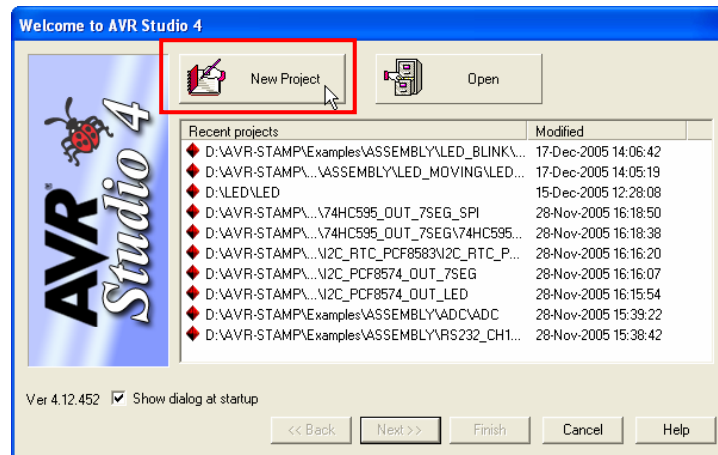


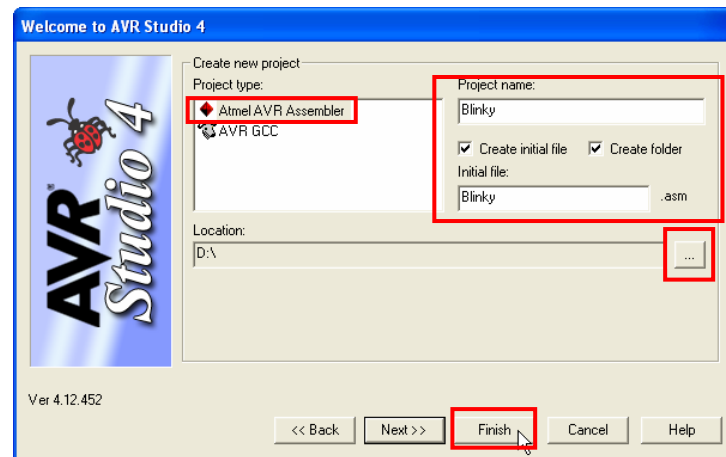
An Example with AVR Studio 4

We use **AVR Studio 4** for writing Assembly Language Program because ATMEL Co., Ltd. gives it to customer without any charge and we can download this program free from website : www.atmel.com However, ETT Co., Ltd. provides this program in our CD-ROM. It is program AVR Studio 4 Version 4.12 and proceeding to use this program is;

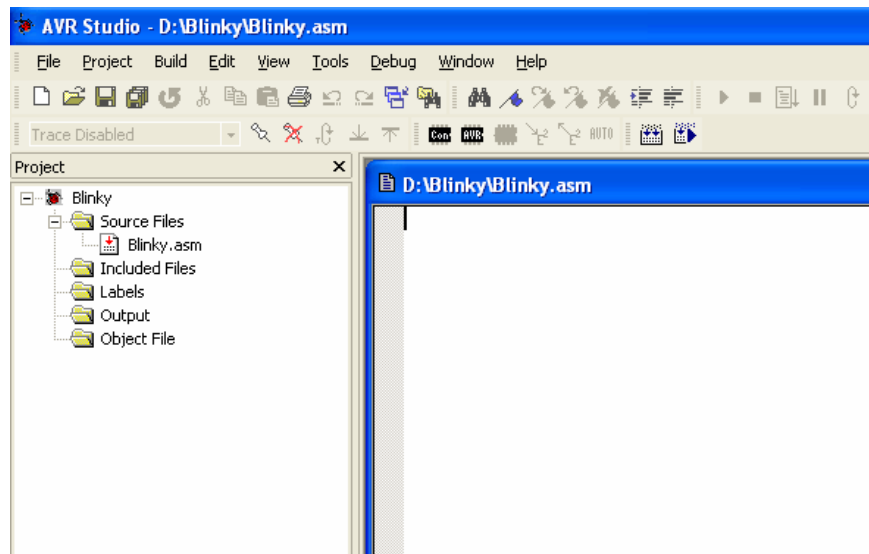
1. Open program AVR Studio, it will display window of **Welcome to AVR Studio** and then click **New project** to create new project as in the picture.



2. Select **Project Type** as **Atmel AVR Assembler** for writing Assembly Language Program and then specify project name in the blank of **Project name**. Select blank of **Create initial file** to create Assembly File with Project File, select blank of **Create folder** to create folder for saving project file, and then select directory for saving project file. Lastly, click **Finish** as in the picture.



3. It will display window of **Text Editor** for writing program as in the picture.



4. Type example of Assembly Language Program and in the sample, it is program of blinker at PORTB.0.

```
;*****
;* Examples Program For "ET-AVR STAMP ATmega64" Board *
;* Target MCU : Atmel ATmega16 *
;* Frequency : X-TAL : 16 MHz *
;* Compiler : AVR Studio 4.12 (AVR Assembler 2) *
;* Create By : ADISAK CHOOCHAN (WWW.ETT.CO.TH) *
;* Last Update : 1/September/2005 *
;* Description : Example LED Blink on Portb.0 *
;*****
```

```

;Connect PB0 to LED1

.include "m64def.inc"

;*****
; Define Register
;*****
.def      COUNTER1  = R16
.def      COUNTER2  = R17
.def      COUNTER3  = R18
.def      TEMP       = R19

;*****
; Define I/O Port,Pin
;*****
.equ      LED       = 0

;*****
; Main Program
;*****
.CSEG

                .ORG      0
                RJMP     RESET          ;Reset Handle

RESET:          LDI      TEMP,LOW(RAMEND);Initial Stack Pointer
                OUT      SPL,TEMP
                LDI      TEMP,HIGH(RAMEND)
                OUT      SPH,TEMP

                SBI      DDRB,LED        ;Config Portb.0 as output

MAIN:           SBI      PORTB,LED
                RCALL    DELAY_200ms
                CBI      PORTB,LED
                RCALL    DELAY_200MS
                RJMP     MAIN

; /*****
; Delay time
; /*****
DELAY_1ms:      LDI      COUNTER1,16
DELAY_1ms_1:    LDI      COUNTER2,250
DELAY_1ms_2:    NOP
                DEC      COUNTER2
                BRNE     DELAY_1ms_2
                DEC      COUNTER1
                BRNE     DELAY_1ms_1
                RET

DELAY_200ms:    LDI      COUNTER3,200
DELAY_200ms_1: RCALL    DELAY_1ms

```

```

DEC     COUNTER3
BRNE    DELAY_200ms_1
RET

```

5. Translate written program, click Menu Instruction of **Build** → **Build**. After translated program completely without any mistake, it will display a message of **0 errors 0 warning** and user can download this HEX File into MCU instantly.

