

威綸科技股份有限公司

配方資料庫

備份配方資料庫至 USB 隨身碟

工程檔案範例

發佈日期
2014/10/14

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1. 簡介與操作

簡介

由於配方資料庫 (*.db) 備份至 USB 隨身碟後，就無法再更新回 HMI，或是將隨身碟中的配方檔案更新到另一台 HMI 上。然而，使用者可透過將配方資料庫 (*.db) 的檔案轉換成儲存在 USB 隨身碟中的擴展記憶體 (*.emi) 形式，將配方資料庫資料來回傳輸。以下範例介紹如何將配方資料庫 (*.db) 轉換成擴展記憶體 (*.emi) 並來回傳輸。

操作

點選 [工具] » [離線模擬] 運行工程檔案。開始運行後，可看到以下畫面。點選 [HMI >>> USB] 可將 HMI 內的配方資料庫備份至 USB 隨身碟。點選 [HMI <<< USB] 可將 USB 裡的擴展記憶體傳送至配方資料庫。

Backup Recipe database to USB drive

HMI Recipe

Name	Age
Aileen	18
April	25
Belle	27
Caroline	20
Celia	23
Cindy	21
Daisy	28
Elva	30
Ellen	26
Felicia	24

HMI >>> USB

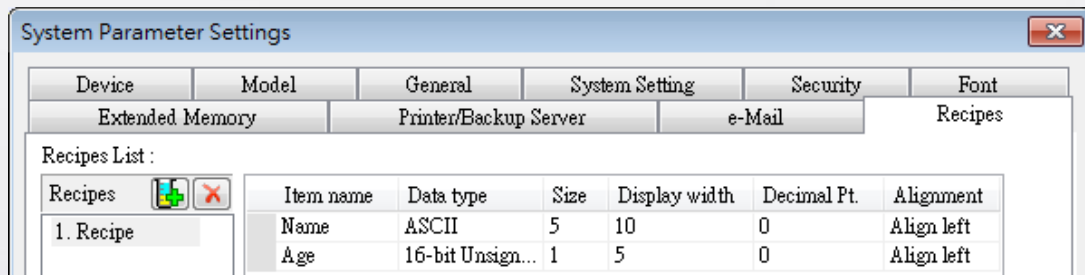
HMI <<< USB

USB Extended Memory

Aileen	18
April	25
Belle	27
Caroline	20
Celia	23
Cindy	21
Daisy	28
Elva	30
Ellen	26
Felicia	24

2. 設定程序

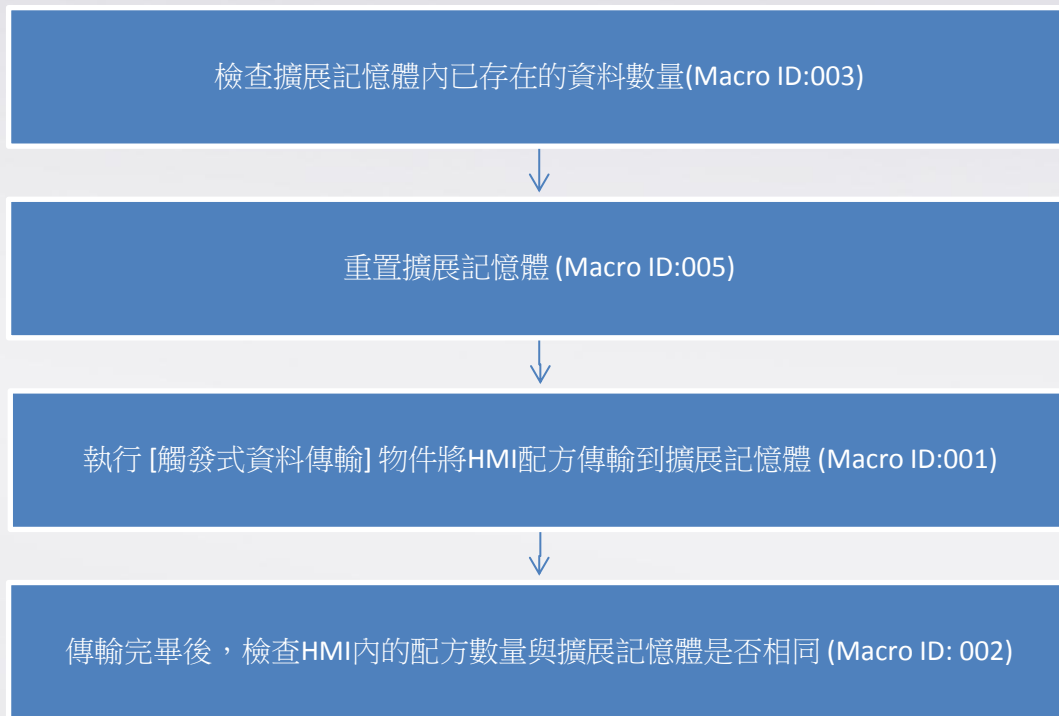
步驟 1. 在 [系統參數設定] » [配方] 建立好配方項目，在 [配方記錄] 中建立好配方內容。此範例中，一筆配方由 5 個 ASCII Code 及 1 個 16-bit Unsigned 資料組成。



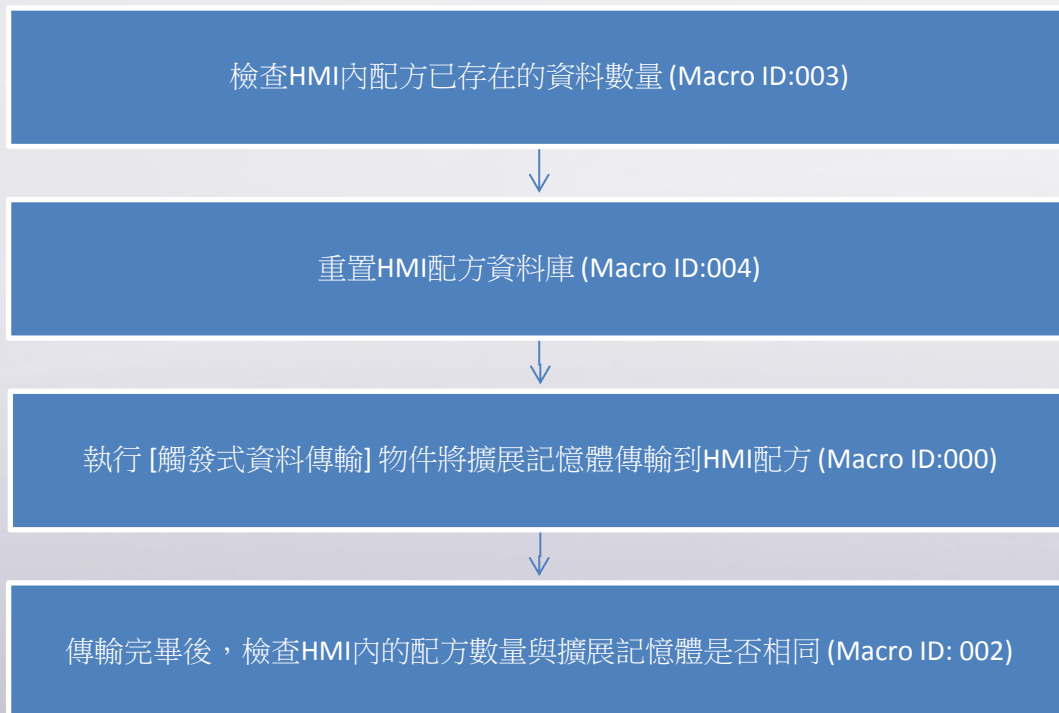
步驟 2. 建立兩個 [觸發式資料傳輸] 物件。一個將配方資料從 HMI 傳到 USB 的擴展記憶體，另一個將配方資料從 USB 的擴展記憶體傳到 HMI。

步驟 3. 建立數個 [字元顯示] 物件、[數值顯示] 物件顯示擴展記憶體資料。物件的排列需與配方資料庫相同。以本範例的配方為例，擴展記憶體的一筆資料必須由 5 個 ASCII Code 長度物件加 1 個 16-bit Unsigned 數值物件組成。

步驟 4. 從 HMI 的配方傳輸到 USB 擴展記憶體的流程圖如下所示。



步驟 5. 從 USB 擴展記憶體傳輸到 HMI 配方的流程圖如下所示。



3. 位址設定

此範例所使用之物件位址皆列於下表，請依實際需要調整。

物件	位址	物件 ID	描述
視窗 10			
配方檢視物件		RV_0	檢方配方資料庫
觸發式資料傳輸物件	LB-0	RP_0	將 HMI 內的配方資料傳輸到 USB 的擴展記憶體
觸發式資料傳輸物件	LB-1	RP_1	將 USB 的擴展記憶體資料傳輸到 HMI
功能鍵物件		FK_1	觸發巨集 ID:001
功能鍵物件		FK_0	觸發巨集 ID:000
字元顯示物件	EM-0	AE_0	儲存配方的擴展記憶體 (5 Words)
數值顯示物件	EM-5	NE_0	儲存配方的擴展記憶體
字元顯示物件	EM-6	AE_0	儲存配方的擴展記憶體 (5 Words)
數值顯示物件	EM-11	NE_0	儲存配方的擴展記憶體
其餘省略			
視窗 13			
多狀態指示燈物件	LW-0	WL_0	顯示更新狀態 0: 傳輸中 1: 重置 HMI 的配方資料庫 2: 重置擴展記憶體 3. 請稍候 4. 將配方從 USB 傳至 HMI

			5. 將配方從 HMI 傳至 USB
流動塊物件		FB_0	
棒圖物件	LW-12	BG_0	顯示更新進度百分比
數值顯示物件	LW-10	ND_0	顯示更新進度百分比
視窗 14			
多狀態指示燈物件	LW-0	WL_0	顯示更新狀態
位元狀態設定	LB-14	SB_0	關閉直接視窗
其餘位址			
	LW-2		巨集使用。代表擴展記憶體內的配方數量，以 6 個 Word 為一單位。 因 HMI 的配方組成為 5 個 ASCII Code 加 1 個 16-bit Unsigned 為一筆配方，因此擴展記憶體亦同。
	LW-4		巨集使用。代表擴展記憶體內的配方數量。
	LW-9201		索引暫存器 1。控制觸發式資料傳輸物件的擴展記憶體位址。

4. 巨集

1. Macro ID 000: 將配方從 USB 傳送至 HMI

```

short db_count //Recipe.Count
short db_selection = 0 //Recipe.selection
short add = 1, update = 2, delete = 3 //Recipe.comamand
short i
bool on = true, off = false
short EMNo
short EMSize = 0
short data[12]
short status_message //0: Transferring 1: Reset DB 2: Reset EM 3.
short reset = 0

//Initial
SetData(on, "Local HMI", "Trasnferring Status", 1)
SetData(off, "Local HMI", "Error", 1)
status_message = 3
SetData(status_message, "Local HMI", "Status Message", 1)
SetData(reset, "Local HMI", "Progress", 1)
SetData(db_count, "Local HMI", "Progress_BarGraph", 1)

////EM Info

SYNC_TRIG_MACRO(3)

////Reset Recipe database
status_message = 1
SetData(status_message, "Local HMI", "Status Message", 1)
SYNC_TRIG_MACRO(4)

//Start Uploading
status_message = 0
SetData(status_message, "Local HMI", "Status Message", 1)
GetData(EMNo, "Local HMI", "EMNo", 1)

for i = 0 to emNo - 1
    //Update Progress
    UpdateProgress(i, emNo)
    //Source Data
    EMSize = i * 6
    SetData(EMSize, "Local HMI", LW, 9200, 1)
    //Destination Data

```



```

        DELAY(50)
        SetData(on, "Local HMI", "Data Transfer: USB > HMI", 1)
        DELAY(500)
        SetData(off, "Local HMI", "Data Transfer: USB > HMI", 1)
        SetData(add, "Local HMI", RECIPE, "Recipe.Command")

        DELAY(1000)
    next

    //Transferring completed, close popup window
    SetData(off, "Local HMI", "Trasnferring Status", 1)

    //Amount Check
    SYNC_TRIG_MACRO(2)

```

2. Macro ID 001: 將配方從 HMI 傳送至 USB

```

short db_count //Recipe.Count
short db_selection = 0 //Recipe.selection
short add = 1, update = 2, delete = 3 //Recipe.comamand
short i
bool on = true, off = false
short EMNo
short EMSize = 0
short data[12]
short status_message //0: Transferring 1: Reset DB 2: Reset EM 3.
short reset = 0

//Initial
SetData(on, "Local HMI", "Trasnferring Status", 1)

SetData(off, "Local HMI", "Error", 1)
status_message = 3
SetData(status_message, "Local HMI", "Status Message", 1)
SetData(reset, "Local HMI", "Progress", 1)
SetData(db_count, "Local HMI", "Progress_BarGraph", 1)

////Reset EM
status_message = 3
SetData(status_message, "Local HMI", "Status Message", 1)
SYNC_TRIG_MACRO(3)

////Reset EM
status_message = 2
SetData(status_message, "Local HMI", "Status Message", 1)
SYNC_TRIG_MACRO(5)

//Start Uploading
status_message = 0
SetData(status_message, "Local HMI", "Status Message", 1)
GetData(db_count, "Local HMI", RECIPE, "Recipe.Count")

for i = 0 to db_count - 1
    //Update Progress
    UpdateProgress(i, db_count)
    //Source Data
    SetData(i, "Local HMI", RECIPE, "Recipe.Selection")
    //Destination Data
    EMSize = i * 6
    SetData(EMSize, "Local HMI", LW, 9201, 1)
    //Transfer
    DELAY(500)
    SetData(on, "Local HMI", "Data Transfer: HMI > USB", 1)
    DELAY(500)
    SetData(off, "Local HMI", "Data Transfer: HMI > USB", 1)
next

//Transferring completed, close popup window
SetData(off, "Local HMI", "Trasnferring Status", 1)
    
```

```
//Transferring completed, close popup window
SetData(off, "Local HMI", "Trasnferring Status", 1)

//Amount Check
SYNC_TRIG_MACRO(2)
```

3. Macro ID 002: 配方資料庫與擴展記憶體的数量比較

```
short EMNo
short db_count
short status_message
bool on = true, off = false

SYNC_TRIG_MACRO(3)
GetData(db_count, "Local HMI", RECIPE, "Recipe.Count")
GetData(EMNo, "Local HMI", "EMNo", 1)
```

```

if EMNo > db_count then
SetData(on, "Local HMI", "Error", 1)
status_message = 4
SetData(status_message, "Local HMI", "Status Message", 1)
end if

if EMNo < db_count then
SetData(on, "Local HMI", "Error", 1)
status_message = 5
SetData(status_message, "Local HMI", "Status Message", 1)
end if
```

4. Macro ID 003: 擴展記憶體內的配方數量

```
short EMNo, EMSize, data

for EMSize = 0 to 600 step 6

    GetData(data, "Local HMI", EM0, EMSize, 1)

    DELAY(50)
    SetData(EMSize, "Local HMI", "EMSize", 1)
    EMNo = EMSize / 6
    SetData(EMNo, "Local HMI", LW, 200, 1)

    if data == 0 then
        break
    end if

next

SetData(EMSize, "Local HMI", "EMSize", 1)
SetData(EMNo, "Local HMI", "EMNo", 1)
```

5. Macro ID 004: 重置配方資料庫

```

short db_count //Recipe.Count
short db_selection = 0 //Recipe.selection
short delete = 3 //Recipe.comamand
short recordID = 0

GetData(db_count, "Local HMI", RECIPE, "Recipe.Count")

for db_selection = 0 to db_count - 1
    SetData(recordID, "Local HMI", RECIPE, "Recipe.Selection")
    SetData(delete, "Local HMI", RECIPE, "Recipe.Command")
    DELAY(500)

    UpdateProgress(db_selection, db_count)
next
    
```

6. Macro ID 005: 重置擴展記憶體

```

short EMNo, EMSize
short data[6]
short i, j

GetData(EMNo, "Local HMI", "EMNo", 1)
GetData(EMSize, "Local HMI", "EMSize", 1)

FILL(data[0], 0, 6)

for i = 0 to EMSize step 6
    SetData(data[0], "Local HMI", EM0, i, 6)
    DELAY(50)

    j = i/6
    UpdateProgress(j, EMNo)
next
    
```

7. 巨集副函式：計算更新進度百分比

```

sub UpdateProgress(short SerialNumber, short TotalNumber)

    //SerialNumber: The serial number of current data transmitted.
    //TotalNumber: The total amount of data.
    //Progress: The amount of data transmitted. (Serial Number / Total Number)

    short Progress, Progress_BarGraph = 100

    Progress = SerialNumber * 100 / TotalNumber
    Progress_BarGraph = 100 - Progress

    SetData(Progress, "Local HMI", "Progress", 1)
    SetData(Progress_BarGraph, "Local HMI", "Progress_BarGraph", 1)

end sub
    
```