NI-RFSG LabVIEW API Reference

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Contents

NI-RFSG VI Reference

This help file contains technical and programming support for using the NI-RFSG LabVIEW API. This help file provides reference material for the NI-RFSG VIs.

Use the NI-RFSG VIs to program RF signal generators using the NI-RFSG instrument driver.

Palette Object	Description
niRFSG Initialize	Opens a session to the device you specify as the **resource name** and returns an **instrument handle** that you use to identify the NI-RFSG device in all subsequent NI-RFSG VIs. **Supported Devices**: PXI-5610, PXIe-5611, PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842
niRFSG Configure RF	Configures the frequency and power level of the RF output signal. The PXI-5670/5671 and PXIe-5672 device must be in the Configuration state before you call this VI. The PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5654/5654 with PXIe-5696, PXIe-5673/5673E, and PXIe-5830/5831/5832/5840/5841/5842 device can be in the Configuration state or Generation state when you call this VI. **Supported Devices**: PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5830/5831/5832/5840/5841/5842
niRFSG Initiate	Initiates signal generation, causing the NI-RFSG device to leave the Configuration state or Committed state and enter the Generation state. If settings have not been committed to the device bef

	ore you use this VI, they are committed by this V I. The operation returns when the RF output sig nal settles. To return to the Configuration state, use the niRFSG Abort VI. **Supported Devices**: PXIe-5611, PXIe-5644/564 5/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/56 54/5654 with PXIe-5696, PXI-5670/5671, PXIe-56 72/5673/5673E, PXIe-5820/5830/5831/5832/584 0/5841/5842
niRFSG Check Generation Status	Checks the status of the generation. Use this VI t o check for any errors that may occur during sig nal generation or to check whether the device h as finished generating. **Supported Devices**: PXIe-5611, PXIe-5644/564 5/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/56 54/5654 with PXIe-5696, PXI-5670/5671, PXIe-56 72/5673/5673E, PXIe-5820/5830/5831/5832/584 0/5841/5842
niRFSG Close	Aborts any signal generation in progress and de stroys the instrument driver session. **Supported Devices**: PXI-5610, PXIe-5611, PXIe -5644/5645/5646, PXI/PXIe-5650/5651/5652, PXI e-5653/5654/5654 with PXIe-5696, PXI-5670/567 1, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/ 5832/5840/5841/5842
niRFSG Property Node	Gets (reads), sets (writes), or resets (sets to defa ult value) NI-RFSG properties. When you read a property, NI-RFSG analyzes the current configur ation in order to return the coerced value for tha t property. NI-RFSG verifies many properties up on reading, thereby either transitioning the sess ion to the verified state or alerting you of an inv alid configuration. Setting or resetting a propert y transitions the session to an unverified state.
niRFSG Abort	Stops signal generation.

	Supported Devices: PXI-5610, PXIe-5611, PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

Subpalette	Description
Generation Configuration	Use the Configuration VIs to configure the signal generation.
Utility	Use the utility VIs to access additional features of the NI-RFSG instrument driver.
Calibration	Use the Calibration VIs to calibrate your device. Refer to the calibration procedure for your device for more information about device calibration.

niRFSG Initialize VI

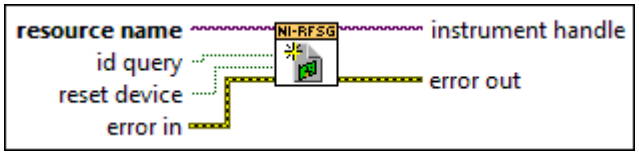
Opens a session to the device you specify as the **resource name** and returns an **instrument handle** that you use to identify the NI-RFSG device in all subsequent NI-RFSG VIs.

Supported Devices: PXI-5610, PXIe-5611, PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

Related Topics

NI-RFSG Instrument Driver Programming Flow

Examples



I/O	**resource name** specifies the resource name of the device to initialize.

id query specifies whether NI-RFSG performs an ID query. Set this parameter to TRUE to perform an ID query. Set this parameter to FALSE to not perform an ID query.

reset device specifies whether you want to reset the NI-RFSG device during the initialization procedure. Set this parameter to TRUE to reset the device. Set this parameter to FALSE to not reset the device.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle passes a reference to your instrument session to the next VI. **instrument handle** is obtained from this VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

Examples

Refer to the following VIs for examples of using the niRFSG Initialize VI.

- RFSG Getting Started Single Tone Generation VI: `labview\examples\instr\niRFSG`
- RFSG Arbitrary Waveform Generation (Arb) VI: `labview\examples\instr\niRFSG`
- RFSG Getting Started Script (Script) VI: `labview\examples\instr\niRFSG`

niRFSG Configure RF VI

Configures the frequency and power level of the RF output signal. The PXI-5670/5671 and PXIe-5672 device must be in the Configuration state before you

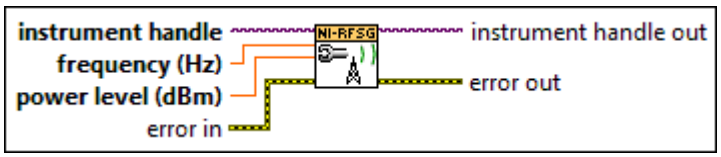
call this VI. The PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5654/5654 with PXIe-5696, PXIe-5673/5673E, and PXIe-5830/5831/5832/5840/5841/5842 device can be in the Configuration state or Generation state when you call this VI.

Supported Devices: PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5830/5831/5832/5840/5841/5842

Related Topics

NI-RFSG Instrument Driver Programming Flow

Examples



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

frequency specifies the frequency of the generated RF signal. For arbitrary waveform generation, **frequency** specifies the center frequency of the signal. This value is expressed in hertz.

power level specifies the power level of the generated RF signal. By default, this parameter specifies the average power of the signal. To configure the power level of a waveform with varying power, set the Power Level Type property to Peak Power. This value is expressed in dBm.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

Examples

Refer to the following VIs for examples of using the niRFSG Configure RF VI.

- RFSG Getting Started Single Tone Generation VI: `labview\examples\instr\niRFSG`
- RFSG Frequency Sweep VI: `labview\examples\instr\niRFSG`
- RFSG Configuration List Frequency and Power Sweep VI: `labview\examples\instr\niRFSG`

niRFSG Initiate VI

Initiates signal generation, causing the NI-RFSG device to leave the Configuration state or Committed state and enter the Generation state. If settings have not been committed to the device before you use this VI, they are committed by this VI. The operation returns when the RF output signal settles. To return to the Configuration state, use the niRFSG Abort VI.

Supported Devices: PXIe-5611, PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

Related Topics

NI-RFSG Instrument Driver Programming Flow

Examples

instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

Examples

Refer to the following VIs for examples of using the niRFSG Initiate VI.

- RFSG Getting Started Single Tone Generation VI: `labview\examples\instr\niRFSG`
- RFSG Arbitrary Waveform Generation (Arb) VI: `labview\examples\instr\niRFSG`
- RFSG Getting Started Script (Script) VI: `labview\examples\instr\niRFSG`

niRFSG Check Generation Status VI

Checks the status of the generation. Use this VI to check for any errors that may occur during signal generation or to check whether the device has finished generating.

Supported Devices: PXIe-5611, PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

Related Topics

NI-RFSG Instrument Driver Programming Flow

Stopping Pear-to-Peer Generation

Examples

instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

done? returns TRUE when signal generation has completed.

error out contains error information. This output provides standard error out functionality.

Examples

Refer to the following VIs for examples of using the niRFSG Check Generation Status VI.

- RFSG Getting Started Single Tone Generation VI: `labview\examples\instr\niRFSG`
- RFSG Arbitrary Waveform Generation (Arb) VI: `labview\examples\instr\niRFSG`
- RFSG Getting Started Script (Script) VI: `labview\examples\instr\niRFSG`

niRFSG Close VI

Aborts any signal generation in progress and destroys the instrument driver session.

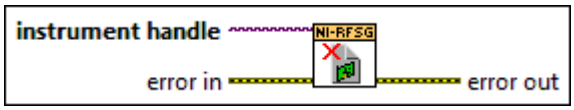
Supported Devices: PXI-5610, PXIe-5611, PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

Related Topics

NI-RFSG Instrument Driver Programming Flow

NI-RFSG Programming State Model

Examples



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error in describes error conditions that occur before this node runs. The default is `no error`. This node passes the **error in** input to the

error out output. This node will run regardless of whether an error occurred before it.

This input contains **status**, **code**, and **source**, which provide standard error in functionality.

error out contains error information. This output provides standard error out functionality.

Examples

Refer to the following VIs for examples of using the niRFSG Close VI.

- RFSG Getting Started Single Tone Generation VI: `labview\examples\instr\niRFSG`
- RFSG Arbitrary Waveform Generation (Arb) VI: `labview\examples\instr\niRFSG`
- RFSG Getting Started Script (Script) VI: `labview\examples\instr\niRFSG`

niRFSG Property Node VI

Gets (reads), sets (writes), or resets (sets to default value) NI-RFSG properties. When you read a property, NI-RFSG analyzes the current configuration in order to return the coerced value for that property. NI-RFSG verifies many properties upon reading, thereby either transitioning the session to the verified state or alerting you of an invalid configuration. Setting or resetting a property transitions the session to an unverified state.

Related Topics

niRFSG Properties—Refer to this topic for more information about using the NI-RFSG properties.

instrument handle identifies your instrument session. **instrument handle** is obtained from

either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error in describes error conditions that occur before this node runs. The default is `no error`. This node does not pass the **error in** input to the **error out** output. Regardless of whether an error occurred before this node runs, the node returns `no error`.

This input contains **status**, **code**, and **source**, which provide standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

Generation Configuration

Owning Palette: NI-RFSG VI Reference

Use the Configuration VIs to configure the signal generation.

Subpalette	Description
Configure Waveform	Use the Waveform Configuration VIs to configure a waveform.
Configuration List	Use the configuration list VIs to use RF list mode.
Configure Trigger	Use the Trigger Configuration VIs to configure NI-RFSG triggers.
Configure Clock	Use the Clock Configuration VIs to configure the clocks.

Peer to Peer	Use the peer-to-peer VIs to configure peer-to-peer streaming.
De-embedding	Use the NI-RFSG De-embedding VIs to de-embed measurements. **Related Topics** De-embedding Overview

Configure Waveform

Owning Palette: Generation Configuration

Use the Waveform Configuration VIs to configure a waveform.

Palette Object	Description
niRFSG Configure Generation Mode	Configures the NI-RFSG device to generate a continuous sine tone (CW), apply I/Q (vector) modulation to the RF output signal, or generate arbitrary waveforms according to scripts. The NI-RFSG device must be in the Configuration state before you call this VI. **Supported Devices**: PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842
niRFSG Write Arb Waveform	Writes an arbitrary waveform to the NI-RFSG device. This VI configures the I and Q vectors of a complex baseband signal. If the waveform to write is already allocated using the niRFSG Allocate Arb Waveform VI, the **more data pending?** parameter is ignored. This VI has nine polymorphic instances that accept as data input a complex cluster, a waveform datatype (CWDT), Complex DBL, Complex SGL, I16, and I/Q arrays. The PXI-5670/5671 must be in the Configuration state before you call this VI. When streaming is enabled, you can call this VI when the PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842 is in the Generation state.

	 **Note** On the PXIe-5644/5645/5646, PXIe-5672/5673/5673E, and PXIe-5820/5830/5831/5832/5840/5841/5842, the **more data pending?** parameter is always ignored. To write data in blocks on these devices, you must allocate the waveform before writing it. **Supported Devices**: PXIe-5644/5645/5646, PXIe-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842
niRFSG Write Script	Writes a script to the device to control waveform generation in Script mode. First, configure your device for Script mode by calling the niRFSG Configure Generation Mode VI. The NI-RFSG device must be in the Configuration state before calling the niRFSG Write Script VI.  **Note** If you are using an RF vector signal transceiver (VST) device, some script instructions may not be supported. **Supported Devices**: PXIe-5644/5645/5646, PXIe-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842
niRFSG Check If Waveform Exists	Returns whether the waveform that you specify as **waveform name** exists. **Supported Devices**: PXIe-5673/5673E
niRFSG Check If Script Exists	Returns whether the script that you specify as **script name** exists. **Supported Devices**: PXIe-5673/5673E

niRFSG Read and Download Waveform From File	Reads the waveform stored in a technical data management streaming (TDMS) file, downloads it into NI RF vector signal generators, and stores the waveform properties found in the TDMS file in the NI-RFSG session.
niRFSG Clear Arb Waveform	Deletes a specified waveform from the pool of currently defined waveforms. The NI-RFSG device must be in the Configuration state before you call this VI. **Supported Devices**: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842
niRFSG Clear All Arb Waveforms	Deletes all currently defined waveforms and scripts. The NI-RFSG device must be in the Configuration state before you call this VI. **Supported Devices**: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842
niRFSG Configure Digital Modulation User Defined Waveform	Specifies the message signal used for digital modulation when the Modulation Type property is enabled and the Waveform Type property is set to User-defined. **Supported Devices**: PXI/PXIe-5650/5651/5652
niRFSG Allocate Arb Waveform	Allocates onboard memory space for the arbitrary waveform. Use this VI to specify the total size of a waveform before writing the data. Use this VI only if you are calling the niRFSG Write Arb Waveform VI multiple times to write a large waveform in smaller blocks. The NI-RFSG device must be in the Configuration state before you call the niRFSG Allocate Arb Waveform VI. **Supported Devices**: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

rfsg_Resample and Write	Resamples the complex waveform to the new I/Q rate and writes it to the NI-RFSG device. This VI preserves the phase continuity of a phase-continuous complex waveform while resampling. **Supported Devices**: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842
niRFSG Fractional Resampling	Resamples and/or realigns a complex-valued waveform that you specify. This VI has three polymorphic instances, which accept as data input a complex cluster, a complex waveform, or an I/Q array.
niRFSG Select Arb Waveform	Specifies the waveform that is generated upon a call to the niRFSG Initiate VI when the **generation mode** input of the niRFSG Configure Generation Mode VI is set to Arb Waveform. You must specify a waveform name in the **name** input if you have written multiple waveforms. The NI-RFSG device must be in the Configuration state before you call this VI. **Supported Devices**: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842
niRFSG Configure Signal Bandwidth	Configures the signal bandwidth of the arbitrary waveform. The NI-RFSG device must be in the Configuration state before you call this VI. **Supported Devices**: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842
niRFSG Set Arb Waveform Next Write Position	Configures the start position to use for writing a waveform before calling the niRFSG Write Arb Waveform VI. This VI allows you to write to arbitrary locations within the waveform. These settings apply only to the next write to the waveform specified by the **name** input of the niRFSG Allocate Arb Waveform VI or niRFSG Write Arb W

	aveform VI. Subsequent writes to that waveform begin where the last write ended, unless this VI i s called again. **Note** If you use this VI to write the waveform t hat is currently generat ing, an undefined outp ut may result. **Supported Devices**: PXIe-5644/5645/5646, PXI e-5820/5830/5831/5832/5840/5841/5842
niRFSG Configure Power Level Type	Specifies the way the driver interprets the value of the Power Level (dBm) property. In average p ower mode, NI-RFSG automatically scales wavef orm data to use the maximum dynamic range. I n peak power mode, waveforms are scaled acco rding to the Software Scaling Factor property. **Supported Devices**: PXIe-5644/5645/5646, PXI -5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5 830/5831/5832/5840/5841/5842

Subpalette	Description
Burst Location	Use the waveform burst VIs on this palette to co nfigure NI-RFSG waveform burst locations.
Marker Event	Use the marker VIs on this palette to configure N I-RFSG marker events.

niRFSG Configure Generation Mode VI

Configures the NI-RFSG device to generate a continuous sine tone (CW), apply I/Q (vector) modulation to the RF output signal, or generate arbitrary waveforms according to scripts. The NI-RFSG device must be in the Configuration state before you call this VI.

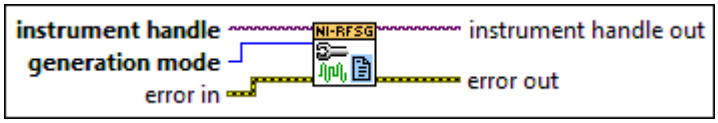
Supported Devices: PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

Related Topics

Assigning Properties or Attributes to a Waveform

Scripting Instructions—Refer to this topic for information about VST restrictions on scripts.

Examples



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

generation mode specifies the mode used by NI-RFSG for generating an RF output signal.

CW (default)	Configures the RF signal generator to generate a CW signal.
Arb Waveform	Configures the RF signal generator to generate a arbitrary waveforms.
Script	Configures the RF signal generator to generate arbitrary waveforms as directed by scripts.

Note For the PXI/PXIe-5650/5651/5652, PXIe-5654/5654 with PXIe-5696, only **CW** generation mode is supported.

Note If you are using an RF vector signal

transceiver (VST) device, some script instructions may not be supported.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

Examples

Refer to the following VIs for examples of using the niRFSG Configure Generation Mode VI.

- RFSG Getting Started Single Tone Generation (CW) VI: `labview\examples\instr\niRFSG`
- RFSG Arbitrary Waveform Generation (Arb) VI: `labview\examples\instr\niRFSG`
- RFSG Getting Started Script (Script) VI: `labview\examples\instr\niRFSG`

niRFSG Write Arb Waveform VI

Writes an arbitrary waveform to the NI-RFSG device. This VI configures the I and Q vectors of a complex baseband signal. If the waveform to write is already allocated using the niRFSG Allocate Arb Waveform VI, the **more data pending?** parameter is ignored. This VI has nine polymorphic instances that accept as data input a complex cluster, a waveform datatype (CWDT), Complex DBL, Complex SGL, I16, and I/Q arrays. The PXI-5670/5671 must be in the Configuration state before you call this VI.

When streaming is enabled, you can call this VI when the PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842 is in the Generation state.

Note On the PXIe-5644/5645/5646, PXIe-5672/5673/5673E, and PXIe-5820/5830/5831/5832/5840/5841/5842, the **more data pending?** parameter is always ignored. To write data in blocks on these devices, you must allocate the waveform before writing it.

Supported Devices: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

Related Topics

Streaming

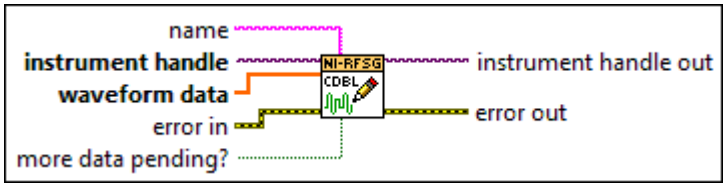
Assigning Properties or Attributes to a Waveform

Examples

niRFSG Write Arb Waveform (Complex DBL)

Writes an arbitrary waveform to the NI-RFSG device. This VI accepts the complex baseband data in the form of complex double data type.

Supported Devices: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

name specifies the name used to store the waveform. This string is case-insensitive and

alphanumeric, and it cannot use reserved words.

waveform data specifies the array of data to load into the waveform. You must normalize the data points in the array to have polar magnitudes between 0.0 and +1.00.

more data pending? specifies whether the data block contains the end of the waveform. Set **more data pending?** to TRUE to allow data to be appended to the waveform later. Splitting the waveform into multiple data blocks can reduce the memory requirements of the write operation. You can append data to a previously written waveform by using the saved waveform name. Set this parameter to FALSE to indicate that this data block contains the end of the waveform.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

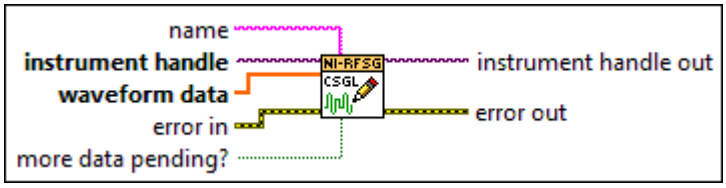
instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Write Arb Waveform (Complex SGL)

Writes an arbitrary waveform to the NI-RFSG device. This VI accepts the complex baseband data in the form of complex single data type.

Supported Devices: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

name specifies the name used to store the waveform. This string is case-insensitive and alphanumeric, and it cannot use reserved words.

waveform data specifies the array of data to load into the waveform. You must normalize the data points in the array to have polar magnitudes between 0.0 and +1.00.

more data pending? specifies whether the data block contains the end of the waveform. Set **more data pending?** to TRUE to allow data to be appended to the waveform later. Splitting the waveform into multiple data blocks can reduce the memory requirements of the write operation. You can append data to a previously written waveform by using the saved waveform name. Set this parameter to FALSE to indicate that this data block contains the end of the waveform.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

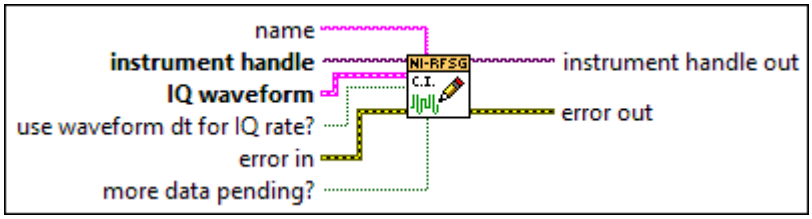
instrument handle out is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Write Arb Waveform (Complex Input)

Writes an arbitrary waveform to the NI-RFSG device. This VI accepts complex baseband signal data in the form of a complex cluster.

Supported Devices: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

name specifies the name used to store the waveform. This string is case-insensitive and alphanumeric, and it cannot use reserved words.

IQ waveform specifies the complex baseband signal to write to the NI-RFSG device.

t0 specifies the trigger (start) time of the acquired **Y** array.

dt specifies the time interval between the samples in the acquired **Y** array. **dt** is the reciprocal of the I/Q rate.

Y specifies an array of complex-valued time domain data. The real and imaginary parts of this complex data array correspond to the in-phase (I) and quadrature-phase (Q) data, respectively.

use waveform dt for IQ rate? specifies TRUE if the VI uses the waveform **dt** to configure the I/Q rate and FALSE if it does not configure the I/Q rate.

more data pending? specifies whether the data block contains the end of the waveform. Set **more data pending?** to TRUE to allow data to be appended to the waveform later. Splitting the waveform into multiple data blocks can reduce the memory requirements of the write operation. You can append data to a previously written waveform by using the saved waveform name. Set this parameter to FALSE to indicate that this data block contains the end of the waveform.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

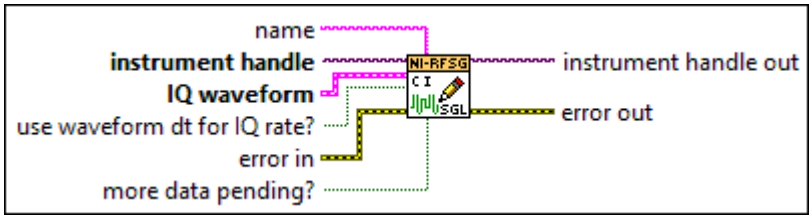
instrument handle out is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Write Arb Waveform (Complex Input SGL)

Writes an arbitrary waveform to the NI-RFSG device. This VI accepts complex baseband signal data in the form of a complex cluster.

Supported Devices: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

name specifies the name used to store the waveform. This string is case-insensitive and alphanumeric, and it cannot use reserved words.

IQ waveform specifies the complex baseband signal to write to the NI-RFSG device.

t0 specifies the trigger (start) time of the acquired **Y** array.

dt specifies the time interval between the samples in the acquired **Y** array. **dt** is the reciprocal of the I/Q rate.

Y specifies an array of complex-valued time domain data. The real and imaginary parts of this complex data array correspond to the in-phase (I) and quadrature-phase (Q) data, respectively.

use waveform dt for IQ rate? specifies TRUE if the VI uses the waveform **dt** to configure the I/Q rate and FALSE if it does not configure the I/Q rate.

more data pending? specifies whether the data block contains the end of the waveform. Set **more data pending?** to TRUE to allow data to be appended to the waveform later. Splitting the waveform into multiple data blocks can reduce the memory requirements of the write operation. You can append data to a previously written waveform by using the saved waveform name. Set this parameter to FALSE to indicate that this data block contains the end of the waveform.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

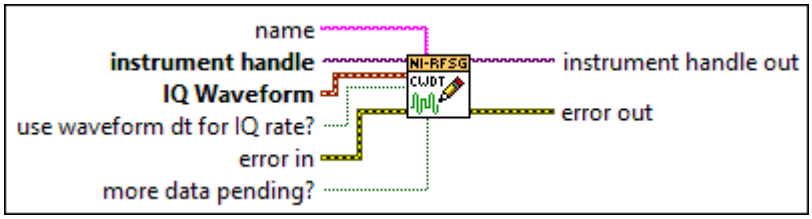
instrument handle out is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Write Arb Waveform (CWDT)

Writes an arbitrary waveform to the NI-RFSG device. This VI accepts the complex baseband signal data in the form of a complex waveform datatype.

Supported Devices: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

name specifies the name used to store the waveform. This string is case-insensitive and alphanumeric, and it cannot use reserved words.

IQ Waveform specifies the complex waveform to write to the NI-RFSG device.

use waveform dt for IQ rate? specifies TRUE if the VI uses the waveform **dt** to configure the I/Q rate and FALSE if it does not configure the I/Q rate.

more data pending? specifies whether the data block contains the end of the waveform. Set **more data pending?** to TRUE to allow data to be appended to the waveform later. Splitting the waveform into multiple data blocks can reduce the memory requirements of the write operation. You can append data to a previously written waveform by using the saved waveform name. Set this parameter to FALSE to indicate that this data block contains the end of the waveform.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

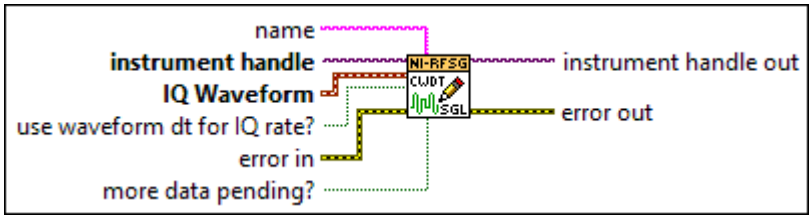
instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Write Arb Waveform (CWDT SGL)

Writes an arbitrary waveform to the NI-RFSG device. This VI accepts the complex baseband signal data in the form of a complex waveform datatype consisting of singles.

Supported Devices: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

name specifies the name used to store the waveform. This string is case-insensitive and alphanumeric, and it cannot use reserved words.

IQ Waveform specifies the complex waveform to write to the NI-RFSG device.

use waveform dt for IQ rate? specifies TRUE if the VI uses the waveform **dt** to configure the I/Q rate and FALSE if it does not configure the I/Q rate.

more data pending? specifies whether the data block contains the end of the waveform. Set **more data pending?** to TRUE to allow data to be appended to the waveform later. Splitting the waveform into multiple data blocks can reduce the memory requirements of the write operation. You can append data to a previously written waveform by using the saved waveform name. Set this parameter to FALSE to indicate that this data block contains the end of the waveform.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

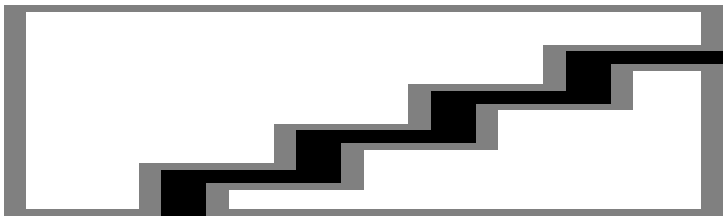
instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Write Arb Waveform (I-Q)

Writes an arbitrary waveform to the NI-RFSG device. This VI accepts the I and Q vectors of a complex baseband signal. To write only I Data of waveform through NI-RFSG, pass an empty array for **Q Data** parameter.

Supported Devices: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

name specifies the name used to store the waveform. This string is case-insensitive and alphanumeric, and it cannot use reserved words.

I Data specifies the in-phase (I) component of the complex baseband signal.

Q Data specifies the quadrature-phase (Q) component of the complex baseband signal.

more data pending? specifies whether the data block contains the end of the waveform. Set **more data pending?** to TRUE to allow data to be appended to the waveform later. Splitting the waveform into multiple data

blocks can reduce the memory requirements of the write operation. You can append data to a previously written waveform by using the saved waveform name. Set this parameter to FALSE to indicate that this data block contains the end of the waveform.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

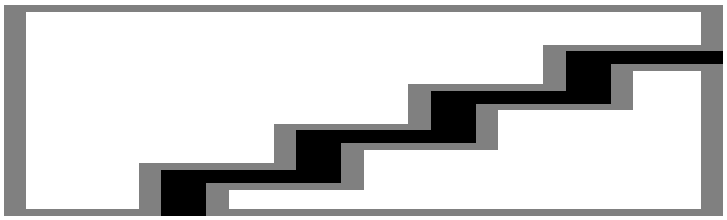
instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Write Arb Waveform (I-Q SGL)

Writes an arbitrary waveform to the NI-RFSG device. This VI accepts the I and Q vectors of a complex baseband signal containing singles. To write only I Data of waveform through NI-RFSG, pass an empty array for **Q Data** parameter.

Supported Devices: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

name specifies the name used to store the waveform. This string is case-insensitive and alphanumeric, and it cannot use reserved words.

I Data specifies the in-phase (I) component of the complex baseband signal.

Q Data specifies the quadrature-phase (Q) component of the complex baseband signal.

more data pending? specifies whether the data block contains the end of the waveform. Set **more data pending?** to TRUE to allow data to be appended to the waveform later. Splitting the waveform into multiple data blocks can reduce the memory requirements of the write operation. You can append data to a previously written waveform by using the saved waveform name. Set this parameter to FALSE to indicate that this data block contains the end of the waveform.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

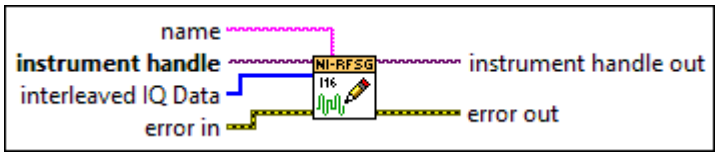
error out contains error information. This output provides standard error out functionality.

niRFSG Write Arb Waveform (I16)

Writes an arbitrary waveform to the NI-RFSG device. This VI accepts the interleaved I/Q data of a complex baseband signal.

Note When using this VI, you must set the Power Level Type property to Peak Power. If you download a waveform when using this VI, you cannot set the Power Level Type property to Average Power without causing error in the output.

Supported Devices: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

name specifies the name used to store the waveform. This string is case-insensitive and alphanumeric, and it cannot use reserved words.

interleaved IQ Data specifies an array of interleaved I data and Q data to load into the waveform, paired in binary (I16) format.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the

niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

Examples

Refer to the following VIs for examples of using the niRFSG Write Arb Waveform VI.

- RFSG Getting Started Finite Generation VI: `labview\examples\instr\niRFSG`
- RFSG Getting Started Script (Script) VI: `labview\examples\instr\niRFSG`

niRFSG Write Script VI

Writes a script to the device to control waveform generation in Script mode. First, configure your device for Script mode by calling the niRFSG Configure Generation Mode VI. The NI-RFSG device must be in the Configuration state before calling the niRFSG Write Script VI.

Note If you are using an RF vector signal transceiver (VST) device, some script instructions may not be supported.

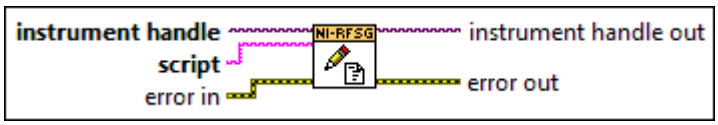
Supported Devices: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

Related Topics

Scripting Instructions—Refer to this topic for information about VST restrictions on scripts.

Common Scripting Use Cases

Examples



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

script specifies the script that controls waveform generation. NI-RFSG supports multiple scripts that are selected with the Selected Script property. Refer to Scripting Instructions for more information about using scripts.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

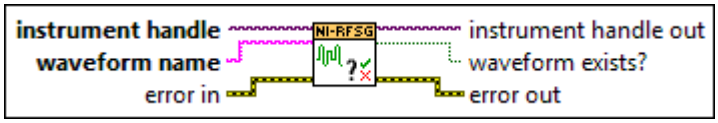
Examples

Refer to the RFSG Getting Started Script VI in the `labview\examples\instr\niRFSG` directory for an example of using the niRFSG Write Script VI.

niRFSG Check If Waveform Exists VI

Returns whether the waveform that you specify as **waveform name** exists.

Supported Devices: PXIe-5673/5673E



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

waveform name specifies the name used to store the waveform. This string is case-insensitive.

Example:

```
"waveform::waveform0"
```

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

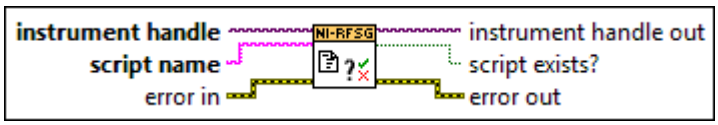
waveform exists? returns TRUE if the waveform exists.

error out contains error information. This output provides standard error out functionality.

niRFSG Check If Script Exists VI

Returns whether the script that you specify as **script name** exists.

Supported Devices: PXIe-5673/5673E



instrument handle identifies your instrument session. **instrument handle** is obtained from

either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

script name specifies the name of the script. This string is case-insensitive.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

script exists? returns TRUE if the script exists.

error out contains error information. This output provides standard error out functionality.

niRFSG Read and Download Waveform From File VI

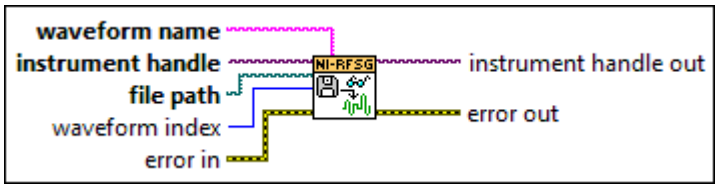
Reads the waveform stored in a technical data management streaming (TDMS) file, downloads it into NI RF vector signal generators, and stores the waveform properties found in the TDMS file in the NI-RFSG session.

niRFSG Read and Download Waveform From file (TDMS)

Reads the waveforms from a TDMS file and downloads one waveform into each of the NI RF vector signal generators.

Supported Devices: PXIe-5820/5830/5831/5832/5840/5841/5842

Instance Details



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

waveform name specifies the name used to store the waveform. This string is case-insensitive.

Example:

```
"waveform::waveform0"
```

file path specifies the absolute path to the TDMS file from which the NI-RFSG reads the waveforms.

waveform index specifies the index of the waveform to be read from the TDMS file.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Read and Download Waveform From file (TDMS) Details

This VI reads the following information from the TDMS file and writes it into the NI-RFSG session:

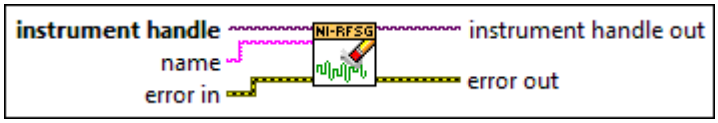
- Sample Rate
- PAPR
- Runtime Scaling
- RF Blanking Marker Locations
- RF Blanking Enabled
- Burst Start Locations
- Burst Stop Locations
- RF Blanking Marker Source
- Signal Bandwidth
- Waveform Size

If RF blanking marker locations are present in the file but burst locations are not present, burst locations are calculated from RF blanking marker locations and stored in the NI-RFSG session.

niRFSG Clear Arb Waveform VI

Deletes a specified waveform from the pool of currently defined waveforms. The NI-RFSG device must be in the Configuration state before you call this VI.

Supported Devices: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842



I/O

instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

name specifies the name used to store the waveform. This string is case-insensitive and alphanumeric, and it cannot use reserved words.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

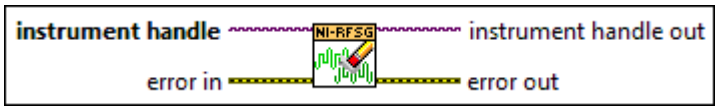
instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Clear All Arb Waveforms VI

Deletes all currently defined waveforms and scripts. The NI-RFSG device must be in the Configuration state before you call this VI.

Supported Devices: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

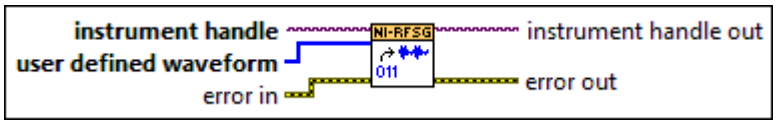
error out contains error information. This output provides standard error out functionality.

niRFSG Configure Digital Modulation User Defined Waveform VI

Specifies the message signal used for digital modulation when the Modulation Type property is enabled and the Waveform Type property is set to User-defined.

Supported Devices: PXI/PXIe-5650/5651/5652

Examples



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

user defined waveform specifies the user-defined message signal used for digital modulation.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

Examples

Refer to the RFSG 565x Digital Modulation VI in the `labview\examples\instr\niRFSG` directory for an example of using the niRFSG Configure Digital Modulation User Defined Waveform VI.

niRFSG Allocate Arb Waveform VI

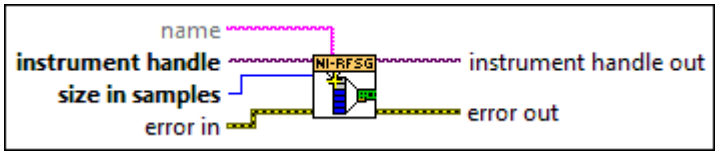
Allocates onboard memory space for the arbitrary waveform. Use this VI to specify the total size of a waveform before writing the data. Use this VI only if you are calling the niRFSG Write Arb Waveform VI multiple times to write a large waveform in smaller blocks. The NI-RFSG device must be in the Configuration state before you call the niRFSG Allocate Arb Waveform VI.

Supported Devices: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

Related Topics

Streaming Waveform Data

Examples



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

name specifies the name used to store the waveform. This string is case-insensitive and alphanumeric, and it cannot use reserved words.

size in samples specifies the size of the waveform to allocate in samples. Each I/Q pair is considered one sample.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

Examples

Refer to the following VIs for examples of using the niRFSG Allocate Arb Waveform VI.

- RFSG Arbitrary Waveform Streaming VI: `labview\examples\instr\niRFSG`
- RFSG Large Arbitrary Waveform Generation VI: `labview\examples\instr\niRFSG`

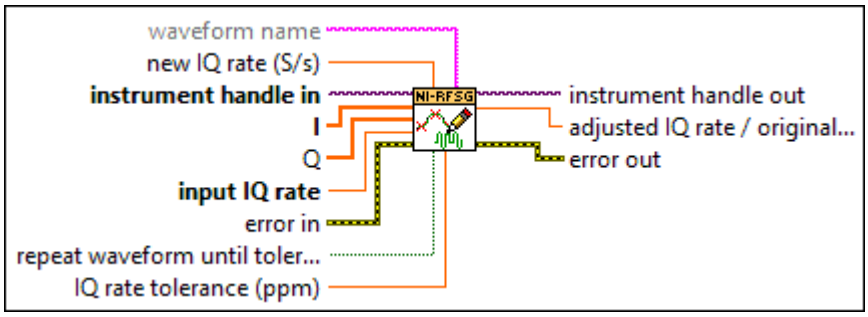
rfsg_Resample and Write VI

Resamples the complex waveform to the new I/Q rate and writes it to the NI-RFSG device. This VI preserves the phase continuity of a phase-continuous complex waveform while resampling.

Supported Devices: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

rfsg_Resample and Write (I-Q)

Resamples the complex waveform to the new I/Q rate and writes it to the NI-RFSG. Given a phase continuous complex waveform, this VI preserves the phase continuity while resampling. This VI also optimizes memory usage by resampling and writing in blocks of 100 k samples and by deallocating unused memory after the VI executes.



instrument handle in identifies your instrument session. **instrument handle in** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

waveform name specifies the name used to store the waveform. This string is case-insensitive.

Example:

```
"waveform::waveform0"
```

new IQ rate specifies the new I/Q rate at which to resample.

I specifies the in-phase (I) component of the complex baseband signal.

Q specifies the quadrature-phase (Q) component of the complex baseband signal.

input IQ rate specifies the I/Q rate of the input waveform.

repeat waveform until tolerance met allows the resampled waveform to contain multiple copies of the original waveform. This parameter increases the size of the resampled waveform and reduces the I/Q rate error introduced when the resample waveform size is coerced to a multiple of the quantum.

IQ rate tolerance specifies how much to limit the adjusted I/Q rate over the original I/Q rate, in parts per million.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

adjusted IQ rate / original IQ rate indicates how much the frequency content or the symbol rate of the original waveform changed. Before resampling the waveform, the original waveform I/Q rate is adjusted so that the resampled waveform size is a multiple of the quantum.

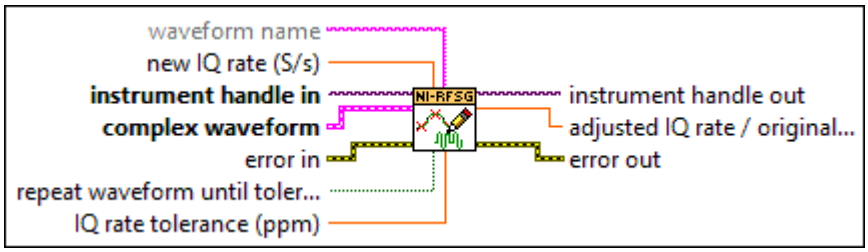
The resampled waveform I/Q rate is calculated with the following equation:

Resampled Waveform I/Q Rate = (Adjusted I/Q Rate / Original I/Q Rate) * Original Symbol Rate

error out contains error information. This output provides standard error out functionality.

rfsg_Resample and Write (Complex Input)

Resamples the complex waveform to the new I/Q rate and writes it to NI-RFSG. Given a phase continuous complex waveform, this VI preserves the phase continuity while resampling. This VI also optimizes memory usage by resampling and writing in blocks of 100k samples and by deallocating unused memory after the VI executes.



instrument handle in identifies your instrument session. **instrument handle in** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

waveform name specifies the name used to store the waveform. This string is case-insensitive.

Example:

```
"waveform::waveform0"
```

new IQ rate specifies the new I/Q rate at which to resample.

complex waveform specifies the complex waveform to resample.

t0 specifies the trigger (start) time of the acquired **Y** array.

dt specifies the time between values in the Y array.

Default Value: 1.0

Y specifies the complex-valued signal-only baseband modulated waveform. The real and imaginary parts of this complex data array correspond to the in-phase (I) and quadrature-phase (Q) data, respectively.

repeat waveform until tolerance met allows the resampled waveform to contain multiple copies of the original waveform. This parameter increases the size of the resampled waveform and reduces the I/Q rate error introduced when the resample waveform size is coerced to a multiple of the quantum.

IQ rate tolerance specifies how much to limit the adjusted I/Q rate over the original I/Q rate, in parts per million.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

adjusted IQ rate / original IQ rate indicates how much the frequency content or the symbol rate of the original waveform changed. Before resampling the waveform, the original waveform I/Q rate is adjusted so that the

resampled waveform size is a multiple of the quantum.

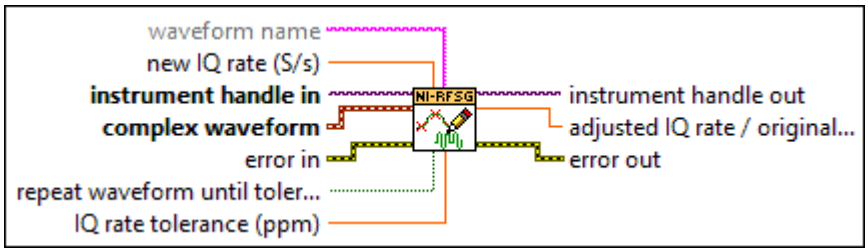
The resampled waveform I/Q rate is calculated with the following equation:

Resampled Waveform I/Q Rate = (Adjusted I/Q Rate / Original I/Q Rate) * Original Symbol Rate

error out contains error information. This output provides standard error out functionality.

rfsg_Resample and Write (CWDT)

Resamples the complex waveform to the new I/Q rate and writes it to NI-RFSG. Given a phase continuous complex waveform, this VI preserves the phase continuity while resampling. This VI also optimizes memory usage by resampling and writing in blocks of 100 k samples and by deallocating unused memory after the VI executes.



instrument handle in identifies your instrument session. **instrument handle in** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

waveform name specifies the name used to store the waveform. This string is case-insensitive.

Example:

```
"waveform::waveform0"
```

new IQ rate specifies the new I/Q rate at which to resample.

complex waveform specifies the complex waveform to split into I and Q components.

repeat waveform until tolerance met allows the resampled waveform to contain multiple copies of the original waveform. This parameter increases the size of the resampled waveform and reduces the I/Q rate error introduced when the resample waveform size is coerced to a multiple of the quantum.

IQ rate tolerance specifies how much to limit the adjusted I/Q rate over the original I/Q rate, in parts per million.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

adjusted IQ rate / original IQ rate indicates how much the frequency content or the symbol rate of the original waveform changed. Before resampling the waveform, the original waveform I/Q rate is adjusted so that the resampled waveform size is a multiple of the quantum.

The resampled waveform I/Q rate is calculated with the following equation:

Resampled Waveform I/Q Rate = (Adjusted I/Q Rate / Original I/Q Rate) * Original Symbol Rate

error out contains error information. This output provides standard error out functionality.

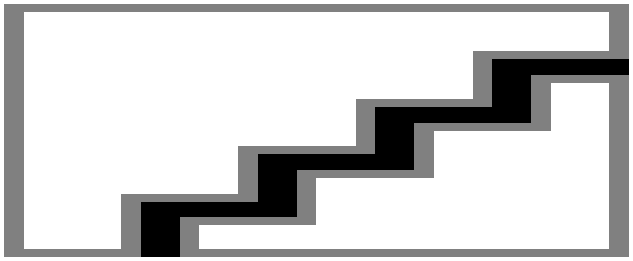
niRFSG Fractional Resampling VI

Resamples and/or realigns a complex-valued waveform that you specify. This VI has three polymorphic instances, which accept as data input a complex cluster, a complex waveform, or an I/Q array.

Details

niRFSG Fractional Resampling (I-Q)

Accepts a complex-valued waveform and resamples and/or realigns it based on the input parameters that you specify. To realign the input waveform in time, enter a nonzero value in **initial sample offset**.



I specifies the in-phase (I) component of the complex baseband signal.

Q specifies the quadrature-phase (Q) component of the complex baseband signal.

input sample rate specifies the sample rate of the input data. This value is expressed in hertz.

reset? specifies whether this VI continues resampling using the previous iteration states. **reset?** must be set to TRUE (default) whenever you want to restart fractional resampling.

initial sample offset specifies the initial sample offset, in seconds. This positive value specifies the location in time of the first output point relative to the first input point. The default is 0.00.

desired sample rate specifies the desired sample rate, in hertz, of the output complex waveform data. This value can be an integer or a non-integer multiple of the input data sample rate. The default value is 100 MHz.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

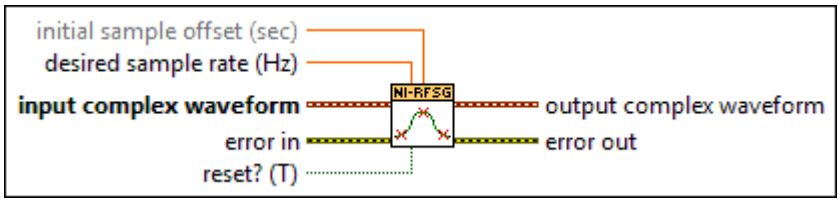
I out returns the resampled complex baseband in-phase (I) data.

Q out returns the resampled complex baseband quadrature-phase (Q) data.

error out contains error information. This output provides standard error out functionality.

niRFSG Fractional Resampling (CWDT)

Inputs a complex-valued waveform and resamples and/or realigns it based on the input parameters that you specify. To realign the input waveform in time, enter a nonzero value in **initial sample offset**. Positive or negative offset values push the output complex waveform forward or backwards in time, respectively, relative to **input complex waveform**.



input complex waveform specifies the complex baseband waveform data.

reset? specifies whether this VI continues resampling using the previous iteration states. **reset?** must be set to TRUE (default) whenever you want to restart fractional resampling.

initial sample offset specifies the initial sample offset, in seconds. This positive value specifies the location in time of the first output point relative to the first input point. The default is 0.00.

desired sample rate specifies the desired sample rate, in hertz, of the output complex waveform data. This value can be an integer or a non-integer multiple of the input data sample rate. The default value is 100 MHz.

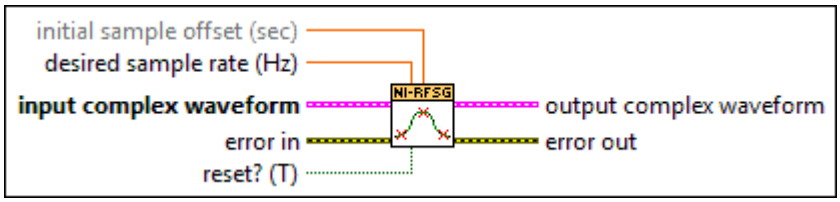
error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

output complex waveform returns the resampled complex baseband waveform data.

error out contains error information. This output provides standard error out functionality.

niRFSG Fractional Resampling (Complex Input)

Inputs a complex-valued waveform and resamples and/or realigns it based on the input parameters that you specify. To realign the input waveform in time, enter a nonzero value in **initial sample offset**. Positive or negative offset values push the output complex waveform forward or backward in time, respectively, relative to the **input complex waveform**.



input complex waveform specifies the complex baseband waveform data.

t0 specifies the trigger (start) time of the acquired **Y** array.

dt specifies the time interval between the samples in the acquired **Y** array. **dt** is the reciprocal of the I/Q rate.

Y specifies the complex-valued signal-only baseband modulated waveform. The real and imaginary parts of this complex data array correspond to the in-phase (I) and quadrature-phase (Q) data, respectively.

reset? specifies whether this VI continues resampling using the previous iteration states. **reset?** must be set to TRUE (default) whenever you want to restart fractional resampling.

initial sample offset specifies the initial sample offset, in seconds. This positive value specifies the location in time of the first output

point relative to the first input point. The default is 0.00.

desired sample rate specifies the desired sample rate, in hertz, of the output complex waveform data. This value can be an integer or a non-integer multiple of the input data sample rate. The default value is 100 MHz.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

output complex waveform returns the resampled complex baseband waveform data.

t0 returns the time of the first value in the **Y** array.

dt returns the time between values in the **Y** array. **dt** is the reciprocal of the I/Q rate.

Y outputs the complex-valued signal-only baseband modulated waveform. The real and imaginary parts of this complex data array correspond to the in-phase (I) and quadrature-phase (Q) data, respectively.

error out contains error information. This output provides standard error out functionality.

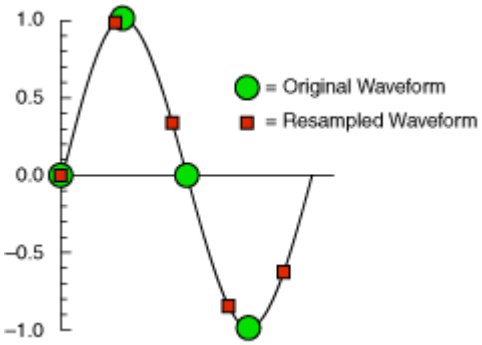
Details

To resample a waveform, enter a desired sample rate that differs from the existing sample rate of **input complex waveform**. To realign a waveform without changing the sample rate, specify a **desired sample rate** equal to the existing sample rate. To resample a waveform without changing the relative timing offset between the input and output complex waveforms, specify an **initial sample offset** of 0.

Note The sample rate of your waveform corresponds to the IQ Rate (S/s) property in NI-RFSG.

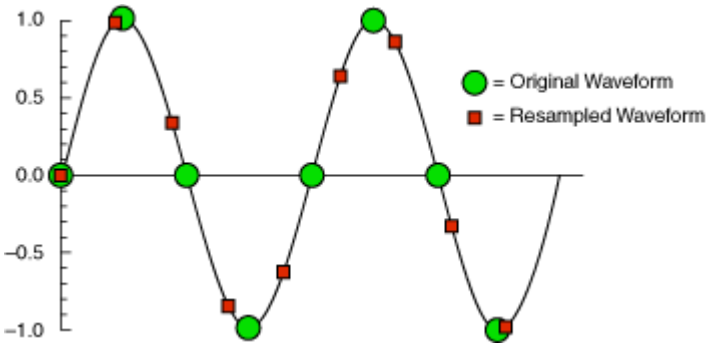
Resampling and Phase Continuity

Resampling can disturb phase continuity. For example, if a sine wave sampled at four samples per cycle in a four-sample long phase-continuous array, is resampled at a rate of 4.5 samples per cycle, the resulting five samples are no longer phase-continuous. Phase continuity is preserved only if an integer number of samples in the original array becomes an integer number of samples in the resampled array. The following figure shows a four-sample waveform resampled to 4.5 samples. The rate change should produce 4.5 samples, but the resampler can return only an integer number of samples.



Address this issue by repeating the original array. If you copy and concatenate the original array, the new phase-continuous array contains eight samples. The frequency content of the new array is exactly the same as the frequency content of the original array. If you perform resampling from 4 samples per cycle to 4.5 samples per cycle, the eight samples become nine samples. Because nine is an integer, phase continuity is preserved. The Resample and Write example for NI-RFSG

shows this strategy. The following figure shows both sample rates phase-continuous on two waveform cycles.



Note You can use the rfsg_Resample and Write VI to ensure that the signal's phase continuity is maintained while resampling.

niRFSG Select Arb Waveform VI

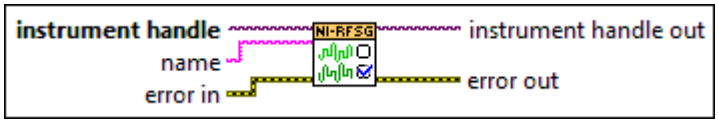
Specifies the waveform that is generated upon a call to the niRFSG Initiate VI when the **generation mode** input of the niRFSG Configure Generation Mode VI is set to Arb Waveform. You must specify a waveform name in the **name** input if you have written multiple waveforms. The NI-RFSG device must be in the Configuration state before you call this VI.

Supported Devices: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

Related Topics

Assigning Properties or Attributes to a Waveform

Examples



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

name specifies the name of the stored waveform to generate. This string is case-insensitive and alphanumeric, and it cannot use reserved words.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

Examples

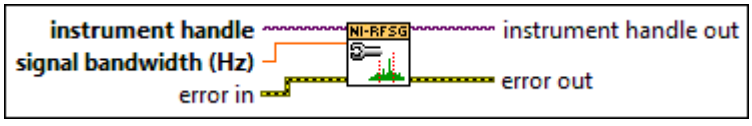
Refer to the RFSG Multiple Arbitrary Waveforms VI in the `labview\examples\instr\niRFSG` directory for an example of using the niRFSG Select Arb Waveform VI.

niRFSG Configure Signal Bandwidth VI

Configures the signal bandwidth of the arbitrary waveform. The NI-RFSG device must be in the Configuration state before you call this VI.

Supported Devices: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

Details Examples



instrument handle identifies your instrument session. **instrument handle** is obtained from

either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

signal bandwidth specifies the signal bandwidth used by NI-RFSG for generating an RF output signal. NI-RFSG sets the Signal Bandwidth (Hz) property to this value.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

Details

NI-RFSG defines **signal bandwidth** as twice the maximum baseband signal deviation from 0 Hz. Usually, the baseband signal center frequency is 0 Hz. In such cases, the signal bandwidth is simply the baseband signal's minimum frequency subtracted from its maximum frequency, or $\mathbf{f}_{max}$ - $\mathbf{f}_{min}$. NI-RFSG uses this value to optimally configure the center frequency of the upconverter to help minimize phase noise. The generated signal is not filtered to achieve the set bandwidth. However, specifying a bandwidth smaller than the actual bandwidth of the signal could potentially result in spectral distortion.

Note Based on your signal bandwidth, NI-RFSG may configure the upconverter center frequency on the PXI-5670/5671 or PXIe-5672 in increments of 1 MHz or 5 MHz. Failure to configure signal bandwidth may result in the signal being placed outside the upconverter passband.

Examples

Refer to the following VIs for examples of using the niRFSG Configure Signal Bandwidth VI.

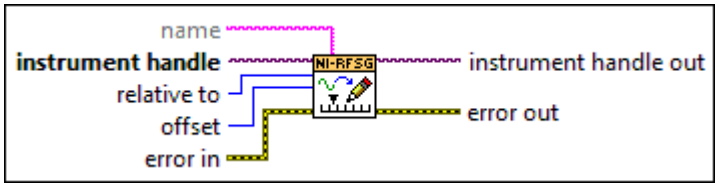
- RFSG Getting Started Finite Generation VI: `labview\examples\instr\niRFSG`
- RFSG Getting Started Script (Script) VI: `labview\examples\instr\niRFSG`
- RFSG Arbitrary Waveform Generation (Arb) VI: `labview\examples\instr\niRFSG`

niRFSG Set Arb Waveform Next Write Position VI

Configures the start position to use for writing a waveform before calling the niRFSG Write Arb Waveform VI. This VI allows you to write to arbitrary locations within the waveform. These settings apply only to the next write to the waveform specified by the **name** input of the niRFSG Allocate Arb Waveform VI or niRFSG Write Arb Waveform VI. Subsequent writes to that waveform begin where the last write ended, unless this VI is called again.

Note If you use this VI to write the waveform that is currently generating, an undefined output may result.

Supported Devices: PXIe-5644/5645/5646, PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

name specifies the name of the waveform. This string is case-insensitive and alphanumeric, and it cannot use reserved words.

relative to specifies the reference position in the waveform. The position and **offset** together determine where to start loading data into the waveform.

Start of Waveform	The reference position is relative to the start of the waveform.
Current Position	The reference position is relative to the current position.

offset specifies the offset from the **relative to** parameter at which to start loading the data into the waveform.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Configure Power Level Type VI

Specifies the way the driver interprets the value of the Power Level (dBm) property. In average power mode, NI-RFSG automatically scales waveform data to use the maximum dynamic range. In peak power mode, waveforms are scaled according to the Software Scaling Factor property.

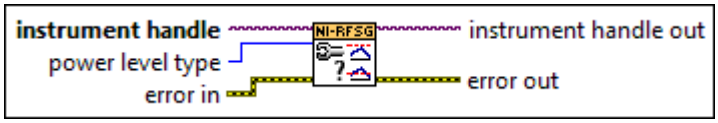
Supported Devices: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

Related Topics

Spurious Performance

Optimizing for Low Power Generation

Examples



I/O

instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

I32

power level type specifies the way the driver interprets the value of the Power Level (dBm) property. NI-RFSG sets the Power Level Type property to this value.

Average Power (default)	Indicates the desired power averaged in time. The driver maximizes the dynamic range by scaling the I/Q waveform so that its peak magnitude is equal to one. If your write more than one waveform, NI-RFSG scales each waveform without preserving the power level ratio between the waveforms. This value is not valid for the PXIe-5820.
Peak Power	Indicates the maximum power level of the RF signal averaged over

	one period of the RF carrier frequency (the peak envelope power). This setting requires the magnitude of the I/Q waveform be less than or equal to one. When using peak power, the power level of the RF signal matches the specified power level at moments when the magnitude of the I/Q waveform equals one. If you write more than one waveform, the relative scaling between waveforms is preserved. In peak power mode, waveforms are scaled according to the Software Scaling Factor property.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

Examples

Refer to the following VIs for examples of using the niRFSG Configure Power Level Type VI.

- RFSG Getting Started Finite Generation VI: `labview\examples\instr\niRFSG`
- RFSG Arbitrary Waveform Streaming VI: `labview\examples\instr\niRFSG`
- RFSG Multitone Generation VI: `labview\examples\instr\niRFSG`

Burst Location

Owning Palette: Configure Waveform

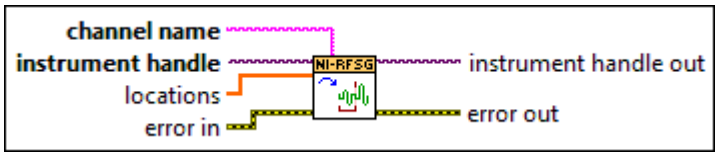
Use the waveform burst VIs on this palette to configure NI-RFSG waveform burst locations.

Palette Object	Description
niRFSG Set Waveform Burst Start Locations	Configures the start location of the burst in samples where the burst refers to the active portion of a waveform. **Supported Devices**: PXIe-5820/5830/5831/5832/5840/5841/5842
niRFSG Set Waveform Burst Stop Locations	Configures the stop location of the burst in samples where the burst refers to the active portion of a waveform. **Supported Devices**: PXIe-5820/5830/5831/5832/5840/5841/5842
niRFSG Get Waveform Burst Start Locations	Returns the burst start locations of the waveform stored in the NI-RFSG session. **Supported Devices**: PXIe-5820/5830/5831/5832/5840/5841/5842
niRFSG Get Waveform Burst Stop Locations	Returns the burst stop locations of the waveforms stored in the NI-RFSG session. **Supported Devices**: PXIe-5820/5830/5831/5832/5840/5841/5842

niRFSG Set Waveform Burst Start Locations VI

Configures the start location of the burst in samples where the burst refers to the active portion of a waveform.

Supported Devices: PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

channel name specifies the waveform name and the marker name.

Example:

```
"waveform::waveform0/marker0"
```

locations specifies the burst start locations, in samples, to store in the NI-RFSG session.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

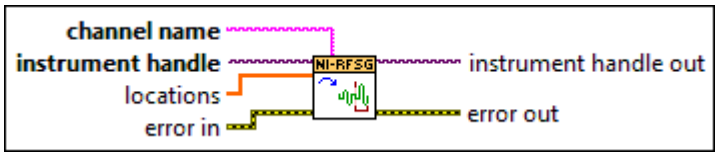
instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Set Waveform Burst Stop Locations VI

Configures the stop location of the burst in samples where the burst refers to the active portion of a waveform.

Supported Devices: PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

channel name specifies the waveform name and the marker name.

Example:

```
"waveform::waveform0/marker0"
```

locations specifies the burst stop locations, in samples, to store in the NI-RFSG session.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the

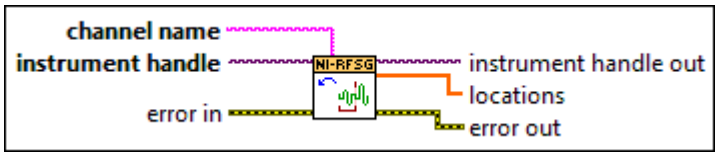
niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Get Waveform Burst Start Locations VI

Returns the burst start locations of the waveform stored in the NI-RFSG session.

Supported Devices: PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

channel name specifies the waveform name and the marker name.

Example:

```
"waveform::waveform0/marker0"
```

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

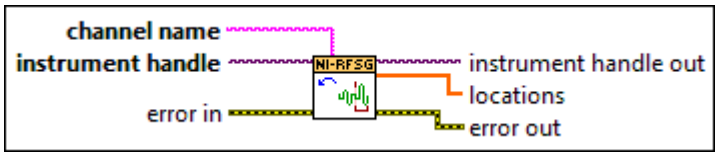
locations returns the burst start locations stored in the NI-RFSG session for the waveform you specified in the **channel name** parameter. This value is expressed in samples.

error out contains error information. This output provides standard error out functionality.

niRFSG Get Waveform Burst Stop Locations VI

Returns the burst stop locations of the waveforms stored in the NI-RFSG session.

Supported Devices: PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

channel name specifies the waveform name and the marker name.

Example:

```
"waveform::waveform0/marker0"
```

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the

niRFSG Initialize VI or the niRFSG Initialize With Options VI.

locations returns the burst stop locations stored in the NI-RFSG session for the waveform you specified in the **channel name** parameter. This value is expressed in samples.

error out contains error information. This output provides standard error out functionality.

Marker Event

Owning Palette: Configure Waveform

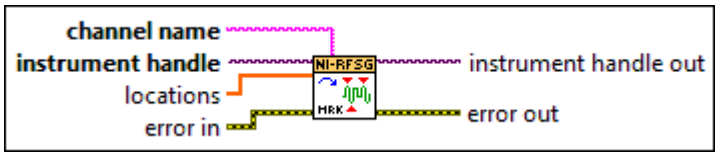
Use the marker VIs on this palette to configure NI-RFSG marker events.

Palette Object	Description
niRFSG Set Waveform Marker Event Locations	Configures the marker locations associated with waveform and marker in the NI-RFSG session. **Supported Devices**: PXIe-5820/5830/5831/5832/5840/5841/5842
niRFSG Get Waveform Marker Event Locations	Returns the marker locations associated with the waveform and the marker stored in the NI-RFSG session. **Supported Devices**: PXIe-5820/5830/5831/5832/5840/5841/5842

niRFSG Set Waveform Marker Event Locations VI

Configures the marker locations associated with waveform and marker in the NI-RFSG session.

Supported Devices: PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

channel name specifies the waveform name and the marker name.

Example:

```
"waveform::waveform0/marker0"
```

locations specifies the marker location, in samples, to store in the NI-RFSG session.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

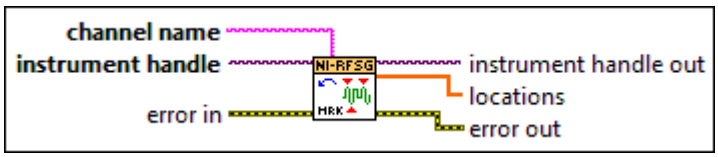
instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Get Waveform Marker Event Locations VI

Returns the marker locations associated with the waveform and the marker stored in the NI-RFSG session.

Supported Devices: PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

channel name specifies the waveform name and the marker name.

Example:

```
"waveform::waveform0/marker0"
```

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

locations returns the marker locations stored in the NI-RFSG session for the channel you specified in the **channel name** parameter. This value is expressed in samples.

error out contains error information. This output provides standard error out functionality.

Configuration List

Owning Palette: Generation Configuration

Use the configuration list VIs to use RF list mode.

Palette Object	Description
niRFSG Create Configuration List	Creates an empty configuration list. Use the Active Configuration List property to enable a configuration list created by this VI. Call the niRFSG Create Configuration List Step VI to add steps to the configuration list. **Supported Devices**: PXIe-5644/5645/5646, PXIe-5650/5651/5652/5653/5654/5654 with PXIe-5696, PXIe-5673E, PXIe-5820/5830/5831/5832/5840/5841/5841 with PXIe-5655
niRFSG Create Configuration List Step	Creates a new configuration list step in the configuration list specified by the Active Configuration List property. When you create a configuration list step, a new instance of each property specified by the configuration list properties is created. Configuration list properties are specified when a configuration list is created. The new instance of a property can be accessed with a property node using the Active Configuration List and Active Configuration List Step properties to index the desired instance of the property. **Supported Devices**: PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXIe-5673E, PXIe-5820/5830/5831/5832/5840/5841
niRFSG Delete Configuration List	Deletes a previously created configuration list and all the configuration list steps in the configuration list. When a configuration list step is deleted, all the instances of the properties associated with the configuration list step are also removed. When you delete the active configuration list, NI-RFSG automatically resets the Active Configuration List property to "" (empty string), which indicates no list is active, and the Active Configuration List Step property to 0.

	Supported Devices: PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXIe-5673E, PXIe-5820/5830/5831/5832/5840/5841
niRFSG Check If Configuration List Exists	Returns whether the configuration list that you specify as **list name** exists. **Supported Devices**: PXI/PXIe-5650/5651/5652, PXIe-5654/5654 with PXIe-5696, PXIe-5673E, PXIe-5820/5830/5831/5832/5840/5841

niRFSG Create Configuration List VI

Creates an empty configuration list. Use the Active Configuration List property to enable a configuration list created by this VI. Call the niRFSG Create Configuration List Step VI to add steps to the configuration list.

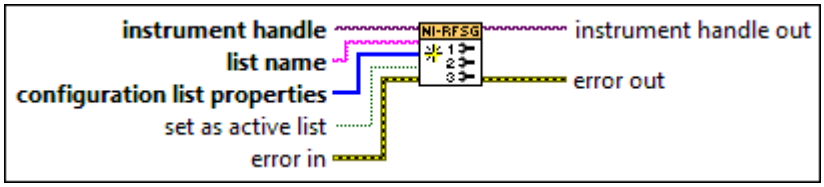
Supported Devices: PXIe-5644/5645/5646, PXIe-5650/5651/5652/5653/5654/5654 with PXIe-5696, PXIe-5673E, PXIe-5820/5830/5831/5832/5840/5841/5841 with PXIe-5655

Related Topics

RF List Mode

Using RF List Mode

Examples



I/O

instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

abc

list name specifies the name of the configuration list. This string is case-insensitive

and alphanumeric, and it cannot contain spaces or use reserved words.

configuration list properties specifies the properties that you intend to change between configuration list steps. Calling the niRFSG Create Configuration List VI allocates space for each of the configuration list properties. When you use the niRFSG Property Node to set one of the configuration list properties, that property is set as one of the configuration list steps. Use the Active Configuration List Step property to specify which configuration list step to configure.

You can include the following properties in your configuration list based on your device:

Property	PXIe-5644/5646	PXIe-5645	PXIe-5650/5651/5652	PXIe-5653	PXIe-5654	PXIe-5654 with PXIe-5696	PXIe-5673E	PXIe-5820	PXIe-5830/5831/5832	PXIe-5840/5841	PXIe-5841 with PXIe-5655
ALC Control						✓					
Amp Path						✓					
Ampli					✓	✓		✓	✓	✓	

tude Settling										
Attenuator Setting (dB)						✓				
Automatic Power Search						✓				
Digital Gain (dB)	✓	✓						✓	✓	✓
External Gain								✓	✓	✓
Frequency (Hz)	✓	✓	✓	✓	✓	✓	✓	✓		✓

Frequency Settling		✓	✓	✓	✓	✓		✓
IQ Out Port Carrier Frequency	✓					✓		
IQ Out Port Common Mode Offset	✓					✓		
IQ Out Port Level	✓					✓		
IQ Out Port	✓					✓		

Offset										
LO Source									✓	✓
Output Enabled					✓	✓				
Phase Offset (Degrees)	✓	✓	✓	✓			✓	✓	✓	✓
Power Level (dBm)	✓	✓	✓		✓	✓	✓		✓	✓
Pre-filter Gain (dB)							✓	✓	✓	✓
Pulse Modulation					✓	✓	✓			

n Enabled										
RF In LO Export Enabled										✓
Selected Ports									✓	
Signal Bandwidth (Hz)								✓		✓
Timer Event Interval (s)	✓	✓	✓		✓	✓	✓	✓	✓	✓
Upconverter	✓	✓					✓			✓

Center Frequency (Hz)			
Upconverter Frequency Offset (Hz)		✓	
Upconverter Frequency Offset Mode		✓	✓

set as active list sets this list as the active configuration list when this parameter is enabled. NI recommends that you set this parameter to TRUE when creating the list.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

Examples

Refer to the following VIs for examples of using the niRFSG Create Configuration List VI.

- RFSG Configuration List Frequency and Power Sweep VI: `labview\examples\instr\niRFSG`
- RFSG Configuration List Frequency and Power Sweep (Script Triggered) VI: `labview\examples\instr\niRFSG`
- RFSG Configuration List Frequency and Power Sweep (Timer Triggered) VI: `labview\examples\instr\niRFSG`

niRFSG Create Configuration List Step VI

Creates a new configuration list step in the configuration list specified by the Active Configuration List property. When you create a configuration list step, a new instance of each property specified by the configuration list properties is created. Configuration list properties are specified when a configuration list is created. The new instance of a property can be accessed with a property node using the Active Configuration List and Active Configuration List Step properties to index the desired instance of the property.

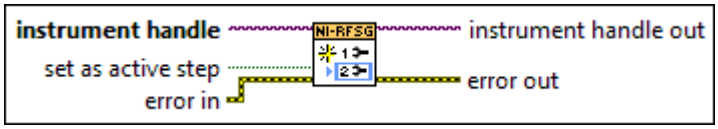
Supported Devices: PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXIe-5673E, PXIe-5820/5830/5831/5832/5840/5841

Related Topics

RF List Mode

Using RF List Mode

Examples



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

set as active step sets this step as the Active Configuration List Step property for the list specified by the Active Configuration List property. The default value is TRUE. NI recommends that you keep this parameter set to TRUE when creating the list steps.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

Examples

Refer to the following VIs for examples of using the niRFSG Create Configuration List Step VI.

- RFSG Configuration List Frequency and Power Sweep VI: `labview\examples\instr\niRFSG`
- RFSG Configuration List Frequency and Power Sweep (Script Triggered) VI: `labview\examples\instr\niRFSG`

niRFSG Delete Configuration List VI

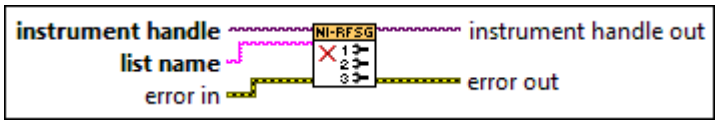
Deletes a previously created configuration list and all the configuration list steps in the configuration list. When a configuration list step is deleted, all the instances of the properties associated with the configuration list step are also removed. When you delete the active configuration list, NI-RFSG automatically resets the Active Configuration List property to "" (empty string), which indicates no list is active, and the Active Configuration List Step property to 0.

Supported Devices: PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXIe-5673E, PXIe-5820/5830/5831/5832/5840/5841

Related Topics

RF List Mode

Examples



I/O

instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

abc

list name specifies the name of the configuration list. This string is case-insensitive

and alphanumeric, and it cannot contain spaces or use reserved words.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

Examples

Refer to the following VIs for examples of using the niRFSG Delete Configuration List VI.

- RFSG Configuration List Frequency and Power Sweep (Script Triggered) VI: `labview\examples\instr\niRFSG`
- RFSG Configuration List Frequency and Power Sweep (Timer Triggered) VI: `labview\examples\instr\niRFSG`

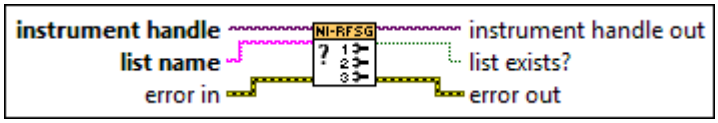
niRFSG Check If Configuration List Exists VI

Returns whether the configuration list that you specify as **list name** exists.

Supported Devices: PXI/PXIe-5650/5651/5652, PXIe-5654/5654 with PXIe-5696, PXIe-5673E, PXIe-5820/5830/5831/5832/5840/5841

Related Topics

RF List Mode



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

list name specifies the name of the configuration list. This string is case-insensitive.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

list exists? returns TRUE if the configuration list exists.

error out contains error information. This output provides standard error out functionality.

Configure Trigger

Owning Palette: Generation Configuration

Use the Trigger Configuration VIs to configure NI-RFSG triggers.

Palette Object	Description
niRFSG Configure Trigger	Configures the Start Triggers and Script Triggers. The NI-RFSG device must be in the Configuration state before you call this VI. This polymorphic VI has ten instances.
niRFSG Send Software Edge Trigger	Forces a trigger to occur. The specified trigger generates regardless of whether the trigger has been configured as a software trigger.

	Supported Devices: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842
niRFSG Export Signal	Routes signals (triggers, clocks, and events) to a specified output terminal. The NI-RFSG device must be in the Configuration state before you call this VI. **Supported Devices**: PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842
niRFSG Get Terminal Name	Returns the fully-qualified name of the specified signal. The fully-qualified name is helpful when you want to automatically route signals in a multi-segment chassis. **Supported Devices**:PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

niRFSG Configure Trigger VI

Configures the Start Triggers and Script Triggers. The NI-RFSG device must be in the Configuration state before you call this VI. This polymorphic VI has ten instances.

Related Topics

Triggers

Trigger Types

RF List Mode

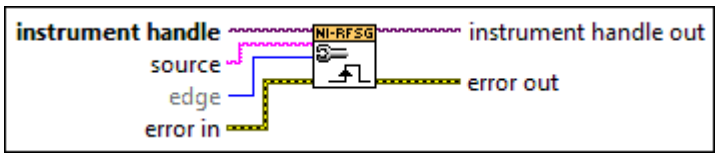
Examples

niRFSG Configure Start Trigger Digital Edge

Configures the Start Trigger for digital edge triggering.

Note For the PXIe-5654/5654 with PXIe-5696, the Start Trigger is valid only with a timer-based list when RF list mode is enabled.

Supported Devices: PXIe-5644/5645/5646, PXIe-5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

source specifies the trigger source terminal for the digital edge Start Trigger. NI-RFSG sets the Digital Edge Start Trigger Source property to this value. Refer to this property for possible values.

edge specifies the active edge for the digital edge Start Trigger. NI-RFSG sets the Digital Edge Start Trigger Edge property to this value.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

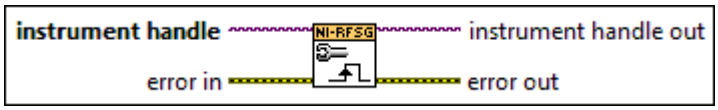
instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Configure Start Trigger Software

Configures the Start Trigger for software triggering. Refer to the niRFSG Send Software Edge Trigger VI for more information about using a software trigger.

Supported Devices: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

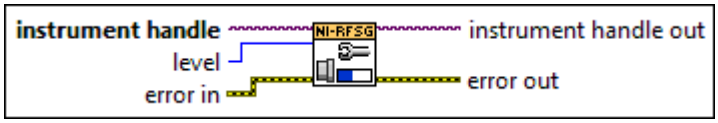
niRFSG Configure Start Trigger P2P Endpoint Fullness

Configures the Start Trigger to detect peer-to-peer endpoint fullness. Generation begins when the number of samples in the peer-to-peer endpoint reaches the threshold specified by the **level** parameter.

Note Due to an additional internal FIFO in the RF signal generator, the writer peer actually writes 2,304 bytes more than the quantity of

data specified by this VI to satisfy the trigger level.

Supported Devices: PXIe-5673E, PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

level specifies the quantity of data in the FIFO endpoint that asserts the trigger, in samples per channel. The default value is -1, which allows NI-RFSG to select the appropriate fullness value.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

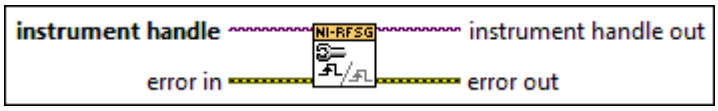
instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Disable Start Trigger

Configures the device not to wait for a Start Trigger. This VI is necessary only if you previously configured a Start Trigger and now want it disabled.

Supported Devices: PXIe-5644/5645/5646, PXIe-5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

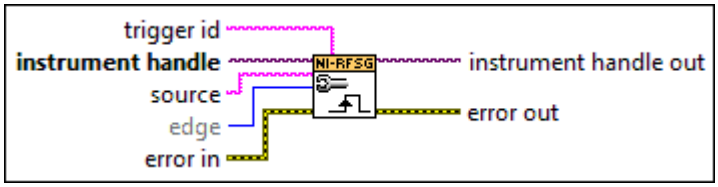
instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Configure Script Trigger Digital Edge

Configures a specified Script Trigger for digital edge triggering.

Supported Devices: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

trigger id specifies the Script Trigger to configure.

source specifies the trigger source terminal for the digital edge Script Trigger. NI-RFSG sets the Digital Edge Script Trigger Source property to this value. Refer to this property for possible values.

edge specifies the active edge for the digital edge Script Trigger. NI-RFSG sets the Digital Edge Script Trigger Edge property to this value.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

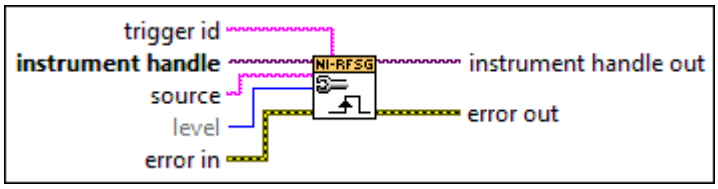
instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Configure Script Trigger Digital Level

Configures a specified Script Trigger for digital level triggering.

Supported Devices: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

trigger id specifies the Script Trigger to configure.

source specifies the trigger source terminal for the digital level Script Trigger. NI-RFSG sets the Digital Level Script Trigger Source property to this value. Refer to this property for possible values.

level specifies the active level for the digital level Script Trigger. NI-RFSG sets the Digital Level Script Trigger Active Level property to this value. Refer to this property for possible values.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

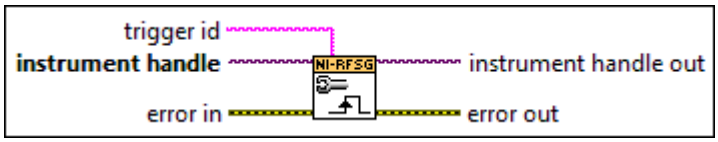
instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Configure Script Trigger Software

Configures a specified Script Trigger for software triggering.

Supported Devices: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

trigger id specifies the Script Trigger to configure.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

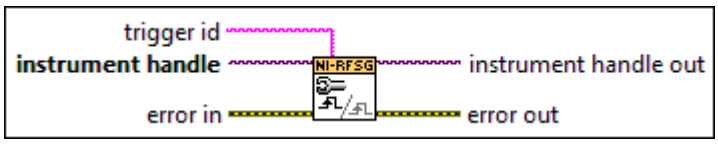
instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Disable Script Trigger

Configures the device not to wait for the specified Script Trigger. Call this VI only if you previously configured a Script Trigger and now want it disabled.

Supported Devices: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from

either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

trigger id specifies the Script Trigger to configure.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

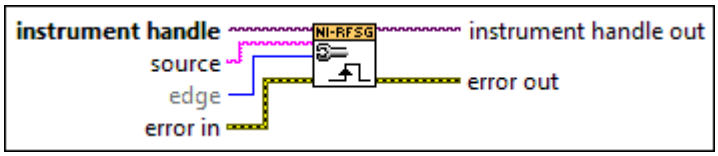
instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Configure Configuration List Step Trigger Digital Edge

Configures the configuration list step trigger for digital edge triggering.

Supported Devices: PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXIe-5673, PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

source specifies the trigger source terminal for the digital edge configuration list step trigger. NI-RFSG sets the Configuration List Step Trigger

Digital Edge Source property to this value. Refer to this property for possible values.

edge specifies the active edge for the digital edge configuration list step trigger. NI-RFSG sets the Configuration List Step Trigger Digital Edge property to this value.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

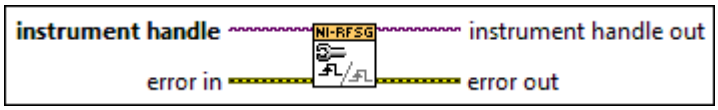
instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Disable Configuration List Step Trigger

Configures the device not to receive triggers for the configuration list. The configuration list does not advance steps if this trigger is disabled. Call this VI only if a previously configured trigger needs to be disabled.

Supported Devices: PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXIe-5673E, PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

Examples

Refer to the following VIs for examples of using the niRFSG Configure Trigger VIs.

- RFSG Single Tone Generation with Start Trigger VI: `labview\examples\instr\niRFSG`
- RFSG Scripting with Triggers VI: `labview\examples\instr\niRFSG`

niRFSG Send Software Edge Trigger VI

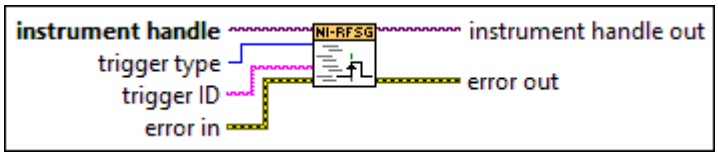
Forces a trigger to occur. The specified trigger generates regardless of whether the trigger has been configured as a software trigger.

Supported Devices: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

Related Topics

Triggers

Examples



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

trigger type specifies the type of trigger to send. NI-RFSG can send a Start Trigger or a Script Trigger.

trigger ID specifies the Script Trigger to configure. This parameter is valid only when you set the **trigger type** control to **Script Trigger**.

scriptTrigger0	Specifies Script Trigger 0.
scriptTrigger1	Specifies Script Trigger 1.
scriptTrigger2	Specifies Script Trigger 2.
scriptTrigger3	Specifies Script Trigger 3.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

Examples

Refer to the following VIs for examples of using the niRFSG Send Software Edge Trigger VI.

- RFSG Single Tone Generation with Start Trigger VI: `labview\examples\instr\niRFSG`
- RFSG Scripting with Triggers VI: `labview\examples\instr\niRFSG`

niRFSG Export Signal VI

Routes signals (triggers, clocks, and events) to a specified output terminal. The NI-RFSG device must be in the Configuration state before you call this VI.

Supported Devices: PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

Related Topics

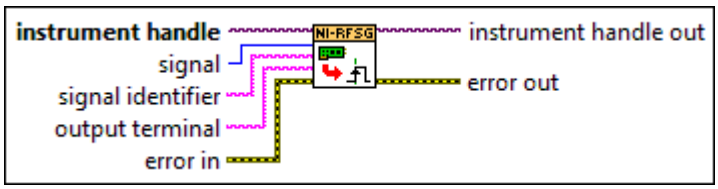
Triggers

Events

PFI Lines

PXI Trigger Lines

Details Examples



I/O

instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

I32

signal specifies the type of signal to route.

Start Trigger	Exports a Start Trigger.
Script Trigger	Exports a Script Trigger.
Marker Event	Exports a Marker Event.
Ref Clock	Routes the onboard 10 MHz synchronization clock (PXI chassis only).
Started Event	Exports a Started Event.
Done Event	Exports a Done Event.
Configuration List Step Trigger	Exports a Configuration List Step Trigger.
Configuration Settled Event	Exports a Configuration Settled Event.

signal identifier specifies the Script Trigger or Marker Event to configure. This parameter is useful when the **signal** parameter is set to **Script Trigger** or **Marker Event**. Otherwise, set this parameter to **None**.

scriptTrigger0	Specifies Script Trigger 0.
scriptTrigger1	Specifies Script Trigger 1.
scriptTrigger2	Specifies Script Trigger 2.
scriptTrigger3	Specifies Script Trigger 3.
marker0	Specifies Marker 0.
marker1	Specifies Marker 1.
marker2	Specifies Marker 2.
marker3	Specifies Marker 3.

None	Does not export a signal.

output terminal specifies the terminal where the signal will be exported. You can choose not to export any signal. For the PXIe-5841 with PXIe-5655, the signal is exported to the terminal on the PXIe-5841.

Do not export signal	Does not export a signal.
RefOut	Exports a signal to the REF OUT terminal.
RefOut2	Exports a signal to the REF OUT2 terminal.
ClkOut	Exports a signal to the CLKOUT terminal.
PFI0	Exports a signal to the PFI 0 terminal.
PFI1	Exports a signal to the PFI 1 terminal.
PFI4	Exports a signal to the PFI 4 terminal.
PFI5	Exports a signal to the PFI 5 terminal.
PXI_Trig0	Exports a signal to the PXI trigger line 0 terminal.
PXI_Trig1	Exports a signal to the PXI trigger line 1 terminal.
PXI_Trig2	Exports a signal to the PXI trigger line 2 terminal.
PXI_Trig3	Exports a signal to the PXI trigger line 3 terminal.

PXI_Trig4	Exports a signal to the PXI trigger line 4 terminal.
PXI_Trig5	Exports a signal to the PXI trigger line 5 terminal.
PXI_Trig6	Exports a signal to the PXI trigger line 6 terminal.
PXI_Star	Exports a signal to the PXI star trigger line terminal. This value is not supported by the PXIe-5644/5645/5646.
PXIe_DStarC	Exports a signal to the PXIe DStar C trigger line terminal. This value is supported on only the PXIe-5820/5830/5831/5832/5840/5841/5842.
TrigOut	Exports a signal to the TRIG IN/OUT terminal.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

Details

If you export a signal with this VI and commit the session with the niRFSG Commit VI, the signal is routed to the **output terminal** you specify. If you then reconfigure the signal to have a different **output terminal**, the previous **output terminal** is tristated when the session is next committed. If you change the **output terminal** to **Do Not Export** and commit the session, the previous **output terminal** is tristated.

Any signals exported within a session persist after the session closes to prevent signal glitches between sessions. If you want to tristate the exported output terminal that the signal was exported to when the session closes, first change the value of the **output terminal** for the exported signal to **Do Not Export**, and then commit the session again before closing it.

You can also tristate all PFI lines by setting the **reset device** input in the niRFSG Initialize VI.

Examples

Refer to the following VIs for examples of using the niRFSG Export Signal VI.

- RFSG Export Start Trigger VI: `labview\examples\instr\niRFSG`
- RFSG Marker Events VI: `labview\examples\instr\niRFSG`

niRFSG Get Terminal Name VI

Returns the fully-qualified name of the specified signal. The fully-qualified name is helpful when you want to automatically route signals in a multi-segment chassis.

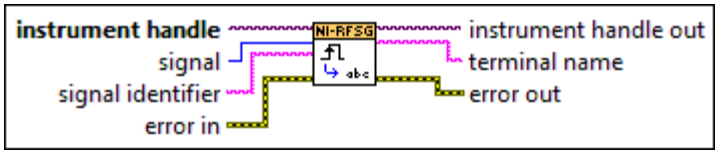
Supported Devices:PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

Related Topics

Triggers

Events

Syntax for Terminal Names



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

signal specifies the signal to query.

Start Trigger	Queries the Start Trigger.
Script Trigger	Queries a Script Trigger.
Marker Event	Queries a Marker Event.
Ref Clock	Queries the Reference Clock.
Started Event	Queries the Started Event.
Done Event	Queries the Done Event.
Configuration List Step Trigger	Queries the Configuration List Step Trigger.
Configuration Settled Event	Queries the Configuration Settled Event.

signal identifier specifies the Script Trigger or Marker Event to query. This parameter is necessary when you set the **signal** parameter to **Script Trigger** or **Marker Event**. Otherwise, set this parameter to **None**.

scriptTrigger0	Specifies Script Trigger 0.

scriptTrigger1	Specifies Script Trigger 1.
scriptTrigger2	Specifies Script Trigger 2.
scriptTrigger3	Specifies Script Trigger 3.
marker0	Specifies Marker 0.
marker1	Specifies Marker 1.
marker2	Specifies Marker 2.
marker3	Specifies Marker 3.
None	Does not specify a signal identifier.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

terminal name returns the fully-qualified string.

error out contains error information. This output provides standard error out functionality.

Configure Clock

Owning Palette: Generation Configuration
Use the Clock Configuration VIs to configure the clocks.

Palette Object	Description
niRFSG Configure Ref Clock	Configures the NI-RFSG device Reference Clock. The Reference Clock ensures that the NI-RFSG d

	evices are operating from a common timebase. The NI-RFSG device must be in the Configuratio n state before you call this VI. **Supported Devices**: PXIe-5644/5645/5646, PXI /PXIe-5650/5651/5652, PXIe-5653/5654/5654 wit h PXIe-5696, PXI-5670/5671, PXIe-5672/5673/567 3E, PXIe-5820/5830/5831/5832/5840/5841/5842
niRFSG Configure PXI Chassis Clk10	Specifies the signal to drive the 10 MHz Referenc e Clock on the PXI backplane. This option can o nly be configured when the PXI-5610 is in Slot 2 of the PXI chassis. The NI-RFSG device must be i n the Configuration state before you call this VI. **Supported Devices**: PXI-5610, PXI-5670/5671
niRFSG Export Signal	Routes signals (triggers, clocks, and events) to a specified output terminal. The NI-RFSG device must be in the Configuration state before you ca ll this VI. **Supported Devices**: PXIe-5644/5645/5646, PXI /PXIe-5650/5651/5652, PXIe-5653/5654/5654 wit h PXIe-5696, PXI-5670/5671, PXIe-5672/5673/567 3E, PXIe-5820/5830/5831/5832/5840/5841/5842

niRFSG Configure Ref Clock VI

Configures the NI-RFSG device Reference Clock. The Reference Clock ensures that the NI-RFSG devices are operating from a common timebase. The NI-RFSG device must be in the Configuration state before you call this VI.

Supported Devices: PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

Related Topics

PXIe-5672 Timing Configurations

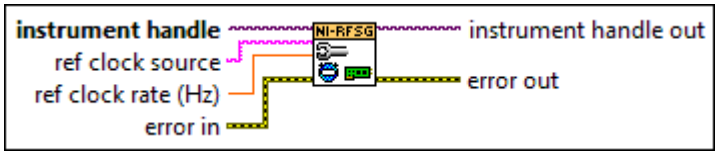
PXIe-5673 Timing Configurations

PXIe-5673E Timing Configurations

PXIe-5830 Timing Configurations

PXIe-5831/5832 Timing Configurations

Examples



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

ref clock source specifies the source of the Reference Clock signal.

Onboard Clock (default)	Uses the onboard Reference Clock as the clock source. **PXIe-5830/5831/5832** —For the PXIe-5830, connect the PXIe-5820 REF IN connector to the PXIe-3621 REF OUT connector. For the PXIe-5831, connect the PXIe-5820 REF IN connector to the PXIe-3622 REF OUT connector. For the PXIe-5832, connect the PXIe-5820 REF IN connector to the PXIe-3623 REF OUT connector. **PXIe-5831 with PXIe-5653** —Connect the PXIe-5820 REF IN connector to

	the PXIe-3622 REF OUT connector. Connect the PXIe-5653 REF OUT (10 MHz) connector to the PXIe-3622 REF IN connector. **PXIe-5832 with PXIe-5653** —Connect the PXIe-5820 REF IN connector to the PXIe-3623 REF OUT connector. Connect the PXIe-5653 REF OUT (10 MHz) connector to the PXIe-3623 REF IN connector. **PXIe-5841 with PXIe-5655** —Lock to the PXIe-5655 onboard clock. Connect the REF OUT connector on the PXIe-5655 to the PXIe-5841 REF IN connector. **PXIe-5842**—Lock to the associated PXIe-5655 onboard clock. Cables between modules are required as shown in the Getting Started Guide for the instrument.
RefIn	Uses the clock signal present at the front panel REF IN connector as the clock source. **PXIe-5830/5831/5832** —For the PXIe-5830, co

nnect the PXIe-5820 RE F IN connector to the P XIe- 3621 REF OUT con nector. For the PXIe-58 31, connect the PXIe-5 820 REF IN connector t o the PXIe-3622 REF O UT connector. For the PXIe-5832, connect the PXIe-5820 REF IN conn ector to the PXIe-3623 REF OUT connector. Fo r the PXIe-5830, lock th e external signal to the PXIe-3621 REF IN conn ector. For the PXIe-583 1, lock the external sig nal to the PXIe-3622 RE F IN connector. For the PXIe-5832, lock the ext ernal signal to the PXIe -3623 REF IN connecto r.

PXIe-5831 with PXIe -5653

—Connect the PXIe-58 20 REF IN connector to the PXIe-3622 REF OUT connector. Connect th e PXIe-5653 REF OUT (10 MHz) connector to t he PXIe-3622 REF IN co nnector. Lock the exter nal signal to the PXIe-5 653 REF IN connector.

PXIe-5832 with PXIe -5653

—Connect the PXIe-58 20 REF IN connector to the PXIe-3623 REF OUT connector. Connect th

	e PXIe-5653 REF OUT (10 MHz) connector to t he PXIe-3623 REF IN co nnector. Lock the exter nal signal to the PXIe-5 653 REF IN connector. **PXIe-5841 with PXIe -5655** —Lock to the signal at the REF IN connector o n the associated PXIe-5655. Connect the PXIe -5655 REF OUT connec tor to the PXIe-5841 RE F IN connector. **PXIe-5842**—Lock to t he signal at the REF IN connector on the asso ciated PXIe-5655. Cabl es between modules a re required as shown i n the Getting Started G uide for the instrumen t.
PXI Clock	Uses the PXI_CLK sign al, which is present on the PXI backplane, as t he clock source.
PXI_ClkMaster	This value is valid on o nly the PXIe-5831 with PXIe-5653 and the PXIe -5832 with PXIe-5653. **PXIe-5831 with PXIe -5653** —NI-RFSG configures t he PXIe-5653 to export the Reference clock an d configures the PXIe-5 820 and PXIe-3622 to u

	se **PXI_Clk** as the Refe rence Clock source. Co nnect the PXIe-5653 RE F OUT (10 MHz) connec tor to the PXI chassis R EF IN connector. **PXIe-5832 with PXIe -5653** —NI-RFSG configures t he PXIe-5653 to export the Reference clock an d configures the PXIe-5 820 and PXIe-3623 to u se **PXI_Clk** as the Refe rence Clock source. Co nnect the PXIe-5653 RE F OUT (10 MHz) connec tor to the PXI chassis R EF IN connector.

ref clock rate specifies the Reference Clock rate, in hertz (Hz), of the signal present at the REF IN or CLK IN connector. This parameter is only valid when the **ref clock source** parameter is set to **RefIn**. The default value is Auto (-1.0), which allows NI-RFSG to use the default Reference Clock rate for the device or automatically detect the Reference Clock rate, if supported. Refer to the Reference Clock Rate property for possible values.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the

niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

Examples

Refer to the following VIs for examples of using the niRFSG Configure Ref Clock VI.

- RFSG Getting Started Single Tone Generation VI: `labview\examples\instr\niRFSG`
- RFSG Arbitrary Waveform Generation (Arb) VI: `labview\examples\instr\niRFSG`
- RFSG Getting Started Script (Script) VI: `labview\examples\instr\niRFSG`

niRFSG Configure PXI Chassis Clk10 VI

Specifies the signal to drive the 10 MHz Reference Clock on the PXI backplane. This option can only be configured when the PXI-5610 is in Slot 2 of the PXI chassis. The NI-RFSG device must be in the Configuration state before you call this VI.

Supported Devices: PXI-5610, PXI-5670/5671

Related Topics

Timing Configurations

System Reference Clock

instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

PXI Clk10 source specifies the source of the Reference Clock signal.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Export Signal VI

Routes signals (triggers, clocks, and events) to a specified output terminal. The NI-RFSG device must be in the Configuration state before you call this VI.

Supported Devices: PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

Related Topics

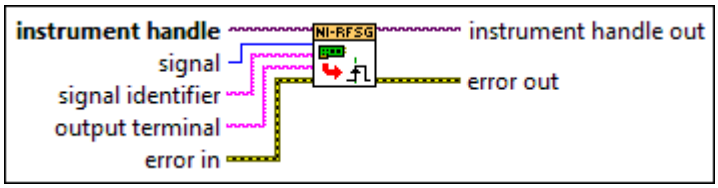
Triggers

Events

PFI Lines

PXI Trigger Lines

Details Examples



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

signal specifies the type of signal to route.

Start Trigger	Exports a Start Trigger.
Script Trigger	Exports a Script Trigger.
Marker Event	Exports a Marker Event.
Ref Clock	Routes the onboard 10 MHz synchronization clock (PXI chassis only).
Started Event	Exports a Started Event.
Done Event	Exports a Done Event.
Configuration List Step Trigger	Exports a Configuration List Step Trigger.
Configuration Settled Event	Exports a Configuration Settled Event.

signal identifier specifies the Script Trigger or Marker Event to configure. This parameter is useful when the **signal** parameter is set to **Script Trigger** or **Marker Event**. Otherwise, set this parameter to **None**.

scriptTrigger0	Specifies Script Trigger 0.
scriptTrigger1	Specifies Script Trigger 1.
scriptTrigger2	Specifies Script Trigger 2.
scriptTrigger3	Specifies Script Trigger 3.

marker0	Specifies Marker 0.
marker1	Specifies Marker 1.
marker2	Specifies Marker 2.
marker3	Specifies Marker 3.
None	Does not export a signal.

output terminal specifies the terminal where the signal will be exported. You can choose not to export any signal. For the PXIe-5841 with PXIe-5655, the signal is exported to the terminal on the PXIe-5841.

Do not export signal	Does not export a signal.
RefOut	Exports a signal to the REF OUT terminal.
RefOut2	Exports a signal to the REF OUT2 terminal.
ClkOut	Exports a signal to the CLKOUT terminal.
PFI0	Exports a signal to the PFI 0 terminal.
PFI1	Exports a signal to the PFI 1 terminal.
PFI4	Exports a signal to the PFI 4 terminal.
PFI5	Exports a signal to the PFI 5 terminal.
PXI_Trig0	Exports a signal to the PXI trigger line 0 terminal.
PXI_Trig1	Exports a signal to the PXI trigger line 1 terminal.

PXI_Trig2	Exports a signal to the PXI trigger line 2 terminal.
PXI_Trig3	Exports a signal to the PXI trigger line 3 terminal.
PXI_Trig4	Exports a signal to the PXI trigger line 4 terminal.
PXI_Trig5	Exports a signal to the PXI trigger line 5 terminal.
PXI_Trig6	Exports a signal to the PXI trigger line 6 terminal.
PXI_Star	Exports a signal to the PXI star trigger line terminal. This value is not supported by the PXIe-5644/5645/5646.
PXIe_DStarC	Exports a signal to the PXIe DStar C trigger line terminal. This value is supported on only the PXIe-5820/5830/5831/5832/5840/5841/5842.
TrigOut	Exports a signal to the TRIG IN/OUT terminal.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

Details

If you export a signal with this VI and commit the session with the niRFSG Commit VI, the signal is routed to the **output terminal** you specify. If you then reconfigure the signal to have a different **output terminal**, the previous **output terminal** is tristated when the session is next committed. If you change the **output terminal** to **Do Not Export** and commit the session, the previous **output terminal** is tristated.

Any signals exported within a session persist after the session closes to prevent signal glitches between sessions. If you want to tristate the exported output terminal that the signal was exported to when the session closes, first change the value of the **output terminal** for the exported signal to **Do Not Export**, and then commit the session again before closing it.

You can also tristate all PFI lines by setting the **reset device** input in the niRFSG Initialize VI.

Examples

Refer to the following VIs for examples of using the niRFSG Export Signal VI.

- RFSG Export Start Trigger VI: `labview\examples\instr\niRFSG`
- RFSG Marker Events VI: `labview\examples\instr\niRFSG`

Peer to Peer

Owning Palette: Generation Configuration
Use the peer-to-peer VIs to configure peer-to-peer streaming.

Palette Object	Description

niRFSG Get Stream Endpoint Handle	Returns a reader endpoint handle that can be used with NI-P2P to configure a peer-to-peer stream with an RF signal generator endpoint. **Supported Devices**: PXIe-5673E, PXIe-5820/5830/5831/5832/5840/5841/5842
niRFSG Write P2P Endpoint (I16)	Writes an array of 16-bit integer data to the peer-to-peer endpoint. Use this VI to write initial data from the host to the endpoint before starting generation to avoid underflow when you start the generation. **Supported Devices**: PXIe-5673E

niRFSG Get Stream Endpoint Handle VI

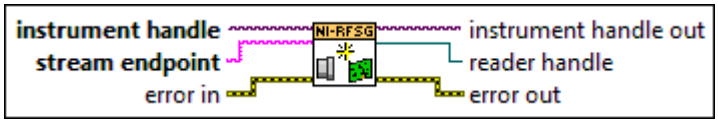
Returns a reader endpoint handle that can be used with NI-P2P to configure a peer-to-peer stream with an RF signal generator endpoint.

Supported Devices: PXIe-5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

Related Topics

Configuring a Peer-to-Peer Endpoint

Configuring Flow Control



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

stream endpoint indicates which stream resources to use.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

reader handle returns the reader endpoint handle that is used with NI-P2P to create a stream with the NI-RFSG device as an endpoint.

error out contains error information. This output provides standard error out functionality.

niRFSG Write P2P Endpoint (I16) VI

Writes an array of 16-bit integer data to the peer-to-peer endpoint. Use this VI to write initial data from the host to the endpoint before starting generation to avoid underflow when you start the generation.

Supported Devices: PXIe-5673E

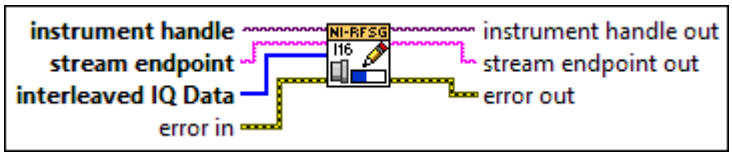
Related Topics

Configuring a Peer-to-Peer Stream—Refer to this topic for more information about configuring a stream.

Configuring Flow Control

Starting Peer-to-Peer Generation

Reconfiguring a Stream



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

stream endpoint is the stream endpoint FIFO to configure.

interleaved IQ Data specifies the array of data to write into the endpoint FIFO. The binary data is left-justified.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

stream endpoint out specifies which stream resources to use.

error out contains error information. This output provides standard error out functionality.

De-embedding

Owning Palette: Generation Configuration
Use the NI-RFSG De-embedding VIs to de-embed measurements.

Related Topics

De-embedding Overview

Palette Object	Description
niRFSG Create De-embedding S-parameter Table	Creates an S-parameter de-embedding table for the port.
niRFSG Delete De-embedding Table	Deletes the selected de-embedding table for a given port.

niRFSG Delete All De-embedding Tables	Deletes all configured de-embedding tables for t he session.
niRFSG Select De-embedding Table	Selects the de-embedding table to apply to mea surements made with the port.
niRFSG Configure De-embedding Table Interpol ation	Specifies the interpolation method to use when interpolating parameters from the de-embeddi ng table. Linear interpolation is the default.
niRFSG Get De-embedding S-parameters	Returns the S-parameters used for de-embeddi ng a measurement on the selected port. This inc ludes interpolation of the parameters based on the configured carrier frequency. This VI returns an empty array if no de-embedding is complete d.  **Note** The port orienta tion for the returned S-parameters is normaliz ed to **Port2 Towards DUT**.

niRFSG Create De-embedding S-parameter Table VI

Creates an S-parameter de-embedding table for the port.

Supported Devices: PXIe-5830/5831/5832/5840/5841/5842

Related Topics

De-embedding Overview

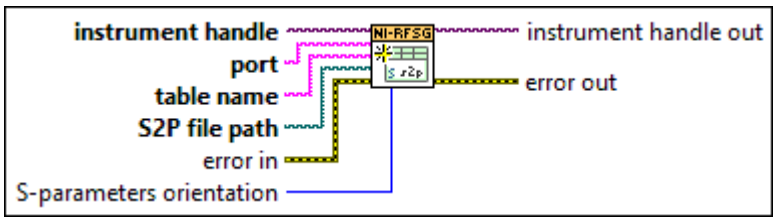
S-parameters

niRFSG Create De-embedding S-parameter Table (S2P file)

Creates an S-parameter de-embedding table for the port based on the specified S2P file.

If you only create one table for a port, NI-RFSG automatically selects that table to de-embed the generation.

Supported Devices: PXIe-5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

port specifies the name of the port. The only valid value for the PXIe-5840/5841 is "" (empty string).

table name specifies the name of the table. The name must be unique for a given port, but not across ports. If you use the same name as an existing table, the table is replaced.

S2P file path specifies the path to the S2P file that contains de-embedding information for the specified port.

S-parameters orientation specifies the orientation of the data in the S2P file relative to the port on the DUT port. The default value is **Port2 Towards DUT**.

Port1 Towards DUT (24000)	Port 1 of the S2P is oriented towards the DUT port.
Port2 Towards DUT (24001)	Port 2 of the S2P is oriented towards the DUT port.

error in describes error conditions that occur before this node runs. The default is `no erro`

`r`. This node does not pass the **error in** input to the **error out** output. Regardless of whether an error occurred before this node runs, the node returns `no error`.

This input contains **status**, **code**, and **source**, which provide standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

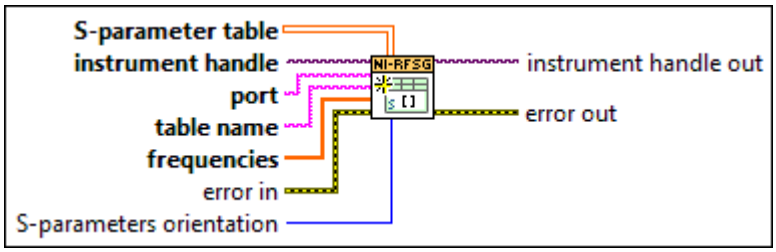
error out contains error information. This output provides standard error out functionality.

niRFSG Create De-embedding S-parameter Table (Array)

Creates an s-parameter de-embedding table for the port from the input data.

If you only create one table for a port, NI-RFSG automatically selects that table to de-embed the generation.

Supported Devices: PXIe-5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

port specifies the name of the port. The only valid value for the PXIe-5840/5841 is "" (empty string).

table name specifies the name of the table. The name must be unique for a given port, but not across ports. If you use the same name as an existing table, the table is replaced.

frequencies specifies the frequencies for the **S-parameter table** rows. Frequencies must be unique and in ascending order.

S-parameter table specifies the S-parameters for each frequency. The first index indicates which frequency the entry is for. The second index is the target port for the S-parameter and the third index is the the source port. For example, to index the s21 parameter for the fourth frequency in the table, you would use {3, 1, 0} as the indexes since they are zero-based.

S-parameters orientation specifies the orientation of the data in the S2P file relative to the port on the DUT port. The default value is **Port2 Towards DUT**.

Port1 Towards DUT (24000)	Port 1 of the S2P is oriented towards the DUT port.
Port2 Towards DUT (24001)	Port 2 of the S2P is oriented towards the DUT port.

error in describes error conditions that occur before this node runs. The default is `no error`. This node does not pass the **error in** input to the **error out** output. Regardless of whether an error occurred before this node runs, the node returns `no error`.

This input contains **status**, **code**, and **source**, which provide standard error in functionality.

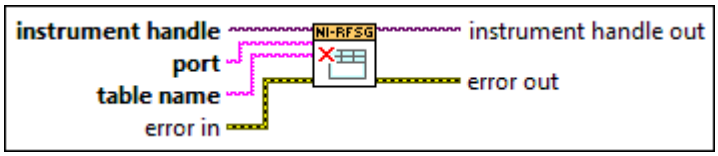
instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Delete De-embedding Table VI

Deletes the selected de-embedding table for a given port.

Supported Devices: PXIe-5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

port specifies the name of the port. The only valid value for the PXIe-5840/5841 is "" (empty string).

table name specifies the name of the table.

error in describes error conditions that occur before this node runs. The default is `no error`. This node does not pass the **error in** input to the **error out** output. Regardless of whether an

error occurred before this node runs, the node returns `no error`.

This input contains **status**, **code**, and **source**, which provide standard error in functionality.

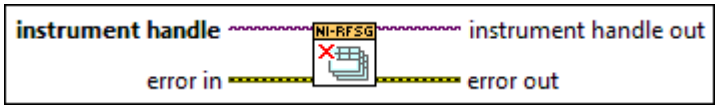
instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Delete All De-embedding Tables VI

Deletes all configured de-embedding tables for the session.

Supported Devices: PXIe-5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error in describes error conditions that occur before this node runs. The default is `no error`. This node does not pass the **error in** input to the **error out** output. Regardless of whether an error occurred before this node runs, the node returns `no error`.

This input contains **status**, **code**, and **source**, which provide standard error in functionality.

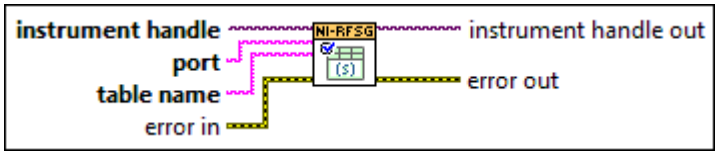
instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Select De-embedding Table VI

Selects the de-embedding table to apply to measurements made with the port.

Supported Devices: PXIe-5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

port specifies the name of the port. The only valid value for the PXIe-5840/5841 is "" (empty string).

table name specifies the name of the table.

error in describes error conditions that occur before this node runs. The default is `no error`. This node does not pass the **error in** input to the **error out** output. Regardless of whether an error occurred before this node runs, the node returns `no error`.

This input contains **status**, **code**, and **source**, which provide standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Configure De-embedding Table Interpolation VI

Specifies the interpolation method to use when interpolating parameters from the de-embedding table. Linear interpolation is the default.

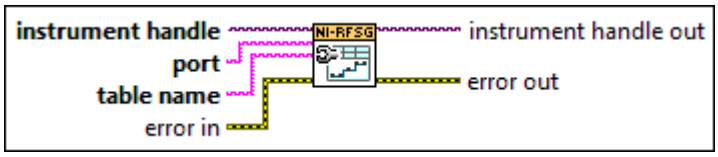
Supported Devices: PXIe-5830/5831/5832/5840/5841/5842

niRFSG Configure De-embedding Table Interpolation (Nearest)

Selects the nearest interpolation method.

The parameters of the table nearest to the carrier frequency are used for de-embedding.

Supported Devices: PXIe-5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

port specifies the name of the port. The only valid value for the PXIe-5840/5841 is "" (empty string).

table name specifies the name of the table.

error in describes error conditions that occur before this node runs. The default is `no error`. This node does not pass the **error in** input to the **error out** output. Regardless of whether an error occurred before this node runs, the node returns `no error`.

This input contains **status**, **code**, and **source**, which provide standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

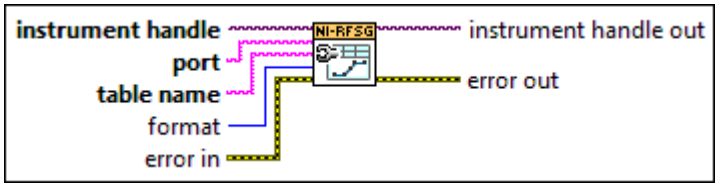
error out contains error information. This output provides standard error out functionality.

niRFSG Configure De-embedding Table Interpolation (Linear)

Selects the linear interpolation method.

If the carrier frequency does not match a row in the de-embedding table, NI-RFSG performs a linear interpolation based on the entries in the de-embedding table to determine the parameters used for de-embedding.

Supported Devices: PXIe-5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

port specifies the name of the port. The only valid value for the PXIe-5840/5841 is "" (empty string).

table name specifies the name of the table.

format specifies the format of parameters to interpolate. The default value is **Real and Imaginary**.

Real and Imaginary (4000)	Results in a linear interpolation of the real portion of the complex number and a separate linear interpolation of the complex portion.
Magnitude and Phase (4001)	Results in a linear interpolation of the magnitude and a separate linear interpolation of the phase.
Magnitude(dB) and Phase (4002)	Results in a linear interpolation of the magnitude, in decibels, and a separate linear interpolation of the phase.

error in describes error conditions that occur before this node runs. The default is `no error`. This node does not pass the **error in** input to the **error out** output. Regardless of whether an

error occurred before this node runs, the node returns `no error`.

This input contains **status**, **code**, and **source**, which provide standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Configure De-embedding Table Interpolation (Spline)

Selects the spline interpolation method.

If the carrier frequency does not match a row in the de-embedding table, NI-RFSG performs a spline interpolation based on the entries in the de-embedding table to determine the parameters used for de-embedding.

Supported Devices: PXIe-5830/5831/5832/5840/5841/5842

instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

port specifies the name of the port. The only valid value for the PXIe-5840/5841 is "" (empty string).

table name specifies the name of the table.

error in describes error conditions that occur before this node runs. The default is `no error`. This node does not pass the **error in** input to the **error out** output. Regardless of whether an error occurred before this node runs, the node returns `no error`.

This input contains **status**, **code**, and **source**, which provide standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

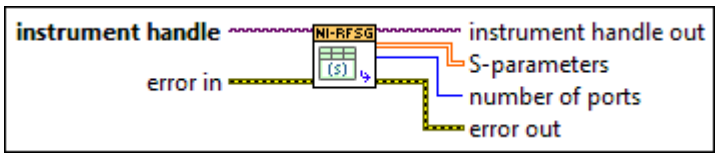
error out contains error information. This output provides standard error out functionality.

niRFSG Get De-embedding S-parameters VI

Returns the S-parameters used for de-embedding a measurement on the selected port. This includes interpolation of the parameters based on the configured carrier frequency. This VI returns an empty array if no de-embedding is completed.

Note The port orientation for the returned S-parameters is normalized to **Port2 Towards DUT**.

Supported Devices: PXIe-5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from

either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error in describes error conditions that occur before this node runs. The default is `no error`. This node does not pass the **error in** input to the **error out** output. Regardless of whether an error occurred before this node runs, the node returns `no error`.

This input contains **status**, **code**, and **source**, which provide standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

S-parameters returns an array of S-parameters. The first index indicates the target port for the S-parameter and the second index is the source port.

For example, to index the s21 parameter, use {1, 0} for the indexes since they are zero-based.

number of ports returns the number of S-parameter ports. The **S-parameter** array is always n x n, where n is the number of ports.

error out contains error information. This output provides standard error out functionality.

niRFSG Abort VI

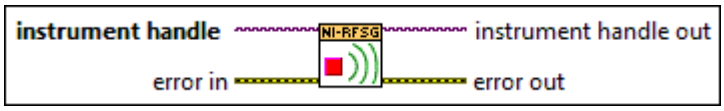
Stops signal generation.

Supported Devices: PXI-5610, PXIe-5611, PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

Related Topics

NI-RFSG Programming State Model

Examples



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error in describes error conditions that occur before this node runs. The default is `no error`. This node passes the **error in** input to the **error out** output. This node will run regardless of whether an error occurred before it.

This input contains **status**, **code**, and **source**, which provide standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

Examples

Refer to the RFSG Arbitrary Waveform Streaming VI in the `labview\examples\instr\niRFSG` directory for an example of using the niRFSG Abort VI.

Utility

Owning Palette: NI-RFSG VI Reference

Use the utility VIs to access additional features of the NI-RFSG instrument driver.

Palette Object	Description
niRFSG Initialize With Options	Opens a session to the device you specify as the **resource name** and returns an **instrument handle** that you use to identify the instrument in all subsequent NI-RFSG VIs. This VI also configures the device using the **option string** input. **Supported Devices**: PXI-5610, PXIe-5611, PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842
niRFSG Commit	Programs the device with the correct settings. Calling this VI moves the NI-RFSG device from the Configuration state to the Committed state. After this VI executes, a change to any property reverts the NI-RFSG device to the Configuration state. **Supported Devices**: PXI-5610, PXIe-5611, PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842
niRFSG Wait Until Settled	Waits until the RF output signal settles. This VI is useful for devices that support changes while in the Generation state. Call this VI after making a dynamic change to wait for the output signal to settle. You can also call this VI after calling the

	niRFSG Commit VI to wait for changes to settle. The niRFSG Wait Until Settled VI is not required after calling the niRFSG Initiate VI because the ni RFSG Initiate VI automatically waits for the outp ut to settle. **Supported Devices**: PXI-5610, PXIe-5611, PXIe -5644/5645/5646, PXI/PXIe-5650/5651/5652, PXI e-5653/5654/5654 with PXIe-5696, PXI-5670/567 1, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/ 5832/5840/5841/5842
niRFSG Configure Output Enabled	Enables or disables signal output. Setting **outp ut enabled** to FALSE while in the Generation st ate attenuates the generated signal so that no si gnal is output. **Supported Devices**: PXI-5610, PXIe-5611, PXIe -5644/5645/5646, PXI/PXIe-5650/5651/5652, PXI e-5653/5654/5654 with PXIe-5696, PXI-5670/567 1, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/ 5832/5840/5841/5842
niRFSG Self Test	Performs a self-test on the NI-RFSG device and r eturns the test results. This VI performs a simple series of tests to determine whether the NI-RFS G device is powered up and responding. This VI does not affect external I/O connections or conn ections between devices. Complete functional t esting and calibration are not performed by this VI. The NI-RFSG device must be in the Configura tion state before you call this VI. **Supported Devices**: PXI-5610, PXIe-5611, PXI/ PXIe-5650/5651/5652, PXIe-5653/5654/5654 wit h PXIe-5696, PXI-5670/5671, PXIe-5672/5673/567 3E, PXIe-5820/5830/5831/5832/5840/5841/5842
niRFSG Reset	Resets all properties to their default values and moves the NI-RFSG device to the Configuration state. This VI aborts the signal generation, clears all routes, deletes all de-embedding tables, and resets session properties to their initial values. During a reset, routes of signals between this an

	d other devices are released, regardless of whic h device created the route. **Note** This VI resets all configured routes for t he PXIe-5644/5645/564 6 and PXIe-5820/5830/ 5831/5832/5840/5841/ 5842 in NI-RFSA and NI -RFSG. To avoid resetti ng routes on the device that are in use by NI-RF SA sessions, NI recom mends using the niRFS G Reset With Options V I with the **steps to omit** parame ter set to **Routes**. **Supported Devices**: PXI-5610, PXIe-5611, PXIe -5644/5645/5646, PXI/PXIe-5650/5651/5652, PXI e-5653/5654/5654 with PXIe-5696, PXI-5670/567 1, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/ 5832/5840/5841/5842
niRFSG Reset With Options	Resets all properties to default values and specif ies steps to omit during the reset process, such as signal routes. To avoid resetting routes on PXIe-5820/5830/58 31/5832/5840/5841/5842 that are in use by NI-R FSA sessions, NI recommends using this VI inste ad of the niRFSG Reset VI, with the **steps to om it** parameter set to **Routes**.
niRFSG Reset Device	Performs a hard reset on the device, which cons ists of the following actions: - Signal generation is stopped. - All routes are released. - External bidirectional terminals are tristated.

	- FPGAs are reset. - Hardware is configured to its default state. - All session properties are reset to their default states. **Supported Devices**:PXI-5610, PXIe-5611, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E
niRFSG Save Configurations To File	Saves the configurations of the session to the specified file. **Supported Devices**: PXIe-5820/5830/5831/5832/5840/5841/5842
niRFSG Load Configurations From File	Loads the configurations from the specified file to the NI-RFSG driver session. The VI does an implicit reset before loading the configurations from the file. **Supported Devices**: PXIe-5820/5830/5831/5832/5840/5841/5842
niRFSG Perform Power Search	Performs a power search if the ALC Control property is disabled. Calling this VI disables modulation for a short time while the device levels the output signal. **Note** Power search temporarily enables the ALC, so ensure the appropriate included cable is connected between the PXIe-5654 ALC IN connector and the PXIe-5696 ALC OUT connector to successfully perform a power search. **Supported Devices**:PXIe-5654 with PXIe-5696

niRFSG Get Session Reference	Extracts a session that can be passed to NI-TClk VIs. Session References are of generic data type, which means that the corresponding wires are b lue-green, unlike the wires for regular instrume nt driver sessions. **Supported Devices**: PXIe-5673/5673E, PXIe-58 20/5830/5831/5832/5840/5841/5842 **Note** NI-RFSG does no t support NI-TClk when driver session debuggi ng is enabled.
niRFSG Revision Query	Returns the revision numbers of the NI-RFSG dri ver and the instrument firmware. **Supported Devices:** PXI-5610, PXIe-5611, PXIe -5644/5645/5646, PXI/PXIe-5650/5651/5652, PXI e-5653/5654/5654 with PXIe-5696, PXI-5670/567 1, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/ 5832/5840/5841/5842
niRFSG Query Arb Waveform Capabilities	Queries and returns the arbitrary waveform cap abilities of the NI-RFSG device. These capabilitie s are related to the current device configuration. The NI-RFSG device must be in the Configuratio n or Generation state before you call this VI. **Supported Devices**: PXIe-5644/5645/5646, PXI -5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5 830/5831/5832/5840/5841/5842
niRFSG Perform Thermal Correction	Corrects for any signal drift due to temperature variation when generating the same signal for e xtended periods of time without a parameter ch ange. Under normal circumstances of short-ter m signal generation, NI-RFSG performs thermal correction automatically by ensuring stable pow er levels, and you do not need to call this VI. Use this VI when generating the same signal for a lo ng period of time in a temperature-fluctuating e

	nvironment. The NI-RFSG device must be in the Generation state before you call this VI. **Supported Devices**: PXIe-5611, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5830/5831/5832/5840/5841/5842
niRFSG Error Message	Converts an error code returned by an NI-RFSG VI into a user-readable string. **Supported Devices:** PXI-5610, PXIe-5611, PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

niRFSG Initialize With Options VI

Opens a session to the device you specify as the **resource name** and returns an **instrument handle** that you use to identify the instrument in all subsequent NI-RFSG VIs. This VI also configures the device using the **option string** input.

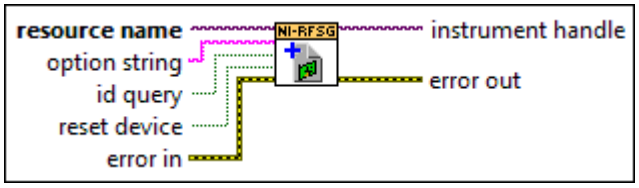
Supported Devices: PXI-5610, PXIe-5611, PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

Related Topics

Driver Setup Options

Simulating an NI RF Signal Generator

Examples



I/O

resource name specifies the resource name of the device to initialize.

option string sets the initial value of certain properties for the session.

You can set the following properties using this parameter:

- Range Check
- Query Instrument Status
- Cache
- Coercions
- Simulate
- Driver Setup

id query specifies whether NI-RFSG performs an ID query. Set this parameter to TRUE to perform an ID query. Set this parameter to FALSE to not perform an ID query.

reset device specifies whether you want to reset the NI-RFSG device during the initialization procedure. Set this parameter to TRUE to reset the device. Set this parameter to FALSE to not reset the device.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

error out contains error information. This output provides standard error out functionality.

Examples

Refer to the RFSG External AWG (5610) VI in the `labview\examples\instr\niRFSG` directory for an example of using the niRFSG Initialize With Options VI.

niRFSG Commit VI

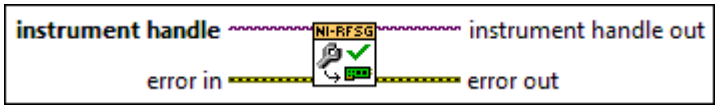
Programs the device with the correct settings. Calling this VI moves the NI-RFSG device from the Configuration state to the Committed state. After this VI executes, a change to any property reverts the NI-RFSG device to the Configuration state.

Supported Devices: PXI-5610, PXIe-5611, PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

Related Topics

NI-RFSG Programming State Model

Examples



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

Examples

Refer to the following VIs for examples of using the niRFSG Commit VI.

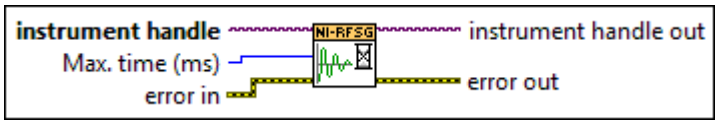
- RFSG Frequency Sweep VI: `labview\examples\instr\niRFSG`
- RFSG Power Sweep VI: `labview\examples\instr\niRFSG`

niRFSG Wait Until Settled VI

Waits until the RF output signal settles. This VI is useful for devices that support changes while in the Generation state. Call this VI after making a dynamic change to wait for the output signal to settle. You can also call this VI after calling the niRFSG Commit VI to wait for changes to settle. The niRFSG Wait Until Settled VI is not required after calling the niRFSG Initiate VI because the niRFSG Initiate VI automatically waits for the output to settle.

Supported Devices: PXI-5610, PXIe-5611, PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

Examples



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

Max. time specifies the maximum time the VI waits for the output to settle. If the maximum time is exceeded, this VI returns an error.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the

niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

Examples

Refer to the following VIs for examples of using the niRFSG Wait Until Settled VI.

- RFSG Frequency Sweep (565x and 5673) VI: `labview\examples\instr\niRFSG`
- RFSG Forward Frequency Sweep (5673 In-band Retuning) VI: `labview\examples\instr\niRFSG`

niRFSG Configure Output Enabled VI

Enables or disables signal output. Setting **output enabled** to FALSE while in the Generation state attenuates the generated signal so that no signal is output.

Supported Devices: PXI-5610, PXIe-5611, PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

Related Topics

Output Enabled

NI-RFSG Instrument Driver Programming Flow

RF List Mode

Examples

instrument handle identifies your instrument session. **instrument handle** is obtained from

either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

output enabled specifies whether the RF output is enabled.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

Examples

Refer to the following VIs for examples of using the niRFSG Configure Output Enabled VI.

- RFSG Getting Started Single Tone Generation VI: `labview\examples\instr\niRFSG`
- RFSG Arbitrary Waveform Generation (Arb) VI: `labview\examples\instr\niRFSG`
- RFSG Getting Started Script (Script) VI: `labview\examples\instr\niRFSG`

niRFSG Self Test VI

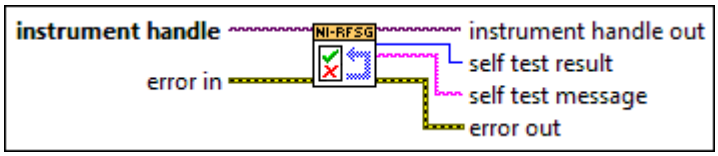
Performs a self-test on the NI-RFSG device and returns the test results. This VI performs a simple series of tests to determine whether the NI-RFSG device is powered up and responding. This VI does not affect external I/O connections or connections between devices. Complete functional testing and calibration are not

performed by this VI. The NI-RFSG device must be in the Configuration state before you call this VI.

Supported Devices: PXI-5610, PXIe-5611, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

Related Topics

Device Warm-Up



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

self test result returns the value returned from the device self-test. A value of 0 indicates that the device is powered-up and responding. A value of 1 indicates that the device failed the self test.

self test message returns the self-test response string from the NI-RFSG device.

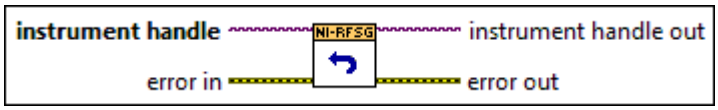
error out contains error information. This output provides standard error out functionality.

niRFSG Reset VI

Resets all properties to their default values and moves the NI-RFSG device to the Configuration state. This VI aborts the signal generation, clears all routes, deletes all de-embedding tables, and resets session properties to their initial values. During a reset, routes of signals between this and other devices are released, regardless of which device created the route.

Note This VI resets all configured routes for the PXIe-5644/5645/5646 and PXIe-5820/5830/5831/5832/5840/5841/5842 in NI-RFSA and NI-RFSG. To avoid resetting routes on the device that are in use by NI-RFSA sessions, NI recommends using the niRFSG Reset With Options VI with the **steps to omit** parameter set to **Routes**.

Supported Devices: PXI-5610, PXIe-5611, PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error in describes error conditions that occur before this node runs. The default is `no error`. This node does not pass the **error in** input to the **error out** output. Regardless of whether an

error occurred before this node runs, the node returns `no error`.

This input contains **status**, **code**, and **source**, which provide standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Reset With Options VI

Resets all properties to default values and specifies steps to omit during the reset process, such as signal routes.

To avoid resetting routes on PXIe-5820/5830/5831/5832/5840/5841/5842 that are in use by NI-RFSA sessions, NI recommends using this VI instead of the niRFSG Reset VI, with the **steps to omit** parameter set to **Routes**.

By default, this VI exhibits the same behavior as the niRFSG Reset VI. You can specify steps to omit using the **steps to omit** parameter. For example, if you set the **steps to omit** parameter to **Routes**, this VI does not release signal routes during the reset process.

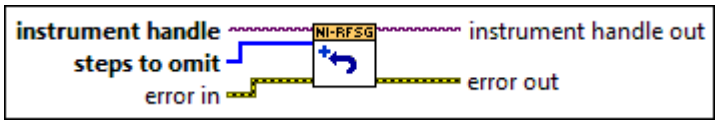
When routes of signals between two devices are released, they are released regardless of which device created the route.

Supported Devices: PXIe-5644/5645/5646, PXIe-5820/5830/5831/5832/5840/5841/5842

Related Topics

Triggers

Events



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

steps to omit specifies a list of steps to skip during reset process. The default value is an empty array, which specifies that no steps are omitted during reset.

Waveforms	Omits clearing waveforms.
Scripts	Omits clearing scripts.
Routes	Omits the routing reset step. Routing is preserved after a reset. However, routing related properties are reset to default, and routing is released if the default properties are committed after reset.
De-embedding Tables	Omits deleting de-embedding tables.

error in describes error conditions that occur before this node runs. The default is `no error`. This node does not pass the **error in** input to the **error out** output. Regardless of whether an error occurred before this node runs, the node returns `no error`.

This input contains **status**, **code**, and **source**, which provide standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Reset Device VI

Performs a hard reset on the device, which consists of the following actions:

- Signal generation is stopped.

- All routes are released.

- External bidirectional terminals are tristated.

- FPGAs are reset.

- Hardware is configured to its default state.

- All session properties are reset to their default states.

Supported Devices:PXI-5610, PXIe-5611, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E

Related Topics

Thermal Shutdown

Details

instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error in describes error conditions that occur before this node runs. The default is `no error`. This node does not pass the **error in** input to the **error out** output. Regardless of whether an error occurred before this node runs, the node returns `no error`.

This input contains **status**, **code**, and **source**, which provide standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

Details

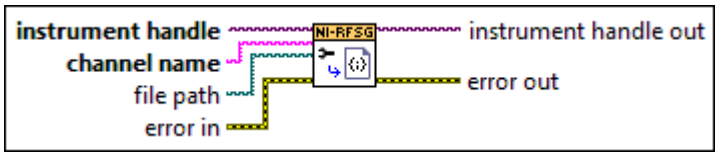
During a device reset, routes of signals between this and other devices are released, regardless of which device created the route. For example, a trigger signal exported to a PXI trigger line that is used by another device is no longer exported.

- PXI-5610, PXI-5670/5671, PXIe-5672: After calling this VI, the device requires 25 seconds before returning to full functionality. NI-RFSG enforces this condition by adding a wait, if needed, the next time you try to access the device.

niRFSG Save Configurations To File VI

Saves the configurations of the session to the specified file.

Supported Devices: PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

channel name specifies the name of the channel. This string is case-insensitive and alphanumeric, and it cannot use reserved words.

file path specifies the absolute path of the file to which the NI-RFSG saves the configurations.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

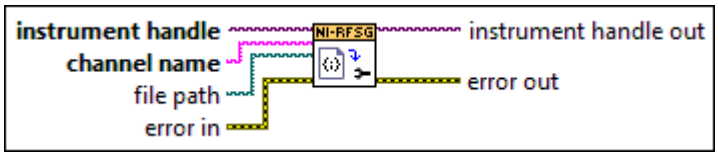
instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Load Configurations From File VI

Loads the configurations from the specified file to the NI-RFSG driver session. The VI does an implicit reset before loading the configurations from the file.

Supported Devices: PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

channel name specifies the name of the channel. This string is case-insensitive and alphanumeric, and it cannot use reserved words.

file path specifies the absolute path of the file from which the NI-RFSG loads the configurations.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Perform Power Search VI

Performs a power search if the ALC Control property is disabled. Calling this VI disables modulation for a short time while the device levels the output signal.

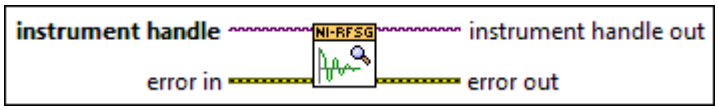
Note Power search temporarily enables the ALC, so ensure the appropriate included cable is connected between the PXIe-5654 ALC IN

connector and the PXIe-5696 ALC OUT connector to successfully perform a power search.

Supported Devices:PXIe-5654 with PXIe-5696

Related Topics

Power Search



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Get Session Reference VI

Extracts a session that can be passed to NI-TClk VIs. Session References are of generic data type, which means that the corresponding wires are blue-green, unlike the wires for regular instrument driver sessions.

Supported Devices: PXIe-5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

Note NI-RFSG does not support NI-TClk when driver session debugging is enabled.

Related Topics

NI-TClk Overview

Examples

instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

session reference returns a reference to the device session that can be passed to NI-TClk VIs.

error out contains error information. This output provides standard error out functionality.

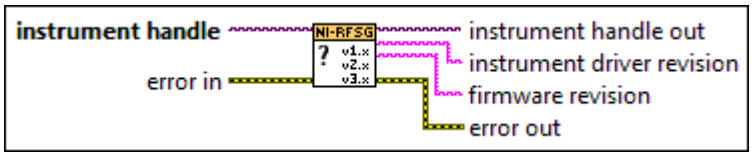
Examples

Refer to the RFSG 5673 Synchronization (TClk, Shared LO) VI in the `labview\examples\instr\niRFSG` directory for an example of using the niRFSG Get Session Reference VI.

niRFSG Revision Query VI

Returns the revision numbers of the NI-RFSG driver and the instrument firmware.

Supported Devices: PXI-5610, PXIe-5611, PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

instrument driver revision returns the instrument driver software revision numbers in the form of a string. The value of the Revision property is returned.

firmware revision returns the instrument firmware revision numbers in the form of a string. The value of the Firmware Revision property is returned.

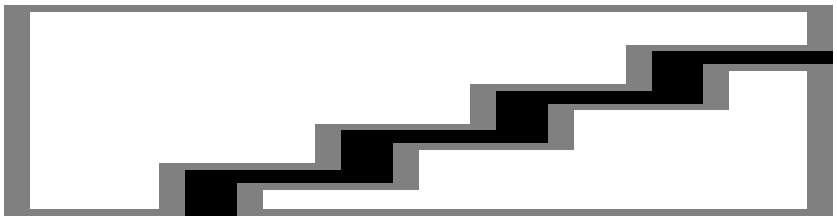
error out contains error information. This output provides standard error out functionality.

niRFSG Query Arb Waveform Capabilities VI

Queries and returns the arbitrary waveform capabilities of the NI-RFSG device. These capabilities are related to the current device configuration. The NI-RFSG device must be in the Configuration or Generation state before you call this VI.

Supported Devices: PXIe-5644/5645/5646, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

Examples



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

maximum number of waveforms returns the maximum number of arbitrary waveforms, as specified in the Max. Number Waveforms property, that you can write.

maximum waveform size returns the value of the Max. Waveform Size property. The number of samples that you write must be less than or equal to this value.

minimum waveform size returns the value of the Min. Waveform Size property. The number of samples that you write must be greater than or equal to this value.

waveform quantum returns the quantum value the signal generator uses. The value of the Waveform Quantum property is returned.

error out contains error information. This output provides standard error out functionality.

Examples

Refer to the RFSG Configuration List Frequency and Power Sweep (Script Triggered) VI in the `labview\examples\instr\niRFSG` directory for an example of using the niRFSG Query Arb Waveform Capabilities VI.

niRFSG Perform Thermal Correction VI

Corrects for any signal drift due to temperature variation when generating the same signal for extended periods of time without a parameter change. Under normal circumstances of short-term signal generation, NI-RFSG performs thermal correction automatically by ensuring stable power levels, and you do not need to call this VI. Use this VI when generating the same signal for a long period of time in a temperature-fluctuating environment. The NI-RFSG device must be in the Generation state before you call this VI.

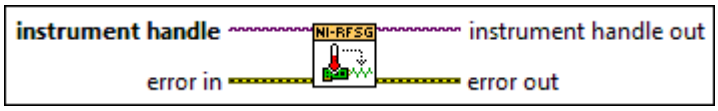
Supported Devices: PXIe-5611, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5830/5831/5832/5840/5841/5842

Related Topics

Thermal Management

Impairment Calibration

Examples



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

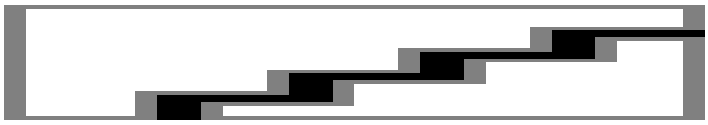
Examples

Refer to the RFSG Thermal Correction VI in the `labview\examples\instr\niRFSG` directory for an example of using the niRFSG Perform Thermal Correction VI.

niRFSG Error Message VI

Converts an error code returned by an NI-RFSG VI into a user-readable string.

Supported Devices: PXI-5610, PXIe-5611, PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654 with PXIe-5696, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error code specifies the error code returned from any NI-RFSG VI. The default value is 0.

error in describes error conditions that occur before this node runs. The default is `no error`. This node does not pass the **error in** input to the **error out** output. Regardless of whether an error occurred before this node runs, the node returns `no error`.

This input contains **status**, **code**, and **source**, which provide standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error message returns user-readable message string that corresponds to the error code you specify.

error out contains error information. This output provides standard error out functionality.

Calibration

Owning Palette: NI-RFSG VI Reference

Use the Calibration VIs to calibrate your device. Refer to the calibration procedure for your device for more information about device calibration.

Subpalette	Description

Self Calibration	Use the Self Calibration VIs to perform self-calibration and to obtain information about previous calibrations.
External Calibration	Use the External Calibration VIs to calibrate your device. Refer to the calibration procedure for your device for more information about device calibration.

Self Calibration

Owning Palette: Calibration

Use the Self Calibration VIs to perform self-calibration and to obtain information about previous calibrations.

Palette Object	Description
niRFSG Self Cal	Performs an internal self-calibration on the device and associated modules that support self-calibration. If the calibration is successful, new calibration data and constants are stored in the onboard nonvolatile memory of the module. **Supported Devices**: PXI-5610, PXIe-5653, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842
niRFSG Self Calibrate Range	Self-calibrates all configurations within the specified frequency and peak power level limits. NI recommends that no external signals are present on the RF In or IQ In ports during the calibration.  **Note** This VI does not update self calibration date and temperature. **Supported Devices**: PXIe-5644/5645/5646, PXIe-5820/5830/5831/5832/5840/5841/5842
niRFSG Get Self Calibration Date and Time	Returns the date and time of the last successful self-calibration. The time returned is 24-hour lo

	cal time. For example, if the device was calibrated at 2:30 PM, this VI returns 14 for the hours and 30 for the minutes. **Supported Devices**: PXI-5610, PXIe-5644/5645/5646, PXIe-5653, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842
niRFSG Get Self Calibration Temperature	Returns the temperature, in degrees Celsius, of the device at the last successful self-calibration. **Supported Devices**: PXI-5610, PXIe-5653, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831(IF only)/5832 (IF only)/5840/5841/5842
niRFSG Clear Self Calibrate Range	Clears the data obtained from the niRFSG Self Calibrate Range VI. **Supported Devices**: PXIe-5644/5645/5646, PXIe-5820/5830/5831/5832/5840/5841/5842
niRFSG 5840 Align LO Daisy Chain	Performs an external LO alignment by adjusting the LO IN Power property settings for optimal use with the PXIe-5653. Ensure the PXIe-5840 is unassociated from the PXIe-5653 in Measurement & Automation Explorer before calling this VI. **Supported Devices**: PXIe-5840

niRFSG Self Cal VI

Performs an internal self-calibration on the device and associated modules that support self-calibration. If the calibration is successful, new calibration data and constants are stored in the onboard nonvolatile memory of the module.

Supported Devices: PXI-5610, PXIe-5653, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

Related Topics

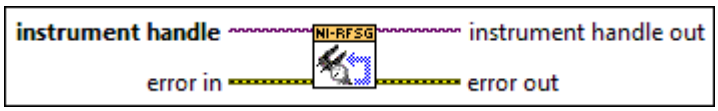
PXIe-5830 Self-Calibration

PXIe-5831/5832 Self-Calibration

PXIe-5840 Self-Calibration

PXIe-5841 Self-Calibration

Details



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

Details

Open NI-RFSA Session for the PXIe-5820/5830/5831/5832/5840/5841/5842

If there is an existing NI-RFSA session open for the same PXIe-5820/5830/5831/5832/5840/5841/5842 while this VI runs, it may remain open but cannot be used for operations that access the hardware, for example niRFSA Commit or niRFSA Initiate.

PXIe-5841 with PXIe-5655

The PXIe-5841 maintains separate self-calibration data for both the PXIe-5841 standalone and when associated with the PXIe-5655. Use this VI once for each intended configuration.

niRFSG Self Calibrate Range VI

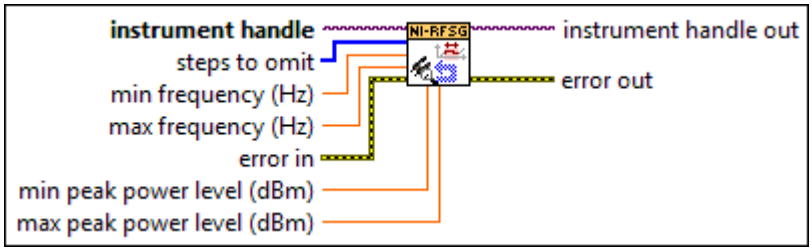
Self-calibrates all configurations within the specified frequency and peak power level limits.

NI recommends that no external signals are present on the RF In or IQ In ports during the calibration.

Note This VI does not update self calibration date and temperature.

Supported Devices: PXIe-5644/5645/5646, PXIe-5820/5830/5831/5832/5840/5841/5842

Details



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

steps to omit specifies which calibration steps to skip during the self-calibration process. The default value is an empty array, which specifies that all calibration steps are performed.

LO Self Cal	Omits the LO Self Cal st ep. If you omit this ste p, the power level of th e LO is not adjusted.

Power Level Accuracy	Omits the Power Level Accuracy step. If you omit this step, the power level accuracy of the device is not adjusted.
Residual LO Power	Omits the Residual LO Power step. If you omit this step, the Residual LO Power performance is not adjusted.
Image Suppression	Omits the Image Suppression step. If you omit this step, the Residual Sideband Image performance is not adjusted.
Synthesizer Alignment	Omits the Voltage Controlled Oscillator (VCO) Alignment step. If you omit this step, the LO PLL is not adjusted.

min frequency specifies the minimum frequency to calibrate.

Note For the PXIe-5830/5831/5832, only the applicable ports within the specified frequency range are calibrated.

max frequency specifies the maximum frequency to calibrate.

min peak power level specifies the minimum power level to calibrate.

max peak power level specifies the maximum power level to calibrate.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error out contains error information. This output provides standard error out functionality.

Details

Recommendation for Best Results

For best results, NI recommends that you perform self-calibration without omitting any steps. However, if certain aspects of performance are less important for your application, you can omit certain steps for faster calibration.

Open NI-RFSA Sessions

- If there is an existing NI-RFSA session open for the same PXIe-5644/5645/5646, it may remain open but cannot be used while this VI runs.
- If there is an existing NI-RFSA session open for the same PXIe-5820/5830/5831/5832/5840/5841/5842 while this VI runs, it may remain open but cannot be used for operations that access the hardware, for example niRFSA Commit or niRFSA Initiate.

Clearing Self Calibration Range Data

Self calibration range data is valid until you restart the system or call the niRFSG Clear Self Calibrate Range VI.

niRFSG Get Self Calibration Date and Time VI

Returns the date and time of the last successful self-calibration. The time returned is 24-hour local time. For example, if the device was calibrated at 2:30 PM, this VI returns 14 for the hours and 30 for the minutes.

Supported Devices: PXI-5610, PXIe-5644/5645/5646, PXIe-5653, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831/5832/5840/5841/5842

instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI, the niRFSG Initialize With Options VI, or the niRFSG Initialize External Calibration VI.

module specifies from which stand-alone module to retrieve the last successful self-calibration date and time.

Primary Module (default)	The stand-alone device or the main module in a multi-module device.
AWG	The AWG associated with the primary module.
LO	The LO associated with the primary module.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from either the niRFSG Initialize VI, the niRFSG

Initialize With Options VI, or the niRFSG Initialize External Calibration VI.

self calibration date and time returns the date and time of the last successful self-calibration.

error out contains error information. This output provides standard error out functionality.

niRFSG Get Self Calibration Temperature VI

Returns the temperature, in degrees Celsius, of the device at the last successful self-calibration.

Supported Devices: PXI-5610, PXIe-5653, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5820/5830/5831(IF only)/5832 (IF only)/5840/5841/5842

instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI, the niRFSG Initialize With Options VI, or the niRFSG Initialize External Calibration VI.

module specifies from which stand-alone module to retrieve the last successful self-calibration temperature.

Primary Module (default)	The stand-alone device or the main module in a multi-module device.
AWG	The AWG associated with the primary module.

LO	The LO associated wit h the primary module.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from either the niRFSG Initialize VI, the niRFSG Initialize With Options VI, or the niRFSG Initialize External Calibration VI.

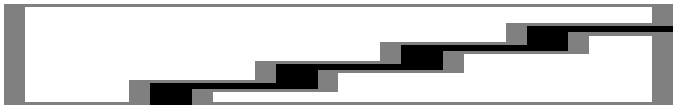
self calibration temperature returns the temperature, in degrees Celsius, of the device at the last successful self-calibration.

error out contains error information. This output provides standard error out functionality.

niRFSG Clear Self Calibrate Range VI

Clears the data obtained from the niRFSG Self Calibrate Range VI.

Supported Devices: PXIe-5644/5645/5646, PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from the niRFSG Initialize VI or the niRFSG Initialize With Options VI.

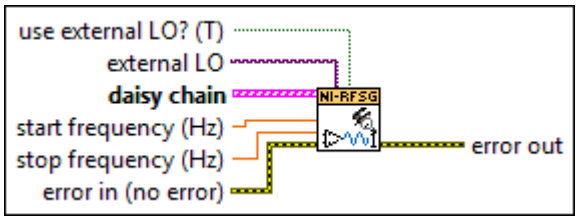
error out contains error information. This output provides standard error out functionality.

niRFSG 5840 Align LO Daisy Chain VI

Performs an external LO alignment by adjusting the LO IN Power property settings for optimal use with the PXIe-5653.

Ensure the PXIe-5840 is unassociated from the PXIe-5653 in Measurement & Automation Explorer before calling this VI.

Supported Devices: PXIe-5840



use external LO? specifies whether the PXIe-5653 is used as the external LO. The default value is TRUE.

external LO specifies the resource name of the PXIe-5653.

daisy chain specifies the daisy-chained PXIe-5840 to perform external LO alignment on.

resource name specifies the resource name of the daisy-

chained PXIe-5840 device.

port type specifies the port type of the daisy-chained PXIe-5840.

RF In	Specifies the PXIe-5840 RF IN port. This value is not supported as the first element of an array.
RF Out	Specifies the PXIe-5840 RF OUT port.

start frequency specifies the lower limit of a span of frequencies, in hertz (Hz).

stop frequency specifies the upper limit of a span of frequencies, in hertz (Hz).

error in describes error conditions that occur before this node runs. The default is `no error`. This node does not pass the **error in** input to the **error out** output. Regardless of whether an error occurred before this node runs, the node returns `no error`.

This input contains **status**, **code**, and **source**, which provide standard error in functionality.

error out contains error information. This output provides standard error out functionality.

External Calibration

Owning Palette: Calibration

Use the External Calibration VIs to calibrate your device. Refer to the calibration procedure for your device for more information about device calibration.

Palette Object	Description
niRFSG Initialize External Calibration	Creates and initializes an NI-RFSG external calibration session. **Supported Devices**: PXIe-5611, PXI/PXIe-5650/5651/5652, PXIe-5653/5654, PXIe-5673/5673E, PXIe-5696
niRFSG Close External Calibration	Writes the calibration values from the current driver session to the device. On PXIe-5611 and PXIe-5673/5673E devices, this VI also writes the current date and time as the last external calibration date and time. **Supported Devices**: PXIe-5611, PXI/PXIe-5650/5651/5652, PXIe-5653/5654, PXIe-5673/5673E, PXIe-5696
niRFSG Get External Calibration Last Date and Time	Returns the date and time of the last successful external calibration. The time returned is 24-hour (military) local time. For example, if the device was calibrated at 2:30 PM, this VI returns 14 for the hours and 30 for the minutes. **Supported Devices**: PXI-5610, PXIe-5611, PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5696, PXIe-5820/5830/5831/5832/5840/5841/5842

niRFSG Change External Calibration Password	Changes the external calibration password of th e device. This VI works with a regular NI-RFSG se ssion or an NI-RFSG calibration session. **Supported Devices**: PXIe-5611, PXIe-5653/565 4, PXIe-5673/5673E, PXIe-5696, PXIe-5820/5830/ 5831/5832/5840/5841/5842
niRFSG Update External Calibration Temperatur e	Updates the temperature of the last external cal ibration to the current temperature. **Supported Devices**: PXIe-5653/5654, PXIe-569 6
niRFSG Update External Calibration Date And Ti me	Updates the date and time of the last external c alibration to the date and time that this VI is call ed. **Supported Devices**: PXIe-5653/5654, PXIe-569 6

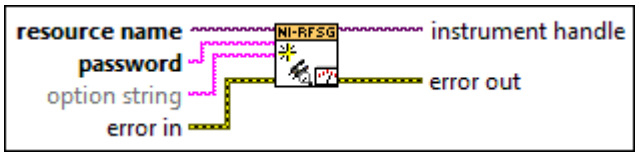
Subpalette	Description
NI PXIe-5611 Calibration	Use the NI PXIe-5611 Calibration VIs to calibrate your PXIe-5611 device. Refer to the calibration procedure for your device for more information about device calibration.
NI 5652 Calibration	Use the NI 5652 Calibration VIs to calibrate your PXI/PXIe-5650/5651/5652 device. Refer to the calibration procedure for your device for more i nformation about device calibration.
NI PXIe-5653 Calibration	Use the NI PXIe-5653 Calibration VIs to calibrate your PXIe-5653 device. Refer to the calibration procedure for your device for more information about device calibration.
NI PXIe-5654 Calibration	Use the NI PXIe-5654 Calibration VIs to calibrate your PXIe-5654 device. Refer to the calibration procedure for your device for more information about device calibration.
NI PXIe-5696 Calibration	Use the NI PXIe-5696 Calibration VIs to calibrate your PXIe-5696 device. Refer to the calibration

	procedure for your device for more information about device calibration.

niRFSG Initialize External Calibration VI

Creates and initializes an NI-RFSG external calibration session.

Supported Devices: PXIe-5611, PXI/PXIe-5650/5651/5652, PXIe-5653/5654, PXIe-5673/5673E, PXIe-5696



resource name specifies the resource name of the device to initialize.

password specifies the calibration password required to open an external calibration session to the device. Refer to the calibration procedure for your device for more information about the default password.

option string sets the initial value of certain properties for the session.

You can set the following properties using this parameter:

- Range Check
- Query Instrument Status
- Cache
- Coercions
- Simulate
- Driver Setup

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

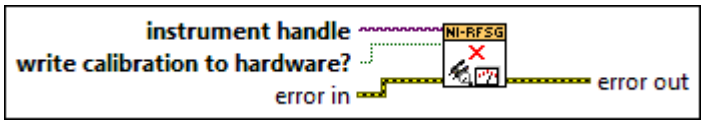
instrument handle passes a reference to your instrument session to the next VI.
instrument handle is obtained from this VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Close External Calibration VI

Writes the calibration values from the current driver session to the device. On PXIe-5611 and PXIe-5673/5673E devices, this VI also writes the current date and time as the last external calibration date and time.

Supported Devices: PXIe-5611, PXI/PXIe-5650/5651/5652, PXIe-5653/5654, PXIe-5673/5673E, PXIe-5696



instrument handle identifies your instrument calibration session. **instrument handle** is obtained from the niRFSG Initialize External Calibration VI.

write calibration to hardware? specifies whether the calibration values from the current driver session are stored to the device EEPROM. Set this parameter to TRUE to overwrite the EEPROM. Set this parameter to FALSE to discard the current calibration values.

error in describes error conditions that occur before this node runs. The default is `no error`. This node passes the **error in** input to the **error out** output. This node will run regardless of whether an error occurred before it.

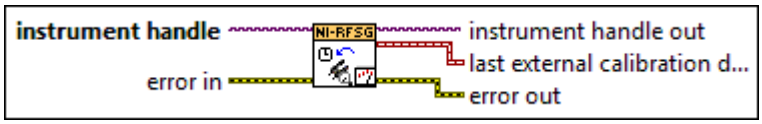
This input contains **status**, **code**, and **source**, which provide standard error in functionality.

error out contains error information. This output provides standard error out functionality.

niRFSG Get External Calibration Last Date and Time VI

Returns the date and time of the last successful external calibration. The time returned is 24-hour (military) local time. For example, if the device was calibrated at 2:30 PM, this VI returns 14 for the hours and 30 for the minutes.

Supported Devices: PXI-5610, PXIe-5611, PXIe-5644/5645/5646, PXI/PXIe-5650/5651/5652, PXIe-5653/5654/5654, PXI-5670/5671, PXIe-5672/5673/5673E, PXIe-5696, PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI, the niRFSG Initialize With Options VI, or the niRFSG Initialize External Calibration VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from either the niRFSG Initialize VI, the niRFSG Initialize With Options VI, or the niRFSG Initialize External Calibration VI.

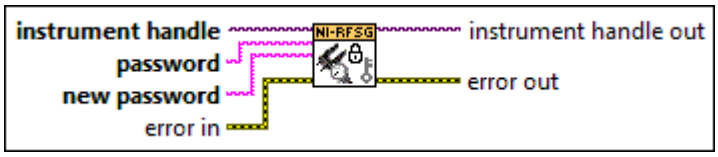
last external calibration date and time specifies the date and time of the last successful external calibration.

error out contains error information. This output provides standard error out functionality.

niRFSG Change External Calibration Password VI

Changes the external calibration password of the device. This VI works with a regular NI-RFSG session or an NI-RFSG calibration session.

Supported Devices: PXIe-5611, PXIe-5653/5654, PXIe-5673/5673E, PXIe-5696, PXIe-5820/5830/5831/5832/5840/5841/5842



instrument handle identifies your instrument session. **instrument handle** is obtained from either the niRFSG Initialize VI, the niRFSG Initialize With Options VI, or the niRFSG Initialize External Calibration VI.

password is the old (current) external calibration password. This password is case sensitive.

new password is the new (desired) external calibration password. The password can be no longer than four characters.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

error out contains error information. This output provides standard error out functionality.

instrument handle out passes a reference to your instrument session to the next VI. **instrument handle out** is obtained from this VI.

niRFSG Update External Calibration Temperature VI

Updates the temperature of the last external calibration to the current temperature.

Supported Devices: PXIe-5653/5654, PXIe-5696

instrument handle identifies your instrument calibration session. **instrument handle** is obtained from the niRFSG Initialize External Calibration VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

error out contains error information. This output provides standard error out functionality.

niRFSG Update External Calibration Date And Time VI

Updates the date and time of the last external calibration to the date and time that this VI is called.

Supported Devices: PXIe-5653/5654, PXIe-5696

instrument handle identifies your instrument calibration session. **instrument handle** is obtained from the niRFSG Initialize External Calibration VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

error out contains error information. This output provides standard error out functionality.

NI PXIe-5611 Calibration

Owning Palette: External Calibration

Use the NI PXIe-5611 Calibration VIs to calibrate your PXIe-5611 device. Refer to the calibration procedure for your device for more information about device calibration.

Palette Object	Description
niRFSG 5611 Initialize LO Filter Calibration	Generates external calibration constants for calibrating the LO filter DAC. **Supported Devices**: PXIe-5611, PXIe-5673/5673E
niRFSG 5611 Configure LO Filter Calibration	Configures the device for the next LO filter DAC calibration point and waits for the output signal to settle. **Supported Devices**: PXIe-5611, PXIe-5673/5673E
niRFSG 5611 Adjust LO Filter Calibration	Calculates calibration information pertaining to the LO filter DAC. This information is based on u

	ser-supplied measurements. The calibration information is stored in driver session, and you can later write this information to the device. **Supported Devices**: PXIe-5611, PXIe-5673/5673E
niRFSG 5611 Initialize LO Gain Calibration	Generates external calibration constants for calibrating the LO gain. **Supported Devices**: PXIe-5611, PXIe-5673/5673E
niRFSG 5611 Configure LO Gain Calibration	Configures the device for the next LO gain calibration point and waits for the output signal to settle. **Supported Devices**: PXIe-5611, PXIe-5673/5673E
niRFSG 5611 Adjust LO Gain Calibration	Calculates calibration information pertaining to the LO gain of the device based on user-supplied measurements. The calibration information is stored in the driver session and can later be written to the device. **Supported Devices**: PXIe-5611, PXIe-5673/5673E
niRFSG 5611 Initialize Impairment Calibration	Initializes an impairment calibration section. **Supported Devices**: PXIe-5611, PXIe-5673/5673E
niRFSG 5611 Configure Impairment Calibration	Configures the device for the next impairment calibration point and waits for the output signal to settle. **Supported Devices**: PXIe-5611, PXIe-5673/5673E
niRFSG 5611 Adjust Impairment Calibration	Calculates calibration information pertaining to the impairments of the device based on user-supplied measurements. The calibration informati

	on is stored in the driver session and can later b e written to the device. **Supported Devices**: PXIe-5611, PXIe-5673/567 3E
niRFSG 5611 Initialize RF Gain Calibration	Generates external calibration constants for cali brating the RF gain. **Supported Devices**: PXIe-5611, PXIe-5673/567 3E
niRFSG 5611 Configure RF Gain Calibration	Configures the device for the next RF gain calibr ation point and waits for the output signal to set tle. **Supported Devices**: PXIe-5611, PXIe-5673/567 3E
niRFSG 5611 Adjust RF Gain Calibration	Calculates calibration information pertaining to the RF gain of the device based on user-supplie d measurements. The calibration information is stored in the driver session and can later be writ ten to the device. **Supported Devices**: PXIe-5611, PXIe-5673/567 3E

niRFSG 5611 Initialize LO Filter Calibration VI

Generates external calibration constants for calibrating the LO filter DAC.

Supported Devices: PXIe-5611, PXIe-5673/5673E

I/O

instrument handle identifies your instrument calibration session. **instrument handle** is

obtained from the niRFSG Initialize External Calibration VI.

filter to calibrate specifies which filter to calibrate. The default value is **All Filters**. If you choose not to calibrate all filters, you must repeat the entire adjustment procedure on all filters to complete a full calibration.

All Filters	Specifies all filters.
Filter166	Specifies the Filter166 filter.
Filter630	Specifies the Filter630 filter.
Filter323	Specifies the Filter323 filter.
Filter1147	Specifies the Filter1147 filter.
Filter2088	Specifies the Filter2088 filter.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

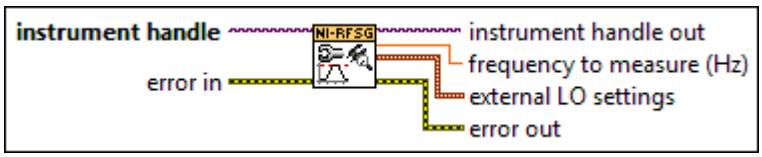
instrument handle out passes a reference to your instrument session to the next VI.

error out contains error information. This output provides standard error out functionality.

niRFSG 5611 Configure LO Filter Calibration VI

Configures the device for the next LO filter DAC calibration point and waits for the output signal to settle.

Supported Devices: PXIe-5611, PXIe-5673/5673E



instrument handle identifies your instrument calibration session. **instrument handle** is obtained from the niRFSG Initialize External Calibration VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

frequency to measure indicates the frequency of the generated signal. This value is expressed in hertz. The power of the generated signal should be measured.

external LO settings indicates the options to set if an LO source is used instead of the PXI/PXIe-5652.

LO In Frequency indicates the tone frequency to generate with the LO source.

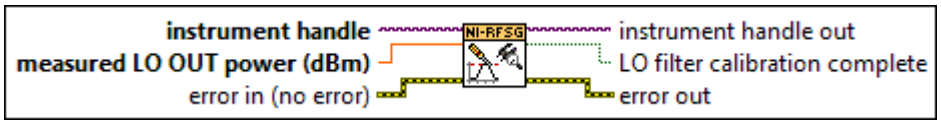
LO In Power indicates the output power to generate with the LO source.

error out contains error information. This output provides standard error out functionality.

niRFSG 5611 Adjust LO Filter Calibration VI

Calculates calibration information pertaining to the LO filter DAC. This information is based on user-supplied measurements. The calibration information is stored in driver session, and you can later write this information to the device.

Supported Devices: PXIe-5611, PXIe-5673/5673E



instrument handle identifies your instrument calibration session. **instrument handle** is obtained from the niRFSG Initialize External Calibration VI.

measured LO OUT power specifies the power measured at the frequency indicated by the **frequency to measure** output of the niRFSG 5611 Configure LO Gain Calibration VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

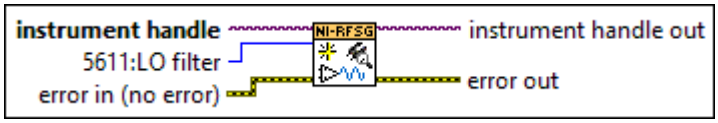
LO filter calibration complete indicates whether the LO filter calibration is complete.

error out contains error information. This output provides standard error out functionality.

niRFSG 5611 Initialize LO Gain Calibration VI

Generates external calibration constants for calibrating the LO gain.

Supported Devices: PXIe-5611, PXIe-5673/5673E



instrument handle identifies your instrument calibration session. **instrument handle** is obtained from the niRFSG Initialize External Calibration VI.

5611:LO filter specifies which LO filter to calibrate. The default value is **All Filters**.

Filter6600	Specifies the Filter6600 filter.
Filter1147	Specifies the Filter1147 filter.
Filter630	Specifies the Filter630 filter.
Filter166	Specifies the Filter166 filter.
Filter323	Specifies the Filter323 filter.
Filter2088	Specifies the Filter2088 filter.
Filter2923	Specifies the Filter2923 filter.

Filter4092	Specifies the Filter4092 filter.
All Filters	Specifies all of the preceding filters.

The default value of **5611:LO filter** is **All Filters**. If you choose not to calibrate all filters, repeat the entire adjustment procedure on each filter to complete a full calibration.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

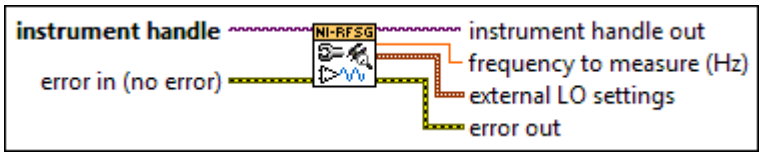
instrument handle out passes a reference to your instrument session to the next VI.

error out contains error information. This output provides standard error out functionality.

niRFSG 5611 Configure LO Gain Calibration VI

Configures the device for the next LO gain calibration point and waits for the output signal to settle.

Supported Devices: PXIe-5611, PXIe-5673/5673E



instrument handle identifies your instrument calibration session. **instrument handle** is obtained from the niRFSG Initialize External Calibration VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

frequency to measure indicates the frequency of the generated signal. This value is expressed in hertz. The power of the generated signal should be measured.

external LO settings indicates the options to set if an LO source is used instead of the PXI/PXIe-5652.

LO In Frequency indicates the tone frequency to generate with the LO source.

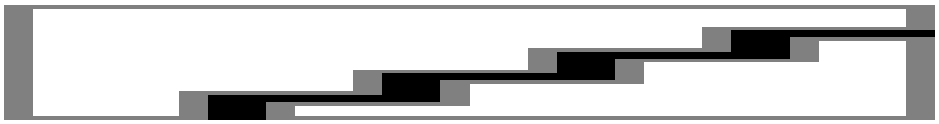
LO In Power indicates the output power to generate with the LO source.

error out contains error information. This output provides standard error out functionality.

niRFSG 5611 Adjust LO Gain Calibration VI

Calculates calibration information pertaining to the LO gain of the device based on user-supplied measurements. The calibration information is stored in the driver session and can later be written to the device.

Supported Devices: PXIe-5611, PXIe-5673/5673E



instrument handle identifies your instrument calibration session. **instrument handle** is obtained from the niRFSG Initialize External Calibration VI.

measured LO OUT power specifies the power measured at the frequency indicated by the **frequency to measure** output of the niRFSG 5611 Configure LO Gain Calibration VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

LO gain calibration complete indicates whether the LO gain calibration is complete.

error out contains error information. This output provides standard error out functionality.

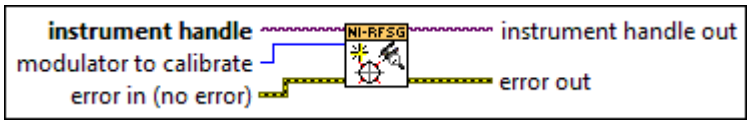
niRFSG 5611 Initialize Impairment Calibration VI

Initializes an impairment calibration section.

Supported Devices: PXIe-5611, PXIe-5673/5673E

Related Topics

Impairment Calibration



instrument handle identifies your instrument calibration session. **instrument handle** is obtained from the niRFSG Initialize External Calibration VI.

modulator to calibrate specifies which modulator to calibrate.

Lower Frequency Modulator	Specifies the lower frequency modulator to calibrate.
Higher Frequency Modulator	Specifies the higher frequency modulator to calibrate.
Both Modulators (default)	Specifies the lower frequency and higher frequency modulator to calibrate.

If you do not calibrate both modulators, you must repeat the entire adjustment procedure for each modulator to complete a full calibration.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

error out contains error information. This output provides standard error out functionality.

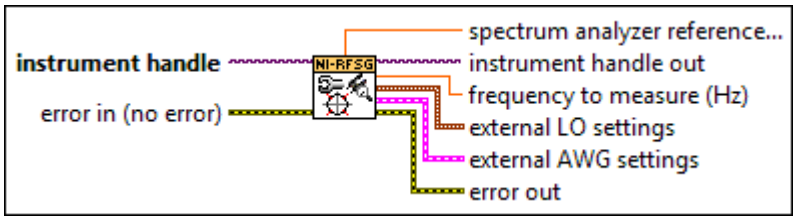
niRFSG 5611 Configure Impairment Calibration VI

Configures the device for the next impairment calibration point and waits for the output signal to settle.

Supported Devices: PXIe-5611, PXIe-5673/5673E

Related Topics

Impairment Calibration



instrument handle identifies your instrument calibration session. **instrument handle** is obtained from the niRFSG Initialize External Calibration VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

spectrum analyzer reference level returns the value at which to set the spectrum analyzer reference level.

frequency to measure indicates the frequency of the generated signal. This value is expressed in hertz. The power of the generated signal should be measured.

external LO settings indicates the options to set if an LO source is used instead of the PXI/PXIe-5652.

LO In Frequency indicates the tone frequency to generate with the LO source.

LO In Power indicates the output power to generate with the LO source.

external AWG settings indicates the options to set if an arbitrary waveform generator (AWG) is used instead of the PXIe-5450.

Offset Frequency indicates the tone frequency to generate with the AWG.

Power indicates the output power to generate with the AWG.

Impairments indicates the properties to apply to the I/Q signal to achieve desirable calibration results.

I Offset specifies the DC offset to generate

on the I signal.

Q Offset specifies the DC offset to generate on the Q signal.

Qtr Skew specifies the adjustment of the phase angle between the I and Q vectors. If the skew is zero, the phase angle is 90 degrees.

Gain Imb specifies the power ratio (**I** power / **Q** power) to generate.

error out contains error information. This output provides standard error out functionality.

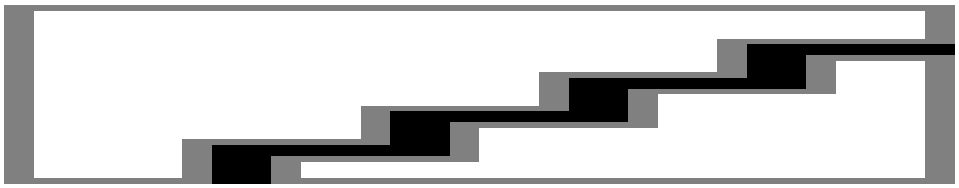
niRFSG 5611 Adjust Impairment Calibration VI

Calculates calibration information pertaining to the impairments of the device based on user-supplied measurements. The calibration information is stored in the driver session and can later be written to the device.

Supported Devices: PXIe-5611, PXIe-5673/5673E

Related Topics

Impairment Calibration



instrument handle identifies your instrument calibration session. **instrument handle** is obtained from the niRFSG Initialize External Calibration VI.

measured RF OUT power specifies the power measured at the frequency indicated by the **frequency to measure** parameter in the niRFSG 5611 Configure Impairment Calibration VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

impairment calibration complete indicates whether or not the impairment calibration is successful. If

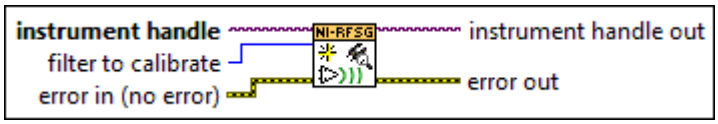
impairment calibration complete returns a value of TRUE, impairment calibration is successfully complete.

error out contains error information. This output provides standard error out functionality.

niRFSG 5611 Initialize RF Gain Calibration VI

Generates external calibration constants for calibrating the RF gain.

Supported Devices: PXIe-5611, PXIe-5673/5673E



instrument handle identifies your instrument calibration session. **instrument handle** is obtained from the niRFSG Initialize External Calibration VI.

filter to calibrate specifies which filter to calibrate. The default value is **All Filters**. If you choose not to calibrate all filters, you must repeat the entire adjustment procedure on all eight filters to complete a full calibration.

All Filters	Specifies all filters.
LoFreqMod226	Specifies the LoFreqMod226 filter.
LoFreqMod300	Specifies the LoFreqMod300 filter.
LoFreqMod442	Specifies the LoFreqMod442 filter.

LoFreqMod709	Specifies the LoFreqMod709 filter.
LoFreqMod1221	Specifies the LoFreqMod1221 filter.
LoFreqMod2500	Specifies the LoFreqMod2500 filter.
LoFreqMod4000	Specifies the LoFreqMod4000 filter.
HiFreqMod	Specifies the HiFreqMod filter.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

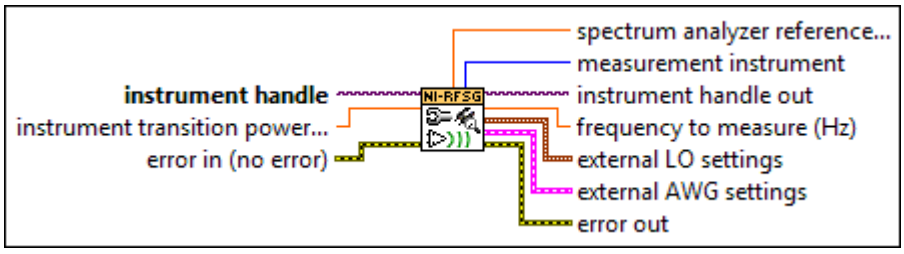
instrument handle out passes a reference to your instrument session to the next VI.

error out contains error information. This output provides standard error out functionality.

niRFSG 5611 Configure RF Gain Calibration VI

Configures the device for the next RF gain calibration point and waits for the output signal to settle.

Supported Devices: PXIe-5611, PXIe-5673/5673E



instrument handle identifies your instrument calibration session. **instrument handle** is obtained from the niRFSG Initialize External Calibration VI.

instrument transition power specifies the approximate bottom of the power meter's range where it becomes either too slow or too inaccurate.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

spectrum analyzer reference level returns the value at which to set the spectrum analyzer reference level.

measurement instrument specifies the instrument(s) to use for measuring the output power.

Power Meter (default)	Specifies the power meter.
Power Meter & Spectrum Analyzer	Specifies the power meter and spectrum analyzer.
Spectrum Analyzer	Specifies the spectrum analyzer.

frequency to measure indicates the frequency of the generated signal. This value is expressed in hertz. The power of the generated signal should be measured.

external LO settings indicates the options to set if an LO source is used instead of the PXI/PXIe-5652.

LO In Frequency indicates the tone frequency to generate with the LO source.

LO In Power indicates the output power to generate with the LO source.

external AWG settings indicates the options to set if an arbitrary waveform generator (AWG) is used instead of the PXIe-5450.

Offset Frequency indicates the tone frequency to generate with the AWG.

Power indicates the output power to generate with the AWG.

Impairments indicates the properties to apply to the I/Q signal to achieve desirable calibration results.

I Offset specifies the DC offset to generate

on the I signal.

Q Offset specifies the DC offset to generate on the Q signal.

Qtr Skew specifies the adjustment of the phase angle between the I and Q vectors. If the skew is zero, the phase angle is 90 degrees.

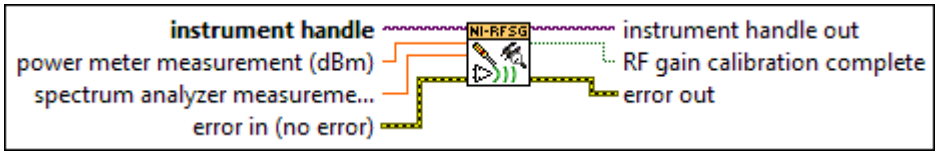
Gain Imb specifies the power ratio (**I** power / **Q** power) to generate.

error out contains error information. This output provides standard error out functionality.

niRFSG 5611 Adjust RF Gain Calibration VI

Calculates calibration information pertaining to the RF gain of the device based on user-supplied measurements. The calibration information is stored in the driver session and can later be written to the device.

Supported Devices: PXIe-5611, PXIe-5673/5673E



I/O

instrument handle identifies your instrument calibration session. **instrument handle** is obtained from the niRFSG Initialize External Calibration VI.

DBL

power meter measurement specifies the measurement read from the power meter after it has been compensated for splitter loss and cable loss between the PXIe-5611 RF OUT front panel connector and the power meter.

power meter measurement is ignored if the power meter is not specified by the **measurement instrument** output of the niRFSG 5611 Configure RF Gain Calibration VI.

DBL

spectrum analyzer measurement specifies the measurement read from the spectrum analyzer. No compensation is required for this parameter.

spectrum analyzer measurement is ignored if the spectrum analyzer is not specified by the **measurement instrument** output of the niRFSG 5611 Configure RF Gain Calibration VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

RF gain calibration complete specifies whether or not RF gain calibration is complete. If **RF gain calibration complete** returns a value of TRUE, RF calibration is successful.

error out contains error information. This output provides standard error out functionality.

NI 5652 Calibration

Owning Palette: External Calibration

Use the NI 5652 Calibration VIs to calibrate your PXI/PXIe-5650/5651/5652 device. Refer to the calibration procedure for your device for more information about device calibration.

Palette Object	Description
niRFSG 5652 Initialize ALC Calibration	Generates external calibration constants for calibrating the automatic leveling control (ALC). **Supported Devices**: PXI/PXIe-5650/5651/5652
niRFSG 5652 Configure ALC Calibration	Configures the PXI/PXIe-5650/5651/5652 for the next automatic leveling control (ALC) calibration point and waits for the output signal to settle. **Supported Devices**: PXI/PXIe-5650/5651/5652
niRFSG 5652 Adjust ALC Calibration	Calculates calibration information pertaining to the ALC of the PXI/PXIe-5650/5651/5652. This calculation is based on user-supplied measurements. The calibration information is stored in the driver session, and you can later write this information to the device.

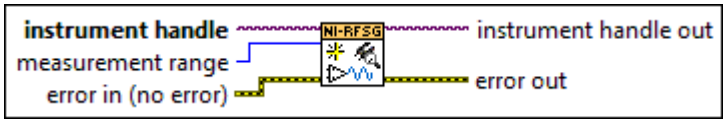
	Supported Devices: PXI/PXIe-5650/5651/5652
niRFSG 5652 Initialize Attenuator Calibration	Generates external calibration constants for calibrating the attenuator. **Supported Devices**: PXI/PXIe-5650/5651/5652
niRFSG 5652 Configure Attenuator Calibration	Configures the PXI/PXIe-5650/5651/5652 for the next attenuator calibration point and waits for the output signal to settle. **Supported Devices**: PXI/PXIe-5650/5651/5652
niRFSG 5652 Adjust Attenuator Calibration	Calculates calibration information pertaining to the selected attenuator on the PXI/PXIe-5650/5651/5652. This calculation is based on user-supplied measurements. The calibration information is stored in the driver session, and you can later write this information to the device. **Supported Devices**: PXI/PXIe-5650/5651/5652
niRFSG 5652 Update ALC Limits Table	Updates the PXI/PXIe-5650/5651/5652 ALC limits table, which determines the attenuator and path NI-RFSG uses for each frequency and power combination. This VI computes the ALC limits table based on calibration data saved during the ALC and attenuator adjustment procedures as well as temperature correction data saved when the device was manufactured. **Supported Devices**: PXI/PXIe-5650/5651/5652
niRFSG 5652 Validate ALC Limits Table	Validates the PXI/PXIe-5650/5651/5652 ALC limits table, which determines the attenuator and path NI-RFSG uses for each frequency and power combination. **Supported Devices**: PXI/PXIe-5650/5651/5652
niRFSG 5652 Initialize Reference Clock Calibration	Generates external calibration constants for calibrating the 10 MHz reference.

	Supported Devices: PXI/PXIe-5650/5651/5652
niRFSG 5652 Configure Reference Clock Calibration	Configures the PXI/PXIe-5650/5651/5652 with specific settings for calibrating the 10 MHz OCXO reference. **Supported Devices**: PXI/PXIe-5650/5651/5652
niRFSG 5652 Adjust Reference Clock Calibration	Calculates calibration information pertaining to the 10 MHz OCXO reference of the PXI/PXIe-5650/5651/5652. This calculation is based on user-supplied measurements. The calibration information is stored in the driver session, and you can later write this information to the device. **Supported Devices**: PXI/PXIe-5650/5651/5652

niRFSG 5652 Initialize ALC Calibration VI

Generates external calibration constants for calibrating the automatic leveling control (ALC).

Supported Devices: PXI/PXIe-5650/5651/5652



instrument handle identifies your instrument calibration session. **instrument handle** is obtained from the niRFSG Initialize External Calibration VI.

measurement range specifies the measurement range to calibrate.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

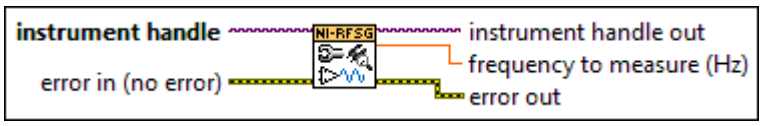
instrument handle out passes a reference to your instrument session to the next VI.

error out contains error information. This output provides standard error out functionality.

niRFSG 5652 Configure ALC Calibration VI

Configures the PXI/PXIe-5650/5651/5652 for the next automatic leveling control (ALC) calibration point and waits for the output signal to settle.

Supported Devices: PXI/PXIe-5650/5651/5652



instrument handle identifies your instrument calibration session.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

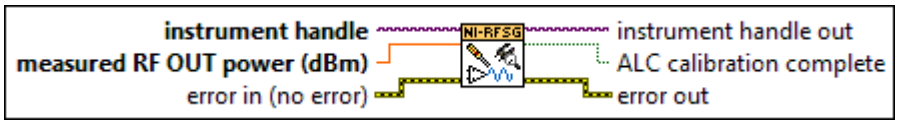
frequency to measure indicates the frequency of the generated signal. This value is expressed in hertz. The power of the generated signal should be measured.

error out contains error information. This output provides standard error out functionality.

niRFSG 5652 Adjust ALC Calibration VI

Calculates calibration information pertaining to the ALC of the PXI/PXIe-5650/5651/5652. This calculation is based on user-supplied measurements. The calibration information is stored in the driver session, and you can later write this information to the device.

Supported Devices: PXI/PXIe-5650/5651/5652



instrument handle identifies your instrument calibration session.

measured RF OUT power specifies the power measured at the frequency indicated by the **frequency to measure** output of the niRFSG 5652 Configure ALC Calibration VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

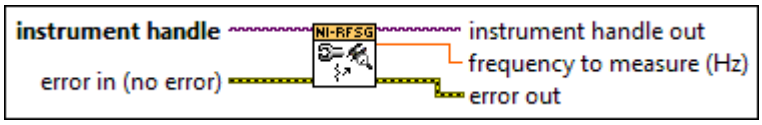
ALC calibration complete indicates whether the ALC calibration is complete.

error out contains error information. This output provides standard error out functionality.

niRFSG 5652 Configure Attenuator Calibration VI

Configures the PXI/PXIe-5650/5651/5652 for the next attenuator calibration point and waits for the output signal to settle.

Supported Devices: PXI/PXIe-5650/5651/5652



instrument handle identifies your instrument calibration session.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

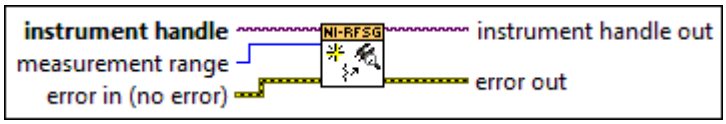
frequency to measure indicates the frequency of the generated signal. This value is expressed in hertz. The power of the generated signal should be measured.

error out contains error information. This output provides standard error out functionality.

niRFSG 5652 Initialize Attenuator Calibration VI

Generates external calibration constants for calibrating the attenuator.

Supported Devices: PXI/PXIe-5650/5651/5652



instrument handle identifies your instrument calibration session. **instrument handle** is obtained from the niRFSG Initialize External Calibration VI.

measurement range specifies the measurement range to calibrate.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

error out contains error information. This output provides standard error out functionality.

niRFSG 5652 Adjust Attenuator Calibration VI

Calculates calibration information pertaining to the selected attenuator on the PXI/PXIe-5650/5651/5652. This calculation is based on user-supplied measurements. The calibration information is stored in the driver session, and you can later write this information to the device.

Supported Devices: PXI/PXIe-5650/5651/5652

instrument handle identifies your instrument calibration session.

measured RF OUT power specifies the power measured at the frequency indicated by the **frequency to measure** output of the niRFSG 5652 Configure Attenuator Calibration VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

attenuator calibration complete indicates whether the attenuator calibration is complete.

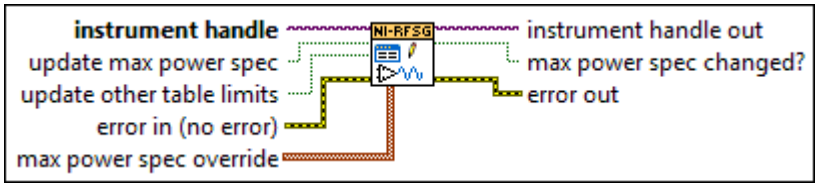
error out contains error information. This output provides standard error out functionality.

niRFSG 5652 Update ALC Limits Table VI

Updates the PXI/PXIe-5650/5651/5652 ALC limits table, which determines the attenuator and path NI-RFSG uses for each frequency and power combination.

This VI computes the ALC limits table based on calibration data saved during the ALC and attenuator adjustment procedures as well as temperature correction data saved when the device was manufactured.

Supported Devices: PXI/PXIe-5650/5651/5652



instrument handle identifies your instrument calibration session. **instrument handle** is obtained from the niRFSG Initialize External Calibration VI.

update max power spec specifies whether to update and overwrite the maximum power specification in the device ALC limits table.

update other table limits specifies whether to update all other ALC limits table values except the maximum power specification value. Set this parameter to TRUE to update all other ALC limits table values. Set this parameter to FALSE to not update all other ALC limits table values.

max power spec override This parameter is for NI internal use only.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

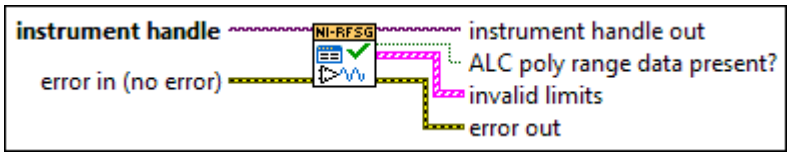
max power spec changed? indicates whether the maximum power specification changed. If this parameter returns a value of TRUE, this VI changed the maximum power specification in the device ALC limits table.

error out contains error information. This output provides standard error out functionality.

niRFSG 5652 Validate ALC Limits Table VI

Validates the PXI/PXIe-5650/5651/5652 ALC limits table, which determines the attenuator and path NI-RFSG uses for each frequency and power combination.

Supported Devices: PXI/PXIe-5650/5651/5652



instrument handle identifies your instrument calibration session. **instrument handle** is obtained from the niRFSG Initialize External Calibration VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

ALC poly range data present? indicates whether the ALC poly range data is present on the device EEPROM. If the ALC poly range data is not present, this VI cannot validate the ALC limits table. The ALC poly range data was added to the EEPROM in NI-RFSG 15.0.3, so this parameter returns a value of FALSE if the device was last calibrated using an earlier version of NI-RFSG.

invalid limits returns the invalid limits in the ALC limits table. If the ALC limits table is valid, this parameter is empty. If the ALC limits table is invalid, this parameter returns the invalid limits and corresponding invalid frequencies.

error out contains error information. This output provides standard error out functionality.

niRFSG 5652 Initialize Reference Clock Calibration VI

Generates external calibration constants for calibrating the 10 MHz reference.

Supported Devices: PXI/PXIe-5650/5651/5652

instrument handle identifies your instrument calibration session. **instrument handle** is obtained from the niRFSG Initialize External Calibration VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

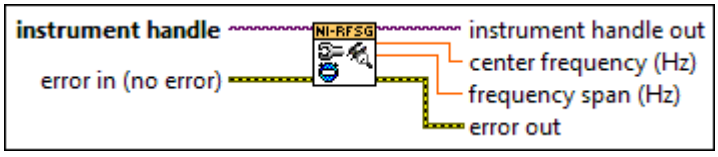
instrument handle out passes a reference to your instrument session to the next VI.

error out contains error information. This output provides standard error out functionality.

niRFSG 5652 Configure Reference Clock Calibration VI

Configures the PXI/PXIe-5650/5651/5652 with specific settings for calibrating the 10 MHz OCXO reference.

Supported Devices: PXI/PXIe-5650/5651/5652



instrument handle identifies your instrument calibration session.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

center frequency returns the value at which to set the spectrum analyzer center frequency.

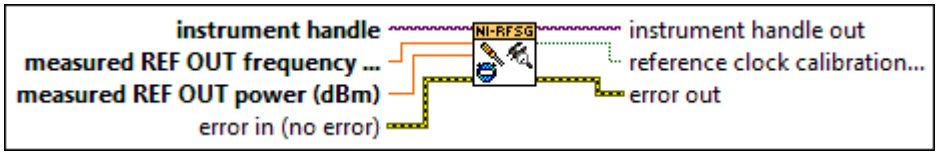
frequency span returns the value at which to set the spectrum analyzer frequency span.

error out contains error information. This output provides standard error out functionality.

niRFSG 5652 Adjust Reference Clock Calibration VI

Calculates calibration information pertaining to the 10 MHz OCXO reference of the PXI/PXIe-5650/5651/5652. This calculation is based on user-supplied measurements. The calibration information is stored in the driver session, and you can later write this information to the device.

Supported Devices: PXI/PXIe-5650/5651/5652



instrument handle identifies your instrument calibration session.

measured REF OUT frequency specifies the frequency measured at the REF OUT front panel connector.

measured REF OUT power specifies the power measured at the frequency indicated by the **measured REF OUT frequency** input.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

reference clock calibration complete indicates whether the Reference Clock calibration is complete.

error out contains error information. This output provides standard error out functionality.

NI PXIe-5653 Calibration

Owning Palette: External Calibration

Use the NI PXIe-5653 Calibration VIs to calibrate your PXIe-5653 device. Refer to the calibration procedure for your device for more information about device calibration.

Palette Object	Description
niRFSG 5653 Initialize Reference Clock Calibration	Generates external calibration constants for calibrating the 10 MHz OCXO reference. **Supported Devices**: PXIe-5653
niRFSG 5653 Configure Reference Clock Calibration	Configures the PXIe-5653 with specific settings for calibrating the 10 MHz reference. **Supported Devices**: PXIe-5653

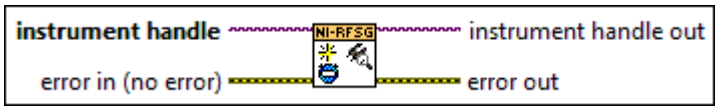
niRFSG 5653 Adjust Reference Clock Calibration	Calculates the PXIe-5653 10 MHz reference calibration information. This calculation is based on user-supplied measurements. The calibration information is stored in the driver session, and you can later write this information to the device. **Supported Devices**: PXIe-5653
niRFSG 5653 Initialize YIG Frequency Calibration	Generates external calibration constants for calibrating the YIG frequency. **Supported Devices**: PXIe-5653
niRFSG 5653 Configure YIG Frequency Calibration	Configures the PXIe-5653 with specific settings for calibrating the YIG frequency. **Supported Devices**: PXIe-5653
niRFSG 5653 Adjust YIG Frequency Calibration	Calculates the PXIe-5653 YIG frequency calibration information. This calculation is based on user-supplied measurements. The calibration information is stored in the driver session, and you can later write this information to the device. **Supported Devices**: PXIe-5653
niRFSG 5653 Initialize LO Gain Calibration	Generates external calibration constants for calibrating one of the three LO gains. Specify the LO output to calibrate using the **LO to Calibrate** input. **Supported Devices**: PXIe-5653
niRFSG 5653 Configure LO Gain Calibration	Configures the PXIe-5653 for the next LO gain calibration point and waits for the output signal to settle. **Supported Devices**: PXIe-5653
niRFSG 5653 Adjust LO Gain Calibration	Calculates the PXIe-5653 LO gain calibration information. This calculation is based on user-supplied measurements. The calibration information is stored in the driver session, and you can later write this information to the device.

	Supported Devices: PXIe-5653

niRFSG 5653 Initialize Reference Clock Calibration VI

Generates external calibration constants for calibrating the 10 MHz OCXO reference.

Supported Devices: PXIe-5653



instrument handle identifies your instrument calibration session. **instrument handle** is obtained from the niRFSG Initialize External Calibration VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

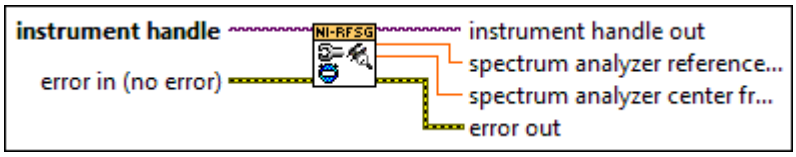
instrument handle out passes a reference to your instrument session to the next VI.

error out contains error information. This output provides standard error out functionality.

niRFSG 5653 Configure Reference Clock Calibration VI

Configures the PXIe-5653 with specific settings for calibrating the 10 MHz reference.

Supported Devices: PXIe-5653



instrument handle identifies your instrument calibration session.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

spectrum analyzer reference level returns the value at which to set the spectrum analyzer reference level.

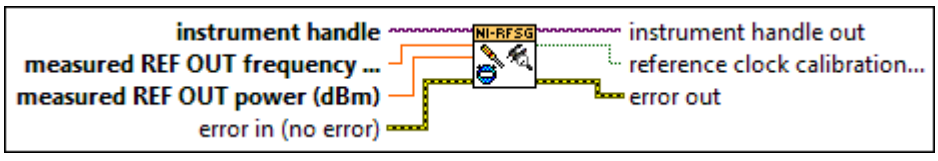
spectrum analyzer center frequency returns the value at which to set the spectrum analyzer center frequency.

error out contains error information. This output provides standard error out functionality.

niRFSG 5653 Adjust Reference Clock Calibration VI

Calculates the PXIe-5653 10 MHz reference calibration information. This calculation is based on user-supplied measurements. The calibration information is stored in the driver session, and you can later write this information to the device.

Supported Devices: PXIe-5653



instrument handle identifies your instrument calibration session.

measured REF OUT frequency peak specifies the frequency measured at the 10 MHz REF OUT front panel connector.

measured REF OUT power specifies the power measured at the frequency indicated by the **measured REF OUT frequency peak** input.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

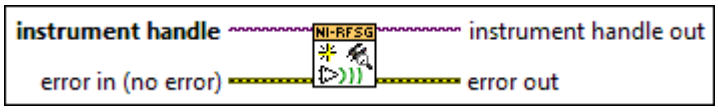
reference clock calibration complete indicates whether the Reference Clock calibration is complete.

error out contains error information. This output provides standard error out functionality.

niRFSG 5653 Initialize YIG Frequency Calibration VI

Generates external calibration constants for calibrating the YIG frequency.

Supported Devices: PXIe-5653



instrument handle identifies your instrument calibration session. **instrument handle** is

obtained from the niRFSG Initialize External Calibration VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

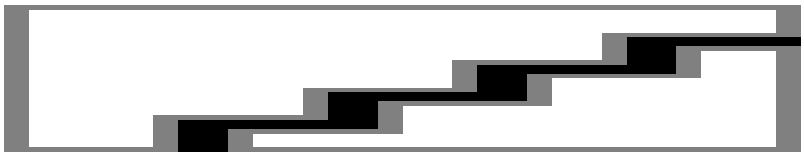
instrument handle out passes a reference to your instrument session to the next VI.

error out contains error information. This output provides standard error out functionality.

niRFSG 5653 Configure YIG Frequency Calibration VI

Configures the PXIe-5653 with specific settings for calibrating the YIG frequency.

Supported Devices: PXIe-5653



instrument handle identifies your instrument calibration session.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

spectrum analyzer center frequency returns the value at which to set the spectrum analyzer center frequency.

spectrum analyzer center frequency span returns the value at which to set the spectrum analyzer center frequency span.

error out contains error information. This output provides standard error out functionality.

niRFSG 5653 Adjust YIG Frequency Calibration VI

Calculates the PXIe-5653 YIG frequency calibration information. This calculation is based on user-supplied measurements. The calibration information is stored in the driver session, and you can later write this information to the device.

Supported Devices: PXIe-5653

instrument handle identifies your instrument calibration session.

measured LO1 frequency specifies the frequency measured by the spectrum analyzer.

measured LO1 power specifies the power measured at the frequency indicated by the **measured LO1 frequency** parameter.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

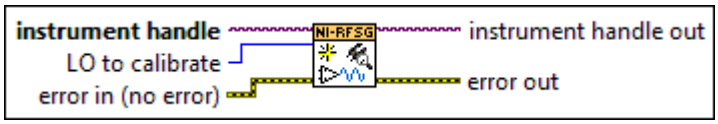
YIG frequency calibration complete indicates whether the YIG frequency calibration is complete.

error out contains error information. This output provides standard error out functionality.

niRFSG 5653 Initialize LO Gain Calibration VI

Generates external calibration constants for calibrating one of the three LO gains. Specify the LO output to calibrate using the **LO to Calibrate** input.

Supported Devices: PXIe-5653



instrument handle identifies your instrument calibration session. **instrument handle** is obtained from the niRFSG Initialize External Calibration VI.

LO to calibrate specifies which filter to calibrate. The default value is **LO1**.

LO1	Specifies the LO1 filter.
LO2	Specifies the LO2 filter.
LO3	Specifies the LO3 filter.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

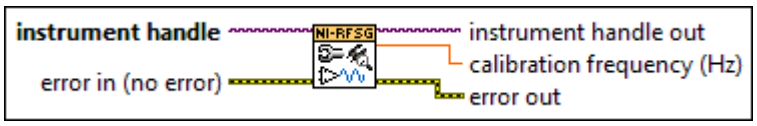
instrument handle out passes a reference to your instrument session to the next VI.

error out contains error information. This output provides standard error out functionality.

niRFSG 5653 Configure LO Gain Calibration VI

Configures the PXIe-5653 for the next LO gain calibration point and waits for the output signal to settle.

Supported Devices: PXIe-5653



instrument handle identifies your instrument calibration session.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

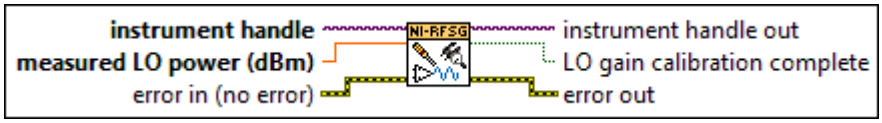
calibration frequency returns the frequency at which the power is calibrated.

error out contains error information. This output provides standard error out functionality.

niRFSG 5653 Adjust LO Gain Calibration VI

Calculates the PXIe-5653 LO gain calibration information. This calculation is based on user-supplied measurements. The calibration information is stored in the driver session, and you can later write this information to the device.

Supported Devices: PXIe-5653



instrument handle identifies your instrument calibration session.

measured LO power specifies the power measured at the frequency indicated by the **calibration frequency** output of the niRFSG 5653 Configure LO Gain Calibration VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

LO gain calibration complete indicates whether the LO gain calibration is complete.

error out contains error information. This output provides standard error out functionality.

NI PXIe-5654 Calibration

Owning Palette: External Calibration

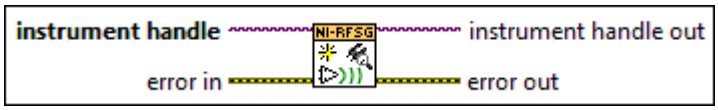
Use the NI PXIe-5654 Calibration VIs to calibrate your PXIe-5654 device. Refer to the calibration procedure for your device for more information about device calibration.

Palette Object	Description
niRFSG 5654 Power Cal Initialize	Prepares the device for calibrating the power. **Supported Devices**: PXIe-5654
niRFSG 5654 Power Cal Configure	Configures the PXIe-5654 for the next power calibration point and waits for the output signal to settle. **Supported Devices**: PXIe-5654
niRFSG 5654 Power Cal Adjust	Calculates calibration information pertaining to the RF output power on the PXIe-5654. This calculation is based on user-supplied measurements. The calibration information is stored in the driver session, and you can later write this information to the device. **Supported Devices**: PXIe-5654
niRFSG 5654 OCXO Cal Initialize	Prepares the device for calibrating the 100 MHz oven-controlled crystal oscillator (OCXO) reference. **Supported Devices**: PXIe-5654
niRFSG 5654 OCXO Cal Configure	Configures the PXIe-5654 with specific settings for calibrating the 100 MHz oven-controlled crystal oscillator (OCXO) reference. **Supported Devices**: PXIe-5654
niRFSG 5654 OCXO Cal Adjust	Calculates calibration information pertaining to the 100 MHz oven-controlled crystal oscillator (OCXO) reference of the PXIe-5654. This calculation is based on user-supplied measurements. The calibration information is stored in the driver session, and you can later write this information to the device. **Supported Devices**: PXIe-5654

niRFSG 5654 Power Cal Initialize VI

Prepares the device for calibrating the power.

Supported Devices: PXIe-5654



instrument handle identifies your instrument calibration session. **instrument handle** is obtained from the niRFSG Initialize External Calibration VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

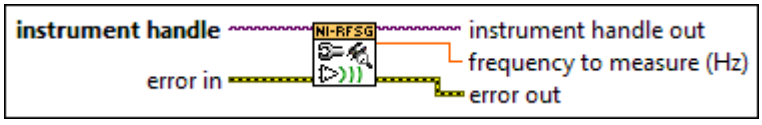
instrument handle out passes a reference to your instrument session to the next VI.

error out contains error information. This output provides standard error out functionality.

niRFSG 5654 Power Cal Configure VI

Configures the PXIe-5654 for the next power calibration point and waits for the output signal to settle.

Supported Devices: PXIe-5654



instrument handle identifies your instrument calibration session.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

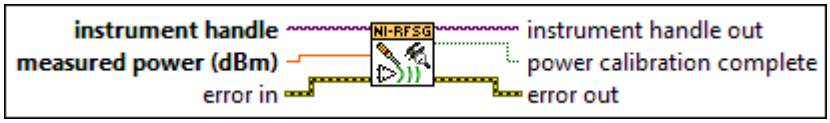
frequency to measure indicates the frequency of the generated signal. This value is expressed in hertz. The power of the generated signal should be measured.

error out contains error information. This output provides standard error out functionality.

niRFSG 5654 Power Cal Adjust VI

Calculates calibration information pertaining to the RF output power on the PXIe-5654. This calculation is based on user-supplied measurements. The calibration information is stored in the driver session, and you can later write this information to the device.

Supported Devices: PXIe-5654



instrument handle identifies your instrument calibration session.

measured power specifies the power measured at the frequency indicated by the niRFSG 5654 Power Cal Configure VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

power calibration complete indicates whether the power calibration is complete.

error out contains error information. This output provides standard error out functionality.

niRFSG 5654 OCXO Cal Initialize VI

Prepares the device for calibrating the 100 MHz oven-controlled crystal oscillator (OCXO) reference.

Supported Devices: PXIe-5654

instrument handle identifies your instrument calibration session. **instrument handle** is obtained from the niRFSG Initialize External Calibration VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

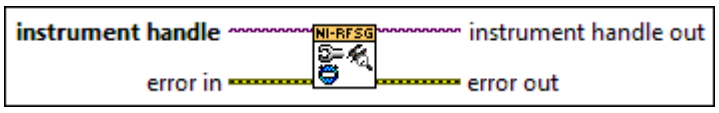
instrument handle out passes a reference to your instrument session to the next VI.

error out contains error information. This output provides standard error out functionality.

niRFSG 5654 OCXO Cal Configure VI

Configures the PXIe-5654 with specific settings for calibrating the 100 MHz oven-controlled crystal oscillator (OCXO) reference.

Supported Devices: PXIe-5654



instrument handle identifies your instrument calibration session.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

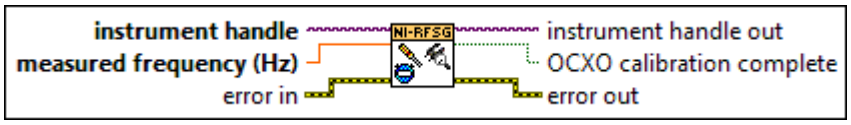
instrument handle out passes a reference to your instrument session to the next VI.

error out contains error information. This output provides standard error out functionality.

niRFSG 5654 OCXO Cal Adjust VI

Calculates calibration information pertaining to the 100 MHz oven-controlled crystal oscillator (OCXO) reference of the PXIe-5654. This calculation is based on user-supplied measurements. The calibration information is stored in the driver session, and you can later write this information to the device.

Supported Devices: PXIe-5654



instrument handle identifies your instrument calibration session.

measured frequency specifies the measured frequency, in hertz.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

OCXO calibration complete indicates whether the OCXO calibration is complete.

error out contains error information. This output provides standard error out functionality.

NI PXIe-5696 Calibration

Owning Palette: External Calibration

Use the NI PXIe-5696 Calibration VIs to calibrate your PXIe-5696 device. Refer to the calibration procedure for your device for more information about device calibration.

Palette Object	Description
niRFSG 5696 Attenuator Path Cal Initialize	Prepares the device for calibrating the attenuat or path. **Supported Devices**: PXIe-5696
niRFSG 5696 Attenuator Path Cal Configure	Configures the PXIe-5696 for the next attenuator path calibration point and waits for the output s ignal to settle. **Supported Devices**: PXIe-5696
niRFSG 5696 Attenuator Path Cal Adjust	Calculates calibration information pertaining to the attenuator path on the PXIe-5696. This calcu lation is based on user-supplied measurements. The calibration information is stored in the driv er session, and you can later write this informati on to the device.

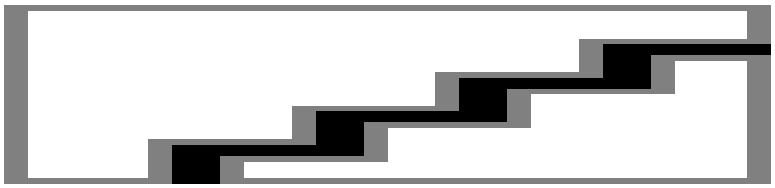
	Supported Devices: PXIe-5696
niRFSG 5696 Attenuator Cal Initialize	Prepares the device for calibrating the attenuator. **Supported Devices**: PXIe-5696
niRFSG 5696 Attenuator Cal Configure	Configures the PXIe-5696 for the next attenuator calibration point and waits for the output signal to settle. **Supported Devices**: PXIe-5696
niRFSG 5696 Attenuator Cal Adjust	Calculates calibration information pertaining to the selected attenuator on the PXIe-5696. This calculation is based on user-supplied measurements. The calibration information is stored in the driver session, and you can later write this information to the device. **Supported Devices**: PXIe-5696
niRFSG 5696 Amplifier Cal Initialize	Prepares the device for calibrating the amplifier. **Supported Devices**: PXIe-5696
niRFSG 5696 Amplifier Cal Configure	Configures the PXIe-5696 for the next amplifier calibration point and waits for the output signal to settle. **Supported Devices**: PXIe-5696
niRFSG 5696 Amplifier Cal Adjust	Calculates calibration information pertaining to the selected amplifier on the PXIe-5696. This calculation is based on user-supplied measurements. The calibration information is stored in the driver session, and you can later write this information to the device. **Supported Devices**: PXIe-5696
niRFSG 5696 ALC Cal Initialize	Prepares the device for calibrating the automatic leveling control (ALC). **Supported Devices**: PXIe-5696

niRFSG 5696 ALC Cal Configure	Configures the PXIe-5696 for the next automatic leveling control (ALC) calibration point and wait s for the output signal to settle. **Supported Devices**: PXIe-5696
niRFSG 5696 ALC Cal Adjust	Calculates calibration information pertaining to the automatic leveling control (ALC) of the PXIe-5696. This calculation is based on user-supplied measurements. The calibration information is st ored in the driver session, and you can later writ e this information to the device. **Supported Devices**: PXIe-5696

niRFSG 5696 Attenuator Path Cal Initialize VI

Prepares the device for calibrating the attenuator path.

Supported Devices: PXIe-5696



instrument handle identifies your instrument calibration session. **instrument handle** is obtained from the niRFSG Initialize External Calibration VI.

NI 5654 resource name specifies the resource name of the PXIe-5654 RF signal generator to initialize.

measurement port specifies the port that the power meter is connected to. To reduce error, the calibration procedure measures the

PXIe-5696 input power as well as the PXIe-5696 output power.

Input Power	Specifies the PXIe-5696 input power.
Output Power	Specifies the PXIe-5696 output power.

input power file specifies the file where the input power measurements are stored. This file is written when you set **measurement port** to Input Power. This file is read when you set **measurement port** to Output Power.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

error out contains error information. This output provides standard error out functionality.

niRFSG 5696 Attenuator Path Cal Configure VI

Configures the PXIe-5696 for the next attenuator path calibration point and waits for the output signal to settle.

Supported Devices: PXIe-5696

instrument handle identifies your instrument calibration session.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

frequency to measure indicates the frequency of the generated signal. This value is expressed in hertz. The power of the generated signal should be measured.

error out contains error information. This output provides standard error out functionality.

niRFSG 5696 Attenuator Path Cal Adjust VI

Calculates calibration information pertaining to the attenuator path on the PXIe-5696. This calculation is based on user-supplied measurements. The calibration information is stored in the driver session, and you can later write this information to the device.

Supported Devices: PXIe-5696

instrument handle identifies your instrument calibration session.

measured power specifies the power measured at the frequency indicated by the niRFSG 5696 Attenuator Path Cal Configure VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

attenuator calibration complete indicates whether the attenuator calibration is complete.

error out contains error information. This output provides standard error out functionality.

niRFSG 5696 Attenuator Cal Initialize VI

Prepares the device for calibrating the attenuator.

Supported Devices: PXIe-5696

instrument handle identifies your instrument calibration session. **instrument handle** is obtained from the niRFSG Initialize External Calibration VI.

NI 5654 resource name specifies the resource name of the PXIe-5654 RF signal generator to initialize.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

error out contains error information. This output provides standard error out functionality.

niRFSG 5696 Attenuator Cal Configure VI

Configures the PXIe-5696 for the next attenuator calibration point and waits for the output signal to settle.

Supported Devices: PXIe-5696

instrument handle identifies your instrument calibration session.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

frequency to measure indicates the frequency of the generated signal. This value is expressed in hertz. The power of the generated signal should be measured.

error out contains error information. This output provides standard error out functionality.

niRFSG 5696 Attenuator Cal Adjust VI

Calculates calibration information pertaining to the selected attenuator on the PXIe-5696. This calculation is based on user-supplied measurements. The

calibration information is stored in the driver session, and you can later write this information to the device.

Supported Devices: PXIe-5696

instrument handle identifies your instrument calibration session.

measured power specifies the power measured at the frequency indicated by the niRFSG 5696 Attenuator Cal Configure VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

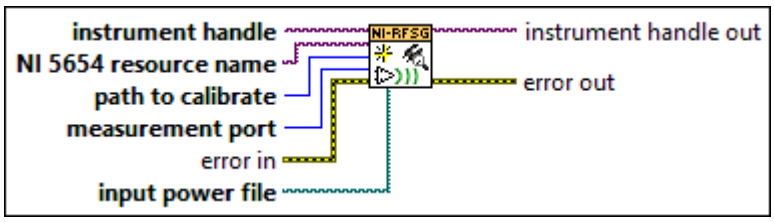
attenuator calibration complete indicates whether the attenuator calibration is complete.

error out contains error information. This output provides standard error out functionality.

niRFSG 5696 Amplifier Cal Initialize VI

Prepares the device for calibrating the amplifier.

Supported Devices: PXIe-5696



instrument handle identifies your instrument calibration session. **instrument handle** is obtained from the niRFSG Initialize External Calibration VI.

NI 5654 resource name specifies the resource name of the PXIe-5654 RF signal generator to initialize.

path to calibrate specifies which amplifier path to calibrate.

High Power	Specifies the high power path.
Low Harmonic	Specifies the low harmonic path.

measurement port specifies the port that the power meter is connected to. To reduce error, the calibration procedure measures the PXIe-5696 input power as well as the PXIe-5696 output power.

Input Power	Specifies the PXIe-5696 input power.
Output Power	Specifies the PXIe-5696 output power.

input power file specifies the file where the input power measurements are stored. This file is written when you set **measurement port** to Input Power. This file is read when you set **measurement port** to Output Power.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

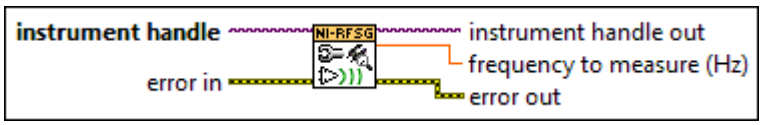
instrument handle out passes a reference to your instrument session to the next VI.

error out contains error information. This output provides standard error out functionality.

niRFSG 5696 Amplifier Cal Configure VI

Configures the PXIe-5696 for the next amplifier calibration point and waits for the output signal to settle.

Supported Devices: PXIe-5696



instrument handle identifies your instrument calibration session.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

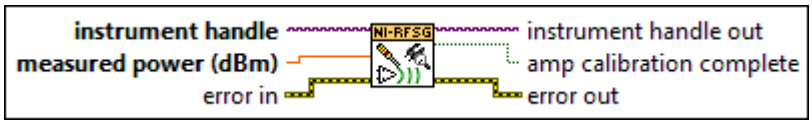
frequency to measure indicates the frequency of the generated signal. This value is expressed in hertz. The power of the generated signal should be measured.

error out contains error information. This output provides standard error out functionality.

niRFSG 5696 Amplifier Cal Adjust VI

Calculates calibration information pertaining to the selected amplifier on the PXIe-5696. This calculation is based on user-supplied measurements. The calibration information is stored in the driver session, and you can later write this information to the device.

Supported Devices: PXIe-5696



instrument handle identifies your instrument calibration session.

measured power specifies the power measured at the frequency indicated by the niRFSG 5696 Amplifier Cal Configure VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

amp calibration complete indicates whether the amplifier calibration is complete.

error out contains error information. This output provides standard error out functionality.

niRFSG 5696 ALC Cal Initialize VI

Prepares the device for calibrating the automatic leveling control (ALC).

Supported Devices: PXIe-5696

instrument handle identifies your instrument calibration session. **instrument handle** is obtained from the niRFSG Initialize External Calibration VI.

NI 5654 resource name specifies the resource name of the PXIe-5654 RF signal generator to initialize.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

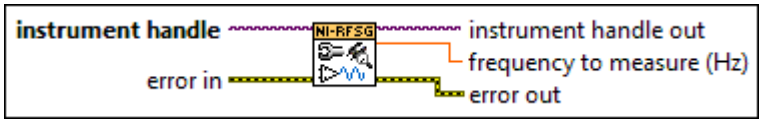
instrument handle out passes a reference to your instrument session to the next VI.

error out contains error information. This output provides standard error out functionality.

niRFSG 5696 ALC Cal Configure VI

Configures the PXIe-5696 for the next automatic leveling control (ALC) calibration point and waits for the output signal to settle.

Supported Devices: PXIe-5696



instrument handle identifies your instrument calibration session.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

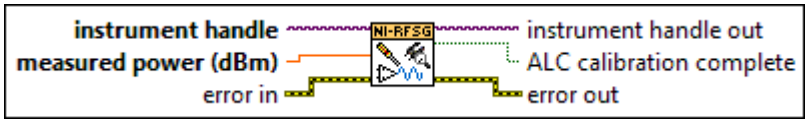
frequency to measure indicates the frequency of the generated signal. This value is expressed in hertz. The power of the generated signal should be measured.

error out contains error information. This output provides standard error out functionality.

niRFSG 5696 ALC Cal Adjust VI

Calculates calibration information pertaining to the automatic leveling control (ALC) of the PXIe-5696. This calculation is based on user-supplied measurements. The calibration information is stored in the driver session, and you can later write this information to the device.

Supported Devices: PXIe-5696



instrument handle identifies your instrument calibration session.

measured power specifies the power measured at the frequency indicated by the niRFSG 5696 ALC Cal Configure VI.

error in describes error conditions that occur before this node runs. This input provides standard error in functionality.

instrument handle out passes a reference to your instrument session to the next VI.

ALC calibration complete indicates whether the ALC calibration is complete.

error out contains error information. This output provides standard error out functionality.