Software Design Notes

# Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| Rev. | Revision Notes | ECO | Date |
| A | Initial Release | - | 03AUG2024 |

# Introduction

## Purpose

Present software design notes for the VBA enabling a simple Traveler system.

## Scope

This document applies to the VBA subroutines listed in Table 1 – Button Click Subroutines.

Table 1 – Button Click Subroutines

|  |  |
| --- | --- |
| **Subroutine** | **Description** |
| saveButton\_Click() | * Saves Word document * Creates PDF document * Creates/updates log entry |
| saveAndCloseButton\_Click() | * Saves and closes Word document * Creates PDF document * Creates/updates log entry |
| closeWithoutSavingButton\_Click() | * Closes Word document without saving * Creates PDF document * Does not update log |
| deleteButton\_Click() | * Deletes Word document * Creates PDF document * Deletes log entry |
| refreshData\_Click() | * Updates data for analysis |

## File Locations

#### All Project Files

https://github.com/miniPCB/TravelerBASE.git

# Software Specification Requirements

#### SSR1 – Usability

No text (title)

#### SSR1.1

Able to be run from a computer with Microsoft Office.

#### SSR1.2

Only requires Word, Excel and a PDF viewer.

#### SSR1.3

Able to be setup on a USB drive (i.e. thumb drive).

#### SSR1.4

Does not require password to use the document system.

#### SSR2 – Functionality

No text (title)

#### SSR2.1

Saves files in folders described in Table 2 – Folder Structure.

Table 2 – Folder Structure

|  |  |
| --- | --- |
| **Folder** | **Contents** |
| …\TravelerBASE | * Word template for creating new catalog entries. * Word template for creating new inventory entries. * Excel file with data analysis. |
| …\TravelerBASE\Records | * Word documents, one per ECO. |
| …\TravelerBASE\Records\PDFs | * PDF documents, one per ECO button click. |
| ~~…\TravelerBASE\Reports~~ | * ~~Word documents, one per ECO report.~~ |
| ~~…\TravelerBASE\Reports\PDFs~~ | * ~~PDF documents, one per ECO report button click.~~ |
| …\TravelerBASE\data | * Excel file with data. * This folder is hidden. |

#### SSR2.2

Functions properly when VBA macros are enabled and the VBA project model is trusted.

#### SSR2.3

Protect the VBA source code with the password in Table 3 – Password.

Table 3 – Password

|  |  |
| --- | --- |
| **Password** | 9hvmq6KchrZ+V&&j |

#### SSR2.4

Excel Files (title)

#### SSR2.4.1

Data workbook file placed in the hidden **…\TravelerBASE\data** folder.

#### SSR2.4.2

Analysis workbook file placed in the **…\TravelerBASE** folder.

#### SSR2.4.3

Display one (1) button that runs a VBA macro function listed in Table 4 – Excel Button Macros

Table 4 – Excel Button Macros

|  |  |
| --- | --- |
| **Button** | **Macro** |
| Refresh | refreshData\_Click() |

#### SSR2.4.4

Protect the data workbook file’s data sheet with the password in Table 5 – Password.

Table 5 – Password

|  |  |
| --- | --- |
| **Password** | WT$?@L&x=F5qYfC# |

#### SSR2.5

PDF Documents (title)

#### SSR2.5.1

Create a PDF whenever a button is clicked.

#### SSR2.5.2

Stamp with username, computer ID, datatime and PDF document filepath.

#### SSR2.5.3

Title as [ entry name ] & “\_” & [ PARTNUMBER\_YYYYMMDDHHMMSS ] & “.pdf”.

#### SSR2.5.4

Save catalog PDFs in the **…\TravelerBASE\Records\PDFs** folder.

#### SSR2.5.5

Save report PDFs in the **…\TravelerBASE\ECO Reports\PDFs** folder.

#### SSR2.5.6

Enable/disable the buttons to show in the PDF which button caused the PDF to be generated.

#### SSR2.6

Word Template (title)

#### SSR2.6.1

Save in the **…\TravelerBASE** folder.

#### SSR2.6.2

Display four (4) buttons that run VBA macro functions listed in Table 6 – Word Button Macros.

Table 6 – Word Button Macros

|  |  |
| --- | --- |
| **Button** | **Macro** |
| Save | saveButton\_Click() |
| Save and Close | saveAndCloseButton\_Click() |
| Close Without Saving | closeWithoutSavingButton\_Click() |
| Delete | deleteButton\_Click() |

#### SSR2.6.3

Automatically save new documents when “Save” or “Save and Close” buttons are clicked according to Table 7 - Document Save Information.

Table 7 - Document Save Information

|  |  |
| --- | --- |
| **Document Type** | **File Details** |
| ECO Record | * Filename: [ ECO number ] & “.doc” * File location: …\TravelerBASE\Records |
| Report Record | * Filename: [ report date in format YYYYMMDDHHMMSS ] & “.doc” * File location: …\TravelerBASE\ECO Reports |

#### SSR2.6.4

Save form contents in excel data file as an entry (row) when “Save” or “Save and Close” buttons are clicked for the first time.

#### SSR2.6.5

Update excel data file entry (row) with form contents when “Save” or “Save and Close” buttons are clicked after the first click.

#### SSR2.6.6

Delete excel data file entry (row) and Word document when “Delete” button is clicked.

# Source Code

This source code is placed in the ThisDocument section of the Word templates.

## Table 8 – VBA Source Code in Traveler Form (Word) Template

|  |
| --- |
| 'Nolan Manteufel  'July-Sep 2020  'Aug 2024  'VBA SOURCE CODE PASSWORD: 9hvmq6KchrZ+V&&j  'Used to protect data  Private Const MY\_PASSWORD = "WT$?@L&x=F5qYfC#"  Private Const DOC\_FOLDER = "\TRAVELER Records\"  Private Const LOGBOOK = "\data\recorddata.xlsx"  Private Const OPEN\_PDF = True  'Used to set text  Private Const NEW\_ENTRY\_KEY As String = " "  Private Const STAMP\_PLACEHOLDER\_TEXT As String = " "  Private Const INVALID\_REQUIRED\_TEXT = "Click or tap here to enter text."  'Used to access form Content Controls by Tags  Private Const datetimestamp = "datetimestamp"  Private Const REQ1\_Tag = "PART\_NO"  Private Const REQ2\_Tag = "ASS\_TO"  'Used to access record-stamp Content Controls by Tags  Private Const ccStampComputerID = "ccStampComputerID"  Private Const ccStampUserID = "ccStampUserID"  Private Const ccStampDatetime = "ccStampDatetime"  Private Const ccStampPDF = "ccStampPDF"  'Data key constants  Private Const dataKeyTag = "dataKey" 'for Content Control Tag  'Used to move data  Private Const DATA\_ARRAY\_LENGTH As Long = 60  Private Const DATAKEY\_HEADER = "dataKey"  Dim myDoc As Document  Dim CCs As ContentControls  Dim cc As ContentControl  'Stamp variables  Dim macroUser As String  Dim macroComputer As String  Dim dateTime As String  Dim PDFFILEPATHNAMEEXT As String  'CC variables  Dim ecoTitle As String  Dim REQ1 As String  Dim dwgNumber As String  Dim dwgRev As String  Dim dataKeyString As String  Dim newEntry As Boolean  Dim rowIndexFinder As Long  Dim rowIndex As Long  Dim dataKeyIndexFinder As Long  Dim dataKeyIndex As Long  Private Sub getClickDetails()  'User  macroUser = Environ$("username")  macroUser = LCase(macroUser)  'Computer  macroComputer = Environ$("computername")  macroComputer = LCase(macroComputer)  'Datetime  Dim timeOnly As String  Dim dateOnly As String  timeOnly = Format(Time, "hhmmss")  dateOnly = Format(Date, "yyyymmdd")  dateTime = dateOnly & timeOnly  'Get REQ1 Data  REQ1 = ActiveDocument.SelectContentControlsByTag(REQ1\_Tag)(1).Range.Text  'Data key  Set cc = ActiveDocument.SelectContentControlsByTag(dataKeyTag)(1)  dataKeyString = cc.Range.Text  'New entry?  If (dataKeyString = NEW\_ENTRY\_KEY) Then  newEntry = True  With cc  .LockContents = False  .Range.Text = dateTime  .LockContents = True  End With  Else  newEntry = False  End If  End Sub  Private Sub saveDoc()  'Doc filename  Dim myDocFullPath As String  myDocFullPath = myDoc.AttachedTemplate.Path  'Auto name/save document if it is new  If (myDoc.Path = "") Then  'Lock the ECO content control  ActiveDocument.SelectContentControlsByTag(REQ1\_Tag)(1).LockContents = True  'Create path and name for new Word document  myDocFullPath = myDocFullPath & DOC\_FOLDER & REQ1 & ".docx"  'Save new document  myDoc.SaveAs2 filename:=myDocFullPath  Else  myDoc.Save  End If  End Sub  Private Sub saveData()  'Set settings  Application.StatusBar = "Saving data..."  'Variables  Dim dataArray(DATA\_ARRAY\_LENGTH) As String  Dim rowIndexFinder As Long  Dim rowIndex As Long  'Populate dataArray  Dim ccIndex As Long  ccIndex = 1  For Each cc In CCs  dataArray(ccIndex) = cc.Range.Text  ccIndex = ccIndex + 1  Next cc  'Update status bar  Application.StatusBar = "Updating log ..."  Dim myIssueLogFullPath As String  myIssueLogFullPath = myDoc.AttachedTemplate.Path & LOGBOOK  Dim excelApp As Excel.Application  Dim dataWB As Excel.Workbook  Dim dataSheet As Excel.Worksheet  Dim logSheet As Excel.Worksheet  'Launch excel application  Set excelApp = New Excel.Application  'Open data workbook  Set dataWB = excelApp.Workbooks.Open(filename:=myIssueLogFullPath)  Set dataSheet = dataWB.Worksheets("data")  'Unprotect the log  dataSheet.Unprotect (MY\_PASSWORD)  'Get dataKey column index  For dataKeyIndexFinder = 1 To dataSheet.UsedRange.Columns.Count  If (DATAKEY\_HEADER = dataSheet.Cells(1, dataKeyIndexFinder).Value) Then  dataKeyIndex = dataKeyIndexFinder  dataKeyIndexFinder = dataSheet.UsedRange.Columns.Count  End If  Next  'Get entry row index  If (newEntry) Then  rowIndex = dataSheet.UsedRange.Rows.Count + 1  dataArray(0) = rowIndex  Else  For rowIndexFinder = 2 To dataSheet.UsedRange.Rows.Count  Application.StatusBar = "Searching through records ... " & rowIndexFinder & " of " & dataSheet.UsedRange.Rows.Count  If (dataKeyString = dataSheet.Cells(rowIndexFinder, dataKeyIndex).Value) Then  rowIndex = rowIndexFinder  rowIndexFinder = dataSheet.UsedRange.Rows.Count  End If  Next  End If  'Log the entry  dataSheet.Cells(rowIndex, 1).Value = rowIndex  Dim colIndex As Long  For colIndex = 1 To DATA\_ARRAY\_LENGTH  Application.StatusBar = "Updating record ... field " & colIndex & " of " & DATA\_ARRAY\_LENGTH  dataSheet.Cells(rowIndex, colIndex + 1).Value = dataArray(colIndex)  Next  ''Protect the log  dataSheet.Protect (MY\_PASSWORD)  'Close log  Word.Application.StatusBar = "Saving ... " & myIssueLogFullPath  dataWB.Close SaveChanges:=True  'Release object references  Set logSheet = Nothing  Set dataSheet = Nothing  Set dataWB = Nothing  Set excelApp = Nothing  'Clear status bar  Application.StatusBar = ""  End Sub  Private Sub deleteData()  'Set settings  Application.StatusBar = "Deleting data..."  'temporaryDoc template  Dim temporaryDocTemplate As String  temporaryDocTemplate = myDoc.AttachedTemplate.FullName  Dim temporaryDoc As Document  Set temporaryDoc = Documents.Add(temporaryDocTemplate)  Dim deleteDoc As String  deleteDoc = myDoc.FullName  Dim rowIndexFinder As Long  Dim rowIndex As Long  Dim myIssueLogFullPath As String  myIssueLogFullPath = myDoc.AttachedTemplate.Path & LOGBOOK  Dim excelApp As Excel.Application  Dim dataWB As Excel.Workbook  Dim dataSheet As Excel.Worksheet  Dim logSheet As Excel.Worksheet  'Launch excel application  Set excelApp = New Excel.Application  'Open data workbook  Set dataWB = excelApp.Workbooks.Open(filename:=myIssueLogFullPath)  Set dataSheet = dataWB.Worksheets("data")  'Unprotect the log  dataSheet.Unprotect (MY\_PASSWORD)  'Get dataKey column index  For dataKeyIndexFinder = 1 To dataSheet.UsedRange.Columns.Count  If (DATAKEY\_HEADER = dataSheet.Cells(1, dataKeyIndexFinder).Value) Then  dataKeyIndex = dataKeyIndexFinder  dataKeyIndexFinder = dataSheet.UsedRange.Columns.Count  End If  Next  'Get entry rowIndex  For rowIndexFinder = 2 To dataSheet.UsedRange.Rows.Count  Application.StatusBar = "Searching through log ... row " & rowIndexFinder & " of " & dataSheet.UsedRange.Rows.Count  If (dataKeyString = dataSheet.Cells(rowIndexFinder, dataKeyIndex).Value) Then  rowIndex = rowIndexFinder  rowIndexFinder = dataSheet.UsedRange.Rows.Count  End If  Next  'Delete the row  dataSheet.Rows(rowIndex).Delete  'Renumber the rowIndex column  For rowIndex = 2 To dataSheet.UsedRange.Rows.Count  Application.StatusBar = "Renumbering log ... row " & rowIndex & " of " & dataSheet.UsedRange.Rows.Count  dataSheet.Cells(rowIndex, 1).Value = rowIndex  Next  ''Protect the log  dataSheet.Protect (MY\_PASSWORD)  'Close log  Application.StatusBar = "Saving ... " & myIssueLogFullPath  dataWB.Close SaveChanges:=True  'Release object references  Set logSheet = Nothing  Set dataSheet = Nothing  Set dataWB = Nothing  Set excelApp = Nothing  'Delete word document  myDoc.Close SaveChanges:=False  Kill deleteDoc  'Close temporary document  If (Word.Application.Documents.Count = 1) Then  Word.Application.Quit SaveChanges:=wdDoNotSaveChanges  Else  Application.StatusBar = ""  temporaryDoc.Close SaveChanges:=False  End If  End Sub  'Sub validReqText()  'MsgBox validRequiredText  'End Sub  Private Function validRequiredText() As Boolean  Dim requiredText(2) As String  requiredText(1) = myDoc.SelectContentControlsByTag(REQ1\_Tag)(1).Range.Text  requiredText(2) = myDoc.SelectContentControlsByTag(REQ2\_Tag)(1).Range.Text  'If (requiredText(1) = INVALID\_REQUIRED\_TEXT Or requiredText(2) = INVALID\_REQUIRED\_TEXT) Then  If (requiredText(1) = INVALID\_REQUIRED\_TEXT) Then  validRequiredText = False  Else  validRequiredText = True  End If  End Function  Private Sub unlockStamps()  'Unlock stamp CCs  ActiveDocument.SelectContentControlsByTag(ccStampComputerID)(1).LockContents = False  ActiveDocument.SelectContentControlsByTag(ccStampUserID)(1).LockContents = False  ActiveDocument.SelectContentControlsByTag(ccStampDatetime)(1).LockContents = False  ActiveDocument.SelectContentControlsByTag(ccStampPDF)(1).LockContents = False  End Sub  Private Sub setStamps()  unlockStamps  'Set PDF stamp fields  ActiveDocument.SelectContentControlsByTag(ccStampComputerID)(1).Range.Text = macroComputer  ActiveDocument.SelectContentControlsByTag(ccStampUserID)(1).Range.Text = macroUser  ActiveDocument.SelectContentControlsByTag(ccStampDatetime)(1).Range.Text = dateTime  ActiveDocument.SelectContentControlsByTag(ccStampPDF)(1).Range.Text = PDFFILEPATHNAMEEXT  End Sub  Private Sub clearStamps()  'Clear PDF stamp fields  ActiveDocument.SelectContentControlsByTag(ccStampComputerID)(1).Range.Text = STAMP\_PLACEHOLDER\_TEXT  ActiveDocument.SelectContentControlsByTag(ccStampUserID)(1).Range.Text = STAMP\_PLACEHOLDER\_TEXT  ActiveDocument.SelectContentControlsByTag(ccStampDatetime)(1).Range.Text = STAMP\_PLACEHOLDER\_TEXT  ActiveDocument.SelectContentControlsByTag(ccStampPDF)(1).Range.Text = STAMP\_PLACEHOLDER\_TEXT  lockStamps  End Sub  Private Sub lockStamps()  'Lock stamp CCs  ActiveDocument.SelectContentControlsByTag(ccStampComputerID)(1).LockContents = True  ActiveDocument.SelectContentControlsByTag(ccStampUserID)(1).LockContents = True  ActiveDocument.SelectContentControlsByTag(ccStampDatetime)(1).LockContents = True  ActiveDocument.SelectContentControlsByTag(ccStampPDF)(1).LockContents = True  End Sub  Private Sub savePDF()  'Set settings  Application.StatusBar = "Saving PDF..."  'PDF filename  PDFFILEPATHNAMEEXT = myDoc.Path & "\PDFs\" & REQ1 & "\_" & dateTime & ".pdf"  'Update document stamps  setStamps  'Set footer datatime stamp  myDoc.SelectContentControlsByTag(datetimestamp)(1).SetPlaceholderText Text:=dateTime  'Save as PDF  myDoc.ExportAsFixedFormat \_  OutputFileName:=PDFFILEPATHNAMEEXT, \_  ExportFormat:=wdExportFormatPDF, \_  OpenAfterExport:=OPEN\_PDF  'Clear footer datatime stamp  myDoc.SelectContentControlsByTag(datetimestamp)(1).SetPlaceholderText Text:=STAMP\_PLACEHOLDER\_TEXT  'Update document stamps  clearStamps  Application.StatusBar = ""  End Sub  Private Sub saveButton\_Click()  'Set settings  Application.ScreenUpdating = False  'Set objects  Set myDoc = ActiveDocument  Set CCs = myDoc.ContentControls  'Are required fields valid?  If validRequiredText Then  'Set button enables  saveButton.Enabled = True  saveAndCloseButton.Enabled = False  closeWithoutSavingButton.Enabled = False  deleteButton.Enabled = False  'Run subroutines  getClickDetails  saveDoc  savePDF  saveData  'Reset button enables  saveButton.Enabled = True  saveAndCloseButton.Enabled = True  closeWithoutSavingButton.Enabled = True  deleteButton.Enabled = True  'Save button changes  ActiveDocument.Save  'Message user  MsgBox ("Congratulations, your document has been saved successfully.")  Else  'Message user  MsgBox ("An ECO number is required.")  End If  'Reset settings  Application.ScreenUpdating = True  End Sub  Private Sub saveAndCloseButton\_Click()  'Set settings  Application.ScreenUpdating = False  'Set objects  Set myDoc = ActiveDocument  Set CCs = myDoc.ContentControls  If validRequiredText Then  'Set button enables  saveButton.Enabled = False  saveAndCloseButton.Enabled = True  closeWithoutSavingButton.Enabled = False  deleteButton.Enabled = False  'Run subroutines  getClickDetails  saveDoc  savePDF  saveData  'Reset button enables  saveButton.Enabled = True  saveAndCloseButton.Enabled = True  closeWithoutSavingButton.Enabled = True  deleteButton.Enabled = True  'Close document  If (Application.Documents.Count = 1) Then  ActiveDocument.Save  Application.Quit  Else  ActiveDocument.Close SaveChanges:=True  End If  Else  MsgBox ("An ECO number is required.")  End If  'Reset settings  Application.ScreenUpdating = True  End Sub  Private Sub closeWithoutSavingButton\_Click()  'Set settings  Application.ScreenUpdating = False  'Set objects  Set myDoc = ActiveDocument  Set CCs = myDoc.ContentControls  If validRequiredText Then  'Set button enables  saveButton.Enabled = False  saveAndCloseButton.Enabled = False  closeWithoutSavingButton.Enabled = True  deleteButton.Enabled = False  'Run subroutines  getClickDetails  savePDF  If (Application.Documents.Count = 1) Then  Application.Quit SaveChanges:=wdDoNotSaveChanges  Else  ActiveDocument.Close SaveChanges:=False  End If  Else  MsgBox ("An ECO number is required.")  End If  'Reset settings  Application.ScreenUpdating = True  End Sub  Private Sub deleteButton\_Click()  'Set settings  Application.ScreenUpdating = False  'Set objects  Set myDoc = ActiveDocument  Set CCs = myDoc.ContentControls  If validRequiredText Then  'Set button enables  saveButton.Enabled = False  saveAndCloseButton.Enabled = False  closeWithoutSavingButton.Enabled = False  deleteButton.Enabled = True  'Run subroutines  getClickDetails  savePDF  deleteData  Else  MsgBox ("An ECO number is required.")  End If  End Sub |

## Table 9 – VBA Source Code in Report Form (Word) Template

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| --- |
|  |

## Table 10 – VBA Source Code in the Analysis (Excel) Workbook

|  |
| --- |
| 'Nolan Manteufel  'August 2022  'PASSWORD: 9hvmq6KchrZ+V&&j  Dim myWB As Workbook  Dim myWS As Worksheet  Dim dataWB As Workbook  Dim dataWS As Worksheet  Dim dataWorkbookFullPath As String  Dim usedRowCount As Integer  Dim usedColCount As Integer  Private Const DATASHEET\_PASSWORD = "WT$?@L&x=F5qYfC#"  Private Const RECORD\_DATABOOK = "\data\recorddata.xlsx"  Private Const REPORTS\_DATABOOK = "\data\reportdata.xlsx"  Private Const HOMESHEET = "overview"  Private Function copySheets(originSheet As Worksheet, destinationSheet As Worksheet) As Boolean  'Clear desitination sheet  destinationSheet.Cells.Clear  'Find the data  usedRowCount = originSheet.UsedRange.Rows.Count  usedColCount = originSheet.UsedRange.Columns.Count  'Copy data  With originSheet  .Range(.Cells(1, 1), .Cells(usedRowCount, usedColCount)).Copy  End With  'Paste data  destinationSheet.Range("A1").PasteSpecial Paste:=xlPasteValues  End Function  Private Sub refreshData\_Click()  'Save application settings  Dim applicationState(2) As Boolean  applicationState(0) = Application.ScreenUpdating  applicationState(1) = Application.EnableEvents  applicationState(2) = Application.DisplayAlerts  'Set application settings  Application.ScreenUpdating = False  Application.EnableEvents = False  Application.DisplayAlerts = False  'Update data  ' CATALOG DATA  'Set data destination sheet  Set myWB = ActiveWorkbook  Set myWS = myWB.Sheets("orders")  'Set data origin sheet  dataWorkbookFullPath = myWB.Path & RECORD\_DATABOOK  Set dataWB = Workbooks.Open(Filename:=dataWorkbookFullPath)  Set dataWS = dataWB.Worksheets("data")  dataWS.Unprotect (DATASHEET\_PASSWORD)  'Copy data  Dim result As Boolean  result = copySheets(dataWS, myWS)  'Close catalog data workbook and clear objects  dataWB.Close SaveChanges:=False  Set dataWS = Nothing  Set dataWB = Nothing  ' INVENTORY DATA  'Set data destination sheet  Set myWS = myWB.Sheets("reports")  'Set data origin sheet  dataWorkbookFullPath = myWB.Path & REPORTS\_DATABOOK  Set dataWB = Workbooks.Open(Filename:=dataWorkbookFullPath)  Set dataWS = dataWB.Worksheets("data")  dataWS.Unprotect (DATASHEET\_PASSWORD)  'Copy data  result = copySheets(dataWS, myWS)  'Close inventory data workbook and clear objects  dataWB.Close SaveChanges:=False  Set dataWS = Nothing  Set dataWB = Nothing  'Activate original sheet  myWB.Worksheets(HOMESHEET).Activate  'Clear objects  Set myWS = Nothing  Set myWB = Nothing  'Reset application settings  Application.ScreenUpdating = applicationState(0)  Application.EnableEvents = applicationState(1)  Application.DisplayAlerts = applicationState(2)  'Confirmation message  MsgBox "Congratuations, the data updated successfully."  End Sub |