

AUTOSAR AP 예제

- EXEC 03 -

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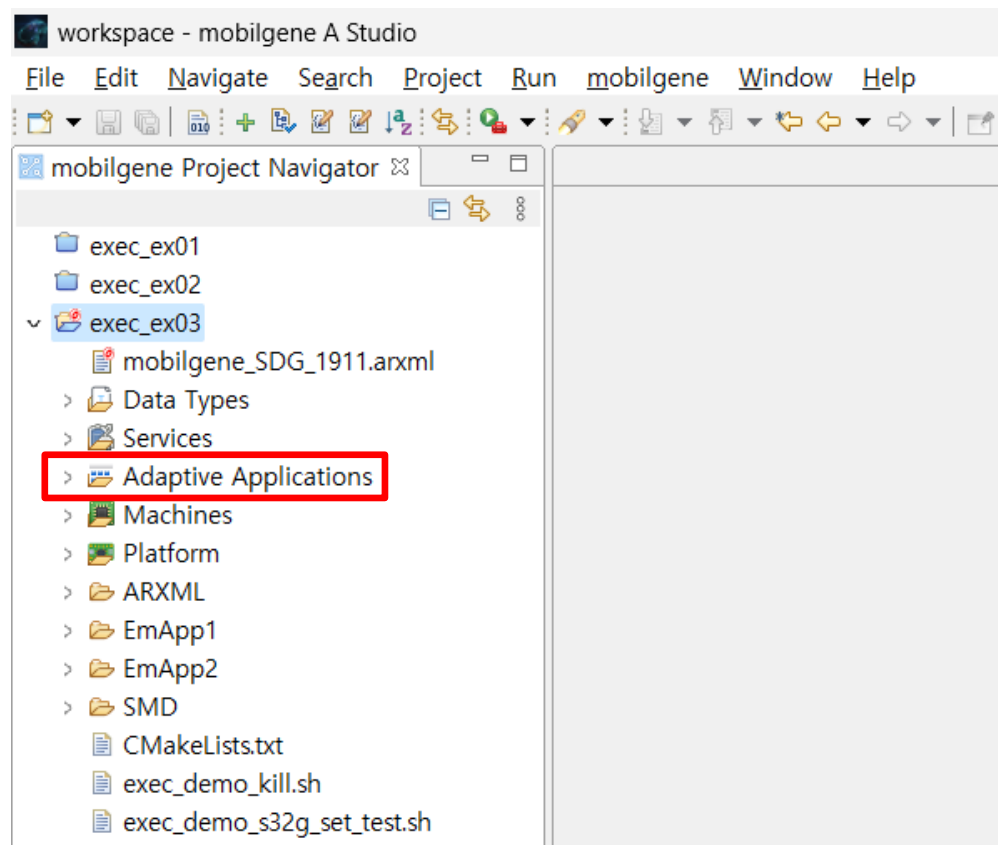
2024-07-07



EXEC: Adaptive Applications 설정

■ Adaptive Applications Editor 활성화

- ✓ 왼쪽의 'mobilgene Project Navigator' 창에서 해당 Project의 'Adaptive Applications'를 더블 클릭함



EXEC: Adaptive Applications 설정

- **Adaptive Applications Editor 활성화 확인**
 - ✓ 활성화 된 Adaptive Applications Editor를 확인함

*Adaptive Applications

Application Editor

ARXML

Select search objects... Select search columns... Input search keyword...

SW COMPONENT	Provided Ports	Required Ports	Provided-Required Ports
Sw Component	Provided Po	Required Po	Provided-Re
SWC_App1			
SWC_App2			
SWC_SMD			
EXECUTABLE			
Executable			
PROCESS			
Process			
Startup Config			
Deterministic Client			
PROCESS-MACHINE MAP			
Process-Machine Map			

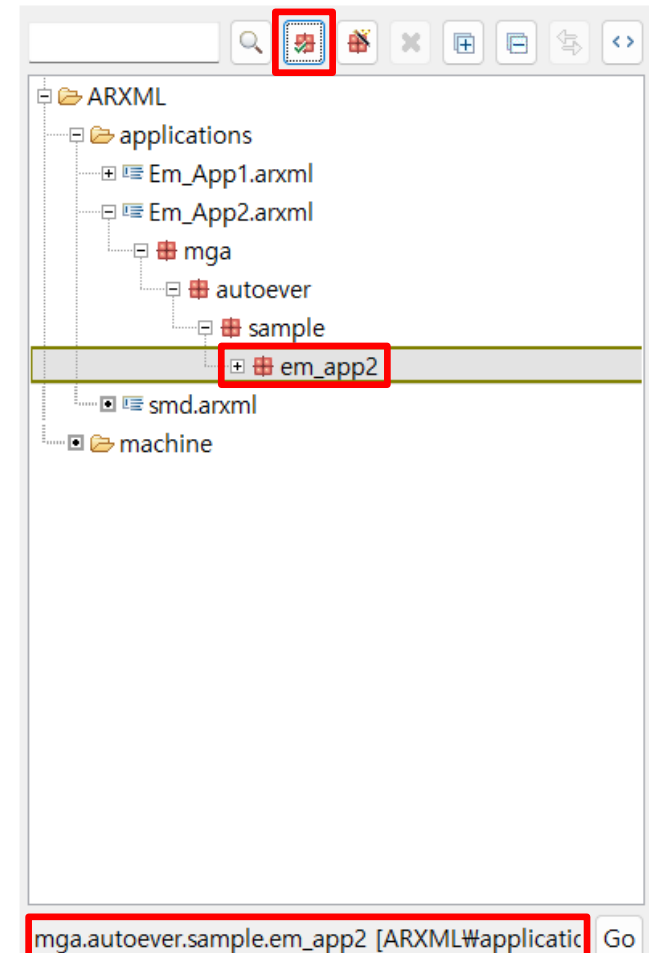
Machine [ARXML#machine#Machine.arxml] Go

EXEC: Adaptive Applications 설정

▪ Default Package 설정

- ✓ 설정이 저장될 Default Package를 설정함
 - ✓ Default Package로 설정할 'em_app2' Package를 선택함
- ✓ 우측 상단의 'Set Default Package' 버튼을 클릭함
- ✓ 하단에 설정된 Default Package를 확인함

Application Editor



EXEC: Adaptive Applications 설정

■ Execution Dependency 설정 (1)

- ✓ Execution Dependency는 Process 간 실행 순서에 대한 의존성을 설정하는 것임
- ✓ Execution Dependency 설정을 위해 좌측의 'Process' 탭으로 이동함

Application Editor

Select search objects... ... Select search columns... ... Input search keyword... 🔍 ⏪ ⏩ >> << 📄 📋									
SW COMPONENT	Process	Process Design	Executable	# Restart Attempts	PreMapping	Process State	State-dependent Startup Configs		
							Startup Config	Resource Group	[Function Group]
Sw Component	App1	App1Design	Executable_App1	0	<input type="checkbox"/>	App1_Pr...	StartupConf...	ResourceGroup_1	[Machine_ECU]
EXECUTABLE	App2_instan...	App2_instance1Design	Executable_App2	0	<input type="checkbox"/>	App2_ins...	StartupConf...	ResourceGroup_1	[Machine_ECU]
Executable	App2_instan...	App2_instance2Design	Executable_App2	0	<input type="checkbox"/>	App2_ins...	StartupConf...	ResourceGroup_1	[Machine_ECU]
PROCESS	SMD	SMDDesign	Executable_SMD	0	<input type="checkbox"/>	SMD_Pro...	StartupConf...	ResourceGroup_1	[Machine_ECU]
Process									
Startup Config									
Deterministic Client									
PROCESS-MACHINE MAP									
Process-Machine Map									

EXEC: Adaptive Applications 설정

■ Execution Dependency 설정 (2)

- ✓ 'App2_instance2'의 Execution Dependency 설정을 위해 다음과 같이 수정함
 - ✓ Execution Dependency : 'App1.Running'
 - ('App1'이 Running 상태가 된 후, 'App2_instance2'가 실행)

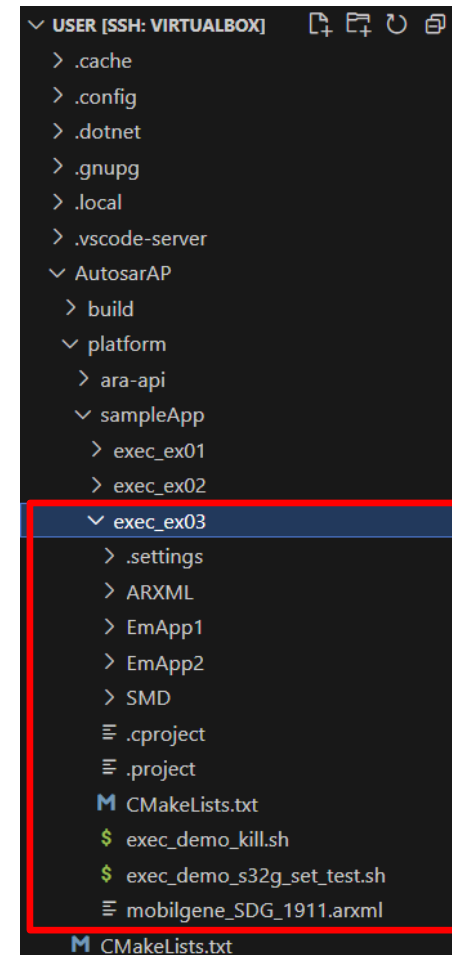
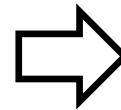
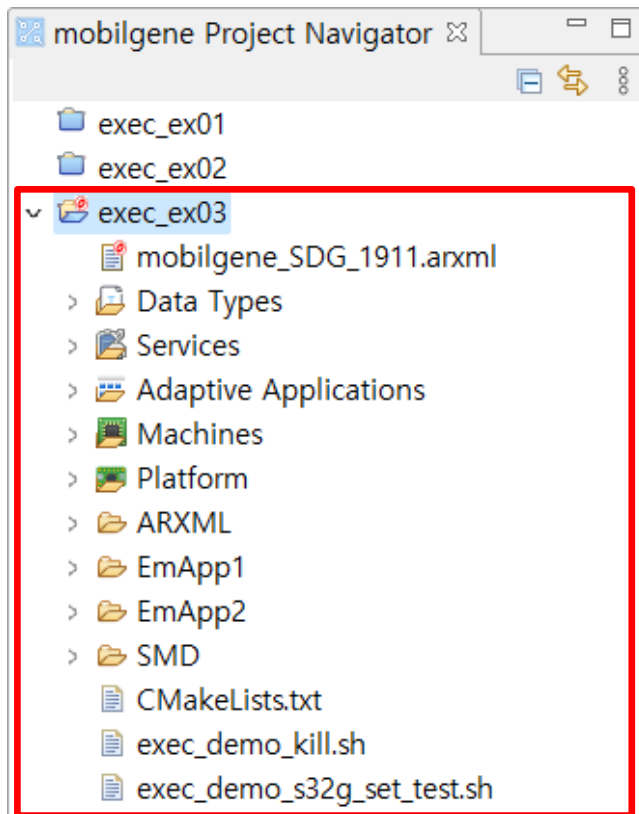
Application Editor

Select search objects... Select search columns... Input search keyword...									
SW COMPONENT									
Sw Component									
EXECUTABLE									
Executable									
PROCESS									
Process									
Startup Config									
Deterministic Client									
PROCESS-MACHINE MAP									
Process-Machine Map									
State-dependent Startup Configs									
Process	Process Design	Executable	# Re	PreMap	Process State	Startup Config	Resource Group	[Function Group] States	Execution Dependency
App1	App1Design	Executa...	0		App1_Pr...	StartupConfi...	ResourceGrou...	[Machine_ECU_MachineState_ModeGroup] Parking, Startup	
App2_instance1	App2_instan...	Executa...	0		App2_ins...	StartupConfi...	ResourceGrou...	[Machine_ECU_MachineState_ModeGroup] Driving	
App2_instance2	App2_instan...	Executa...	0		App2_ins...	StartupConfi...	ResourceGrou...	[Machine_ECU_MachineState_ModeGroup] Parking	App1.Running
SMD	SMDDesign	Executa...	0		SMD_Pro...	StartupConfi...	ResourceGrou...	[Machine_ECU_MachineState_ModeGroup] Driving, Parking...	

EXEC: Build

- 개발 내용 빌드 환경으로 복사

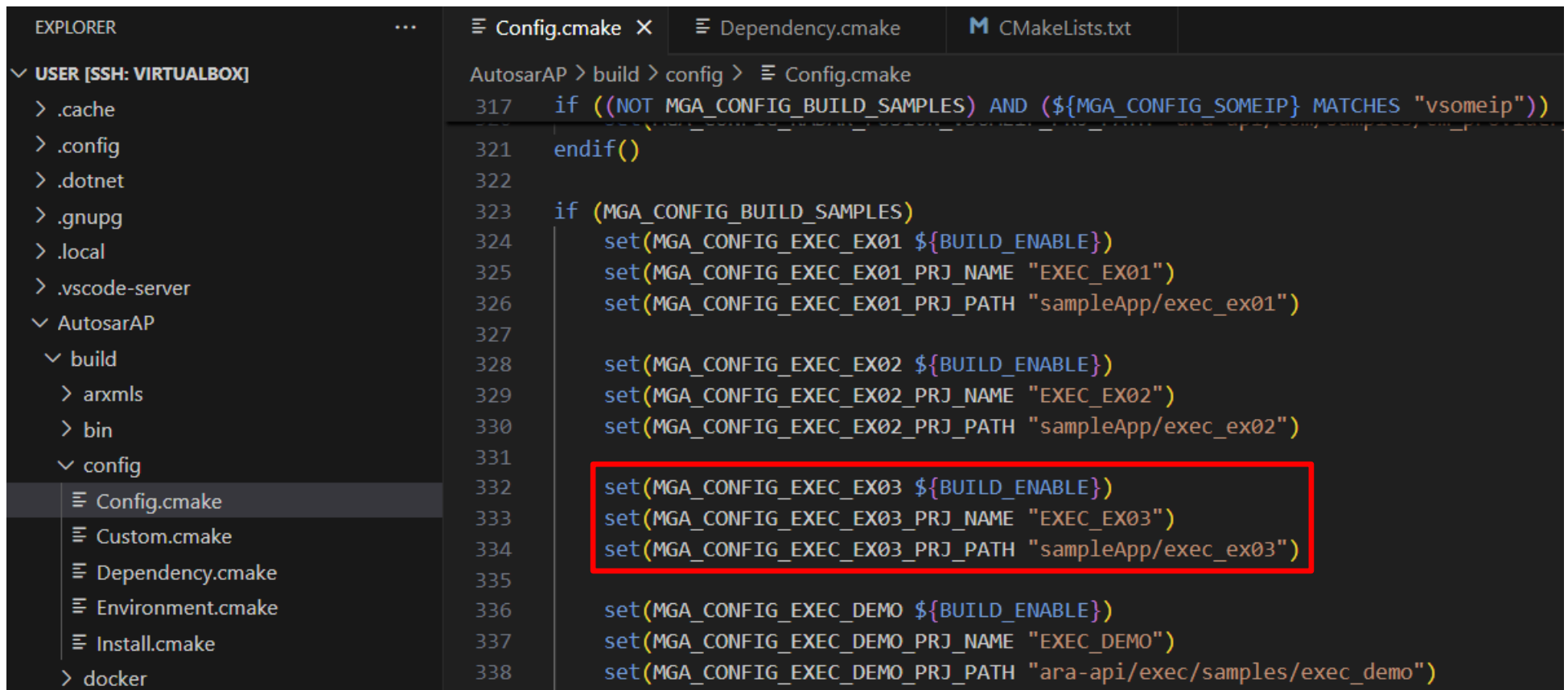
- ✓ mobilgene A Studio에서 개발한 Adaptive Application을 빌드 환경으로 복사



EXEC: Build

▪ Adaptive Application 관련 매크로 설정 추가

- ✓ 'build' - 'config' - 'Config.cmake'에 추가하고자 하는 Adaptive Application 관련 매크로 설정 추가



```
EXPLORER
...
USER [SSH: VIRTUALBOX]
> .cache
> .config
> .dotnet
> .gnupg
> .local
> .vscode-server
✓ AutosarAP
  ✓ build
    > arxmls
    > bin
    ✓ config
      Config.cmake
      Custom.cmake
      Dependency.cmake
      Environment.cmake
      Install.cmake
    > docker

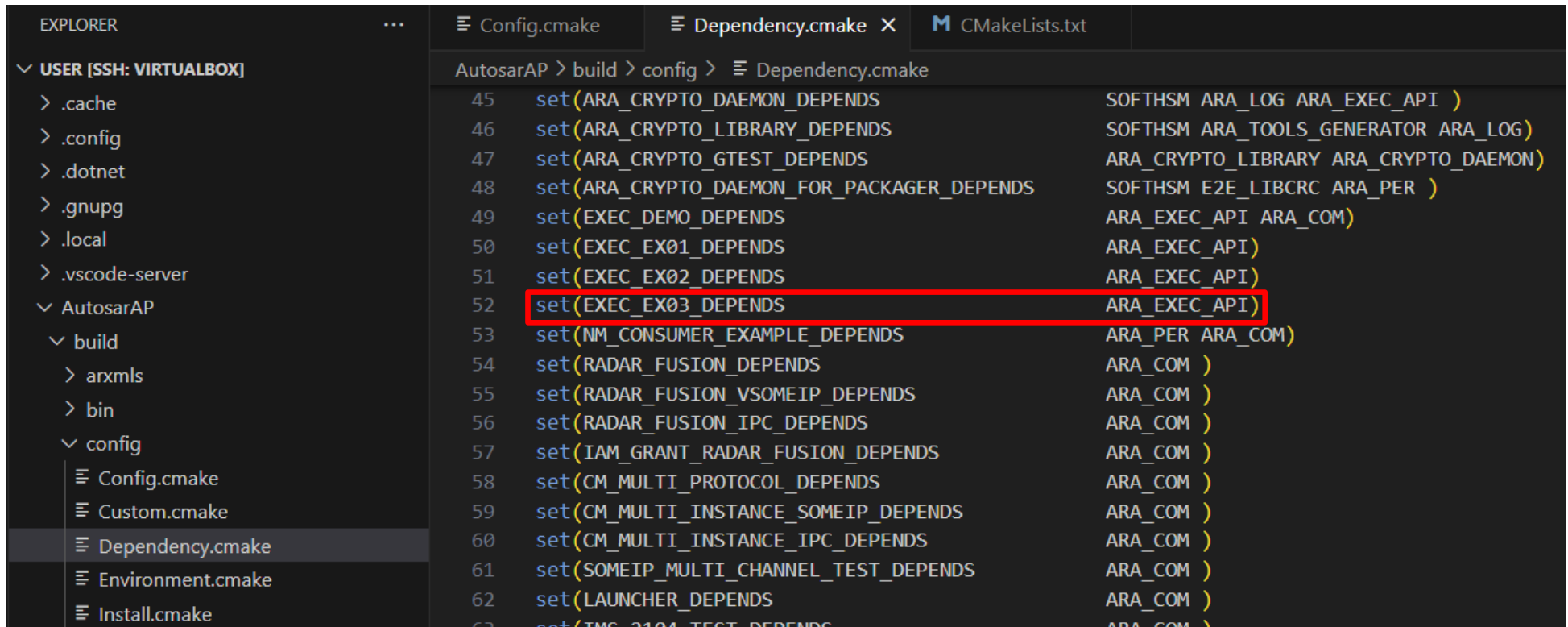
Config.cmake X
Dependency.cmake
CMakeLists.txt

AutosarAP > build > config > Config.cmake
317 if ((NOT MGA_CONFIG_BUILD_SAMPLES) AND (${MGA_CONFIG_SOMEIP} MATCHES "vsomeip"))
321 endif()
322
323 if (MGA_CONFIG_BUILD_SAMPLES)
324   set(MGA_CONFIG_EXEC_EX01 ${BUILD_ENABLE})
325   set(MGA_CONFIG_EXEC_EX01_PRJ_NAME "EXEC_EX01")
326   set(MGA_CONFIG_EXEC_EX01_PRJ_PATH "sampleApp/exec_ex01")
327
328   set(MGA_CONFIG_EXEC_EX02 ${BUILD_ENABLE})
329   set(MGA_CONFIG_EXEC_EX02_PRJ_NAME "EXEC_EX02")
330   set(MGA_CONFIG_EXEC_EX02_PRJ_PATH "sampleApp/exec_ex02")
331
332   set(MGA_CONFIG_EXEC_EX03 ${BUILD_ENABLE})
333   set(MGA_CONFIG_EXEC_EX03_PRJ_NAME "EXEC_EX03")
334   set(MGA_CONFIG_EXEC_EX03_PRJ_PATH "sampleApp/exec_ex03")
335
336   set(MGA_CONFIG_EXEC_DEMO ${BUILD_ENABLE})
337   set(MGA_CONFIG_EXEC_DEMO_PRJ_NAME "EXEC_DEMO")
338   set(MGA_CONFIG_EXEC_DEMO_PRJ_PATH "ara-api/exec/samples/exec_demo")
```


EXEC: Build

- **Adaptive Application** 관련 의존성 설정 추가

- ✓ 'build' - 'config' - 'Dependency.cmake'에 추가하고자 하는 Adaptive Application 관련 의존성 설정 추가



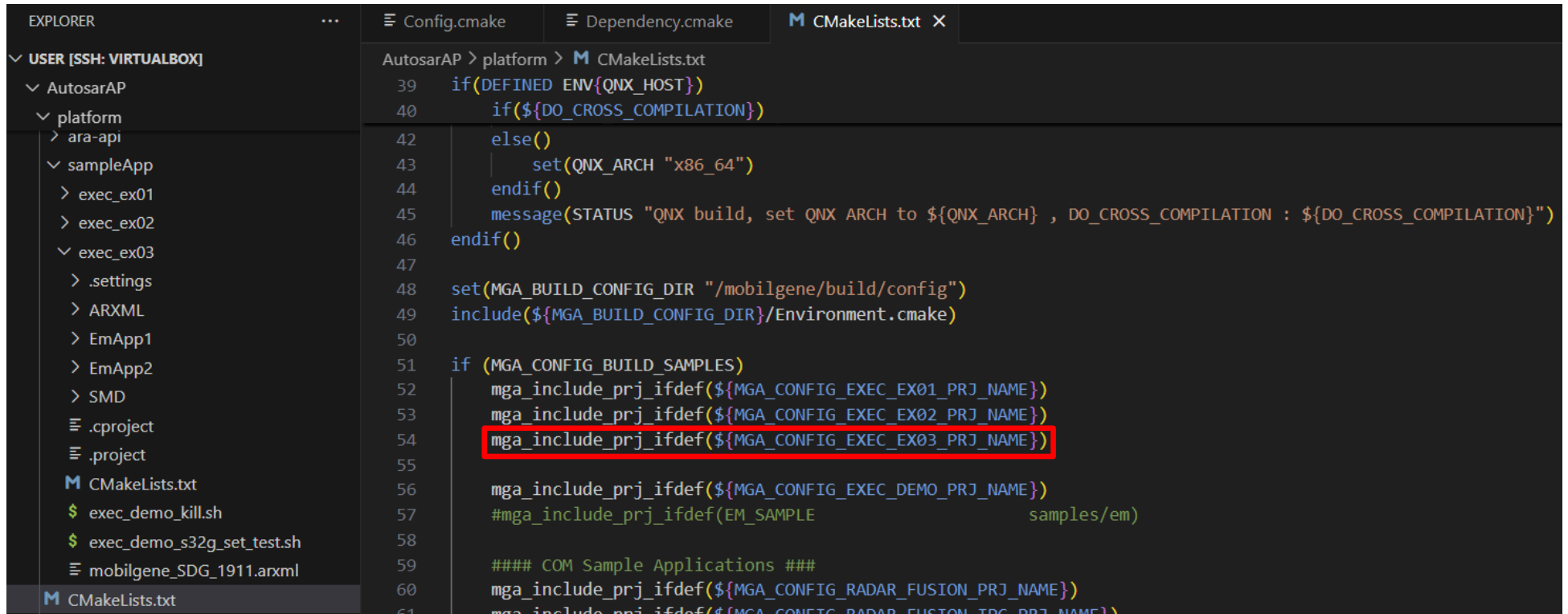
```
EXPLORER
...
Config.cmake
Dependency.cmake X
CMakeLists.txt

USER [SSH: VIRTUALBOX]
> .cache
> .config
> .dotnet
> .gnupg
> .local
> .vscode-server
AutosarAP
  build
    arxmls
    bin
    config
      Config.cmake
      Custom.cmake
      Dependency.cmake
      Environment.cmake
      Install.cmake

AutosarAP > build > config > Dependency.cmake
45 set(ARA_CRYPT0_DAEMON_DEPENDS SOFTHSM ARA_LOG ARA_EXEC_API )
46 set(ARA_CRYPT0_LIBRARY_DEPENDS SOFTHSM ARA_TOOLS_GENERATOR ARA_LOG)
47 set(ARA_CRYPT0_GTEST_DEPENDS ARA_CRYPT0_LIBRARY ARA_CRYPT0_DAEMON)
48 set(ARA_CRYPT0_DAEMON_FOR_PACKAGER_DEPENDS SOFTHSM E2E_LIBCRC ARA_PER )
49 set(EXEC_DEMO_DEPENDS ARA_EXEC_API ARA_COM)
50 set(EXEC_EX01_DEPENDS ARA_EXEC_API)
51 set(EXEC_EX02_DEPENDS ARA_EXEC_API)
52 set(EXEC_EX03_DEPENDS ARA_EXEC_API)
53 set(NM_CONSUMER_EXAMPLE_DEPENDS ARA_PER ARA_COM)
54 set(RADAR_FUSION_DEPENDS ARA_COM )
55 set(RADAR_FUSION_VSOMEIP_DEPENDS ARA_COM )
56 set(RADAR_FUSION_IPC_DEPENDS ARA_COM )
57 set(IAM_GRANT_RADAR_FUSION_DEPENDS ARA_COM )
58 set(CM_MULTI_PROTOCOL_DEPENDS ARA_COM )
59 set(CM_MULTI_INSTANCE_SOMEIP_DEPENDS ARA_COM )
60 set(CM_MULTI_INSTANCE_IPC_DEPENDS ARA_COM )
61 set(SOMEIP_MULTI_CHANNEL_TEST_DEPENDS ARA_COM )
62 set(LAUNCHER_DEPENDS ARA_COM )
63 set(TMS_2104_TEST_DEPENDS ARA_COM )
```

EXEC: Build

- **Adaptive Application을 Build 목록에 추가**
 - ✓ Adaptive Application을 'platform' - 'CMakeLists.txt'에 추가하여 Build 목록에 추가



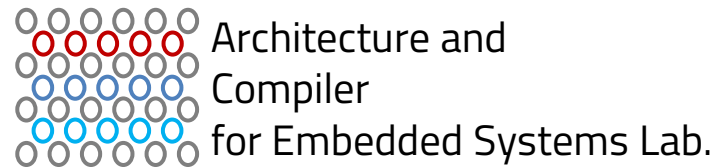
```
EXPLORER
...
USER [SSH: VIRTUALBOX]
  AutosarAP
    platform
      ara-api
      sampleApp
      exec_ex01
      exec_ex02
      exec_ex03
      .settings
      ARXML
      EmApp1
      EmApp2
      SMD
      .cproject
      .project
      CMakeLists.txt
      exec_demo_kill.sh
      exec_demo_s32g_set_test.sh
      mobilgene_SDG_1911.arxml
      CMakeLists.txt

Config.cmake
Dependency.cmake
CMakeLists.txt X

AutosarAP > platform > CMakeLists.txt
39  if(DEFINED ENV{QNX_HOST})
40    if(${DO_CROSS_COMPILATION})
41
42    else()
43      set(QNX_ARCH "x86_64")
44    endif()
45    message(STATUS "QNX build, set QNX ARCH to ${QNX_ARCH} , DO_CROSS_COMPILATION : ${DO_CROSS_COMPILATION}")
46  endif()
47
48  set(MGA_BUILD_CONFIG_DIR "/mobilgene/build/config")
49  include(${MGA_BUILD_CONFIG_DIR}/Environment.cmake)
50
51  if (MGA_CONFIG_BUILD_SAMPLES)
52    mga_include_prj_ifdef(${MGA_CONFIG_EXEC_EX01_PRJ_NAME})
53    mga_include_prj_ifdef(${MGA_CONFIG_EXEC_EX02_PRJ_NAME})
54    mga_include_prj_ifdef(${MGA_CONFIG_EXEC_EX03_PRJ_NAME})
55
56    mga_include_prj_ifdef(${MGA_CONFIG_EXEC_DEMO_PRJ_NAME})
57    #mga_include_prj_ifdef(EM_SAMPLE samples/em)
58
59    #### COM Sample Applications ####
60    mga_include_prj_ifdef(${MGA_CONFIG_RADAR_FUSION_PRJ_NAME})
61    mga_include_prj_ifdef(${MGA_CONFIG_RADAR_FUSION_IPC_PRJ_NAME})
```

Q & A

Thank you for your attention



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