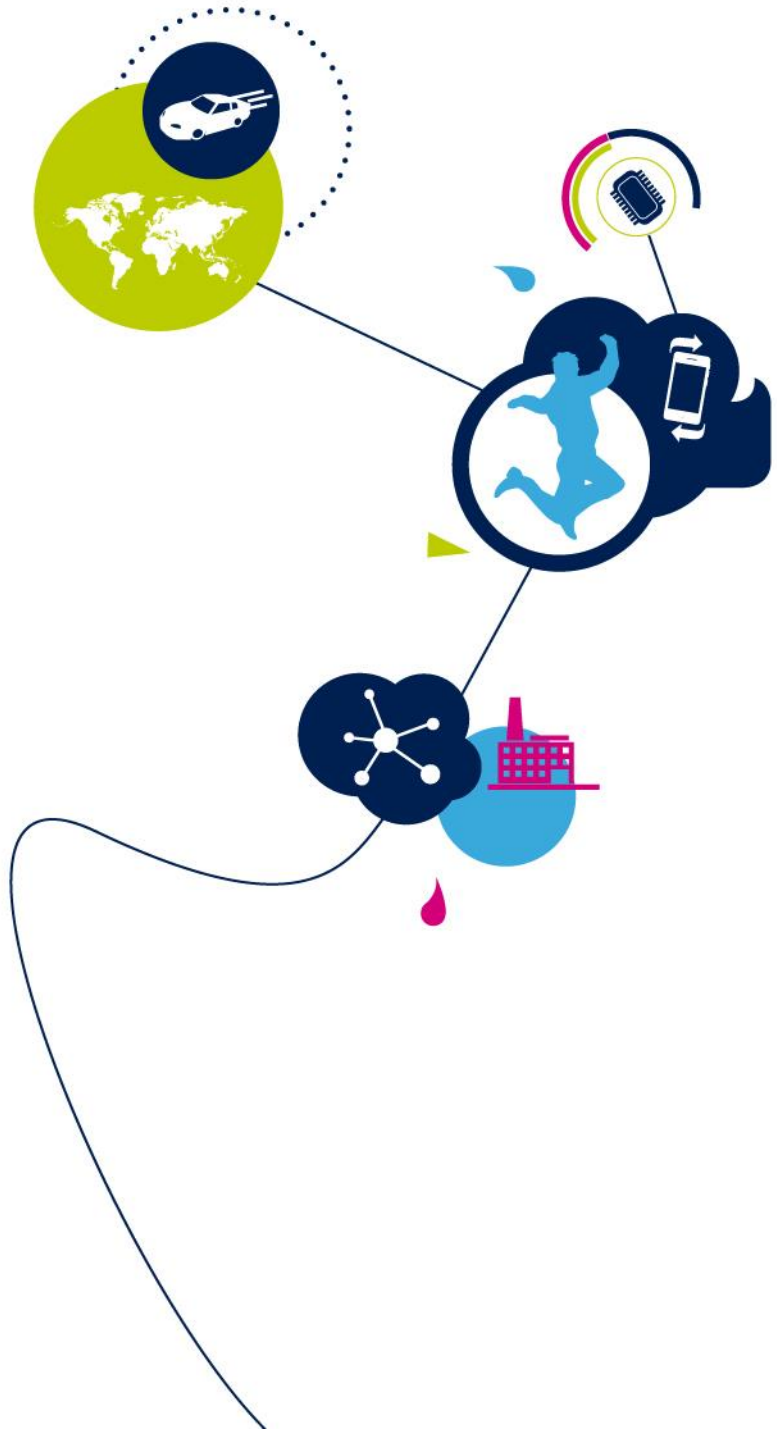
TrueSTUDIO for STM32

April 2018



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순서

- STM32전용 무료 개발환경 TrueSTUDIO v9.0.0 특징 및 기본구조
- STM32CubeMX를 활용한 TrueSTUDIO 프로젝트 생성/빌드
- TrueSTUDIO의 다양한 Build & Debugging 분석 기능

TrueSTUDIO for STM32 v9.0.0

- TrueSTUDIO for STM32 = Lite ver. + Pro ver.

TrueSTUDIO for STM32 v9.0.0

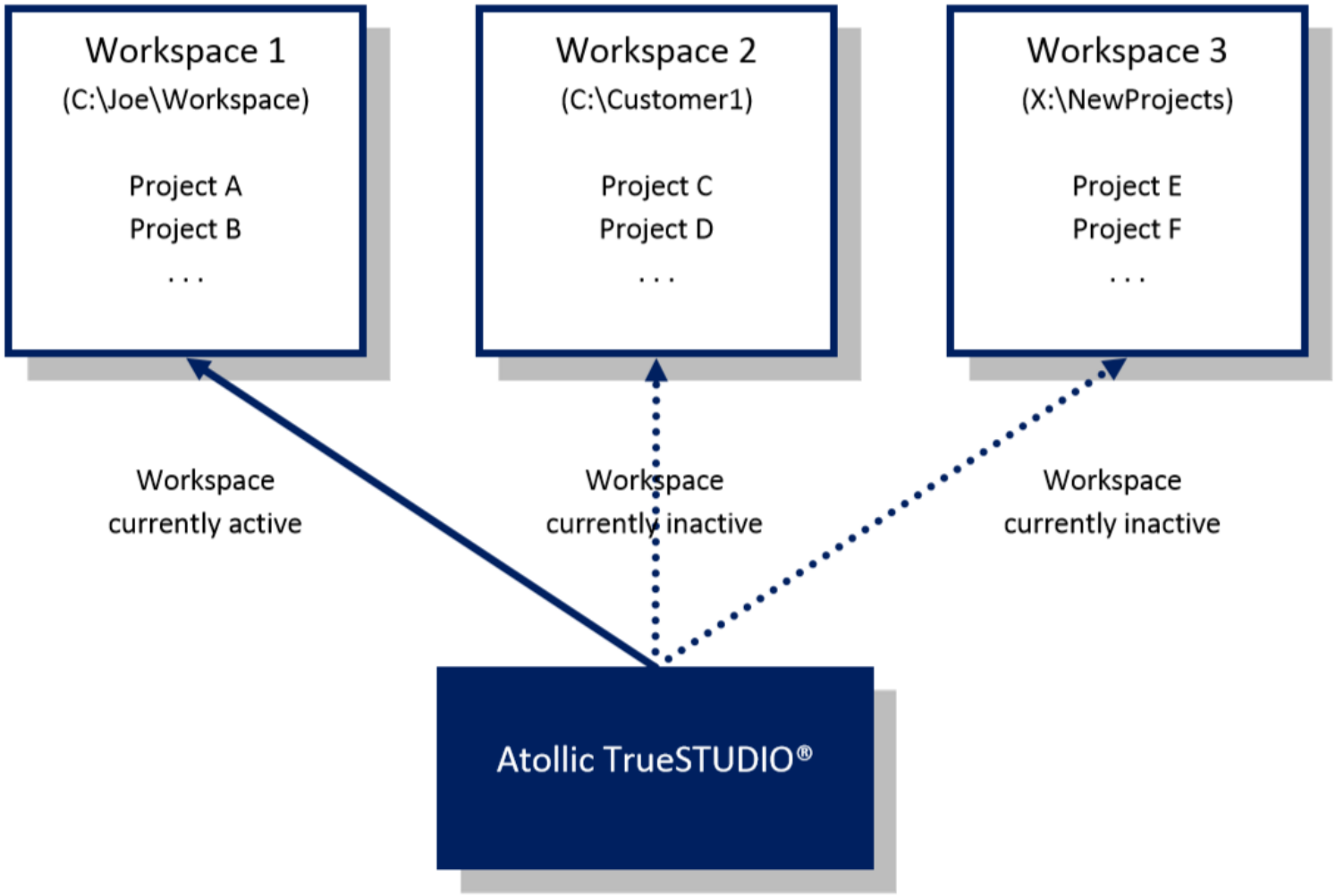
- Windows / Linux Installer 제공
- STM32 전용 개발환경
- Editor : 코드 탐색, 시각화, 커스터마이징 등 사용 편의제공
- Build / Memory Analyzer : Flash, SRAM, STACK 사용량 분석
- Hard Fault Analysis : Crash발생 원인 및 위치 분석
- Trace & Profiling : SWV 기능을 이용한 실시간 Event / Data / Exception Trace
- Open Standards : Eclipse™ 기반

Eclipse™

- Atollic TrueSTUDIO = Eclipse™ 기반 개발환경
- 비영리 재단, 오픈소스 소프트웨어
- C/C++, JAVA, PHP 등을 위한 개발환경으로 널리사용

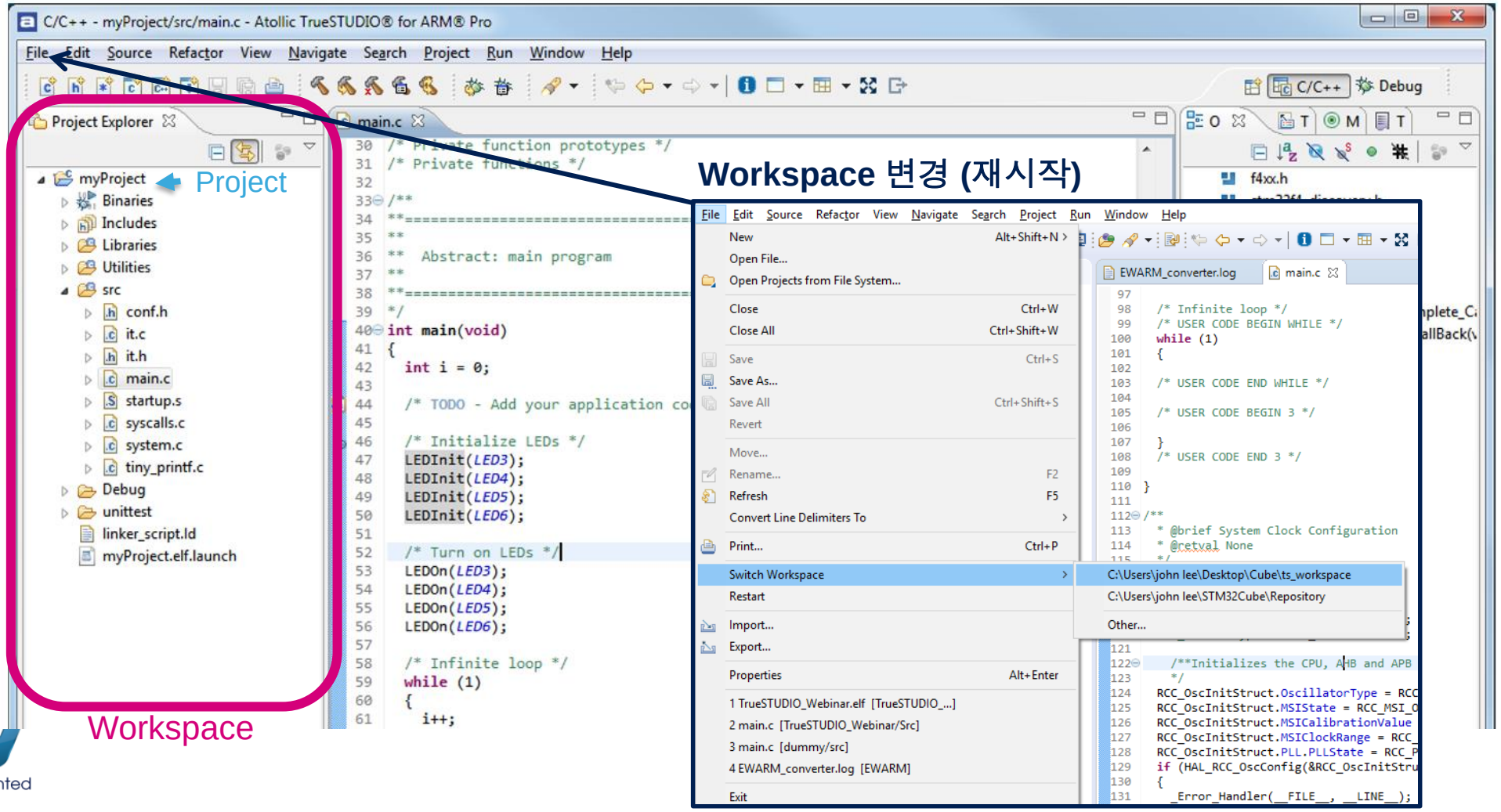
Eclipse™ 기본 구조(1/4)

- Workspaces & Projects 모델



Eclipse™ 기본 구조(2/4)

- Workspaces & Projects 모델



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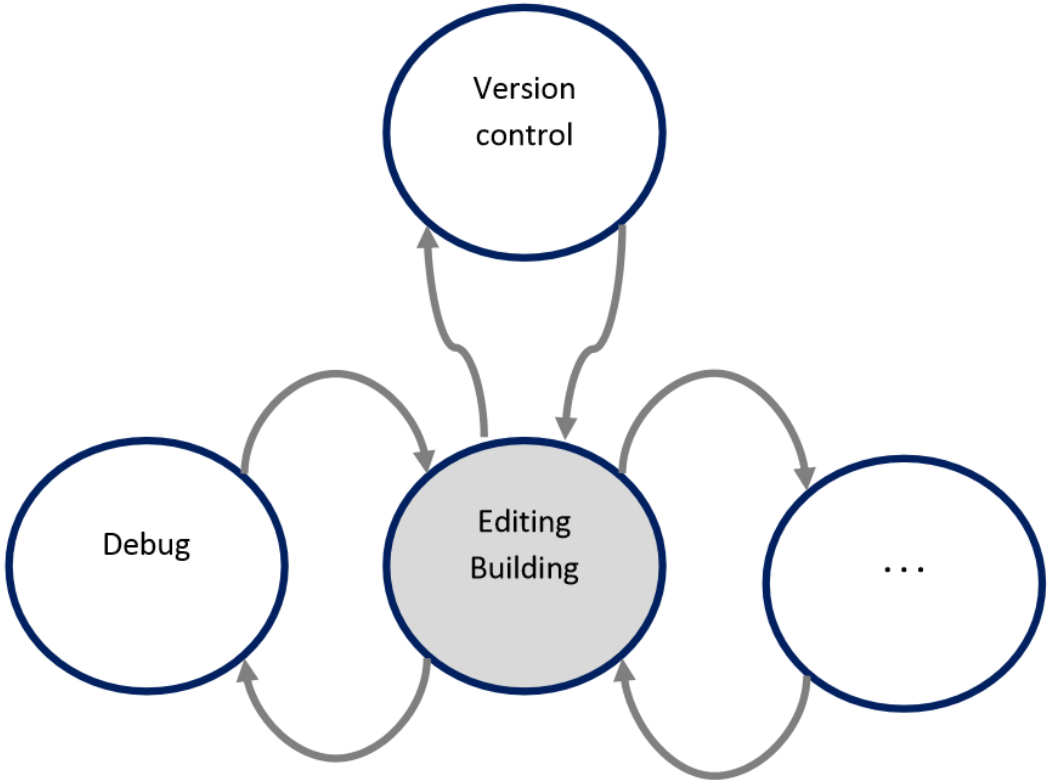
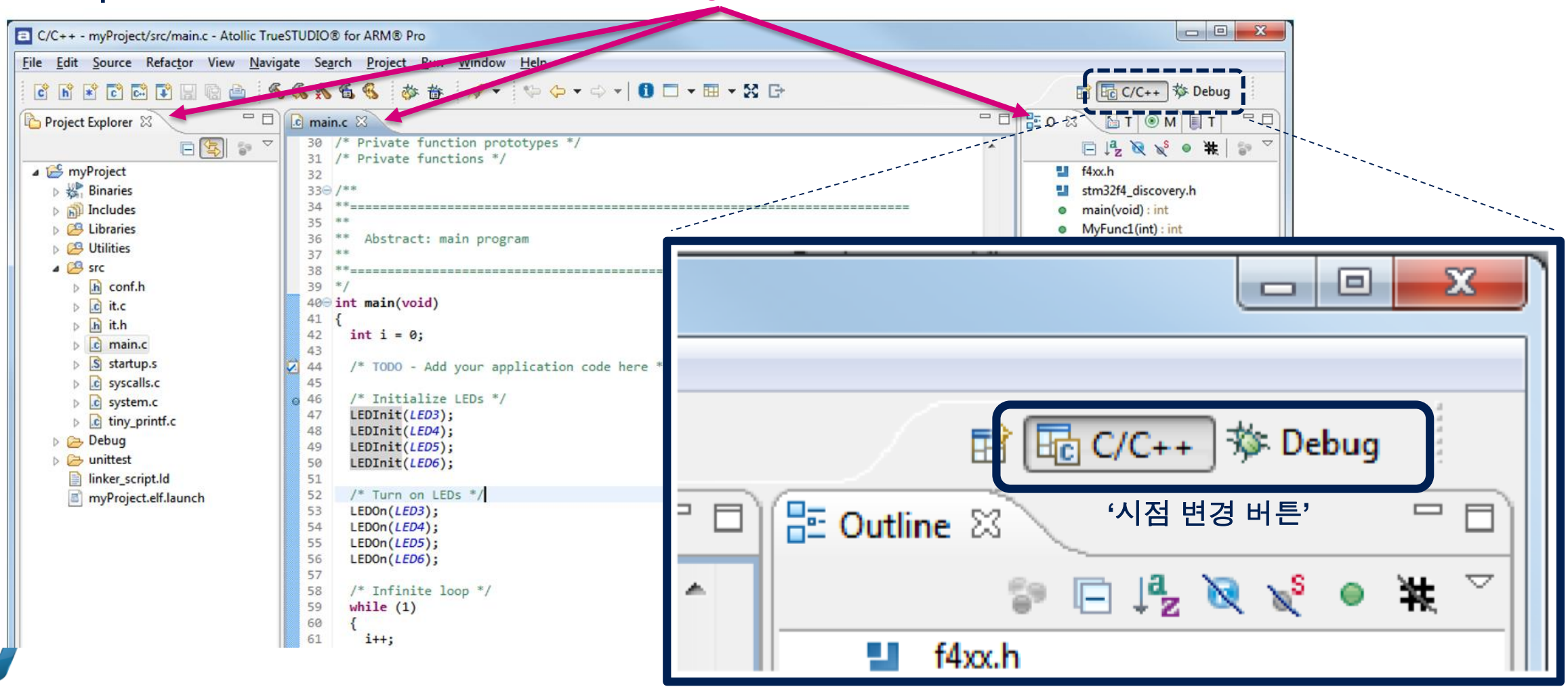
Eclipse™ 기본 구조(3/4)

- Perspectives & Views



Eclipse™ 기본 구조(4/4)

- Perspectives & Views



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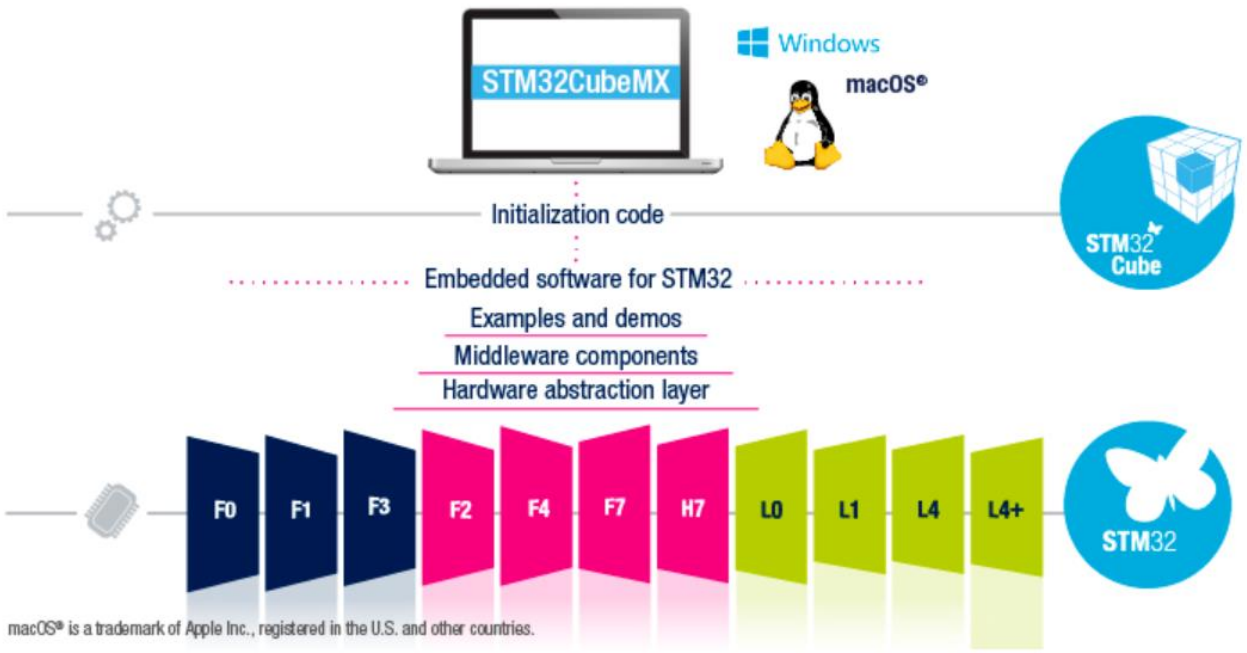
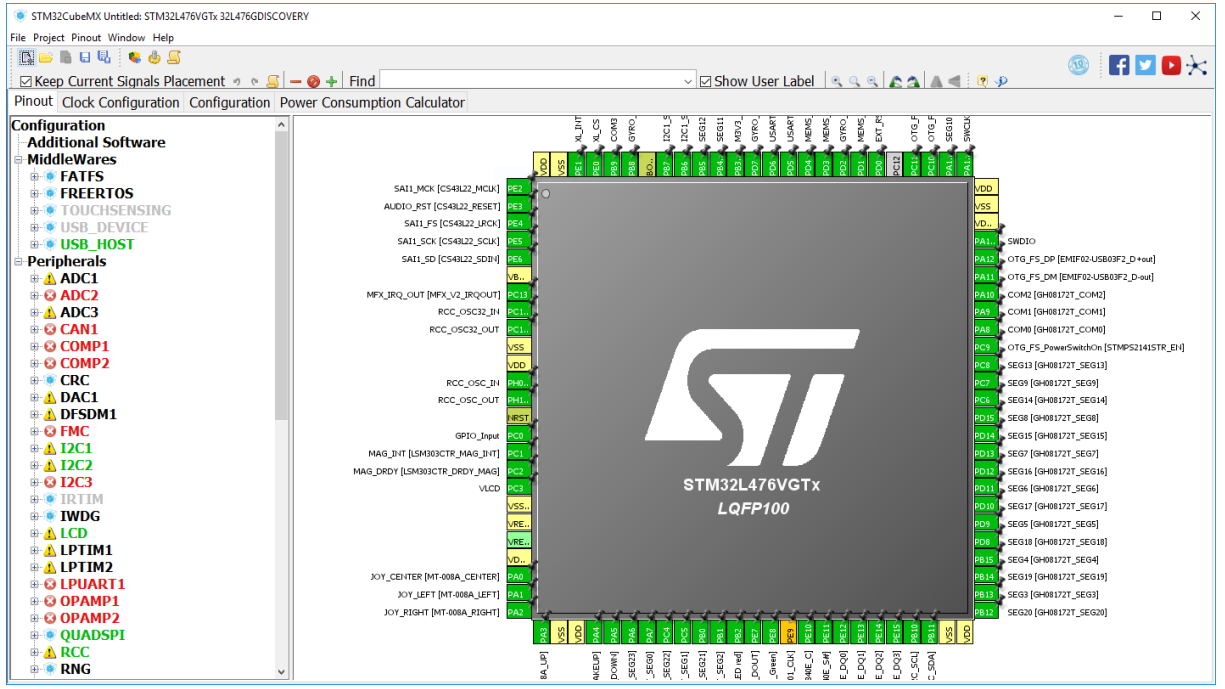
STM32CubeMX

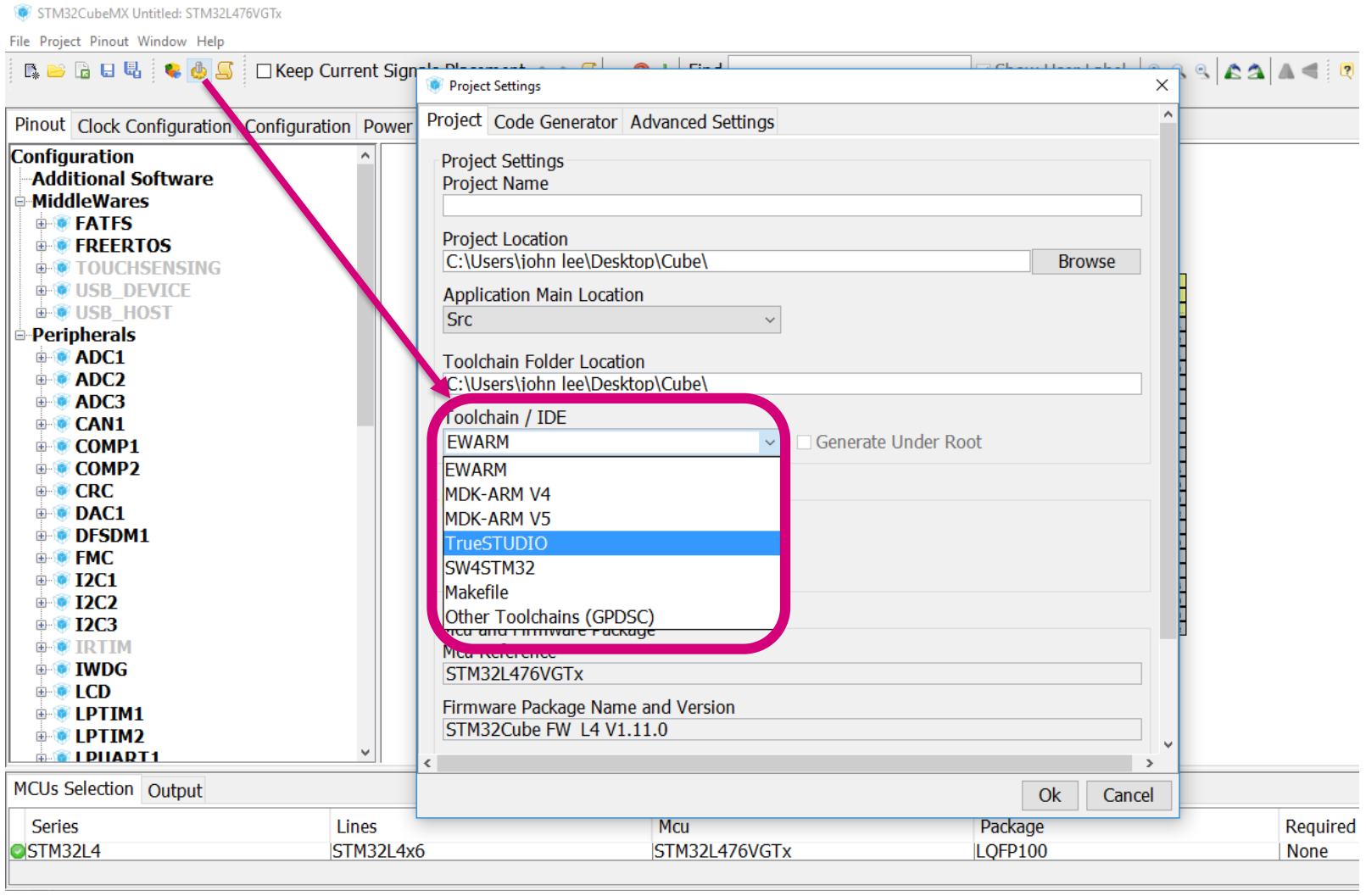
- STM32를 위한 초기화 코드 생성 툴
  - 그래픽 인터페이스로 편리한 설정 : Pinout, Clock, Peripherals…





STM32CubeMX

- 지원하는 개발환경 : Atollic(TS), IAR(EWARM), Keil(MDK-ARM) …



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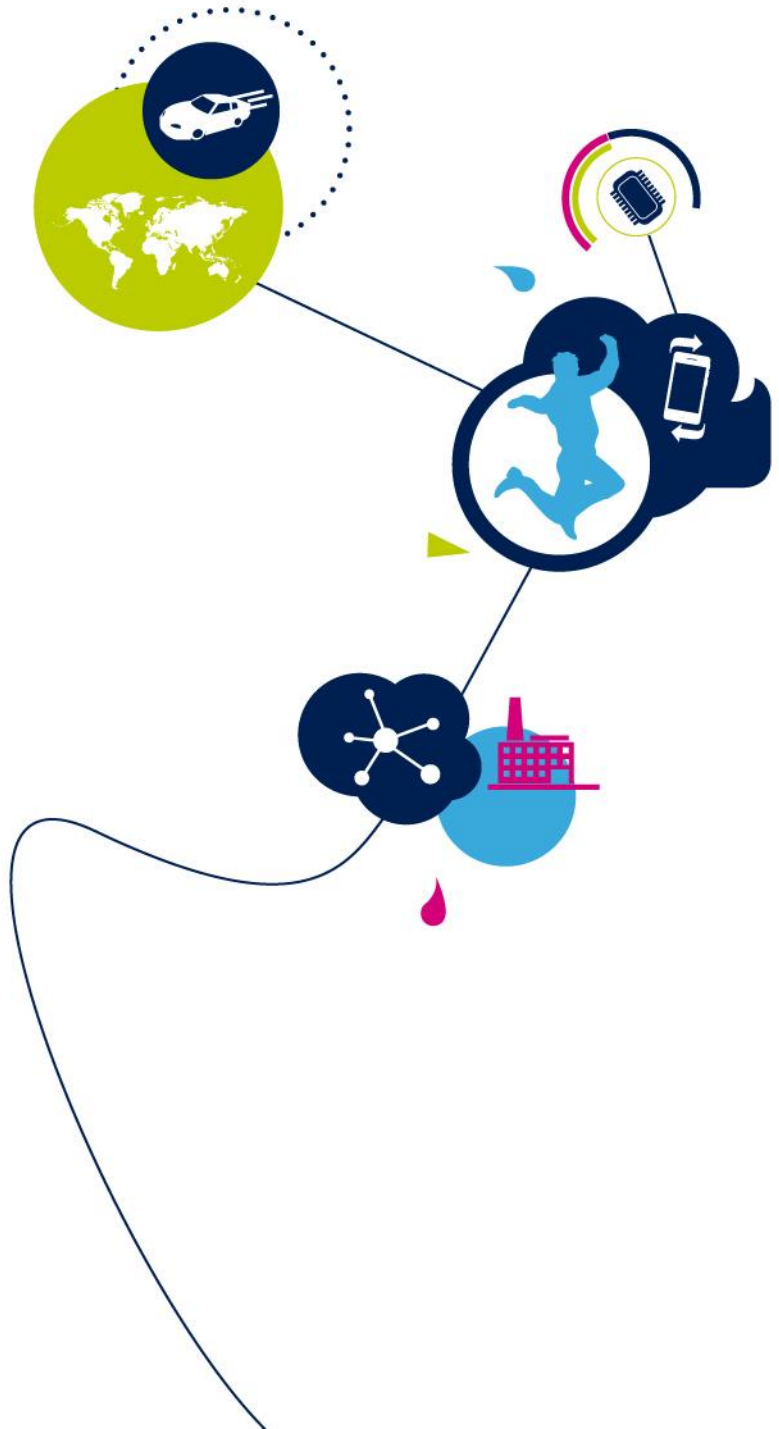
STM32CubeMX

- CubeMX UI를 이용한 프로젝트 생성 시연
- TrueSTUDIO 가져오기 / 빌드 시연

Build & Debug features



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Build & STACK Analyzer

- Memory 및 STACK 사용량 분석

Build Analyzer | Static Stack Analyzer | Search

STM32L476G-Discovery.elf - /STM32L476G-Discovery/Debug - 4/2/18 2:22 PM

Memory Regions | Memory Details

Region	Start address	End address	Size	Free	Used	Usage (%)
RAM	0x20000000	0x20018000	96 KB	39.7 KB	56.3 KB	58.64%
SRAM2	0x10000000	0x10008000	32 KB	32 KB	0 B	0.00%
FLASH	0x08000000	0x08100000	1024 KB	961.61 KB	62.39 KB	6.09%

Build Analyzer | Static Stack Analyzer | Search

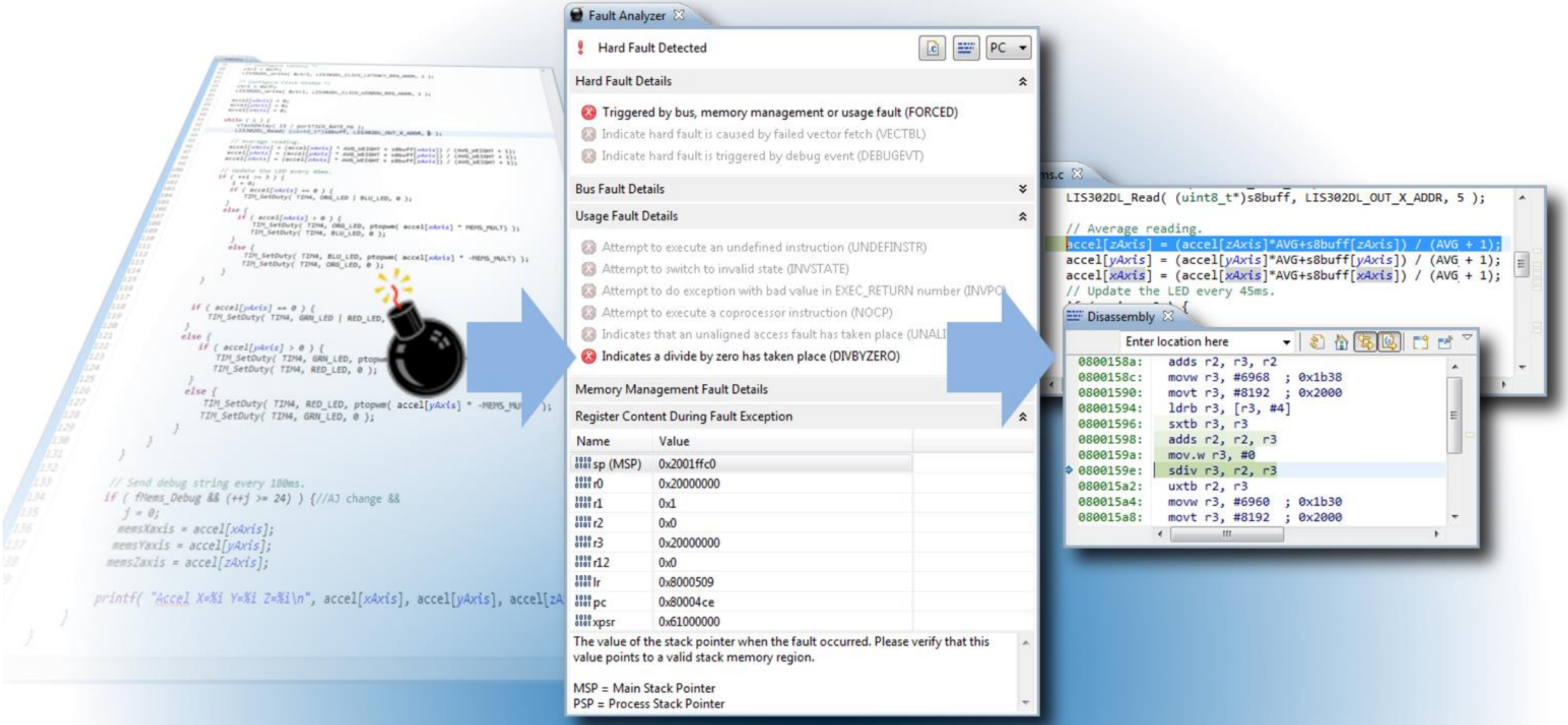
STM32L476G-Discovery.elf - /STM32L476G-Discovery/Debug - 4/2/18 2:22 PM

List | Call graph

Search... | Case sensitive

Function	Depth	Max cost	Local cost	Type	Location
IddMeasureLpRun	8	452	0	STATIC	iddmeasu
StartThread	11	448	16	STATIC	main.c:20
prvIdleTask	7	436	8	STATIC	tasks.c:31
AudioPlayer_Run	9	368	64	STATIC	audioplay
osThreadCreate	8	304	32	STATIC	cmsis_os.
osMessageCreate	8	256	0	STATIC	cmsis_os.
AudioPlayer_Start	6	248	24	STATIC	audioplay
Error_Handler	4	200	96	STATIC	main.c:11
kMenu_GetEvent	6	184	24	STATIC	k_menu.c

CPU fault 분석기



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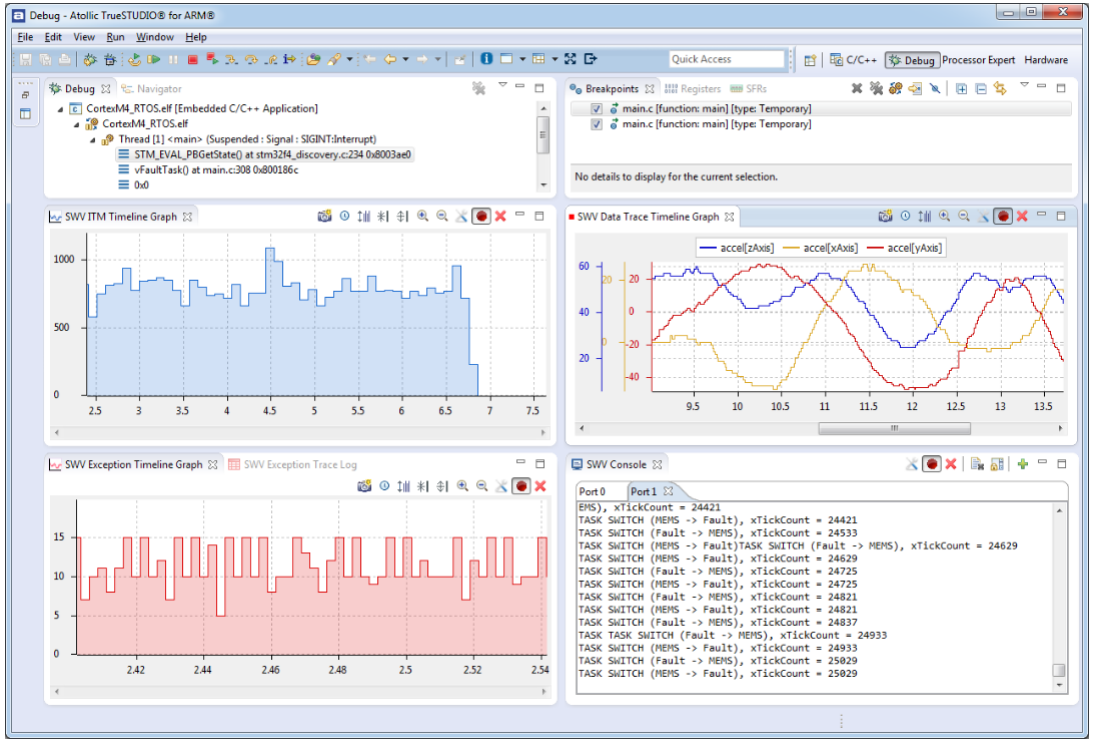
CPU fault 분석기

- Build & Memory 분석기능 + CPU fault 분석기능 시연

SWV(Serial Wire Viewer)

- SWV : SWD+SWO를 이용하는 Real-time Tracing 기술
  - SWD : 2-pin, JTAG보다 적은 핀으로 같은 디버깅 기능 제공(run, stop, break, step)
  - SWO : 1-pin, Real-time 데이터 출력
- SWV가 제공하는 정보
  - Program counter 샘플링(CPU 점유율 분석)
  - Memory read/write 분석
  - Interrupt(exception) entry/exit 분석
  - Timestamp and CPU cycle 정보



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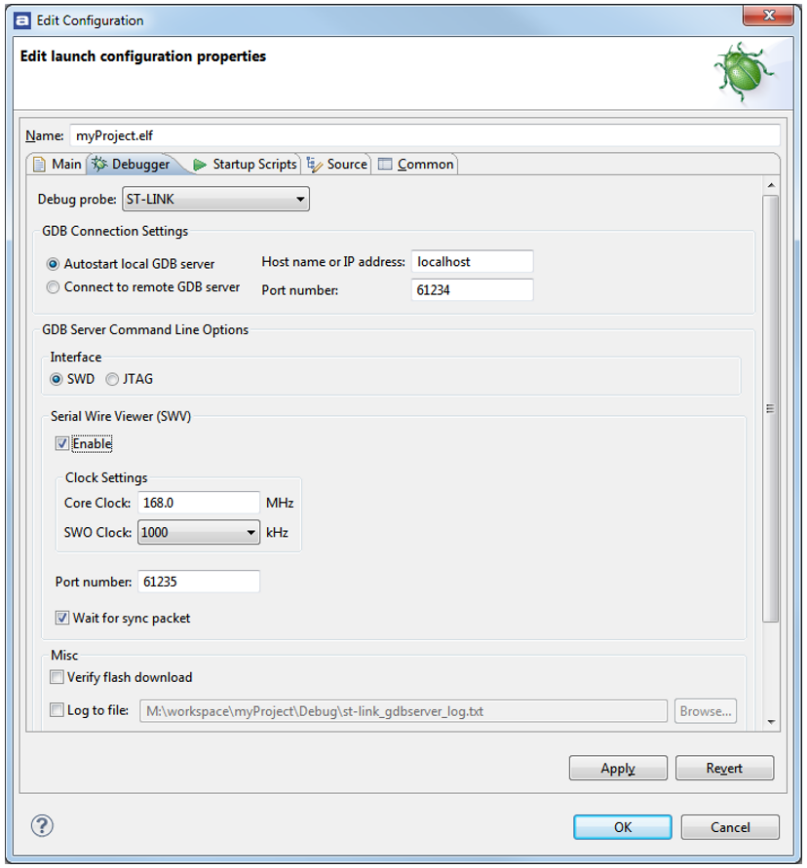
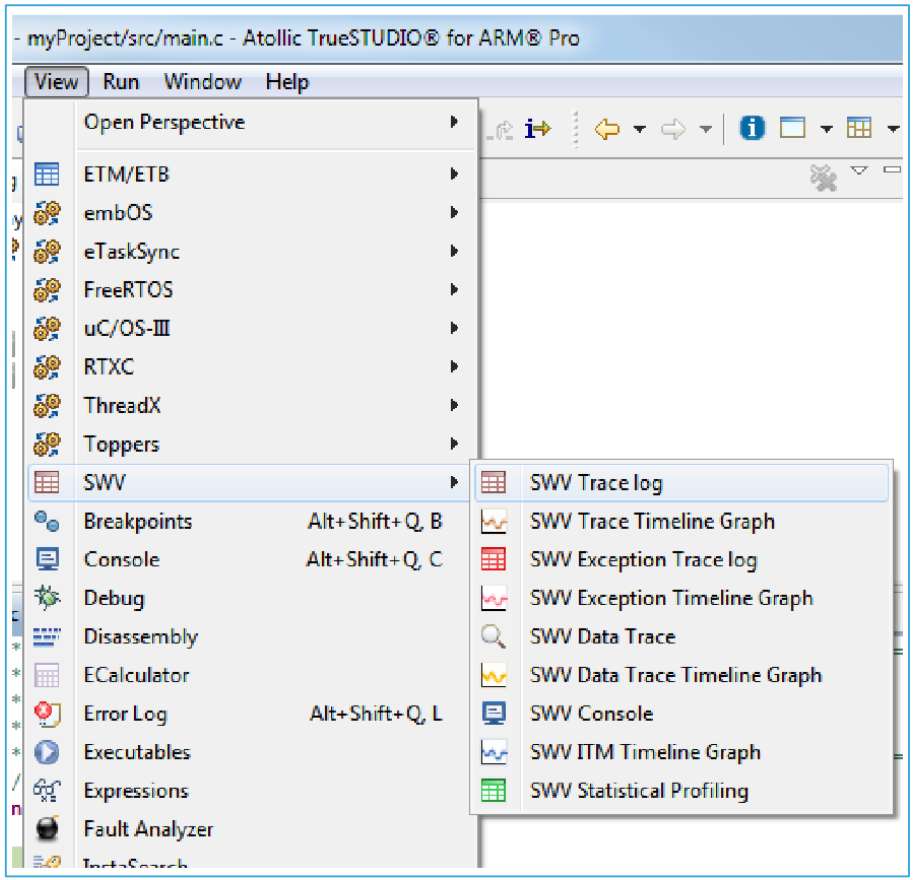
SWV(Serial Wire Viewer)

- SWV 설정 / 뷰어열기
  - 설정 : 툴바에서 'Configure Debug' 버튼 클릭
  - 뷰어 : View → SWV → SWV Trace log





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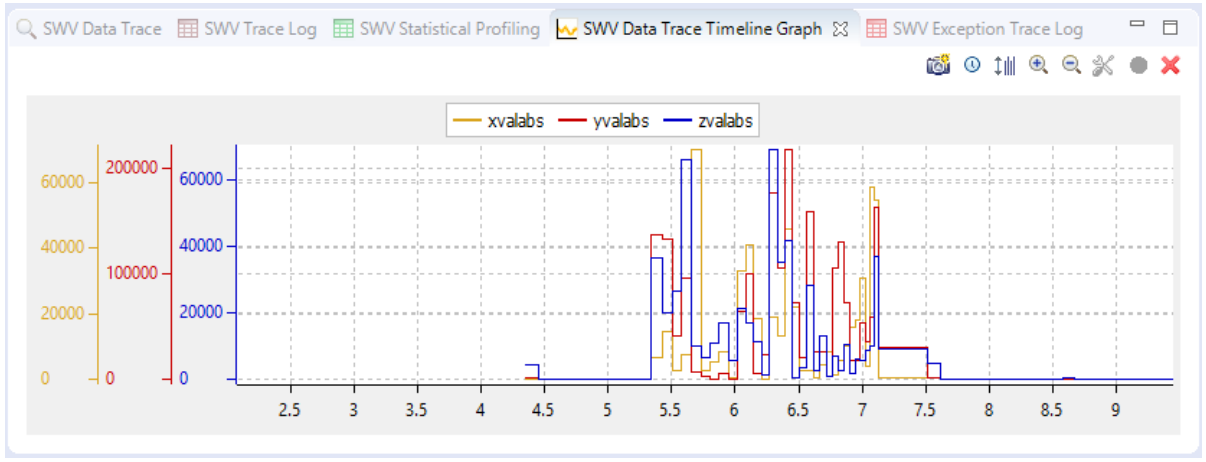
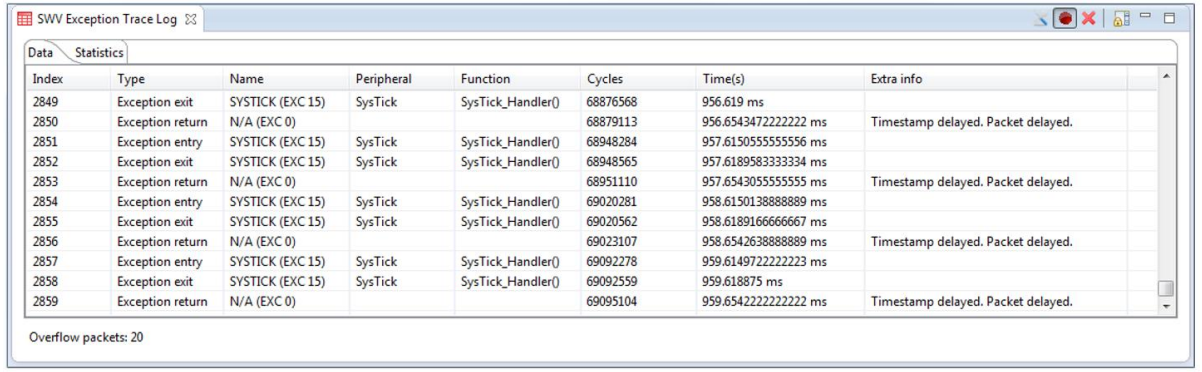
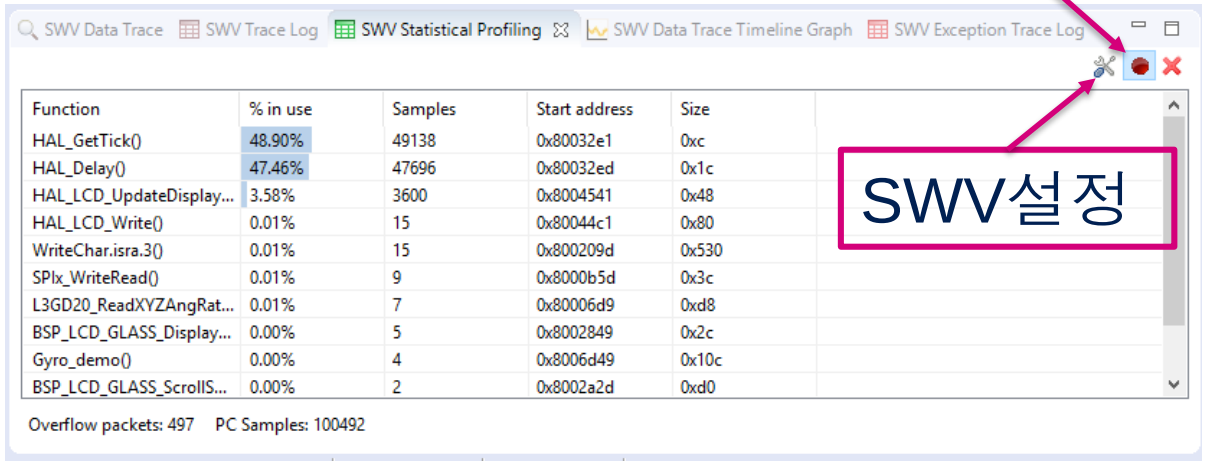
SWV(Serial Wire Viewer)

- SWV viewers







Trace시작

SWV설정

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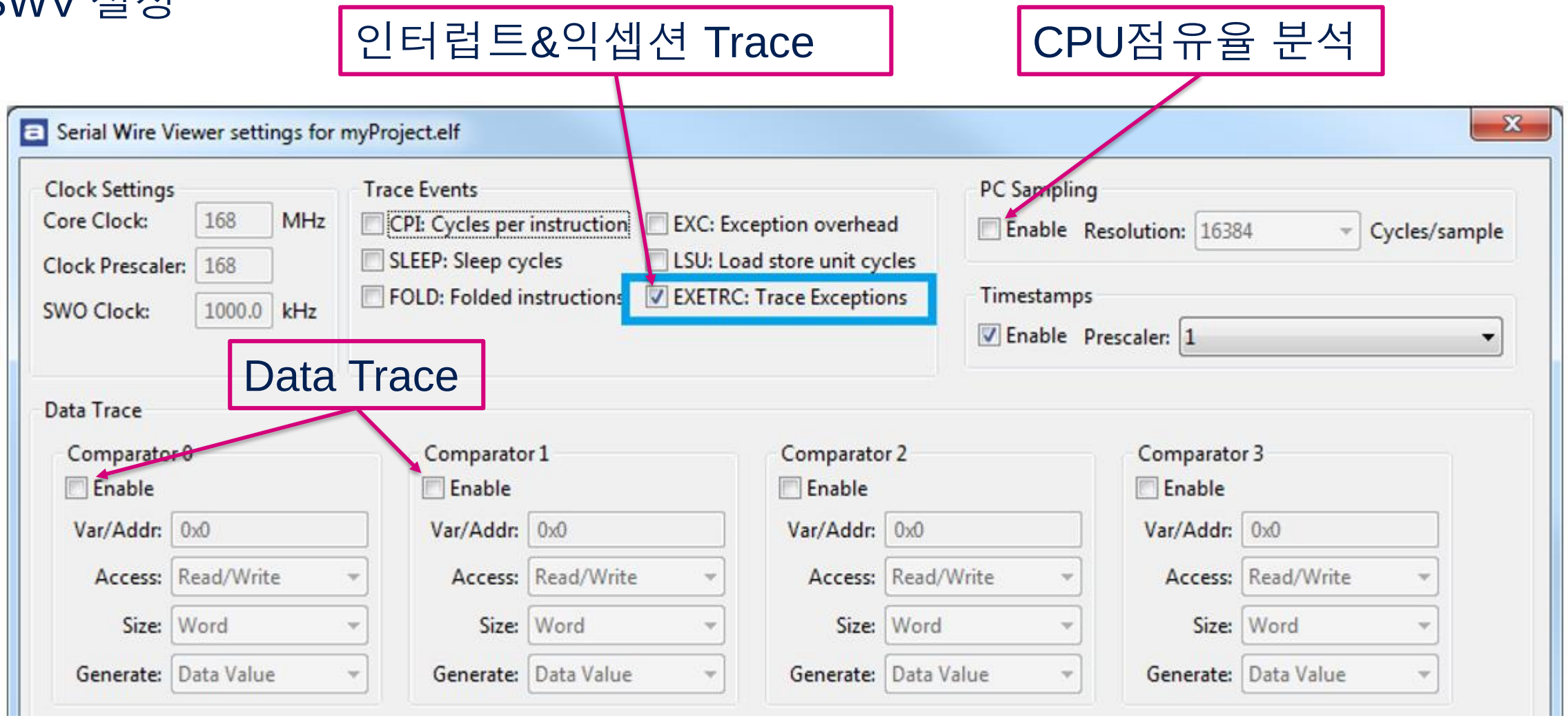
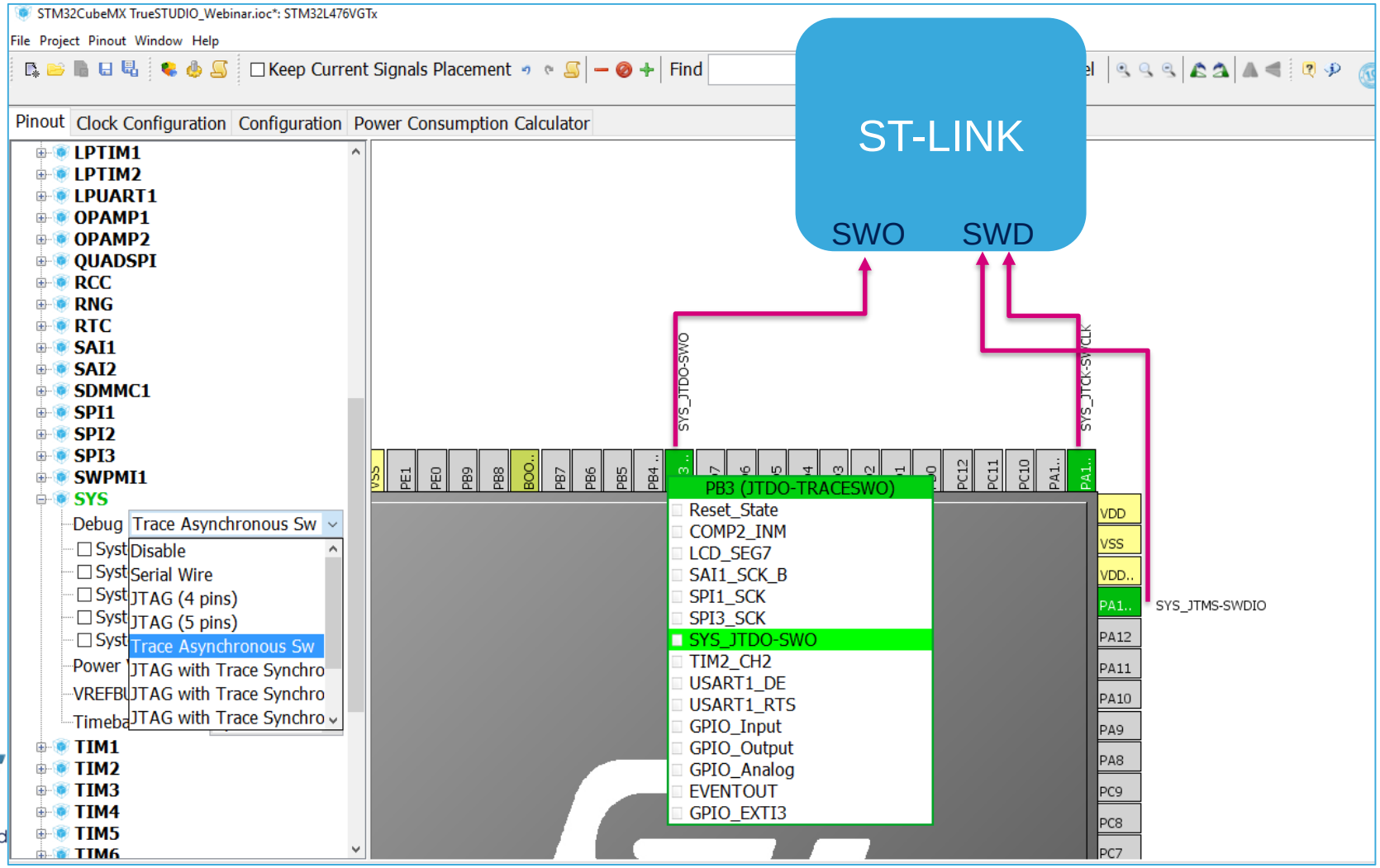
SWV(Serial Wire Viewer)

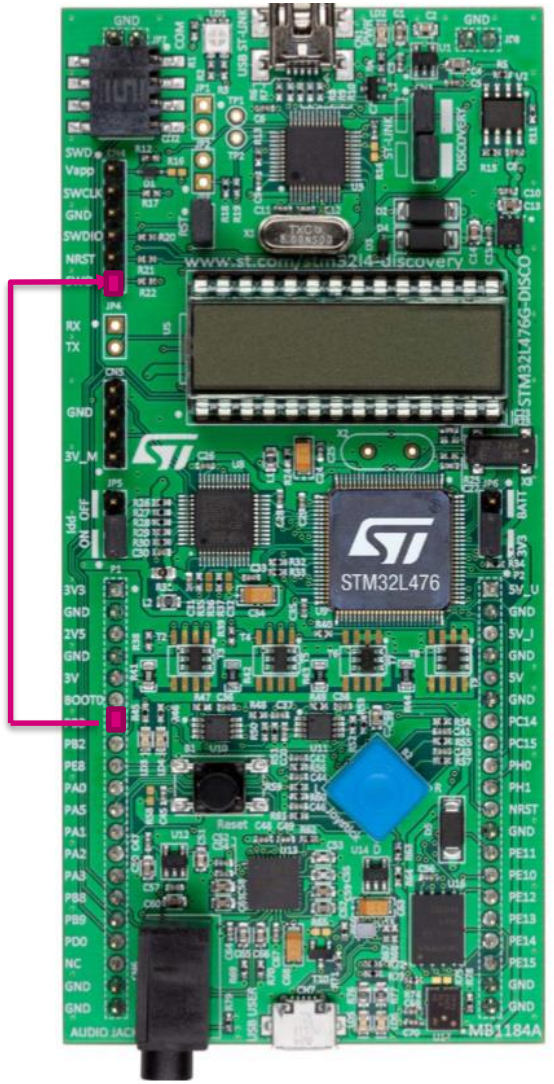
- SWV 설정



SWV(Serial Wire Viewer)

- 하드웨어 연결 (3 wire)





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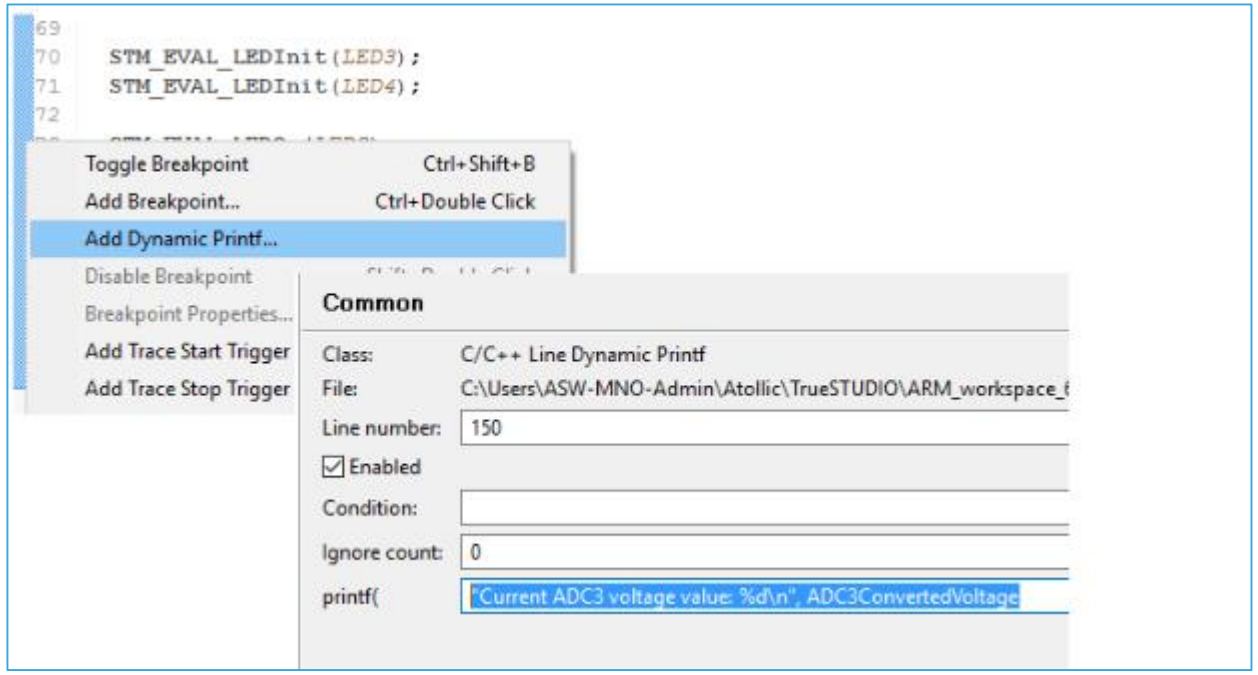
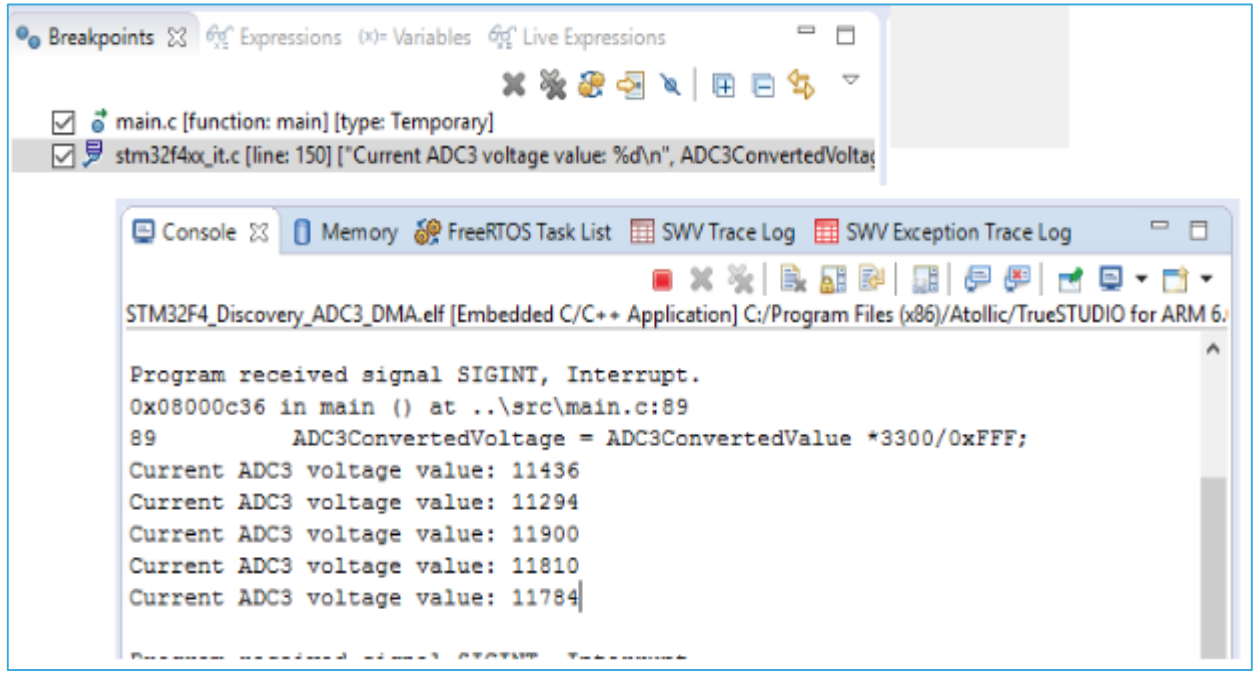
SWV(Serial Wire Viewer)

- Exception & Data Trace 시연
  - Data Trace, CPU usage %

Dynamic printf()

- SWD 인터페이스 활용한 Log 출력 : printf 코드 삽입 / 빌드 불필요
  - Debug 모드에서 원하는 코드라인 왼쪽 가장자리에서 우측클릭 -> Add Dynamic Printf…





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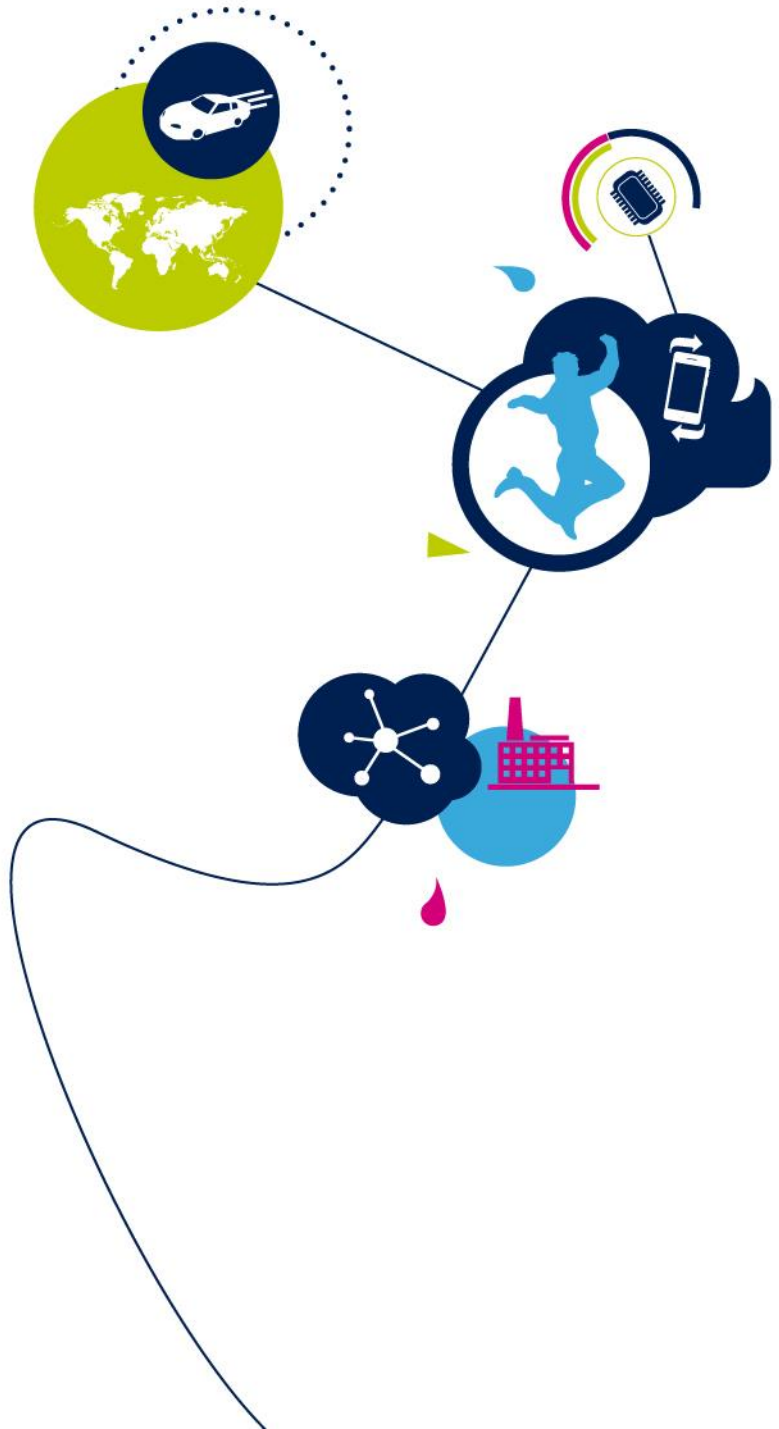
Dynamic printf()

- Dynamic printf 사용 데모영상

IAR 프로젝트 불러오기



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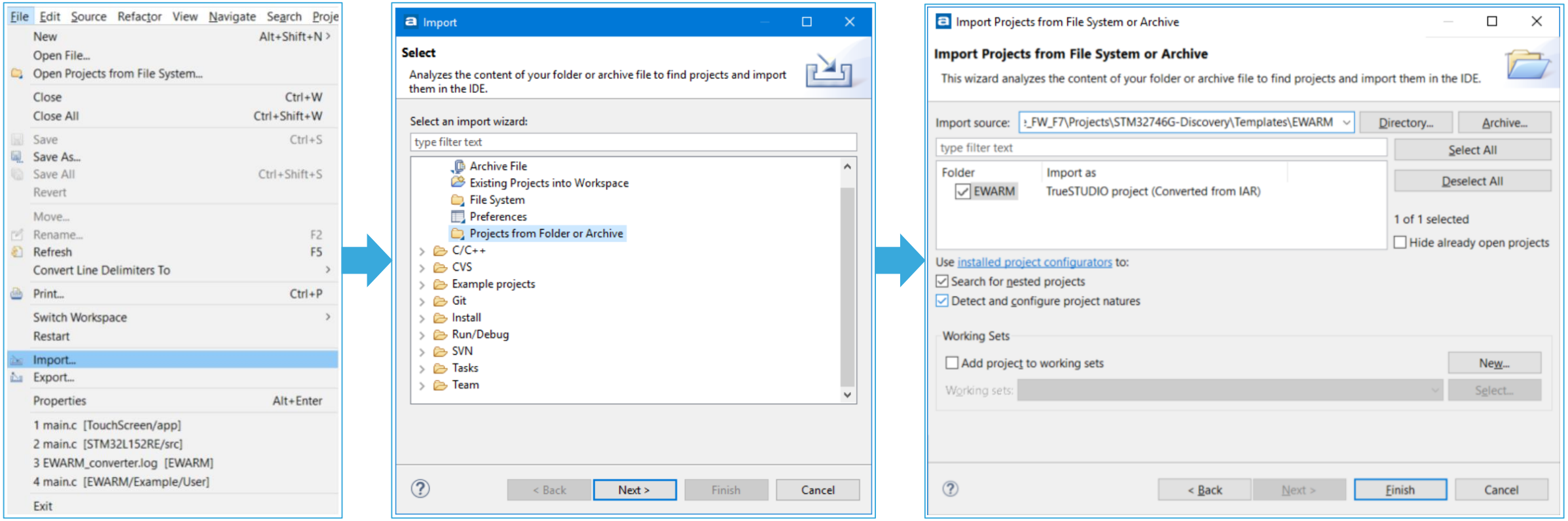
IAR프로젝트 변환하기

- Import : Projects from Folder or Archive
  - 프로젝트 소스구조, 프로젝트 설정(Symbols, Include PATH) 자동으로 반영



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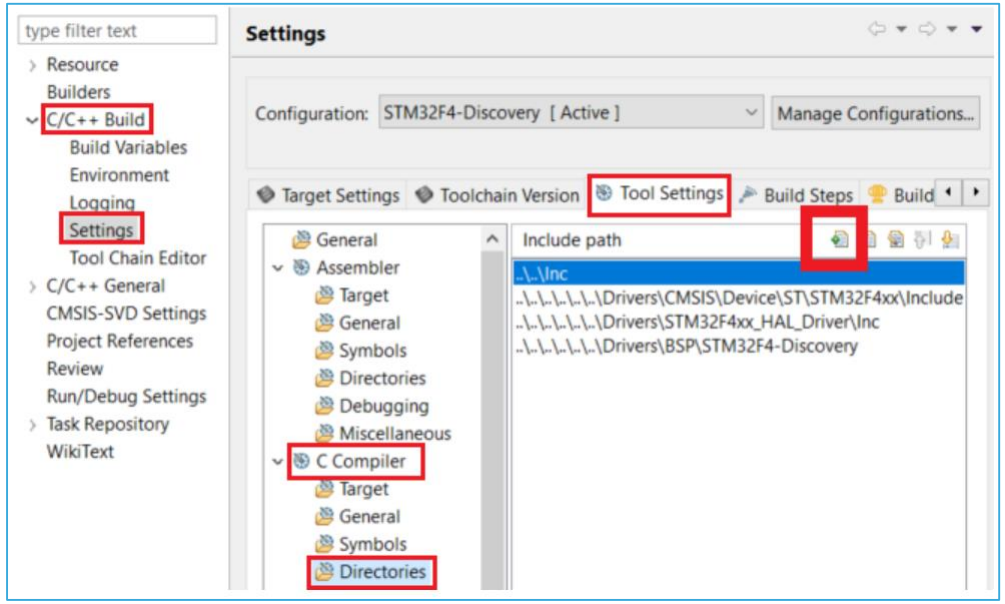
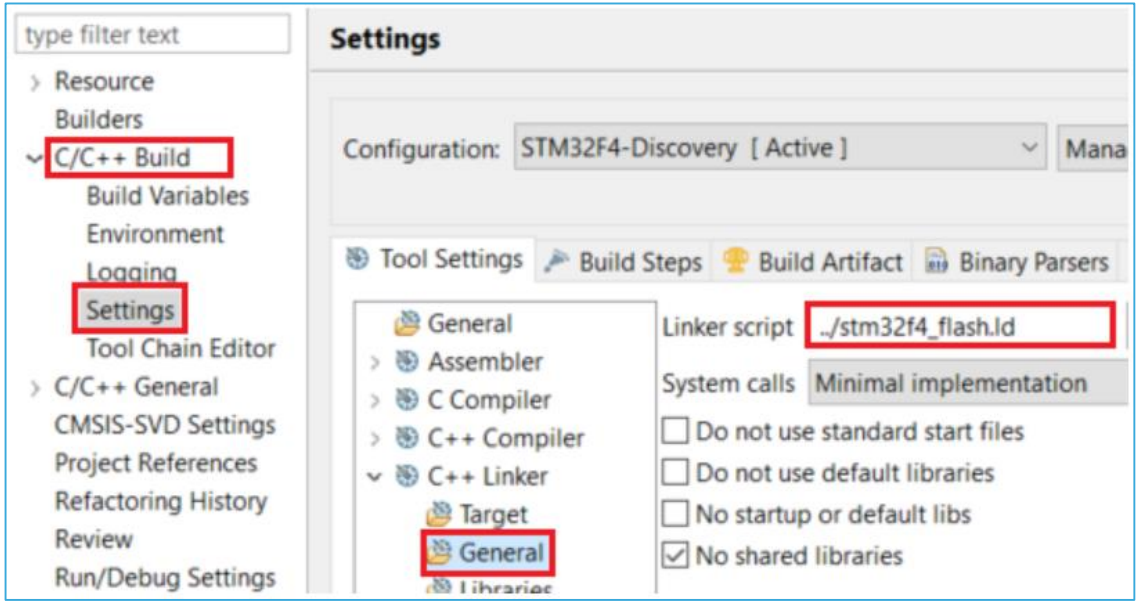
IAR프로젝트 변환하기

- 추가로 필요한 작업
  - CMSIS 소스파일 참조 경로 추가
  - Startup assembler 소스파일 교체
  - TrueSTUDIO용 Linker script 파일 추가



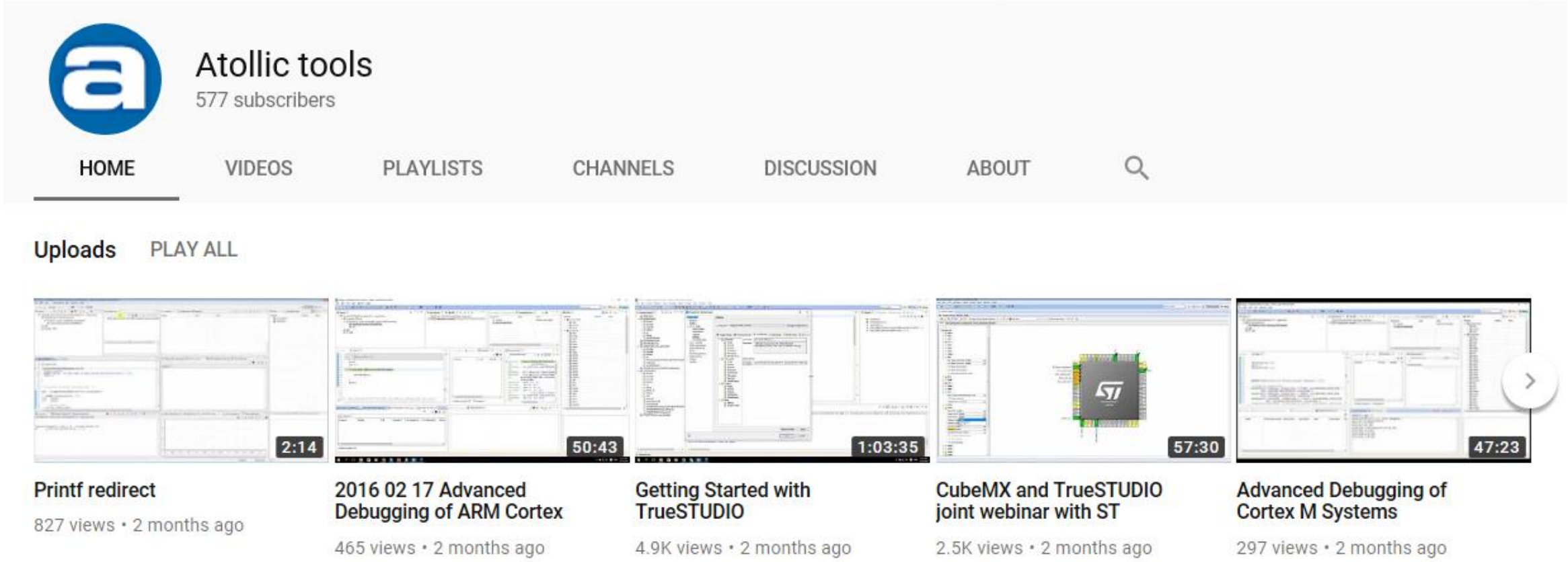


IAR프로젝트 변환하기

- 데모시연

www.youtube.com/user/AtollicTools

- YouTube 채널 : Atollic tools 구독



- TrueSTUDIO의 최신 소식과 유용한 팁 다수

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STM32CubeProgrammer + Atollic TrueSTUDIO for STM32

Posted by Mattias Norlander on Feb 20, 2018 2:29:27 PM

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ST recently released STM32CubeProgrammer, a software tool allowing users to flash STM32 devices through the SWD/JTAG debug interface and via the UAR/USB bootloader interface. STM32CubeProgrammer can be integrated with Atollic TrueSTUDIO. This is *how* and *why*!

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11 Comments Click here to read/write comments

Topics: STM32, STM32Cube, flash load

TrueSTUDIO for STM32 9.0.0 released

Posted by Mattias Norlander on Jan 19, 2018 9:32:35 AM

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We made a promise in December 2017 to release a TrueSTUDIO for STM32 in early 2018.

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posted Jan 19, 2018

TrueSTUDIO Developers using STM32

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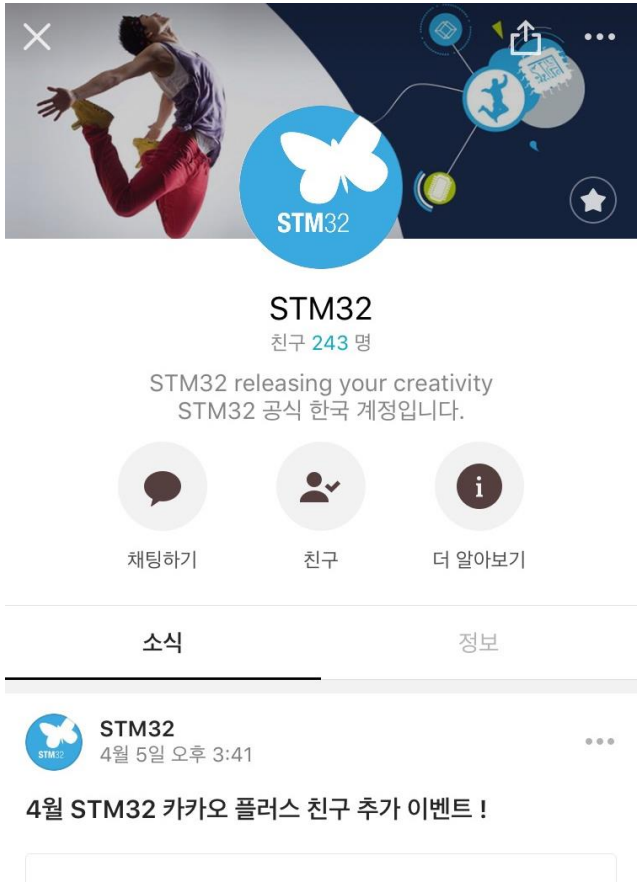
STM32 카카오톡 플러스친구 등록

- STM32와 관련된 최신 소식을 카카오톡으로 편리하게 받아보세요.
  - 검색에서 'STM32' 입력 후 친구등록 또는 QR코드 촬영



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