22.56

Oggetti: 47 | 13,6 MB | Risorse del computer

Figure 11

In the main SMF2XL folder you will find an application named “extract_vba.exe” (see Figure 12).

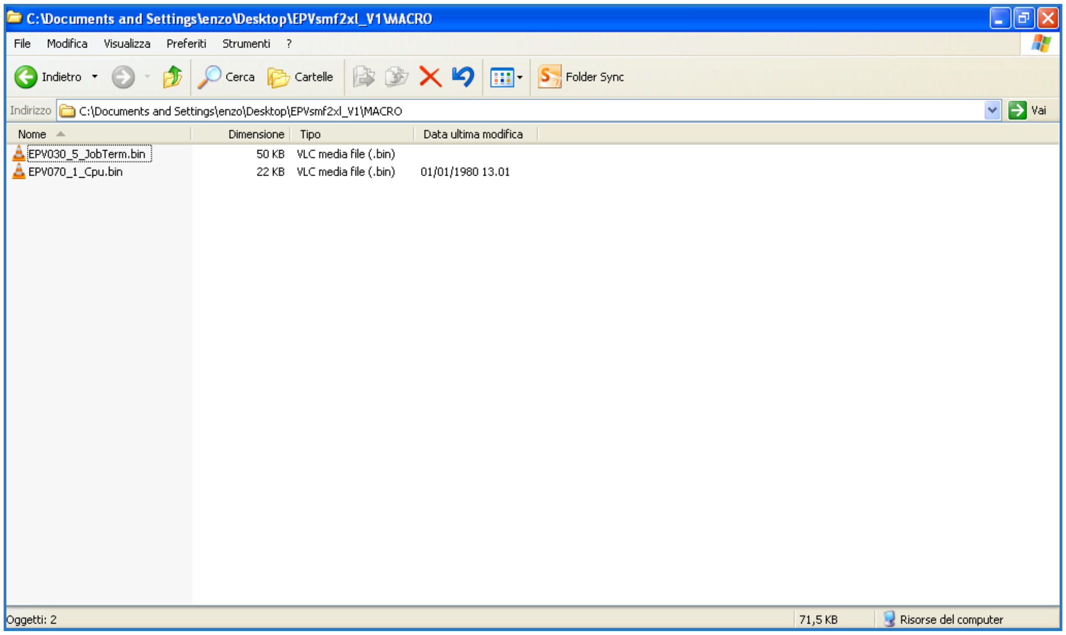


Nome	Dimensione	Tipo	Data ultima modifica
CICS_MCT_DICTIONARY		Cartella	18/07/2013 23.55
DOCUMENTS		Cartella	25/06/2013 12.13
INPUT_PARSER		Cartella	11/02/2013 22.44
LOGS		Cartella	11/02/2013 22.44
MACRO		Cartella	18/03/2013 23.37
OUTPUT_EXCEL		Cartella	11/02/2013 22.44
PARSER_READER		Cartella	11/02/2013 22.34
thanks to_file		Cartella	27/04/2013 22.47
USEREXIT		Cartella	21/06/2013 12.11
EPV_SETUP.exe	2.641 KB	Applicazione	28/02/2013 13.57
EPVsmf2xl	1 KB	File	11/02/2013 20.36
EPVsmf2xl.dat	7.233 KB	File DAT	18/07/2013 23.56
EPVSmf2xl.exe	5.241 KB	Applicazione	15/07/2013 21.43
excel.gif	2 KB	Immagine GIF	13/06/2013 23.30
extract_vba.exe	1.961 KB	Applicazione	15/07/2013 21.39
MAINT.TXT	3 KB	Documento di testo	18/07/2013 23.49
ShowCustom.gif	21 KB	Immagine GIF	11/02/2013 20.36
ShowOperation.gif	40 KB	Immagine GIF	11/02/2013 20.36
thanks to.html	11 KB	Chrome HTML Docu...	27/04/2013 22.46

Oggetti: 19 16,7 MB Risorse del com

Figure 12

When executed, this application will automatically detect all the sheets with an .xlsm extension, and create in the SMF2XL MACRO folder the code used by the tool; see Figure 13.



C:\Documents and Settings\enzo\Desktop\EPVsmf2xl_V1\MACRO

Indirizzo C:\Documents and Settings\enzo\Desktop\EPVsmf2xl_V1\MACRO

Nome	Dimensione	Tipo	Data ultima modifica
EPV030_5_JobTerm.bin	50 KB	VLC media file (.bin)	
EPV070_1_Cpu.bin	22 KB	VLC media file (.bin)	01/01/1980 13.01

Oggetti: 2 71,5 KB Risorse del computer

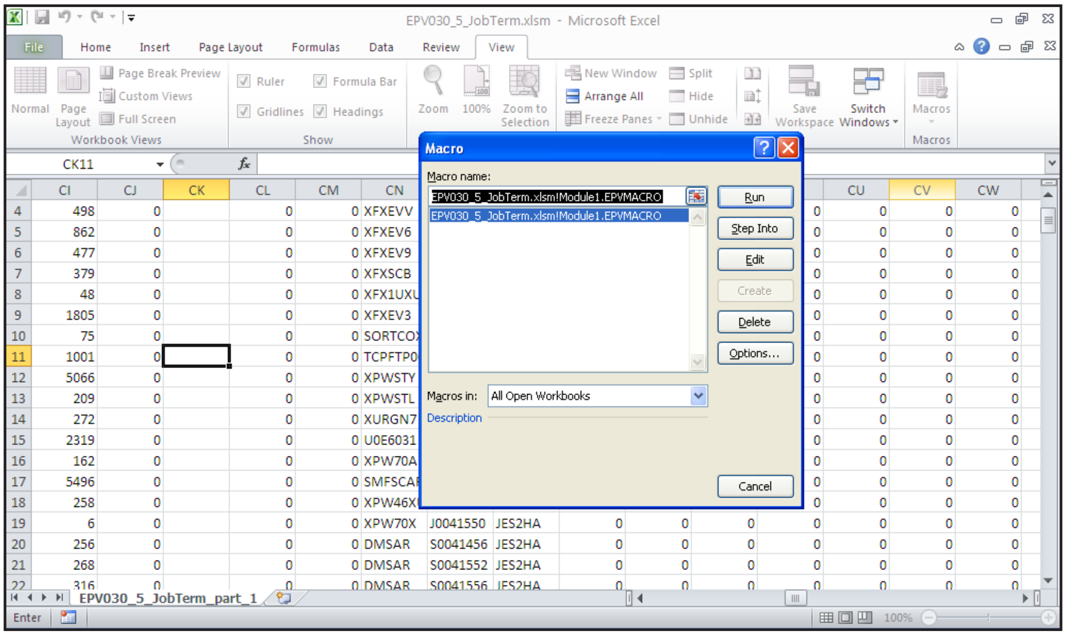
Figure 13

Conventionally the extension .bin is used for Visual Basic programs. When executed, SMF2XL automatically searches for the ".bin" extension " of the sheet with the same name in the /MACRO folder; if it's there it will automatically be included and will eventually be executed if you select the "Run" choice. Otherwise the standard Excel will run.

The next time SMF2XL is executed with a new SMF DUMP in the INPUT, new Excel sheets will be created, as many as there are SMF record types and subtypes in input.

If SMF record 30 is in the INPUT, a new version of EPV030_5_Jobterm will be created, replacing the old one.

When you open this new sheet, you will be prompted by a window asking you what you want to do with the macro (See Figure 14).



CK11

Macro name: EPV030_5_JobTerm.xlsm!Module1.EPVMACRO

EPV030_5_JobTerm.xlsm!Module1.EPVMACRO

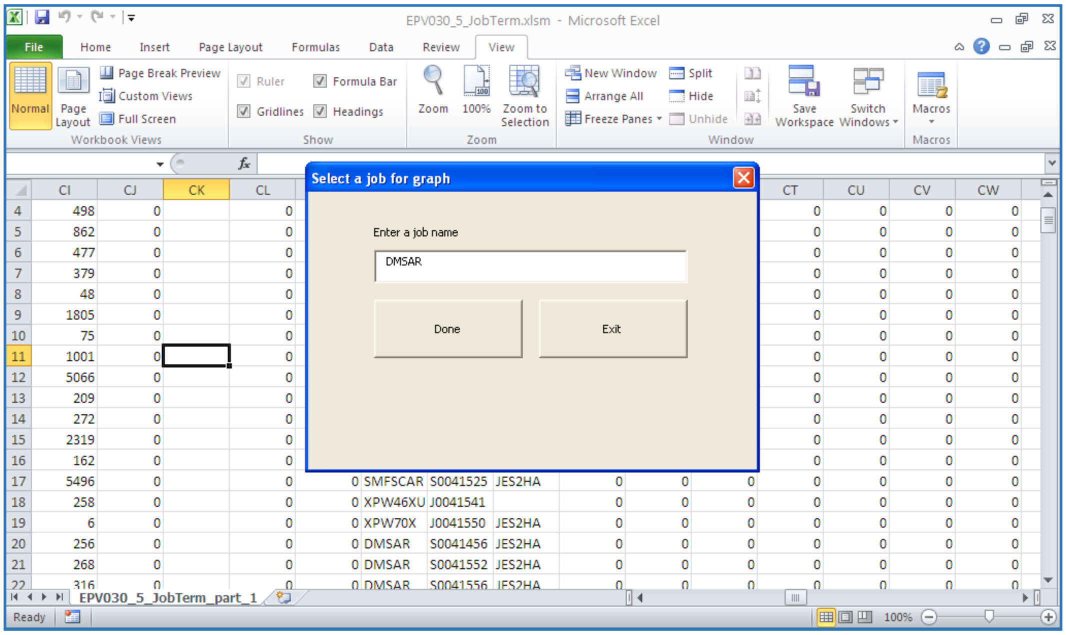
Macros in: All Open Workbooks

	CI	CJ	CK	CL	CM	CN							CU	CV	CW
4	498	0		0	0	XFXEVV						0	0	0	0
5	862	0		0	0	XFXEV6						0	0	0	0
6	477	0		0	0	XFXEV9						0	0	0	0
7	379	0		0	0	XFXSCB						0	0	0	0
8	48	0		0	0	XFX1UXU						0	0	0	0
9	1805	0		0	0	XFXEV3						0	0	0	0
10	75	0		0	0	SORTCOX						0	0	0	0
11	1001	0		0	0	TCPFTP0						0	0	0	0
12	5066	0		0	0	XPWSTY						0	0	0	0
13	209	0		0	0	XPWSTL						0	0	0	0
14	272	0		0	0	XURGN7						0	0	0	0
15	2319	0		0	0	U0E6031						0	0	0	0
16	162	0		0	0	XPW70A						0	0	0	0
17	5496	0		0	0	SMFSCAF						0	0	0	0
18	258	0		0	0	XPW46XI						0	0	0	0
19	6	0		0	0	XPW70X	J0041550	JES2HA	0	0	0	0	0	0	0
20	256	0		0	0	DMSAR	S0041456	JES2HA	0	0	0	0	0	0	0
21	268	0		0	0	DMSAR	S0041552	JES2HA	0	0	0	0	0	0	0
22	316	0		0	0	DMSAR	S0041556	JES2HA	0	0	0	0	0	0	0

EPV030_5_JobTerm_part_1

Figure 14

When the macro is executed, the form created previously will be displayed and you can enter the Address Space name you wish to analyze. This will provide the final result, as instructed in the macro (see Figures 15 and 16).



Select a job for graph

Enter a job name

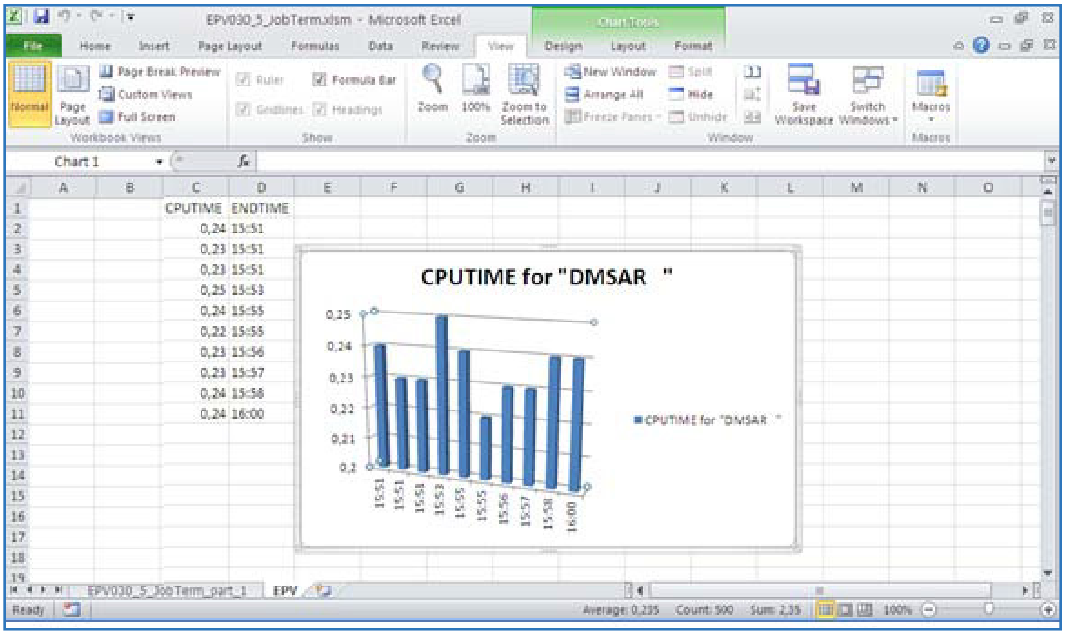
DMSAR

Done

Exit

	CI	CJ	CK	CL								CT	CU	CV	CW
4	498	0		0								0	0	0	0
5	862	0		0								0	0	0	0
6	477	0		0								0	0	0	0
7	379	0		0								0	0	0	0
8	48	0		0								0	0	0	0
9	1805	0		0								0	0	0	0
10	75	0		0								0	0	0	0
11	1001	0		0								0	0	0	0
12	5066	0		0								0	0	0	0
13	209	0		0								0	0	0	0
14	272	0		0								0	0	0	0
15	2319	0		0								0	0	0	0
16	162	0		0								0	0	0	0
17	5496	0		0	0	SMFSCAR	S0041525	JES2HA	0	0	0	0	0	0	0
18	258	0		0	0	XPW46XU	J0041541		0	0	0	0	0	0	0
19	6	0		0	0	XPW70X	J0041550	JES2HA	0	0	0	0	0	0	0
20	256	0		0	0	DMSAR	S0041456	JES2HA	0	0	0	0	0	0	0
21	268	0		0	0	DMSAR	S0041552	JES2HA	0	0	0	0	0	0	0
22	316	0		0	0	DMSAR	S0041556	JES2HA	0	0	0	0	0	0	0

Figure 15



	A	B	C	D
1			CPUTIME	ENDTIME
2			0,24	15:51
3			0,23	15:51
4			0,23	15:51
5			0,25	15:53
6			0,24	15:55
7			0,22	15:55
8			0,23	15:56
9			0,23	15:57
10			0,24	15:58
11			0,24	16:00

Average: 0,235 Count: 500 Sum: 2,35

Figure 16

3 Conclusions

Producing graphs and reports using Excel is a very common practice at many z/OS sites. However the associated process is usually manual and very time consuming.

In this paper we have discussed many different possibilities for making this process much more straightforward, and for saving a lot of time and effort by exploiting the integration of EPV products and tools with Excel.

Appendix A

```
Sub EPVMACRO()
'
' EPVMACRO Macro
' Dim indloop Dim indcell Dim cella
' nomejob = “TSOSPAWF”
'  Sheets.Add After:=Sheets(Sheets.Count)     Sheets(“Sheet1”).Select
Sheets(“Sheet1”).Name = “EPV”     ' Range(“A1”).Select    Columns(“A:A”).Select
ActiveCell.FormulaR1C1 = _ “=IF(EPV030_5_JobTerm_part_1!C[91]=””” & nomejob &
“””,EPV030_5_JobTerm_part_1!C[9],””NULL””)”    Columns(“B:B”).Select     ActiveCell.
FormulaR1C1 = _ “=IF(EPV030_5_JobTerm_part_1!C[90]=””” & nomejob &
“””,MID(EPV030_5_JobTerm_part_1!C[9],12,5),””NULL””)”     Range(“A1”).Select    Selec-
tion.AutoFill Destination:=Range(“A1:A250”), Type:=xlFillDefault     Range(“A1:A250”).
Select     Range(“B1”).Select    Selection.AutoFill Destination:=Range(“B1:B250”),
Type:=xlFillDefault     Range(“B1:B250”).Select
    ActiveWindow.ScrollRow = 248
    ActiveWindow.ScrollRow = 245
    ActiveWindow.ScrollRow = 239
    ActiveWindow.ScrollRow = 231
    ActiveWindow.ScrollRow = 218
    ActiveWindow.ScrollRow = 203
    ActiveWindow.ScrollRow = 173
    ActiveWindow.ScrollRow = 171
    ActiveWindow.ScrollRow = 168
    ActiveWindow.ScrollRow = 163
    ActiveWindow.ScrollRow = 154
    ActiveWindow.ScrollRow = 140
    ActiveWindow.ScrollRow = 119
    ActiveWindow.ScrollRow = 99
    ActiveWindow.ScrollRow = 78
    ActiveWindow.ScrollRow = 66
    ActiveWindow.ScrollRow = 65
    ActiveWindow.ScrollRow = 64
    ActiveWindow.ScrollRow = 63
    ActiveWindow.ScrollRow = 61
    ActiveWindow.ScrollRow = 58
    ActiveWindow.ScrollRow = 55
    ActiveWindow.ScrollRow = 51
    ActiveWindow.ScrollRow = 45
    ActiveWindow.ScrollRow = 42
    ActiveWindow.ScrollRow = 38
    ActiveWindow.ScrollRow = 36
    ActiveWindow.ScrollRow = 33
    ActiveWindow.ScrollRow = 29
    ActiveWindow.ScrollRow = 27
    ActiveWindow.ScrollRow = 24
    ActiveWindow.ScrollRow = 21
    ActiveWindow.ScrollRow = 18
    ActiveWindow.ScrollRow = 16
    ActiveWindow.ScrollRow = 14
    ActiveWindow.ScrollRow = 11
    ActiveWindow.ScrollRow = 9
    ActiveWindow.ScrollRow = 6
    ActiveWindow.ScrollRow = 5
    ActiveWindow.ScrollRow = 3
    ActiveWindow.ScrollRow = 2
    ActiveWindow.ScrollRow = 1
Sheets(“EPV”).Select
    Range(“A1”).Select
    ActiveCell.FormulaR1C1 = “=EPV030_5_JobTerm_part_1!RC[9]”
    Range(“B1”).Select
    ActiveCell.FormulaR1C1 = “=EPV030_5_JobTerm_part_1!RC[9]”
    cella = “x”
    Do While (cella <> “”)
  indloop = indloop + 1
  cella = Range(“A” & indloop)
  If cella <> “NULL” Then
    indcell = indcell + 1
    Cells(indcell, 3) = Cells(indloop, 1)
    Cells(indcell, 4) = Cells(indloop, 2)
End If
 Loop
    ActiveSheet.Shapes.AddChart.Select
    ActiveChart.ChartType = xl3DColumnClustered
    ActiveChart.Axes(xlValue).MajorGridlines.Select
    ActiveChart.SeriesCollection(1).Name = “=EPV!$C$1”
    ActiveChart.SeriesCollection(1).Values = “=EPV!$C$2:$C$36”
    ActiveChart.SeriesCollection(1).XValues = “=EPV!$B$1” End Sub
```

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Danilo Gipponi has been involved with Service Levels and Cost Accounting projects sind 1986.

After 9 years with the SAS Institute, and 5 years with BMC, he founded EPV Technologies in 2003.

He has been an officer of CMG-Italia (The Computer Measurement Group) since 1993, and was President of the group between 2001 and 2004. He has also been the current President of the group since 2011.

Danilo Gipponi is a regular speaker at many international conferences.

Enzo Rossi has been involved with several Service Levels and Cost Accounting projects since 1981.

His experience includes 7 years at Enidata in the role of service levels analyst, 2 years at Olivetti Syntax as a consultant in Cost Accounting projects, and from 1990—2004 as a Systems Engineer DB / DC.

Enzo Rossi has been working with EPV Technologies in Capacity Planning projects now since 2004.

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