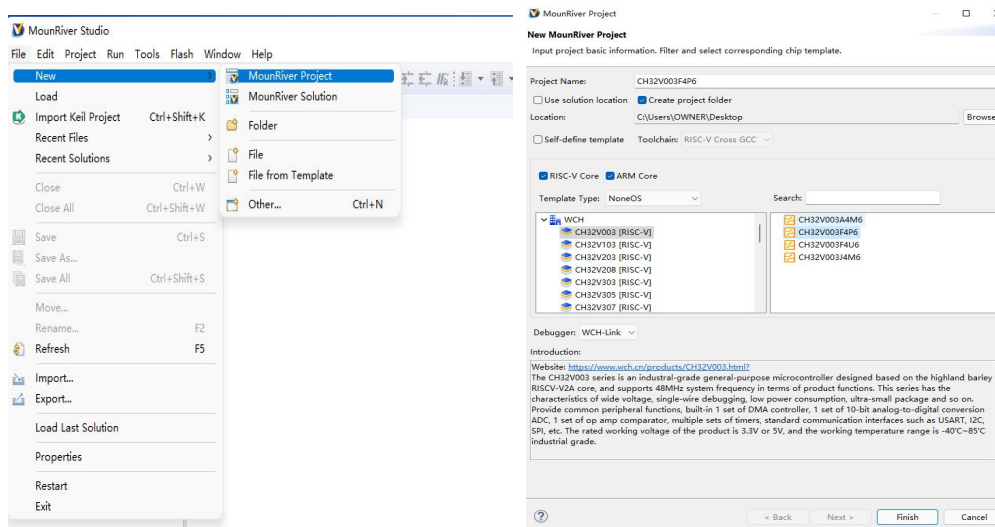


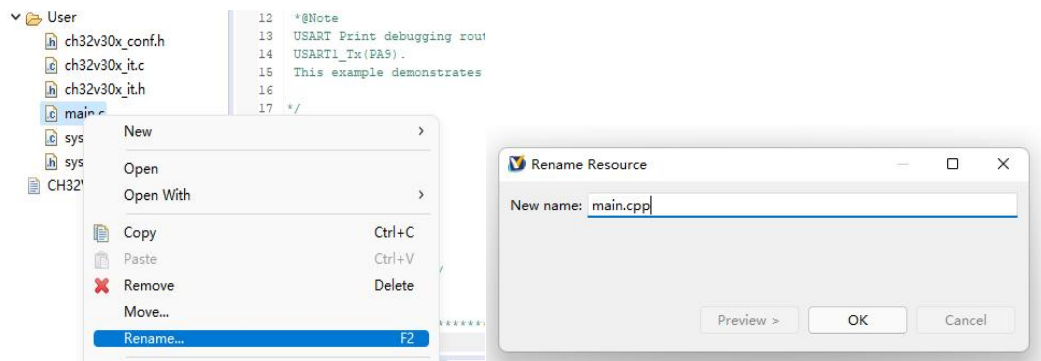
## Create a C++ project based on MRS

Create a C++ project based on MRS . First build a main.c project , and then modifying the configuration so that the .cpp file calls the C++ compiler to compile it. The detailed steps are as follows.

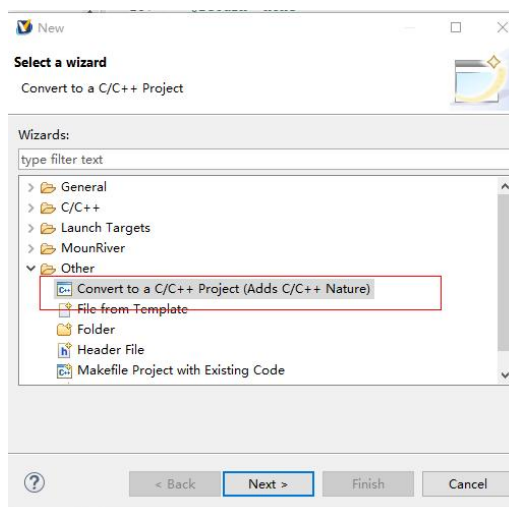
1. Normally create a project based on .C



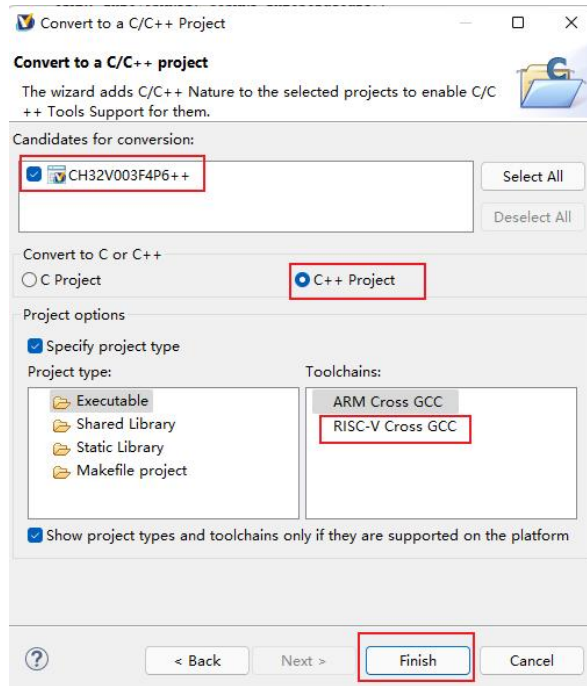
2. Make the main.c file into main.cpp by renaming it. Of course, you can also add a new .cpp by adding a File.



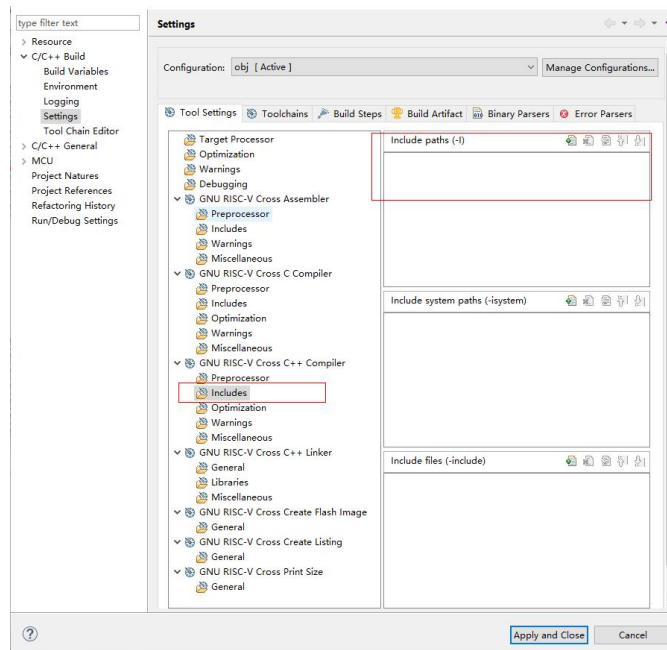
3. Right-click the project, new->other, select it according to the following figure, and then click Next.



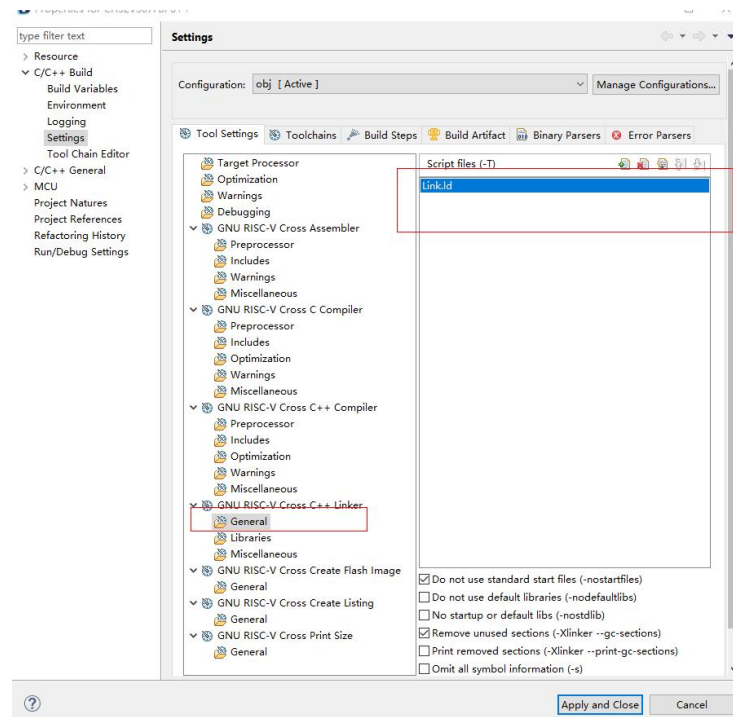
4. Configure as shown below



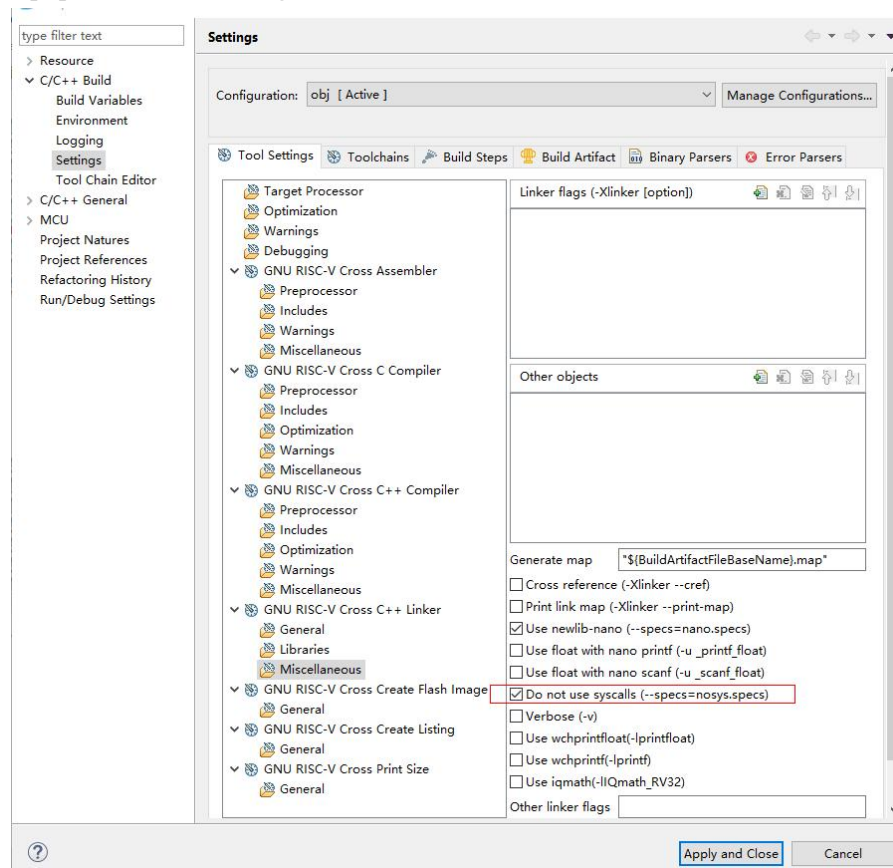
5. The original settings will become the default and need to be added again.



Add the header file path in the above image.



Add the link script path in the above figure.



The above figure uses the default function, if the original project uses the library, the library also needs to be added again after conversion.

6. Add the C++ initialization function before the main function is called in the startup file

```

la a0, __libc_fini_array
call atexit
call __libc_init_array

```

```

130  la a2, _edata
131  bgeu a1, a2, 2f
132 1:
133  lw t0, (a0)
134  sw t0, (a1)
135  addi a0, a0, 4
136  addi a1, a1, 4
137  bltu a1, a2, 1b
138 2:
139  /* clear bss section */
140  la a0, _ebss
141  la a1, _ebss
142  bgeu a0, a1, 2f
143 1:
144  sw zero, (a0)
145  addi a0, a0, 4
146  bltu a0, a1, 1b
147 2:
148  li t0, 0x80
149  csrcw mstatus, t0
150
151  li t0, 0x3
152  csrcw 0x804, t0
153
154  la t0, _start
155  ori t0, t0, 3
156  csrcw mtvec, t0
157
158  la a0, __libc_fini_array
159  call atexit
160  call __libc_init_array
161
162  jal SystemInit
163  la t0, main
164  csrcw mepc, t0
165  mret
166
167

```

- Two more empty functions are needed and must be declared in files with a .c suffix

```

void _fini() {}
void _init() {}

```

```

119 __attribute__((used))
120 int _write(int fd, char *buf, int size)
121 {
122     int i;
123
124     for(i = 0; i < size; i++){
125         while(USART_GetFlagStatus(USART1, USART_FLAG_TC) == RESET);
126         USART_SendData(USART1, *buf++);
127     }
128
129     return size;
130 }
131
132 /*=====
133  * @fn      _sbrk
134  *
135  * @brief   Change the spatial position of data segment.
136  *
137  * @return  size: Data length
138  */
139 void *_sbrk(ptrdiff_t incr)
140 {
141     extern char _end[];
142     extern char _heap_end[];
143     static char *curbrk = _end;
144
145     if ((curbrk + incr < _end) || (curbrk + incr > _heap_end))
146         return NULL - 1;
147
148     curbrk += incr;
149     return curbrk - incr;
150 }
151
152 void _fini() {}
153 void _init() {}
154
155
156

```

- At this point the project file environment has been configured, the files with the .cpp suffix will call the C++ compiler to compile.