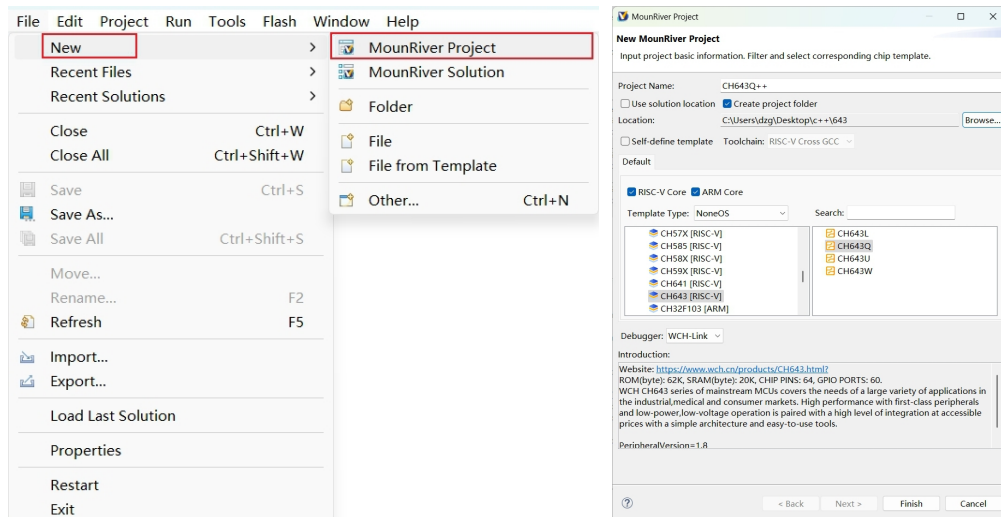


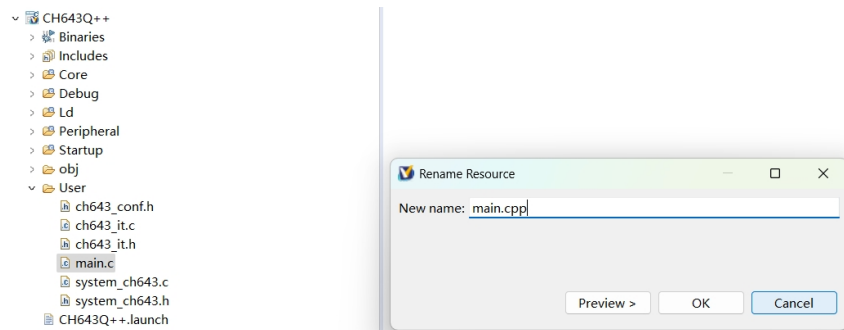
## Create a C++ project based on MRS

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.

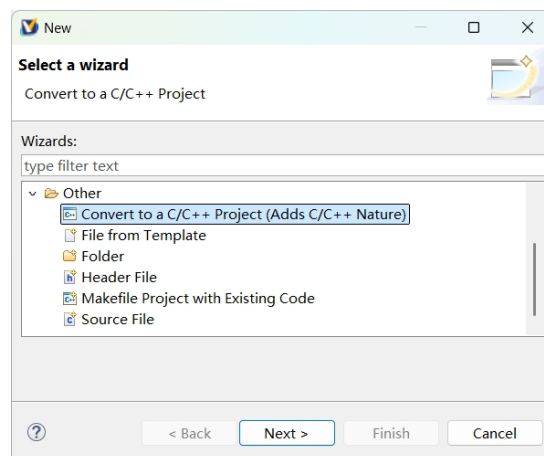
1. Normally create a project based on .C



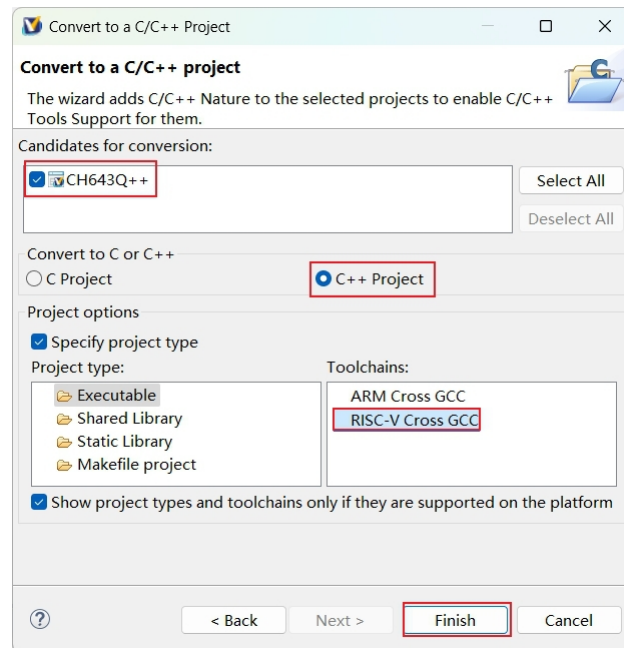
2. Make the main.c file into main.cpp by renaming it. Of course, you can also add a new .cpp by adding a File.



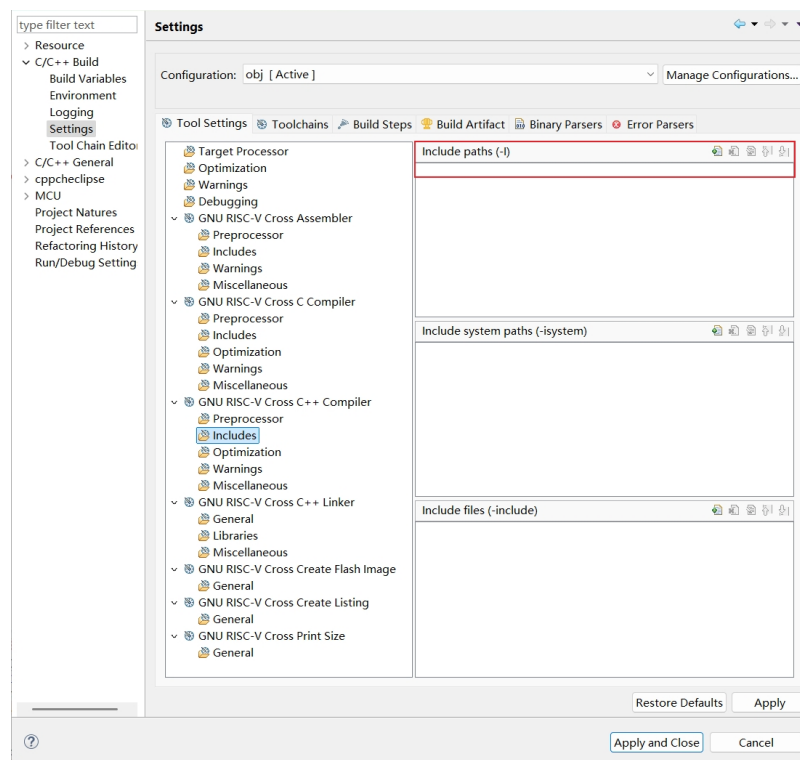
3. Right-click the project, new->other, select it according to the following figure, and then click Next.



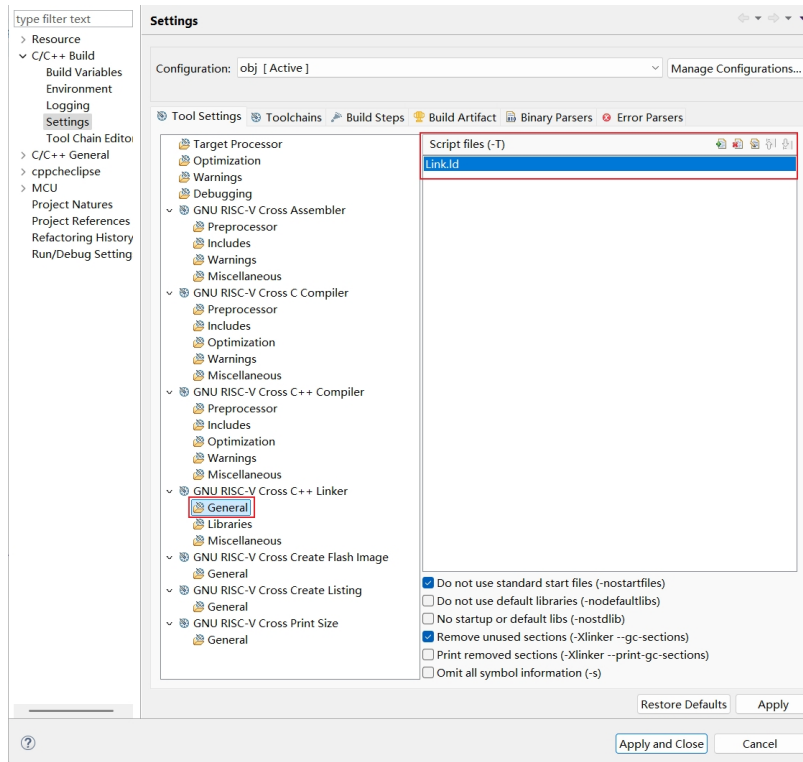
4. Configure as shown below



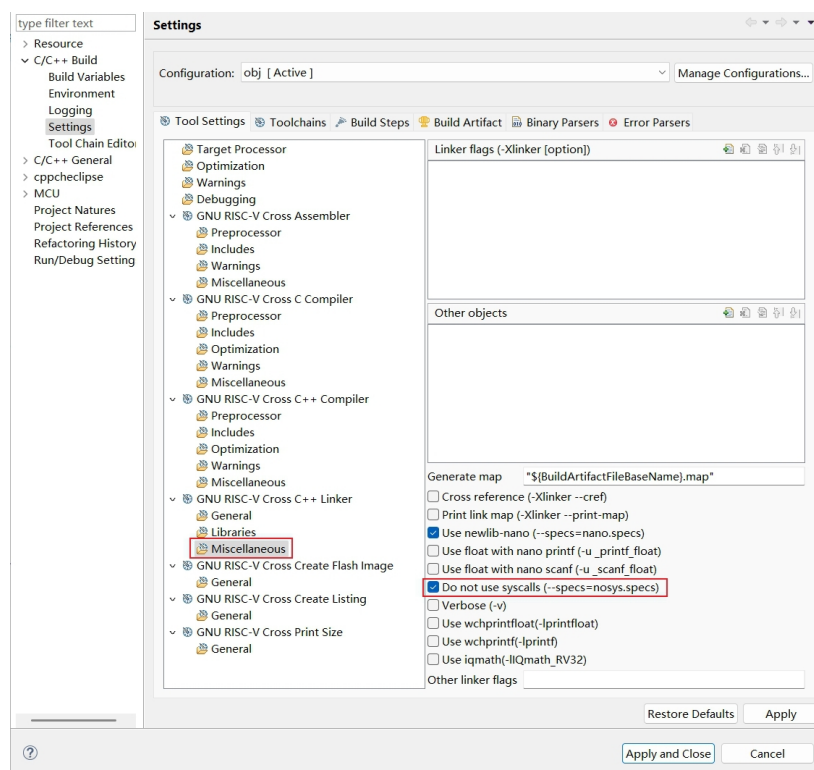
5. The original settings will become the default and need to be added again.



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
```

CH643Q++

Binaries

Includes

Core

Debug

Ld

Peripheral

Startup

startup\_ch643.S

obj

User

ch643\_conf.h

ch643\_it.c

ch643\_it.h

main.cpp

system\_ch643.c

system\_ch643.h

CH643Q++.launch

```

211  ll t0, 0x1
212  csrw 0x800, t0
213 /* Enable interrupt nesting and hardware stack */
214  li t0, 0x3
215  csrw 0x804, t0
216 /* Enable global interrupt and configure privilege
217  li t0, 0x88
218  csrw mstatus, t0
219 /* Configure the interrupt vector table recogniti
220  la t0, _vector_base
221  ori t0, t0, 3
222  csrw mtvec, t0
223
224  la a0, __libc_fini_array
225  call atexit
226  call __libc_init_array
227
228  jal SystemInit
229  la t0, main
230  csrw mepc, t0
231  mret
232

```

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

```
void _fini () { }
```

```
void _init () { }
```

CH643Q++

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system\_ch643.h

CH643Q++.launch

```

229@/*****
230  * @fn      _sbrk
231  *
232  * @brief   Change the spatial position of data segment.
233  *
234  * @return  size - Data length
235  */
236@__attribute__((used))
237void *_sbrk(ptrdiff_t incr)
238{
239  extern char _end[];
240  extern char _heap_end[];
241  static char *curbrk = _end;
242
243@  if ((curbrk + incr < _end) || (curbrk + incr > _heap_end))
244    return NULL - 1;
245
246  curbrk += incr;
247  return curbrk - incr;
248 }
249
250 void _fini(){}
251 void _init(){}

```

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