

## 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

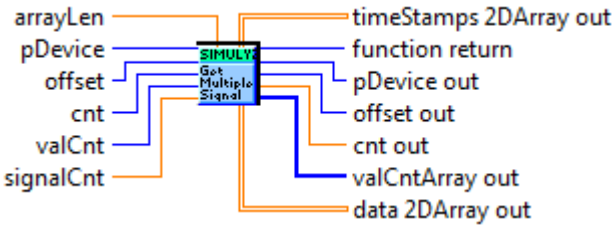
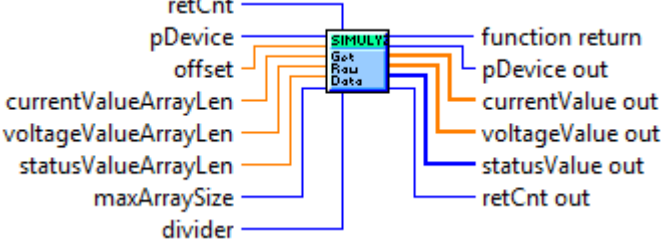
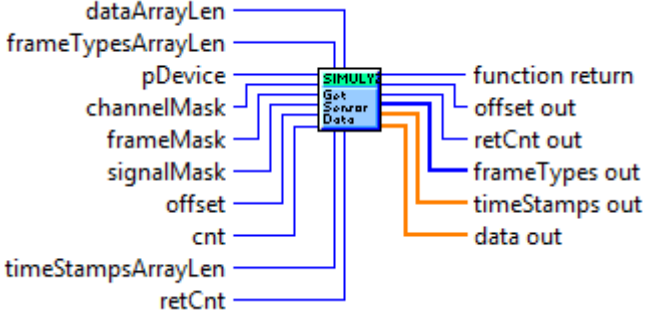
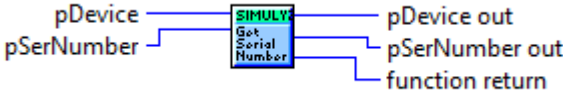
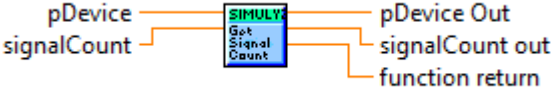
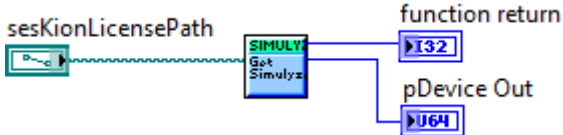
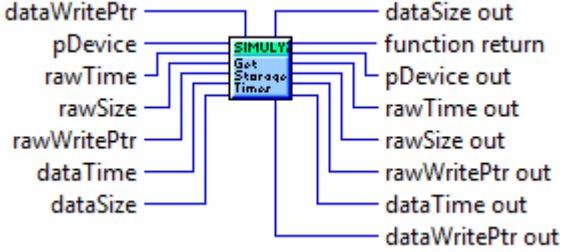
Folder consists of Simulyzer.dll, Simulyzer\_64.dll and following sub folders:

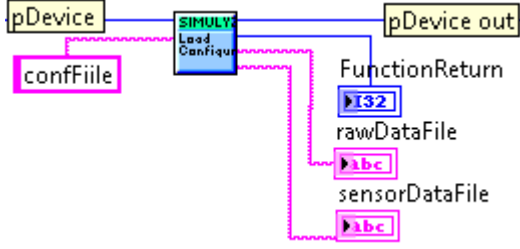
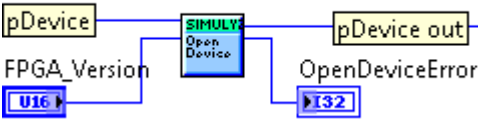
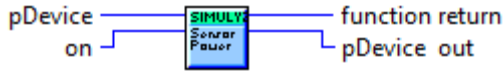
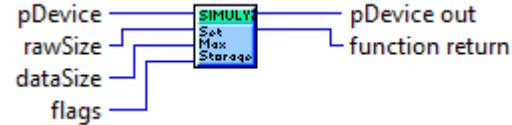
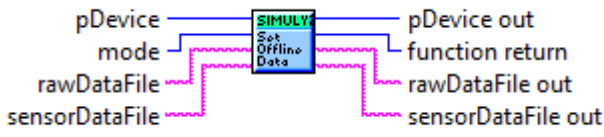
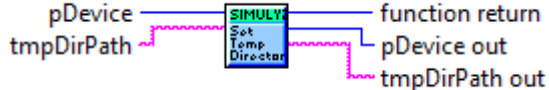
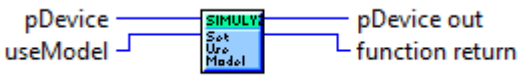
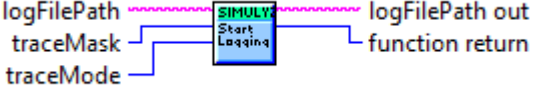
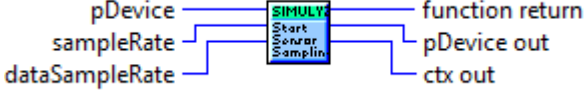
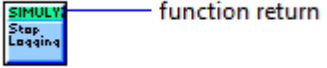
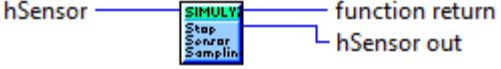
### 1.1 Simulyzer-VIs consisting of 28 Vis.

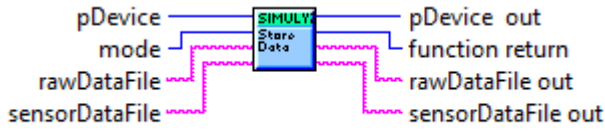
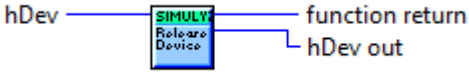

(Note: PDevice is equal to pDev , hSimulyzer and hSimu)

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	
10	getRawData.vi	
11	getSensorData.vi	
12	getSerialNumber.vi	
13	getSignalCount.vi	
14	getSimulyzer.vi	
15	getStorageTimes.vi	

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**

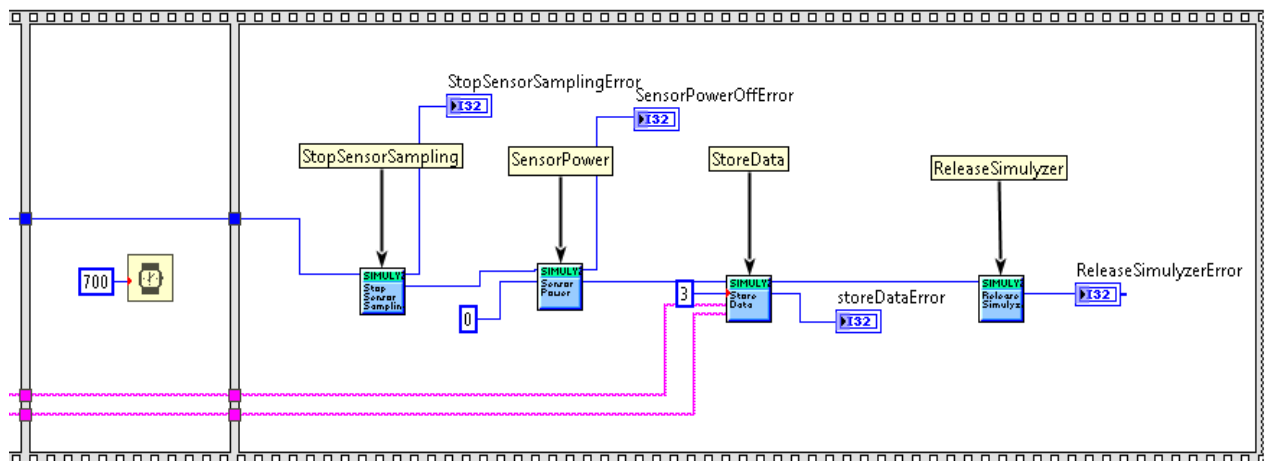
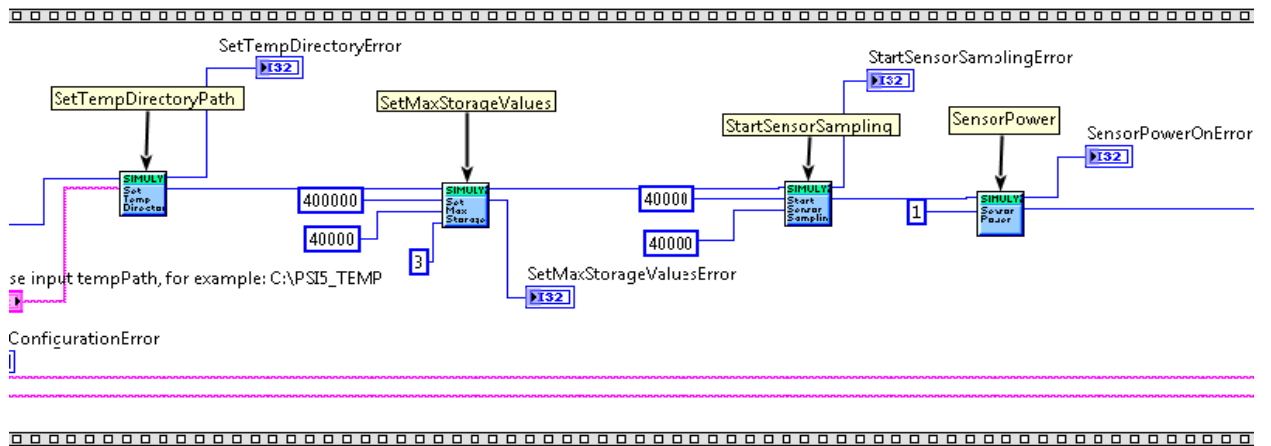
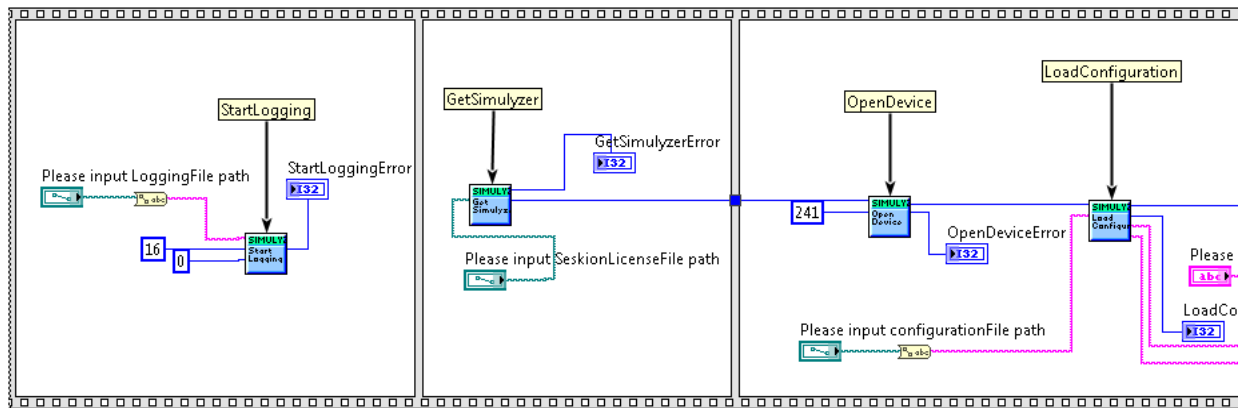
**Please input LoggingFile path**

**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:

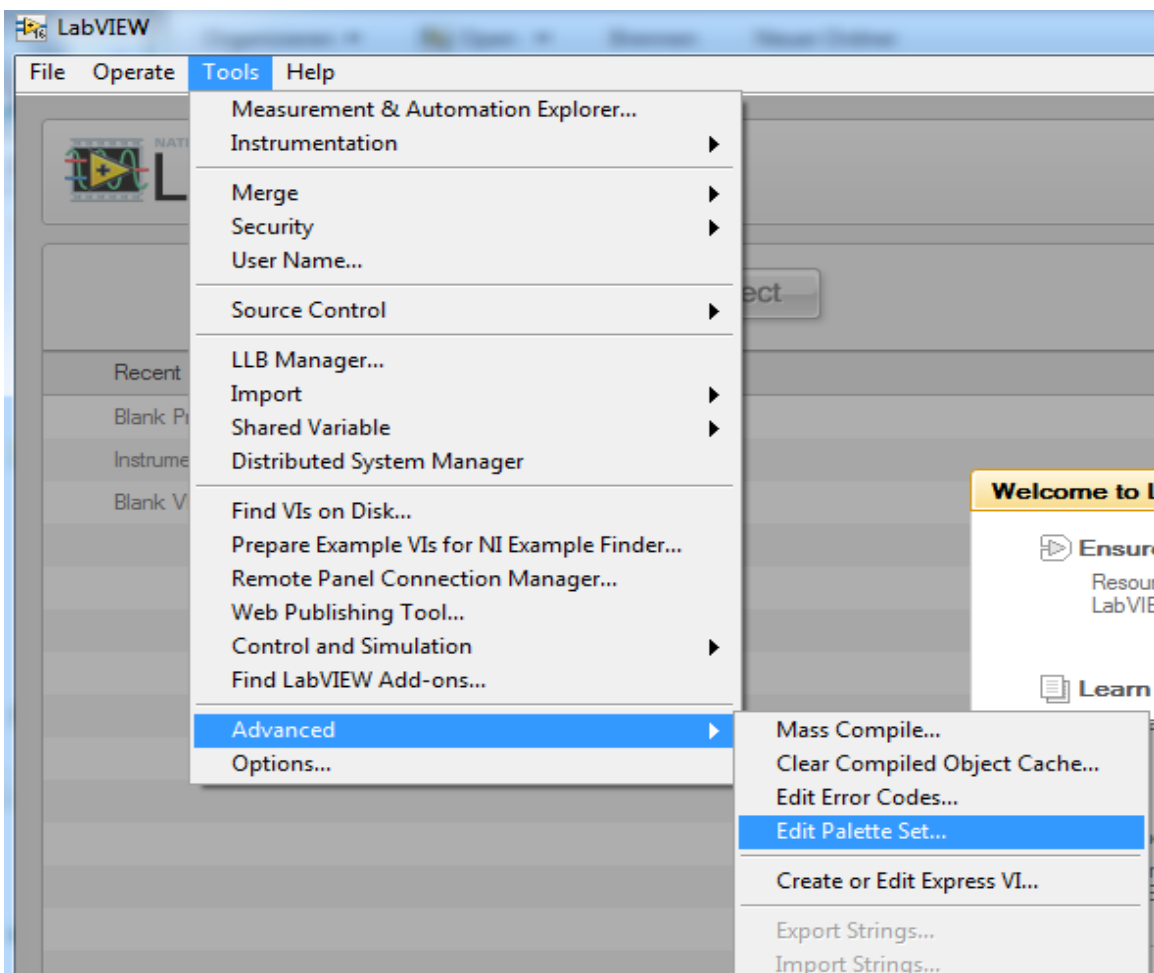
1. Create a sub palette in LabView functions palette with name, example SesKionSimulyzer.
2. Add VIs to SesKionSimulyzer and save.

### 2.2 Note:

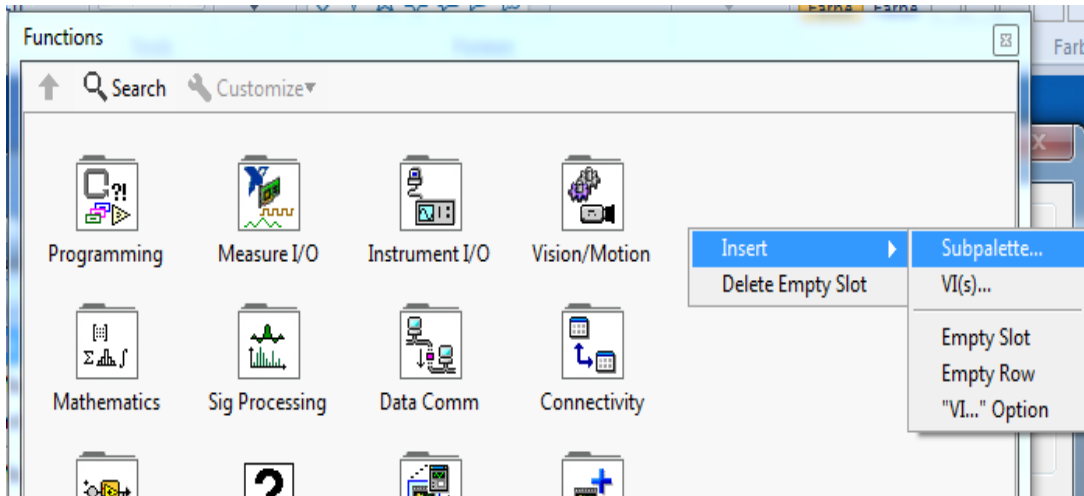
1. PDevice is equal to pDev , hSimulyzer and hSimu
2. When SetTempDirectoryPath.vi is called, the folder, for example PSI5\_TEMP must exist.
3. **PSI5\_FPGA\_IMAGE\_VERSION 0x0241; PSI5\_MICO\_APPLICATION\_TYPE 0x0002; PSI5\_MICO\_APPLICATION\_VERSION 0x012D**
4. **DSI\_FPGA\_IMAGE\_VERSION 0x0421; DSI\_MICO\_APPLICATION\_TYPE 0x0004; DSI\_MICO\_APPLICATION\_VERSION 0x0120**

### 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
```