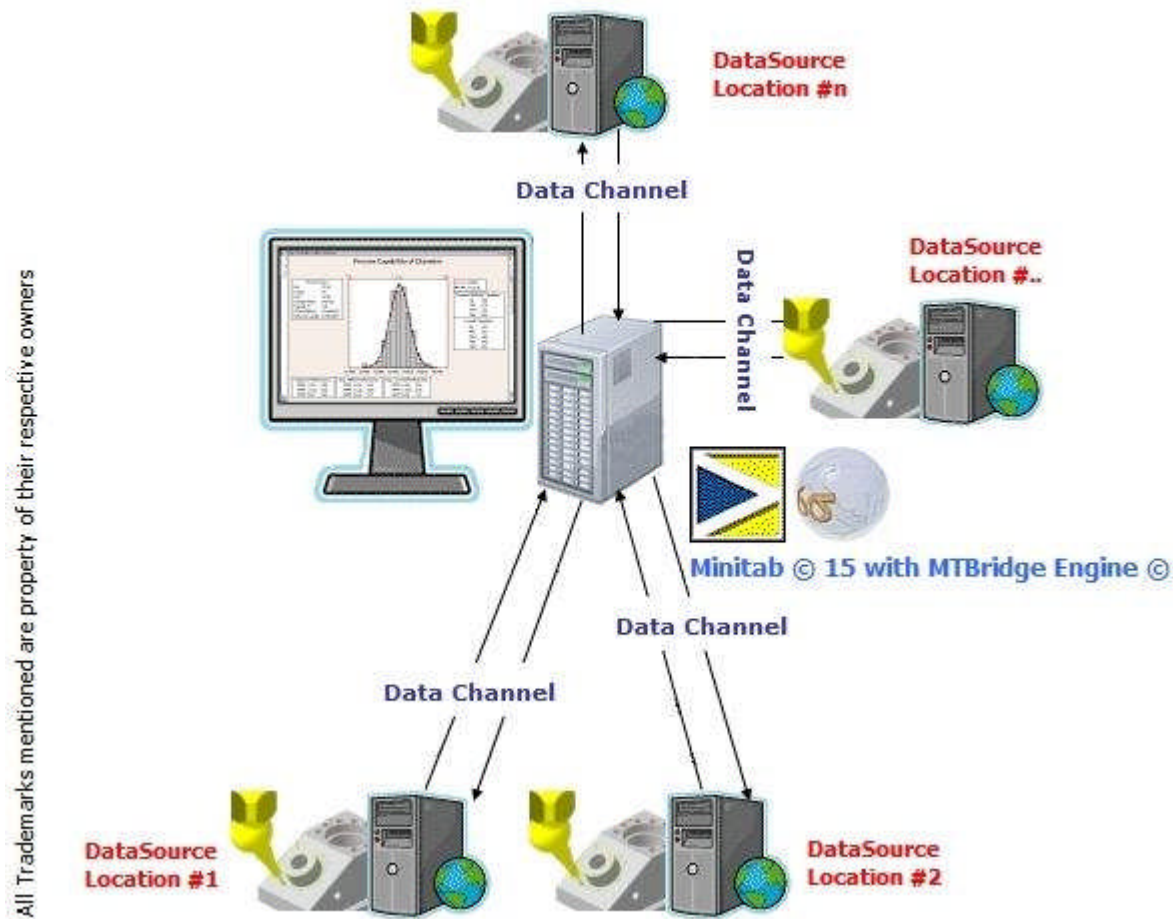


Industrial Statistics with MTBridge Engine



Legend

-  Video Available
-  Video Not Available
-  Minitab 15 with MTBEngine toolbar

-  New in 2.5 version
-  Improved in 2.5 version
-  VB or VBA or vbScript callable Functions





The 2.5 Engine works as:



http://www.sixsigmain.it/MTBEngine25/HowTo_mtbEngine.html

StandAlone Exe (**The engine manages Minitab and Excel - our preferred**)



http://www.sixsigmain.it/MTBEngine25/HowTo_mEngine.html

Minitab Addin (Minitab manages Excel)



http://www.sixsigmain.it/MTBEngine25/HowTo_xEngine.html

Excel Addin (Excel manages Minitab)



http://www.sixsigmain.it/MTBEngine25/HowTo_xEngine2007.html

Excel 2007 Addin (Excel manages Minitab)



Using Minitab History to auto create a ready to run vbScript : WE ANTICIPATE THE SOLUTION OF YOUR NEEDS



One of the most interesting features of 2.5 version. Like Excel < Record New Macro > command



http://www.sixsigmain.it/MTBEngine25/HowTo_AutoCreate_a_Script.html

AutoScript of User Command Sequence



http://www.sixsigmain.it/MTBEngine25/HowTo_AutoCreate_a_Script_big.html

AutoScript of a vbScript Procedure Sequence (4 min. video)



Translate your Minitab History into a sequence of COM commands



http://www.sixsigmain.it/MTBEngine25/HowTo_Extract_COM_Commands.html

With MTBEngine you can have immediately all your History Commands translated in equivalent COM Commands



Auto Create a PowerPoint Report using Minitab Graphs



http://www.sixsigmain.it/MTBEngine25/HowTo_Create_a_PPT_Report.html

Easy as 1 2 3 ... (Note : this operation is much faster than you see in this video because of recording video use ...)

Why graphs are redraw before to be saved ?.

Because **Minitab COM Graph Object has a big Error** (you can crash your system if you try to use this Object on a previous saved project, while it works fine on new project / graphs) . MTBEngine bypass this problem using Windows API, not COM commands, but it needs to redraw all the graphs.



View a Keith Bower [excellent] video



http://www.sixsigmain.it/MTBEngine25/HowTo_Get_YTVideo.html

View a Keith Bower YouTube [© Keith Bower] video by macro or by menu.

This example requires two of best MTBEngine features < [Enhanced Macros Command](#) > and < [Universal Macro Dialog \(UMD\)](#) >





Universal Minitab Macro Dialog (UMD) - I : WE ANTICIPATE THE SOLUTION OF YOUR NEEDS



http://www.sixsigmain.it/MTBEngine25/HowTo_UMD_I.html

This feature is probably one of those you would like to have in the next Minitab version.

Stop running a macro using the **%macro command line and keeping in mind all the parameters to pass ... (not so easy)**

Begin to use all the downloadable macros available [@ Minitab site](#)



Universal Minitab Macro Dialog (UMD) - II : WE ANTICIPATE THE SOLUTION OF YOUR NEEDS



http://www.sixsigmain.it/MTBEngine25/HowTo_UMD_II.html

This feature is probably one of those you would like to have in the next Minitab version.

Easy as 1 2 3 :

- Download your preferred macro file (mac file) from [Minitab site](#)
- You can use the macro in Session Window as suggested by Minitab (**%filemacro parameters ..**) , but it is better ...
- Edit the macro using MTBEngine Macro Editor
- Insert two pairs of **reserved words (used by MTBEngine)** in the right position.
- Save the mac file.
- Run the macro file **by menu command or by the same Macro Editor**
- All done ... Now you can use this macro as shown in the video



Universal Minitab Macro Dialog (UMD) - III : WE ANTICIPATE THE SOLUTION OF YOUR NEEDS



http://www.sixsigmain.it/MTBEngine25/HowTo_UMD_III.html

This feature is probably one of those you would like to have in the next Minitab version.

You can test the macro examples and/or read related Minitab documents published in Minitab site **Macros pages, in real time.**

Only the mac file must be present on your PC.

Please see these links : [Data Example](#) , [Documentation](#) for more information.

(Note : this operation / macro is much faster than you see in this video because of recording video use ...)



Universal Minitab Macro Dialog (UMD) - IV : WE ANTICIPATE THE SOLUTION OF YOUR NEEDS



http://www.sixsigmain.it/MTBEngine25/HowTo_UMD_IV.html

This feature is probably one of those you would like to have in the next Minitab version.

How many times have you forgotten to open the right worksheet before to run a Minitab Dialog Command ? **With UMD you haven't this problem**





R Language to Minitab : WE ANTICIPATE THE SOLUTION OF YOUR NEEDS



http://www.sixsigmain.it/MTBEngine25/HowTo_R2Minitab_I.html

All the standard Minitab Commands (Procedures) + hundred of Minitab available macros, now easy usable with our UMD utility, are not enough for your Stat needs ? **Don't worry !!**

MTBridge Engine manages the **R Language** © functions using the excellent **Thomas Baier and Erich Neuwirth (D)COM Server !!**
With our **mEngine.DLL** plus the **(D)COM Server [© StatConn]** you will have **all the additional power of R Language in your Minitab**



SciLab to Minitab : WE ANTICIPATE THE SOLUTION OF YOUR NEEDS



http://www.sixsigmain.it/MTBEngine25/HowTo_Scilab2Minitab_I.html

All the standard Minitab Commands (Procedures) + hundred of Minitab available macros, now easy usable with our UMD utility, are not enough for your Math needs ? **Don't worry !!**

MTBridge Engine manages the **SciLab** © functions using the excellent **Thomas Baier and Erich Neuwirth SciLab Proxy DLL !!**
With our **mEngine.DLL** plus the **SciProxy.DLL [© StatConn]** you will have **all the additional math power of SciLab in your Minitab**



SQL Queries Automation Example



http://www.sixsigmain.it/MTBEngine25/HowTo_sql_I.html

The video shows the use of a vbscript to realize some queries managed by the **MTBEngine Toolbar Commands** and / or managed by a **web page** (html file)

The data file used to register this video is the original **ProcessData.mdb** [© Minitab Inc] available @ Minitab Macro Training



Real Time Minitab Analysis Automation Example



http://www.sixsigmain.it/MTBEngine25/Minitab_Data_Automation.html

This video shows a **GSummary Command Automation** of incoming data (a **batch file** is used to simulate the CMM real time data generation)



Run a Minitab procedure from software tool other than Excel - I Customize Training Documents Example



http://www.sixsigmain.it/MTBEngine25/HowTo_Chooser_I.html

This video shows how to customize your Training Documents . This example uses one of the **excellent Minitab Chooser** [© Minitab Inc] **PDFs** really well done and useful, **but with MTBEngine you can do something better.**

- Open a PDF Document with your preferred PDF Editor and insert a Button Command where you want ...
- Add a prepared vbscript file as Button Action and test the action
- Save the PDF file.



http://www.sixsigmain.it/MTBEngine25/HowTo_Chooser_II.html

All done ... Now can use this PDF document as shown in this second video



 **Enhanced Macros Command - I**
Call external DLLs Functions using a traditional Minitab macro



 http://www.sixsigmain.it/MTBEngine25/HowTo_Hi_Michelle.html

This video shows how to call the Microsoft SAPI Voice, passing the string values as Konstants, by a traditional Minitab macro

 **Enhanced Macros Command - II**
Run a Excel Macro using a traditional Minitab macro




 http://www.sixsigmain.it/MTBEngine25/HowTo_mMacro2vba.html

This video shows **how to run a VBA Code from your Minitab session window.** (Minitab_And_Excel_Simple_Chat Public Sub is fully **documented** [here](#))

 **Enhanced Macros Command - III**
Run third part Excel Addin using a traditional Minitab macro




 http://www.sixsigmain.it/MTBEngine25/HowTo_mMacro2vbaRisk.html

This video shows how to run a **VBA Code and third part Excel Addin from your Minitab session window.**

The xls used in this video example **is exactly the** Tolerance Analysis: Gear Pump Assembly Optimization **file** (1 year old, without any modification) available @ <http://www.palisade.com/industry/SixSigmaModels.asp>


Q&A : Only @Risk5.x addin can be joined to Minitab using MTBEngine ? I have Crystal Ball for my DFSS analyses or Risk simulations !!

NO, ALL the Excel addin can be joined and used exactly in the same way shown in this video!

Look @ this video  http://www.sixsigmain.it/MTBEngine25/HowTo_CB2Minitab_I.html or @ "Building a Chat between Crystal Ball, Excel and Minitab" (page 10)

 **Enhanced Macros Command - IV**
Get a result from a VBA Public Function or from a DLL Exported Function and use it as input value into a traditional Minitab macro



 **Yes, it is possible. Call us for more info** or look @ this old version 2.0 example to understand the power of this feature

 http://www.sixsigmain.it/MTBEngine25/HowTo_CrossWords_20.html

 **Customize the MTBEngine Toolbar Menu**



 http://www.sixsigmain.it/MTBEngine25/HowTo_EditIni.html

Simply editing a INI file you can customize the MTBEngine Toolbar Menu as you want





Enhanced Macros Command Run a Excel Macro using a traditional Minitab macro



http://www.sixsigmain.it/MTBEngine25/HowTo_mMacro2vba.html

This video shows how to run the previous VBA code from your Minitab session window.



Building a Chat between Excel and Minitab step by step Full Code



http://www.sixsigmain.it/MTBEngine25/HowTo_FullCode_Chat_1.html

Attribute VB_Name = "ChatModule"

```

'*****
' File : MTBridge Engine vba Example - 2.5 version
' Author: (c) Franco Anzani
' Copyright : SixSigmaIn Team http://www.sixsigmain.it
'*****
'*****

```

Option Explicit

Declare Function XMtbObject Lib "m_Engine.dll" (ByVal hwnd As Long, ByVal mobj As Object) As Long

Declare Sub WIN_SPEECH Lib "m_Engine.dll" (sVoice As String, sTitle As String)

Declare Sub TILE2VERTICAL Lib "m_Engine.dll" (ByVal hwnd As Long)

```

'*****

```

Dim x_me As Long

Dim m_me As Long

Dim MtbApp As Mtb.Application

Dim MtbProject As Mtb.Project

Dim MtbUI As Mtb.UserInterface

Const ThisSheet = "NewChat"

Const DataSheet = "BossData"

Const IC_ItemsEls = 100

Const xg_shift = 23

Dim xRowOut As Long

Dim ic_hist_mean As Double

Dim ic_hist_StDev As Double

Dim ic_lsl As Double

Dim ic_usl As Double

Dim ic_mtb_mean As Double

Dim ic_mtb_StDev As Double

```

'*****

```



Sub Minitab_And_Excel_Simple_Chat()

```
If x_me Then Else xmCreate ' initialize Minitab and Excel in MTBEngine Common Shared Memory  
TILE2VERTICAL x_me ' set this job as two vertical windows
```

```
'Optional , only to clean a previous active project ' mtbApp.ActiveProject.ExecuteCommand "New." '; Project."  
Set MtbProject = MtbApp.ActiveProject : Set MtbUI = MtbApp.UserInterface
```

```
Sheets.Add ' add Excel new sheet  
ActiveSheet.Name = ThisSheet : Range("A1").Select: xRowOut = 1  
Sheets(DataSheet).Activate  
With Sheets(DataSheet) 'get historical / limit values  
    ic_hist_mean = .Range("E2").Value : ic_hist_StDev = .Range("E3").Value : icIsl = .Range("E4").Value : ic_usl = .Range("E5").Value  
End With
```

```
With MtbUI ' start Minitab/user Interface  
    .Visible = True  
    .OutputWindow.CommandsEnabled = False  
    Chat_Open ' start chat  
    Chat_Body  
    Chat_End  
    .OutputWindow.CommandsEnabled = True  
End With
```

End Sub

Sub Chat_Open()

```
Excel_Thinks "Today my Boss ... Marco, ... has given to me some new design and production data related to " _  
& "< Gear housing center distance >, in short named <_Ic > ... "
```

```
Excel_Thinks "This is one of the pump design parameters ... " _  
& "After assembling the pump parts, a GAP between the blocks must not be present ... " _  
& "The GAP's Cpk is a value used as gear pump performance index."
```

```
Excel_Thinks "My Boss declares that with this new _Ic range setup we can save up to 1 dollars for every assembled gear pump ... " _  
& "He has asked me to validate immediately these data, because he wants to start, as soon as possible, " _  
& "the gear pump's production with this new <_Ic specification >."
```

```
Excel_Thinks "I have some doubts, ... "The _Ic historical mean is " & Format(ic_hist_mean, "###0.000") & " , " _  
& "with a standard deviation of " & Format(ic_hist_StDev, "###0.000") & " ... " _  
& "In addition, the Gap value of our assembled gear pump have to meet the Purchase Specifications of our main Customer ... " _  
& "I don't know how I can analyze these data ... "
```

```
Excel_Thinks "I am concerned, ... my statistical knowledge < is not robust >!!"
```

End Sub



Sub Chat_Body()

Dim m_command As String

Sheets(ThisSheet).Activate

Excel_Says *"hey Minitab, ... I would like to use your statistic capabilities on my data .. May I ??"*

Minitab_Says *"Yes, you can .. I am waiting for your data ..."*

Excel_Says *"I am sending my Boss data ... "*

mFastPut_NewCol "A2:A101", DataSheet, "_Ic" ' Put Excel data to Minitab worksheet : 1 line of code

m_command = **"Describe '_Ic'; Mean."**

MtbProject.ExecuteCommand m_command

mCommandOutputs_Last_PutTo 2, ThisSheet, "A" + LTrim\$(Str\$(xRowOut)) ' get Minitab Session Output : 1 line of code

ic_mtb_mean = Val(Sheets(ThisSheet).Range("B" & LTrim\$(Str\$(xRowOut + 1))).Value)

xRowOut = xRowOut + 2

m_command = **"Describe '_Ic'; StDeviation."**

MtbProject.ExecuteCommand m_command

mCommandOutputs_Last_PutTo 2, ThisSheet, "A" + LTrim\$(Str\$(xRowOut)) ' get Minitab Session Output : 1 line of code

ic_mtb_StDev = Val(Sheets(ThisSheet).Range("B" & LTrim\$(Str\$(xRowOut + 1))).Value)

xRowOut = xRowOut + 2

m_command = **"GSummary '_Ic'"**

MtbProject.ExecuteCommand m_command

Get_LastGraphImage 1, ThisSheet, "A" & LTrim\$(Str\$(xRowOut)) ' get Minitab Graph : 1 line of code

xRowOut = xRowOut + xg_shift

m_command = **"Capa '_Ic' 1; Lspec " & LTrim\$(Str\$(ic_Isl)) & "; Uspec " & LTrim\$(Str\$(ic_usl)) & _
"; Pooled; AMR; UnBiased; OBiased; Toler 6;Overall; CStat."**

MtbProject.ExecuteCommand m_command

Get_LastGraphImage 1, ThisSheet, "A" & LTrim\$(Str\$(xRowOut)) ' get Minitab Graph : 1 line of code

xRowOut = xRowOut + xg_shift

Application.ScreenUpdating = True

Minitab_Says *"I have received and processed it, ... "*

& "The mean value of your Boss Data is " & Format(ic_mtb_mean, "###0.000") & " , while the "

& "standard deviation is " & Format(ic_mtb_StDev, "###0.000") & " ... Excel, do you like my analyses and graphs ?? "

Excel_Says *"Yes, yes, ... < excellent work >, ... but all this situation is Normal ??"*

Minitab_Says *"Ask Mr. Anderson or Mr. Darling or send me < my NormTest Command >"*

Excel_Says *"Ok, I am sending ... NormTest '_Ic'"*

m_command= **"NormTest '_Ic'"**

MtbProject.ExecuteCommand m_command

Get_LastGraphImage 1, ThisSheet, "A" & LTrim\$(Str\$(xRowOut)) ' get Minitab Graph : 1 line of code

xRowOut = xRowOut + xg_shift

Application.ScreenUpdating = True

End Sub



```

Sub Chat_End()
  Minitab_Says "Excel ... we have a lot of work to do together, in the near future ! " _
  & " It is very easy with the help of M T Bridge Engine!"
  MTBridge_Says "Thank you for your attention, ... see you soon to the next meeting ..."
End Sub

```

```

'*****
'used VBA subs
'*****

```

```

Sub xmCreate()
  If IsObject(MtbApp) Then
    If m_me Then
      Else
        x_me = Application.hwnd
        m_me = XMtbject(x_me, MtbApp) ' Available MTBEngine Functions
        If m_me Then InitMe MtbApp, Application
      End If
    End If
  End If
End Sub

```

```

Sub Excel_Says(byval speechString As String)
  MtbUI.OutputWindow.WriteText ("XIs < " & speechString & " >") ' write to Minitab Session
  WIN_SPEECH speechString, "Excel ©" ' Available MTBEngine Functions
  WaitSeconds 2
  DoEvents
End Sub

```

```

Sub Excel_Thinks(byval speechString As String)
  With Sheets(ThisSheet)
    .Range("A" & LTrim$(Str$(xRowOut))).FormulaR1C1 = "XIs" ' write to Excel Sheet
    .Range("B" & LTrim$(Str$(xRowOut))).FormulaR1C1 = speechString
  End With
  WIN_SPEECH speechString, "Excel ©" ' Available MTBEngine Functions
  WaitSeconds 2
  DoEvents
  xRowOut = xRowOut + 1 ' incr Excel output row counter
End Sub

```

```

Sub Minitab_Says(byval speechString As String)
  With Sheets(ThisSheet)
    .Range("A" & LTrim$(Str$(xRowOut))).FormulaR1C1 = "Mtb"
    .Range("B" & LTrim$(Str$(xRowOut))).FormulaR1C1 = speechString
  End With

```



```
WIN_SPEECH speechString, "Minitab ©" ' Available MTBEngine Functions
```

```
WaitSeconds 2
```

```
DoEvents
```

```
xRowOut = xRowOut + 1 ' incr Excel output row counter
```

```
End Sub
```

```
Sub MTBridge_Says(byval speechString As String)
```

```
Dim Title As String
```

```
Title = "MTBridge Engine ©"
```

```
MtbUI.OutputWindow.WriteText (Title & " < " & speechString & " >") ' write to Minitab Session
```

```
With Sheets(ThisSheet)
```

```
    .Range("A" & LTrim$(Str$(xRowOut))).FormulaR1C1 = Title ' write to Excel Sheet
```

```
    .Range("B" & LTrim$(Str$(xRowOut))).FormulaR1C1 = speechString
```

```
End With
```

```
WIN_SPEECH speechString, "MTBridge Engine ©" ' Available MTBEngine Functions
```

```
WaitSeconds 2
```

```
DoEvents
```

```
xRowOut = xRowOut + 1 ' incr Excel output row counter
```

```
End Sub
```



**Building a Chat between Crystal Ball , Excel and Minitab step by step
Full Code**



http://www.sixsigmain.it/MTBEngine25/HowTo_CB2Minitab_I.html

```
Attribute VB_Name = "Module_1"
```

```
!*****
```

```
' File : MTBridge Engine vba Example - 2.5 version
```

```
' Author: (c) Franco Anzani
```

```
' Copyright : SixSigmaIn Team http://www.sixsigmain.it
```

```
!*****
```

```
Option Explicit
```

```
Declare Function XMtbObject Lib "m_Engine.dll" (ByVal hwnd As Long, ByVal mobj As Object) As Long
```

```
Declare Sub WIN_SPEECH Lib "m_Engine.dll" (sVoice As String, sTitle As String)
```

```
Declare Sub TILE2VERTICAL Lib "m_Engine.dll" (ByVal hwnd As Long)
```

```
Declare Sub WINTOTOP Lib "m_Engine.dll" (ByVal hwnd As Long)
```

```
!*****
```

```
Dim x_me As Long, m_me As Long
```

```
Dim MtbApp As Mtb.Application, MtbProject As Mtb.Project, MtbSheet As Mtb.Worksheet
```

```
Const ModelSheet = "Model"
```

```
!*****
```



Sub CB_NewSimulation()

Dim i As Long, CBTrial As Long, n_Fore As Long

Dim xSourceSheet As String, xSourceRange As String, xCol As String, xname As String

Dim dlimit As Double

Dim sLimits(2) As String

Dim m_command As String

Dim speechString As String, stitle As String

Dim xRowOut As Long: xRowOut = 2

If x_me Then Else xmCreate ' initialize Minitab and Excel in MTBEngine Common Shared Memory

Set MtbProject = MtbApp.ActiveProject:

MtbProject.ExecuteCommand "New."

DoEvents

Set MtbSheet = MtbApp.ActiveProject.ActiveWorksheet

TILE2VERTICAL x_me ' set this job as two vertical windows

With Sheets(ModelSheet)

.Range("I21:J53").ClearContents

CBTrial = .Range("D21").Value

dlimit = .Range("H18").Value: sLimits(1) = "Lspec " & LTrim\$(Str\$(dlimit))

dlimit = .Range("I17").Value : sLimits(2) = "Uspec " & LTrim\$(Str\$(dlimit))

End With

If CBTrial < 1000 Then Exit Sub

speechString = **"Hi, Minitab, Excel and Crystal Ball, ... "** _

& "I am ready to do this simulation and to exchange " & Str\$(CBTrial) & " rows data and graphs between you ."

WIN_SPEECH speechString, "MTBridge Engine ©" ' Available MTBEngine Functions

DoEvents

CB.ResetND

CB.ClearDataND

CB.Simulation CBTrial : If CB.CheckDataND Then Exit Sub

n_Fore = Get_N_O: If n_Fore = 0 Then Exit Sub

CB.ExtractDataND cbExtChooseAsm, cbChaAll

CB.ExtractDataND cbExtChooseFore, cbChfAll

CB.ExtractDataND cbExtExistingSheet, True

CB.ExtractDataND cbExtOK

xSourceSheet = ActiveSheet.Name

MtbSheet.Name = "XSheet_" & LTrim\$(Str\$(CBTrial)) & "_" & xSourceSheet

For i = 1 To n_Fore

xCol = LongTo_xColString(i + 1)

xname = Range(xCol & "1").Value

xSourceRange = xCol & "2:" & xCol & LTrim\$(Str\$(CBTrial + 1))

mFastPut_NewCol xSourceRange, xSourceSheet, xname



```

stitle = "" & xname & " Source Data: CB Sim " & Str$(CBTrial) & " Trials"
m_command = "Capa " & xname & " 1;" & sLimits(i) & ";Pooled;AMR;UnBiased;OBiased;Toler 6;Overall;Title " & stitle & ";ZBench."
MtbProject.ExecuteCommand m_command
Get_LastGraphImage 1, xSourceSheet, "A" & LTrim$(Str$(xRowOut))
DoEvents
xRowOut = xRowOut + 23

```

Next

End Sub

```

'*****

```

```

'used VBA subs

```

```

'*****

```

Sub xmCreate()

```

If IsObject(MtbApp) Then
  If m_me Then
    Else
      x_me = Application.hwnd
      m_me = XMtbObject(x_me, MtbApp) ' Available MTBEngine Functions
      If m_me Then InitMe MtbApp, Application
    End If
  End If
End If

```

End Sub

Function Get_N_O() As Long

```

Dim s As String
Dim t As Long
s = CB.EnumFore
While s <> ""
  t = t + 1
  s = CB.EnumFore
Wend
Get_N_O = t

```

End Function

	Building a Chat between Crystal Ball, Excel and Minitab step by step Excel 2007 and 500.000 trials	
---	---	---



http://www.sixsigmain.it/MTBEngine25/HowTo_CB2Minitab_II.html

This video shows the previous VBA code running on Excel 2007 with 1/2 millions of trials. (5 minutes video)





```
' *****
' PUT
' Function mFastPut_NewCol(xSourceRange As String, xSheet As String) As Long
' Function mPutNumArr_NewCol(NumArr() As Double) As Long
' Function mPutDateArr_NewCol(DateArr() As Date) As Long
' Function cPut_SafeDate_NewCol(xSourceRange As String, xSheet As String) As Long
' Function cPut_To(vIn_xColRange As Variant, ByVal mColDest As Variant, ByVal mSheetDest As Variant) As Long
' Function cPut_NewCol(vIn_xCol As Variant) As Long
' *****
' GET
' Function cGet_ICol(OutColData As Variant, ByVal c As Long) As Long
' Function mGetData(vOutArray As Variant, ByVal mColSource As Variant, ByVal mSheetSource As Variant) As Long
' Function cGet_To(ByVal xCol As String, ByVal xSheet As String, ByVal mCol As Variant, ByVal mSheet As Variant) As Long
' Function cGet_ToXName(ByVal xname As String, ByVal mColSource As Variant, ByVal mSheetSource As Variant) As Long
' *****
' MATRICES
' Function mPut_New(vAreaData As Variant) As Long Function mPut_New_DArray(NumArr() As Double) As Long
' Function mGet_as_xArray(matrix As Variant, xArray() As Double) As Long
' Function mGet_as_xName(matrix As Variant, xname As String) As Long
' Function mGet_as_xRange(matrix As Variant, xrange As String) As Long
' *****
' COMMAND OUTPUTS
' Function mCommand_Last(MtbCommand As Object) As Long Function mOutputs_Last(MtbOutputs As Object) As Long
' Function mCommandOutputs_Last_PutTo(ByVal IO As Long, ByVal xSheet As String, ByVal xRange As String) As Long
' Function mCommand_I(num As Long, MtbCommand As Object) As Long
' Function mOutputs_I(ByVal num As Long, MtbOutputs As Object) As Long
' Function mCommandOutputs_I_PutTo(ByVal IC As Long, ByVal IO As Long, ByVal xSheet As String, ByVal xRange As String) As Long
' *****
```

Option Explicit

```
Declare Function XMtbObject Lib "m_Engine.DLL" (ByVal hwnd As Long, ByRef mObj As Object) As Long
Global MtbApp As Mtb.Application
Global m_me As Long
Global x_me As Long
```





Initialize Minitab and Excel in MTBridge Engine Shared Memory



Sub xmCreate()

```

If IsObject(MtbApp) Then
  If m_me Then
    Else
      x_me = Application.hwnd
      m_me = XMtbObject(x_me, MtbApp)
      If m_me Then InitMe MtbApp, Application
    End If
  End If
End Sub

```



Check Minitab Object and Excel Object



Sub HowTo_Check_Minitab()

```
Dim Title As String, Msg As String
```

If x_me Then Else xmCreate ' to initialize

```
Title = "I am " & ThisWorkbook.name & ", a Excel workbook, and my companion is .."
```

```
With MtbApp
```

```

  Msg = "Minitab" & vbCrLf & vbCrLf & _
  "Status = " & .Status & vbCrLf & _
  "LastError = " & .LastError & vbCrLf & _
  "Default File Path = " & .Options.DefaultFilePath & vbCrLf & _
  "Application Path = " & .AppPath & vbCrLf & _
  "Window Handle = " & .Handle

```

```
End With
```

```
WINTOTOP x_me ' or Application.hwnd
```

```
MsgBox Msg, , Title
```

```
End Sub
```



Get a Minitab Column and put it on Excel Range/Sheet



Sub HowTo_Get_To()

```
Const xDestSheet = "sheet1"
```

```
Const xCol = 10
```

```
Dim n As Long, xDestCol As String
```

```
Dim mSourceCol As Variant, mSourceSheet As Variant
```

```
mSourceCol = "m_Double": mSourceSheet = 1
```

```
'mSourceCol = "m_String": mSourceSheet = 1
```

```
'mSourceCol = "m_Date": mSourceSheet = 1
```

```
' If x_me Then Else xmCreate ' only if not initialized
```

```
Application.ScreenUpdating = False
```



```

For n = 1 To nTimes ' only for more tests
    xDestCol = LongTo_xColString(xCol + n)
    cGet_To xDestCol, xDestSheet, mSourceCol, mSourceSheet
Next
Application.ScreenUpdating = True
End Sub

```



Get a Minitab Column and put on Excel Name



Sub **HowTo_GetTo_XName()**

```

Dim xname As String
Dim mSourceCol As Variant, mSourceSheet As Variant
mSourceCol = "m_Double": mSourceSheet = 1: xname = "My_Double"
'mSourceCol = "m_String": mSourceSheet = 1: xName = "My_String"
'mSourceCol = "m_Date": mSourceSheet = 1: xName = "My_Date"

```

```

'If x_me Then Else xmCreate ' only if not initialized
cGet_ToXName xname, mSourceCol, mSourceSheet
End Sub

```



Get a Excel Date Range and FastPut it on a New Minitab Column



Sub **HowTo_mFastPut_NewCol()**

```

Const xSourceSheet = "sheet1"
Dim xSourceRange As String
xSourceRange = "A2:A101" 'num (Double) test
'xSourceRange = "B2:B101" 'text (String) test
'xSourceRange = "C2:C101" 'date (Date) test

```

```

'Minitab15 COM has a big "Lack of Fit" on it  http://www.sixsigmain.it/MTBEngine25/DateConversion\_Problem.html
'If x_me Then Else xmCreate ' only if not initialized
mFastPut_NewCol xSourceRange, xSourceSheet
End Sub

```



Get a Excel Date Range and SafePut it on a New Minitab Column



Sub **HowTo_mSafeDatePut_NewCol()** ' Use this code instead of mFastPut_NewCol

```

Const xSourceSheet = "sheet1"
Dim xSourceRange As String: xSourceRange = "C2:C101"

```

```

' If x_me Then Else xmCreate ' only if not initialized
cPut_SafeDate_NewCol xSourceRange, xSourceSheet
End Sub

```





Get a Excel Range and put it on a Minitab Column/Worksheet



Sub HowTo_cPut_To()

Dim n As Long

Const xSourceSheet = "sheet1"

Dim xSourceRange As String

xSourceRange = "A2:A101" 'num (Double) test

'xSourceRange = "B2:B101" 'text (String) test

'xSourceRange = "C2:C101" 'date (Date) test

'Minitab15 COM has a big "Lack of Fit" on it  http://www.sixsigmain.it/MTBEngine25/DateConversion_Problem.html

Dim mDestCol As Variant, mDestSheet As Variant

mDestSheet = "Worksheet 1": mDestCol = 0

'mSheet = 1: mCol = 0

'mSheet = "": mCol = 0

'mSheet = "": mCol = ""

Dim vColData As Variant

'If x_me Then Else xmCreate ' only if not initialized

For n = 1 To nTimes ' only for more tests

vColData = Sheets(xSourceSheet).Range(xSourceRange).value

cPut_To vColData, mDestCol, mDestSheet

Next

End Sub



Get a Excel Range and put it on Minitab New Column



Sub HowTo_cPut_NewCol()

Dim n As Long

Const xSourceSheet = "sheet1"

Dim xSourceRange As String

xSourceRange = "A2:A101" 'num (Double) test

'xSourceRange = "B2:B101" 'text (String) test

'xSourceRange = "C2:C101" 'date (Date) test

'Minitab15 COM has a big "Lack of Fit" on it  http://www.sixsigmain.it/MTBEngine25/DateConversion_Problem.html

Dim vColData As Variant

'If x_me Then Else xmCreate ' only if not initialized

For n = 1 To nTimes ' only for more tests

vColData = Sheets(xSourceSheet).Range(xSourceRange).value

cPut_NewCol vColData

Next

End Sub





Get a Excel Range and use it as Minitab Matrix



Sub **HowTo_PutAsMatrix()**

Dim vAreaData As Variant

Dim xSourceSheet As String: xSourceSheet = "sheet2"

Dim xSourceRange As String: xSourceRange = "E2:H4"

' If x_me Then Else xmCreate ' only if not initialized

vAreaData = Sheets(xSourceSheet).Range(xSourceRange).value

mPut_New (vAreaData)

End Sub



Get a Minitab Last Command Output and put it on Excel range/sheet



Sub **HowTo_LastCommandOutputs()**

Const xDestSheet = "sheet2"

Const xDestRange = "E20"

Dim IOutput As Long : IOutput_to_Get = 2

'If x_me Then Else xmCreate ' only if not initialized

mCommandOutputs_Last_PutTo IOutput_to_Get, xDestSheet, xDestRange  http://www.sixsigmain.it/MTBEngine25/HowTo_Last_IOutput.html

End Sub

