Technical Note 17934

Absolute placement (EWARM 5.x & 6.x) (in assembler source)

EW targets: ARM
EW component: Assembler
Keywords: "@" / #pragma locate, absolute address
Last update: November 18, 2010

Background - general
There are major changes in the EWARM between version 4.x and version 5.x. The link to the right gives some more information.

Background - specific
The concept of "absolute placement" is removed from the Assembler in EWARM 5.xx.

Problem
The old (v.4.xx) directives for absolute placement (ORG, ASEG+address and ASEGN) are not available in EWARM 5.xx.

Solution
The assembler can place CODE and CONST in named segments. The linker can place the named segments at specified locations.

The assembler source can look like:

```
        NAME get
        PUBLIC get42
        PUBLIC jjj
        SECTION `.my_rodata`:CONST:NOROOT(2)
jjj:
        DATA
        DC32 42

        SECTION `.my_text`:CODE:NOROOT(2)
        THUMB
get42:
        LDR      R0,get42_0     ;; jjj
        LDR      R0,[R0, #+0]
        BX       LR               ;; return
        Nop
        DATA
get42_0:
        DC32     jjj
        END
```

This will direct CONST to the segment **.my_rodata** and CODE is directed to

IAR Systems website

Related Support notes:

Technical note 11578
Execute in RAM after copying from flash/ROM (v5.20 and later)

Technical note 36121
Absolute placement (EWARM v.5.x and 6.x) (in C source)

Technical note 40394
Should I upgrade to version 5 of EWARM?

the segment **.my_text**

In the .icf (Ilink control file) are these lines added:

```
define symbol _my_CODE__   = 0xEEBB0000;
define symbol _my_DATA__   = 0xAA110000;
place at address mem:_my_CODE__ { readonly section .my_text };
place at address mem:_my_DATA__ { readonly section .my_rodata };
```

The Ilink will then place the section **.my_text** at address 0xEEBB0000, and the section **.my_rodata** is placed at address 0xAA110000.

Migration
It is also highly recommended that you have a look at the "The migration process" in the above guide. This will give you a good picture of what has to be done to migrate from version 4 to version 5 of the ARM IAR Embedded Workbench.