

Instructions of SimulyzerLVLib Version 1.0.1

Version-History:

Pos	Version	Author	Date	Changes
1	1.0.0	Hua	15.02.2018	Created
2	1.0.0	Hua	22.02.2018	Change Setup
3	1.0.0	Hua	17.05.2018	Add Table of Simulyzer-VIs and Screenshot of SimpleCall
4	1.0.0	Hua	16.11.2018	Update Simulyzer_64.dll, add Screenshot of FrontPanelSimpleCall
5	1.0.0	Hua	27.05.2019	Table of Simulyzer-VIs, changed GetSimulyzer
6	1.0.0	Hua	09.07.2019	Simulyzer_64.dll, Simulyzer.dll are equal to GUI's 2.6.19
7	1.0.0	Hua	05.12.2019	Simulyzer_64.dll, Simulyzer.dll are equal to GUI's 2.6.21
8	1.0.0	Hua	20.03.2020	Simulyzer_64.dll, Simulyzer.dll are equal to GUI's 2.6.21 FPGA Version: 0241
9	1.0.0	Hua	25.03.2020	Added rawDataFileOut and sensorDataFileOut of loadConfiguration.vi
10	1.0.0	Hua	08.05.2020	Simulyzer_64.dll, Simulyzer.dll are equal to PSI5_GUI's 2.6.21 with FPGA_Version 0241 and DSI_GUI's 1.8.2 with FPGA_Version 0421. Added ReleaseSimulyzer.vi
11	1.0.1	Perkins	02.08.2021	some design changes and typos removed

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1 General Information

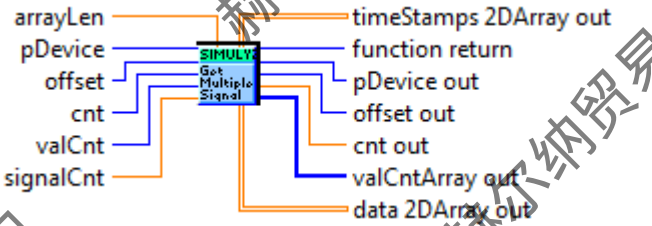
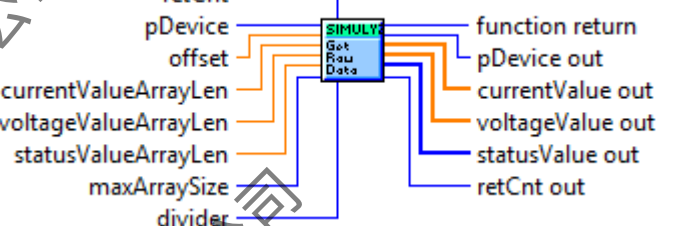
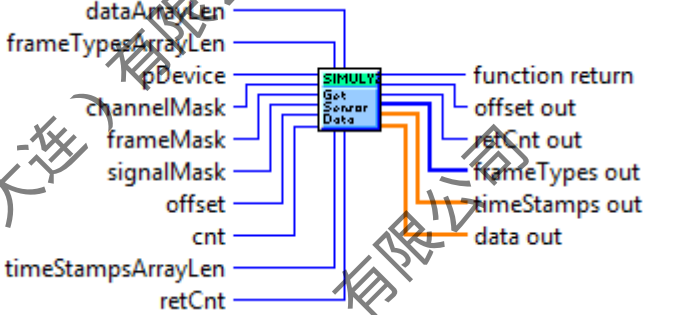
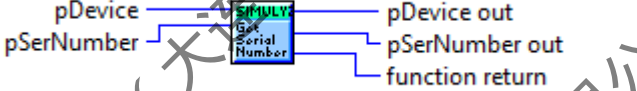
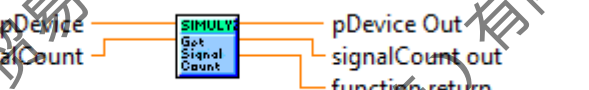
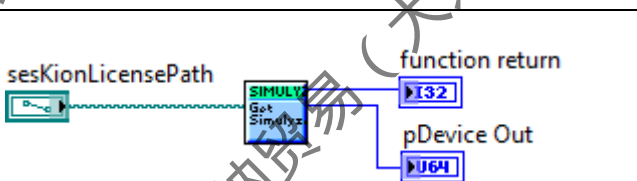
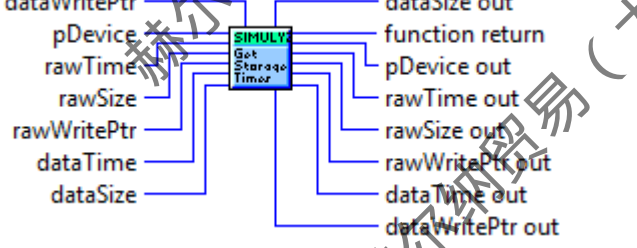
Folder consists of Simulyzer.dll, Simulyzer_64.dll and following sub folders:

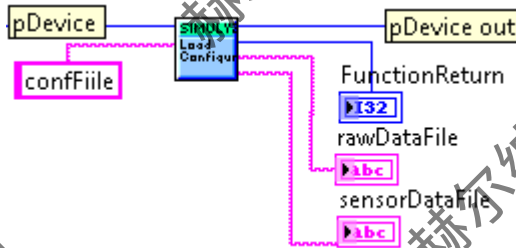
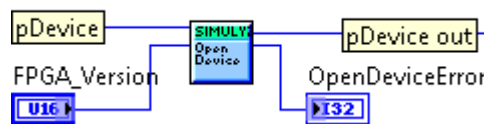
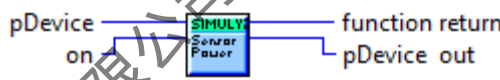
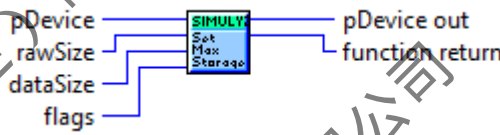
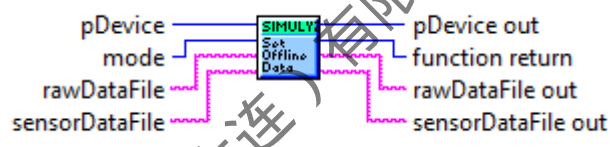
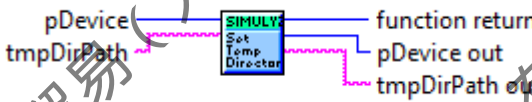
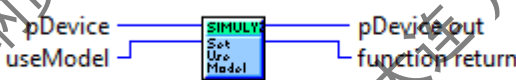
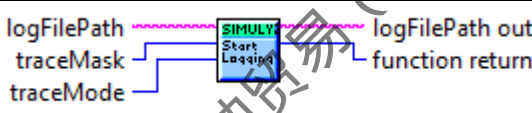
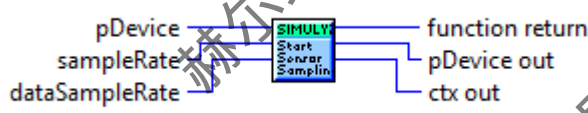
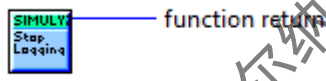
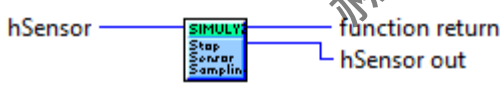
1.1 Simulyzer-VIs consisting of 28 Vis.

(Note: PDevice is equal to pDev, hSimulyzer and hSimu)

Simulyzer-VIs Table:

Index	Name	Input	Output
1	CheckSimulyzerLicenseFile.vi	pDevice	 function return pDevice
2	destroySystem.vi		 function return
3	exportCSV.vi	configFile pDev simulyzerType exportFile startTime endTime swVersion description	 function return pDev out
4	exportTDMS.vi	configFile pDev simulyzerType exportFile startTime endTime swVersion description	 function return pDev out
5	getDeviceCount.vi	pCount	 pCount out function return
6	getFirmwareVersion.vi	hSensor pFWVersion	 hSensor out pFWVersion out function return
7	getInterfaceError.vi	pDevice	 functionReturn pDevice pError
8	getLicense.vi	pDevice pLicense	 pDevice out pLicense out function return

9	getMultipleSignalData.vi	 arrayLen, pDevice, offset, cnt, valCnt, signalCnt, timeStamps 2DArray out, function return, pDevice out, offset out, cnt out, valCntArray out, data 2DArray out
10	getRawData.vi	 retCnt, pDevice, offset, currentValueArrayLen, voltageValueArrayLen, statusValueArrayLen, maxArraySize, divider, function return, pDevice out, currentValue out, voltageValue out, statusValue out, retCnt out
11	getSensorData.vi	 dataArrayLen, frameTypesArrayLen, pDevice, channelMask, frameMask, signalMask, offset, cnt, timeStampsArrayLen, retCnt, function return, offset out, retCnt out, frameTypes out, timeStamps out, data out
12	getSerialNumber.vi	 pDevice, pSerNumber, pDevice out, pSerNumber out, function return
13	getSignalCount.vi	 pDevice, signalCount, pDevice Out, signalCount out, function return
14	getSimulyzer.vi	 sesKionLicensePath, function return, pDevice Out
15	getStorageTimes.vi	 dataWritePtr, pDevice, rawTime, rawSize, rawWritePtr, dataTime, dataSize, dataSize out, function return, pDevice out, rawTime out, rawSize out, rawWritePtr out, dataTime out, dataWritePtr out

16	loadConfiguration.vi	
17	openDevice.vi	
18	sensorPower.vi	
19	setMaxStorageValues.vi	
20	setOfflineData.vi	
21	setTempDirectoryPath.vi	
22	setUseModel.vi(no active)	
23	startLogging.vi	
24	startSensorSampling.vi	
25	stopLogging.vi	
26	stopSensorSampling.vi	

27	storeData.vi	
28	releasDevice.vi (Please do not use in the future.)	
29	releasSimulyzer.vi	

1.2 Example consisting of two examples

simpleCall.vi with FPGA-Version 0241(Screenshot) and simpleCall_DSI.vi with FPGA-Version 0421

Front Panel:

**Please input following data during the test --->
configFile: seskionLicense.xml; LoggingFile.**

PSI5_Simulyzer Box --> (fwVersion = 109; fpgaVersion = 241)
DSI_Simulyzer Box --> (fwVersion = 109; fpgaVersion = 421)

Please input tempPath for example: C:\PSI5_TEMP

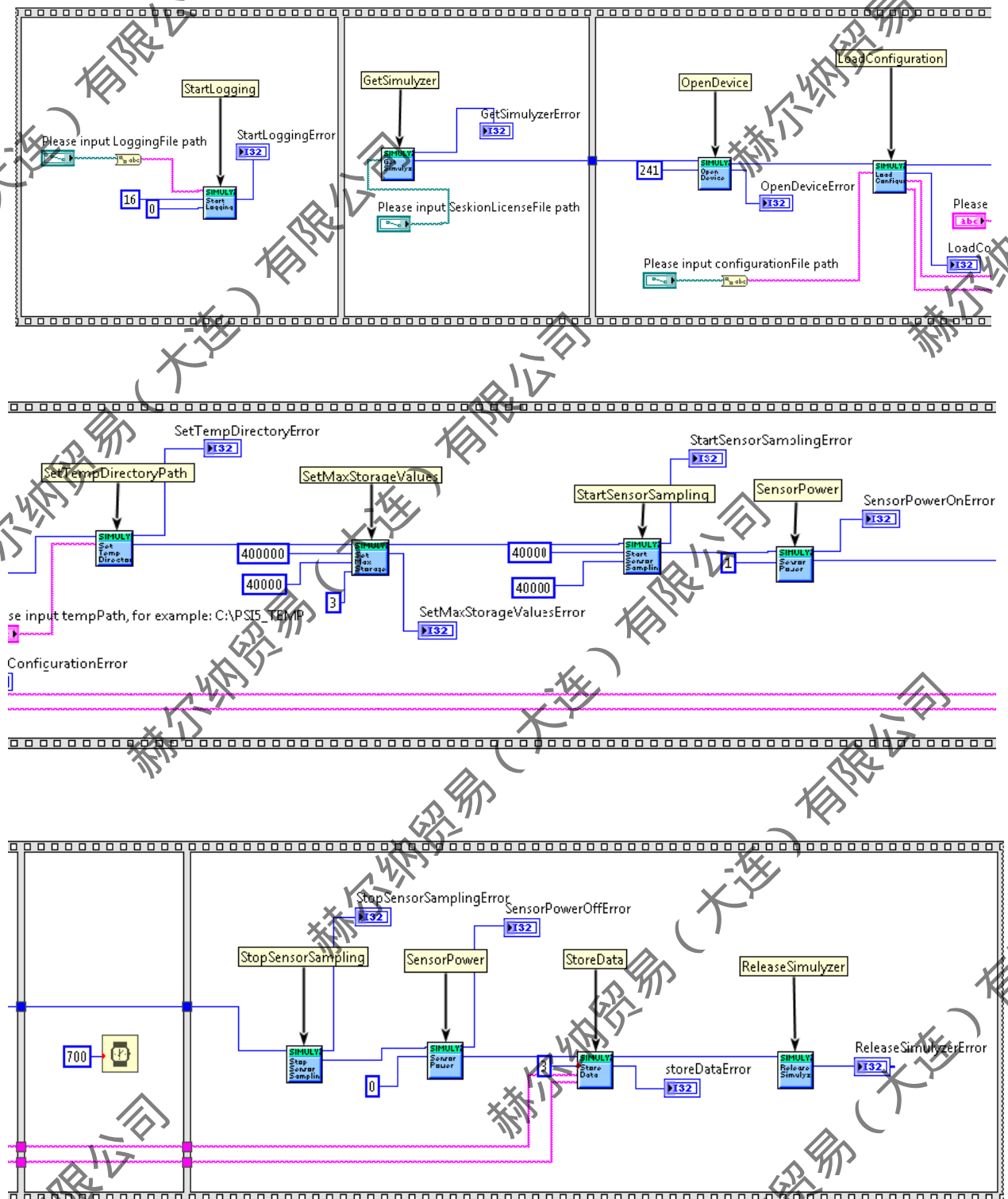
Please input LoggingFile path

Please input configurationFile path

Please input SeskionLicenseFile path

StartLoggingError	GetSimulyzerError	OpenDeviceError	LoadConfigurationError	SetTempDirectoryError
0	0	0	0	0
StartSensorSamplingError	SensorPowerOnError			SetMaxStorageValuesError
0	0			0
StopSensorSamplingError	SensorPowerOffError	storeDataError	ReleaseSimulyzerError	
0	0	0	0	

Block Diagram:



2 Using the Simulyzer-VIs

2.1 Recommend:

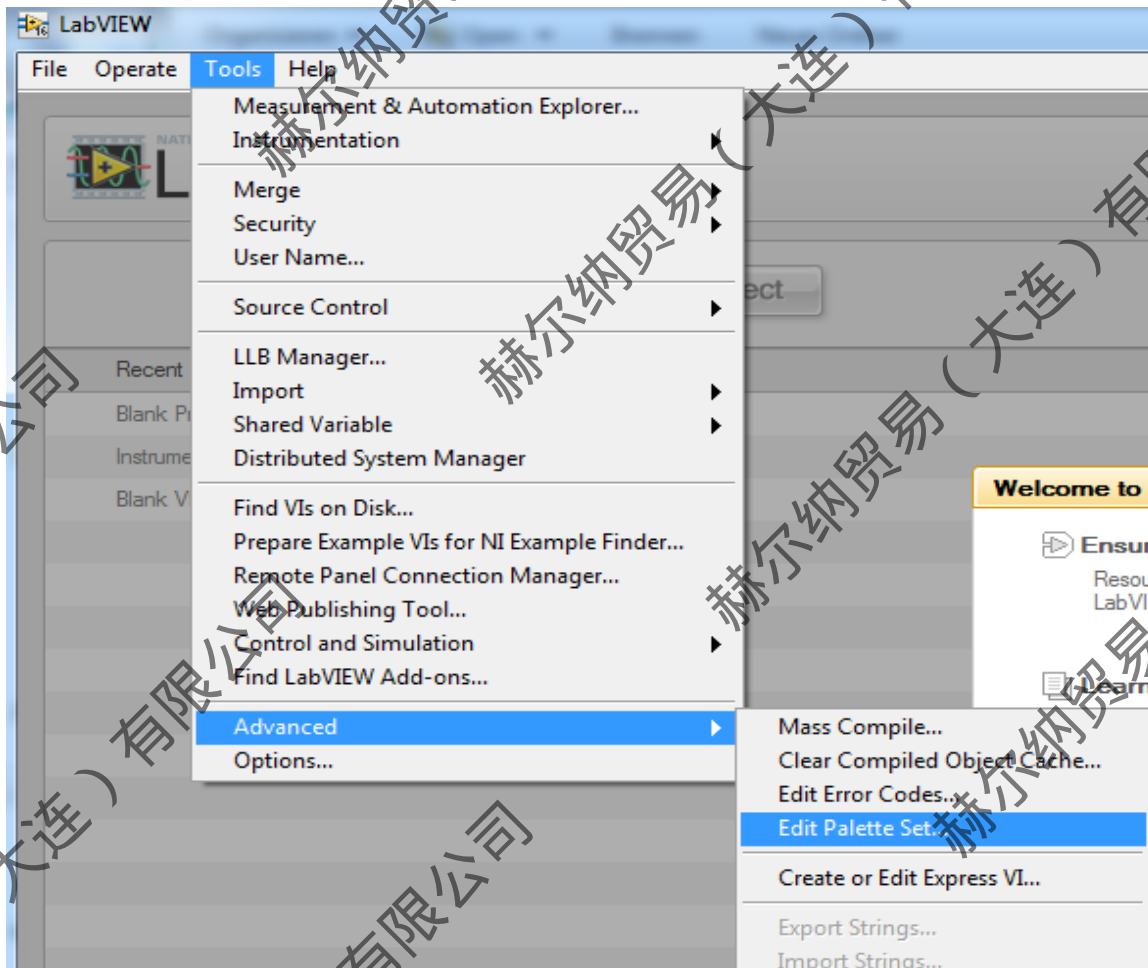
1. Create a sub palette in LabView functions palette with name, example SesKionSimulyzer.
2. Add VIs to SesKionSimulyzer and save.

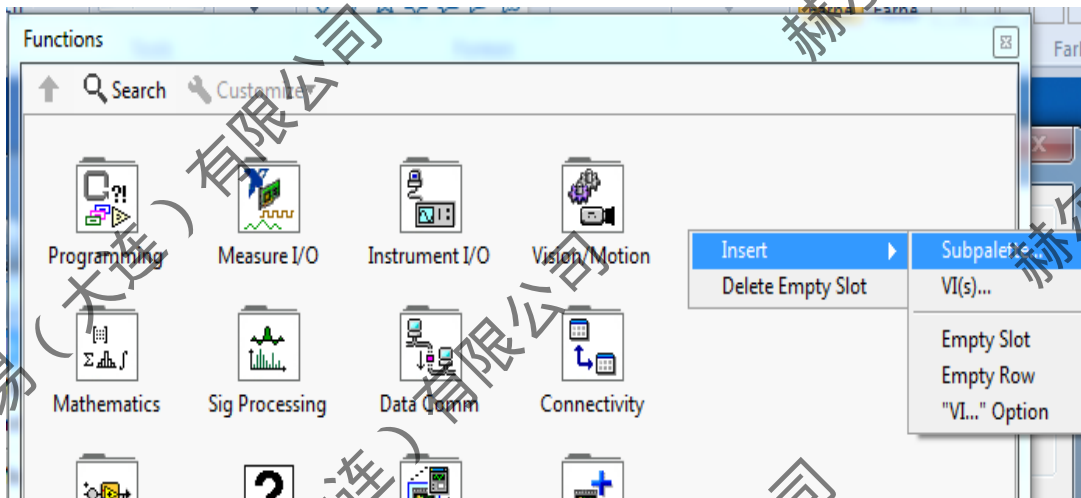
2.2 Note:

1. PDevice is equal to pDev , hSimulyzer and hSimu
2. When SetTempDirectoryPath.vi is called, the folder, for example PSI5_TEMP must exist.
3. **PSI5_FPGA_IMAGE_VERSION 0x0241; PSI5_MICO_APPLICATION_TYPE 0x0002; PSI5_MICO_APPLICATION_VERSION 0x012D**
4. **DSI_FPGA_IMAGE_VERSION 0x0421; DSI_MICO_APPLICATION_TYPE 0x0004; DSI_MICO_APPLICATION_VERSION 0x012D**

2.3 Appendix:

Create a Subpalette: Open LabView





3 Vi call return value Definitions

```
#define SIMULYZER_ERROR_SUCCESS
    (0)    //!< call was successful

#define SIMULYZER_ERROR_DEVICE_NOT_OPEN
    (-1)   //!< call to a device which was not successful opened

#define SIMULYZER_ERROR_CALIBRATION_ACTIVE
    (-2)   //!< call to a device function when calibrating is active

#define SIMULYZER_ERROR_TEMP_PATH_NOT_SET
    (-3)   //!< call to a device without setting a valid temp directory

#define SIMULYZER_ERROR_UNABLE_TO_START_THREADS
    (-4)   //!< start sampling could not start all threads

#define SIMULYZER_ERROR_RAW_STORAGE
    (-5)   //!< unexpected error occurred when storing raw (analog) data

#define SIMULYZER_ERROR_DATA_STORAGE
    (-6)   //!< unexpected error occurred when storing sensor data

#define SIMULYZER_ERROR_RECEIVER
    (-7)   //!< unexpected error occurred when receiving data

#define SIMULYZER_ERROR_TRANSMITTER
    (-8)   //!< unexpected error occurred when transmitting data

#define SIMULYZER_ERROR_UNABLE_TO_STOP_THREADS
    (-9)   //!< stop sampling could not stop all threads

#define SIMULYZER_ERROR_NO_DEVICE
```

```
(-10) //!< no device to connect to
#define SIMULYZER_ERROR_FILE_NOT_FOUND
(-11) //!< file not found
#define SIMULYZER_ERROR_TRIGGER_STORAGE
(-12) //!< unexpected error occurred when storing trigger data
#define SIMULYZER_ERROR_UNSUPPORTED_FUNCTION
(-13) //!< active device does not support this function
#define SIMULYZER_ERROR_INVALID_STOP_CALL
(-14) //!< call to StopSampling without previous call to StartSampling
#define SIMULYZER_ERROR_INVALID_START_CALL
(-15) //!< recursive call to StartSampling
#define SIMULYZER_ERROR_SYSTEMCONFIGINVALID
(-16) //!< system configuration file is invalid or one of the requested devices could not be opened
#define SIMULYZER_FLASH_PROGRAMMING_ERROR
(-17) //!< error during flash update
#define SIMULYZER_ERROR_EMBEDDED_CONF_TIMEOUT
(-18) //!< embedded controller config timeout
#define SIMULYZER_ERROR_UNKNOWN_EXCEPTION
(-9999) //!< an unknown exception occurred when processing the API call
```