

## Troubleshooting FlexRic build

```
$ cd flexric && mkdir build && cd build
```

```
oie@oie-ThinkPad-T470s-W10DG:~/orange/flexric/build$ cmake ..
-- The C compiler identification is GNU 9.5.0
-- Check for working C compiler: /usr/bin/cc
-- Check for working C compiler: /usr/bin/cc -- works
-- Detecting C compiler ABI info
-- Detecting C compiler ABI info - done
-- Detecting C compile features
-- Detecting C compile features - done
-- Setting build type to 'Debug' as none was specified.
-- Selected LIBRARY TYPE: STATIC
-- Selected xApp DB : SQLITE3_XAPP
-- Selected xApp dir : /tmp/
-- Selected SANITIZER TYPE: NONE
-- Selected E2AP_ENCODING: ASN
-- Selected KPM_SM_ENCODING: ASN
-- Selected RC_SM_ENCODING: ASN
-- Selected MAC_SM_ENCODING: PLAIN
-- Selected RLC_SM_ENCODING: PLAIN
-- Selected PDCP_SM_ENCODING: PLAIN
-- Selected SLICE_SM_ENCODING: PLAIN
-- Selected GTP_SM_ENCODING: PLAIN
-- The CXX compiler identification is GNU 9.5.0
-- Check for working CXX compiler: /usr/bin/c++
-- Check for working CXX compiler: /usr/bin/c++ -- works
-- Detecting CXX compiler ABI info
-- Detecting CXX compiler ABI info - done
-- Detecting CXX compile features
-- Detecting CXX compile features - done
-- Selected SM_ENCODING: PLAIN
-- Found SWIG: /usr/bin/swig (found suitable version "4.3.0", minimum required is "4.0")
-- Found Python3: /usr/bin/python3.8 (found version "3.8.19") found components: Interpreter
-- Found PythonLibs: /usr/lib/x86_64-linux-gnu/libpython3.8.so (found version "3.8.19")
```

When I start to run \$ make command in flexric/build directory as show below

```
oie@oie-ThinkPad-T470s-W10DG:~/orange/flexric/build$ make -j8
Scanning dependencies of target e2_ngran_obj
Scanning dependencies of target e2ap_msg_free_obj
Scanning dependencies of target e2ap_types_obj
Scanning dependencies of target e2ap_ds_obj
Scanning dependencies of target e2_conf_obj
Scanning dependencies of target msg_hand_obj
Scanning dependencies of target e2ap_ep_obj
[ 1%] Building C object src/util/CMakeFiles/e2_ngran_obj.dir/ngtran_type.c.o
[ 1%] Building C object src/util/CMakeFiles/e2ap_ds_obj.dir/byte_array.c.o
[ 1%] Building C object src/util/CMakeFiles/e2_conf_obj.dir/conf_file.c.o
```

This error appears because **cmake** not found asn lib so

```
[ 82%] Building C object test/agent-ric/CMakeFiles/test_near_ric.dir/___/src/sm/kpm_sm_v03.00/ie/kpm_data_ie.c.o
[ 82%] Building C object src/sm/rc_sm/ie/asn/CMakeFiles/e2sm_rc_asn1_obj.dir/RANParameter-LIST.c.o
[ 82%] Building C object src/sm/rc_sm/ie/asn/CMakeFiles/e2sm_rc_asn1_obj.dir/RANParameter-Name.c.o
[ 82%] Building C object test/agent-ric/CMakeFiles/test_near_ric.dir/___/src/sm/rc_sm/ie/rc_data_ie.c.o
[ 82%] Building C object test/agent-ric/CMakeFiles/test_near_ric.dir/___/src/util/conversions.c.o
In file included from /home/oie/orange/flexric/src/util/conversions.h:30,
                 from /home/oie/orange/flexric/src/util/conversions.c:3:
/home/oie/orange/flexric/src/util/./lib/ap/ie/asn/BIT_STRING.h:8:10: fatal error: OCTET_STRING.h: No such file or directory
   8 | #include <OCTET_STRING.h> /* Some help from OCTET STRING */
     |
compilation terminated.
make[2]: *** [test/agent-ric/CMakeFiles/test_near_ric.dir/build.make:209: test/agent-ric/CMakeFiles/test_near_ric.dir/___/src/util/conversions.c.o] Error 1
make[2]: *** Waiting for unfinished jobs....
[ 82%] Building C object src/sm/rc_sm/ie/asn/CMakeFiles/e2sm_rc_asn1_obj.dir/RANParameter-STRUCTURE.c.o
[ 82%] Building C object src/sm/rc_sm/ie/asn/CMakeFiles/e2sm_rc_asn1_obj.dir/RANParameter-STRUCTURE-Item.c.o
[ 82%] Building C object src/sm/rc_sm/ie/asn/CMakeFiles/e2sm_rc_asn1_obj.dir/RANParameter-Testing.c.o
/usr/bin/ld: warning: CMakeFiles/kpm_sm.dir/kpm_sm_agent.c.o: requires executable stack (because the .note.GNU-stack section is executable)
[ 82%] Built target kpm_sm
[ 82%] Building C object src/sm/rc_sm/ie/asn/CMakeFiles/e2sm_rc_asn1_obj.dir/RANParameter-TestingCondition.c.o
```

there are two methods that we can use to solve this error :

### 1. modify CMakeLists.txt

when I open CMakeLists.txt in flexric directory

A screenshot of a code editor window titled 'CMakeLists.txt' with the path '~/.orange/flexric'. The code is written in CMake syntax and includes several lines with red squiggly error markers. The code is as follows:

```
cmake_minimum_required(VERSION 3.15)

project(Flexric VERSION 0.0.1 LANGUAGES C)

set(CMAKE_C_STANDARD 11)

set(default_build_type "Debug")

set_property(CACHE CMAKE_BUILD_TYPE PROPERTY STRINGS "Debug" "Release")

if(NOT CMAKE_BUILD_TYPE AND NOT CMAKE_CONFIGURATION_TYPES)
    message(STATUS "Setting build type to '${default_build_type}' as none was
specified.")
    set(CMAKE_BUILD_TYPE "${default_build_type}" CACHE STRING "Choose the type of
build." FORCE)
```

I add this command in CmakeLists.txt `include_directories(/home/oie/flexric/src/lib/ap/ie/asn)`

A screenshot of the same code editor window showing the updated CMakeLists.txt. The line `include_directories(/home/oie/flexric/src/lib/ap/ie/asn)` has been added and is highlighted with a red rectangular box. The rest of the code remains the same as in the previous screenshot.

```
cmake_minimum_required(VERSION 3.15)

project(Flexric VERSION 0.0.1 LANGUAGES C)

include_directories(/home/oie/flexric/src/lib/ap/ie/asn)

set(CMAKE_C_STANDARD 11)

set(default_build_type "Debug")

set_property(CACHE CMAKE_BUILD_TYPE PROPERTY STRINGS "Debug" "Release")

if(NOT CMAKE_BUILD_TYPE AND NOT CMAKE_CONFIGURATION_TYPES)
    message(STATUS "Setting build type to '${default_build_type}' as none was
specified.")
    set(CMAKE_BUILD_TYPE "${default_build_type}" CACHE STRING "Choose the type of
```

and reuse these commands :

```
$ cd flexric/build
```

```
$make
```

and the error will disappear as show below

```

[ 99%] Built target xapp_tc_osi_codel
[ 99%] Building C object test/agent-ric-xapp/CMakeFiles/test_ag_ric_xapp.dir/__/src/sm/rlc_sm/ie/rlc_data_ie.c.o
[ 99%] Building C object test/agent-ric-xapp/CMakeFiles/test_ag_ric_xapp.dir/__/src/sm/pdcp_sm/ie/pdcp_data_ie.c.o
[ 99%] Building C object test/agent-ric-xapp/CMakeFiles/test_ag_ric_xapp.dir/__/src/sm/slice_sm/ie/slice_data_ie.c.o
[ 99%] Building C object test/agent-ric-xapp/CMakeFiles/test_ag_ric_xapp.dir/__/src/sm/kpm_sm_v03.00/ie/kpm_data_ie.c.o
[100%] Building C object test/agent-ric-xapp/CMakeFiles/test_ag_ric_xapp.dir/__/src/sm/tc_sm/ie/tc_data_ie.c.o
[100%] Building C object test/agent-ric-xapp/CMakeFiles/test_ag_ric_xapp.dir/__/src/sm/gtp_sm/ie/gtp_data_ie.c.o
[100%] Building C object test/agent-ric-xapp/CMakeFiles/test_ag_ric_xapp.dir/__/src/util/alg_ds/alg/defer.c.o
/usr/bin/ld: warning: CMakeFiles/xapp_kpm_rc.dir/xapp_kpm_rc.c.o: requires executable stack (because the .note.GNU-stack section is executable)
[100%] Built target xapp_kpm_rc
[100%] Linking C executable test_ag_ric_xapp
/usr/bin/ld: warning: CMakeFiles/test_ag_ric_xapp.dir/test_ag_ric_xapp.c.o: requires executable stack (because the .note.GNU-stack section is executable)
[100%] Built target test_ag_ric_xapp
[100%] Linking CXX shared module _xapp_sdk.so
[100%] Built target xapp_sdk
oie@oie-ThinkPad-T470s-W10DG:~/orange/flexric/build$

```

## 2. CPATH

use this command

```
$export CPATH="/home/oie/orange/flexric/src/lib/ap/ie/asn"
```

The CPATH environment variable in C/C++ development is used to specify additional directories for the compiler to search for header files. When you include a header in your code (e.g., `#include <myheader.h>`), the compiler looks in the directories specified in CPATH, along with the standard system directories.

```

oie@oie-ThinkPad-T470s-W10DG:~/orange/flexric/build$ export CPATH="/home/oie/orange/flexric/src/lib/ap/ie/asn"
oie@oie-ThinkPad-T470s-W10DG:~/orange/flexric/build$ make -j8
[ 1%] Built target e2_ngran_obj
[ 1%] Built target e2ap_msg_free_obj
[ 1%] Built target e2_conf_obj
[ 1%] Built target e2ap_ep_obj
[ 1%] Built target msg_hand_obj
[ 4%] Built target e2ap_types_obj
[ 4%] Built target e2ap_ds_obj
[ 5%] Built target 3gpp_derived_ie_obj
[ 6%] Built target sm_common_enc_asn_obj
[ 6%] Built target sm_common_ie_obj
[ 6%] Built target sm_common_dec_asn_obj
[ 6%] Built target e2_time_obj
[ 7%] Built target 3gpp_derived_ie_enc_asn_obj

```

And build successfully .

```

[100%] Building C object test/agent-ric-xapp/CMakeFiles/test_ag_ric_xapp.dir/__/src/sm/tc_sm/ie/tc_data_ie.c.o
[100%] Building C object test/agent-ric-xapp/CMakeFiles/test_ag_ric_xapp.dir/__/src/sm/gtp_sm/ie/gtp_data_ie.c.o
[100%] Building C object test/agent-ric-xapp/CMakeFiles/test_ag_ric_xapp.dir/__/src/util/alg_ds/alg/defer.c.o
[100%] Linking C executable test_ag_ric_xapp
/usr/bin/ld: warning: CMakeFiles/test_ag_ric_xapp.dir/test_ag_ric_xapp.c.o: requires executable stack (because the .note.GNU-stack section is executable)
[100%] Built target test_ag_ric_xapp
[100%] Linking CXX shared module _xapp_sdk.so
[100%] Built target xapp_sdk
oie@oie-ThinkPad-T470s-W10DG:~/orange/flexric/build$

```