NI-ModInst Python API Documentation

Release 1.4.8

NI

Apr 26, 2024

DOCUMENTATION

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CHAPTER

ONE

ABOUT

The **nimodinst** module provides a Python API for NI-ModInst. The code is maintained in the Open Source repository for nimi-python.

1.1 Support Policy

nimodinst supports all the Operating Systems supported by NI-ModInst.

It follows Python Software Foundation support policy for different versions of CPython.

CHAPTER

TWO

CONTRIBUTING

We welcome contributions! You can clone the project repository, build it, and install it by following these instructions.

CHAPTER

THREE

SUPPORT / FEEDBACK

For support specific to the Python API, follow the processs in *Bugs / Feature Requests*. For support with hardware, the driver runtime or any other questions not specific to the Python API, please visit NI Community Forums.

CHAPTER

FOUR

BUGS / FEATURE REQUESTS

To report a bug or submit a feature request specific to Python API, please use the GitHub issues page.

Fill in the issue template as completely as possible and we will respond as soon as we can.

4.1 nimodinst module

4.1.1 Installation

As a prerequisite to using the **nimodinst** module, you must install the NI-ModInst runtime on your system. Visit ni.com/downloads to download the driver runtime for your devices.

The nimi-python modules (i.e. for **NI-ModInst**) can be installed with pip:

```
$ python -m pip install nimodinst~=1.4.8
```

4.1.2 Usage

The following is a basic example of using the **nimodinst** module to retrieve information on all High Speed Digitizers currently in the system.

```
import nimodinst
with nimodinst.Session("niscope") as session:
    for device in session:
        print("{: >20} {: >15} {: >10}".format(device.device_name, device.device_model,␣
↪device.serial_number))
```

Other usage examples can be found on GitHub.

4.1.3 API Reference

Session

class nimodinst.**Session**(*self*, *driver*)

Creates a handle to a list of installed devices supported by the specified driver. Call this method and pass in the name of an NI instrument driver, such as "NI-SCOPE". This method searches the system and constructs a list of all the installed devices that are supported by that driver, and then returns both a handle to this list and the number of devices found. The handle is used with other methods to query for properties such as device name and model, and to safely discard the list when finished. Note This handle reflects the system state when the handle is created

(that is, when you call this method. If you remove devices from the system or rename them in Measurement & Automation Explorer (MAX), this handle may not refer to an accurate list of devices. You should destroy the handle using `nimodinst.Session._close_installed_devices_session()` and create a new handle using this method.

Parameters

driver (*str*) – A string specifying the driver whose supported devices you want to find. This string is not case-sensitive. Some examples are: NI-SCOPE niScope NI-FGEN niFgen NI-HSDIO niHSDIO NI-DMM niDMM NI-SWITCH niSwitch Note If you use the empty string for this parameter, NI-ModInst creates a list of all Modular Instruments devices installed in the system.

Methods

close

`nimodinst.Session.`**`close`**`()`

Cleans up the NI-ModInst session created by a call to `nimodinst.Session._open_installed_devices_session()`. Call this method when you are finished using the session handle and do not use this handle again.

Note: This method is not needed when using the session context manager

Properties

bus_number

`nimodinst.Session.`**`bus_number`**

The bus on which the device has been enumerated.

The following table lists the characteristics of this property.

Characteristic	Value
Datatype	int
Permissions	read only

Tip: This property corresponds to the following LabVIEW Property or C Attribute:

- C Attribute: **NIMODINST_ATTR_BUS_NUMBER**

chassis_number

`nimodinst.Session.chassis_number`

The number of the chassis in which the device is installed. This property can only be queried for PXI devices installed in a chassis that has been properly identified in MAX.

The following table lists the characteristics of this property.

Characteristic	Value
Datatype	int
Permissions	read only

Tip: This property corresponds to the following LabVIEW Property or C Attribute:

- C Attribute: **NIMODINST_ATTR_CHASSIS_NUMBER**

device_model

`nimodinst.Session.device_model`

The model of the device (for example, NI PXI-5122)

The following table lists the characteristics of this property.

Characteristic	Value
Datatype	str
Permissions	read only

Tip: This property corresponds to the following LabVIEW Property or C Attribute:

- C Attribute: **NIMODINST_ATTR_DEVICE_MODEL**

device_name

`nimodinst.Session.device_name`

The name of the device, which can be used to open an instrument driver session for that device

The following table lists the characteristics of this property.

Characteristic	Value
Datatype	str
Permissions	read only

Tip: This property corresponds to the following LabVIEW Property or C Attribute:

- C Attribute: **NIMODINST_ATTR_DEVICE_NAME**

---

max_pciexpress_link_width

`nimodinst.Session.max_pciexpress_link_width`

MAX_PCIEXPRESS_LINK_WIDTH

The following table lists the characteristics of this property.

Characteristic	Value
Datatype	int
Permissions	read only

Tip: This property corresponds to the following LabVIEW Property or C Attribute:

- C Attribute: **NIMODINST_ATTR_MAX_PCIEXPRESS_LINK_WIDTH**

---

pciexpress_link_width

`nimodinst.Session.pciexpress_link_width`

PCIEXPRESS_LINK_WIDTH

The following table lists the characteristics of this property.

Characteristic	Value
Datatype	int
Permissions	read only

Tip: This property corresponds to the following LabVIEW Property or C Attribute:

- C Attribute: **NIMODINST_ATTR_PCIEXPRESS_LINK_WIDTH**

---

serial_number

`nimodinst.Session.serial_number`

The serial number of the device

The following table lists the characteristics of this property.

Characteristic	Value
Datatype	str
Permissions	read only

Tip: This property corresponds to the following LabVIEW Property or C Attribute:

- C Attribute: **NIMODINST_ATTR_SERIAL_NUMBER**

slot_number

`nimodinst.Session.slot_number`

The slot (for example, in a PXI chassis) in which the device is installed. This property can only be queried for PXI devices installed in a chassis that has been properly identified in MAX.

The following table lists the characteristics of this property.

Characteristic	Value
Datatype	int
Permissions	read only

Tip: This property corresponds to the following LabVIEW Property or C Attribute:

- C Attribute: **NIMODINST_ATTR_SLOT_NUMBER**

socket_number

`nimodinst.Session.socket_number`

The socket number on which the device has been enumerated

The following table lists the characteristics of this property.

Characteristic	Value
Datatype	int
Permissions	read only

Tip: This property corresponds to the following LabVIEW Property or C Attribute:

- C Attribute: **NIMODINST_ATTR_SOCKET_NUMBER**

Session

- *Session*
- *Methods*
  - *close*
- *Properties*
  - *bus_number*
  - *chassis_number*

- *device_model*
- *device_name*
- *max_pciexpress_link_width*
- *pciexpress_link_width*
- *serial_number*
- *slot_number*
- *socket_number*

Exceptions and Warnings

Error

exception nimodinst.errors.**Error**

Base exception type that all NI-ModInst exceptions derive from

DriverError

exception nimodinst.errors.**DriverError**

An error originating from the NI-ModInst driver

UnsupportedConfigurationError

exception nimodinst.errors.**UnsupportedConfigurationError**

An error due to using this module in an usupported platform.

DriverNotInstalledError

exception nimodinst.errors.**DriverNotInstalledError**

An error due to using this module without the driver runtime installed.

DriverTooOldError

exception nimodinst.errors.**DriverTooOldError**

An error due to using this module with an older version of the NI-ModInst driver runtime.

DriverTooNewError

exception nimodinst.errors.**DriverTooNewError**

An error due to the NI-ModInst driver runtime being too new for this module.

DriverWarning

exception nimodinst.errors.**DriverWarning**

A warning originating from the NI-ModInst driver

Examples

You can download all nimodinst examples here

nimodinst_all_devices.py

Listing 1: (nimodinst_all_devices.py)

```
#!/usr/bin/python

import nimodinst


def example():
    with nimodinst.Session('') as session:
        if len(session) > 0:
            print("%d items" % len(session))
            print("{: >20} {: >15} {: >10}".format('Name', 'Model', 'S/N'))
        for d in session:
            print(f"{d.device_name: >20} {d.device_model: >15} {d.serial_number: >10}")


def _main():
    example()


def test_example():
    example()


if __name__ == '__main__':
    _main()


```

4.2 Additional Documentation

Refer to your driver documentation for device-specific information and detailed API documentation.

Refer to the nimi-python Read the Docs project for documentation of versions 1.4.4 of the module or earlier.

CHAPTER

FIVE

LICENSE

nimi-python is licensed under an MIT-style license (see LICENSE). Other incorporated projects may be licensed under different licenses. All licenses allow for non-commercial and commercial use.

gRPC Features

For driver APIs that support it, passing a GrpcSessionOptions instance as a parameter to Session.__init__() is subject to the NI General Purpose EULA (see NILICENSE).

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