



IEC Check Library 사용법

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I Versions

Version	Date	Comment	Edited by
1.0	Jan 5, 2017	First Edition	Eun Im

Table 1: Versions

II Distribution

Name	Company, Department	Amount	Remarks

Table 2: Distribution

III Safety Notices

Safety notices in this document are organized as follows:

Safety notice	Description
Danger!	Disregarding the safety regulations and guidelines can be life-threatening.
Warning!	Disregarding the safety regulations and guidelines can result in severe injury or heavy damage to material.
Caution!	Disregarding the safety regulations and guidelines can result in injury or damage to material.
Information:	Important information used to prevent errors.

Table 3: Safety notices

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1 IEC Check Library 란

나누기, 모듈러스 연산자, 범위 위반, 배열 액세스 및 메모리 위치에서 수행되는 읽기 / 쓰기 작업에서 위반사항을 확인하기 위해 사용됩니다.

2 IEC Check Library 테스트

2.1 테스트 환경

- AS 4.2.5.388
- AR J4.25

2.2 테스트 방법

- 1) 프로젝트를 열기 (예시 커피머신)
- 2) 여기서는 테스트를 위해 코딩을 함. (기존 프로젝트 사용시 생략 가능)
 - a. 프로그램 추가
 - b. 변수 선언

```
VAR
  i : INT := 0;
  ArrayTest : ARRAY[0..9] OF INT := [10(0)];
  bArrayTest : BOOL := 0;
  bDivisionZero : BOOL := 0;
  Val1 : REAL := 200;
  Val2 : REAL := 100;
  VarResult : REAL := 0.0;
END_VAR
```

- c. 코딩

```
PROGRAM _CYCLIC
  IF bArrayTest THEN
    FOR i:= 0 TO 11 DO //9 .. 11
      ArrayTest[i] := 20;

    END_FOR;
  END_IF;

  IF bDivisionZero THEN
    VarResult := Var1/Var2;
  END_IF;
END_PROGRAM
```

- d. 빌드, 트랜스퍼

3) 소스 테스트

a. 모니터 모드에서 bArrayTest 를 TRUE 로 변경. RUN 상태.

```
ANSL: tcpip/RT=1000 /DAIP=127.0.0.1 /REPO=11160 /ANSL=1 ARsim J4.25 RUN
```

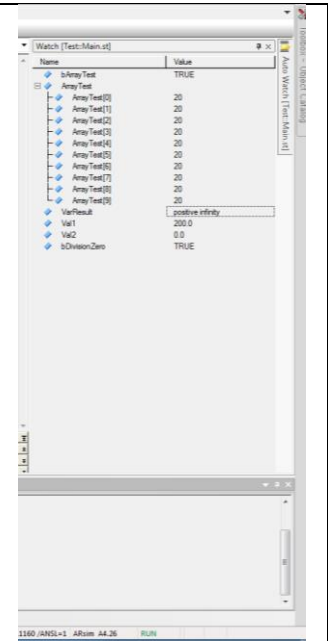
b. bDivisionZero 를 TRUE 로 변경하고 Var2 를 0 으로 변경. 재부팅 후 SERV 로 변경 됨.

```
ANSL: tcpip/RT=1000 /DAIP=127.0.0.1 /REPO=11160 /ANSL=1 ARsim J4.25 SERV
```

Automation Studio 와 Automation Runtime 버전에 따라 0 으로 나뉘었을 시, PLC 상태가 RUN 이고 Positive infinity 라고 출력될 수 있음.

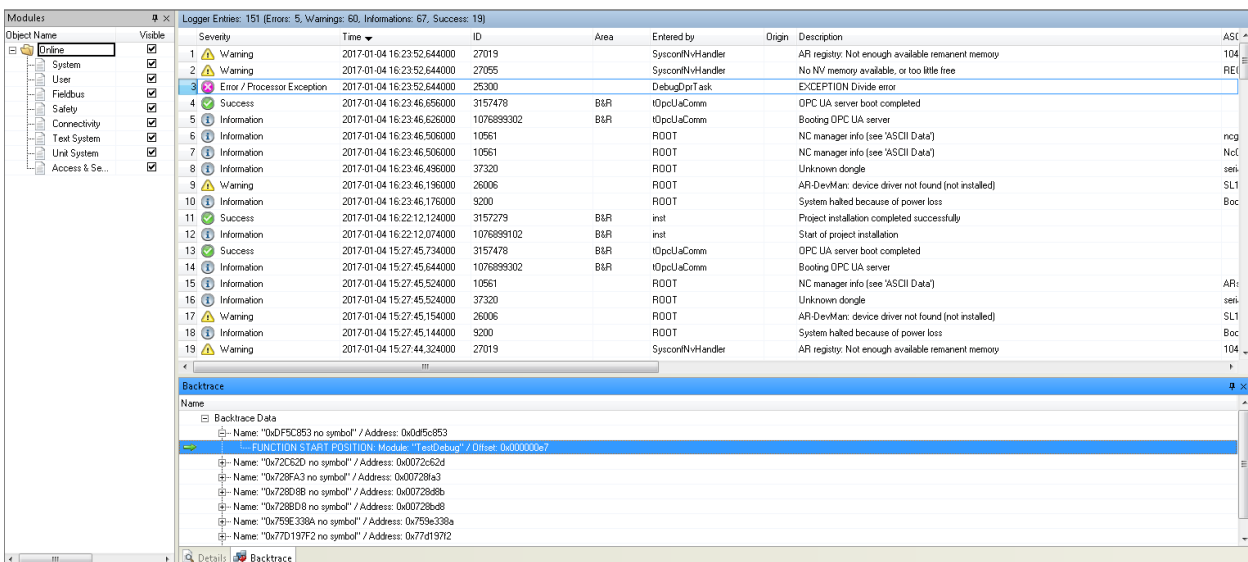
테스트 환경

- AS 4.2.6, AR A4.26



4) 메인에서 Open>Logger(단축키 Ctrl + L)로 로거 열기

a. ERROR ID: 25300



5) 하단에 backtrace 를 선택하고 더블클릭하면 해당 위치로 이동

```

1
2 PROGRAM_INIT
3   (* Insert code here *)
4
5 END_PROGRAM
6
7 PROGRAM_CYCLIC
8   IF bArrayTest THEN
9     FOR i:= 0 TO 11 DO //9 .. 11
10      ArrayTest[i] := 20;
11
12     END_FOR;
13   END_IF;
14
15   IF bDivisionZero THEN
16     VarResult := Var1/Var2;
17   END_IF;
18
19 END_PROGRAM

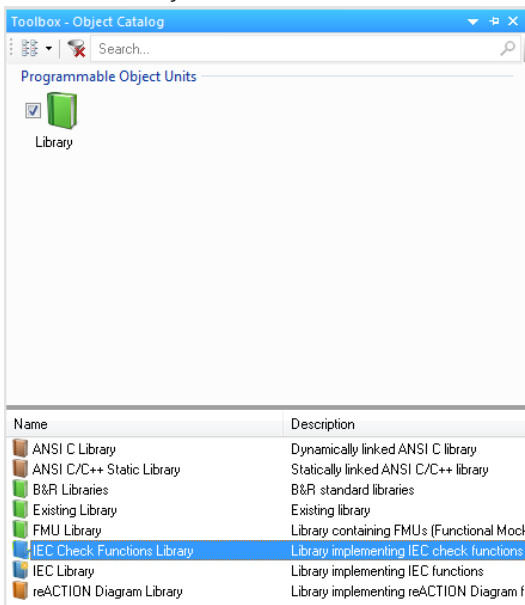
```

6) Warm restart 수행해서 RUN 으로 변경

ANSL: tcpip/RT=1000 /DAIP=127.0.0.1 /REPO=11160 /ANSL=1 ARsim J4.25 RUN

7) 모니터 모드 해제

8) Logical View 에서 Libraries 폴더 선택 후 Tools box 에서 Library > IEC Check Functions Library 를 더블클릭하여 추가



9) (필수)리빌드 / 트랜스퍼

Rebuild configuration 을 수행해야만 IEC check library 가 작동 함.

a. RUN 상태에서 bArrayTest 를 TRUE 로 변경. 재부팅 후 SERV 로 변경 됨.

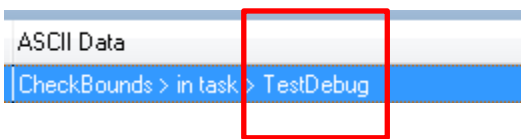
ANSL: tcpip/RT=1000 /DAIP=127.0.0.1 /REPO=11160 /ANSL=1 ARsim J4.25 SERV

- b. RUN 상태에서 bDivisionZero 를 TRUE 로 변경하고 Var2 를 0 으로 변경. 재부팅 후 SERV 로 변경 됨.

```
ANSL: tcpip/RT=1000 /DAIP=127.0.0.1 /REPO=11160 /ANSL=1 ARsim J4.25 SERV
```

10) 로거확인

Object Name	Visible	Severity	Time	ID	Area	Entered by	Origin	Description	ASCII Data
Online	<input checked="" type="checkbox"/>	Warning	2017-01-05 14:52:16.542000	7421		ansISVTopRecv_05F1F0B8		Warning: PLC reset: 'Warm restart via communication	
System	<input checked="" type="checkbox"/>	Information	2017-01-05 14:51:49.812000	10561		ROOT		NC manager info (see 'ASCII Data')	ncglobal_action_ACP10MSG_TEXT not possible
User	<input type="checkbox"/>	Information	2017-01-05 14:51:49.812000	10561		ROOT		NC manager info (see 'ASCII Data')	NoGlobal CPU is in Service Mode
Fieldbus	<input type="checkbox"/>	Information	2017-01-05 14:51:49.792000	37320		ROOT		Unknown dongle	serial number: 128-2442661
Safety	<input type="checkbox"/>	Warning	2017-01-05 14:51:49.442000	26006		ROOT		AR-DevMan: device driver not found (not installed)	SL1.IF1.ETH
Connectivity	<input type="checkbox"/>	Information	2017-01-05 14:51:49.432000	9200		ROOT		System halted because of power loss	Boot/Powerup
Text System	<input type="checkbox"/>	Warning	2017-01-05 14:51:48.469000	27019		SysconNVHandler		AR registry: Not enough available remanent memory	104 Byte > 0 Byte
Unit System	<input type="checkbox"/>	Warning	2017-01-05 14:51:48.469000	27055		SysconNVHandler		No NV memory available, or too little free	REGMEM
Access & Se...	<input type="checkbox"/>	Error	2017-01-05 14:51:48.469000	55665		TC#4			CheckBounds > in task > TestDebug



ASCII Data 에서 오류가 발생한 테스크 이름을 확인 가능.

3 주의사항

- (주의)최종 프로젝트에서 IEC Check Library 는 반드시 지워야 함.
- 반드시 Logical View 에서 삭제할 것.

4 Help

Programming W Libraries W IEC Check Library