acontis technologies GmbH

SOFTWARE

EC-Simulator

Python Programming Interface

V3.3

AT3507 **Edition: April 2, 2026**

Contents

1 Introduction

The Python Wrapper provides a Python interface to use EC-Master, EC-Monitor, EC-Simulator and RAS Client/Server.

1.1 Requirements

Python v3.7 and above

- Python Pause. Required for ticked timing with pause.until(…) to lower JobTask's drift, e.g. for Distributed Clocks

  ```
  $ pip install pause
  ```

- PyQt5 (v5.15.1). Only required to run the GUI demo

  ```
  $ pip install pyqt5
  ```

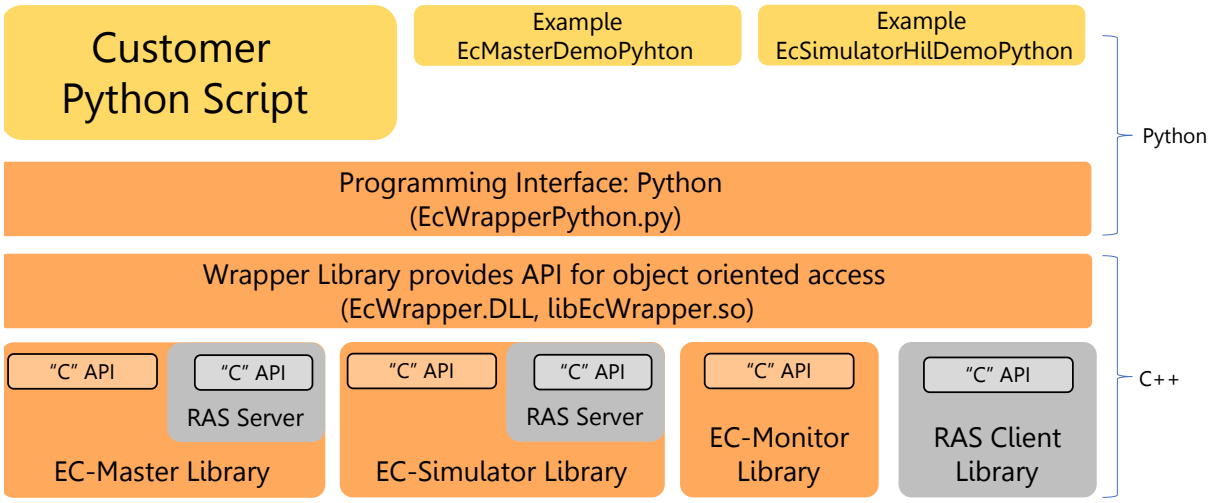
Windows (x86/x64)

- Microsoft Windows 7 and above
- Microsoft Visual C++ 2010 Runtime

Linux (x86/x64/ARM)

- Ubuntu 12.04 and above

1.2 Architecture



The architecture contains 4 basic layers:

Customer Python Script or our examples (EcMasterDemoPython, …)

- Demo application, written in Python

Programming Interface (EcWrapperPython)

- Provides an object oriented API written in Python

Wrapper Library (EcWrapper)

- Native wrapper library, which provides API for object oriented access

Native Libraries

- EC-Master Library
- EC-Monitor LIbrary
- EC-Simulator Library
- RAS Client Library

2 Programmers Guide

2.1 Sample Scripts

There are currently 2 scripts available:

EcMasterDemoPython.bat
Starts the console demo application

EcMasterDemoPythonInteractive.bat
Starts the interactive demo application

The scripts will start the demo application. The interactive demo application waits for user input where the user can enter the following commands:

```
# Write variable
demo.processImage.variables.Slave_1005__EL2008_.Channel_1.Output.set(1)

# Read variable
demo.processImage.variables.Slave_1005__EL2008_.Channel_1.Output.get()

# Print properties of variable
demo.processImage.variables.Slave_1005__EL2008_.Channel_1.Output.dmp()

# Stop the demo:
demo.stopDemo()
```

2.2 Sample Code

The Python demo application contains of 3 modules:

EcDemoApp.py:
Console demo application

EcDemoAppGui.py:
Gui demo application, based on Qt5

EcDemoAppInteractive.py:
Interactive demo application

2.3 Wrapper

2.3.1 Modules

The Python Wrapper contains of 5 modules:

EcWrapperPython.py

class CEcWrapperPython
EC-Wrapper base class

class CEcMasterPython
EC-Master

class CEcMasterRasServerPython
RAS Server for EC-Master

class CEcMasterMbxGatewayClientPython
Mailbox Gateway Client for EC-Master

class CEcMasterMbxGatewayServerPython
Mailbox Gateway Server for EC-Master

class CEcSimulatorPython
EC-Simulator

class CEcSimulatorRasServerPython
RAS Server for EC-Simulator

class CEcRasClientPython
RAS Client for EC-Master / EC-Simulator

EcMotionPython.py

class CEcMotionPython
EC-Motion interface

EcWrapperPythonTypes.py
Python types

EcWrapper.py
CPython interface (internal)

EcWrapperTypes.py
CPython types (internal)

2.3.2 Return code vs. exception handling

The most of all API functions returns a return code for error handling. This behaviour can be changed to throw an exception in error case by simply setting:

```
CEcWrapperPython.EnableExceptionHandling = True # default is False
```

2.3.3 API with “out” or “ref” parameters

The Python Wrapper API is based on C# code. C# supports `out` and `ref` keywords for parameters. This is not supported in Python and is solved by simply submitting `CEcWrapperPythonOutParam` or `CEcWrapperPythonRefParam` to those functions:

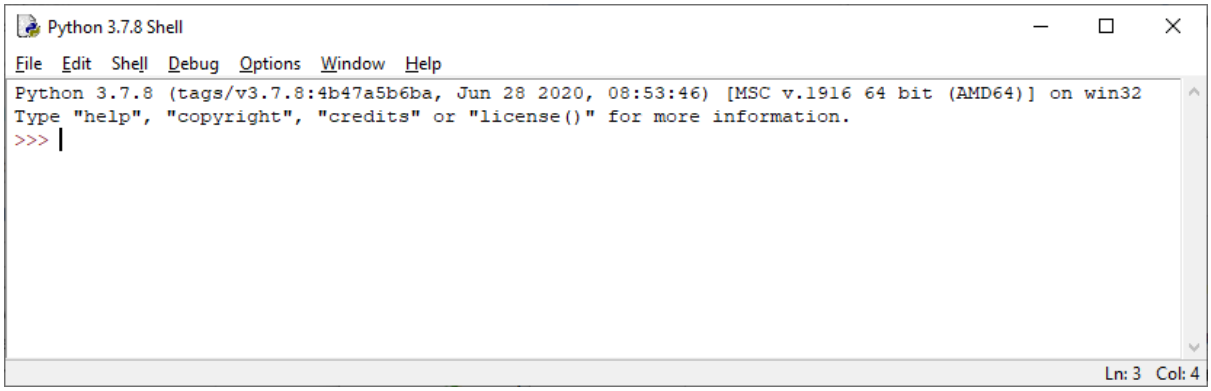
```
# This function has an "out" parameter "out_oSbStatus"
def GetScanBusStatus(self, out_oSbStatus):
    # ...
    return

# Create "out" parameter
out_oStatus = CEcWrapperPythonOutParam()
# Call function
pythonWrapper.GetScanBusStatus(out_oStatus)
# Get the "out" parameter value
oStatus = out_oStatus.value
# Now, the "oStatus" object can be used
print(oStatus.dwResultCode)
```

2.4 Supported IDEs

2.4.1 Python Shell IDLE

This is the default IDE.

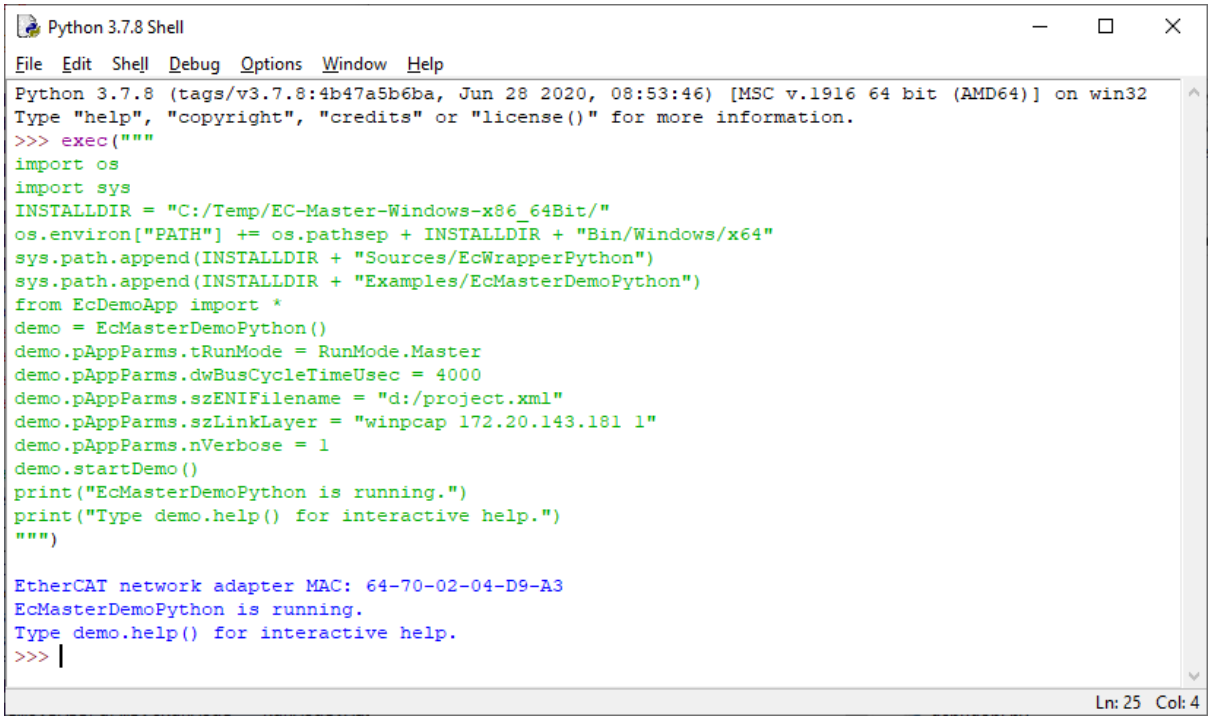
It can be started from Windows Start Menu or by calling `C:/Python/Lib/idlelib/idle.py`:



In this shell, the user can simply copy&paste the sample code from: `Examples/EcMasterDemoPython/EcDemoAppInteractive.py`

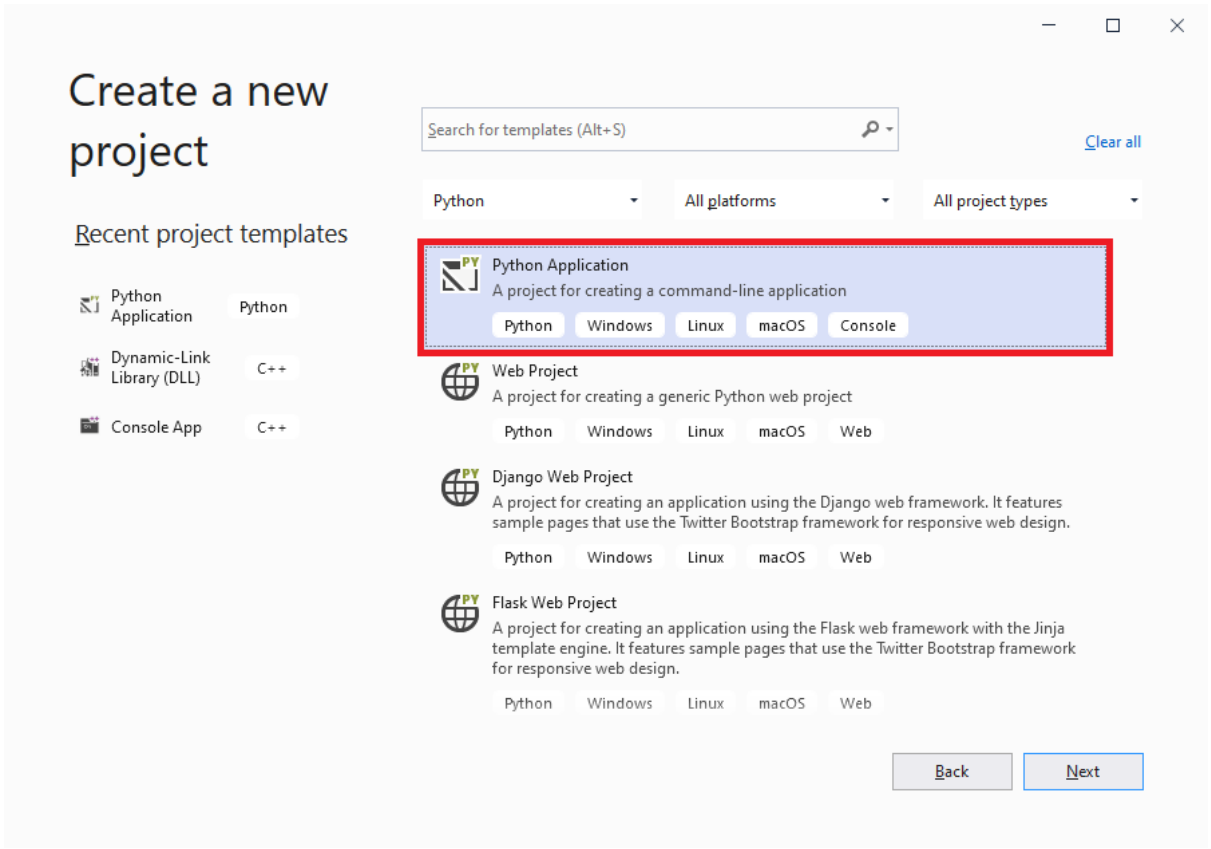
```
exec("""
import os
import sys
INSTALLDIR = "C:/Program
Files/acontis_technologies/EC-Master-Windows-x86_64Bit/"
os.environ["PATH"] += os.pathsep + INSTALLDIR + "Bin/Windows/x64"
sys.path.append(INSTALLDIR + "Sources/EcWrapperPython")
sys.path.append(INSTALLDIR + "Examples/EcMasterDemoPython")
from EcDemoApp import \*
demo = EcMasterDemoPython()
demo.pAppParms.tRunMode = RunMode.Master
demo.pAppParms.dwBusCycleTimeUsec = 4000
demo.pAppParms.szENIFilename = "ENI.xml"
demo.pAppParms.szLinkLayer = "winpcap 127.0.0.0 1"
demo.pAppParms.nVerbose = 3
demo.startDemo()
print("EcMasterDemoPython is running.")
print("Type demo.help() for interactive help.")
""")
```

… and the demo is running.



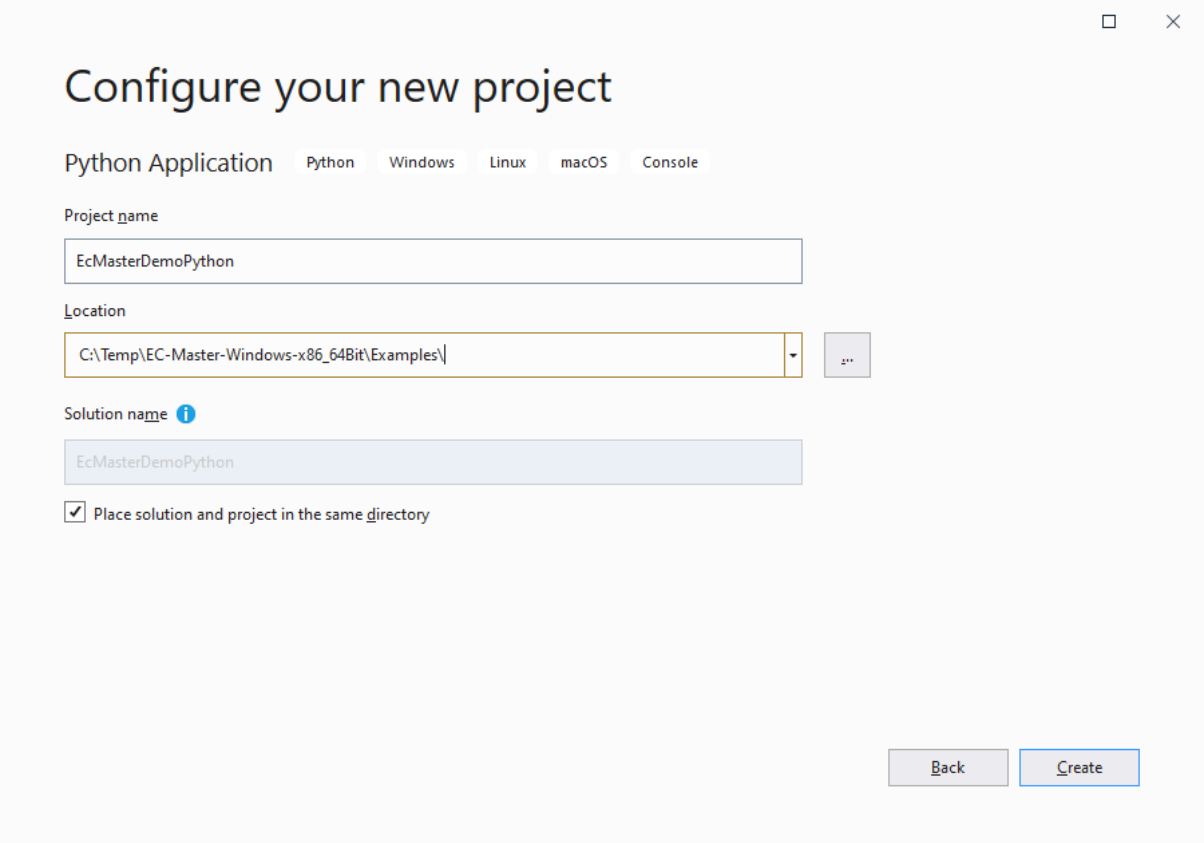
2.4.2 Visual Studio 2019

Create a new project:



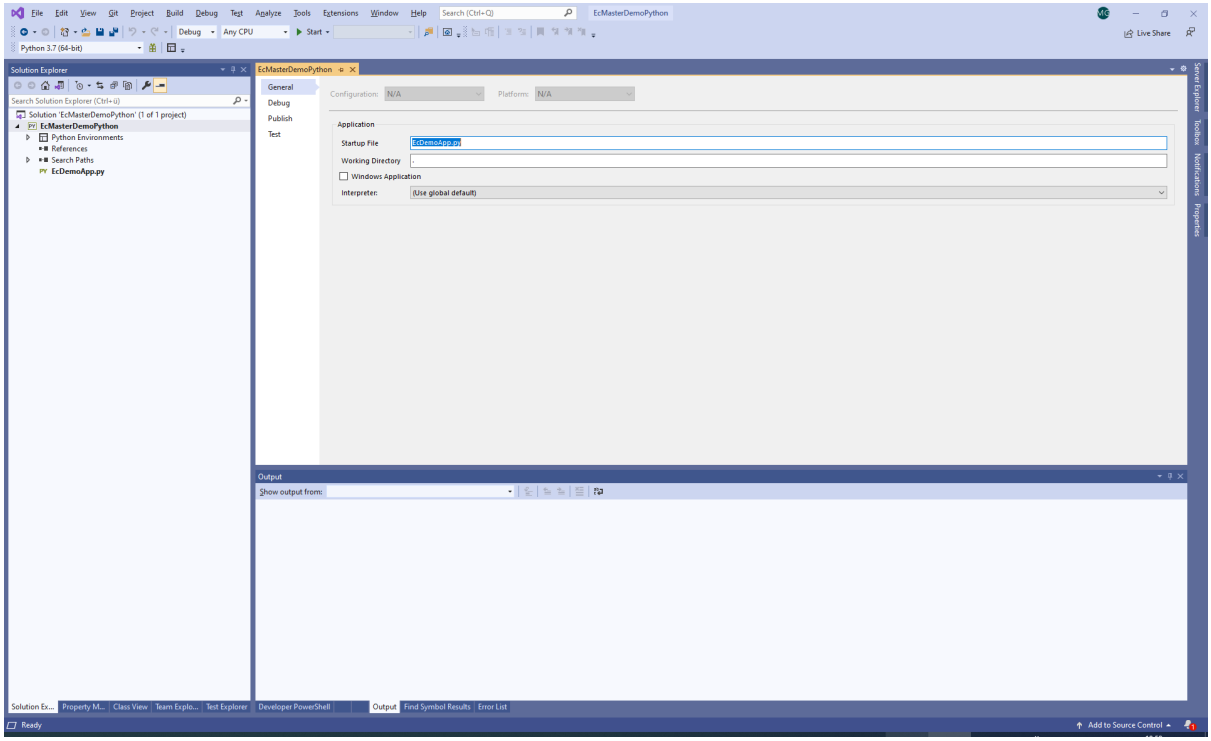
Configure the project:

- Replace the generated file `EcMasterDemoPython.py` with the existing `EcDemoApp.py`.



Configure project *General* settings:

- Startup File: `EcDemoApp.py`



Configure project *Debug* settings:

- Search Paths:

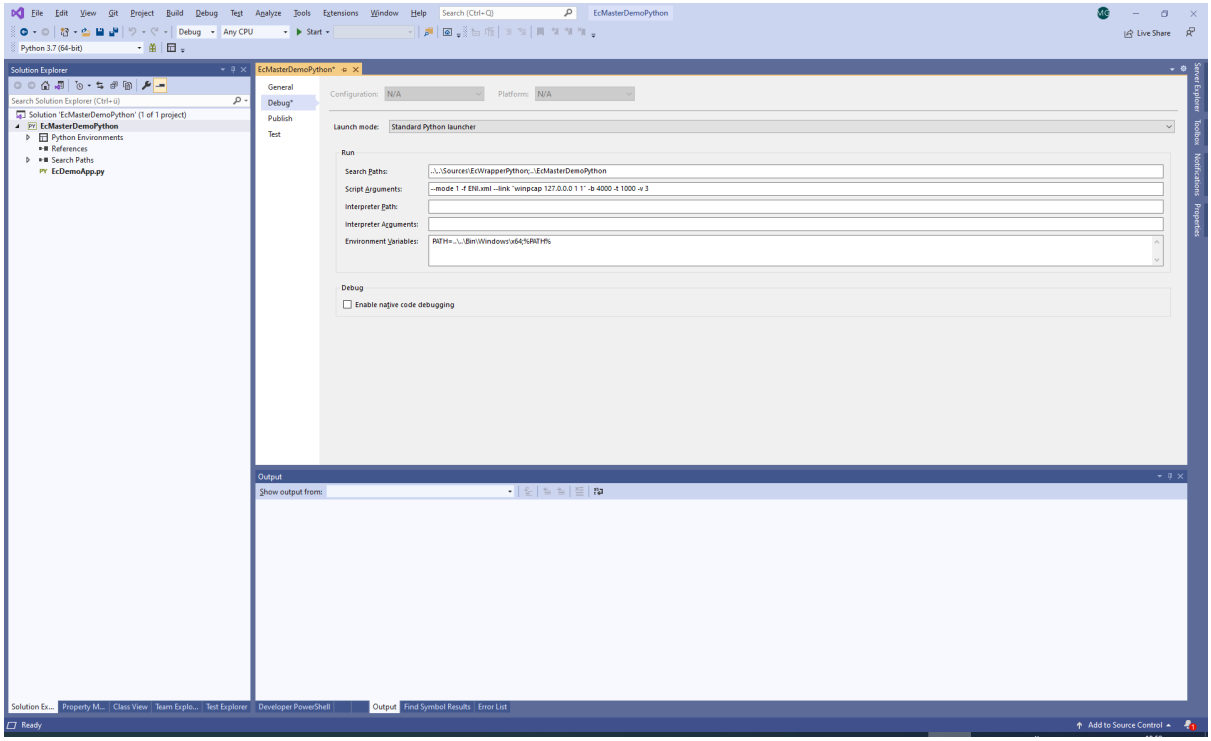
```
../../Sources/EcWrapperPython;../EcMasterDemoPython
```

- Script Arguments:

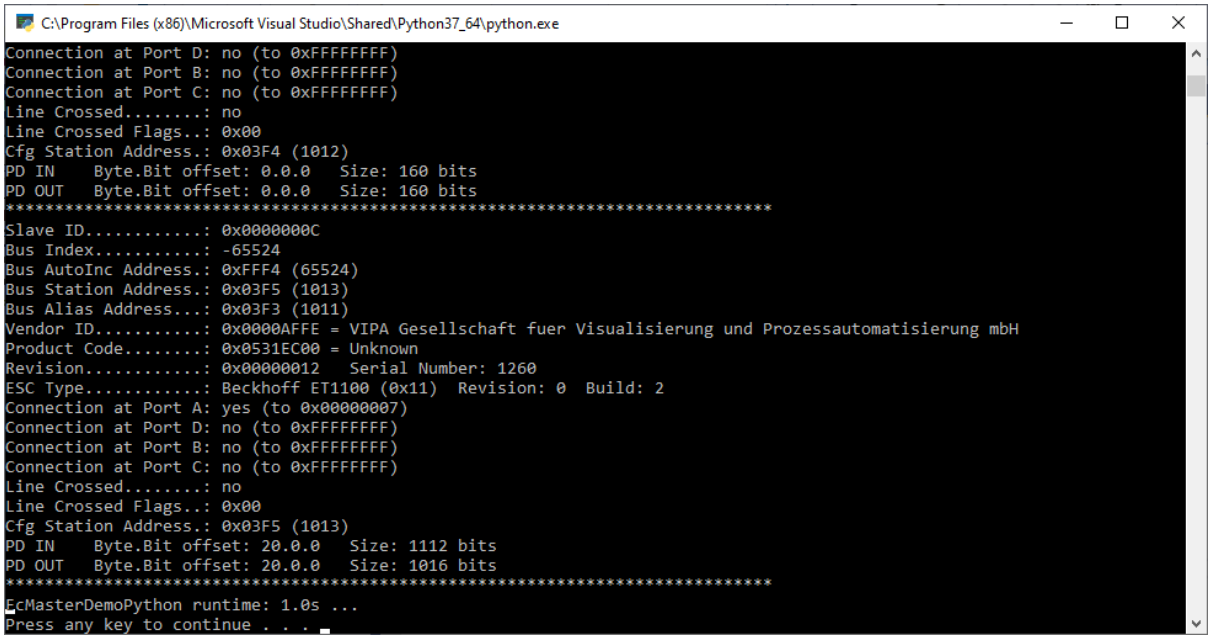
```
-mode 1 -file ENI.xml -link "winpcap 127.0.0.0 1 1" -cycletime 4000 -time 1000␣
↪-lvl 3
```

- Environment Variables:

```
PATH=../../Bin/Windows/x64;%PATH%
```

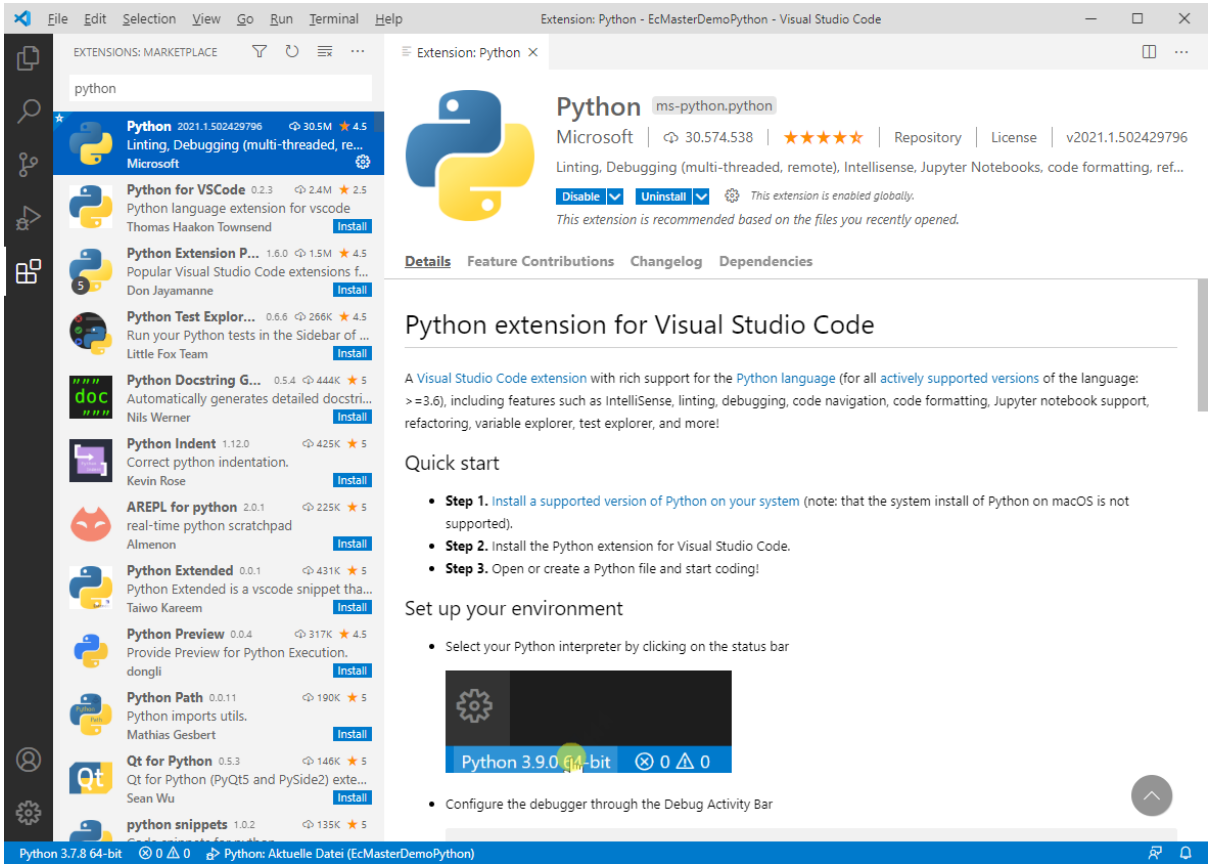


Press *Start* and the demo is running:



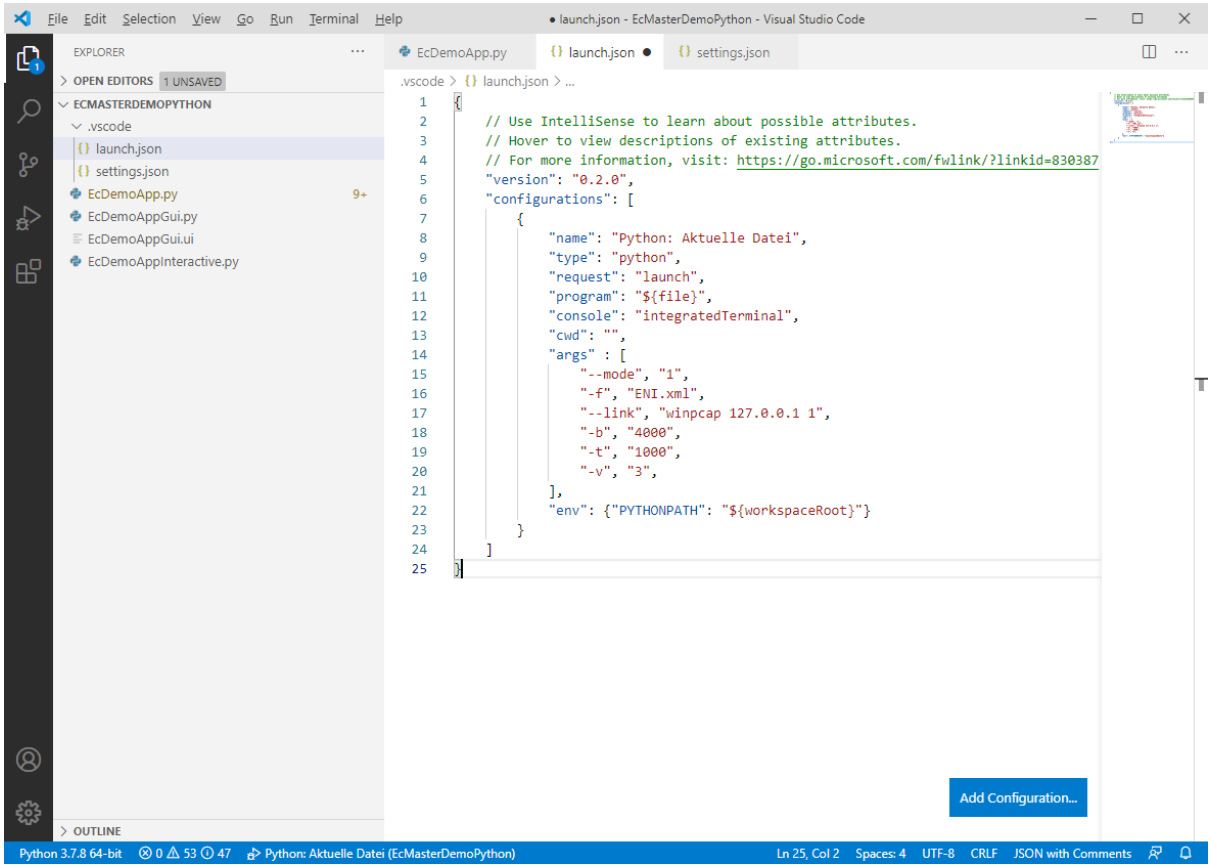
2.4.3 Visual Studio Code

Install python extension by open extension tab and enter *python*:



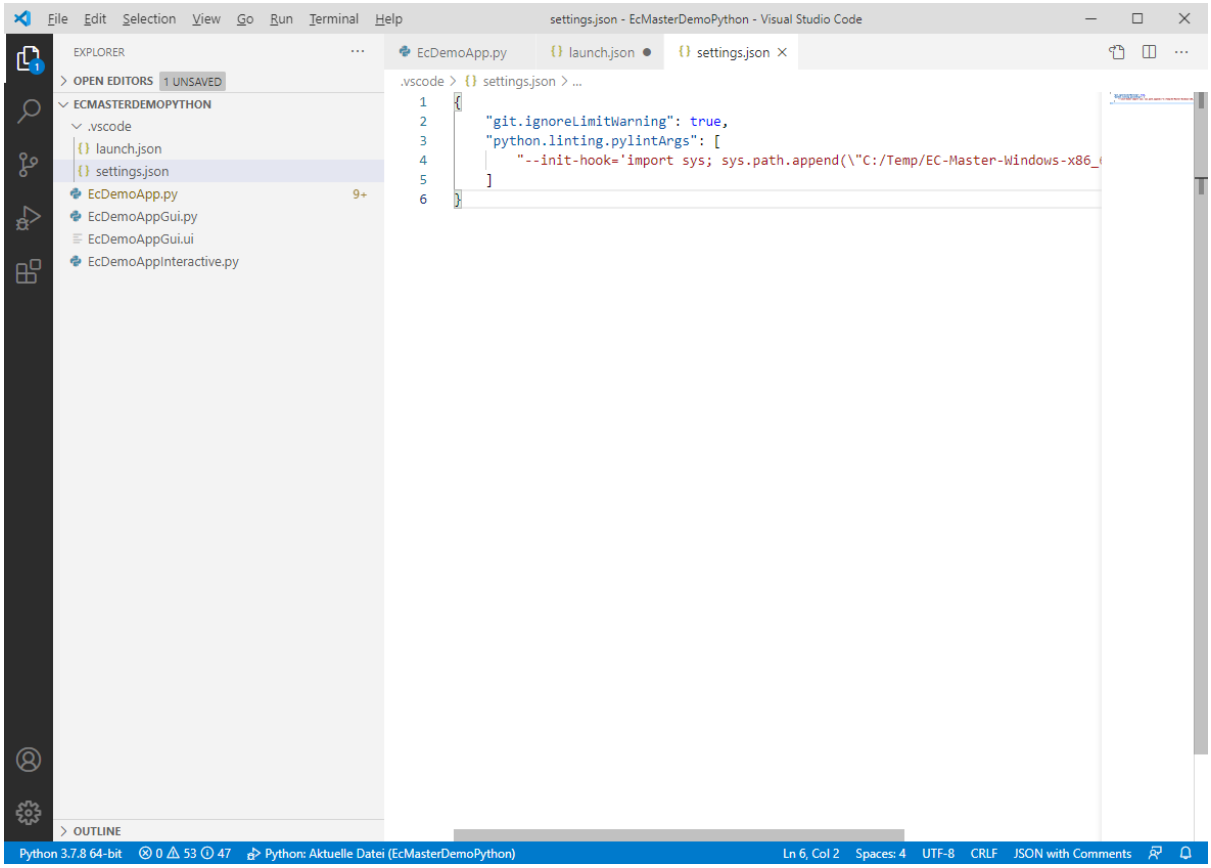
Open folder `Examples/EcMasterDemoPython` and configure the `launch.json`:

```
{
    "version": "0.2.0",
    "configurations": [
        {
            "name": "Python: Aktuelle Datei",
            "type": "python",
            "request": "launch",
            "program": "${file}",
            "console": "integratedTerminal",
            "cwd": "",
            "args" : [
                "-mode", "1",
                "-file", "ENI.xml",
                "-link", "winpcap 127.0.0.1 1",
                "-cycleTime", "4000",
                "-time", "1000",
                "-lvl", "3",
            ],
            "env": {"PYTHONPATH": "${workspaceRoot}"}
        }
    ]
}
```



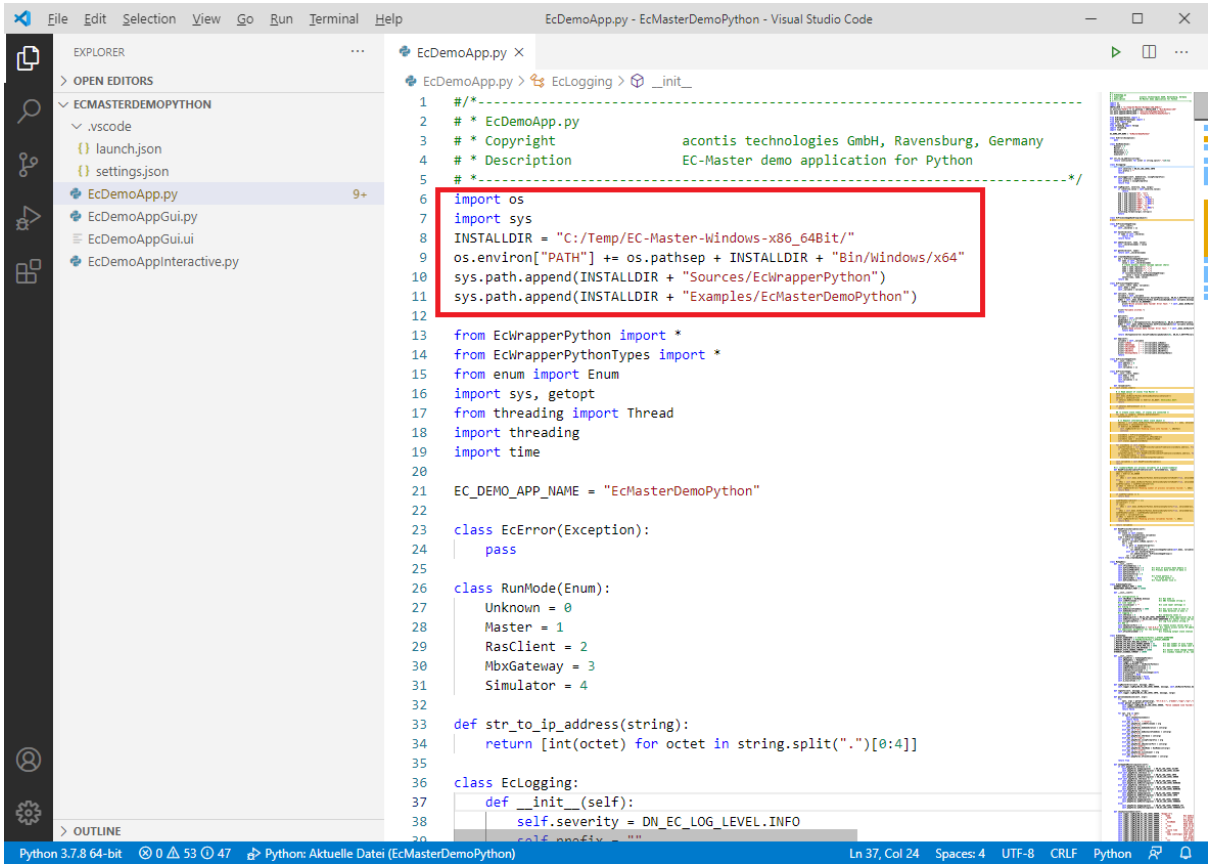
Configure linter in `settings.json`:

```
{
      "git.ignoreLimitWarning": true,
      "python.linting.pylintArgs": [
          "--init-hook='import sys; sys.path.append(\"C:/Temp/EC-Master-
↪Windows-x86_64Bit/Sources/EcWrapperPython\")'"
      ]
}
```

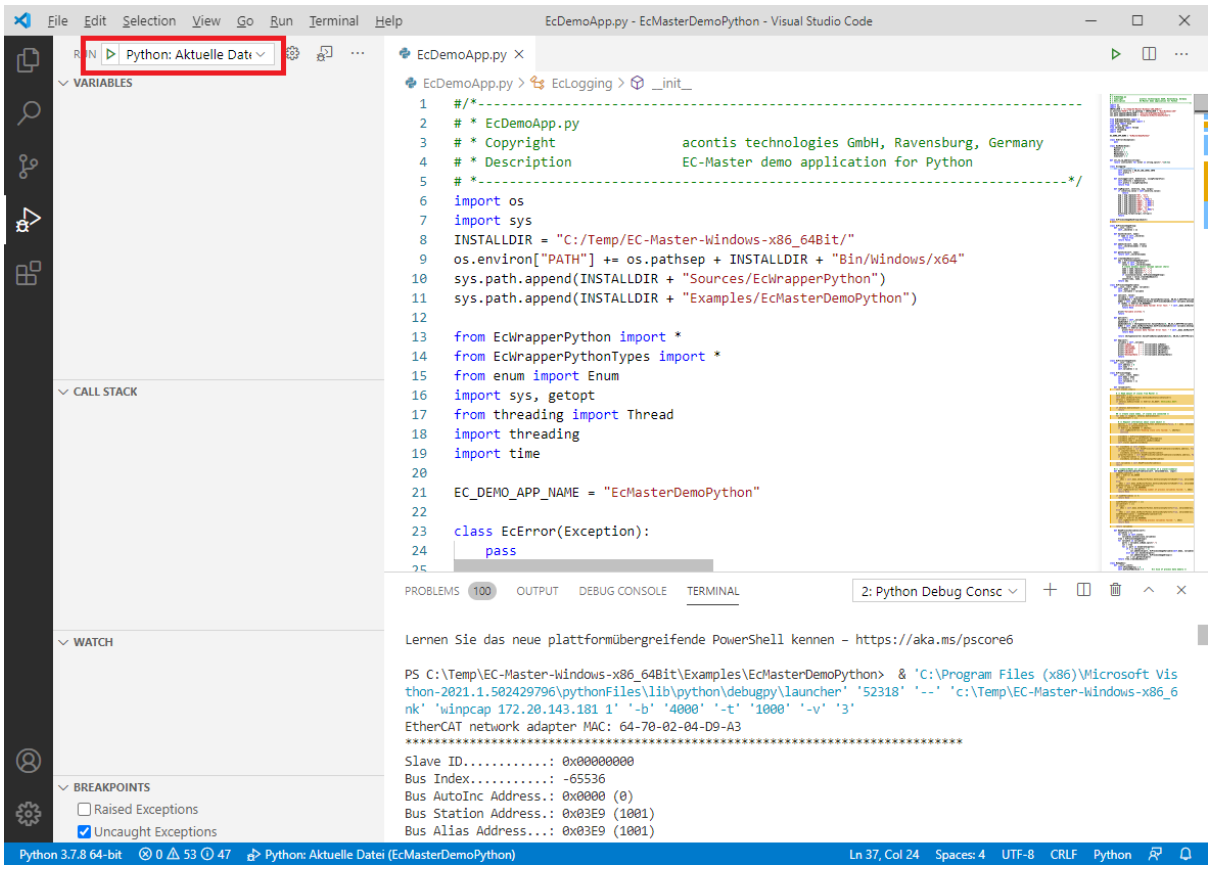


Open `EcDemoApp.py` and the following lines to set environment:

```
import os
import sys
INSTALLDIR = "C:/Temp/EC-Master-Windows-x86_64Bit/"
os.environ["PATH"] += os.pathsep + INSTALLDIR + "Bin/Windows/x64"
sys.path.append(INSTALLDIR + "Sources/EcWrapperPython")
sys.path.append(INSTALLDIR + "Examples/EcMasterDemoPython")
```



Start debugging and the demo output will be written into the terminal:



3 Application programming interface, reference

Function prototypes, definitions etc. of the API can be found in `EcWrapperPython.py` and `EcWrapperPythonTypes.py`

3.1 CEcSimulatorPython

class EcWrapperPython.**CEcSimulatorPython**

Bases: *CEcWrapperPython*

EcSimulator for Python

Close()

Deinitialize EcSimulator

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

DoOpen(*oParms*, *bStartTimingTask*)

Initialize EcSimulator

Parameters

- **oParms** – Parameter definitions
- **bStartTimingTask** – Start the EcWrapper provided timing task

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

static Open(*oParms*, *bStartTimingTask*)

Initialize EcSimulator and return instance

Parameters

- **oParms** – Parameter definitions
- **bStartTimingTask** – Start the EcWrapper provided timing task

Returns
Instance on success, otherwise Null

3.2 CEcWrapperPython

class EcWrapperPython.**CEcWrapperPython**

AddDbgMsg(*strDbgMsg: str*)

Adds a debug message to the print message queue

Parameters

strDbgMsg (*str*) – debug message

AoeGetSlaveNetId(*dwSlaveId: int*, *out_poAoeNetId:* DN_EC_T_AOE_NETID) → *ECError*

Retrieve the NetID of a specific EtherCAT device

Parameters

- **dwSlaveId** (*int*) – Slave ID
- **poAoeNetId** – AoE NetID of the corresponding slave
- **out_poAoeNetId** (DN_EC_T_AOE_NETID) –

Returns

- EC_E_NOERROR if successful
- EC_E_INVALIDSTATE if EtherCAT stack isn't initialized
- EC_E_INVALIDPARM if dwInstanceID is out of range, the input pointer is EC_NULL or contains EC_NULL pointer, or dwTimeout is EC_NOWAIT
- EC_E_SLAVE_NOT_PRESENT if slave not present
- EC_E_NOTFOUND if no slave matching dwSlaveId can be found
- EC_E_NO_MBX_SUPPORT if slave has no mailbox support
- EC_E_ADS_IS_RUNNING if ADS server is running

Return type

ECError

AoeRead(
dwSlaveId: int,
ref_poTargetNetId: DN_EC_T_AOE_NETID,
wTargetPort: int,
dwIndexGroup: int,
dwIndexOffset: int,
dwDataLen: int,
pbyData: List[int],
out_pdwDataOutLen: int,
out_pdwErrorCode: int,
out_pdwCmdResult: int,
dwTimeout: int
) → *ECError*

Execute an AoE mailbox read request to an EtherCAT slave device.

This function may not be called from within the JobTask's context.

Parameters

- **dwSlaveId** (*int*) – Slave ID
- **poTargetNetId** – Target NetID
- **wTargetPort** (*int*) – Target port

- **dwIndexGroup** (*int*) – AoE read command index group
- **dwIndexOffset** (*int*) – AoE read command index offset
- **dwDataLen** (*int*) – Buffer length [bytes]
- **pbyData** (*List[int]*) – Buffer receiving transferred data
- **pdwDataOutLen** – Number of bytes read from the target device
- **pdwErrorCode** – AoE response error code
- **pdwCmdResult** – AoE read command result code
- **dwTimeout** (*int*) – Timeout [ms]. The function will block at most for this time.
- **ref_poTargetNetId** (DN_EC_T_AOE_NETID) –
- **out_pdwDataOutLen** (*int*) –
- **out_pdwErrorCode** (*int*) –
- **out_pdwCmdResult** (*int*) –

Returns

- EC_E_NOERROR on success
- EC_E_AOE_VENDOR_SPECIFIC if the AoE device has responded with a user defined error code
- EC_E_MASTER_RED_STATE_INACTIVE if Master Redundancy is configured and master is inactive

Return type
ECError

AoeReadWrite(
dwSlaveId: int,
ref_poTargetNetId: DN_EC_T_AOE_NETID,
wTargetPort: int,
dwIndexGroup: int,
dwIndexOffset: int,
dwReadDataLen: int,
dwWriteDataLen: int,
pbyData: List[int],
out_pdwDataOutLen: int,
out_pdwErrorCode: int,
out_pdwCmdResult: int,
dwTimeout: int
) → *ECError*

Execute an AoE mailbox read/write request to an EtherCAT slave device.

Parameters

- **dwSlaveId** (*int*) – Slave ID
- **poTargetNetId** – Target NetID
- **wTargetPort** (*int*) – Target port
- **dwIndexGroup** (*int*) – AoE read/write command index group
- **dwIndexOffset** (*int*) – AoE read/write command index offset
- **dwReadDataLen** (*int*) – Number of bytes to read from the target device
- **dwWriteDataLen** (*int*) – Number of bytes to write to the target device

- **pbyData** (*List[int]*) – [in, out] Buffer containing and receiving transfered data
- **pdwDataOutLen** – Number of bytes read from the target device
- **pdwErrorCode** – Pointer to AoE response error code
- **pdwCmdResult** – Pointer to AoE write command result code
- **dwTimeout** (*int*) – Timeout [ms]. The function will block at most for this time. EC_NOWAIT is not valid.
- **ref_poTargetNetId** (DN_EC_T_AOE_NETID) –
- **out_pdwDataOutLen** (*int*) –
- **out_pdwErrorCode** (*int*) –
- **out_pdwCmdResult** (*int*) –

Returns

- EC_E_NOERROR on success
- EC_E_AOE_VENDOR_SPECIFIC if the AoE device has responded with a user defined error code
- EC_E_MASTER_RED_STATE_INACTIVE if Master Redundancy is configured and master is inactive

Return type
ECError

AoeWrite(
dwSlaveId: int,
ref_poTargetNetId: DN_EC_T_AOE_NETID,
wTargetPort: int,
dwIndexGroup: int,
dwIndexOffset: int,
dwDataLen: int,
pbyData: List[int],
out_pdwErrorCode: int,
out_pdwCmdResult: int,
dwTimeout: int
) → *ECError*

Execute an AoE mailbox write request to an EtherCAT slave device.

This function may not be called from within the JobTask's context.

Parameters

- **dwSlaveId** (*int*) – Slave ID
- **poTargetNetId** – Target NetID
- **wTargetPort** (*int*) – Target port
- **dwIndexGroup** (*int*) – AoE write command index group
- **dwIndexOffset** (*int*) – AoE write command index offset
- **dwDataLen** (*int*) – Buffer length [bytes]
- **pbyData** (*List[int]*) – Buffer containing transfered data
- **pdwErrorCode** – Pointer to AoE response error code
- **pdwCmdResult** – Pointer to AoE write command result code
- **dwTimeout** (*int*) – Timeout [ms]. The function will block at most for this time.

- **ref_poTargetNetId** (DN_EC_T_AOE_NETID) –
- **out_pdwErrorCode** (*int*) –
- **out_pdwCmdResult** (*int*) –

Returns

- EC_E_NOERROR on success
- EC_E_AOE_VENDOR_SPECIFIC if the AoE device has responded with a user defined error code
- EC_E_MASTER_RED_STATE_INACTIVE if Master Redundancy is configured and master is inactive

Return type
ECError

ClearSlaveCoeObjectDictionary (*wCfgFixedAddress: int*) → *ECError*
Delete all objects from slave's CoE object dictionary.

Parameters
wCfgFixedAddress (*int*) – Slave's station address

Returns
_ #EC_E_NOERROR or error code

Return type
ECError

ClearSlaveStatistics (*dwSlaveId: int*) → *ECError*
Clears all error registers of a slave.

Parameters
dwSlaveId (*int*) – Slave Id, INVALID_SLAVE_ID clears all slaves

Returns
EC_E_NOERROR or error code

Return type
ECError

CoeGetEntryDesc (
dwSlaveId: int,
wIndex: int,
bySubIndex: int,
byValueInfoType: int,
out_oEntryDesc: DN_EC_T_COE_ENTRYDESC,
dwTimeout: int
) → *ECError*
Determines the description of a specific object entry

Parameters

- **dwSlaveId** (*int*) – slave ID
- **wIndex** (*int*) – Object index
- **bySubIndex** (*int*) – Object subindex
- **byValueInfoType** (*int*) – Bit mask to define which information to determine. The bit values are defined as follows: EC_COE_ENTRY_ObjAccess - Object access rights EC_COE_ENTRY_ObjCategory - Object category EC_COE_ENTRY_PdoMapping - Information if the object is PDO mappable EC_COE_ENTRY_UnitType - Unit EC_COE_ENTRY_DefaultValue - Default value EC_COE_ENTRY_MinValue - Minimum value EC_COE_ENTRY_MaxValue - Maximum value

- **out_oEntryDesc** (DN_EC_T_COE_ENTRYDESC) – out Description of a specific object entry
- **dwTimeout** (*int*) – Timeout

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

CoeGetEntryDescReq(
pMbxTfer: object,
dwSlaveId: int,
wObIndex: int,
byObSubIndex: int,
byValueInfo: int,
dwTimeout: int
) → *ECError*

Initiates retrieval of the description of a specific object entry and returns immediately.

A unique transfer ID must be written into EC_T_MBXTFER.dwTferId. EC_NOTIFY_MBOXRCV is given on completion.

Parameters

- **pMbxTfer** (*object*) – Mailbox transfer object
- **dwSlaveId** (*int*) – Slave ID
- **wObIndex** (*int*) – Object index
- **byObSubIndex** (*int*) – Object sub-index
- **byValueInfo** (*int*) – The value info bit mask includes which elements shall be in the response. See EC_COE_ENTRY_VALUEINFO “Value info flags” for available values.
- **dwTimeout** (*int*) – Timeout [ms]

Returns

- EC_E_NOERROR if successful
- EC_E_INVALIDSTATE if EtherCAT stack isn’t initialized
- EC_E_INVALIDPARM if dwInstanceID is out of range, the input pointer is EC_NULL or contains EC_NULL pointer, or dwTimeout is EC_NOWAIT
- EC_E_NOMEMORY if the mailbox protocol queue of the slave is full
- EC_E_SLAVE_NOT_PRESENT if slave not present
- EC_E_NOTFOUND if no slave matching dwSlaveId can be found
- EC_E_NO_MBX_SUPPORT if slave has no mailbox support
- EC_E_INVALID_SLAVE_STATE if slave is in an invalid state for mailbox transfer
- EC_E_MASTER_RED_STATE_INACTIVE if Master Redundancy is configured and master is inactive
- EC_E_ADS_IS_RUNNING if ADS server is running
- EC_ERROR_CODES_COE “CoE SDO error code”

Return type
ECError

CoeGetODList (
dwSlaveId: int,
eListType: DN_EC_T_COE_ODLIST_TYPE,
out_pList: List[int],
dwLen: int,
out_pdwOutLen: int,
dwTimeout: int
) → *ECError*

Gets a list of object Ids that are available in a slave.

Parameters

- **dwSlaveId** (*int*) – slave ID
- **eListType** (DN_EC_T_COE_ODLIST_TYPE) – Object list type eODListType_ALL: Get all objects eODListType_RxPdoMap: Get PDO mappable objects eODListType_TxPdoMap: Get objects that can be changed eODListType_StoredFRepl: Get objects that are stored for a device replacement eODListType_StartupParm: Get objects that can be used as startup parameter
- **out_pList** (*List[int]*) – out Filled OD list
- **dwLen** (*int*) – Length of list
- **out_pdwOutLen** (*int*) – out Length of output list
- **dwTimeout** (*int*) – Timeout

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

CoeGetODListReq (
pMbxTfer: object,
dwSlaveId: int,
eListType: DN_EC_T_COE_ODLIST_TYPE,
dwTimeout: int
) → *ECError*

Initiates retrieval of a list of object IDs that have so far been transferred to a slave and received by the EC-Monitor and returns immediately.

!(EC_MONITOR)
Initiates retrieval of a list of object IDs that are available in a slave and returns immediately.

A unique transfer ID must be written into EC_T_MBXTFER.dwTferId. EC_NOTIFY_MBOXRCV is given on completion.

The mailbox transfer object will receive the slave response containing the list type followed by the list itself. Therefore the buffer must be 2 bytes bigger than the expected list size.

Parameters

- **pMbxTfer** (*object*) – Mailbox transfer
- **dwSlaveId** (*int*) – Slave ID
- **eListType** (DN_EC_T_COE_ODLIST_TYPE) – Which object types shall be transferred
- **dwTimeout** (*int*) – Timeout [ms]

Returns

- EC_E_NOERROR if successful

- EC_E_INVALIDSTATE if EtherCAT stack isn't initialized
- EC_E_INVALIDPARM if dwInstanceID is out of range, the input pointer is EC_NULL or contains EC_NULL pointer, or dwTimeout is EC_NOWAIT
- EC_E_NOMEMORY if the mailbox protocol queue of the slave is full
- EC_E_SLAVE_NOT_PRESENT if slave not present
- EC_E_NOTFOUND if no slave matching dwSlaveId can be found
- EC_E_NO_MBX_SUPPORT if slave has no mailbox support
- EC_E_INVALID_SLAVE_STATE if slave is in an invalid state for mailbox transfer
- EC_E_MASTER_RED_STATE_INACTIVE if Master Redundancy is configured and master is inactive
- EC_E_ADS_IS_RUNNING if ADS server is running
- EC_ERROR_CODES_COE "CoE SDO error code"

Return type
ECError

CoeGetObjectDesc(
dwSlaveId: int,
wIndex: int,
out_oObjDesc: DN_EC_T_COE_OBDESC,
dwTimeout: int
) → *ECError*
Determines the description of a specific object

Parameters

- **dwSlaveId** (*int*) – slave ID
- **wIndex** (*int*) – Object index
- **out_oObjDesc** (DN_EC_T_COE_OBDESC) – out Description of a specific object
- **dwTimeout** (*int*) – Timeout

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

CoeGetObjectDescReq(
pMbxTfer: object,
dwSlaveId: int,
wObIndex: int,
dwTimeout: int
) → *ECError*
Initiates retrieval of the description of a specific object and returns immediately.

A unique transfer ID must be written into EC_T_MBXTFER.dwTferId. EC_NOTIFY_MBOXRCV is given on completion.

Parameters

- **pMbxTfer** (*object*) – Mailbox transfer object
- **dwSlaveId** (*int*) – Slave ID
- **wObIndex** (*int*) – Object index
- **dwTimeout** (*int*) – Timeout [ms]

Returns

- EC_E_NOERROR if successful
- EC_E_INVALIDSTATE if EtherCAT stack isn't initialized
- EC_E_INVALIDPARM if dwInstanceID is out of range, the input pointer is EC_NULL or contains EC_NULL pointer, or dwTimeout is EC_NOWAIT
- EC_E_NOMEMORY if the mailbox protocol queue of the slave is full
- EC_E_SLAVE_NOT_PRESENT if slave not present
- EC_E_NOTFOUND if no slave matching dwSlaveId can be found
- EC_E_NO_MBX_SUPPORT if slave has no mailbox support
- EC_E_INVALID_SLAVE_STATE if slave is in an invalid state for mailbox transfer
- EC_E_MASTER_RED_STATE_INACTIVE if Master Redundancy is configured and master is inactive
- EC_E_ADS_IS_RUNNING if ADS server is running
- EC_ERROR_CODES_COE "CoE SDO error code"

Return type
ECError

CoeRxPdoTfer (*pMbxTfer: object*, *dwSlaveId: int*, *dwNumber: int*, *dwTimeout: int*) → *ECError*
Initiate CoE RxPDO transfer

Parameters

- **pMbxTfer** (*object*) – Mailbox transfer object
- **dwSlaveId** (*int*) – Slave ID
- **dwNumber** (*int*) – PDO number
- **dwTimeout** (*int*) – Timeout [ms]

Returns
EC_E_NOERROR or error code

Return type
ECError

CoeSdoDownload (
dwSlaveId: int,
wObIndex: int,
byObSubIndex: int,
pbyData: List[int],
dwDataLen: int,
dwTimeout: int,
dwFlags: int
) → *ECError*
Initiates a CoE SDO download to an EtherCAT slave device and returns immediately.

The length of the data to be downloaded must be set in EC_T_MBXTFER.dwDataLen. A unique transfer ID must be written into EC_T_MBXTFER.dwTferId. EC_NOTIFY_MBOXRCV is given on completion.

Parameters

- **dwSlaveId** (*int*) – Slave ID
- **wObIndex** (*int*) – Object index

- **byObSubIndex** (*int*) – Object sub index. If Complete Access only 0 or 1 allowed.
- **pbyData** (*List[int]*) –
- **dwDataLen** (*int*) –
- **dwTimeout** (*int*) – Timeout [ms]
- **dwFlags** (*int*) – Mailbox Flags. Bit 0: set if Complete Access (EC_MAILBOX_FLAG_SDO_COMPLETE).

Returns

- EC_E_NOERROR if successful
- EC_E_INVALIDSTATE if EtherCAT stack isn't initialized
- EC_E_INVALIDPARM if dwInstanceID is out of range, the input pointer is EC_NULL or contains EC_NULL pointer, or dwTimeout is EC_NOWAIT
- EC_E_NOMEMORY if the mailbox protocol queue of the slave is full
- EC_E_SLAVE_NOT_PRESENT if the slave is not present
- EC_E_NOTFOUND if no slave matching dwSlaveId can be found
- EC_E_NO_MBX_SUPPORT if the slave has no mailbox support
- EC_E_INVALID_SLAVE_STATE if the slave is in an invalid state for mailbox transfer
- EC_E_MASTER_RED_STATE_INACTIVE if Master Redundancy is configured and master is inactive
- EC_E_ADS_IS_RUNNING if the ADS server is running
- EC_ERROR_CODES_COE "CoE SDO error code"

Return type
ECError

CoeSdoDownloadReq(
pMbxTfer: object,
dwSlaveId: int,
wObIndex: int,
byObSubIndex: int,
dwTimeout: int,
dwFlags: int
) → *ECError*

Initiates a CoE SDO download to an EtherCAT slave device and returns immediately.

The length of the data to be downloaded must be set in EC_T_MBXTFER.dwDataLen. A unique transfer ID must be written into EC_T_MBXTFER.dwTferId. EC_NOTIFY_MBOXRCV is given on completion.

Parameters

- **pMbxTfer** (*object*) – Mailbox transfer object
- **dwSlaveId** (*int*) – Slave ID
- **wObIndex** (*int*) – Object index
- **byObSubIndex** (*int*) – Object sub index. If Complete Access only 0 or 1 allowed.
- **dwTimeout** (*int*) – Timeout [ms]
- **dwFlags** (*int*) – Mailbox Flags. Bit 0: set if Complete Access (EC_MAILBOX_FLAG_SDO_COMPLETE).

Returns

- EC_E_NOERROR if successful
- EC_E_INVALIDSTATE if EtherCAT stack isn't initialized
- EC_E_INVALIDPARM if dwInstanceID is out of range, the input pointer is EC_NULL or contains EC_NULL pointer, or dwTimeout is EC_NOWAIT
- EC_E_NOMEMORY if the mailbox protocol queue of the slave is full
- EC_E_SLAVE_NOT_PRESENT if the slave is not present
- EC_E_NOTFOUND if no slave matching dwSlaveId can be found
- EC_E_NO_MBX_SUPPORT if the slave has no mailbox support
- EC_E_INVALID_SLAVE_STATE if the slave is in an invalid state for mailbox transfer
- EC_E_MASTER_RED_STATE_INACTIVE if Master Redundancy is configured and master is inactive
- EC_E_ADS_IS_RUNNING if the ADS server is running
- EC_ERROR_CODES_COE "CoE SDO error code"

Return type
ECError

CoeSdoUpload(
dwSlaveId: int,
wObIndex: int,
byObSubIndex: int,
pbyData: List[int],
dwDataLen: int,
out_pdwOutDataLen: int,
dwTimeout: int,
dwFlags: int
) → *ECError*

Initiates a CoE SDO upload from an EtherCAT slave device to the master and returns immediately

A unique transfer ID must be written into EC_T_MBXTFER.dwTferId. EC_NOTIFY_MBOXRCV is given on completion.

Parameters

- **dwSlaveId** (*int*) – Slave ID
- **wObIndex** (*int*) – Object index
- **byObSubIndex** (*int*) – Object sub index. If Complete Access only 0 or 1 allowed.
- **pbyData** (*List[int]*) –
- **dwDataLen** (*int*) –
- **pdwOutDataLen** –
- **dwTimeout** (*int*) – Timeout [ms]
- **dwFlags** (*int*) – Mailbox Flags. Bit 0: set if Complete Access (EC_MAILBOX_FLAG_SDO_COMPLETE).
- **out_pdwOutDataLen** (*int*) –

Returns

- EC_E_NOERROR if successful

- EC_E_INVALIDSTATE if EtherCAT stack isn't initialized
- EC_E_INVALIDPARM if dwInstanceID is out of range, the input pointer is EC_NULL or contains EC_NULL pointer, or dwTimeout is EC_NOWAIT
- EC_E_NOMEMORY if the mailbox protocol queue of the slave is full
- EC_E_SLAVE_NOT_PRESENT if slave not present
- EC_E_NOTFOUND if no slave matching dwSlaveId can be found
- EC_E_NO_MBX_SUPPORT if slave has no mailbox support
- EC_E_INVALID_SLAVE_STATE if slave is in an invalid state for mailbox transfer
- EC_E_MASTER_RED_STATE_INACTIVE if Master Redundancy is configured and master is inactive
- EC_E_ADS_IS_RUNNING if the ADS server is running
- EC_ERROR_CODES_COE "CoE SDO error code"

Return type
ECError

CoeSdoUploadReq(
pMbxTfer: object,
dwSlaveId: int,
wObIndex: int,
byObSubIndex: int,
dwTimeout: int,
dwFlags: int
) → *ECError*

Initiates a CoE SDO upload from an EtherCAT slave device to the master and returns immediately

A unique transfer ID must be written into EC_T_MBXTFER.dwTferId. EC_NOTIFY_MBOXRCV is given on completion.

Parameters

- **pMbxTfer** (*object*) – Mailbox transfer object created with emMbxTferCreate
- **dwSlaveId** (*int*) – Slave ID
- **wObIndex** (*int*) – Object index
- **byObSubIndex** (*int*) – Object sub index. If Complete Access only 0 or 1 allowed.
- **dwTimeout** (*int*) – Timeout [ms]
- **dwFlags** (*int*) – Mailbox Flags. Bit 0: set if Complete Access (EC_MAILBOX_FLAG_SDO_COMPLETE).

Returns

- EC_E_NOERROR if successful
- EC_E_INVALIDSTATE if EtherCAT stack isn't initialized
- EC_E_INVALIDPARM if dwInstanceID is out of range, the input pointer is EC_NULL or contains EC_NULL pointer, or dwTimeout is EC_NOWAIT
- EC_E_NOMEMORY if the mailbox protocol queue of the slave is full
- EC_E_SLAVE_NOT_PRESENT if slave not present
- EC_E_NOTFOUND if no slave matching dwSlaveId can be found
- EC_E_NO_MBX_SUPPORT if slave has no mailbox support

- EC_E_INVALID_SLAVE_STATE if slave is in an invalid state for mailbox transfer
- EC_E_MASTER_RED_STATE_INACTIVE if Master Redundancy is configured and master is inactive
- EC_E_ADS_IS_RUNNING if the ADS server is running
- EC_ERROR_CODES_COE "CoE SDO error code"

Return type
ECError

ConfigureNetwork(
eCnfType: DN_EC_T_CNF_TYPE,
pbyCnfData: List[int],
dwCnfDataLen: int
) → *ECError*

Configure the Network.

This function must be called after the initialization. Among others the EtherCAT topology defined in the given XML configuration file will be stored internally.

A client must not be registered prior to calling this function. Existing client registrations will be dropped.

Parameters

- **eCnfType** (DN_EC_T_CNF_TYPE) – Type of configuration data provided
- **pbyCnfData** (*List[int]*) – Filename / configuration data, or EC_NULL if eCnfType is
- **dwCnfDataLen** (*int*) – Length of configuration data in byte, or zero if eCnfType is

Returns

- EC_E_NOERROR if successful
- EC_E_INVALIDSTATE if EtherCAT stack isn't initialized or eCnfType is eCnfType_GenPreopENI or eCnfType_GenOpENI and link is disconnected
- EC_E_INVALIDPARM if dwInstanceID is out of range or pParms is EC_NULL contains some values out of range
- EC_E_LINK_DISCONNECTED if link is disconnected
- EC_E_FEATURE_DISABLED if a configured feature is not included in the license key
- EC_E_NOTSUPPORTED if a configured feature is not supported (e.g not compiled in the library)
- EC_E_CFGFILENOTFOUND if the ENI file cannot be found
- EC_E_WRONG_FORMAT if format errors have been detected in the ENI or EEPROM in case of eCnfType_GenPreopENI or eCnfType_GenOpENI
- EC_E_OEM_SIGNATURE_MISMATCH if the OEM signature in the ENI file doesn't match the used OEM key
- EC_E_ENI_ENCRYPTION_WRONG_VERSION if the ENI encryption version is not supported (e.g. the library is too old)
- EC_E_ENI_ENCRYPTED if the ENI is encrypted and no OEM key has been set
- EC_E_XML_CYCCMDS_MISSING if the ENI doesn't contain cyclic commands
- EC_E_XML_ALSTATUS_READ_MISSING if the ENI doesn't contain any read AL status command

- EC_E_XML_CYCCMDS_SIZEMISMATCH if the size of the cyclic commands in the ENI mismatch
- EC_E_XML_INVALID_INP_OFF if some input offsets in the ENI are invalid
- EC_E_XML_INVALID_OUT_OFF if some output offsets in the ENI are invalid
- EC_E_XML_INVALID_CMD_WITH_RED if the ENI contains LRW commands and cable redundancy is configured
- EC_E_XML_PREV_PORT_MISSING if some previous port information are missing in the ENI
- EC_E_XML_DC_CYCCMDS_MISSING if the DC related cyclic commands are missing in the ENI
- EC_E_XML_AOE_NETID_INVALID if the ENI contains some invalid NetID

Return type
ECError

ConnectPorts(*wCfgFixedAddress1: int*, *byPort1: int*, *wCfgFixedAddress2: int*, *byPort2: int*)
Connect a slave ESC port to another slave ESC port or to a network adapter.

Parameters

- **wCfgFixedAddress1** (*int*) –
- **byPort1** (*int*) –
- **wCfgFixedAddress2** (*int*) –
- **byPort2** (*int*) –

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

ControlMotion(
dwCmd: EC_T_MOTION_CMD,
pInData: List[int],
wDataLen: int,
out_pOutData: List[int],
wOutLen: int
) → *ECError*
Controls the motion

Parameters

- **dwCmd** (EC_T_MOTION_CMD) – Command
- **pInData** (*List[int]*) – Input data
- **wDataLen** (*int*) – Length of in data
- **out_pOutData** (*List[int]*) – Output data
- **wOutLen** (*int*) – Length of output data field

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

static ConvStringFromByteArray(*data: List[int]*) → str
Converts byte array to string (e.g. 01 02)

Parameters
data (*List[int]*) – Data

Returns
Data as string

Return type
str

static ConvStringToByteArray (*data: str*) → List[int]
Converts byte array from string (e.g. 01 02)

Parameters
data (*str*) – Data

Returns
Data as byte array

Return type
List[int]

static ConvValueFromBytes (
bytes_: List[int],
type_: DN_EC_T_DEFTYPE,
out_value: object
) → *ECError*
Converts value to bytes

Parameters

- **bytes** – Bytes
- **type** – Data type
- **out_value** (*object*) – Value
- **bytes_** (*List[int]*) –
- **type_** (DN_EC_T_DEFTYPE) –

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

static ConvValueFromString (*type_:* DN_EC_T_DEFTYPE, *value: str*) → object
Converts value from string

Parameters

- **type** – Type
- **value** (*str*) – Value
- **type_** (DN_EC_T_DEFTYPE) –

Returns
Value as object

Return type
object

static ConvValueToBytes (
type_: DN_EC_T_DEFTYPE,
value: object,
out_bytes: List[int]
) → *ECError*

Converts value to bytes

Parameters

- **type** – Data type
- **value** (*object*) – Value
- **out_bytes** (*List[int]*) – Bytes
- **type_** (DN_EC_T_DEFTYPE) –

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

static ConvValueToString(*type_:* DN_EC_T_DEFTYPE, *value: object*) → str
Converts value to string

Parameters

- **type** – Type
- **value** (*object*) – Value
- **type_** (DN_EC_T_DEFTYPE) –

Returns
Value as string

Return type
str

static ConvertMasterStringFromBytes(
byData: List[int],
dwOffset: int,
dwLen: int
) → str
Converts a master string into UTF8 format

Parameters

- **abyData** – Byte array to convert
- **dwOffset** (*int*) – Offset
- **dwLen** (*int*) – Length
- **byData** (*List[int]*) –

Returns
Converted string

Return type
str

static CreateObjectFromBytes(*bytes_: List[int]*, *ref_obj: object*) → *ECError*
Creates object from byte array

Parameters

- **bytes** – Object data as byte array
- **ref_obj** (*object*) – Object which should be filled
- **bytes_** (*List[int]*) –

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

DcDisable() → *ECError*
Disable DC Support

Args:

Returns
EC_E_NOERROR or error code

Return type
ECError

DcEnable() → *ECError*
Enable DC Support

Args:

Returns
EC_E_NOERROR or error code

Return type
ECError

DeinitInstance()
Deinitialize EtherCAT wrapper

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

DeinitMotion() → *ECError*
Deinitialize the motion

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

DeleteSlaveCoeObject(*wCfgFixedAddress: int*, *wIndex: int*) → *ECError*
Delete object from slave's CoE object dictionary.

Parameters

- **wCfgFixedAddress** (*int*) – Slave's station address
- **wIndex** (*int*) –

Returns
_ #EC_E_NOERROR or error code

Return type
ECError

DisconnectPort(*wCfgFixedAddress: int*, *byPort: int*) → *ECError*
Disconnect a slave ESC port or a network adapter.

Parameters

- **wCfgFixedAddress** (*int*) – Slave's station address. 0: network adapter.
- **byPort** (*int*) – ESC port. 0, 1, 2, 3: port A, port B, port C, port D.

Returns
_ #EC_E_NOERROR or error code

Return type
ECError

ESCTypeText (*byEscType: int*, *bLong: bool*) → str
Gets the text of corresponding ESC type

Parameters

- **byEscType** (*int*) – ESC type
- **bLong** (*bool*) – True: long text version, False: short text version
- **strInterfaceGuid** – Interface guid (optional)

Returns
Text of corresponding ESC type

Return type
str

EnableNotification (
dwClientId: int,
tNotifyCode: DN_NotifyCode,
bEnable: bool
) → *ECError*
Enables notification

Parameters

- **tNotifyCode** (DN_NotifyCode) – Code of notification, which should be enabled
- **bEnable** (*bool*) – True: Enables notification
- **dwClientId** (*int*) –

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

EnablePerformanceMeasuring (*bEnable: bool*)
Enables performance monitoring. For every master function, the notification “PerfNotification” will be called.

Parameters
bEnable (*bool*) – True = Enables performance monitoring

EnableTranslation (*bEnable: bool*)
Enables translation. For every master string, the notification “TranslateNotification” will be called.

Parameters
bEnable (*bool*) – True = Enables translation

EoeInstallEndpoint (
bCreateTxEvent: bool,
strInterfaceName: str,
strInterfaceGuid: str
) → *ECError*
Install EoE endpoint

Parameters

- **bCreateTxEvent** (*bool*) – Create TX Event

- **strInterfaceName** (*str*) – Interface name (optional)
- **strInterfaceGuid** (*str*) – Interface guid (optional)

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

EoeSendFrame (*wCfgFixedAddress: int*, *pbyFrame: List[int]*, *dwFrameLen: int*) → *ECError*
Send EoE frame (queued)

Parameters

- **wCfgFixedAddress** (*int*) –
- **pbyFrame** (*List[int]*) –
- **dwFrameLen** (*int*) –

Returns
_ #EC_E_NOERROR or error code

Return type
ECError

EoeTriggerTxEvent () → *ECError*
Trigger TX Event, which must be called from JobTask after ExecJobProcessAllRxFrames()

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

EoeUninstallEndpoint () → *ECError*
Uninstall EoE endpoint

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

ExecJob (*eUserJob:* DN_EC_T_USER_JOB) → *ECError*
Execute or initiate the requested master job.

Parameters
eUserJob (DN_EC_T_USER_JOB) – Requested job.

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

ExecJobProcessAllRxFrames (*out_bPrevCycProcessed: bool*) → *ECError*
calls the process all rx frame job

Parameters

- **bPrevCycProcessed** – True: previous send frame was received and processed, False: otherwise
- **out_bPrevCycProcessed** (*bool*) –

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

ExecJobSendCycFramesByTaskId(*dwTaskId: int*) → *ECError*
sends a cycle frame by its task id

Parameters
dwTaskId (*int*) – task id of the cyclic frame

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

FastModeInit() → *ECError*
Args:

Returns:

Return type
ECError

FastProcessAllRxFrames(*out_pbAreAllCycFramesProcessed: bool*) → *ECError*
Parameters

- **pbAreAllCycFramesProcessed** –
- **out_pbAreAllCycFramesProcessed** (*bool*) –

Return type
ECError

Returns:

FastSendAllCycFrames() → *ECError*
Args:

Returns:

Return type
ECError

FindInpVarByName(
szVariableName: str,
out_pProcessVarInfoEntry: DN_EC_T_PROCESS_VAR_INFO
) → *ECError*
Finds an input process variable information entry by the variable name.

Parameters

- **szVariableName** (*str*) – Variable name
- **pProcessVarInfoEntry** – Process variable information entry
- **out_pProcessVarInfoEntry** (DN_EC_T_PROCESS_VAR_INFO) –

Returns
EC_E_NOERROR or error code

Return type
ECError

FindInpVarByNameEx(
szVariableName: str,
out_pProcessVarInfoEntry: DN_EC_T_PROCESS_VAR_INFO_EX
) → *ECError*
Finds an input process variable extended information entry by the variable name.

Parameters

- **szVariableName** (*str*) – Variable name
- **pProcessVarInfoEntry** – Process variable extended information entry
- **out_pProcessVarInfoEntry** (DN_EC_T_PROCESS_VAR_INFO_EX) –

Returns
EC_E_NOERROR or error code

Return type
ECError

FindOutpVarByName (
szVariableName: str,
out_pSlaveOutpVarInfo: DN_EC_T_PROCESS_VAR_INFO
) → *ECError*
Finds an output process variable information entry by the variable name.

Parameters

- **szVariableName** (*str*) – Variable name
- **pSlaveOutpVarInfo** –
- **out_pSlaveOutpVarInfo** (DN_EC_T_PROCESS_VAR_INFO) –

Returns
EC_E_NOERROR or error code

Return type
ECError

FindOutpVarByNameEx (
szVariableName: str,
out_pProcessVarInfoEntry: DN_EC_T_PROCESS_VAR_INFO_EX
) → *ECError*
Finds an output process variable extended information entry by the variable name.

Parameters

- **szVariableName** (*str*) – Variable name
- **pProcessVarInfoEntry** – Process variable extended information entry
- **out_pProcessVarInfoEntry** (DN_EC_T_PROCESS_VAR_INFO_EX) –

Returns
EC_E_NOERROR or error code

Return type
ECError

ForceProcessDataBits (
dwClientId: int,
bOutputData: bool,
dwBitOffsetPd: int,
wBitLength: int,
pbyData: List[int],
dwTimeout: int
) → *ECError*
Force a specific number of bits from a given buffer to the process image with a bit offset.

All output data set by this API are overwriting the values set by the application. All input data set by this API are overwriting the values read from the slaves. Forcing will be terminated by calling the corresponding functions. This function may not be called from within the JobTask's context.

Parameters

- **dwClientId** (*int*) – Client ID returned by RegisterClient (0 if all registered clients shall be notified)
- **bOutputData** (*bool*) – EC_TRUE: write output data, EC_FALSE: write input data
- **dwBitOffsetPd** (*int*) – Bit offset in Process data image
- **wBitLength** (*int*) –
- **pbyData** (*List[int]*) – Buffer containing transfered data
- **dwTimeout** (*int*) – Timeout [ms]. The timeout value must not be set to EC_NOWAIT.

Returns
EC_E_NOERROR or error code

Return type
ECError

ForceSlvStatCollection() → *ECError*
Sends datagrams to collect slave statistics counters.

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

GetBusScanSlaveInfoDesc(
wAutoIncAddr: int,
out_oSlaveInfoDesc: DN_EC_T_SB_SLAVEINFO_DESC
) → *ECError*
This call will return the basic slave info determined in the last bus scan

Parameters

- **wAutoIncAddr** (*int*) – Auto increment address of the slave
- **oSlaveInfoDesc** – Out parameter that contains different slave information after the call
- **out_oSlaveInfoDesc** (DN_EC_T_SB_SLAVEINFO_DESC) –

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

GetBusSlaveInfo(
bStationAddress: bool,
wSlaveAddress: int,
out_pSlaveInfo: DN_EC_T_BUS_SLAVE_INFO
) → *ECError*
Return information about a slave connected to the EtherCAT bus

Parameters

- **bStationAddress** (*bool*) –

- **wSlaveAddress** (*int*) – Slave address according bFixedAddressing
- **pSlaveInfo** – Information from the slave
- **out_pSlaveInfo** (DN_EC_T_BUS_SLAVE_INFO) –

Returns

- EC_E_NOERROR if successful
- EC_E_INVALIDSTATE if EtherCAT stack isn't initialized
- EC_E_INVALIDPARM if dwInstanceID is out of range
- EC_E_NOTFOUND if no slave matching bFixedAddressing / wSlaveAddress can be found

Return type
ECError

GetCfgSlaveEoeInfo (
bStationAddress: bool,
wSlaveAddress: int,
out_pSlaveEoeInfo: DN_EC_T_CFG_SLAVE_EOE_INFO
) → *ECError*
Return EoE information about a configured slave from the ENI file

Parameters

- **bStationAddress** (*bool*) –
- **wSlaveAddress** (*int*) – Slave address according bFixedAddressing
- **pSlaveEoeInfo** – Information about the slave
- **out_pSlaveEoeInfo** (DN_EC_T_CFG_SLAVE_EOE_INFO) –

Returns

- EC_E_NOERROR if successful
- EC_E_INVALIDSTATE if EtherCAT stack isn't initialized
- EC_E_INVALIDPARM if dwInstanceID is out of range
- EC_E_NOTFOUND if no slave matching bFixedAddressing / wSlaveAddress can be found
- EC_E_NO_MBX_SUPPORT if the slave does not support mailbox communication
- EC_E_NO_EOE_SUPPORT if the slave supports mailbox communication, but not EoE

Return type
ECError

GetCfgSlaveInfo (
bStationAddress: bool,
wSlaveAddress: int,
out_pSlaveInfo: DN_EC_T_CFG_SLAVE_INFO
) → *ECError*
Return information about a configured slave from the ENI file

Parameters

- **bStationAddress** (*bool*) –
- **wSlaveAddress** (*int*) – Slave address according bFixedAddressing

- **pSlaveInfo** – Information about the slave
- **out_pSlaveInfo** (DN_EC_T_CFG_SLAVE_INFO) –

Returns
EC_E_NOERROR or error code

Return type
ECError

GetCyclicConfigInfo(
*out_oCyclicConfigInfo: List[*DN_EC_T_CYC_CONFIG_DESC*]*
) → *ECError*
Returns an array of cyclic tasks.

Parameters
out_oCyclicConfigInfo (*List[*DN_EC_T_CYC_CONFIG_DESC*]*) – out Array of cyclic tasks

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

GetErrorText(*eErrorCode:* ECError) → str
Return text tokens by Error code from master stack.

Parameters
eErrorCode (ECError) – Error code

Returns
Error text for supplied error code

Return type
str

GetLicenseFingerprint(*byMethod: int*, *szLicenseFingerprint: str*) → *ECError*
Gets the fingerprint needed for license key generation

Parameters

- **byMethod** (*int*) – Method used to generate the fingerprint
- **szLicenseFingerprint** (*str*) – Buffer for fingerprint string. Size must be at least EC_LICENSE_FINGERPRINT_STRSIZE.

Returns
EC_E_NOERROR or error code

Return type
ECError

GetMasterState() → *DN_EC_T_STATE*
Get the EtherCAT master current state.

Args:

Returns
EtherCAT master state

Return type
DN_EC_T_STATE

GetMasterStateEx(*out_pwCurrState: int*, *out_pwReqState: int*) → *ECError*
Get the EtherCAT master current and requested state. Possible return values for current and requested state: - #DEVICE_STATE_UNKNOWN - #DEVICE_STATE_INIT - #DEVICE_STATE_PREOP - #DEVICE_STATE_SAFEOP - #DEVICE_STATE_OP

Parameters

- **pwCurrState** – Current master state
- **pwReqState** – Requested master state
- **out_pwCurrState** (*int*) –
- **out_pwReqState** (*int*) –

Returns

- EC_E_NOERROR if successful
- EC_E_INVALIDSTATE if EtherCAT stack isn't initialized
- EC_E_INVALIDPARM if dwInstanceID is out of range or the output pointers are EC_NULL

Return type
ECError

GetMemoryUsage(*out_pdwCurrentUsage: int*, *out_pdwMaxUsage: int*) → *ECError*
Returns information about memory usage.

All calls to malloc/free and new/delete are monitored.

Parameters

- **pdwCurrentUsage** – Current memory usage in Bytes at the time where this function is called
- **pdwMaxUsage** – Maximum memory usage in Bytes since initialization at the time where this function is called
- **out_pdwCurrentUsage** (*int*) –
- **out_pdwMaxUsage** (*int*) –

Returns
EC_E_NOERROR or error code

Return type
ECError

GetNumConfiguredSlaves() → int
Returns the number of slaves which are configured in the ENI.

Args:

Returns
Number of slaves

Return type
int

GetNumConnectedSlaves() → int
Get number of currently connected slaves.

Args:

Returns
Number of connected slaves

Return type
int

GetNumConnectedSlavesMain() → int
Get the number of currently connected Slaves to main interface.

Args:

Returns
Number of connected slaves at main interface

Return type
int

GetNumConnectedSlavesRed() → int
Get the number of currently connected Slaves to redundancy interface.

Args:

Returns
Number of connected slaves at redundancy interface

Return type
int

GetProcessData(
bOutputData: bool,
dwOffset: int,
pbyData: List[int],
dwLength: int,
dwTimeout: int
) → *ECError*
Blocking function to retrieve consistent process data from outside the JobTask context.

This function requests a copy of the process data (stored in RAM). The actual memcpy operation is executed by the JobTask to ensure data consistency. While waiting for the copy to complete, the calling context blocks and repeatedly calls sleep with an interval of at least the cycle time or one millisecond, whichever is greater. The function returns either with the requested process data once the copy is finished, or when the specified timeout has expired.

The function is blocking and should be used carefully in time-sensitive contexts and may not be called from within the JobTask context.

This function may not be called from within the JobTask's context.

Parameters

- **bOutputData** (*bool*) – EC_TRUE: read output data, EC_FALSE: read input data
- **dwOffset** (*int*) – Byte offset in Process data to read from
- **pbyData** (*List[int]*) – Buffer receiving transferred data
- **dwLength** (*int*) –
- **dwTimeout** (*int*) – Timeout [ms]

Returns
EC_E_NOERROR or error code

Return type
ECError

GetProcessDataBits(
bOutputData: bool,
dwBitOffsetPd: int,
pbyDataDst: List[int],
dwBitLengthDst: int,
dwTimeout: int
) → *ECError*
Reads a specific number of bits from the process image to the given buffer with a bit offset (synchronized).

This function may not be called from within the JobTask's context.

Parameters

- **bOutputData** (*bool*) – EC_TRUE: read output data, EC_FALSE: write input data
- **dwBitOffsetPd** (*int*) – Bit offset in Process data image
- **pbyDataDst** (*List[int]*) –
- **dwBitLengthDst** (*int*) –
- **dwTimeout** (*int*) – Timeout [ms]. The timeout value must not be set to EC_NOWAIT.

Returns
EC_E_NOERROR or error code

Return type
ECError

GetProcessVarInfoEx (
eVarDirection: DN_EC_T_VAR_DIRECTION,
eVarSource: DN_EC_T_VAR_SOURCE,
bFixedAddress: bool,
wSlaveAddress: int,
aoVarInfo: DN_EC_T_PROCESS_VAR_INFO_EX,
dwMaxProcessVarInfoNumOf: int,
ref_pdwProcessVarInfoNumOf: int
) → *ECError*
Get process variables information

Parameters

- **eVarDirection** (DN_EC_T_VAR_DIRECTION) – INPUTs, OUTPUTs, … . See EC_T_VAR_DIRECTION .
- **eVarSource** (DN_EC_T_VAR_SOURCE) – Slave, Master, … . See EC_T_VAR_SOURCE .
- **bFixedAddress** (*bool*) – Use station address if EC_TRUE. Otherwise use AutoInc address.
- **wSlaveAddress** (*int*) – Slave address according to bFixedAddress
- **aoVarInfo** (DN_EC_T_PROCESS_VAR_INFO_EX) – The read process variable extended information entries
- **dwMaxProcessVarInfoNumOf** (*int*) –
- **pdwProcessVarInfoNumOf** –
- **ref_pdwProcessVarInfoNumOf** (*int*) –

Returns
EC_E_NOERROR or error code

Return type
ECError

GetProcessVarInfoNumOf (
eVarDirection: DN_EC_T_VAR_DIRECTION,
eVarSource: DN_EC_T_VAR_SOURCE,
bFixedAddress: bool,
wSlaveAddress: int,
ref_pdwProcessVarInfoNumOf: int
) → *ECError*

Get process variables information

Parameters

- **eVarDirection** (DN_EC_T_VAR_DIRECTION) – INPUTs, OUTPUTs, … . See EC_T_VAR_DIRECTION .
- **eVarSource** (DN_EC_T_VAR_SOURCE) – Slave, Master, … . See EC_T_VAR_SOURCE .
- **bFixedAddress** (*bool*) – Use station address if EC_TRUE. Otherwise use AutoInc address.
- **wSlaveAddress** (*int*) – Slave address according to bFixedAddress
- **pdwProcessVarInfoNumOf** – Process variables count
- **ref_pdwProcessVarInfoNumOf** (*int*) –

Returns
EC_E_NOERROR or error code

Return type
ECError

GetRunMode() → *EcRunMode*
Return run mode

Returns
Run mode

Return type
EcRunMode

GetScanBusStatus(*out_oSbStatus:* DN_EC_T_SB_STATUS_NTFY_DESC) → *ECError*
Gets the status of the last bus scan.

Parameters

- **oSbStatus** – The last bus scan status
- **out_oSbStatus** (DN_EC_T_SB_STATUS_NTFY_DESC) –

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

GetSimSlaveInfo(
wCfgFixedAddress: int,
out_pSimSlaveInfo: DN_EC_T_SIM_SLAVE_INFO
) → *ECError*
Get extended configuration and status information for slave from simulator

Parameters

- **wCfgFixedAddress** (*int*) – Slave's station address
- **pSimSlaveInfo** – Extended configuration and status information for slave from simulator
- **out_pSimSlaveInfo** (DN_EC_T_SIM_SLAVE_INFO) –

Returns
_ #EC_E_NOERROR or error code

Return type
ECError

static GetSizeOfObject(*obj: object*, *out_size: int*) → *ECError*
Get byte size of object (as required from CoeSdoUpload)

Parameters

- **obj** (*object*) – Object
- **out_size** (*int*) – Byte size of object

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

GetSlaveFixedAddr(*dwSlaveId: int*, *out_pwFixedAddr: int*) → *ECError*
Determine slave station address according to its slave ID.

Parameters

- **dwSlaveId** (*int*) – Slave ID
- **pwFixedAddr** – Corresponding fixed address
- **out_pwFixedAddr** (*int*) –

Returns

- EC_E_NOERROR if successful
- EC_E_INVALIDSTATE if EtherCAT stack isn't initialized
- EC_E_INVALIDPARM if dwInstanceID is out of range or the output pointer is EC_NULL
- EC_E_NOTFOUND if no slave matching dwSlaveId can be found

Return type
ECError

GetSlaveId(*wStationAddress: int*) → int
Determines the slave ID using the slave station address.

Parameters
wStationAddress (*int*) – Station address of the slave

Returns
Slave ID or INVALID_SLAVE_ID if the slave could not be found or the stack is not initialized

Return type
int

GetSlaveIdAtPosition(*wAutoIncAddress: int*) → int
Determines the slave ID using the slave auto increment address.

Parameters
wAutoIncAddress (*int*) – Auto increment address of the slave

Returns
Slave ID or INVALID_SLAVE_ID if no slave matching wAutoIncAddress can be found

Return type
int

GetSlaveInfo(
bFixedAddressing: bool,
wSlaveAddress: int,
out_pGetSlaveInfo: DN_EC_T_GET_SLAVE_INFO
) → *ECError*
Get Slave Info

Use emGetCfgSlaveInfo or emGetBusSlaveInfo instead

Parameters

- **bFixedAddressing** (*bool*) – EC_TRUE: use station address, EC_FALSE: use AutoInc address
- **wSlaveAddress** (*int*) – Slave address according bFixedAddressing
- **pGetSlaveInfo** – Slave information
- **out_pGetSlaveInfo** (DN_EC_T_GET_SLAVE_INFO) –

Returns
EC_E_NOERROR or error code

Return type
ECError

GetSlaveInfoEx(
oReq: DN_EC_T_SB_SLAVEINFO_REQ_DESC,
out_oRes: DN_EC_T_SB_SLAVEINFO_RES_DESC
) → *ECError*
Gets the extended slave info determined in the last bus scan.

Parameters

- **oReq** (DN_EC_T_SB_SLAVEINFO_REQ_DESC) – Request parameter
- **out_oRes** (DN_EC_T_SB_SLAVEINFO_RES_DESC) – The extended slave information structure

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

GetSlaveInpVarByObjectEx(
bFixedAddressing: bool,
wSlaveAddress: int,
wIndex: int,
wSubIndex: int,
out_pProcessVarInfoEntry: DN_EC_T_PROCESS_VAR_INFO_EX
) → *ECError*
Gets the input process variable extended information entry by object index, subindex of a specific slave.

Parameters

- **bFixedAddressing** (*bool*) – EC_TRUE: use station address, EC_FALSE: use AutoInc address
- **wSlaveAddress** (*int*) – Slave address according bFixedAddressing
- **wIndex** (*int*) – Object index
- **wSubIndex** (*int*) – Object sub index
- **pProcessVarInfoEntry** – Process variable extended information entry

- **out_pProcessVarInfoEntry** (DN_EC_T_PROCESS_VAR_INFO_EX) –

Returns
EC_E_NOERROR or error code

Return type
ECError

GetSlaveInpVarInfo (
bFixedAddressing: bool,
wSlaveAddress: int,
wNumOfVarsToRead: int,
out_pSlaveProcVarInfoEntries: DN_EC_T_PROCESS_VAR_INFO,
out_pwReadEntries: int
) → *ECError*
Gets the number of input variables of a specific slave.

Parameters

- **bFixedAddressing** (*bool*) – EC_TRUE: use station address, EC_FALSE: use AutoInc address
- **wSlaveAddress** (*int*) – Slave address according bFixedAddressing
- **wNumOfVarsToRead** (*int*) –
- **pSlaveProcVarInfoEntries** –
- **pwReadEntries** –
- **out_pSlaveProcVarInfoEntries** (DN_EC_T_PROCESS_VAR_INFO) –
- **out_pwReadEntries** (*int*) –

Returns

- EC_E_NOERROR if successful
- EC_E_INVALIDSTATE if EtherCAT stack isn't initialized
- EC_E_INVALIDPARM if dwInstanceID is out of range or the output pointer is EC_NULL
- EC_E_NOTFOUND if no slave matching bFixedAddressing / wSlaveAddress can be found

Return type
ECError

GetSlaveInpVarInfoEx (
bFixedAddressing: bool,
wSlaveAddress: int,
wNumOfVarsToRead: int,
out_pSlaveProcVarInfoEntries: DN_EC_T_PROCESS_VAR_INFO_EX,
out_pwReadEntries: int
) → *ECError*
Gets the input process variable extended information entries of a specific slave.

Parameters

- **bFixedAddressing** (*bool*) – EC_TRUE: use station address, EC_FALSE: use AutoInc address
- **wSlaveAddress** (*int*) – Slave address according bFixedAddressing
- **wNumOfVarsToRead** (*int*) – Number process variable entries that have been stored in pSlaveProcVarInfoEntries

- **pSlaveProcVarInfoEntries** – Number process variable entries that have been stored in pSlaveProcVarInfoEntries
- **pwReadEntries** – The number of read process variable information entries
- **out_pSlaveProcVarInfoEntries** (DN_EC_T_PROCESS_VAR_INFO_EX) –
- **out_pwReadEntries** (*int*) –

Returns

- EC_E_NOERROR if successful
- EC_E_INVALIDSTATE if EtherCAT stack isn't initialized
- EC_E_INVALIDPARM if dwInstanceID is out of range or the output pointer is EC_NULL
- EC_E_NOTFOUND if no slave matching bFixedAddressing / wSlaveAddress can be found

Return type
ECError

GetSlaveInpVarInfoNumOf (
bFixedAddressing: bool,
wSlaveAddress: int,
out_pwSlaveInpVarInfoNumOf: int
) → *ECError*
Gets the number of input variables of a specific slave.

Parameters

- **bFixedAddressing** (*bool*) – EC_TRUE: use station address, EC_FALSE: use AutoInc address
- **wSlaveAddress** (*int*) – Slave address according bFixedAddressing
- **pwSlaveInpVarInfoNumOf** – Number of found process variable entries
- **out_pwSlaveInpVarInfoNumOf** (*int*) –

Returns

- EC_E_NOERROR if successful
- EC_E_INVALIDSTATE if EtherCAT stack isn't initialized
- EC_E_INVALIDPARM if dwInstanceID is out of range or the output pointer is EC_NULL
- EC_E_NOTFOUND if no slave matching bFixedAddressing / wSlaveAddress can be found

Return type
ECError

GetSlaveOutpVarByObjectEx (
bFixedAddressing: bool,
wSlaveAddress: int,
wIndex: int,
wSubIndex: int,
out_pProcessVarInfoEntry: DN_EC_T_PROCESS_VAR_INFO_EX
) → *ECError*
Gets the input process variable extended information entry by object index, subindex of a specific slave.

Parameters

- **bFixedAddressing** (*bool*) – EC_TRUE: use station address, EC_FALSE: use AutoInc address
- **wSlaveAddress** (*int*) – Slave address according bFixedAddressing
- **wIndex** (*int*) – Object index
- **wSubIndex** (*int*) – Object sub index
- **pProcessVarInfoEntry** – Process variable extended information entry
- **out_pProcessVarInfoEntry** (DN_EC_T_PROCESS_VAR_INFO_EX) –

Returns
EC_E_NOERROR or error code

Return type
ECError

GetSlaveOutpVarInfo (
bFixedAddressing: bool,
wSlaveAddress: int,
wNumOfVarsToRead: int,
out_pSlaveProcVarInfoEntries: DN_EC_T_PROCESS_VAR_INFO,
out_pwReadEntries: int
) → *ECError*
Gets the number of output variables of a specific slave.

Parameters

- **bFixedAddressing** (*bool*) – EC_TRUE: use station address, EC_FALSE: use AutoInc address
- **wSlaveAddress** (*int*) – Slave address according bFixedAddressing
- **wNumOfVarsToRead** (*int*) –
- **pSlaveProcVarInfoEntries** –
- **pwReadEntries** –
- **out_pSlaveProcVarInfoEntries** (DN_EC_T_PROCESS_VAR_INFO) –
- **out_pwReadEntries** (*int*) –

Returns
EC_E_NOERROR or error code

Return type
ECError

GetSlaveOutpVarInfoEx (
bFixedAddressing: bool,
wSlaveAddress: int,
wNumOfVarsToRead: int,
out_pSlaveProcVarInfoEntries: DN_EC_T_PROCESS_VAR_INFO_EX,
out_pwReadEntries: int
) → *ECError*
Gets the output process variable extended information entries of a specific slave.

Parameters

- **bFixedAddressing** (*bool*) – EC_TRUE: use station address, EC_FALSE: use AutoInc address

- **wSlaveAddress** (*int*) – Slave address according bFixedAddressing
- **wNumOfVarsToRead** (*int*) – Number of process variable information entries
- **pSlaveProcVarInfoEntries** – The read process extended variable entries
- **pwReadEntries** – The number of read process variable information entries
- **out_pSlaveProcVarInfoEntries** (DN_EC_T_PROCESS_VAR_INFO_EX) –
- **out_pwReadEntries** (*int*) –

Returns
EC_E_NOERROR or error code

Return type
ECError

GetSlaveOutpVarInfoNumOf(
bFixedAddressing: bool,
wSlaveAddress: int,
out_pwSlaveOutpVarInfoNumOf: int
) → *ECError*
Gets the number of output variables of a specific slave.

Parameters

- **bFixedAddressing** (*bool*) – EC_TRUE: use station address, EC_FALSE: use AutoInc address
- **wSlaveAddress** (*int*) – Slave address according bFixedAddressing
- **pwSlaveOutpVarInfoNumOf** – Number of found process variables
- **out_pwSlaveOutpVarInfoNumOf** (*int*) –

Returns
EC_E_NOERROR or error code

Return type
ECError

GetSlaveProp(*dwSlaveId: int*, *out_pSlaveProp:* DN_EC_T_SLAVE_PROP) → bool
Determines the properties of the slave device.

Parameters

- **dwSlaveId** (*int*) – Slave ID
- **pSlaveProp** – Slave properties
- **out_pSlaveProp** (DN_EC_T_SLAVE_PROP) –

Returns
EC_TRUE if the slave exists, EC_FALSE if no slave matching dwSlaveId can be found

Return type
bool

GetSlaveState(*dwSlaveId: int*, *out_pwCurrDevState: int*, *out_pwReqDevState: int*) → *ECError*
Get the slave state.

The slave state is always read automatically from the AL_STATUS register whenever necessary. It is not forced by calling this function. This function may be called from within the JobTask's context.

Parameters

- **dwSlaveId** (*int*) – Slave ID
- **pwCurrDevState** – Current slave state
- **pwReqDevState** – Requested slave state
- **out_pwCurrDevState** (*int*) –
- **out_pwReqDevState** (*int*) –

Returns

- EC_E_NOERROR if successful
- EC_E_INVALIDSTATE if EtherCAT stack isn't initialized
- EC_E_INVALIDPARM if dwInstanceID is out of range or the output pointers are EC_NULL
- EC_E_SLAVE_NOT_PRESENT if the slave is not present
- EC_E_NOTFOUND if no slave matching dwSlaveId can be found

Return type
ECError

GetSlaveStatistics(
dwSlaveId: int,
out_pSlaveStatisticsDesc: DN_EC_T_SLVSTATISTICS_DESC
) → *ECError*
Get Slave's statistics counter.

Parameters

- **dwSlaveId** (*int*) – Slave id
- **pSlaveStatisticsDesc** – Pointer to structure EC_T_SLVSTATISTICS_DESC
- **out_pSlaveStatisticsDesc** (DN_EC_T_SLVSTATISTICS_DESC) –

Returns
EC_E_NOERROR or error code

Return type
ECError

GetSlvStatistics(
dwSlaveId: int,
out_oStatistics: DN_EC_T_SLVSTATISTICS_DESC
) → *ECError*
Returns slave statistics counters.

Parameters

- **dwSlaveId** (*int*) – Slave ID
- **oStatistics** – out Statistics counters
- **out_oStatistics** (DN_EC_T_SLVSTATISTICS_DESC) –

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

GetSrcMacAddress(*out_pMacSrc:* DN_ETHERNET_ADDRESS) → *ECError*
Gets the source MAC address

Parameters

- **pMacSrc** – 6-byte buffer to write source MAC address to
- **out_pMacSrc** (DN_ETHERNET_ADDRESS) –

Returns
EC_E_NOERROR or error code

Return type
ECError

GetVersion(*out_pdwVersion: int*, *out_pdwVersionType: int*) → *ECError*
Gets the version information

Parameters

- **pdwVersion** – Pointer to EC_T_DWORD to carry out version number as a 32-bit value
- **pdwVersionType** – Pointer to EC_T_DWORD to carry out version type. See EC_VERSION_TYPES "EC_VERSION_TYPE".
- **out_pdwVersion** (*int*) –
- **out_pdwVersionType** (*int*) –

Returns

- EC_E_NOERROR if successful
- EC_E_INVALIDSTATE if EtherCAT stack isn't initialized
- EC_E_INVALIDPARM if dwInstanceID is out of range or the output pointer is EC_NULL

Return type
ECError

InitInstance(*oParms*, *bStartTimingTask*) → *ECError*
Initializes EtherCAT wrapper

Parameters

- **oParms** – Parameters
- **bStartTimingTask** – Start the EcWrapper provided timing task

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

InitMotion() → *ECError*
Initialize the motion

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

IoCtl(
dwCode: int,
pbyInBuf: List[int],
dwInBufSize: int,
pbyOutBuf: List[int],
dwOutBufSize: int,
out_pdwNumOutData: int
) → *ECError*

A generic control interface between the application, the EtherCAT stack and its Link Layers.

Parameters

- **dwCode** (*int*) – IOCTL code (EC_IOCTL…)
- **pbyInBuf** (*List[int]*) – IOCTL input parameters
- **dwInBufSize** (*int*) – Size of IOCTL input parameters in bytes
- **pbyOutBuf** (*List[int]*) – Buffer for IOCTL output
- **dwOutBufSize** (*int*) – Size of buffer at pbyOutBuf in bytes
- **pdwNumOutData** – Amount of bytes written to pbyOutBuf by IOCTL. EC_NULL: amount not set by IOCTL.
- **out_pdwNumOutData** (*int*) –

Returns

- EC_E_NOERROR if successful
- EC_E_INVALIDSTATE if EtherCAT stack isn't initialized
- EC_E_INVALIDPARM if dwInstanceID is out of range, the input pointer is EC_NULL or contains EC_NULL pointer
- EC_E_NOMEMORY if memory cannot be allocated
- EC_E_ADS_IS_RUNNING if the ADS server is running

Return type
ECError

IsConfigured(*out_pbIsConfigured: bool*) → *ECError*

Returns if configuration has been applied

Parameters

- **pbIsConfigured** – EC_TRUE if configuration has been applied
- **out_pbIsConfigured** (*bool*) –

Returns
EC_E_NOERROR or error code

Return type
ECError

static IsRemoteServerUp(*abyIpAddr: List[int]*, *wPort: int*) → bool

Checks if remote server is up by sending a "ping"

Parameters

- **abyIpAddr** (*List[int]*) – IPAddress
- **wPort** (*int*) – Port

Returns
True, if server is up, False otherwise

Return type
bool

IsSlavePresent (*dwSlaveId: int*, *out_pbPresence: bool*) → *ECError*
Returns whether a specific slave is currently connected to the Bus.

This function may be called from within the JobTask.

Parameters

- **dwSlaveId** (*int*) – Slave ID
- **pbPresence** – EC_TRUE if the slave is currently connected to the bus, EC_FALSE if not
- **out_pbPresence** (*bool*) –

Returns

- EC_E_NOERROR if successful
- EC_E_INVALIDSTATE if EtherCAT stack isn't initialized
- EC_E_INVALIDPARM if dwInstanceID is out of range
- EC_E_NOTFOUND if no slave matching dwSlaveId can be found

Return type
ECError

IsThrottledNotification (*tNotifyCode:* DN_NotifyCode) → bool
Checks if notification is throttled

Returns
True, if notification is throttled

Parameters
tNotifyCode (DN_NotifyCode) –

Return type
bool

MbxGatewayClntAddConnection (
oMbxGatewayParms: DN_EC_T_INIT_MBXGATEWAY_PARMS
) → *ECError*
Establish connection to a mailbox gateway server.

Parameters
oMbxGatewayParms (DN_EC_T_INIT_MBXGATEWAY_PARMS) – Parameter for connection

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

MbxGatewayClntRemoveConnection () → *ECError*
Tear down an existing connection to a mailbox gateway server.

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

MbxGatewayCoeSdoDownload(
wAddress: int,
wObIndex: int,
byObSubIndex: int,
pbyData: List[int],
dwDataLen: int,
dwTimeout: int,
dwFlags: int
) → *ECError*

Initiate CoE SDO download transfer to mailbox gateway server

Parameters

- **wAddress** (*int*) – slave address to download the SDO
- **wObIndex** (*int*) – object index
- **byObSubIndex** (*int*) – object sub-index
- **pbyData** (*List[int]*) –
- **dwDataLen** (*int*) –
- **dwTimeout** (*int*) – Timeout in milliseconds
- **dwFlags** (*int*) – mailbox transfer flags, see EC_MAILBOX_FLAG

Returns

Depends on the implementation of the function OsSetLastError(), normally returns EC_E_NOERROR if it succeeds or error code if it fails

Return type

ECError

MbxGatewayCoeSdoUpload(
wAddress: int,
wObIndex: int,
byObSubIndex: int,
pbyData: List[int],
dwDataLen: int,
pdwOutDataLen: int,
dwTimeout: int,
dwFlags: int
) → *ECError*

Initiate CoE SDO upload transfer from mailbox gateway server

Parameters

- **wAddress** (*int*) – slave address to upload the SDO
- **wObIndex** (*int*) – object index
- **byObSubIndex** (*int*) – object sub-index
- **pbyData** (*List[int]*) –
- **dwDataLen** (*int*) –
- **dwTimeout** (*int*) – Timeout in milliseconds
- **dwFlags** (*int*) – mailbox transfer flags, see EC_MAILBOX_FLAG
- **pdwOutDataLen** (*int*) –

Returns

Depends on the implementation of the function OsSetLastError(), normally returns EC_E_NOERROR if it succeeds or error code if it fails

Return type
ECError

MbxTferCopyFrom(
pMbxTfer: object,
abyData: List[int],
dwDataLen: int,
out_pdwOutDataLen: int
) → *ECError*
Copies data from the mailbox transfer buffer

Parameters

- **pMbxTfer** (*object*) – mailbox transfer object
- **abyData** (*List[int]*) – abyData
- **dwDataLen** (*int*) – dwDataLen
- **out_pdwOutDataLen** (*int*) – pdwOutDataLen

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

MbxTferCopyTo(*pMbxTfer: object*, *abyData: List[int]*, *dwDataLen: int*) → *ECError*
Copies data to the mailbox transfer buffer

Parameters

- **pMbxTfer** (*object*) – mailbox transfer object
- **abyData** (*List[int]*) – abyData
- **dwDataLen** (*int*) – dwDataLen

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

MbxTferCreate(*dwTferId: int*, *dwBufferSize: int*, *out_pMbxTfer: object*) → *ECError*
Creates a mailbox transfer object

Parameters

- **dwTferId** (*int*) – transfer ID (optional, can be 0)
- **dwBufferSize** (*int*) – buffer size
- **out_pMbxTfer** (*object*) – out mailbox transfer object

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

MbxTferDelete(*pMbxTfer: object*)
Deletes a mailbox transfer object.

A transfer object may only be deleted if it is in the Idle state.

Parameters
pMbxTfer (*object*) – Mailbox transfer object created with emMbxTferCreate

MbxTferReset (*pMbxTfer: object*)
Creates a mailbox transfer object

Parameters
pMbxTfer (*object*) – mailbox transfer object

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

MbxTferWait (*pMbxTfer: object*) → *ECError*
Waits until mailbox transfer is finished

Parameters
pMbxTfer (*object*) – mailbox transfer object

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

OnHandleEcNotification (
type: DN_NotifyType,
code: DN_NotifyCode,
data: object,
_errMsgs: List[str]
)
Callback function that will be called after the scan bus has been finished. The scan bus result will be stored in m_eLastScanBusRes.

Parameters

- **type** – Type
- **code** (DN_NotifyCode) – Code
- **data** (*object*) – Data
- **errMsgs** – Error messages
- **_type_** (DN_NotifyType) –
- **_errMsgs** (*List[str]*) –

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

PerfMeasAppCreate (
pPerfMeasAppParms: DN_EC_T_PERF_MEAS_APP_PARMS,
out_ppvPerfMeas: object
) → *ECError*
Create PerfMeas object and bind it to the master instance

This API can be called multiple times to create PerfMeas objects. The perfomance counters in each of the objects can be accessed in the following two ways: - by passing the PerfMeas object and the index of the performance measurement. The index ranges from [0-pPerfMeasAppParms->dwNumAppMeas] - by passing EC_NULL instead of a PerfMeas object and an index. In this case the index works across all PerfMeas objects bound to the master instance.

Parameters

- **pPerfMeasAppParms** (DN_EC_T_PERF_MEAS_APP_PARMS) – Pointer to parameter definitions
- **ppvPerfMeas** – Created PerfMeas object.
- **out_ppvPerfMeas** (*object*) –

Returns
EC_E_NOERROR or an error code

Return type
ECError

PerfMeasAppDelete (*pvPerfMeas: object*) → *ECError*
Delete application performance measurement and unbind it from the master instance

Objects which are not deleted using PerfMeasAppDelete are automatically deleted when calling DeinitMaster.

ote This invalidates the global index used when passing EC_NULL into the other PerfMeasApp functions

Args:
pvPerfMeas: PerfMeas object to delete

Returns:
EC_E_NOERROR or an error code

Parameters
pvPerfMeas (*object*) –

Return type
ECError

PerfMeasAppEnd (*pvPerfMeas: object*, *dwIndex: int*) → *ECError*
Stop application performance measurement

Parameters

- **pvPerfMeas** (*object*) – PerfMeas object or EC_NULL to use continuous index
- **dwIndex** (*int*) – Index of the performance measurement

Returns
EC_E_NOERROR or an error code

Return type
ECError

PerfMeasAppGetInfo (
pvPerfMeas: object,
dwIndex: int,
*out_pPerfMeasInfo: List[*DN_EC_T_PERF_MEAS_INFO*]*,
dwPerfMeasNumOf: int
) → *ECError*
Get general info about one/all application performance measurement

Parameters

- **pvPerfMeas** (*object*) – PerfMeas object or EC_NULL to use continous index
- **dwIndex** (*int*) – Index of the performance measurement information, use 0xFFFFFFFF to get all
- **pPerfMeasInfo** – Pointer to a buffer receiving one/all performance measurement information
- **dwPerfMeasNumOf** (*int*) – Number of elements allocated in pPerfMeasInfo

- **out_pPerfMeasInfo** (*List[DN_EC_T_PERF_MEAS_INFO]*) –

Returns
EC_E_NOERROR or an error code

Return type
ECError

PerfMeasAppGetNumOf (*pvPerfMeas: object*, *out_pdwNumOf: int*) → *ECError*
Reset number of application performance measurement

Parameters

- **pvPerfMeas** (*object*) – PerfMeas object or EC_NULL to get the number of performance measurements in all PerfMeas objects
- **pdwNumOf** – Number of performance measurements
- **out_pdwNumOf** (*int*) –

Returns
EC_E_NOERROR or an error code

Return type
ECError

PerfMeasAppGetRaw (
pvPerfMeas: object,
dwIndex: int,
ref_pPerfMeasVal: List[DN_EC_T_PERF_MEAS_VAL],
ref_pPerfMeasHistogram: List[DN_EC_T_PERF_MEAS_HISTOGRAM],
dwPerfMeasNumOf: int
) → *ECError*
Get raw data of one/all application performance measurement

Parameters

- **pvPerfMeas** (*object*) – PerfMeas object or EC_NULL to use continuous index
- **dwIndex** (*int*) – Index of the performance measurement, use 0xFFFFFFFF to get all
- **pPerfMeasVal** – Pointer to a buffer receiving one/all performance measurement values or EC_NULL
- **pPerfMeasHistogram** – Pointer to a buffer receiving one/all performance measurement histograms or EC_NULL
- **dwPerfMeasNumOf** (*int*) – Number of elements allocated in pPerfMeasVal and pPerfMeasHistogram
- **ref_pPerfMeasVal** (*List[DN_EC_T_PERF_MEAS_VAL]*) –
- **ref_pPerfMeasHistogram** (*List[DN_EC_T_PERF_MEAS_HISTOGRAM]*) –

Returns
EC_E_NOERROR or an error code

Return type
ECError

PerfMeasAppReset (*pvPerfMeas: object*, *dwIndex: int*) → *ECError*
Reset application performance measurement

Parameters

- **pvPerfMeas** (*object*) – PerfMeas object or EC_NULL to use continuous index

- **dwIndex** (*int*) – Index of the performance measurement, use 0xFFFFFFFF to reset all

Returns
EC_E_NOERROR or an error code

Return type
ECError

PerfMeasAppStart(*pvPerfMeas: object*, *dwIndex: int*) → *ECError*
Start application performance measurement

Parameters

- **pvPerfMeas** (*object*) – PerfMeas object or EC_NULL to use continuous index
- **dwIndex** (*int*) – Index of the performance measurement

Returns
EC_E_NOERROR or an error code

Return type
ECError

PerfMeasGetInfoByTaskId(
dwTaskId: int,
dwIndex: int,
*out_pPerfMeasInfo: List[*DN_EC_T_PERF_MEAS_INFO*]*,
dwPerfMeasNumOf: int
) → *ECError*
Get general info about one/all internal performance measurement

Parameters

- **dwTaskId** (*int*) – Task Job ID
- **dwIndex** (*int*) – Index of the performance measurement, use 0xFFFFFFFF to get all
- **pPerfMeasInfo** – Pointer to a buffer receiving one/all performance measurement infos
- **dwPerfMeasNumOf** (*int*) – Number of elements allocated in pPerfMeasInfo
- **out_pPerfMeasInfo** (*List[*DN_EC_T_PERF_MEAS_INFO*]*) –

Returns
EC_E_NOERROR or an error code

Return type
ECError

PerfMeasGetNumOfByTaskId(*dwTaskId: int*, *out_pdwNumOf: int*) → *ECError*
Reset number of internal performance measurement

Parameters

- **dwTaskId** (*int*) – Task Job ID
- **pdwNumOf** – Number of performance measurements
- **out_pdwNumOf** (*int*) –

Returns
EC_E_NOERROR or an error code

Return type
ECError

PerfMeasGetRawByTaskId(
dwTaskId: int,
dwIndex: int,
ref_pPerfMeasVal: List[DN_EC_T_PERF_MEAS_VAL],
ref_pPerfMeasHistogram: List[DN_EC_T_PERF_MEAS_HISTOGRAM],
dwPerfMeasNumOf: int
) → *ECError*
Get raw data of one/all application performance measurement

Parameters

- **dwTaskId** (*int*) – Task Job ID
- **dwIndex** (*int*) – Index of the performance measurement, use 0xFFFFFFFF to get all
- **pPerfMeasVal** – Pointer to a buffer receiving one/all performance measurement values or EC_NULL
- **pPerfMeasHistogram** – Pointer to a buffer receiving one/all performance measurement histograms or EC_NULL
- **dwPerfMeasNumOf** (*int*) – Number of elements allocated in pPerfMeasVal and pPerfMeasHistogram
- **ref_pPerfMeasVal** (*List[DN_EC_T_PERF_MEAS_VAL]*) –
- **ref_pPerfMeasHistogram** (*List[DN_EC_T_PERF_MEAS_HISTOGRAM]*) –

Returns
EC_E_NOERROR or an error code

Return type
ECError

PerfMeasResetByTaskId(*dwTaskId: int*, *dwIndex: int*) → *ECError*
Reset internal performance measurement

Parameters

- **dwTaskId** (*int*) – Task Job ID
- **dwIndex** (*int*) – Index of the performance measurement, use 0xFFFFFFFF to reset all

Returns
EC_E_NOERROR or an error code

Return type
ECError

PowerSlave(*wCfgFixedAddress: int*, *bOn: bool*) → *ECError*
Power on or power off a slave.

Parameters

- **wCfgFixedAddress** (*int*) – Slave's station address
- **bOn** (*bool*) – EC_FALSE: switch off, EC_TRUE: switch on

Returns
_ #EC_E_NOERROR or error code

Return type
ECError

RasClntAddConnection(*oRasParms:* DN_EC_T_INITRASPARAMS) → *ECError*
Establish connection to a remote server.

Parameters
oRasParms (DN_EC_T_INITRASPARAMS) – Parameter for connection

Returns
Error code

Return type
ECError

RasGetConnectionInfo(*out_pConInfo:* DN_EC_T_RAS_CONNECTION_INFO) → *ECError*
Get actual connection information

Parameters

- **pConInfo** – connection information
- **out_pConInfo** (DN_EC_T_RAS_CONNECTION_INFO) –

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

ReadIdentifyObj(*wFixedAddr: int*)
Reads the identify object of a slave

Parameters
wFixedAddr (*int*) – Fixed station address

static ReadPdBitsFromAddress(
address: object,
bitOffset: int,
bitLength: int,
out_pdBits: List[int]
)
Reads process data bits from address

Parameters

- **address** (*object*) – Address
- **bitOffset** (*int*) – Bit offset
- **bitLength** (*int*) – Bit length
- **out_pdBits** (*List[int]*) – Process data bits

static ReadPdBitsFromBytes(
bytes_: List[int],
bitOffset: int,
bitLength: int,
out_pdBits: List[int]
)
Reads process data bits from bytes

Parameters

- **bytes** – Bytes
- **bitOffset** (*int*) – Bit offset
- **bitLength** (*int*) – Bit length

- **out_pdBits** (*List[int]*) – Process data bits
- **bytes_** (*List[int]*) –

static ReadPdBytesFromAddress(
address: object,
offset: int,
length: int,
out_pdBytes: List[int]
)

Reads process data bytes from address

Parameters

- **address** (*object*) – Address
- **offset** (*int*) – Offset
- **length** (*int*) – Length
- **out_pdBytes** (*List[int]*) – Process data bytes

static ReadPdBytesFromBytes(
bytes_: List[int],
offset: int,
length: int,
out_pdBytes: List[int]
)

Reads process data bytes from bytes

Parameters

- **bytes** – Bytes
- **offset** (*int*) – Offset
- **length** (*int*) – Length
- **out_pdBytes** (*List[int]*) – Process data bytes
- **bytes_** (*List[int]*) –

ReadSlaveEEPRom(
bFixedAddressing: bool,
wSlaveAddress: int,
wEEPRomStartOffset: int,
pwReadData: List[int],
dwReadLen: int,
out_pdwNumOutData: int,
dwTimeout: int
) → *ECError*

Read EEPRom data from slave

Parameters

- **bFixedAddressing** (*bool*) – True: use station addressing, False: use auto increment addressing
- **wSlaveAddress** (*int*) – Slave Address, station or auto increment address depending on bFixedAddressing
- **wEEPRomStartOffset** (*int*) – Address to start EEPRom Read from
- **pwReadData** (*List[int]*) – Pointer to ushort array to carry the read data
- **dwReadLen** (*int*) – Size of the ushort array provided at pwReadData (in ushorts)

- **out_pdwNumOutData** (*int*) – out Pointer to uint carrying actually read data (in ushorts) after completion
- **dwTimeout** (*int*) – Timeout in milliseconds. The function will block at most for this time. The timeout value must not be set to EC_NOWAIT

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

ReadSlaveEEPRomWithReq(
dwClientId: int,
dwTferId: int,
bFixedAddressing: bool,
wSlaveAddress: int,
wEEPRomStartOffset: int,
pwReadData: List[int],
dwReadLen: int,
out_pdwNumOutData: int,
dwTimeout: int
) → *ECError*
Read EEPRom data from slave (REQ)

Parameters

- **dwClientId** (*int*) – Client ID returned by RegisterClient (0 if all registered clients shall be notified)
- **dwTferId** (*int*) – Transfer ID. The application can set this ID to identify the transfer. It will be passed back to the application within EC_T_SLAVEREGISTER_TRANSFER_NTFY_DESC.
- **bFixedAddressing** (*bool*) – True: use station addressing, False: use auto increment addressing
- **wSlaveAddress** (*int*) – Slave Address, station or auto increment address depending on bFixedAddressing
- **wEEPRomStartOffset** (*int*) – Address to start EEPRom Read from
- **pwReadData** (*List[int]*) – Pointer to ushort array to carry the read data
- **dwReadLen** (*int*) – Size of the ushort array provided at pwReadData (in ushorts)
- **out_pdwNumOutData** (*int*) – out Pointer to uint carrying actually read data (in ushorts) after completion
- **dwTimeout** (*int*) – Timeout in milliseconds. The function will block at most for this time. The timeout value must not be set to EC_NOWAIT

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

ReadSlaveIdentification(
bFixedAddressing: bool,
wSlaveAddress: int,
wAdo: int,
out_pwValue: int,
dwTimeout: int
) → *ECError*
Read identification value from a slave.

This function may not be called from within the JobTask's context.

Parameters

- **bFixedAddressing** (*bool*) – EC_TRUE: use station address, EC_FALSE: use AutoInc address
- **wSlaveAddress** (*int*) – Slave address according bFixedAddressing
- **wAdo** (*int*) – ADO used for identification command
- **pwValue** – Pointer to Word value containing the Identification value
- **dwTimeout** (*int*) – Timeout [ms]
- **out_pwValue** (*int*) –

Returns

- EC_E_NOERROR if successful
- EC_E_INVALIDSTATE if EtherCAT stack isn't initialized
- EC_E_INVALIDPARM if dwInstanceID is out of range or the command is not supported or the timeout value is set to EC_NOWAIT
- EC_E_SLAVE_NOT_PRESENT if slave not present
- EC_E_NOTFOUND if no slave matching bFixedAddressing / wSlaveAddress can be found
- EC_E_TIMEOUT if dwTimeout elapsed during the API call
- EC_E_BUSY if another transfer request is already pending or the master or the corresponding slave is currently changing its operational state
- EC_E_NOTREADY if the working counter was not set when sending the command (slave may not be connected or did not respond)
- EC_E_ADO_NOT_SUPPORTED if the slave does not support requesting ID mechanism
- EC_E_MASTER_RED_STATE_INACTIVE if Master Redundancy is configured and master is inactive

Return type
ECError

ReadSlaveRegister(
bFixedAddressing: bool,
wSlaveAddress: int,
wRegisterOffset: int,
pbyData: List[int],
wLen: int,
dwTimeout: int
) → *ECError*

Reads data from the ESC memory that have so far been transferred to a slave and received by the EC-Monitor.

!(EC_MONITOR)
Reads data from the ESC memory of a specified slave.

This function may not be called from within the JobTask's context.

Parameters

- **bFixedAddressing** (*bool*) – EC_TRUE: use station address, EC_FALSE: use AutoInc address
- **wSlaveAddress** (*int*) – Slave address according bFixedAddressing
- **wRegisterOffset** (*int*) – Register offset. I.e. use 0x0130 to read the AL Status register.
- **pbyData** (*List[int]*) – Buffer receiving transfered data
- **wLen** (*int*) – Number of bytes to receive
- **dwTimeout** (*int*) – Timeout [ms]

Returns

- EC_E_NOERROR if successful
- EC_E_INVALIDSTATE if EtherCAT stack isn't initialized
- EC_E_INVALIDPARM if dwInstanceID is out of range or the command is not supported or the timeout value is set to EC_NOWAIT
- EC_E_SLAVE_NOT_PRESENT if the slave is not present
- EC_E_NOTFOUND if no slave matching bFixedAddressing / wSlaveAddress can be found
- EC_E_TIMEOUT if dwTimeout elapsed during the API call
- EC_E_BUSY if another transfer request is already pending or the master or the corresponding slave is currently changing its operational state
- EC_E_NOTREADY if the working counter was not set when sending the command (slave may not be connected or did not respond)
- EC_E_INVALIDSIZE if the size of the complete command does not fit into a single Ethernet frame. The maximum amount of data to transfer must not exceed 1486 bytes.

Return type
ECError

static ReadValueFromAddress(
address: object,
bitOffset: int,
bitLength: int,
type_: DN_EC_T_DEFTYPE,
out_value: object
) → *ECError*
Read value from address

Parameters

- **address** (*object*) – Address
- **bitOffset** (*int*) – Bit offset
- **bitLength** (*int*) – Bit length
- **type** – Data type
- **out_value** (*object*) – Value
- **type_** (DN_EC_T_DEFTYPE) –

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

static ReadValueFromBytes(
bytes_: List[int],
bitOffset: int,
bitLength: int,
type_: DN_EC_T_DEFTYPE,
out_value: object
) → *ECError*
Read value from bytes

Parameters

- **bytes** – Bytes
- **bitOffset** (*int*) – Bit offset
- **bitLength** (*int*) – Bit length
- **type** – Data type
- **out_value** (*object*) – Value
- **bytes_** (*List[int]*) –
- **type_** (DN_EC_T_DEFTYPE) –

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

RegisterClient(*out_pRegRes:* DN_EC_T_REGISTERRESULTS) → *ECError*
Register a client with the EtherCAT Master

Parameters
out_pRegRes (DN_EC_T_REGISTERRESULTS) – out Registration results, a pointer to a structure of type REGISTERRESULTS

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

ReleaseAllProcessDataBits(*dwClientId: int*, *dwTimeout: int*) → *ECError*
Release all previously forced process data for a dedicated client.

- Forced output: Value set by application become valid again. Because forced process data bits are written directly into the process output image, the application has to update the process image with the required value, otherwise the forced value is still valid.
- Forced input: Value read from the slaves become valid again.

This function may not be called from within the JobTask's context.

Parameters

- **dwClientId** (*int*) – Client ID returned by RegisterClient (0 if all registered clients shall be notified)
- **dwTimeout** (*int*) – Timeout [ms]. The timeout value must not be set to EC_NOWAIT.

Returns
EC_E_NOERROR or error code

Return type
ECError

ReleaseProcessDataBits(
dwClientId: int,
bOutputData: bool,
dwBitOffsetPd: int,
wBitLength: int,
dwTimeout: int
) → *ECError*
Release previously forced process data.

- Forced output: Value set by application become valid again. Because forced process data bits are written directly into the process output image, the application has to update the process image with the required value, otherwise the forced value is still valid.
- Forced input: Value read from the slaves become valid again.

This function may not be called from within the JobTask's context.

Parameters

- **dwClientId** (*int*) – Client ID returned by RegisterClient (0 if all registered clients shall be notified)
- **bOutputData** (*bool*) – EC_TRUE: write output data, EC_FALSE: write input data
- **dwBitOffsetPd** (*int*) – Bit offset in Process data image
- **wBitLength** (*int*) – Number of bits that shall be written to the process image.
- **dwTimeout** (*int*) – Timeout [ms]. The timeout value must not be set to EC_NOWAIT.

Returns
EC_E_NOERROR or error code

Return type
ECError

ResetErrorGenerationAtSlavePorts(*wCfgFixedAddress: int*) → *ECError*
Reset physical layer error generation destroying frames at slave port

Parameters
wCfgFixedAddress (*int*) – Slave's station address. 0: all slaves.

Returns
_ #EC_E_NOERROR or error code

Return type
ECError

ResetLinkDownGenerationAtSlavePorts(*wCfgFixedAddress: int*) → *ECError*
Reset link lost event generation

Parameters
wCfgFixedAddress (*int*) – Slave's station address. 0: all slaves

Returns
_ #EC_E_NOERROR or error code

Return type
ECError

ResetSlaveCoeObjectDictionary(*wCfgFixedAddress: int*) → *ECError*
Reset all objects from slave's CoE object dictionary to default.

Parameters
wCfgFixedAddress (*int*) – Slave's station address

Returns
_ #EC_E_NOERROR or error code

Return type
ECError

RestartScanBus (*dwTimeout: int*, *bReadRevisionNo: int*, *bReadSerialNo: int*) → *ECError*
Trigger Bus Scan

Parameters

- **dwTimeout** (*int*) – Time out of bus scan
- **bReadRevisionNo** (*int*) – Read revision number
- **bReadSerialNo** (*int*) – Read serial number

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

ScanBus (*dwTimeout: int*) → *ECError*
Scans all connected slaves.

Scans all connected slaves connected to EC-Master. If a configuration has been loaded, a validation between the configuration and the connected slaves is done. This function should not be called from within the JobTask's context.

Parameters
dwTimeout (*int*) – Timeout [ms]

Returns

- EC_E_NOERROR if successful
- EC_E_INVALIDSTATE if EtherCAT stack isn't initialized
- EC_E_INVALIDPARM if dwInstanceID is out of range
- EC_E_LINK_DISCONNECTED if link is disconnected
- EC_E_TIMEOUT if dwTimeout elapsed during the API call
- EC_E_BUSCONFIG_MISMATCH if the slaves found do not match the configured ones
- EC_E_LINE_CROSSED if a line crossed (cabling wrong) condition has been detected
- EC_E_REDLINEBREAK if cable redundancy is configured and a line break condition has been detected
- EC_E_JUNCTION_RED_LINE_BREAK if junction redundancy is configured and a line break condition has been detected
- EC_E_MAX_BUS_SLAVES_EXCEEDED if the amount of slaves found exceeds EC_T_INIT_MASTER_PARMS.dwMaxBusSlaves
- EC_E_MASTER_RED_STATE_INACTIVE if Master Redundancy is configured and master is inactive
- EC_E_ADS_IS_RUNNING if the ADS server is running

Return type
ECError

SdoUploadMasterOd (*wObIndex: int*, *dwTimeout: int*, *out_pobjMasterOd: object*) → *ECError*
SdoUpload from Master Object Dictionary

Parameters

- **wObIndex** (*int*) – Object index
- **dwTimeout** (*int*) – Timeout in milliseconds
- **pobjMasterOd** – Read object (e.g. DN_EC_T_OBJ3XXX, EC_T_OBJ8XXX, EC_T_OBJ9XXX …)
- **out_pobjMasterOd** (*object*) –

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

SendSlaveCoeEmergency (
wCfgFixedAddress: int,
wCode: int,
pbyData: List[int],
dwDataLen: int
) → *ECError*
Send CoE emergency (queued)

Parameters

- **wCfgFixedAddress** (*int*) – Slave's station address
- **wCode** (*int*) – Emergency code
- **pbyData** (*List[int]*) – Emergency data
- **dwDataLen** (*int*) – Length of emergency data in byte

Returns
_ #EC_E_NOERROR or error code

Return type
ECError

SetAllSlavesMustReachState (*bAllSlavesMustReachState: bool*) → *ECError*
Sets flag that all slaves must reach the requested master state

Parameters
bAllSlavesMustReachState (*bool*) – True: All slaves must reach the requested master state

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

SetBusCnfReadProp (*eEscSiiReg:* DN_ESC_SII_REG, *dwTimeout: int*) → *ECError*
Sets read property for bus configuration

Parameters

- **eEscSiiReg** (DN_ESC_SII_REG) – SII register
- **dwTimeout** (*int*) – Time out of bus scan

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

SetCycFrameRxCallback (*pfnCallback: object*) → *ECError*
Set cyclic frame RX callback function

This function will be called after the cyclic frame is received, if there is more than one cyclic frame after the last frame. The application has to assure that these functions will not block.

Parameters
pfnCallback (*object*) – Callback function

Returns
EC_E_NOERROR or error code

Return type
ECError

SetErrorAtSlavePort (*wCfgFixedAddress: int*, *byPort: int*, *bOutgoing: bool*) → *ECError*
Trigger loss of sent or received EtherCAT frames at slave port (“single shot”).

See ESC registers RX Error Counter (0x0300:0x0307), Forwarded RX Error Counter (0x0308:0x030B), ECAT Processing Unit Error Counter (0x030C)

Parameters

- **wCfgFixedAddress** (*int*) – Slave’s station address. 0: all slaves.
- **byPort** (*int*) – ESC port. 0, 1, 2, 3: port A, port B, port C, port D.
- **bOutgoing** (*bool*) – Direction. EC_FALSE: Receive Frame, EC_TRUE: Send Frame.

Returns
_ #EC_E_NOERROR or error code

Return type
ECError

SetErrorGenerationAtSlavePort (
wCfgFixedAddress: int,
byPort: int,
bOutgoing: bool,
dwLikelihoodPpm: int,
dwFixedGoodFramesCnt: int,
dwFixedErroneousFramesCnt: int
) → *ECError*
Simulate the loss of sent EtherCAT frames at the port of a simulated slave at either random, periodic or random periodic intervalls.

- Random frame loss simulation: For each frame the dwLikelihoodPpm parameter determines whether the frame will be discarded.
- Periodic frame loss simulation: After dwFixedErroneousFramesCnt discarded frames, dwFixedGoodFramesCnt frames will be processed.
- Random periodic frame loss simulation: The dwLikelihoodPpm parameter determines whether a periodic frame loss sequence is triggered.

See ESC registers RX Error Counter (0x0300:0x0307), Forwarded RX Error Counter (0x0308:0x030B), ECAT Processing Unit Error Counter (0x030C)

Parameters

- **wCfgFixedAddress** (*int*) – Slave station address. 0: All slaves
- **byPort** (*int*) – ESC port. 0, 1, 2, 3: port A, port B, port C, port D.
- **bOutgoing** (*bool*) – Direction. EC_FALSE: Receive Frame, EC_TRUE: Send Frame.
- **dwLikelihoodPpm** (*int*) – Likelihood (ppm) according to frame loss simulation mode (Random / Random Periodic). Set to 0 in case of Periodic frame loss simulation.
- **dwFixedGoodFramesCnt** (*int*) – Number of processed frames according to frame loss simulation mode (Periodic / Random Periodic). Set to 0 in case of Random frame loss simulation.
- **dwFixedErroneousFramesCnt** (*int*) – Number of discarded frames according to frame loss simulation mode (Periodic / Random Periodic). Set to 0 in case of Random frame loss simulation.

Returns
_ #EC_E_NOERROR or error code

Return type
ECError

SetLicenseKey (*szLicenseKey: str*) → *ECError*
Sets the license key for the protected version of EC-Master.

Must be called after initialization and before configuration. This function may not be called if a non protected version is used.

Parameters
szLicenseKey (*str*) – License key as zero terminated string with 26, 53 or 56 characters

Returns

- EC_E_NOERROR if successful
- EC_E_INVALIDSTATE if EtherCAT stack isn't initialized
- EC_E_INVALIDPARM if dwInstanceID is out of range
- EC_E_INVALIDSIZE if the format of the license key is wrong. The correct length is 26, 53 or 56 characters.
- EC_E_LICENSE_MISSING if the license key doesn't match the MAC Address

Return type
ECError

SetLinkDownAtSlavePort (
wCfgFixedAddress: int,
byPort: int,
bDown: bool,
dwLinkDownTimeMs: int
) → *ECError*
Trigger link lost event

Parameters

- **wCfgFixedAddress** (*int*) – Slave's station address. 0: all slaves.
- **byPort** (*int*) – ESC port. 0, 1, 2, 3: port A, port B, port C, port D.
- **bDown** (*bool*) – Connect or disconnect cable. EC_TRUE: disconnect.
- **dwLinkDownTimeMs** (*int*) – Link down duration [ms] or EC_WAITINFINITE

Returns
_ #EC_E_NOERROR or error code

Return type
ECError

SetLinkDownGenerationAtSlavePort (
wCfgFixedAddress: int,
byPort: int,
dwLikelihoodPpm: int,
dwFixedLinkDownTimeMs: int,
dwFixedLinkUpTimeMs: int
) → *ECError*
Generate link lost events randomly or at fixed intervals

Parameters

- **wCfgFixedAddress** (*int*) – Slave's station address. 0: all slaves.
- **byPort** (*int*) – ESC port. 0, 1, 2, 3: port A, port B, port C, port D.
- **dwLikelihoodPpm** (*int*) – Random simulation: link down likelihood (ppm) within OnTimer
- **dwFixedLinkDownTimeMs** (*int*) – On link down simulation: fixed link down duration [ms] (at least)
- **dwFixedLinkUpTimeMs** (*int*) – After link down was simulated: fixed link up duration [ms] (at least)

Returns
_ #EC_E_NOERROR or error code

Return type
ECError

SetLogParms (*pLogParms:* DN_EC_T_LOG_PARMS) → *ECError*
Sets log parameters. Used to change the parameters provided by emInitMaster().

EC_MONITOR
Sets log parameters. Used to change the parameters provided by emonInitMonitor().

EC_SIMULATOR
Sets log parameters. Used to change the parameters provided by esInitSimulator().

Parameters
pLogParms (DN_EC_T_LOG_PARMS) – New Log parameters

Return type
ECError

Returns:

SetProcessData (
bOutputData: bool,
dwOffset: int,
pbyData: List[int],
dwLength: int,
dwTimeout: int
) → *ECError*
Write Process data synchronized.

This function may not be called from within the JobTask's context.

Parameters

- **bOutputData** (*bool*) – EC_TRUE: write output data, EC_FALSE: write input data
- **dwOffset** (*int*) – Byte offset in Process data to write to
- **pbyData** (*List[int]*) – Buffer containing transferred data
- **dwLength** (*int*) –
- **dwTimeout** (*int*) – Timeout [ms]

Returns
EC_E_NOERROR or error code

Return type
ECError

SetProcessDataBits(
bOutputData: bool,
dwBitOffsetPd: int,
pbyDataSrc: List[int],
dwBitLengthSrc: int,
dwTimeout: int
) → *ECError*

Writes a specific number of bits from a given buffer to the process image with a bit offset (synchronized).

This function may not be called from within the JobTask's context.

Parameters

- **bOutputData** (*bool*) – EC_TRUE: write output data, EC_FALSE: write input data
- **dwBitOffsetPd** (*int*) – Bit offset in Process data image
- **pbyDataSrc** (*List[int]*) –
- **dwBitLengthSrc** (*int*) –
- **dwTimeout** (*int*) – Timeout [ms]. The timeout value must not be set to EC_NOWAIT.

Returns
EC_E_NOERROR or error code

Return type
ECError

SetSimSlaveState(
wCfgFixedAddress: int,
wDeviceState: int,
wDeviceStatusCode: int
) → *ECError*

Simulate AL Status Error for slave without device emulation or acknowledge delayed EtherCAT state change

Parameters

- **wCfgFixedAddress** (*int*) – Slave's station address
- **wDeviceState** (*int*) – Device state (DEVICE_STATE…)
- **wDeviceStatusCode** (*int*) – Device status code (DEVICE_STATUSCODE…)

Returns
EC_E_NOERROR or error code

Return type
ECError

SetSlaveState (*dwSlaveId: int*, *wDeviceState: int*, *dwTimeout: int*) → *ECError*
Set a specified slave into the requested EtherCAT state.

The requested state shall not be higher than the overall operational state. DEVICE_STATE_BOOTSTRAP can only be requested if the slave's state is INIT. This function may not be called from within the JobTask's context.

If the function is called with EC_NOWAIT, the client may wait for reaching the requested state using the notification callback (EC_NOTIFY_SLAVE_STATECHANGED).

Parameters

- **dwSlaveId** (*int*) – Slave ID
- **wDeviceState** (*int*) – Requested device state. See DEVICE_STATES
- **dwTimeout** (*int*) – Timeout [ms]. This function will block until the requested state is reached or the timeout elapsed. If the timeout value is set to EC_NOWAIT the function will return immediately.

Returns

- EC_E_NOERROR if successful
- EC_E_INVALIDSTATE if EtherCAT stack isn't initialized or denies the requested state, see comments below
- EC_E_INVALIDPARM if dwInstanceID is out of range or BOOTSTRAP was requested for a slave that does not support it
- EC_E_NOTFOUND if no slave matching dwSlaveId can be found
- EC_E_TIMEOUT if dwTimeout elapsed during the API call
- EC_E_BUSY if the EtherCAT stack cannot execute the request at this time, the function has to be called at a later time
- EC_E_NOTREADY if the working counter was not set when requesting the slave's state (slave may not be connected or did not respond)
- EC_E_MASTER_RED_STATE_INACTIVE if Master Redundancy is configured and master is inactive

Return type
ECError

SlaveProdCodeText (*dwVendorId: int*, *dwProductCode: int*) → str
Gets the text of slave product code

Parameters

- **dwVendorId** (*int*) – Vendor ID
- **dwProductCode** (*int*) – Product code

Returns
Text of slave product code

Return type
str

SlaveVendorText (*dwVendorId: int*) → str
Gets the text of slave vendor

Parameters
dwVendorId (*int*) – Vendor ID

Returns
Text of slave vendor

Return type
str

TferSingleRawCmd(
byCmd: int,
dwMemoryAddress: int,
pbyData: List[int],
wLen: int,
dwTimeout: int
) → *ECError*

Transfers a single raw EtherCAT command to one or multiple slaves and waits for the result.

Using this function it is possible to exchange arbitrary data between the master and the slaves. When the master receives the response to the queued frame it raises EC_NOTIFY_RAWCMD_DONE to all clients. This function blocks until the command is completely processed. In case of read commands the slave data will be written back into the given memory area. If a timeout occurs (e.g. due to a bad line quality) the corresponding frame will be sent again. The timeout value and retry counter can be set using the master configuration parameters dwEcatCmdTimeout and dwEcatCmdMaxRetries. The call will return in any case (without waiting for the number of retries specified in dwEcatCmdMaxRetries) if the time determined with the dwTimeout parameter elapsed. Caveat: Using auto increment addressing (APRD, APWR, APRW) may lead to unexpected results in case the selected slave does not increment the working counter. In such cases the EtherCAT command would be handled by the slave directly behind the selected one. This function may not be called from within the JobTask's context.

Parameters

- **byCmd** (*int*) – EtherCAT command type. See EC_CMD_TYPE
- **dwMemoryAddress** (*int*) – Slave memory address, depending on the command to be sent this is either a physical or a logical address
- **pbyData** (*List[int]*) – [in, out] Buffer containing or receiving transferred data
- **wLen** (*int*) – Number of bytes to transfer
- **dwTimeout** (*int*) – Timeout [ms]

Returns

- EC_E_NOERROR if successful
- EC_E_INVALIDSTATE if EtherCAT stack isn't initialized
- EC_E_INVALIDPARM if dwInstanceID is out of range or the command is not supported or the timeout value is set to EC_NOWAIT
- EC_E_TIMEOUT if dwTimeout elapsed during the API call
- EC_E_BUSY if another transfer request is already pending or the master or the corresponding slave is currently changing its operational state
- EC_E_NOTREADY if the working counter was not set when sending the command (slave may not be connected or did not respond)
- EC_E_INVALIDSIZE if the size of the complete command does not fit into a single Ethernet frame. The maximum amount of data to transfer must not exceed 1486 bytes.
- EC_E_MASTER_RED_STATE_INACTIVE if Master Redundancy is configured and master is inactive

Return type
ECError

ThrottleNotification (*tNotifyCode:* DN_NotifyCode, *dwTimeout: int*) → *ECError*
Throttles notification

Parameters

- **tNotifyCode** (DN_NotifyCode) – Code of notification, which should be throttled
- **dwTimeout** (*int*) – 0 = Not throttled, > 0 = Throttle timeout in ms

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

ThrowDbgMsgEvent (*type_: int*, *severity: int*, *msg: str*, *_pUserData: object*)
Throws the debug message events.

Parameters

- **type_** (*int*) –
- **severity** (*int*) –
- **msg** (*str*) –
- **_pUserData** (*object*) –

ThrowEcEvent (*dwCode: int*, *unmParms: object*) → int
Throws the EtherCAT-Notifications. The Type of the event depends on the notification code.

Parameters

- **dwCode** (*int*) –
- **unmParms** (*object*) –

Return type
int

ThrowPerfEvent (*pszFktName: str*, *dwTime: int*, *_pUserData: object*)
Throws the performance monitoring events.

Parameters

- **pszFktName** (*str*) –
- **dwTime** (*int*) –
- **_pUserData** (*object*) –

ThrowRasCheckTokenEvent (
_pvCheckTokenContext: object,
pbyToken: object,
dwTokenSize: int
) → int
Throws the RAS check token events.

Parameters

- **_pvCheckTokenContext** (*object*) –
- **pbyToken** (*object*) –
- **dwTokenSize** (*int*) –

Return type
int

ThrowRasEvent (*dwCode: int*, *unmParms: object*) → int
Throws the RAS Events. The Type of the event depends on the notification code.

Parameters

- **dwCode** (*int*) –
- **unmParms** (*object*) –

Return type
int

ThrowTranslateEvent (*_code: int*, *msg: str*, *_pUserData: object*)
Throws the performance monitoring events.

Parameters

- **_code** (*int*) –
- **msg** (*str*) –
- **_pUserData** (*object*) –

UnregisterClient () → *ECError*
Unregister a client from the EtherCAT master

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

VoeSend (
wCfgFixedAddress: int,
wDstFixedAddress: int,
pvData: List[int],
dwDataLen: int
) → *ECError*
Fill “Mailbox In” (SM1) with VoE data to be polled by Master. The slave must have VoE enabled, see ESI: /EtherCATInfo/Descriptions/Devices/Device/Mailbox/VoE, ENI/EXI: /EtherCATConfig/Config/Slave/Mailbox/Protocol/VoE

Parameters

- **wCfgFixedAddress** (*int*) – Slave’s station address
- **wDstFixedAddress** (*int*) – Destination address
- **pvData** (*List[int]*) – Data
- **dwDataLen** (*int*) – Data length

Returns
_ #EC_E_NOERROR or error code

Return type
ECError

WaitForTimingTaskEvent () → bool
Waits for Timing Task Event

Returns
Wait event was triggered

Return type
bool

static WritePdBitsToAddress(
address: object,
bitOffset: int,
bitLength: int,
pdBits: List[int]
)
Writes process data bits to address

Parameters

- **address** (*object*) – Address
- **bitOffset** (*int*) – Bit offset
- **bitLength** (*int*) – Bit length
- **pdBits** (*List[int]*) – Process data bits

static WritePdBitsToBytes(*bytes_: List[int]*, *bitOffset: int*, *bitLength: int*, *pdBits: List[int]*)
Writes process data bits to bytes

Parameters

- **bytes** – Bytes
- **bitOffset** (*int*) – Bit offset
- **bitLength** (*int*) – Bit length
- **pdBits** (*List[int]*) – Process data bits
- **bytes_** (*List[int]*) –

static WritePdBytesToAddress(*address: object*, *offset: int*, *pdBytes: List[int]*)
Writes process data bytes to address

Parameters

- **address** (*object*) – Address
- **offset** (*int*) – Offset
- **pdBytes** (*List[int]*) – Process data bytes

static WritePdBytesToBytes(*bytes_: List[int]*, *offset: int*, *pdBytes: List[int]*)
Writes process data bytes to bytes

Parameters

- **bytes** – Bytes
- **offset** (*int*) – Offset
- **pdBytes** (*List[int]*) – Process data bytes
- **bytes_** (*List[int]*) –

WriteSlaveEEPRom(
bFixedAddressing: bool,
wSlaveAddress: int,
wEEPRomStartOffset: int,
pwWriteData: List[int],
dwWriteLen: int,
dwTimeout: int
) → *ECError*
Write EEPRom data from slave

Parameters

- **bFixedAddressing** (*bool*) – True: use station addressing, False: use auto increment addressing
- **wSlaveAddress** (*int*) – Slave Address, station or auto increment address depending on bFixedAddressing
- **wEEPRomStartOffset** (*int*) – Address to start EEPRom Read from
- **pwWriteData** (*List[int]*) – Pointer to WORD array carrying the write data.
- **dwWriteLen** (*int*) – Sizeof Write Data WORD array (in WORDS)
- **dwTimeout** (*int*) – Timeout in milliseconds. The function will block at most for this time. The timeout value must not be set to EC_NOWAIT

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

WriteSlaveEEPRomWithReq(
dwClientId: int,
dwTferId: int,
bFixedAddressing: bool,
wSlaveAddress: int,
wEEPRomStartOffset: int,
pwWriteData: List[int],
dwWriteLen: int,
dwTimeout: int
) → *ECError*
Write EEPRom data from slave (REQ)

Parameters

- **dwClientId** (*int*) – Client ID returned by RegisterClient (0 if all registered clients shall be notified)
- **dwTferId** (*int*) – Transfer ID. The application can set this ID to identify the transfer. It will be passed back to the application within EC_T_SLAVEREGISTER_TRANSFER_NTFY_DESC.
- **bFixedAddressing** (*bool*) – True: use station addressing, False: use auto increment addressing
- **wSlaveAddress** (*int*) – Slave Address, station or auto increment address depending on bFixedAddressing
- **wEEPRomStartOffset** (*int*) – Address to start EEPRom Read from
- **pwWriteData** (*List[int]*) – Pointer to WORD array carrying the write data.
- **dwWriteLen** (*int*) – Sizeof Write Data WORD array (in WORDS)

- **dwTimeout** (*int*) – Timeout in milliseconds. The function will block at most for this time. The timeout value must not be set to EC_NOWAIT

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

WriteSlaveRegister(
bFixedAddressing: bool,
wSlaveAddress: int,
wRegisterOffset: int,
pbyData: List[int],
wLen: int,
dwTimeout: int
) → *ECError*

Writes data into the ESC memory of a specified slave.

This function may not be called from within the JobTask's context

Changing contents of ESC registers may lead to unpredictable behavior of the slaves and/or the master.

Parameters

- **bFixedAddressing** (*bool*) – EC_TRUE: use station address, EC_FALSE: use AutoInc address
- **wSlaveAddress** (*int*) – Slave address according bFixedAddressing
- **wRegisterOffset** (*int*) – Register offset. E.g. use 0x0120 to write to the AL Control register.
- **pbyData** (*List[int]*) – Buffer containing transfered data
- **wLen** (*int*) – Number of bytes to send
- **dwTimeout** (*int*) – Timeout [ms]

Returns

- EC_E_NOERROR if successful
- EC_E_INVALIDSTATE if EtherCAT stack isn't initialized
- EC_E_INVALIDPARM if dwInstanceID is out of range or the command is not supported or the timeout value is set to EC_NOWAIT
- EC_E_SLAVE_NOT_PRESENT if slave not present
- EC_E_NOTFOUND if no slave matching bFixedAddressing / wSlaveAddress can be found
- EC_E_TIMEOUT if dwTimeout elapsed during the API call
- EC_E_BUSY if another transfer request is already pending or the master or the corresponding slave is currently changing its operational state
- EC_E_NOTREADY if the working counter was not set when sending the command (slave may not be connected or did not respond)
- EC_E_INVALIDSIZE if the size of the complete command does not fit into a single Ethernet frame. The maximum amount of data to transfer must not exceed 1486 bytes.

Return type
ECError

static WriteValueToAddress(
address: object,
bitOffset: int,
bitLength: int,
type_: DN_EC_T_DEFTYPE,
value: object
)
Write value to address

Parameters

- **address** (*object*) – Address
- **bitOffset** (*int*) – Bit offset
- **bitLength** (*int*) – Bit length
- **type** – Data type
- **value** (*object*) – Value
- **type_** (DN_EC_T_DEFTYPE) –

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

static WriteValueToBytes(
bytes_: List[int],
bitOffset: int,
bitLength: int,
type_: DN_EC_T_DEFTYPE,
value: object
) → *ECError*
Write value to bytes

Parameters

- **bytes** – Bytes
- **bitOffset** (*int*) – Bit offset
- **bitLength** (*int*) – Bit length
- **type** – Data type
- **value** (*object*) – Value
- **bytes_** (*List[int]*) –
- **type_** (DN_EC_T_DEFTYPE) –

Returns
EC_E_NOERROR on success, otherwise an error code.

Return type
ECError

3.3 Types

class EcWrapperPythonTypes.**CEcWrapperPythonTypes**
static Create_ArrayByType(*type_*, *size*)

class EcWrapperPythonTypes.**Conv_DN_EC_T_DEFTYPE**
static CreateMap()

static TypeFromString(*type_*)

static TypeToString(*type_*)

class EcWrapperPythonTypes.**DN_ECMASTERRAS_T_CONNOTIFYDESC**

class EcWrapperPythonTypes.**DN_ECMASTERRAS_T_MARSHALERRORDESC**

class EcWrapperPythonTypes.**DN_ECMASTERRAS_T_NONOTIFYMEMORYDESC**

class EcWrapperPythonTypes.**DN_ECMASTERRAS_T_REGNOTIFYDESC**

class EcWrapperPythonTypes.**DN_EC_CMD_TYPE**(*value*)
EtherCAT commands

APRD = 1
APRD

APRW = 3
APRW

APWR = 2
APWR

ARMW = 13
ARMW

BCppDummy = 4294967295
BCppDummy

BRD = 7
BRD

BRW = 9
BRW

BWR = 8
BWR

EXT = 255
EXT

FPRD = 4
FPRD

FPRW = 6
FPRW

FPWR = 5
FPWR

FRMW = 14
FRMW

LRD = 10
LRD

LRW = 12
LRW

LWR = 11
LWR

NOP = 0
NOP

class EcWrapperPythonTypes.**DN_EC_LOG_LEVEL**(*value*) **ANY = 1**

ANY

CRITICAL = 2
CRITICAL

ERROR = 3
ERROR

INFO = 5
INFO

INFO_API = 6
INFO_API

SILENT = 0
SILENT

UNDEFINED = 4294967295
UNDEFINED

VERBOSE = 7
VERBOSE

VERBOSE_CYC = 8
VERBOSE_CYC

WARNING = 4
WARNING

class EcWrapperPythonTypes.**DN_EC_LOG_TYPE**(*value*)
An enumeration.

DAQ = 6

DAQREADER = 7

MASTER = 0

MBXGATEWAY = 3

MBXGATEWAYSERVER = 10

MONITOR = 9

MONITORRASSERVER = 5

RASCLIENT = 1

RASSERVER = 2

SIMULATOR = 8

SIMULATORRASSERVER = 4

UNKNOWN = 4294967295

class EcWrapperPythonTypes.**DN_EC_PTS_STATE**(*value*)
pass through server states

ePtsStateDummy = 4294967295
ePtsStateDummy

ePtsStateNone = 0
ePtsStateNone

ePtsStateNotRunning = 1
ePtsStateNotRunning

ePtsStateRunningDisabled = 2
ePtsStateRunningDisabled

ePtsStateRunningEnabled = 3
ePtsStateRunningEnabled

class EcWrapperPythonTypes.**DN_EC_RAS_ACCESS_LEVEL**(*value*) **ALLOW_ALL =**

ALLOW_ALL

BLOCK_ALL = 4
BLOCK_ALL

EXCLUDED = 4294967295
EXCLUDED

READONLY = 3
READONLY

READWRITE = 2
READWRITE

class EcWrapperPythonTypes.**DN_EC_T_ADS_ADAPTER_START_PARMS**

cpuAffinityMask: int
cpuAffinityMask

dwStackSize: int
dwStackSize

dwThreadPriority: int
dwThreadPriority

targetNetID: *EcWrapperPythonTypes.DN_EC_T_AOE_NETID*
targetNetID

targetPort: int
targetPort

class EcWrapperPythonTypes.**DN_EC_T_AOE_CMD_RESPONSE**
AoE mailbox response error codes

dwCmdResult: int
AoE command result code

dwErrorCode: int
AoE response error code

dwRsvd: int
dwRsvd

class EcWrapperPythonTypes.**DN_EC_T_AOE_NETID**
AoE NetID

aby: List[int]
AoE net id

class EcWrapperPythonTypes.**DN_EC_T_BAD_CONNECTION_NTFY_DESC**

SlavePropChild: *EcWrapperPythonTypes.DN_EC_T_SLAVE_PROP*
Slave properties of child slave

SlavePropParent: *EcWrapperPythonTypes.DN_EC_T_SLAVE_PROP*
Slave properties of parent slave

wPortAtChild: int
Port at child slave

wPortAtParent: int
Port at parent slave

class EcWrapperPythonTypes.**DN_EC_T_BUS_DIAGNOSIS_INFO**
See also Object 0x2002 Bus Diagnosis Object

dwAcyclicDatagrams: int
Number of acyclic datagrams / EtherCAT commands sent

dwAcyclicFrames: int
Number of acyclic frames sent

dwAcyclicLostFrames: int
Number of acyclic lost frames

dwCRC32ConfigCheckSum: int
CRC32 checksum of the loaded configuration

dwClearCounters: int
Clear frame / datagram counter bit field

dwCyclicDatagrams: int
Number of cyclic datagrams / EtherCAT commands sent

dwCyclicFrames: int
Number of cyclic frames sent

dwCyclicLostFrames: int
Number of cyclic lost frames

dwLostFrames: int
Number of lost frames

dwNumCfgSlaves: int
Number of slaves in ENI

dwNumDCSlavesFound: int
Number of slaves with DC enabled connected

dwNumMbxSlaves: int
Number of slaves in ENI with mailbox support

dwNumSlavesFound: int
Number of slaves connected

dwRXFrames: int
Number of frames received

dwRes: List[int]
dwRes

dwTXFrames: int
Number of frames sent

class EcWrapperPythonTypes.**DN_EC_T_BUS_SLAVE_INFO**
adwPortSlaveIds: List[int]
[out] The slave's ID of the slaves connected to ports. See /ref EC_SLAVE_IDS 'Port slave ID's'.

bDc64Support: bool
[out] Slave supports 64 Bit DC (Bus Topology Scan)

bDcSupport: bool
[out] Slave supports DC (Bus Topology Scan)

bIsDeviceEmulation: bool
[out] Slave without Firmware. ESC register 0x0141, enabled by EEPROM offset 0x0000.8.

bIsRefClock: bool
[out] Slave is reference clock

bLineCrossed: bool
[out] Line crossed was detected at this slave

byESCRevision: int
[out] Revision number of ESC (Value of slave ESC register 0x0001)

byESCType: int
[out] Type of ESC (Value of slave ESC register 0x0000)

byPortDescriptor: int
[out] Port descriptor (Value of slave ESC register 0x0007)

dwCyclicWkcErrorCnt: int
[out] Counter for Cyclic WC Error

dwProductCode: int
[out] Product Code stored in the EEPROM at offset 0x000A

dwPropagDelay: int
[out] Propagation delay [ns]. ESC register 0x0928.This value is only valid if a DC configuration is used.

dwRevisionNumber: int
[out] Revision number stored in the EEPROM at offset 0x000C

dwSerialNumber: int
[out] Serial number stored in the EEPROM at offset 0x000E

dwSlaveAbsentCnt: int
[out] Counter for Absent/Not Present Slaves

dwSlaveDelay: int
[out] Delay behind slave [ns]. This value is only valid if a DC configuration is used.

dwSlaveId: int
[out] The slave's ID to bind bus slave and config slave information

dwSystemTimeDifference: int
[out] System time difference. (Value of slave ESC register 0x092C)

dwUnexpectedStateCnt: int
[out] Counter for Abnormal State Change

dwVendorId: int
[out] Vendor Identification stored in the EEPROM at offset 0x0008

wAlStatus: int
[out] AL status (Value of slave ESC register 0x0130)

wAlStatusCode: int
[out] AL status code. (Value of slave ESC register 0x0134 during last error acknowledge). This value is reset after a slave state change.

wAliasAddress: int
[out] The slave's alias address (Value of slave ESC register 0x0012)

wAutoIncAddress: int
[out] The slave's auto increment address

wDlStatus: int
[out] DL status (Value of slave ESC register 0x0110)

wESCBuild: int
[out] Build number of ESC (Value of slave ESC register 0x0002)

wFeaturesSupported: int
[out] Features supported (Value of slave ESC register 0x0008)

wIdentifyData: int
[out] Last read identification value see EC_T_CFG_SLAVE_INFO.wIdentifyAdo

wLineCrossedFlags: int
[out] Combination of /ref EC_LINECROSSED_FLAGS 'Line crossed flags'

wMbxSupportedProtocols: int
[out] Supported Mailbox Protocols stored in the EEPROM at offset 0x001C

wPortState: int
wPortState

wPrevPort: int
[out] Connected port of the previous slave

wStationAddress: int
[out] The slave's station address (Value of slave ESC register 0x0010)

class EcWrapperPythonTypes.**DN_EC_T_CFG_SLAVE_EOE_INFO**
ecatGetCfgSlaveEoeInfo, ENI: Mailbox/EoE/InitCmds/InitCmd/Data

abyMacAddr: List[int]
[out] MAC address

bDefaultGateway: bool
[out] Indicates whether the default gateway could be read and is valid

bDisableEoe: bool
[out] Indicates whether the EoE is Disabled or not

bDnsName: bool
[out] Indicates whether the DNS name could be read and is valid

bDnsServer: bool
[out] Indicates whether the DNS server could be read and is valid

bIpAddr: bool
[out] Indicates whether the IP address could be read and is valid

bMacAddr: bool
[out] Indicates whether the MAC address could be read and is valid

bSubnetMask: bool
[out] Indicates whether the subnet mask could be read and is valid

dwRes: List[int]
dwRes

dwSlaveId: int
[out] Slave ID

oDefaultGateway: *EcWrapperPythonTypes.DN_EC_T_IPADDR*
[out] Default gateway

oDnsServer: *EcWrapperPythonTypes.DN_EC_T_IPADDR*
[out] DNS server

oIpAddr: *EcWrapperPythonTypes.DN_EC_T_IPADDR*
[out] IP address

oSubnetMask: *EcWrapperPythonTypes.DN_EC_T_IPADDR*
[out] Subnet mask

szDnsName: str
[out] DNS name

class EcWrapperPythonTypes.**DN_EC_T_CFG_SLAVE_INFO**
ecatGetCfgSlaveInfo

abyDeviceName: str
[out] Slave's configured name (80 Byte) (from ENI file)

awMasterSyncUnitIn: List[int]
ProcessData/TxPdo[1..4]@Su)

Type
[out] Sync Unit (ENI

awMasterSyncUnitOut: List[int]
ProcessData/RxPdo[1..4]@Su)

Type
[out] Sync Unit (ENI

bDcPotentialRefClock: bool
[out] Slave can be used as a reference clock (from ENI file)

bDcReferenceClock: bool
[out] Slave is reference clock (from ENI file)

bDcSupport: bool
[out] Slave supports DC (from ENI file)

bDisabled: bool
[out] Slave disabled by API SetSlaveDisabled / SetSlavesDisabled.

bDisconnected: bool
[out] Slave disconnected by API SetSlaveDisconnected / SetSlavesDisconnected.

bExtended: bool
[out] Slave generated by API ConfigExtend

bIsHCGroupPresent: bool
[out] Slave's Hot Connect group present on bus

bIsPresent: bool
[out] Slave present on bus

byPortDescriptor: int
[out] Port descriptor (ESC register 0x0007) (from ENI file)

dwDcCycleTime0: int
[out] Cycle time of Sync0 event [ns] (from ENI file)

dwDcCycleTime1: int
[out] Calculated value dwDcCycleTime1 [ns] = Cycle time of Sync1 event - Cycle time of Sync1 event + Shift time of Sync0 event (from ENI file)

dwHCGroupIdx: int
[out] Index of Hot Connect group, 0 for mandatory

dwMbxInSize: int
[out] Mailbox input byte size (from ENI file)

dwMbxInSize2: int
[out] Bootstrap mailbox input byte size (from ENI file)

dwMbxOutSize: int
[out] Mailbox output byte size (from ENI file)

dwMbxOutSize2: int
[out] Bootstrap mailbox output byte size (from ENI file)

dwMbxSupportedProtocols: int
[out] Mailbox protocols supported by the slave (from ENI file). Combination of /ref EC_MBX_PROTOCOLS 'Supported mailbox protocols' flags.

dwPdOffsIn: int
[out] Process input data bit offset (from ENI file)

dwPdOffsIn2: int
[out] 2nd sync unit process input data bit offset (from ENI file)

dwPdOffsIn3: int
[out] 3rd sync unit process input data bit offset (from ENI file)

dwPdOffsIn4: int
[out] 4th sync unit process input data bit offset (from ENI file)

dwPdOffsOut: int
[out] Process output data bit offset (from ENI file)

dwPdOffsOut2: int
[out] 2nd sync unit process output data bit offset (from ENI file)

dwPdOffsOut3: int
[out] 3rd sync unit process output data bit offset (from ENI file)

dwPdOffsOut4: int
[out] 4th sync unit process output data bit offset (from ENI file)

dwPdSizeIn: int
[out] Process input data bit size (from ENI file)

dwPdSizeIn2: int
[out] 2nd sync unit process input data bit size (from ENI file)

dwPdSizeIn3: int
[out] 3rd sync unit process input data bit size (from ENI file)

dwPdSizeIn4: int
[out] 4th sync unit process input data bit size (from ENI file)

dwPdSizeOut: int
[out] Process output data bit size (from ENI file)

dwPdSizeOut2: int
[out] 2nd sync unit process output data bit size (from ENI file)

dwPdSizeOut3: int
[out] 3rd sync unit process output data bit size (from ENI file)

dwPdSizeOut4: int
[out] 4th sync unit process output data bit size (from ENI file)

dwProductCode: int
[out] Product code (from ENI file)

dwRevisionNumber: int
[out] Revision number (from ENI file)

dwSerialNumber: int
[out] Serial number (from ENI file)

dwSlaveId: int
[out] Slave's ID to bind bus slave and config slave information

dwVendorId: int
[out] Vendor identification (from ENI file)

nDcShiftTime: int
[out] Shift time of Sync0 event [ns] (from ENI file)

wAutoIncAddress: int
[out] Slave's auto increment address (may differ from ENI file)

wIdentifyAdo: int
[out] ADO used for identification command (from ENI file)

wIdentifyData: int
[out] Identification value to be validated (from ENI file)

wNumProcessVarsInp: int
[out] Number of input process data variables (from ENI file)

wNumProcessVarsOutp: int
[out] Number of output process data variables (from ENI file)

wPrevPort: int
[out] Connected port of the previous slave (from ENI file)

wPrevStationAddress: int
[out] Station address of the previous slave (from ENI file)

wStationAddress: int
[out] Slave's configured station address (from ENI file)

wWkcStateDiagOffsIn: List[int]
0xFFFFFFFF = offset not available. WkcState bit values: 0 = Data valid, 1 = Data invalid.

Type
[out] Offset of WkcState bit in diagnosis image (ENI

Type
ProcessData/Recv[1..4]/BitStart)

wWkcStateDiagOffsOut: List[int]
0xFFFFFFFF = offset not available. WkcState bit values: 0 = Data valid, 1 = Data invalid.

Type
[out] Offset of WkcState bit in diagnosis image (ENI

Type
ProcessData/Send[1..4]/BitStart)

class EcWrapperPythonTypes.**DN_EC_T_CFG_SLAVE_SM_ENTRY**
ecatGetCfgSlaveSmInfo

byDirection: int
[out] Bits 2..3 ESC (0x804 + y * 8)

byOpMode: int
[out] Bits 0..1 ESC (0x804 + y * 8)

dwPdBitOffs: int
[out] Process input data bit offset (from ENI file)

dwPdBitSize: int
[out] Process input data bit size (from ENI file)

wLength: int
[out] ESC (0x802 + y * 8)

wMasterSyncUnit: int
ProcessData/TxPdo[1..4]@Su)

Type
[out] Sync Unit (ENI

wPhysAddr: int
[out] ESC (0x800 + y * 8)

wWkcStateDiagBitOffs: int
[out] Offset of WkcState bit in diagnosis image

class EcWrapperPythonTypes.**DN_EC_T_CFG_SLAVE_SM_INFO**
aoSmInfos: List[*EcWrapperPythonTypes.DN_EC_T_CFG_SLAVE_SM_ENTRY*]
[out] Sync managers info

dwSlaveId: int
[out] Slave ID

dwSmInfoNumOf: int
[out] Number of available sync managers

class EcWrapperPythonTypes.**DN_EC_T_CNF_TYPE**(*value*) **BCppDummy =**

BCppDummy

ConfigData = 8
Binary structured configuration

Type
pbyCnfData

Data = 2
ENI data

Type
pbyCnfData

Datadiag = 3
ENI data for diagnosis

Type
pbyCnfData

FileByApp = 10
File access provided by user application, See ef EC_T_CNF_FILEBYAPP_DESC

Filename = 1
ENI filename to read

Type
pbyCnfData

GenEBI = 11
Generate EBI based on bus-scan result

GenOpENI = 6
Generate ENI based on bus-scan result to get into OP state. The default PDO mapping read from the slaves is activated. See ETG2010 'SII Specification', Table 14 'Structure Category TXPDO and RXPDO for each PDO'.

GenOpENINoStrings = 9
Generate ENI based on bus-scan result to get into OP state, does not read strings from EEPROM

GenPreopENI = 4
Generate ENI based on bus-scan result to get into PREOP state

GenPreopENIWithCRC = 5
Same as eCnfType_GenPreopENI with CRC protection

None_ = 7
Reset configuration

Unknown = 0
Unknown

class EcWrapperPythonTypes.**DN_EC_T_COE_EMERGENCY**
EtherCAT CoE emergency request

abyData: List[int]
Error data

byErrorRegister: int
Error register

wErrorCode: int
Error code according to EtherCAT specification

wStationAddress: int
Slave node address of the faulty slave

class EcWrapperPythonTypes.**DN_EC_T_COE_ENTRYDESC**

class EcWrapperPythonTypes.**DN_EC_T_COE_OBDESC**

class EcWrapperPythonTypes.**DN_EC_T_COE_OBJ1018**

class EcWrapperPythonTypes.**DN_EC_T_COE_OBJ2001**

class EcWrapperPythonTypes.**DN_EC_T_COE_OBJ2001_DESC**
static Create(*obj2001*)

class EcWrapperPythonTypes.**DN_EC_T_COE_ODLIST_TYPE**(*value*)
EtherCAT CoE OD list type values

ALL = 1
List contains all objects

BCppDummy = 4294967295
BCppDummy

Lengths = 0
Lengths of each list type

RxPdoMap = 2
List with PDO mappable objects

StartupParm = 5
Only startup parameter objects

StoredFRepl = 4
Only stored for a device replacement objects

TxPdoMap = 3
List with objects that can be changed

class EcWrapperPythonTypes.**DN_EC_T_COMMUNICATION_TIMEOUT_NTFY_DESC**
bMainTapPortIn: bool
Timeout occurred at the input port of the Ethernet TAP for the EtherCAT main line

Type
EC_TRUE

bMainTapPortOut: bool
Timeout occurred at the output port of the Ethernet TAP for the EtherCAT main line

Type
EC_TRUE

class EcWrapperPythonTypes.**DN_EC_T_CONFIG_LOAD_NTFY_DESC**
dwCnfDataLen: int
dwCnfDataLen

dwCnfType: int
dwCnfType

pbyCnfData: object
pbyCnfData

class EcWrapperPythonTypes.**DN_EC_T_CYC_CONFIG_DESC**
descriptor for EC_IOCTL_GET_CYCLIC_CONFIG_INFO call

dwCycleTime: int
[out] Cycle time of selected cyclic entry

dwPriority: int
[out] Priority of selected cyclic entry

dwTaskId: int
Cyclic/TaskId)

Type
[out] Task ID of selected cyclic entry (ENI

class EcWrapperPythonTypes.**DN_EC_T_CYC_COPY_INFO**
The master has to copy valid input data of this command from the source offset (bit offs in the complete process image) to a destination offset.

dwDstBitOffs: int
dwDstBitOffs

dwRes: List[int]
dwRes

dwSrcBitOffs: int
dwSrcBitOffs

wBitSize: int
wBitSize

wFlags: int
wFlags

wRes: int
wRes

wTaskId: int
wTaskId

class EcWrapperPythonTypes.**DN_EC_T_DCM_CONFIG**
BusShift: *EcWrapperPythonTypes.DN_EC_T_DCM_CONFIG_BUSSHIFT*
[in] BusShift configuration. Valid if eMode is set to eDcmMode_BusShift.

Dcx: *EcWrapperPythonTypes.DN_EC_T_DCM_CONFIG_DCX*
[in] DCX configuration. Valid if eMode is set to eDcmMode_Dcx.

LinkLayerRefClock:
EcWrapperPythonTypes.DN_EC_T_DCM_CONFIG_LINKLAYERREFCLOCK
[in] LinkLayerRefClock configuration. Valid if eMode is set to eDcmMode_LinkLayerRefClock.

MasterRefClock: *EcWrapperPythonTypes.DN_EC_T_DCM_CONFIG_MASTERREFCLOCK*
[in] MasterRefClock configuration. Valid if eMode is set to eDcmMode_MasterRefClock.

MasterShift: *EcWrapperPythonTypes.DN_EC_T_DCM_CONFIG_MASTERSHIFT*
[in] MasterShift configuration. Valid if eMode is set to eDcmMode_MasterShift.

eMode: *EcWrapperPythonTypes.DN_EC_T_DCM_MODE*
[in] DCM mode

class EcWrapperPythonTypes.**DN_EC_T_DCM_CONFIG_BUSSHIFT**
bCtlOff: bool
[in] If set to EC_TRUE, control loop is disabled. Combined with bLogEnabled, it makes possible to analyze the natural drift between the stack cycle and the reference clock.

bLogEnabled: bool
[in] If set to EC_TRUE, logging information are generated and can be got by calling emDcmGetLog()

bUseDcLoopCtlStdValues: bool
[in] If set to EC_TRUE, the values of ESC DC time loop control register 0x930 and 0x934 are not changed by master. This could increase the time it takes to get the InSync. Use only if there are problems with the reference clock to get InSync.

dwInSyncLimit: int
[in] Limit [ns] for InSync monitoring. Default value is 20% of the cycle time. A value of 0 sets the default value.

dwInSyncSettleTime: int
[in] Settle time [ms] for InSync monitoring. Default value is 1500ms. A value of 0 sets the default value.

dwInSyncStartDelayCycle: int
[in] Delay time [ms] before InSync monitoring start

nCtlDriftErrorGain: int
[in] Multiplier for drift error. Default value is 3. A value of 0 sets the default value.

nCtlGain: int
[in] Proportional gain in ppt (part per thousand). Default is value 2. A value of 0 sets the default value.

nCtlSetVal: int
[in] Controller set value [ns]. This is the time distance between the cyclic frame send time and the DC base on bus (SYNC0 if shift is zero).

nMaxValidVal: int
[in] Error inputs above this value are considered invalid. If error input prediction is valid then the difference between the error input and the expected value is taken. Default value is 3000. A value of 0 sets the default value.

pGetTimeElapsedSinceCycleStartContext: object
[in] Optional context for the pfnGetTimeElapsedSinceCycleStart function, will be passed as first parameter to this function/static method

class EcWrapperPythonTypes.**DN_EC_T_DCM_CONFIG_DCX**

MasterShift: ***EcWrapperPythonTypes.DN_EC_T_DCM_CONFIG_MASTERSHIFT***
[in] DCM MasterShift configuration

bCtlOff: bool
[in] If set to EC_TRUE, control loop is disabled. Combined with bLogEnabled, it makes possible to analyze the natural drift between the stack cycle and the reference clock. Also it provides reading of current adjustment value using emDcmGetAdjust function.

bLogEnabled: bool
[in] If set to EC_TRUE, logging information are generated and can be got by calling emDcmGetLog()

dwExtClockTimeout: int
[in] Wait timeout for external clock slave

dwInSyncLimit: int
[in] Limit [ns] for InSync monitoring. Default value is 20% of the cycle time. A value of 0 sets the default value.

dwInSyncSettleTime: int
[in] Settle time [ms] for InSync monitoring. Default value is 1500ms. A value of 0 sets the default value.

dwInSyncStartDelayCycle: int
[in] Delay time [ms] before InSync monitoring start

dwMaxErrCompensableOnExtClockReconnect: int
[in] Maximum error in nanoseconds that should be compensated after a reconnect of the external clock device. Synchronization restart if error exceeds this limit.

nCtlDriftErrorGain: int
[in] Multiplier for drift error. Default value is 3. A value of 0 sets the default value.

nCtlGain: int
[in] Proportional gain in ppt (part per thousand). Default is value 2. A value of 0 sets the default value.

nCtlSetVal: int
[in] Controller set value [ns]. This is the time distance between the cyclic frame send time and the DC base on bus (SYNC0 if shift is zero).

nMaxValidVal: int
[in] Error inputs above this value are considered invalid. If error input prediction is valid then the difference between the error input and the expected value is taken. Default value is 3000. A value of 0 sets the default value.

wExtClockFixedAddr: int
[in] Fixed address of external clock slave (publishing PDO 0x10F4) (optional if ENI is generated by EcEngineer)

class EcWrapperPythonTypes.**DN_EC_T_DCM_CONFIG_LINKLAYERREFCLOCK**

DcStartTimeCallbackDesc:
EcWrapperPythonTypes.DN_EC_T_DC_STARTTIME_CB_DESC
[in] If not null, DC start time calculated by application, otherwise by master. See also EC_T_DC_STARTTIME_CB_DESC. Shift value configured in ENI will still be applied.

bLogEnabled: bool
[in] If set to EC_TRUE, logging information are generated and can be got by calling emDcmGetLog()

dwInSyncLimit: int
[in] Limit [ns] for InSync monitoring. Default value is 20% of the cycle time. A value of 0 sets the default value.

dwInSyncSettleTime: int
[in] Settle time [ms] for InSync monitoring. Default value is 1500ms. A value of 0 sets the default value.

nCtlSetVal: int
[in] Controller set value [ns]. This is the time distance between the cyclic frame send time and the DC base on bus (SYNC0 if shift is zero).

class EcWrapperPythonTypes.**DN_EC_T_DCM_CONFIG_MASTERREFCLOCK**

bLogEnabled: bool
[in] If set to EC_TRUE, logging information are generated and can be got by calling emDcmGetLog()

dwInSyncLimit: int
[in] Limit [ns] for InSync monitoring. Default value is 20% of the cycle time. A value of 0 sets the default value.

dwInSyncSettleTime: int
[in] Settle time [ms] for InSync monitoring. Default value is 1500ms. A value of 0 sets the default value.

nCtlSetVal: int
[in] Controller set value [ns]. This is the time distance between the cyclic frame send time and the DC base on bus (SYNC0 if shift is zero).

pGetHostTimeContext: object
[in] Optional context for the pfnGetHostTime function, will be passed as first parameter to this function/static method

class EcWrapperPythonTypes.**DN_EC_T_DCM_CONFIG_MASTERSHIFT**

bCtlOff: bool
[in] If set to EC_TRUE, control loop is disabled. Combined with bLogEnabled, it makes possible to analyze the natural drift between the stack cycle and the reference clock. Also it provides reading of current adjustment value using emDcmGetAdjust function.

bLogEnabled: bool
[in] If set to EC_TRUE, logging information are generated and can be got by calling emDcmGetLog()

dwInSyncLimit: int
[in] Limit [ns] for InSync monitoring. Default value is 20% of the cycle time. A value of 0 sets the default value.

dwInSyncSettleTime: int
[in] Settle time [ms] for InSync monitoring. Default value is 1500ms. A value of 0 sets the default value.

dwInSyncStartDelayCycle: int
[in] Delay time [ms] before InSync monitoring start

nCtlDriftErrorGain: int
[in] Multiplier for drift error. Default value is 3. A value of 0 sets the default value.

nCtlGain: int
[in] Proportional gain in ppt (part per thousand). Default is value 2. A value of 0 sets the default value.

nCtlSetVal: int
[in] Controller set value [ns]. This is the time distance between the cyclic frame send time and the DC base on bus (SYNC0 if shift is zero).

nMaxValidVal: int
[in] Error inputs above this value are considered invalid. If error input prediction is valid then the difference between the error input and the expected value is taken. Default value is 3000. A value of 0 sets the default value.

pAdjustCycleTimeContext: object
[in] Optional context for the pfnAdjustCycleTime function, will be passed as first parameter to this function/static method

pGetTimeElapsedSinceCycleStartContext: object
[in] Optional context for the pfnGetTimeElapsedSinceCycleStart function, will be passed as first parameter to this function/static method

class EcWrapperPythonTypes.**DN_EC_T_DCM_MODE**(*value*) **BCppDummy =**

BCppDummy

BusShift = 1
DCM BusShift mode

Dcx = 5
DCM DCX External synchronization mode

LinkLayerRefClock = 3
DCM LinkLayer Ref Clock mode

MasterRefClock = 4
DCM Master Ref Clock mode

MasterShift = 2
DCM MasterShift mode

MasterShiftByApp = 6
DCM MasterShift controlled by application mode

Off = 0
DCM disabled

class EcWrapperPythonTypes.**DN_EC_T_DCM_SYNC_NTFY_DESC**
Distributed clocks master sync (DCM)

IsInSync: int
[in] EC_TRUE as long as time of master and reference clock are in sync. False if the InSyncLimit from the bus shift configuration is exceeded.

nCtlErrorNsecAvg: int
[in] Average difference [ns] between set value and actual value of controller

nCtlErrorNsecCur: int
[in] Current difference [ns] between set value and actual value of controller

nCtlErrorNsecMax: int
[in] Maximum difference [ns] between set value and actual value of controller

class EcWrapperPythonTypes.**DN_EC_T_DCX_SYNC_NTFY_DESC**
Distributed clocks master external sync (DCX)

IsInSync: int
EC_TRUE if external(other EtherCAT segment) and internal reference clock are in sync respectively

dwErrorCode: int
DCX external clock error code

nCtlErrorNsecAvg: int
Average DCX controller error [ns]

nCtlErrorNsecCur: int
Current DCX controller error [ns]

nCtlErrorNsecMax: int
Maximum DCX controller error [ns]

nTimeStampDiff: int
Difference between external and internal time stamp [ns]

class EcWrapperPythonTypes.**DN_EC_T_DC_CONFIGURE**

bAcycDistributionDisabled: bool
[in] If EC_TRUE, acyclic distribution is disabled

bBulkInLinkLayer: bool
bBulkInLinkLayer

bDcInitBeforeSlaveStateChange: bool
[in] If EC_TRUE, DC is initialized before slaves state change to PREOP

dwBurstBulk: int
[in] Amount of burst frames per cycle during initialization burst /default-parm{EC_DEFAULTPARM_dwBurstBulk}

dwClntId: int
[in] Reserved

dwDcStartTimeGrid: int
[in] Time grid [ns] to align DC start time. With the help of the grid, several EtherCAT networks can be synchronized without a random shift value between the SYNC signals.

dwDevLimit: int
dwDevLimit

dwSettleTime: int
dwSettleTime

dwTimeout: int
[in] Timeout [ms] for the DC initialization in which time offsets and propagation delays are evaluated /defaultparm{EC_DEFAULTPARM_dwDcTimeout}

dwTotalBurstLength: int
[in] Overall amount of burst frames sent /defaultparm{EC_DEFAULTPARM_dwTotalBurstLength}

class EcWrapperPythonTypes.**DN_EC_T_DC_STARTTIME_CB_DESC**

pvContext: object
[in] Arbitrarily application-defined parameter passed to pfnCallback

class EcWrapperPythonTypes.**DN_EC_T_DC_SYNC_NTFY_DESC**
Distributed clocks (DC)

IsInSync: int
Wire or'ed deviation value does not meet limit requirements. The limit is set by emDcConfigure().

Type
[in] EC_TRUE

Type
Wire or'ed deviation value meets limit requirements. EC_FALSE

IsNegative: int
Deviation value is positive

Type
[in] EC_TRUE

Type
Deviation value is negative, EC_FALSE

SlaveProp: *EcWrapperPythonTypes.DN_EC_T_SLAVE_PROP*
[in] Slave properties in case of out of sync

dwDeviation: int
[in] Wire or'ed deviation value [ns] in case of in sync

class EcWrapperPythonTypes.**DN_EC_T_DEFTYPE**(*value*) **ARRAY_OF_BYT**

ARRAY_OF_BYTE

ARRAY_OF_DINT = 610
ARRAY_OF_DINT

ARRAY_OF_INT = 608
ARRAY_OF_INT

ARRAY_OF_SINT = 609
ARRAY_OF_SINT

ARRAY_OF_UDINT = 611
ARRAY_OF_UDINT

ARRAY_OF_UINT = 11
ARRAY_OF_UINT

BACKUP_PARAMETER = 43
BACKUP_PARAMETER

BIT1 = 48
BIT1

BIT10 = 57
BIT10

BIT11 = 58
BIT11

BIT12 = 59
BIT12

BIT13 = 60
BIT13

BIT14 = 61
BIT14

BIT15 = 62
BIT15

BIT16 = 63
BIT16

BIT2 = 49
BIT2

BIT3 = 50
BIT3

BIT4 = 51
BIT4

BIT5 = 52
BIT5

BIT6 = 53
BIT6

BIT7 = 54
BIT7

BIT8 = 55
BIT8

BIT9 = 56
BIT9

BITARR16 = 46
BITARR16

BITARR32 = 47
BITARR32

BITARR8 = 45
BITARR8

BOOLEAN = 1
BOOLEAN

BYTE = 30
BYTE

COMMAND = 37
COMMAND

DIAGNOSIS_OBJECT = 642
DIAGNOSIS_OBJECT

DOMAIN = 15
DOMAIN

DWORD = 32
DWORD

ENUM = 40
ENUM

ERROR_SETTING = 641
ERROR_SETTING

EXTERNAL_SYNC_SETTINGS = 644
EXTERNAL_SYNC_SETTINGS

EXTERNAL_SYNC_STATUS = 643
EXTERNAL_SYNC_STATUS

FSOECOMMPAR = 646
FSOECOMMPAR

FSOEFRAME = 645
FSOEFRAME

GUID = 29
GUID

HISTORY = 642
HISTORY

IDENTITY = 35
IDENTITY

INTEGER16 = 3
INTEGER16

INTEGER24 = 16
INTEGER24

INTEGER32 = 4
INTEGER32

INTEGER40 = 18
INTEGER40

INTEGER48 = 19
INTEGER48

INTEGER56 = 20
INTEGER56

INTEGER64 = 21
INTEGER64

INTEGER8 = 2
INTEGER8

MODULAR_DEVICE_PROFILE = 44
MODULAR_DEVICE_PROFILE

NULL = 0
NULL

OCTETSTRING = 10
OCTETSTRING

PDOCOMPAR = 39
PDOCOMPAR

PDOMAPPING = 33
PDOMAPPING

REAL32 = 8
REAL32

REAL64 = 17
REAL64

RECORD = 42
RECORD

SMPAR = 41
SMPAR

TIMEDIFFERENCE = 13
TIMEDIFFERENCE

TIMEOFDAY = 12
TIMEOFDAY

UNICODESTRING = 11
UNICODESTRING

UNSIGNED16 = 6
UNSIGNED16

UNSIGNED24 = 22
UNSIGNED24

UNSIGNED32 = 7
UNSIGNED32

UNSIGNED40 = 24
UNSIGNED40

UNSIGNED48 = 25
UNSIGNED48

UNSIGNED56 = 26
UNSIGNED56

UNSIGNED64 = 27
UNSIGNED64

UNSIGNED8 = 5
UNSIGNED8

VISIBLESTRING = 9
VISIBLESTRING

WORD = 31
WORD

class EcWrapperPythonTypes.**DN_EC_T_EEPROM_ACCESS_DENIED_DESC**
Slave EEPROM access denied

SlaveProp: *EcWrapperPythonTypes.DN_EC_T_SLAVE_PROP*
Slave properties

SlavePropParent: *EcWrapperPythonTypes.DN_EC_T_SLAVE_PROP*
Slave properties of parent slave

wPortAtParent: int
Port at parent slave

class EcWrapperPythonTypes.**DN_EC_T_EEPROM_CHECKSUM_ERROR_DESC**
Slave EEPROM checksum error

SlaveProp: *EcWrapperPythonTypes.DN_EC_T_SLAVE_PROP*
Slave properties

class EcWrapperPythonTypes.**DN_EC_T_EOM_COMMUNICATION_TYPE**(*value*) **BCppDummyCom**

BCppDummyCommType

RAW = 1
RAW communication

UDP = 0
UDP communication

class EcWrapperPythonTypes.**DN_EC_T_ETHERNET_TAP_TYPE**(*value*) **AutoDetect =**

Auto detect TAP type. If no suitable type is detected, eEthTap_Generic is used.

Beckhoff_ET2000 = 3
Beckhoff ET2000 Ethernet probe

Dummy = 4294967295
Dummy

Generic = 2
Generic Ethernet switch

Hilscher_netANALYZER = 5
Not Supported

Kunbus_TapCurious = 4
Kunbus TAP Curious Ethernet probe

PortMirror = 6
Port mirror Ethernet probe with separate monitoring ports for TX and RX. Only RX port supported.

Unknown = 0
Unknown type

class EcWrapperPythonTypes.**DN_EC_T_FRAMELOSS_AFTER_SLAVE_NTFY_DESC**
SlaveProp: *EcWrapperPythonTypes.DN_EC_T_SLAVE_PROP*
Slave properties

wPort: int
Port

class EcWrapperPythonTypes.**DN_EC_T_FRAME_RSPERR_DESC**
EErrorType: *EcWrapperPythonTypes.DN_EC_T_FRAME_RSPERR_TYPE*
Frame response error type

bIsCyclicFrame: bool
Indicates whether the lost frame was a cyclic frame

byEcCmdHeaderIdxAct: int
eRspErr_WRONG_IDX and eRspErr_UNEXPECTED

Type
Actually received IDX value, this value is only valid for acyclic frames in case of EErrorType is equal to

byEcCmdHeaderIdxSet: int
Expected IDX value, this value is valid only for acyclic frames in case EErrorType is not equal to eRspErr_UNEXPECTED

dwTaskId: int
Cyclic/TaskId). Only valid if bIsCyclicFrame is set

Type
Cyclic Task ID (ENI

wCycFrameNum: int
Number of the lost cyclic frame from the ENI

class EcWrapperPythonTypes.**DN_EC_T_FRAME_RSPERR_TYPE**(*value*)
EtherCAT frame response error descriptor

BCppDummy = 4294967295
BCppDummy

CRC = 8
Ethernet frame with CRC error received

FOREIGN_SRC_MAC = 6
Frame with MAC from other Master received

FRAME_RETRY = 4
Ethernet frame will be re-sent (timeout, frame loss)

NON_ECAT_FRAME = 7
Non EtherCAT frame received

NO_RESPONSE = 1
No Ethernet frame received (timeout, frame loss)

RETRY_FAIL = 5
All retry mechanism fails to re-sent acyclic frames

UNDEFINED = 0
Undefined

UNEXPECTED = 3
Unexpected frame was received

WRONG_IDX = 2
Wrong IDX value in acyclic frame

class EcWrapperPythonTypes.**DN_EC_T_FSOE_CONNECTION_STATE**(*value*)
FSOE state (see ETG.5001.4 v0.1.1, table 9)

BCppDummy = 4294967295
BCppDummy

CONNECTION = 2
CONNECTION

DATA = 4
DATA

FAILSAFE = 5
FAILSAFE

PARAMETER = 3
PARAMETER

RESET = 0
RESET

SESSION = 1
SESSION

class EcWrapperPythonTypes.**DN_EC_T_FSOE_CONNECTION_STATECHANGED_NTFY_DESC**
FSoE connection state changed descriptor

eConnStateNew: *EcWrapperPythonTypes.DN_EC_T_FSOE_CONNECTION_STATE*
New connection state

eConnStateOld: *EcWrapperPythonTypes.DN_EC_T_FSOE_CONNECTION_STATE*
New connection state

oSlaveProp: *EcWrapperPythonTypes.DN_EC_T_SLAVE_PROP*
Slave properties

wFsoeSlaveSafeAddress: int
Safe address of the FSoE slave

class EcWrapperPythonTypes.**DN_EC_T_GET_SLAVE_INFO**
ecatGetSlaveInfo

aPortSlaveIds: List[int]
[out] slave IDs connected to ports

abyDeviceName: str
abyDeviceName

bDc64Support: bool
[out] Slave does support 64Bit DC

bDcSupport: bool
[out] Slave does support DC

bIsHCGroupPresent: bool
[out] The hot connect group of the slave is present

bIsMailboxSlave: bool
[out] Whether slave support mailboxes

bIsOptional: bool
[out] Slave is in an optional hot connect group

bIsPresent: bool
[out] Slave is currently present on bus

byESCType: int
[out] ESC Node Type

byPortDescriptor: int
[out] Port Descriptor (ESC register 0x0007)

dwErrorCode: int
[out] Last return code

dwMbxInSize: int
[out] Mailbox 1 input size

dwMbxInSize2: int
[out] Mailbox 2 input size

dwMbxOutSize: int
[out] Mailbox 1 output size

dwMbxOutSize2: int
[out] Mailbox 2 output size

dwPdOffsIn: int
[out] Process data offset of Input Data (in bits)

dwPdOffsIn2: int
[out] Process data offset of Input data (in bits)

dwPdOffsIn3: int
[out] Process data offset of Input Data (in bits)

dwPdOffsIn4: int
[out] Process data offset of Input Data (in bits)

dwPdOffsOut: int
[out] Process data offset of Output Data (in bits)

dwPdOffsOut2: int
[out] Process data offset of Output Data (in bits)

dwPdOffsOut3: int
[out] Process data offset of Output Data (in bits)

dwPdOffsOut4: int
[out] Process data offset of Output Data (in bits)

dwPdSizeIn: int
[out] Process data size of Input Data (in bits)

dwPdSizeIn2: int
[out] Process data size of Input Data (in bits)

dwPdSizeIn3: int
[out] Process data size of Input Data (in bits)

dwPdSizeIn4: int
[out] Process data size of Input Data (in bits)

dwPdSizeOut: int
[out] Process data size of Output Data

dwPdSizeOut2: int
[out] Process data size of Output Data

dwPdSizeOut3: int
[out] Process data size of Output Data

dwPdSizeOut4: int
[out] Process data size of Output Data

dwProductCode: int
Product Code

dwRevisionNumber: int
Revision Number

dwSBErrorCode: int
[out] Last return value from SB

dwScanBusStatus: int
Status during last Bus Scan

dwSerialNumber: int
Serial Number

dwSlaveId: int
[out] Slave ID

dwSystemTimeDifference: int
dwSystemTimeDifference

dwVendorId: int
Vendor Identification

wAlStatusCode: int
[out] AL Status Code (ESC register 0x0134)

wAlStatusValue: int
[out] AL Status Register Value (ESC register 0x0130)

wAliasAddress: int
[out] Slave alias address

wCfgPhyAddress: int
[out] Slave configured station address

wNumProcessVarsInp: int
[out] Number of output process data variables

wNumProcessVarsOutp: int
[out] Number of input process data variables

wPhysAddress: int
[out] Slave station address

wPortState: int
[out] port link state (SB Instance)

wSupportedMbxProtocols: int
AoE, EoE, CoE, FoE, SoE

Type
[out] Supported mailbox protocols

class EcWrapperPythonTypes.**DN_EC_T_HC_DETECTALLGROUP_NTFY_DESC**

adwGroupMask: List[int]
Bitmask of first 3200 Groups

dwGroupCount: int
Total number of Groups

dwGroupMask: int
Bitmask of first 32 Groups. 1 = present, 0 = absent.

dwGroupsPresent: int
Number of connected groups

dwResultCode: int
Result of Group detection

class EcWrapperPythonTypes.**DN_EC_T_HC_GROUP_INFO**

bIsMandatory: bool
[out] EC_TRUE if HC group is mandatory, EC_FALSE otherwise

bIsPresent: bool
[out] EC_TRUE if HC group is present, EC_FALSE otherwise

dwHcGroupIdx: int
[out] Index of Hot Connect group

dwNumOfSlaves: int
[out] Number of Slaves within the group

szGroupName: str
[out] Hot connect group name (from ENI file)

wHeadSlaveStationAddress: int
[out] Physical address of the head slave of the HC group

wIdentificationAdo: int
[out] Ado of Identification check

wIdentificationVal: int
[out] Val of Identification check

class EcWrapperPythonTypes.**DN_EC_T_INITCMD_ERR_DESC**

EErrorType: *EcWrapperPythonTypes.DN_EC_T_INITCMD_ERR_TYPE*
Init command error type

SlaveProp: *EcWrapperPythonTypes.DN_EC_T_SLAVE_PROP*
Slave properties

achStateChangeName: str
State change description when the error occurred

szComment: str
Comment (ENI)

class EcWrapperPythonTypes.**DN_EC_T_INITCMD_ERR_TYPE**(*value*)
EtherCAT init command response error descriptor

ALSTATUS_ERROR = 5
Error in AL Status Register

BCppDummy = 4294967295
BCppDummy

FAILED = 3
Init commands failed (state could not be reached)

MBXSLAVE_ERROR = 6
Error at Mailbox Init Command

NOT_PRESENT = 4
Slave not present on the bus

NO_ERROR = 0
No error

NO_RESPONSE = 1
No Ethernet frame received (timeout)

PDI_WATCHDOG = 7
PDI watchdog has been detected

VALIDATION_ERR = 2
Validation error (invalid slave command response)

class EcWrapperPythonTypes.**DN_EC_T_INITRASPARAMS**
RAS parameters

class EcWrapperPythonTypes.**DN_EC_T_INIT_MASTER_PARMS**

MasterRedParms: *EcWrapperPythonTypes.DN_EC_T_MASTER_RED_PARMS*
[in] Master Redundancy parameters

PerfMeasInternalParms: *EcWrapperPythonTypes.DN_EC_T_PERF_MEAS_INTERNAL_PARMS*
[in] Internal performance measurement parameters

bApiLockByApp: bool
application is responsible for locking.

Type
[in] Lock pending API against emDeinitMaster(). EC_FALSE (default)

Type
locked internally. EC_TRUE

bNoConsecutiveAcycFrames: bool
Don't process and send acyclic frames in the same cycle to reduce CPU load.

Type
[in] EC_FALSE(default)

Type
no restriction. EC_TRUE

dwAdditionalEoEEndpoints: int
[in] Additional EoE endpoints

dwBusCycleTimeNsec: int
[in] Bus cycle time [ns]

dwEcatCmdMaxRetries: int
[in] Maximum retries to send pending EtherCAT command frames /default-parm{EC_DEFAULTPARM_dwMaxAcycCmdRetries}

dwEcatCmdTimeout: int
[in] Timeout [ms] to send pending EtherCAT command frames /default-parm{EC_DEFAULTPARM_dwAcycCmdTimeout}

dwLogLevel: *EcWrapperPythonTypes.DN_EC_LOG_LEVEL*
dwLogLevel

dwMaxAcycBytesPerCycle: int
[in] Maximum bytes sent during eUsrJob_SendAcycFrames per cycle /default-parm{EC_DEFAULTPARM_dwMaxAcycBytesPerCycle}

dwMaxAcycCmdsPerCycle: int
[in] Maximum commands sent during eUsrJob_SendAcycFrames per cycle /default-parm{EC_DEFAULTPARM_dwMaxAcycCmdsPerFrame}

dwMaxAcycFramesPerCycle: int
[in] Maximum frames sent during eUsrJob_SendAcycFrames per cycle /default-parm{EC_DEFAULTPARM_dwMaxAcycFramesPerCycle}

dwMaxAcycFramesQueued: int
[in] Maximum queued acyclic frames

dwMaxBusSlaves: int
[in] Maximum pre-allocated bus slave objects /defaultparm{EC_DEFAULTPARM_dwMaxBusSlaves}

dwMaxQueuedS2SMbxTfer: int
[in] S2S Fifo number of entries /defaultparm{EC_DEFAULTPARM_dwMaxQueuedS2SMbxTfer}

dwMaxS2SMbxSize: int
[in] Size of the queued S2S mailbox in bytes /defaultparm{EC_DEFAULTPARM_dwMaxS2SMbxSize}

dwMaxSlavesProcessedPerCycle: int
[in] Maximum slave-related state machine calls per cycle (default = all)

oLinkParms: *EcWrapperPythonTypes.DN_EC_T_LINK_PARMS*
oLinkParms

oLinkParmsRed: *EcWrapperPythonTypes.DN_EC_T_LINK_PARMS*
oLinkParmsRed

wMaxSlavesProcessedPerBusScanStep: int
[in] Maximum slave-related calls per cycle during bus scans (default = all)

class EcWrapperPythonTypes.**DN_EC_T_INIT_MBXGATEWAY_PARMS**
MBX Gateway Parameters

class EcWrapperPythonTypes.**DN_EC_T_INIT_PARMS**
Abstract initalization parameters

class EcWrapperPythonTypes.**DN_EC_T_INIT_PARMS_MASTER**
EcMaster initalization parameters

class EcWrapperPythonTypes.**DN_EC_T_INIT_PARMS_MASTER_RAS_SERVER**
RAS server of EcMaster initalization parameters

class EcWrapperPythonTypes.**DN_EC_T_INIT_PARMS_MBXGATEWAY_CLIENT**
Mailbox gateway client of EcMaster initalization parameters

class EcWrapperPythonTypes.**DN_EC_T_INIT_PARMS_MBXGATEWAY_SERVER**
Mailbox gateway server of EcMaster initalization parameters

class EcWrapperPythonTypes.**DN_EC_T_INIT_PARMS_MONITOR**
EcMonitor initalization parameters

class EcWrapperPythonTypes.**DN_EC_T_INIT_PARMS_MONITOR_RAS_SERVER**
RAS server of EcMonitor initalization parameters

class EcWrapperPythonTypes.**DN_EC_T_INIT_PARMS_RAS_CLIENT**
RAS client initalization parameters

class EcWrapperPythonTypes.**DN_EC_T_INIT_PARMS_SIMULATOR**
EcSimulator initalization parameters

class EcWrapperPythonTypes.**DN_EC_T_INIT_PARMS_SIMULATOR_RAS_SERVER**
RAS server of EcSimulator initalization parameters

class EcWrapperPythonTypes.**DN_EC_T_INNER_IPADDR**
by: List[int]
IPv4 address (endianness independent)

class EcWrapperPythonTypes.**DN_EC_T_IOCTL**(*value*)
Specifies IOCTL codes

ACTIVATE_VOE_RECV_FIFO = 81

ADDITIONAL_VARIABLES_FOR_SPECIFIC_DATA_TYPES = 58

ADD_BRD_SYNC_WINDOW_MONITORING = 20

ADD_COE_INITCMD = 26

ADD_PADDING_TO_DC_FRAMES = 80

ALL_SLAVES_MUST_REACH_MASTER_STATE = 49

CHECK_OEM_KEY = 16711686

CLEAR_MASTER_INFO_COUNTERS = 63

CLR_SLVSTATISTICS = 46

DCM_GET_LOG = 458756

```
DCM_REGISTER_STARTSO_CALLBACK = 458755
DCM_REGISTER_TIMESTAMP = 458753
DCM_UNREGISTER_TIMESTAMP = 458754
DC_ENABLE_ALL_DC_SLV = 196628
DC_FIRST_DC_SLV_AS_REF_CLOCK = 196626
DC_SETSYNCSTARTOFFSET = 196625
DC_SET_RED_PROPAGDELAY = 196629
DC_SHIFT_SYSTIME = 196624
DC_SLAVE_CONTROLLED_BY_PDI = 196627
DC_SLV_SYNC_DEVLIMIT_GET = 196615
DC_SLV_SYNC_DEVLIMIT_SET = 196614
DC_SLV_SYNC_STATUS_GET = 196613
FORCE_BROADCAST_DESTINATION = 42
FORCE_SLVSTAT_COLLECTION = 44
GET_CYCLIC_CONFIG_INFO = 15
GET_FAST_CONTEXT = 16711684
GET_LINKLAYER_MODE = 16
GET_MASTER_MAX_STATE = 74
GET_NOTIFICATION_ENABLED = 54
GET_PDMEMORYSIZE = 40
GET_SLVSTATISTICS = 45
GET_SLVSTAT_PERIOD = 66
HC_CONFIGURETIMEOUTS = 393219
HC_GETMODE = 393218
HC_SETMODE = 393217
INITIATE_UPDATE_ALL_SLAVE_STATE = 19
ISLINK_CONNECTED = 6
IS_MAIN_LINK_CONNECTED = 24
IS_RED_LINK_CONNECTED = 25
IS_SLAVETOSLAVE_COMM_CONFIGURED = 17
LINKLAYER_DBG_MSG = 10
MASTEROD_SET_VALUE = 51
MONITOR_SET_COESDO_CLEAR_ON_READ = 3439329281
MONITOR_SET_IGNORE_COE_API_TIMEOUTS = 3439329282
ONLY_PROCESS_DATA_IN_IMAGE = 21
REALLOC_MBX_QUEUE = 84
REGISTERCLIENT = 2
REGISTER_CYCFRAME_RX_CB = 22
REGISTER_FRAMECALLBACK = 82
```

```
REGISTER_PDMEMORYPROVIDER = 41
REG_DC_SLV_SYNC_NTFY = 196611
RESET_SLAVE = 13
SB_ACCEPT_TOPOLOGY_CHANGE = 327696
SB_BUSCNF_GETSLAVE_INFO = 327685
SB_BUSCNF_GETSLAVE_INFO_EEP = 327686
SB_BUSCNF_GETSLAVE_INFO_EX = 327689
SB_ENABLE = 327687
SB_GET_BUS_SLAVE_PORTS_INFO = 327702
SB_NOTIFY_UNEXPECTED_BUS_SLAVES = 327697
SB_RESTART = 327681
SB_SET_BUSCNF_READ_PROP = 327692
SB_SET_BUSCNF_VERIFY = 327683
SB_SET_BUSCNF_VERIFY_PROP = 327684
SB_SET_ERROR_ON_CROSSED_LINES = 327694
SB_SET_ERROR_ON_LINE_BREAK = 327703
SB_SET_IDENTIFICATION_FALLBACK_ENABLED = 327704
SB_SET_JUNCTION_REDUNDANCY_MODE = 327701
SB_SET_NOTIFY_NOT_CONNECTED_PORT_A = 327699
SB_SET_NOTIFY_UNEXPECTED_CONNECTED_PORT = 327700
SB_SET_NO_DC_SLAVES_AFTER_JUNCTION = 327705
SB_SET_RED_ENHANCED_LINE_CROSSED_DETECTION_ENABLED = 327698
SB_SET_TOPOLOGY_CHANGED_DELAY = 327693
SB_SET_TOPOLOGY_CHANGED_DELAYS = 327706
SB_SET_TOPOLOGY_CHANGE_AUTO_MODE = 327695
SB_STATUS_GET = 327682
SET_ADJUST_CYCFRAMES_AFTER_SLAVES_STATE_CHANGE = 65
SET_AUTO_ACK_AL_STATUS_ERROR_ENABLED = 61
SET_AUTO_ADJUST_CYCCMD_WKC_ENABLED = 62
SET_AUTO_ADJUST_MBX_STATE_COUNT_ENABLED = 89
SET_AUTO_REFRESH_LINK_STATUS = 86
SET_BUS_CYCLE_TIME = 57
SET_BUS_DIAGNOSIS_COUNTERS_OVERFLOW_ENABLED = 78
SET_CLEAR_ERROR_REGISTERS_INITCMD_ENABLED = 88
SET_CONFIGDATA_MEMORY_POOL = 75
SET_COPYINFO_IN_SENDCYCFRAMES = 56
SET_CYCFRAME_LAYOUT = 52
SET_DIAGMSG_CODE_BASE = 77
SET_EOE_DEFFERED_SWITCHING_ENABLED = 67
```

SET_FRAME_LOSS_SIMULATION = 16711681

SET_FRAME_RESPONSE_ERROR_NOTIFY_MASK = 8

SET_GENENI_ASSIGN_EEPROM_BACK_TO_ECAT = 60

SET_GEN_ENI_PARM = 83

SET_IGNORE_INPUTS_ON_WKC_ERROR = 59

SET_IGNORE_SWAPDATA = 72

SET_MAILBOX_POLLING_CYCLES = 71

SET_MASTER_DEFAULT_TIMEOUTS = 55

SET_MASTER_MAX_STATE = 73

SET_MBX_RETRYACCESS_COUNT = 47

SET_MBX_RETRYACCESS_PERIOD = 48

SET_NEW_BUSSLAVES_TO_INIT = 68

SET_NOTIFICATION_CTL = 50

SET_NOTIFICATION_ENABLED = 53

SET_OEM_KEY = 16711685

SET_RXFRAME_LOSS_SIMULATION = 16711682

SET_SENDCYCFRAMES_BEFORE_PROCESSALLRXFRAMES = 79

SET_SLAVE_MAX_STATE = 85

SET_SLVSTAT_PERIOD = 43

SET_SPLIT_FRAME_PROCESSING_ENABLED = 64

SET_STOP_TRANSITION_ON_PDI_WATCHDOG = 76

SET_TXFRAME_LOSS_SIMULATION = 16711683

SET_ZERO_INPUTS_ON_FRAME_LOSS = 87

SET_ZERO_INPUTS_ON_WKC_ERROR = 70

SET_ZERO_INPUTS_ON_WKC_ZERO = 69

SIMULATOR_GET_MBX_PROCESS_CTL = 3422552066

SIMULATOR_SET_MBX_PROCESS_CTL = 3422552065

SLAVE_LINKMESSAGES = 14

SLV_ALIAS_ENABLE = 327690

UNREGISTERCLIENT = 3

UNREG_DC_SLV_SYNC_NTFY = 196612

class EcWrapperPythonTypes.**DN_EC_T_IPADDR**

sAddr: ***EcWrapperPythonTypes.DN_EC_T_INNER_IPADDR***

sAddr

class EcWrapperPythonTypes.**DN_EC_T_JUNCTION_RED_CHANGE_DESC**

SlaveProp: ***EcWrapperPythonTypes.DN_EC_T_SLAVE_PROP***

Slave properties

bLineBreak: bool

EC_TRUE for line break, EC_FALSE for line fixed

wPort: int

Port

class EcWrapperPythonTypes.**DN_EC_T_LINE_CROSSED_DESC**

SlaveProp: *EcWrapperPythonTypes.DN_EC_T_SLAVE_PROP*
Slave properties

wInputPort: int
Port where frame was received

class EcWrapperPythonTypes.**DN_EC_T_LINKLAYER_TIMING**(*value*) **BCppDummy =**

BCppDummy

TMR = 1
Real-time Ethernet Driver Timer

TTS = 1
Real-time Ethernet Driver Time Triggered Send

Undefined = 0
Link Layer Timing is undefined must be TTS or TMR

class EcWrapperPythonTypes.**DN_EC_T_LINKMODE**(*value*) **BCppDummy =**

BCppDummy

INTERRUPT = 1
Link is in interrupt mode and is triggered by interrupts

POLLING = 2
Link is in polling mode and is polled periodically

UNDEFINED = 0
Link is in an undefined state, must be polling or interrupt

class EcWrapperPythonTypes.**DN_EC_T_LINK_PARMS**

ToNic()

class EcWrapperPythonTypes.**DN_EC_T_LINK_PARMS_BCMNETXTREME**

dwRxBuffers: int
Receive buffer count. Must be a power of 2, maximum 1024.

dwTxBuffers: int
Transmit buffer count. Must be a power of 2, maximum 1024.

class EcWrapperPythonTypes.**DN_EC_T_LINK_PARMS_DEFAULT**

class EcWrapperPythonTypes.**DN_EC_T_LINK_PARMS_DPDK**

bDontCheckLinkStatus: bool
Don't check link status (forced)

bEalInitDeinitByApp: bool
DPDK EAL layer is initialized and deinitialized by user App

bSetPromiscuousMode: bool
Change promiscuous mode setting

dwPortId: int
DPDK port ID

wRxBufferCnt: int
defaults to DPDK internal setting

Type
Receive buffer count, 0

wTxBufferCnt: int
default to DPDK internal setting

Type
Transmit buffer count, 0

class EcWrapperPythonTypes.**DN_EC_T_LINK_PARMS_EOM**

abyHostIpAddress: List[int]
Host IP Address

abyTargetIpAddress: List[int]
IP address of the EOM coupler

abyTargetMac: List[int]
MAC address of the EOM coupler

eCommType: *EcWrapperPythonTypes.DN_EC_T_EOM_COMMUNICATION_TYPE*
Communication type

oHwLinkParms: *EcWrapperPythonTypes.DN_EC_T_LINK_PARMS_NIC*
oHwLinkParms

class EcWrapperPythonTypes.**DN_EC_T_LINK_PARMS_I8254X**

bDisableLocks: bool
Disable locks

bNotUseDmaBuffers: bool
bNotUseDmaBuffers

dwAutoNegTimeout: int
Timeout [ms] for auto negotiation

wRxBufferCnt: int
default to 96

Type
Receive buffer count, 0

wRxBufferSize: int
buffer optimized for standard Ethernet frame.

Type
Receive buffer size for a single Ethernet frame. 0

wTxBufferCnt: int
default to 96

Type
Transmit buffer count, 0

wTxBufferSize: int
buffer optimized for standard Ethernet frame.

Type
Transmit buffer size for a single Ethernet frame. 0

class EcWrapperPythonTypes.**DN_EC_T_LINK_PARMS_INTELGBE**

bDisableLocks: bool
Disable locks

bNoPhyCtrlOnConnect: bool
No PHY control (e.g. PHY reset, PHY PM settings, Gbits Ctrl) on link connection detected

Type
EC_TRUE

bNotUseDmaBuffers: bool
bNotUseDmaBuffers

dwAutoNegTimeout: int
Timeout [ms] for auto negotiation

wRxBufferCnt: int
default to 96

Type
Receive buffer count, 0

wRxBufferSize: int
buffer optimized for standard Ethernet frame.

Type
Receive buffer size for a single Ethernet frame. 0

wTxBufferCnt: int
default to 96

Type
Transmit buffer count, 0

wTxBufferSize: int
buffer optimized for standard Ethernet frame.

Type
Transmit buffer size for a single Ethernet frame. 0

class EcWrapperPythonTypes.**DN_EC_T_LINK_PARMS_MULTIPLIER**

dwPort: int
Used CU2508 downlink port

eMultiplierType: *EcWrapperPythonTypes.DN_EC_T_MULTIPLIER_TYPE*
Type of the Multiplier Ethernet port

oHwLinkParms: *EcWrapperPythonTypes.DN_EC_T_LINK_PARMS_NIC*
oHwLinkParms

class EcWrapperPythonTypes.**DN_EC_T_LINK_PARMS_NDIS**

abyIpAddress: List[int]
IP address of network adapter

bDisableForceBroadcast: bool
FF:FF:FF:FF

Type
Don't change target MAC address to FF

Type
FF

bDisablePromiscuousMode: bool
Disable adapter promiscuous mode

szAdapterName: str
ServiceName of network adapter, see HKLM/SOFTWARE/Microsoft/Windows NT/CurrentVersion/NetworkCards in registry (zero terminated)

class EcWrapperPythonTypes.**DN_EC_T_LINK_PARMS_NIC**

class EcWrapperPythonTypes.**DN_EC_T_LINK_PARMS_REMOTE**

abyDstIpAddress: List[int]
Destination adapter IP address (connect)

abyMac: List[int]
MAC address

abySrcIpAddress: List[int]
Source adapter IP address (listen)

dwRxBufferCnt: int
Frame buffer count for interrupt service thread (IST)

dwSocketType: int
Socket type. Must be set to 1 (emrassocktype_tcp).

wDstPort: int
Destination port number (connect)

wSrcPort: int
Source port number (listen)

class EcWrapperPythonTypes.**DN_EC_T_LINK_PARMS_SIMULATOR**

PerfMeasInternalParms:
EcWrapperPythonTypes.DN_EC_T_PERF_MEAS_INTERNAL_PARMS
Internal performance measurement parameters

abyMac: List[int]
MAC address

aoLinkParms: List[*EcWrapperPythonTypes.DN_EC_T_LINK_PARMS_NIC*]
aoLinkParms

bConnectHcGroups: bool
Connect hot connect groups in topology (floating group heads to free ports)

bDisableProcessDataImage: bool
Don't allocate Process Data Image at simulator (legacy support, CiA402 simulation)

bJobsExecutedByApp: bool
implicitly by emllSimulator

Type
EC_FALSE

Type
esExecJob explicitly called by application, EC_TRUE

bStartRasServer: bool
bStartRasServer

dwBusCycleTimeNsec: int
Cycle time of simulator job task

dwRasPriority: int
RAS server threads priority

dwRasStackSize: int
RAS server threads stack size

dwRxBufferCnt: int
Frame buffer count for IST

dwSimulatorAddress: int
Reserved

oDeviceConnection:
EcWrapperPythonTypes.DN_EC_T_SIMULATOR_DEVICE_CONNECTION_DESC
See EC_SIMULATOR_DEVICE_CONNECTION_TYPE…

oRasCpuAffinityMask: int
RAS server threads CPU affinity mask

qwOemKey: int
64 bit OEM key (optional)

szEniFilename: str
szEniFilename

szLicenseKey: str
License key (zero terminated string)

wRasServerPort: int
RAS server port

class EcWrapperPythonTypes.**DN_EC_T_LINK_PARMS_SOCKRAW**

bDisableForceBroadcast: bool
FF:FF:FF:FF

Type
Don't change target MAC address to FF

Type
FF

bReplacePaddingWithNopCmd: bool
Prevent adding Ethernet padding to work-around EtherCAT corruption bugs from native Linux driver(s)

bSetCoalescingParms: bool
Set Coalescing parameters to enhance the link layer performance

bSetPromiscuousMode: bool
Enable promiscuous mode at network adapter

bUsePacketMmapRx: bool
Use PACKET_MMAP PACKET_RX_RING for receive

szAdapterName: str
Native ETH device name, e.g. 'eth0' (zero terminated)

class EcWrapperPythonTypes.**DN_EC_T_LINK_PARMS_TAP**

abyMac: List[int]
MAC address

dwRxBufferCnt: int
Frame buffer count for IST

szAdapterGuid: str
GUID of virtual interface to connect (zero terminated)

szAdapterName: str
Native tap device name, e.g. 'tap0' (zero terminated)

class EcWrapperPythonTypes.**DN_EC_T_LINK_PARMS_VLAN**

eVlanMode: *EcWrapperPythonTypes.DN_EC_T_VLAN_MODE*
Vlan switch operation mode

oHwLinkParms: *EcWrapperPythonTypes.DN_EC_T_LINK_PARMS_NIC*
oHwLinkParms

wVlanId: int
VLAN Identifier (VID)

wVlanPrio: int
VLAN Priority code point (PCP)

class EcWrapperPythonTypes.**DN_EC_T_LINK_PARMS_WINPCAP**

abyIpAddress: List[int]
IP address

bFilterInput: bool
Filter input if EC_TRUE. This is needed on some system if the winpcap library notify the sent frames to the network adapter.

szAdapterId: str
{XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX}

Type
Adapter ID, format

class EcWrapperPythonTypes.**DN_EC_T_LINK_VAR_INFO**

dwApplVarBitOffs: int
[in] Bit offset of variable

pbyApplVar: object
[in] Pointer to application variable where process variable should be linked to

pvContext: object
[in] Arbitrarily application-defined parameter

wApplVarBitSize: int
[in] Size of variable (in bits)

wApplVarType: int
[in] Type of application variable

class EcWrapperPythonTypes.**DN_EC_T_LOG_PARMS**
dwLogLevel: int
[in] Log level. See /ref EC_LOG_LEVELS 'EC_LOG_LEVEL…'

class EcWrapperPythonTypes.**DN_EC_T_MAILBOX_STATISTICS**
See also Object 0x2006 Mailbox Statistics Object

Aoe: *EcWrapperPythonTypes.DN_EC_T_STATISTIC_TRANSFER_DUPLEX*
AoE mailbox transfer statistics

Coe: *EcWrapperPythonTypes.DN_EC_T_STATISTIC_TRANSFER_DUPLEX*
CoE mailbox transfer statistics

Eoe: *EcWrapperPythonTypes.DN_EC_T_STATISTIC_TRANSFER_DUPLEX*
EoE mailbox transfer statistics

Foe: *EcWrapperPythonTypes.DN_EC_T_STATISTIC_TRANSFER_DUPLEX*
FoE mailbox transfer statistics

RawMbx: *EcWrapperPythonTypes.DN_EC_T_STATISTIC_TRANSFER_DUPLEX*
Raw mailbox transfer statistics

Soe: *EcWrapperPythonTypes.DN_EC_T_STATISTIC_TRANSFER_DUPLEX*
SoE mailbox transfer statistics

Voe: *EcWrapperPythonTypes.DN_EC_T_STATISTIC_TRANSFER_DUPLEX*
VoE mailbox transfer statistics

aRes: *EcWrapperPythonTypes.DN_EC_T_STATISTIC_TRANSFER_DUPLEX*
aRes

class EcWrapperPythonTypes.**DN_EC_T_MASTER_INFO**
ecatGetMasterInfo

BusDiagnosisInfo: *EcWrapperPythonTypes.DN_EC_T_BUS_DIAGNOSIS_INFO*
Bus diagnostics

MailboxStatistics: *EcWrapperPythonTypes.DN_EC_T_MAILBOX_STATISTICS*
Mailbox statistics

RedundancyDiagnosisInfo:
EcWrapperPythonTypes.DN_EC_T_REDUNDANCY_DIAGNOSIS_INFO
Redundancy diagnosis info

dwMasterStateSummary: int
Master state summary

dwMasterVersion: int
Master version

dwMasterVersionType: int
Master version type. See /ref EC_VERSION_TYPES 'EC_VERSION_TYPE'

wMasterStateSummaryDiagBitOffset: int
Bit offset of Master state summary in diagnosis image

wMasterStateSummaryDiagBitSize: int
Bit offset size of Master state summary in diagnosis image

class EcWrapperPythonTypes.**DN_EC_T_MASTER_RED_PARMS**
Master Redundancy initialization parameters, see ecatInitMaster

bEnabled: bool
[in] Set to EC_TRUE if using Master Redundancy

bUpdateSlavePdIn: bool
[in] Set to EC_TRUE to update Slave INPUT Process Data Image at INACTIVE Master (from CMF)

bUpdateSlavePdOut: bool
[in] Set to EC_TRUE to update Slave OUTPUT Process Data Image at INACTIVE Master (from CSF)

dwMaxAcycFramesPerCycle: int
[in] Maximum acyclic Master Red frames sent per cycle

wMasterPdInSize: int
[in] INACTIVE to ACTIVE Master Process Data (in bytes)

wMasterPdOutSize: int
[in] ACTIVE to INACTIVE Master Process Data (in bytes)

class EcWrapperPythonTypes.**DN_EC_T_MBOXRCV**

class EcWrapperPythonTypes.**DN_EC_T_MBOX_FOE_ABORT_DESC**
EtherCAT FoE error

SlaveProp: *EcWrapperPythonTypes.DN_EC_T_SLAVE_PROP*
Slave properties

achErrorString: str
FoE error string

dwErrorCode: int
Error code

class EcWrapperPythonTypes.**DN_EC_T_MBOX_SDO_ABORT_DESC**
EtherCAT Sdo abort

SlaveProp: *EcWrapperPythonTypes.DN_EC_T_SLAVE_PROP*
Slave properties

bySubIndex: int
SDO object sub index

dwErrorCode: int
Error code

wObjIndex: int
SDO object index

class EcWrapperPythonTypes.**DN_EC_T_MBXRCV_INVALID_DATA_DESC**
Invalid mailbox data received error

SlaveProp: *EcWrapperPythonTypes.DN_EC_T_SLAVE_PROP*
Slave properties

class EcWrapperPythonTypes.**DN_EC_T_MBXTFER_STATUS**(*value*)
EtherCAT mailbox status values

BCppDummy = 4294967295
BCppDummy

Idle = 0
Mailbox transfer object not in use

Pend = 1
Mailbox transfer in process

TferDone = 2
Mailbox transfer completed

TferReqError = 3
Mailbox transfer request error

TferWaitingForContinue = 4
Mailbox transfer waiting for continue, object owned by application

class EcWrapperPythonTypes.**DN_EC_T_MBXTFER_TYPE**(*value*)
EtherCAT mailbox type values

AOE_READ = 17
AoE read

AOE_READWRITE = 19
AoE read/write

AOE_WRITE = 18
AoE write

AOE_WRITECONTROL = 20
AoE write control

BCppDummy = 4294967295
BCppDummy

COE_EMERGENCY = 5
CoE emergency request

COE_GETENTRYDESC = 4
CoE Get object entry description

COE_GETOBDESC = 3
CoE Get object description

COE_GETODLIST = 2
CoE Get object dictionary list

COE_RX_PDO = 6
CoE RxPDO

COE_SDO_DOWNLOAD = 0
CoE SDO download

COE_SDO_UPLOAD = 1
CoE SDO upload

EOE_RECEIVE_FRAME = 28
EoE receive frame

EOE_SEND_FRAME = 27
EoE send frame

EOE_SET_IP = 29
EoE set IP address

FOE_DOWNLOAD_REQ = 26
FoE download request

FOE_FILE_DOWNLOAD = 8
FoE download

FOE_FILE_UPLOAD = 7
FoE upload

FOE_SEG_DOWNLOAD = 22
FoE segmented download

FOE_SEG_UPLOAD = 23
FoE segmented upload

FOE_UPLOAD_REQ = 25
FoE upload request

RAWMBX = 21
Raw mbx

S2SMBX = 24
S2S mbx

SOE_EMERGENCY = 14
SoE emergency

SOE_NOTIFICATION = 13
SoE notification

SOE_READREQUEST = 9
SoE read request

SOE_READRESPONSE = 10
SoE read response

SOE_WRITEREQUEST = 11
SoE write request

SOE_WRITERESPONSE = 12
SoE write response

VOE_MBX_READ = 15
VoE read

VOE_MBX_WRITE = 16
VoE write

class EcWrapperPythonTypes.**DN_EC_T_MBX_DATA_COE**

bCompleteAccess: bool
Complete access

bySubIndex: int
Object subindex

wIndex: int
Object index

wStationAddress: int
Station address of the slave

class EcWrapperPythonTypes.**DN_EC_T_MBX_DATA_FOE**

dwBusyDone: int
0 … dwBusyEntire

Type
[out] If slave is busy

dwBusyEntire: int
Slave is busy

Type
[out] If dwBusyEntire > 0

dwFileSize: int
[out] File size

dwRequestedBytes: int
[out] Amount of bytes to be provided by the application

dwTransferredBytes: int
[out] Amount of transferred bytes

szBusyComment: str
[out] Busy Comment from slave

wStationAddress: int
[out] Station address of the slave

class EcWrapperPythonTypes.**DN_EC_T_MBX_DATA_FOE_REQ**

dwPassword: int
[out] FoE read/write request password

szFileName: str
[out] Name of the file to be read/write

wStationAddress: int
[out] Station address of the slave

class EcWrapperPythonTypes.**DN_EC_T_MBX_PARMS**

Coe: *EcWrapperPythonTypes.DN_EC_T_MBX_PARMS_COE*
[in] CoE parameters

Foe: *EcWrapperPythonTypes.DN_EC_T_MBX_PARMS_FOE*
[in] FoE parameters

dwMemoryPoolSize: int
dwMemoryPoolSize

class EcWrapperPythonTypes.**DN_EC_T_MBX_PARMS_COE**

bDisableNotifications: bool
[in] Disable all CoE related EC_NOTIFY_MBOXRCV notifications

bDisableODStorage: bool
[in] Disable storage of CoE objects in the internal object dictionary

class EcWrapperPythonTypes.**DN_EC_T_MBX_PARMS_FOE**

bDisableFileStorage: bool
[in] Disable storage of FoE transfers as a file on the file system

bDisableNotifications: bool
[in] Disable all FoE related EC_NOTIFY_MBOXRCV notifications

dwMaxQueuedMbxTransfers: int
defaults to 32.

Type
[in] Maximum number of queued single FoE mailbox transfers that be used as a file write buffer. 0

class EcWrapperPythonTypes.**DN_EC_T_MONITOR_INIT_PARMS**

MbxParms: *EcWrapperPythonTypes.DN_EC_T_MBX_PARMS*
[in] Mailbox monitoring parameters

PerfMeasInternalParms:
EcWrapperPythonTypes.DN_EC_T_PERF_MEAS_INTERNAL_PARMS
[in] Internal performance measurement parameters

WorkerThreadParms: *EcWrapperPythonTypes.DN_EC_T_WORKER_THREAD_PARMS*
[in] Internal worker thread parameters

bApiLockByApp: bool
application is responsible for locking.

Type
[in] Lock pending API against emonDeinitMonitor(). EC_FALSE (default)

Type
locked internally. EC_TRUE

bProcessRestructuredCyclicCmds: bool
[in] Support processing of restructured cyclic command layout. All cyclic commands are processed as long as they are within the process data boundary of the ENI.

dwBacktraceFrames: int
dwBacktraceFrames

dwBusCycleTimeNsec: int
[in] Bus cycle time [ns]

dwCommunicationTimeoutMsec: int
disables monitoring.

Type
[in] Timeout [ms] for communication on the Ethernet TAP. 0

Type
defaults to 3 sec, EC_WAITINFINITE

dwLogLevel: *EcWrapperPythonTypes.DN_EC_LOG_LEVEL*
dwLogLevel

dwMaxBusSlaves: int
[in] Maximum pre-allocated bus slave objects

eEthTapType: *EcWrapperPythonTypes.DN_EC_T_ETHERNET_TAP_TYPE*
[in] Type of Ethernet TAP

oLinkParms: *EcWrapperPythonTypes.DN_EC_T_LINK_PARMS*
oLinkParms

szFileStoragePath: str
defaults to ".

Type
[in] Path used to store records and files, e.g. FoE transfers. EC_NULL

wMainTapPortIn: int
X1.0 = 10, X1.1 = 11, X2.0 = 20, …, X4.1 = 41. For other supported TAPs, this is the port number starting from 0. If both wMainTapPortIn and wMainTapPortOut are 0, no filtering is performed

Type
[in] TAP IN port. For ET2000

wMainTapPortOut: int
[in] TAP OUT port. See wMainTapPortIn

class EcWrapperPythonTypes.**DN_EC_T_MONITOR_STATUS**

bNextCyclicEntryReceived: bool
[out] Indicates whether all frames from the next EtherCAT cycle have been received and have not yet been processed

bNextFramesReceived: bool
[out] Indicates whether further unprocessed frames form the next EtherCAT cycle were received

bPdCommunicationDetected: bool
[out] Process Data communication detected

bPdoAssigned: bool
[out] PDO assignment of all slaves detected and validated

bPdoMapped: bool
[out] PDO mapping (SyncSM/FMMU) of all slaves detected and validated

bTopologyKnown: bool
[out] Topology successfully detected and validated

dwCyclesProcessed: int
[out] Number of EtherCAT cycles processed

eEthTapType: *EcWrapperPythonTypes.DN_EC_T_ETHERNET_TAP_TYPE*
[out] Type of Ethernet TAP. Detected TAP if EC_T_MONITOR_INIT_PARMS::eEthTapType = eEthTap_AutoDetect is set.

wDeviceStatesDetected: int
[out] Bit mask that indicates which slave states already detected/monitored, see /ref DEVICE_STATES

wEthTapPositionAutoIncAddr: int
[out] Ethernet tap position as auto increment address

class EcWrapperPythonTypes.**DN_EC_T_MSU_INFO**

dwBitOffsIn: int
[out] Process Data Image INPUTs bit offset

dwBitOffsOut: int
[out] Process Data Image OUTPUTs bit offset

dwBitSizeIn: int
[out] Process Data Image INPUTs bit length

dwBitSizeOut: int
[out] Process Data Image OUTPUTs bit length

wMsuId: int
Slave/ProcessData/RxPdo[1..4]@Su, Slave/ProcessData/TxPdo[1..4]@Su, comment at Cyclic/Frame/Cmd)

Type
[out] Master Sync Unit ID (ENI

wWkcStateDiagOffsIn: int
0 = Process Data valid, 1 = Process Data invalid)

Type
[out] INPUTs WkcState bit offset in Diagnosis Image. (Bit values

wWkcStateDiagOffsOut: int
0 = Process Data valid, 1 = Process Data invalid)

Type
[out] OUTPUTs WkcState bit offset in Diagnosis Image. (Bit values

class EcWrapperPythonTypes.**DN_EC_T_MULTIPLIER_TYPE**(*value*) **Cu2508 = 0**

Beckhoff CU2508 port multiplier

Et2000 = 1
Beckhoff ET2000 industrial Ethernet multi-channel probe

class EcWrapperPythonTypes.**DN_EC_T_NOTIFYPARMS**

dwInBufSize: int
[in] Size of notification input parameters in bytes

dwOutBufSize: int
[in] Size of buffer at pbyOutBuf in bytes

pCallerData: object
[in] Client depending caller data parameter. This pointer is one of the parameters when the client registers.

pbyInBuf: object
[in] Notification input parameters

pbyOutBuf: object
[out] Buffer for notification output (result)

pdwNumOutData: int
amount not set by notification.

Type
[out] Amount of bytes written to pbyOutBuf by notification. EC_NULL

class EcWrapperPythonTypes.**DN_EC_T_OBJ2002**
Object 0x2002 Bus Diagnosis Object

dwAcyclicDatagrams: int
dwAcyclicDatagrams

dwAcyclicFrames: int
dwAcyclicFrames

dwCRC32ConfigCheckSum: int
dwCRC32ConfigCheckSum

dwClearCounters: int
dwClearCounters

dwCyclicDatagrams: int
dwCyclicDatagrams

dwCyclicFrames: int
dwCyclicFrames

dwLostFrames: int
dwLostFrames

dwNumCfgSlaves: int
dwNumCfgSlaves

dwNumDCSlavesFound: int
dwNumDCSlavesFound

dwNumMbxSlaves: int
dwNumMbxSlaves

dwNumSlavesFound: int
dwNumSlavesFound

dwRXFrames: int
dwRXFrames

dwTXFrames: int
dwTXFrames

wSubIndex0: int
wSubIndex0

class EcWrapperPythonTypes.**DN_EC_T_OBJ2003**
Object 0x2003 Redundancy Diagnosis Object

byLineBreak: int
byLineBreak

byRedEnabled: int
byRedEnabled

wNumOfMainSlaves: int
wNumOfMainSlaves

wNumOfRedSlaves: int
wNumOfRedSlaves

wSubIndex0: int
wSubIndex0

class EcWrapperPythonTypes.**DN_EC_T_OBJ2005**
Object 0x2005 MAC Address Object

abyCfgDestination: List[int]
abyCfgDestination

abyCfgSource: List[int]
abyCfgSource

abyHardware: List[int]
abyHardware

abyRedHardware: List[int]
abyRedHardware

wSubIndex0: int
wSubIndex0

class EcWrapperPythonTypes.**DN_EC_T_OBJ2020**
Object 0x2020 Master Initialization parameters

bAllocSendFrameActive: bool
bAllocSendFrameActive

bPollingModeActive: bool
bPollingModeActive

dwApplicationVersion: int
dwApplicationVersion

dwBusCycleTimeUsec: int
dwBusCycleTimeUsec

dwEcatCmdMaxRetries: int
dwEcatCmdMaxRetries

dwEcatCmdTimeout: int
dwEcatCmdTimeout

dwEoeTimeout: int
dwEoeTimeout

dwFoeBusyTimeout: int
dwFoeBusyTimeout

dwMasterVersion: int
dwMasterVersion

dwMaxAcycCmdsPerFrame: int
dwMaxAcycCmdsPerFrame

dwMaxAcycFramesQueued: int
dwMaxAcycFramesQueued

dwMaxBusSlave: int
dwMaxBusSlave

dwMaxSlavesProcessedPerCycle: int
dwMaxSlavesProcessedPerCycle

dwStateChangeDebug: int
dwStateChangeDebug

szDriverIdent: str
szDriverIdent

wSubIndex0: int
wSubIndex0

class EcWrapperPythonTypes.**DN_EC_T_OBJ2200**
Object 0x2200 Bus Load Statistics

dwBytesPerCycleAct: int
dwBytesPerCycleAct

dwBytesPerCycleMax: int
dwBytesPerCycleMax

dwBytesPerCycleMin: int
dwBytesPerCycleMin

dwBytesPerSecondAct: int
dwBytesPerSecondAct

dwBytesPerSecondMax: int
dwBytesPerSecondMax

dwBytesPerSecondMin: int
dwBytesPerSecondMin

wClearCounters: int
wClearCounters

wSubIndex0: int
wSubIndex0

class EcWrapperPythonTypes.**DN_EC_T_OBJ3XXX**
Object 0x3000 - 0x3FFF Slave Objects

bDC64Support: bool
bDC64Support

bDCSupport: bool
bDCSupport

bEnableLinkMsgs: bool
bEnableLinkMsgs

bEntryValid: bool
bEntryValid

bErrFlagSet: bool
bErrFlagSet

bMailboxSupport: bool
bMailboxSupport

bSlaveIsOptional: bool
bSlaveIsOptional

bSlaveIsPresent: bool
bSlaveIsPresent

bSyncPulseActive: bool
bSyncPulseActive

byESCType: int
byESCType

byEcatProcUnitErrorCounter: int
byEcatProcUnitErrorCounter

byFmmusSupported: int
byFmmusSupported

byFwdRxErrorCounter0: int
byFwdRxErrorCounter0

byFwdRxErrorCounter1: int
byFwdRxErrorCounter1

byFwdRxErrorCounter2: int
byFwdRxErrorCounter2

byFwdRxErrorCounter3: int
byFwdRxErrorCounter3

byLostLinkCounter0: int
byLostLinkCounter0

byLostLinkCounter1: int
byLostLinkCounter1

byLostLinkCounter2: int
byLostLinkCounter2

byLostLinkCounter3: int
byLostLinkCounter3

byPDIErrorCounter: int
byPDIErrorCounter

byPortDescriptor: int
byPortDescriptor

byRamSizeKb: int
byRamSizeKb

bySyncManagersSupported: int
bySyncManagersSupported

dwCurState: int
dwCurState

dwDCSync0Period: int
dwDCSync0Period

dwDCSync1Period: int
dwDCSync1Period

dwErrorCode: int
dwErrorCode

dwHotConnectGroupId: int
dwHotConnectGroupId

dwPdOffsIn: int
dwPdOffsIn

dwPdOffsOut: int
dwPdOffsOut

dwPdSizeIn: int
dwPdSizeIn

dwPdSizeOut: int
dwPdSizeOut

dwProductCode: int
dwProductCode

dwReqState: int
dwReqState

dwRevisionNo: int
dwRevisionNo

dwSBErrorCode: int
dwSBErrorCode

dwSerialNo: int
dwSerialNo

dwSystemTimeDifference: int
dwSystemTimeDifference

dwVendorID: int
dwVendorID

szDeviceName: str
szDeviceName

wAliasAddr: int
wAliasAddr

wAutoIncAddr: int
wAutoIncAddr

wConfigPhysAddr: int
wConfigPhysAddr

wMbxSupportedProtocols: int
wMbxSupportedProtocols

wPhysAddr: int
wPhysAddr

wPortState: int
wPortState

wRxErrorCounter0: int
wRxErrorCounter0

wRxErrorCounter1: int
wRxErrorCounter1

wRxErrorCounter2: int
wRxErrorCounter2

wRxErrorCounter3: int
wRxErrorCounter3

wSubIndex0: int
wSubIndex0

class EcWrapperPythonTypes.**DN_EC_T_OBJ8XXX**
Object 0x8000 - 0x8FFF Slave Objects (configured slaves) 'Modular Device Profiles'

byFlags: int
byFlags

byLinkPreset: int
byLinkPreset

dwDeviceType: int
dwDeviceType

dwProductCode: int
dwProductCode

dwRevision: int
dwRevision

dwSerial: int
dwSerial

dwVendorID: int
dwVendorID

szName: str
szName

szType: str
szType

wFixedStationAddr: int
wFixedStationAddr

wMailboxInSize: int
wMailboxInSize

wMailboxOutSize: int
wMailboxOutSize

wSubIndex0: int
wSubIndex0

class EcWrapperPythonTypes.**DN_EC_T_OBJ9XXX**
Modular Device Profiles: EtherCAT Master - internal slave object element (connected slaves)

dwProductCode: int
dwProductCode

dwRevision: int
dwRevision

dwSerial: int
dwSerial

dwVendorID: int
dwVendorID

wDLStatus: int
wDLStatus

wFixedStationAddr: int
wFixedStationAddr

wSubIndex0: int
wSubIndex0

class EcWrapperPythonTypes.**DN_EC_T_OBJAXXX**
Modular Device Profiles: EtherCAT Master - internal slave object element (slave diagnosis)

bDisableAutomaticLinkControl: int
bDisableAutomaticLinkControl

byLinkConnStatus: int
byLinkConnStatus

byLinkControl: int
byLinkControl

dwAbnormalStateCounter: int
dwAbnormalStateCounter

dwCRCErrorCounterPort0: int
dwCRCErrorCounterPort0

dwCRCErrorCounterPort1: int
dwCRCErrorCounterPort1

dwCRCErrorCounterPort2: int
dwCRCErrorCounterPort2

dwCRCErrorCounterPort3: int
dwCRCErrorCounterPort3

dwCyclicWCErrorCounter: int
dwCyclicWCErrorCounter

dwSlaveNotPresentCounter: int
dwSlaveNotPresentCounter

wALControl: int
wALControl

wALStatus: int
wALStatus

wFixedAddressConnPort0: int
wFixedAddressConnPort0

wFixedAddressConnPort1: int
wFixedAddressConnPort1

wFixedAddressConnPort2: int
wFixedAddressConnPort2

wFixedAddressConnPort3: int
wFixedAddressConnPort3

wLastALStatusCode: int
wLastALStatusCode

wSubIndex0: int
wSubIndex0

class EcWrapperPythonTypes.**DN_EC_T_OBJF000**
Modular Device Profiles: EtherCAT Master - modular device profile

dwGeneralCfg: int
dwGeneralCfg

dwGeneralInfo: int
dwGeneralInfo

wIndexDistance: int
wIndexDistance

wMaxModuleCnt: int
wMaxModuleCnt

wSubIndex0: int
wSubIndex0

class EcWrapperPythonTypes.**DN_EC_T_OBJF02X**
Modular Device Profiles: EtherCAT Master - configured address list

awStationAddr: List[int]
awStationAddr

wSubIndex0: int
wSubIndex0

class EcWrapperPythonTypes.**DN_EC_T_OBJF04X**
Modular Device Profiles: EtherCAT Master - detected address list

awStationAddr: List[int]
awStationAddr

wSubIndex0: int
wSubIndex0

class EcWrapperPythonTypes.**DN_EC_T_PACKETCAPTURE_INFO**

dwCyclesProcessed: int
[out] Number of EtherCAT cycles processed

eStatus: *EcWrapperPythonTypes.DN_EC_T_PACKETCAPTURE_STATUS*
[out] Status of packet capture processing

qwBytesProcessed: int
[out] Number of processed bytes from the current packet capture file

qwFileSize: int
[out] File size[bytes] of the current packet capture

qwFrameNumberCur: int
[out] Last processed frame number from the current packet capture file

qwFrameNumberTotal: int
[out] Total number of processed frames from all capture files

qwTimeStamp: int
[out] Time stamp [ns] of the last processed frame from the current packet capture file

szFileName: str
[out] File name of current processed capture

class EcWrapperPythonTypes.**DN_EC_T_PACKETCAPTURE_PARMS**

bReadMultipleFiles: bool
bReadMultipleFiles

dwMaxFileSize: int
[in] Creates a new file every time the number of bytes written exceeds this limit. Disabled with a value set to 0.

dwMaxFrameCnt: int
[in] Creates a new file every time the number of frames written exceeds this limit. Disabled with a value set to 0.

dwRingBufferFileCnt: int
dwRingBufferFileCnt

szFileName: str
[in] File name. Supported formats are .pcap or .pcapng.

class EcWrapperPythonTypes.**DN_EC_T_PACKETCAPTURE_STATUS**(*value*) **Dummy = 4294**

Dummy

Finished = 3
Packet capture processing finished

NotLoaded = 1
No packet capture loaded

Running = 2
Packet capture processing running

Unknown = 0
Unknown packet capture status

class EcWrapperPythonTypes.**DN_EC_T_PDIWATCHDOG_DESC**
PDI Watchdog expired

SlaveProp: *EcWrapperPythonTypes.DN_EC_T_SLAVE_PROP*
Slave properties

class EcWrapperPythonTypes.**DN_EC_T_PERF_MEAS_APP_PARMS**

class EcWrapperPythonTypes.**DN_EC_T_PERF_MEAS_COUNTER_PARMS**

qwFrequency: int
[in] Frequency in Hz used by the timer in GetCounterTicks

class EcWrapperPythonTypes.**DN_EC_T_PERF_MEAS_FLAG**(*value*)
An enumeration.

LONG_TIMER = 2

OFFSET = 1

class EcWrapperPythonTypes.**DN_EC_T_PERF_MEAS_HISTOGRAM**
aBinsObj: List[int]
aBinsObj

dwBinCount: int
length of aBins

qwMaxTicks: int
Results above qwMaxTicks are stored in the last bin

qwMinTicks: int
Results below qwMinTicks are stored in the first bin

class EcWrapperPythonTypes.**DN_EC_T_PERF_MEAS_HISTOGRAM_PARMS**
dwBinCount: int
[in] Amount of bins to use for the histogram

qwMaxTicks: int
[in] Results above qwMaxTicks are stored in the last bin

qwMinTicks: int
[in] Results below qwMinTicks are stored in the first bin

class EcWrapperPythonTypes.**DN_EC_T_PERF_MEAS_INFO**
dwBinCountHistogram: int
length of Histogram Bins

dwFlags: int
Flags associated with the benchmark (See EC_T_PERF_MEAS_FLAG…)

eUserJob: ***EcWrapperPythonTypes.DN_EC_T_USER_JOB***
UserJob associated with the benchmark

qwFrequency: int
Frequency in Hz used by the timer

szName: str
Name of the benchmark

class EcWrapperPythonTypes.**DN_EC_T_PERF_MEAS_INFO_PARMS**
dwFlags: int
[in] Flags associated with the benchmark (See EC_T_PERF_MEAS_FLAG…)

szName: str
[in] Performance counter name

class EcWrapperPythonTypes.**DN_EC_T_PERF_MEAS_INTERNAL_PARMS**
CounterParms: ***EcWrapperPythonTypes.DN_EC_T_PERF_MEAS_COUNTER_PARMS***
[in] Timer function settings. When not provided OsMeasGetCounterTicks is used.

HistogramParms: ***EcWrapperPythonTypes.DN_EC_T_PERF_MEAS_HISTOGRAM_PARMS***
[in] Histogram settings. When not provided the histogram is disabled.

bEnabled: bool
[in] Enable/disable internal performance counters

class EcWrapperPythonTypes.**DN_EC_T_PERF_MEAS_VAL**
qwAvgTicks: int
[ticks]

qwCurrTicks: int
[ticks]

qwMaxTicks: int
[ticks]

qwMinTicks: int
[ticks]

class EcWrapperPythonTypes.**DN_EC_T_PORT_OPERATION_NTFY_DESC**
SlaveProp: *EcWrapperPythonTypes.DN_EC_T_SLAVE_PROP*
Slave properties

dwResult: int
Result of request

dwTferId: int
Transfer ID. For every new port operation a unique ID has to be assigned. This ID can be used after completion to identify the transfer.

wPortStateNew: int
New state of the slave ports

wPortStateOld: int
Old state of the slave ports

class EcWrapperPythonTypes.**DN_EC_T_PROCESS_VAR_INFO**
emGetSlaveInpVarInfo / emGetSlaveOutpVarInfo

bIsInputData: bool
[out] Determines whether the found process variable is an input variable or an output variable

nBitOffs: int
[out] Bit offset in the process data image

nBitSize: int
[out] Size in bits of the found process variable

szName: str
[out] Name of the found process variable

wDataType: int
[out] Data type of the found process variable (according to ETG.1000, section 5). See also EcType.h, DEFTYPE_BOOLEAN.

wFixedAddr: int
[out] Station address of the slave that is owner of this variable

class EcWrapperPythonTypes.**DN_EC_T_PROCESS_VAR_INFO_EX**
CopyInfo: *EcWrapperPythonTypes.DN_EC_T_CYC_COPY_INFO*
[out] Copy Info if applied to the variable

bIsInputData: bool
[out] Determines whether the found process variable is an input variable or an output variable

dwTaskId: int
[out] ID of task where process variable is located

nBitOffs: int
[out] Bit offset in the process data image

nBitSize: int
[out] Size in bits of the found process variable

szName: str
[out] Name of the found process variable

wDataType: int
[out] Data type of the found process variable (according to ETG.1000, section 5). See also EcType.h, DEFTYPE_BOOLEAN.

wFixedAddr: int
[out] Station address of the slave that is owner of this variable

wIndex: int
[out] Object index

wMasterSyncUnit: int
Slave/ProcessData/RxPdo[1..4]@Su, Slave/ProcessData/TxPdo[1..4]@Su, comment at Cyclic/Frame/Cmd)

Type
[out] Master Sync Unit ID (ENI

wPdoIndex: int
[out] Index of PDO (process data object)

wRes1: int
wRes1

wSubIndex: int
[out] Object sub index

wWkcStateDiagOffs: int
[out] Bit offset in the diagnostic image (API GetDiagnosisImagePtr)

class EcWrapperPythonTypes.**DN_EC_T_PROFILE_CHANNEL_INFO**

szDisplayName: str
[out] Display name

wAddInfo: int
'high word of CoE object 0x1000'

Type
[out] AddInfo

wProfileNo: int
'low word of CoE object 0x1000'

Type
[out] ProfileNo

class EcWrapperPythonTypes.**DN_EC_T_PTS_SRV_START_PARMS**
Start parameter for the Pass-Through-Server

dwPtsThreadPriority: int
dwPtsThreadPriority

oIpAddr: *EcWrapperPythonTypes.DN_EC_T_IPADDR*
oIpAddr

wPort: int
wPort

class EcWrapperPythonTypes.**DN_EC_T_RAS_CONNECTION_INFO**

dwAccessControlActive: int
dwAccessControlActive

dwAccessLevel: int
dwAccessLevel

class EcWrapperPythonTypes.**DN_EC_T_RAS_EXCEPTIONDESC**

class EcWrapperPythonTypes.**DN_EC_T_RAWCMDRESPONSE_NTFY_DESC**

dwAddr: int
[in] Address Field

dwCmdIdx: int
[in] Command Index Field

dwInvokeId: int
[in] Invoke Id from callee. Only lower 16 bits are relevant

dwLength: int
[in] Length of data portion (11 relevant bits)

dwResult: int
[in] EC_E_NOERROR on success, error code otherwise

dwWkc: int
[in] Received working counter

pbyData: object
[in] Pointer to data portion within a PDU. The callback function has to store the data into application memory, the data pointer will be invalid after returning from the callback.

class EcWrapperPythonTypes.**DN_EC_T_REDUNDANCY_DIAGNOSIS_INFO**
See also Object 0x2003 Redundancy Diagnosis Object

bLineBreakDetected: bool
Line Break Detected

bRedEnabled: bool
Cable Redundancy Enabled

dwMainSlaveCnt: int
Main Line Slave Count

dwRedSlaveCnt: int
Red Line Slave Count

dwRes: List[int]
dwRes

class EcWrapperPythonTypes.**DN_EC_T_REFCLOCK_PRESENCE_NTFY_DESC**
Distributed clocks (DC) Reference Clock Presence

SlaveProp: *EcWrapperPythonTypes.DN_EC_T_SLAVE_PROP*
[in] Slave properties

bPresent: bool
[in] Reference clock present

class EcWrapperPythonTypes.**DN_EC_T_REGISTERRESULTS**
Client register result

dwClntId: int
[out] Client ID

dwPDInSize: int
[out] Size of process data input memory (in bytes)

dwPDOutSize: int
[out] Size of process data output memory (in bytes)

pbyPDIn: object
[out] Pointer to process data input memory

pbyPDOut: object
[out] Pointer to process data output memory

class EcWrapperPythonTypes.**DN_EC_T_RELEASE_FORCED_PROCESSDATA_NTFY_DESC**
bOutput: bool
Input Bits

Type
EC_TRUE

Type
Output Bits, EC_FALSE

dwOffset: int
Offset of the forced Bits

wBitLength: int
Bit length

class EcWrapperPythonTypes.**DN_EC_T_S2SMBX_ERROR_DESC**
S2S Mailbox Error

SlaveProp: *EcWrapperPythonTypes.DN_EC_T_SLAVE_PROP*
Slave properties of requesting slave

dwErrorCode: int
Error code

wTargetFixedAddress: int
Fixed address of the target slave

class EcWrapperPythonTypes.**DN_EC_T_SB_MISMATCH_DESC**

bIdentificationError: bool
[in] Identification command sent to slave but failed

dwBusProdCode: int
[in] Unexpected slave (bus) product code

dwBusRevisionNo: int
[in] Unexpected slave (bus) revision number

dwBusSerialNo: int
[in] Unexpected slave (bus) serial number

dwBusVendorId: int
[in] Unexpected slave (bus) vendor ID

dwCfgProdCode: int
[in] Missing slave (config) Product code

dwCfgRevisionNo: int
[in] Missing slave (config) Revision Number

dwCfgSerialNo: int
[in] Missing slave (config) Serial Number

dwCfgVendorId: int
[in] Missing slave (config) Vendor ID

wBusAIncAddress: int
[in] Unexpected slave (bus) auto-inc address

wBusFixedAddress: int
[in] Unexpected slave (bus) station address

wCfgAIncAddress: int
[in] Missing slave (config) Auto-Increment Address

wCfgFixedAddress: int
[in] Missing slave (config) station Address

wIdentificationAdo: int
[in] Identification register

wIdentificationVal: int
[in] Last identification value read from slave according to the last used identification method

wIdentificationValExpected: int
[in] Identification expected value

wPrevAIncAddress: int
[in] Previous slave auto-increment address

wPrevFixedAddress: int
[in] Previous slave station address

wPrevPort: int
[in] Previous slave station address

class EcWrapperPythonTypes.**DN_EC_T_SB_SLAVEINFO_DESC**

dwProductCode: int
[out] Product Code stored in the EEPROM at offset 0x000A

dwRevisionNumber: int
[out] Revision number stored in the EEPROM at offset 0x000C (Not read by default!)

dwScanBusStatus: int
[out] Scan bus status (determined in the latest scan bus) emNotify EC_NOTIFY_SB_STATUS

dwSerialNumber: int
[out] Serial number stored in the EEPROM at offset 0x000E (Not read by default!)

dwVendorId: int
[out] Vendor Identification stored in the EEPROM at offset 0x0008

class EcWrapperPythonTypes.**DN_EC_T_SB_SLAVEINFO_REQ_DESC**

eInfoEntry: *EcWrapperPythonTypes.DN_EC_T_eINFOENTRY*
[in] Info Entry to read

wAutoIncAddress: int
[in] Auto-Increment address of the slave

class EcWrapperPythonTypes.**DN_EC_T_SB_SLAVEINFO_RES_DESC**

dwInfoLength: int
[in, out] Length of Info Field (buffer, actually read length)

eInfoEntry: *EcWrapperPythonTypes.DN_EC_T_eINFOENTRY*
[out] Info entry read

pbyInfo: object
[out] Pointer to Info (-1 if no info found in XML file)

class EcWrapperPythonTypes.**DN_EC_T_SB_STATUS_NTFY_DESC**

dwResultCode: int
no bus scan executed, #EC_E_BUSCONFIG_MISMATCH: bus configuration mismatch result of scan-bus

Type
[in] #EC_E_NOERROR

Type
success, #EC_E_NOTREADY

dwSlaveCount: int
[in] Number of slaves connected to the bus

class EcWrapperPythonTypes.**DN_EC_T_SELFTESTSCAN_PARMS**

bDetectBadConnections: bool
[in] Execute the bad connection detection after self-test

bMeasureRoundtripTimeForSingleFrame: bool
[in] Execute roundtrip time calculation for single frame

dwFrameCount: int
[in] Total number of frames sent during the self-test. Default value is 1500. A value of 0 sets the default value.

dwFrameSizeMax: int
[in] Max frame size [bytes]. Default value is 1514. A value of 0 sets the default value.

dwFrameSizeMin: int
[in] Min frame size [bytes]. Default value is 60. A value of 0 sets the default value.

dwFrameSizeStep: int
[in] Size [bytes] by which the frame increases or decreases continuously during the self-test. Default value is 1. A value of 0 sets the default value.

dwTimeout: int
[in] Timeout [ms], 0 or EC_NOWAIT defaults to 500ms

qwFrameRoundtripTimeAvg: int
[out] Roundtrip time average [us]. Time taken from sending to receiving the frame (master application level).

qwFrameRoundtripTimeMax: int
[out] Roundtrip time maximum [us]. Time taken from sending to receiving the frame (master application level).

qwFrameRoundtripTimeMin: int
[out] Roundtrip time minimum [us]. Time taken from sending to receiving the frame (master application level).

class EcWrapperPythonTypes.**DN_EC_T_SIMULATOR_DEVICE_CONNECTION_DESC**

byPort: int
Port A-D

Type
0…3

dwInstanceID: int
EC-Simulator Instance ID

dwType: int
EC_SIMULATOR_DEVICE_CONNECTION_TYPE…

wCfgFixedAddress: int
EC-Simulator Configuration (ENI/EXI)

class EcWrapperPythonTypes.**DN_EC_T_SIMULATOR_INIT_PARMS**

PerfMeasInternalParms:
EcWrapperPythonTypes.DN_EC_T_PERF_MEAS_INTERNAL_PARMS
[in] Internal performance measurement parameters

aoLinkParms: List[*EcWrapperPythonTypes.DN_EC_T_LINK_PARMS*]
aoLinkParms

bApiLockByApp: bool
application is responsible for locking.

Type
[in] Lock pending API against esDeinitSimulator(). EC_FALSE (default)

Type
locked internally. EC_TRUE

bConnectHcGroups: bool
[in] Connect hot connect groups in topology (floating group heads to free ports)

bDisableProcessDataImage: bool
[in] Disable Process Data Image (Process Data Variables not supported)

dwBusCycleTimeNsec: int
[in] Bus cycle time in nanoseconds [ns]

dwLogLevel: *EcWrapperPythonTypes.DN_EC_LOG_LEVEL*
dwLogLevel

dwSimulatorAddress: **int**
[in] Reserved

oDeviceConnection:
EcWrapperPythonTypes.DN_EC_T_SIMULATOR_DEVICE_CONNECTION_DESC
oDeviceConnection

class EcWrapperPythonTypes.**DN_EC_T_SIM_SLAVE_CFG_INFO**

aPortConnection:
List[*EcWrapperPythonTypes.DN_EC_T_SIMULATOR_DEVICE_CONNECTION_DESC*]
/EtherCATConfig/ExtendedConfig/Slaves/Slave/PortConnection)

Type
[out] Explicit port connection (optional) (EXI

bIgnoreCoeDownloadError: **bool**
/EtherCATConfig/ExtendedConfig/Slaves/Slave/Mailbox/CoE@IgnoreDownloadError)

Type
[out] Slave ignores CoE download errors (EXI

bPowerOff: **bool**
/EtherCATConfig/ExtendedConfig/Slaves/Slave@PowerOff)

Type
[out] Slave powered off on startup (EXI

bSimulated: **bool**
/EtherCATConfig/ExtendedConfig/Slaves/Slave/Simulated)

Type
[out] Slave is simulated (EXI

szApplicationName: **str**
/EtherCATConfig/ExtendedConfig/Slaves/Slave/Application/Name)

Type
[out] Configured slave application name (EXI

szApplicationParms: **str**
/EtherCATConfig/ExtendedConfig/Slaves/Slave/Application/Parameter)

Type
[out] Configured slave application parameters (EXI

wFixedAddress: **int**
/EtherCATConfig/Config/Slave/Info/PhysAddr)

Type
[out] Slave's station address (ENI/EXI

class EcWrapperPythonTypes.**DN_EC_T_SIM_SLAVE_INFO**

oCfg: *EcWrapperPythonTypes.DN_EC_T_SIM_SLAVE_CFG_INFO*
[out] Config Info (ENI/EXI)

oStatus: *EcWrapperPythonTypes.DN_EC_T_SIM_SLAVE_STATUS_INFO*
[out] Status Info

class EcWrapperPythonTypes.**DN_EC_T_SIM_SLAVE_STATUS_INFO**

aPortConnection:
List[*EcWrapperPythonTypes.DN_EC_T_SIMULATOR_DEVICE_CONNECTION_DESC*]
[out] See esConnectPorts()

bIsPowerOn: **bool**
[out] Slave is powered on. See esPowerSlave().

bIsPresent: bool
[out] Slave is present in topology segment and connected to the network. See esConnectPorts(), Hot Connect.

wAlStatusCodeReq: int
[out] AL Status (0x0134) requested from Simulator application. See esSetSimSlaveState().

wAlStatusReq: int
[out] AL Status (0x0130) requested from Simulator application. See esSetSimSlaveState().

class EcWrapperPythonTypes.**DN_EC_T_SLAVEREGISTER_TRANSFER_NTFY_DESC**

bRead: bool
Write register transfer

Type
EC_TRUE

Type
Read register, EC_FALSE

dwResult: int
Result of Slave register transfer

dwTferId: int
Transfer ID. For every new slave register transfer a unique ID has to be assigned. This ID can be used after completion to identify the transfer.

pbyData: object
Pointer to the data read

wFixedAddr: int
Station address of slave

wLen: int
Length of slave register transfer

wRegisterOffset: int
Register offset

wWkc: int
Received working counter

class EcWrapperPythonTypes.**DN_EC_T_SLAVES_ERROR_DESC**
Slaves error status descriptor

SlaveError: List[*EcWrapperPythonTypes.DN_EC_T_SLAVES_ERROR_DESC_ENTRY*]
Slave error descriptions

wCount: int
Number of slave errors

wRes: int
wRes

class EcWrapperPythonTypes.**DN_EC_T_SLAVES_ERROR_DESC_ENTRY**
Slaves error status descriptor

wRes: int
wRes

wStationAddress: int
Slave station address

wStatus: int
Slave status (AL Status)

wStatusCode: int
Slave status code (AL Control Status)

class EcWrapperPythonTypes.**DN_EC_T_SLAVES_PRESENCE_NTFY_DESC**

SlavePresence:
List[*EcWrapperPythonTypes.DN_EC_T_SLAVE_PRESENCE_NTFY_DESC*]
Slave presence descriptions

wCount: int
Number of slave presence notifications

class EcWrapperPythonTypes.**DN_EC_T_SLAVES_STATECHANGED_NTFY_DESC**

SlaveStates:
List[*EcWrapperPythonTypes.DN_EC_T_SLAVES_STATECHANGED_NTFY_DESC_ENTRY*]
Slave state changed descriptor

wCount: int
Number of slave state changes

class EcWrapperPythonTypes.**DN_EC_T_SLAVES_STATECHANGED_NTFY_DESC_ENTRY**
Slaves state change descriptor

byState: int
New slave state

wStationAddress: int
Slave station address

class EcWrapperPythonTypes.**DN_EC_T_SLAVES_UNEXPECTED_STATE_DESC**
Slaves in unexpected state descriptor

SlaveStates:
List[*EcWrapperPythonTypes.DN_EC_T_SLAVES_UNEXPECTED_STATE_DESC_ENTRY*]
Slave state change descriptions

wCount: int
Number of unexpected slave state changes

wRes: int
wRes

class EcWrapperPythonTypes.**DN_EC_T_SLAVES_UNEXPECTED_STATE_DESC_ENTRY**
Slaves in unexpected state descriptor

curState: *EcWrapperPythonTypes.DN_EC_T_STATE*
Current state

expState: *EcWrapperPythonTypes.DN_EC_T_STATE*
Expected state

wStationAddress: int
Slave station address

class EcWrapperPythonTypes.**DN_EC_T_SLAVE_ERROR_INFO_DESC**
EtherCAT Slave error status info descriptor

SlaveProp: *EcWrapperPythonTypes.DN_EC_T_SLAVE_PROP*
Slave properties

wStatus: int
Slave Status (AL Status)

wStatusCode: int
Error status code (AL STATUS CODE)

class EcWrapperPythonTypes.**DN_EC_T_SLAVE_IDENTIFICATION_NTFY_DESC**

SlaveProp: *EcWrapperPythonTypes.DN_EC_T_SLAVE_PROP*
Slave properties

dwResult: int
Result of request

dwTferId: int
Transfer ID. For every new port operation a unique ID has to be assigned. This ID can be used after completion to identify the transfer.

wAdo: int
Slave address offset used for identification. Given by API.

wValue: int
Slave identification value. Given by API.

class EcWrapperPythonTypes.**DN_EC_T_SLAVE_IDENT_TIMEOUT_DESC**
Slave identification timeout

SlaveProp: *EcWrapperPythonTypes.DN_EC_T_SLAVE_PROP*
Slave properties

SlavePropParent: *EcWrapperPythonTypes.DN_EC_T_SLAVE_PROP*
Slave properties of parent slave

wPortAtParent: int
Port at parent slave

class EcWrapperPythonTypes.**DN_EC_T_SLAVE_NOTSUPPORTED_DESC**
Slave not supported

SlaveProp: *EcWrapperPythonTypes.DN_EC_T_SLAVE_PROP*
Slave properties

class EcWrapperPythonTypes.**DN_EC_T_SLAVE_PRESENCE_NTFY_DESC**
Slaves presence descriptor

bPresent: int
absent

Type
EC_TRUE

Type
present, EC_FALSE

wStationAddress: int
Slave station address

class EcWrapperPythonTypes.**DN_EC_T_SLAVE_PROP**
EtherCAT slave properties

achName: str
Configured name of the slave device (NULL terminated string)

wAutoIncAddr: int
Configured auto increment address or INVALID_AUTO_INC_ADDR

wStationAddress: int
Configured station address or INVALID_FIXED_ADDR

class EcWrapperPythonTypes.**DN_EC_T_SLAVE_SELECTION**(*value*) **eSlaveSelect**

eSlaveSelectionDummy

eSlaveSelectionMasterSyncUnit = 2
[in] Select slave and his topological followers

eSlaveSelectionSingle = 0
[in] Select only one slave

eSlaveSelectionTopoFollowers = 1
[in] Select slave and his topological followers

class EcWrapperPythonTypes.**DN_EC_T_SLAVE_STATECHANGED_NTFY_DESC**
Slave state change descriptor

SlaveProp: *EcWrapperPythonTypes.DN_EC_T_SLAVE_PROP*
Slave properties

newState: *EcWrapperPythonTypes.DN_EC_T_STATE*
New slave state

class EcWrapperPythonTypes.**DN_EC_T_SLAVE_UNEXPECTED_STATE_DESC**
Slave in unexpected state descriptor

SlaveProp: *EcWrapperPythonTypes.DN_EC_T_SLAVE_PROP*
Slave properties

curState: *EcWrapperPythonTypes.DN_EC_T_STATE*
Current state

expState: *EcWrapperPythonTypes.DN_EC_T_STATE*
Expected state

class EcWrapperPythonTypes.**DN_EC_T_SLVSTATISTICS_DESC**
abyFwdRxErrorCnt: List[int]
[out] Forwarded RX Error Counters per Slave Port

abyInvalidFrameCnt: List[int]
[out] Invalid Frame Counters per Slave Port

abyLostLinkCnt: List[int]
[out] Lost Link Counters per Slave Port

abyRxErrorCnt: List[int]
[out] RX Error Counters per Slave Port

byPdiErrorCnt: int
[out] PDI Error Counter

byProcessingUnitErrorCnt: int
[out] Processing Unit Error Counter

qwChangeTime: int
[out] Timestamp of the last counter change [ns]

qwReadTime: int
[out] Timestamp of the last read [ns]

wAlStatusCode: int
[out] AL Status Code

class EcWrapperPythonTypes.**DN_EC_T_SOE_EMERGENCY**
EtherCAT SoE emergency request

abyData: List[int]
Emergency error data

wHeader: int
SoE Header

wStationAddress: int
Station address of the slave initiated the emergency request

class EcWrapperPythonTypes.**DN_EC_T_SOE_NOTIFICATION**
EtherCAT SoE notification

abyData: List[int]
Error data

wHeader: int
SoE Header

wIdn: int
IDN number

wStationAddress: int
Station address of the slave

class EcWrapperPythonTypes.**DN_EC_T_STATE**(*value*)
EtherCAT state

BCppDummy = 4294967295
BCppDummy

BOOTSTRAP = 3
EtherCAT state BOOTSTRAP

INIT = 1
EtherCAT state INIT

OP = 8
EtherCAT state OP (operational)

PREOP = 2
EtherCAT state PREOP (pre-operational)

SAFEOP = 4
EtherCAT state SAFEOP (safe operational)

UNKNOWN = 0
Unknown state

class EcWrapperPythonTypes.**DN_EC_T_STATECHANGE**
EtherCAT state change

newState: *EcWrapperPythonTypes.DN_EC_T_STATE*
New operational state

oldState: *EcWrapperPythonTypes.DN_EC_T_STATE*
Old operational state

class EcWrapperPythonTypes.**DN_EC_T_STATISTIC**
See also Object 0x2006 Mailbox Statistics Object

dwLast: int
Last

dwTotal: int
Total

class EcWrapperPythonTypes.**DN_EC_T_STATISTIC_TRANSFER**
See also Object 0x2006 Mailbox Statistics Object

Bytes: *EcWrapperPythonTypes.DN_EC_T_STATISTIC*
Number of bytes transferred

Cnt: *EcWrapperPythonTypes.DN_EC_T_STATISTIC*
Number of transfers

class EcWrapperPythonTypes.**DN_EC_T_STATISTIC_TRANSFER_DUPLEX**
See also Object 0x2006 Mailbox Statistics Object

Read: *EcWrapperPythonTypes.DN_EC_T_STATISTIC_TRANSFER*
Number of read transfers

Write: *EcWrapperPythonTypes.DN_EC_T_STATISTIC_TRANSFER*
Number of write transfers

class EcWrapperPythonTypes.**DN_EC_T_TAP_LINK_STATUS_NTFY_DESC**
bLinkConnected: bool
Link status of EC-Monitor - Ethernet Tap connection

class EcWrapperPythonTypes.**DN_EC_T_TLS_CERT_TYPE**(*value*) **BCppDummy =**

BCppDummy

Data = 2
TLS certificate type is a buffer

Filename = 1
TLS certificate type is a filename

Unknown = 0
Unknown

class EcWrapperPythonTypes.**DN_EC_T_TLS_PRIVKEY_TYPE**(*value*) **BCppDummy =**

BCppDummy

Data = 2
TLS private key type is a buffer

Filename = 1
TLS private key type is a filename

Unknown = 0
Unknown

class EcWrapperPythonTypes.**DN_EC_T_TRACE_DATA_INFO**

dwOffset: int
[out] Trace data offset in bytes

pbyData: object
[out] Process data output buffer, containing trace data

wSize: int
[out] Trace data size in bytes

class EcWrapperPythonTypes.**DN_EC_T_TX_PDO_NTFY_DESC**

dwNumber: int
dwNumber

pbyData: object
pbyData

wLen: int
wLen

wPhysAddr: int
wPhysAddr

class EcWrapperPythonTypes.**DN_EC_T_USER_JOB**(*value*)
EtherCAT user controlled execution job

BCppDummy = 4294967295
BCppDummy

MasterTimer = 4
Run internal master and slave state machines for generic management

MasterTimerMinimal = 8
no state change possible

Type
Run minimal master timer routine

MonitorTimer = 33
Run EC-Monitor timer routine (generic management)

ProcessAcycRxFrames = 10
Receive frames and process received data related to acyclic frames

ProcessAllRxFrames = 1
Receive frames and process all received data. Polling mode only.

ProcessRxFramesByTaskId = 9
Cyclic/TaskId)

Type
Receive frames and process received data related to a specific task id (ENI

SendAcycFrames = 6
Send acyclic frames

SendAllCycFrames = 2
Send all cyclic frames

SendCycFramesByTaskId = 7
Cyclic/TaskId)

Type
Send cyclic frames related to a specific task id (ENI

SimulatorTimer = 32
Run EC-Simulator timer routine (generic management)

StampSendAllCycFrames = 22
Obsolete

StampSendCycFramesByTaskId = 27
Obsolete

StartTask = 12
Start new task

StopTask = 13
Stop currently running task

SwitchEoeFrames = 11
Switch queued EoE frames (see EC_IOCTL_SET_EOE_DEFFERED_SWITCHING_ENABLED)

Undefined = 0
Undefined

class EcWrapperPythonTypes.**DN_EC_T_VAR_DIRECTION**(*value*) **All = 3**

INPUTs and OUTPUTs

BCppDummy = 4294967295
BCppDummy

INPUT = 1
INPUTs

OUTPUT = 2
OUTPUTs

Undefined = 0
Undefined Direction

class EcWrapperPythonTypes.**DN_EC_T_VAR_SOURCE**(*value*) **All = 1**

Slaves and Master/Monitor/Simulator

AllSlaves = 2
All Slaves

BCppDummy = 4294967295
BCppDummy

Master = 4
Master

Monitor = 5
Monitor

Simulator = 6
Simulator

Slave = 3
Slave

Undefined = 0
Undefined Source

class EcWrapperPythonTypes.**DN_EC_T_VLAN_MODE**(*value*) **Default = 0**

default Vlan tag for programmable Switch

TailTag = 1
Tail tag for Micrel KSZ8863

class EcWrapperPythonTypes.**DN_EC_T_WKCERR_DESC**
EtherCAT command WKC error descriptor

SlaveProp: ***EcWrapperPythonTypes.DN_EC_T_SLAVE_PROP***
Slave properties, content is undefined in case of cyclic WKC_ERROR

byCmd: int
EtherCAT command type

byRsvd: List[int]
byRsvd

dwAddr: int
Logical address or physical address (ADP/ADO)

dwTaskId: int
Cyclic/TaskId)

Type
Cyclic Task ID (ENI

wMsuId: int
Slave/ProcessData/RxPdo[1..4]@Su, Slave/ProcessData/TxPdo[1..4]@Su, comment at Cyclic/Frame/Cmd)

Type
Master Sync Unit ID (ENI

wWkcAct: int
Working counter actual value

wWkcSet: int
Working counter set value

class EcWrapperPythonTypes.**DN_EC_T_WORKER_THREAD_PARMS**
cpuAffinityMask: int
[in] CPU affinity to use for the worker thread

dwPrio: int
[in] Priority to use for the worker thread

class EcWrapperPythonTypes.**DN_EC_T_eINFOENTRY**(*value*) **BCppDummy =**

BCppDummy

alias_address = 9
alias_address

cfgphy_address = 10
cfgphy_address

dc64support = 8
dc64support

dcsupport = 7
dcsupport

device_name = 11
device_name

esctype = 51
esctype

ismailbox_slave = 12
ismailbox_slave

isoptional = 49
isoptional

ispresent = 50
ispresent

mbx_insize = 46
mbx_insize

mbx_insize2 = 48
mbx_insize2

mbx_outsize = 45
mbx_outsize

mbx_outsize2 = 47
mbx_outsize2

pdoffs_in = 1
pdoffs_in

pdoffs_in2 = 21
pdoffs_in2

pdoffs_in3 = 31
pdoffs_in3

pdoffs_in4 = 41
pdoffs_in4

pdoffs_out = 3
pdoffs_out

pdoffs_out2 = 23
pdoffs_out2

pdoffs_out3 = 33
pdoffs_out3

pdoffs_out4 = 43
pdoffs_out4

pdsize_in = 2
pdsize_in

pdsize_in2 = 22
pdsize_in2

pdsize_in3 = 32
pdsize_in3

pdsize_in4 = 42
pdsize_in4

pdsize_out = 4
pdsize_out

pdsize_out2 = 24
pdsize_out2

pdsize_out3 = 34
pdsize_out3

pdsize_out4 = 44
pdsize_out4

phys_address = 5
phys_address

portstate = 6
portstate

unknown = 0
unknown

class EcWrapperPythonTypes.**DN_ESC_SII_REG**(*value*) **ALIASADDRESS**

ALIASADDRESS

BOOT_RECV_MBX = 20
BOOT_RECV_MBX

BOOT_RECV_MBX_OFFSET = 20
BOOT_RECV_MBX_OFFSET

BOOT_RECV_MBX_SIZE = 21
BOOT_RECV_MBX_SIZE

BOOT_SEND_MBX = 22
BOOT_SEND_MBX

BOOT_SEND_MBX_OFFSET = 22
BOOT_SEND_MBX_OFFSET

BOOT_SEND_MBX_SIZE = 23
BOOT_SEND_MBX_SIZE

CHECKSUM = 7
CHECKSUM

EXTENDEDPDICONFIG = 3
EXTENDEDPDICONFIG

FIRSTCATEGORYHDR = 64
FIRSTCATEGORYHDR

MBX_PROTOCOL = 28
MBX_PROTOCOL

PDICONFIG = 1
PDICONFIG

PDICONTROL = 0
PDICONTROL

PRODUCTCODE = 10
PRODUCTCODE

REVISIONNUMBER = 12
REVISIONNUMBER

REVISIONNUMBER_HI = 13
REVISIONNUMBER_HI

REVISIONNUMBER_LO = 12
REVISIONNUMBER_LO

SERIALNUMBER = 14
SERIALNUMBER

STD_RECV_MBX = 24
STD_RECV_MBX

STD_RECV_MBX_OFFSET = 24
STD_RECV_MBX_OFFSET

STD_RECV_MBX_SIZE = 25
STD_RECV_MBX_SIZE

STD_SEND_MBX = 26
STD_SEND_MBX

STD_SEND_MBX_OFFSET = 26
STD_SEND_MBX_OFFSET

STD_SEND_MBX_SIZE = 27
STD_SEND_MBX_SIZE

SYNCIMPULSELENGTH = 2
SYNCIMPULSELENGTH

VENDORID = 8
VENDORID

class EcWrapperPythonTypes.**DN_ETHERNET_ADDRESS**
b: List[int]
MAC address

class EcWrapperPythonTypes.**DN_MC_T_AXIS_PROFILE**(*value*) **DS402 = 1**

DS402

NONE = 0
NONE

SERCOS = 2
SERCOS

class EcWrapperPythonTypes.**DN_MC_T_AXIS_TYPE**(*value*) **AXIS_TYPE_RE**

AXIS_TYPE_REAL_ALL

AXIS_TYPE_VIRTUAL = 0
AXIS_TYPE_VIRTUAL

class EcWrapperPythonTypes.**DN_MC_T_BUFFER_MODE**(*value*) **ABORTING = 0**

ABORTING

BLENDING_HIGH = 5
BLENDING_HIGH

BLENDING_HIGH_STOP = 8
BLENDING_HIGH_STOP

BLENDING_LOW = 2
BLENDING_LOW

BLENDING_NEXT = 4
BLENDING_NEXT

BLENDING_NEXT_STOP = 7
BLENDING_NEXT_STOP

BLENDING_PREVIOUS = 3
BLENDING_PREVIOUS

BLENDING_PREVIOUS_STOP = 6
BLENDING_PREVIOUS_STOP

BUFFERED = 1
BUFFERED

class EcWrapperPythonTypes.**DN_MC_T_CAM_INTERPOL_TYPE**(*value*) **CAM_INTERPOL**

CAM_INTERPOL_TYPE_CUB

CAM_INTERPOL_TYPE_LIN = 1
CAM_INTERPOL_TYPE_LIN

class EcWrapperPythonTypes.**DN_MC_T_CAM_VAR_TYPE**(*value*) **CAM_VAR_TYPE**

CAM_VAR_TYPE_INT

CAM_VAR_TYPE_REAL = 2
CAM_VAR_TYPE_REAL

class EcWrapperPythonTypes.**DN_MC_T_CIA402_OPMODE**(*value*) **MODE_OP_CSP**

MODE_OP_CSP

MODE_OP_CST = 10
MODE_OP_CST

MODE_OP_CSV = 9
MODE_OP_CSV

MODE_OP_HOMING = 6
MODE_OP_HOMING

MODE_OP_INTER_POS = 7
MODE_OP_INTER_POS

MODE_OP_PROF_POS = 1
MODE_OP_PROF_POS

MODE_OP_PROF_TOR = 4
MODE_OP_PROF_TOR

MODE_OP_PROF_VEL = 3
MODE_OP_PROF_VEL

MODE_OP_VELOCITY = 2
MODE_OP_VELOCITY

class EcWrapperPythonTypes.**DN_MC_T_CIA402_STATE**(*value*) **DEV_STATE_MA**

DEV_STATE_MALFCT_REACTION

DEV_STATE_MALFUNCTION = 7
DEV_STATE_MALFUNCTION

DEV_STATE_NOT_READY = 0
DEV_STATE_NOT_READY

DEV_STATE_OP_ENABLED = 4
DEV_STATE_OP_ENABLED

DEV_STATE_QUICK_STOP = 5
DEV_STATE_QUICK_STOP

DEV_STATE_READY_TO_SWITCHON = 2
DEV_STATE_READY_TO_SWITCHON

DEV_STATE_SWITCHED_ON = 3
DEV_STATE_SWITCHED_ON

DEV_STATE_SWITCHON_DIS = 1
DEV_STATE_SWITCHON_DIS

class EcWrapperPythonTypes.**DN_MC_T_DIRECTION**(*value*) **DIR_CURRENT**

DIR_CURRENT

DIR_NEGATIVE = 3
DIR_NEGATIVE

DIR_POSITIVE = 1
DIR_POSITIVE

DIR_SHORTEST = 2
DIR_SHORTEST

class EcWrapperPythonTypes.**DN_MC_T_EXECUTION_MODE**(*value*) **IMMEDIATELY**

IMMEDIATELY

QUEUED = 1
QUEUED

class EcWrapperPythonTypes.**DN_MC_T_FBID**(*value*) **ID_ABORT_TRI**

ID_ABORT_TRIGGER

ID_ACCELERATION_PROFILE = 16
ID_ACCELERATION_PROFILE

ID_CAMTABLE_SELECT = 37
ID_CAMTABLE_SELECT

ID_CAM_IN = 38
ID_CAM_IN

ID_CAM_OUT = 39
ID_CAM_OUT

ID_CHECK_TARGETPOS_REACHED = 42
ID_CHECK_TARGETPOS_REACHED

ID_DIGITAL_CAM_SWITCH = 34
ID_DIGITAL_CAM_SWITCH

ID_GEAR_IN = 40
ID_GEAR_IN

ID_GEAR_OUT = 41
ID_GEAR_OUT

ID_HALT = 4
ID_HALT

ID_HALT_RECOVERY = 43
ID_HALT_RECOVERY

ID_HALT_SUPERIMPOSED = 9
ID_HALT_SUPERIMPOSED

ID_HOME = 2
ID_HOME

ID_IDLE = 0
ID_IDLE

ID_MOVE_ABSOLUTE = 5
ID_MOVE_ABSOLUTE

ID_MOVE_ADDITIVE = 7
ID_MOVE_ADDITIVE

ID_MOVE_CONTINUOUS_ABSOLUTE = 11
ID_MOVE_CONTINUOUS_ABSOLUTE

ID_MOVE_CONTINUOUS_RELATIVE = 12
ID_MOVE_CONTINUOUS_RELATIVE

ID_MOVE_RELATIVE = 6
ID_MOVE_RELATIVE

ID_MOVE_SUPERIMPOSED = 8
ID_MOVE_SUPERIMPOSED

ID_MOVE_VELOCITY = 10
ID_MOVE_VELOCITY

ID_POSITION_PROFILE = 14
ID_POSITION_PROFILE

ID_POWER = 1
ID_POWER

ID_READ_ACTUAL_POSITION = 26
ID_READ_ACTUAL_POSITION

ID_READ_ACTUAL_TORQUE = 28
ID_READ_ACTUAL_TORQUE

ID_READ_ACTUAL_VELOCITY = 27
ID_READ_ACTUAL_VELOCITY

ID_READ_AXIS_ERROR = 32
ID_READ_AXIS_ERROR

ID_READ_AXIS_INFO = 31
ID_READ_AXIS_INFO

ID_READ_BOOL_PARAMETER = 20
ID_READ_BOOL_PARAMETER

ID_READ_DIGITAL_INPUT = 23
ID_READ_DIGITAL_INPUT

ID_READ_DIGITAL_OUTPUT = 24
ID_READ_DIGITAL_OUTPUT

ID_READ_MOTION_STATE = 30
ID_READ_MOTION_STATE

ID_READ_PARAMETER = 19
ID_READ_PARAMETER

ID_READ_STATUS = 29
ID_READ_STATUS

ID_RESET = 33
ID_RESET

ID_SET_OVERRIDE = 18
ID_SET_OVERRIDE

ID_SET_POSITION = 17
ID_SET_POSITION

ID_STOP = 3
ID_STOP

ID_TORQUE_CONTROL = 13
ID_TORQUE_CONTROL

ID_TOUCH_PROBE = 35
ID_TOUCH_PROBE

ID_VELOCITY_PROFILE = 15
ID_VELOCITY_PROFILE

ID_WRITE_BOOL_PARAMETER = 22
ID_WRITE_BOOL_PARAMETER

ID_WRITE_DIGITAL_OUTPUT = 25
ID_WRITE_DIGITAL_OUTPUT

ID_WRITE_PARAMETER = 21
ID_WRITE_PARAMETER

class EcWrapperPythonTypes.**DN_MC_T_FBSTATE**(*value*) **ACTIVE = 2**

ACTIVE

BUSY = 1
BUSY

COMMAND_ABORTED = 5
COMMAND_ABORTED

DONE = 3
DONE

ERROR = 4
ERROR

IDLE = 0
IDLE

class EcWrapperPythonTypes.**DN_MC_T_OPMODE**(*value*) **CSP = 1**

CSP

CST = 3
CST

CSV = 2
CSV

HOMING = 5
HOMING

NOTSET = 0
NOTSET

PP = 4
PP

class EcWrapperPythonTypes.**DN_MC_T_PLCOPEN_STATE**(*value*) **PLCOPEN_STAT**

continous motion

PLCOPEN_STATE_DISABLED = 11
disabled

PLCOPEN_STATE_DISC_MOTION = 5
discrete motion

PLCOPEN_STATE_ERROR_STOP = 4
error stop

PLCOPEN_STATE_HOMING = 2
homing

PLCOPEN_STATE_STAND_STILL = 1
stand still

PLCOPEN_STATE_STOPPING = 3
stopping

PLCOPEN_STATE_SYNC_MOTION = 7
synchronized motion

PLCOPEN_STATE_TORQUE_CONTROL = 10
torque control

PLCOPEN_STATE_UNKNOWN = 0
unknown

class EcWrapperPythonTypes.**DN_MC_T_PN**(*value*) **PN_ACTUAL_PO**

PN_ACTUAL_POSITION

PN_ACTUAL_VELOCITY = 10
PN_ACTUAL_VELOCITY

PN_COMMANDED_ACCELERATION = 1000
PN_COMMANDED_ACCELERATION

PN_COMMANDED_JERK = 1001
PN_COMMANDED_JERK

PN_COMMANDED_POSITION = 1
PN_COMMANDED_POSITION

PN_COMMANDED_VELOCITY = 11
PN_COMMANDED_VELOCITY

PN_ENA_LIMIT_NEG = 5
PN_ENA_LIMIT_NEG

PN_ENA_LIMIT_POS = 4
PN_ENA_LIMIT_POS

PN_SW_LIMIT_NEG = 3
PN_SW_LIMIT_NEG

PN_SW_LIMIT_POS = 2
PN_SW_LIMIT_POS

class EcWrapperPythonTypes.**DN_MC_T_PROFILE_STATE**(*value*) **Error = 0**

Error

Halt = 8
Halt

Idle = 0
Idle

NewSetPoint = 1
NewSetPoint

StartHoming = 6
StartHoming

SwitchToHomingMode = 5
SwitchToHomingMode

WaitForAck = 2
WaitForAck

WaitHaltDone = 9
WaitHaltDone

WaitHomingDone = 7
WaitHomingDone

WaitQStop = 4
WaitQStop

WaitReached = 3
WaitReached

class EcWrapperPythonTypes.**DN_MC_T_RECOVERY_MODE**(*value*) **RECOVERY_ABO**

RECOVERY_ABORT_MOVEMENT

RECOVERY_NO_ACTION = 0
RECOVERY_NO_ACTION

class EcWrapperPythonTypes.**DN_MC_T_SERCOS_OPMODE**(*value*) **OPMODE_POS_F**

OPMODE_POS_FB1

OPMODE_POS_FB1FB2 = 5
OPMODE_POS_FB1FB2

OPMODE_POS_FB1FB2_LAGLESS = 13
OPMODE_POS_FB1FB2_LAGLESS

OPMODE_POS_FB1_LAGLESS = 11
OPMODE_POS_FB1_LAGLESS

OPMODE_POS_FB2 = 4
OPMODE_POS_FB2

OPMODE_POS_FB2_LAGLESS = 12
OPMODE_POS_FB2_LAGLESS

OPMODE_TORQUE = 1
OPMODE_TORQUE

OPMODE_VEL = 2
OPMODE_VEL

class EcWrapperPythonTypes.**DN_MC_T_SERCOS_STATE**(*value*) **SER_STATE_MA**

SER_STATE_MALFUNCTION

SER_STATE_NOT_READY = 0
SER_STATE_NOT_READY

SER_STATE_OP_ENABLED = 4
SER_STATE_OP_ENABLED

SER_STATE_READY_TO_SWITCHON = 2
SER_STATE_READY_TO_SWITCHON

SER_STATE_SWITCHED_ON = 3
SER_STATE_SWITCHED_ON

class EcWrapperPythonTypes.**DN_MC_T_SETVALUE_SOURCE**(*value*) **MASTER_CAMM**

MASTER_CAMM

MASTER_GEAR = 4
MASTER_GEAR

NONE = 0
NONE

TRAJGEN_DRV = 3
TRAJGEN_DRV

TRAJGEN_ECM = 1
TRAJGEN_ECM

TRAJGEN_EXT = 2
TRAJGEN_EXT

class EcWrapperPythonTypes.**DN_MC_T_SIMU_STATE**(*value*) **SIM_STATE_OP**

SIM_STATE_OP_ENABLED

class EcWrapperPythonTypes.**DN_MC_T_SOURCE**(*value*) **SOURCE_ACTUA**

SOURCE_ACTUAL_VALUE

SOURCE_SET_VALUE = 1
SOURCE_SET_VALUE

class EcWrapperPythonTypes.**DN_MC_T_START_MODE**(*value*) **SM_ABSOLUTE**

SM_ABSOLUTE

SM_RAMP_IN = 2
SM_RAMP_IN

SM_RAMP_IN_NEG = 4
SM_RAMP_IN_NEG

SM_RAMP_IN_POS = 3
SM_RAMP_IN_POS

SM_RELATIVE = 1
SM_RELATIVE

class EcWrapperPythonTypes.**DN_MC_T_TRAJECT_STATE**(*value*) **Acc = 1**

Acc

Dec = 2
Dec

Idle = 0
Idle

Vel = 3
Vel

class EcWrapperPythonTypes.**DN_NotifyCode**(*value*)
Specifies EtherCAT errors codes

ALL_DEVICES_OPERATIONAL = 65569

AOE_MBXSND_WKC_ERROR = 65581

BAD_CONNECTION = 65578

CLIENTREGISTRATION_DROPPED = 65562

COE_MBXSND_WKC_ERROR = 65544

COE_TX_PDO = 131073

COMMUNICATION_TIMEOUT = 65579

CONFIG_LOAD = 111

CYCCMD_WKC_ERROR = 65537

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DCL_STATUS = 8
DCM_SYNC = 9
DCX_SYNC = 10
DC_SLV_SYNC = 5
DC_STATUS = 4
EEPROM_CHECKSUM_ERROR = 65571
EOE_MBXSND_WKC_ERROR = 65543
ETH_LINK_CONNECTED = 2
ETH_LINK_NOT_CONNECTED = 65552
FOE_MBSLAVE_ERROR = 65564
FOE_MBXSND_WKC_ERROR = 65545
FRAMELOSS_AFTER_SLAVE = 65576
FRAME_RESPONSE_ERROR = 65546
FSOE_CONNECTION_STATECHANGED = 112
HC_DETECTADDGROUPS = 262146
HC_PROBEALLGROUPS = 262147
HC_TOPOCHGDONE = 262148
JUNCTION_RED_CHANGE = 65573
LINE_CROSSED = 65572
MASTER_INITCMD_RESPONSE_ERROR = 65548
MASTER_INITCMD_WKC_ERROR = 65538
MASTER_RED_FOREIGN_SRC_MAC = 105
MASTER_RED_STATECHANGED = 104
MBOXRCV = 131072
MBSLAVE_COE_SDO_ABORT = 65561
MBSLAVE_INITCMD_TIMEOUT = 65550
MBXRCV_INVALID_DATA = 65565
NOT_ALL_DEVICES_OPERATIONAL = 65551
PDIWATCHDOG = 65566
PORT_OPERATION = 108
RAWCMD_DONE = 100
RED_LINEBRK = 65554
RED_LINEFIXED = 65563
REFCLOCK_PRESENCE = 103
RELEASE_FORCED_PROCESSDATA = 110
S2SMBX_ERROR = 65577
SB_DUPLICATE_HC_NODE = 196611
SB_EEPROM_ACCESS_DENIED = 196612
SB_MISMATCH = 196610
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SB_SLAVE_IDENT_TIMEOUT = 196613

SB_STATUS = 3

SLAVES_ERROR_STATUS = 65575

SLAVES_PRESENCE = 102

SLAVES_STATECHANGED = 22

SLAVES_UNEXPECTED_STATE = 65574

SLAVE_ERROR_STATUS_INFO = 65556

SLAVE_IDENTIFICATION = 109

SLAVE_INITCMD_RESPONSE_ERROR = 65547

SLAVE_INITCMD_WKC_ERROR = 65539

SLAVE_NOTSUPPORTED = 65567

SLAVE_NOT_ADDRESSABLE = 65557

SLAVE_PRESENCE = 101

SLAVE_REGISTER_TRANSFER = 106

SLAVE_STATECHANGED = 21

SLAVE_UNEXPECTED_STATE = 65568

SOE_MBXSND_WKC_ERROR = 65559

SOE_WRITE_ERROR = 65560

STATECHANGED = 1

STATUS_SLAVE_ERROR = 65555

TAP_LINK_STATUS = 65580

UNDEFINED = 0

VOE_MBXSND_WKC_ERROR = 65570

class EcWrapperPythonTypes.**DN_NotifyType**(*value*)

An enumeration.

EApp = 6

EBusScan = 4

EError = 1

EHotConnect = 5

EInfo = 2

EMailBox = 3

EUnknown = 0

class EcWrapperPythonTypes.**DN_RasNotifyCode**(*value*)

Specifies EtherCAT errors codes

ACKERROR = 1114114

CONNECTION = 1048577

EXCEPTION = 1114118

MARSHALERROR = 1114113

MBXNOTIFYMEMORYSMALL = 1114117

NONOTIFYMEMORY = 1114115

REGISTER = 1048578

STDNOTIFYMEMORYSMALL = 1114116

UNREGISTER = 1048579

class EcWrapperPythonTypes.**EC_T_DEFALT_VALUE**(*value*)

An enumeration.

BCppDummy = 4294967295

EC_T_DEFALT_VALUE_ATECAT_SIGNATURE = 1

EC_T_DEFALT_VALUE_EC_VERSION = 0

EC_T_DEFALT_VALUE_EL9010_SLAVE_ID = 6

EC_T_DEFALT_VALUE_FRAMELOSS_SLAVE_ID = 7

EC_T_DEFALT_VALUE_INVALID_SLAVE_ID = 2

EC_T_DEFALT_VALUE_JUNCTION_RED_FLAG = 8

EC_T_DEFALT_VALUE_MASTER_RED_SLAVE_ID = 5

EC_T_DEFALT_VALUE_MASTER_SLAVE_ID = 3

EC_T_DEFALT_VALUE_MAX_NUMOF_MASTER_INSTANCES = 4

class EcWrapperPythonTypes.**EC_T_MOTION_CMD**(*value*)

An enumeration.

EC_T_MOTION_CMD_AXIS_INIT_CREATE = 0

EC_T_MOTION_CMD_AXIS_INIT_DELETE = 1

EC_T_MOTION_CMD_AXIS_INIT_ECAT_CREATE = 150

EC_T_MOTION_CMD_AXIS_INIT_ECAT_DELETE = 151

EC_T_MOTION_CMD_AXIS_INIT_ECAT_SET_COEIDXOPMODE = 156

EC_T_MOTION_CMD_AXIS_INIT_ECAT_SET_COESUBIDXOPMODE = 157

EC_T_MOTION_CMD_AXIS_INIT_ECAT_SET_PCONTROLWORD = 159

EC_T_MOTION_CMD_AXIS_INIT_ECAT_SET_PROFILE = 154

EC_T_MOTION_CMD_AXIS_INIT_ECAT_SET_PSTATUSWORD = 158

EC_T_MOTION_CMD_AXIS_INIT_ECAT_SET_SERCOSDRIVENO = 155

EC_T_MOTION_CMD_AXIS_INIT_ECAT_SET_SLAVEID = 152

EC_T_MOTION_CMD_AXIS_INIT_ECAT_SET_STATIONADDRESS = 153

EC_T_MOTION_CMD_AXIS_INIT_INPUTS_CREATE = 100

EC_T_MOTION_CMD_AXIS_INIT_INPUTS_DELETE = 101

EC_T_MOTION_CMD_AXIS_INIT_INPUTS_SET_PACTUALPOSITION = 102

EC_T_MOTION_CMD_AXIS_INIT_INPUTS_SET_PACTUALTORQUE = 103

EC_T_MOTION_CMD_AXIS_INIT_INPUTS_SET_PDIGITALINPUTS = 104

EC_T_MOTION_CMD_AXIS_INIT_OUTPUTS_CREATE = 50

EC_T_MOTION_CMD_AXIS_INIT_OUTPUTS_DELETE = 51

EC_T_MOTION_CMD_AXIS_INIT_OUTPUTS_SET_PDIGITALOUTPUTS = 59

EC_T_MOTION_CMD_AXIS_INIT_OUTPUTS_SET_PMODEOFOPERATION = 57

EC_T_MOTION_CMD_AXIS_INIT_OUTPUTS_SET_PMODEOFOPERATIONDISPLAY = 58

EC_T_MOTION_CMD_AXIS_INIT_OUTPUTS_SET_PTARGETPOSITION = 52

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EC_T_MOTION_CMD_AXIS_INIT_OUTPUTS_SET_PTARGETTORQUE = 55
EC_T_MOTION_CMD_AXIS_INIT_OUTPUTS_SET_PTARGETVELOCITY = 53
EC_T_MOTION_CMD_AXIS_INIT_OUTPUTS_SET_PTORQUEOFFSET = 56
EC_T_MOTION_CMD_AXIS_INIT_OUTPUTS_SET_PVELOCITYOFFSET = 54
EC_T_MOTION_CMD_AXIS_INIT_SET_AXISTYPE = 2
EC_T_MOTION_CMD_AXIS_INIT_SET_CYCLETIME = 3
EC_T_MOTION_CMD_AXIS_INIT_SET_INCFACTOR = 5
EC_T_MOTION_CMD_AXIS_INIT_SET_INCPERMM = 4
EC_T_MOTION_CMD_AXIS_INIT_SET_TORQUEGAIN = 7
EC_T_MOTION_CMD_AXIS_INIT_SET_VELOCITYGAIN = 6
EC_T_MOTION_CMD_AXIS_REF_CREATE = 200
EC_T_MOTION_CMD_AXIS_REF_DELETE = 201
EC_T_MOTION_CMD_AXIS_REF_EXEC_INIT = 202
EC_T_MOTION_CMD_AXIS_REF_EXEC_INITECAT = 205
EC_T_MOTION_CMD_AXIS_REF_EXEC_INITINPUTS = 203
EC_T_MOTION_CMD_AXIS_REF_EXEC_INITOUTPUTS = 204
EC_T_MOTION_CMD_AXIS_REF_EXEC_SETMODEOFOPERATION = 206
EC_T_MOTION_CMD_HALT_CREATE = 400
EC_T_MOTION_CMD_HALT_DELETE = 401
EC_T_MOTION_CMD_HALT_EXEC_ONCYCLE = 411
EC_T_MOTION_CMD_HALT_GET_BUSY = 404
EC_T_MOTION_CMD_HALT_GET_DECELERATION = 407
EC_T_MOTION_CMD_HALT_GET_DONE = 403
EC_T_MOTION_CMD_HALT_GET_EXECUTE = 405
EC_T_MOTION_CMD_HALT_GET_JERK = 409
EC_T_MOTION_CMD_HALT_SET_AXIS = 402
EC_T_MOTION_CMD_HALT_SET_DECELERATION = 408
EC_T_MOTION_CMD_HALT_SET_EXECUTE = 406
EC_T_MOTION_CMD_HALT_SET_JERK = 410
EC_T_MOTION_CMD_HOME_CREATE = 300
EC_T_MOTION_CMD_HOME_DELETE = 301
EC_T_MOTION_CMD_HOME_EXEC_ONCYCLE = 311
EC_T_MOTION_CMD_HOME_GET_BUSY = 304
EC_T_MOTION_CMD_HOME_GET_DONE = 303
EC_T_MOTION_CMD_HOME_GET_ENABLESETPOSITION = 309
EC_T_MOTION_CMD_HOME_GET_EXECUTE = 305
EC_T_MOTION_CMD_HOME_GET_POSITION = 307
EC_T_MOTION_CMD_HOME_SET_AXIS = 302
EC_T_MOTION_CMD_HOME_SET_ENABLESETPOSITION = 310
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EC_T_MOTION_CMD_HOME_SET_EXECUTE = 306
EC_T_MOTION_CMD_HOME_SET_POSITION = 308
EC_T_MOTION_CMD_MOVE_ABSOLUTE_CREATE = 450
EC_T_MOTION_CMD_MOVE_ABSOLUTE_DELETE = 451
EC_T_MOTION_CMD_MOVE_ABSOLUTE_EXEC_ONCYCLE = 471
EC_T_MOTION_CMD_MOVE_ABSOLUTE_GET_ACCELERATION = 463
EC_T_MOTION_CMD_MOVE_ABSOLUTE_GET_BUSY = 454
EC_T_MOTION_CMD_MOVE_ABSOLUTE_GET_CONTINUOUSUPDATE = 457
EC_T_MOTION_CMD_MOVE_ABSOLUTE_GET_DECELERATION = 465
EC_T_MOTION_CMD_MOVE_ABSOLUTE_GET_DIRECTION = 469
EC_T_MOTION_CMD_MOVE_ABSOLUTE_GET_DONE = 453
EC_T_MOTION_CMD_MOVE_ABSOLUTE_GET_EXECUTE = 455
EC_T_MOTION_CMD_MOVE_ABSOLUTE_GET_JERK = 467
EC_T_MOTION_CMD_MOVE_ABSOLUTE_GET_POSITION = 459
EC_T_MOTION_CMD_MOVE_ABSOLUTE_GET_VELOCITY = 461
EC_T_MOTION_CMD_MOVE_ABSOLUTE_SET_ACCELERATION = 464
EC_T_MOTION_CMD_MOVE_ABSOLUTE_SET_AXIS = 452
EC_T_MOTION_CMD_MOVE_ABSOLUTE_SET_CONTINUOUSUPDATE = 458
EC_T_MOTION_CMD_MOVE_ABSOLUTE_SET_DECELERATION = 466
EC_T_MOTION_CMD_MOVE_ABSOLUTE_SET_DIRECTION = 470
EC_T_MOTION_CMD_MOVE_ABSOLUTE_SET_EXECUTE = 456
EC_T_MOTION_CMD_MOVE_ABSOLUTE_SET_JERK = 468
EC_T_MOTION_CMD_MOVE_ABSOLUTE_SET_POSITION = 460
EC_T_MOTION_CMD_MOVE_ABSOLUTE_SET_VELOCITY = 462
EC_T_MOTION_CMD_MOVE_CONT_ABSOLUTE_CREATE = 600
EC_T_MOTION_CMD_MOVE_CONT_ABSOLUTE_DELETE = 601
EC_T_MOTION_CMD_MOVE_CONT_ABSOLUTE_EXEC_ONCYCLE = 623
EC_T_MOTION_CMD_MOVE_CONT_ABSOLUTE_GET_ACCELERATION = 615
EC_T_MOTION_CMD_MOVE_CONT_ABSOLUTE_GET_BUSY = 604
EC_T_MOTION_CMD_MOVE_CONT_ABSOLUTE_GET_CONTINUOUSUPDATE = 607
EC_T_MOTION_CMD_MOVE_CONT_ABSOLUTE_GET_DECELERATION = 617
EC_T_MOTION_CMD_MOVE_CONT_ABSOLUTE_GET_DIRECTION = 621
EC_T_MOTION_CMD_MOVE_CONT_ABSOLUTE_GET_ENDVELOCITY = 611
EC_T_MOTION_CMD_MOVE_CONT_ABSOLUTE_GET_EXECUTE = 605
EC_T_MOTION_CMD_MOVE_CONT_ABSOLUTE_GET_INENDVELOCITY = 603
EC_T_MOTION_CMD_MOVE_CONT_ABSOLUTE_GET_JERK = 619
EC_T_MOTION_CMD_MOVE_CONT_ABSOLUTE_GET_POSITION = 609
EC_T_MOTION_CMD_MOVE_CONT_ABSOLUTE_GET_VELOCITY = 613
EC_T_MOTION_CMD_MOVE_CONT_ABSOLUTE_SET_ACCELERATION = 616
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EC_T_MOTION_CMD_MOVE_CONT_ABSOLUTE_SET_AXIS = 602
EC_T_MOTION_CMD_MOVE_CONT_ABSOLUTE_SET_CONTINUOUSUPDATE = 608
EC_T_MOTION_CMD_MOVE_CONT_ABSOLUTE_SET_DECELERATION = 618
EC_T_MOTION_CMD_MOVE_CONT_ABSOLUTE_SET_DIRECTION = 622
EC_T_MOTION_CMD_MOVE_CONT_ABSOLUTE_SET_ENDVELOCITY = 612
EC_T_MOTION_CMD_MOVE_CONT_ABSOLUTE_SET_EXECUTE = 606
EC_T_MOTION_CMD_MOVE_CONT_ABSOLUTE_SET_JERK = 620
EC_T_MOTION_CMD_MOVE_CONT_ABSOLUTE_SET_POSITION = 610
EC_T_MOTION_CMD_MOVE_CONT_ABSOLUTE_SET_VELOCITY = 614
EC_T_MOTION_CMD_MOVE_CONT_RELATIVE_CREATE = 650
EC_T_MOTION_CMD_MOVE_CONT_RELATIVE_DELETE = 651
EC_T_MOTION_CMD_MOVE_CONT_RELATIVE_EXEC_ONCYCLE = 671
EC_T_MOTION_CMD_MOVE_CONT_RELATIVE_GET_ACCELERATION = 665
EC_T_MOTION_CMD_MOVE_CONT_RELATIVE_GET_BUSY = 654
EC_T_MOTION_CMD_MOVE_CONT_RELATIVE_GET_CONTINUOUSUPDATE = 657
EC_T_MOTION_CMD_MOVE_CONT_RELATIVE_GET_DECELERATION = 667
EC_T_MOTION_CMD_MOVE_CONT_RELATIVE_GET_DISTANCE = 659
EC_T_MOTION_CMD_MOVE_CONT_RELATIVE_GET_ENDVELOCITY = 661
EC_T_MOTION_CMD_MOVE_CONT_RELATIVE_GET_EXECUTE = 655
EC_T_MOTION_CMD_MOVE_CONT_RELATIVE_GET_INENDVELOCITY = 653
EC_T_MOTION_CMD_MOVE_CONT_RELATIVE_GET_JERK = 669
EC_T_MOTION_CMD_MOVE_CONT_RELATIVE_GET_VELOCITY = 663
EC_T_MOTION_CMD_MOVE_CONT_RELATIVE_SET_ACCELERATION = 666
EC_T_MOTION_CMD_MOVE_CONT_RELATIVE_SET_AXIS = 652
EC_T_MOTION_CMD_MOVE_CONT_RELATIVE_SET_CONTINUOUSUPDATE = 658
EC_T_MOTION_CMD_MOVE_CONT_RELATIVE_SET_DECELERATION = 668
EC_T_MOTION_CMD_MOVE_CONT_RELATIVE_SET_DISTANCE = 660
EC_T_MOTION_CMD_MOVE_CONT_RELATIVE_SET_ENDVELOCITY = 662
EC_T_MOTION_CMD_MOVE_CONT_RELATIVE_SET_EXECUTE = 656
EC_T_MOTION_CMD_MOVE_CONT_RELATIVE_SET_JERK = 670
EC_T_MOTION_CMD_MOVE_CONT_RELATIVE_SET_VELOCITY = 664
EC_T_MOTION_CMD_MOVE_RELATIVE_CREATE = 500
EC_T_MOTION_CMD_MOVE_RELATIVE_DELETE = 501
EC_T_MOTION_CMD_MOVE_RELATIVE_EXEC_ONCYCLE = 519
EC_T_MOTION_CMD_MOVE_RELATIVE_GET_ACCELERATION = 513
EC_T_MOTION_CMD_MOVE_RELATIVE_GET_BUSY = 504
EC_T_MOTION_CMD_MOVE_RELATIVE_GET_CONTINUOUSUPDATE = 507
EC_T_MOTION_CMD_MOVE_RELATIVE_GET_DECELERATION = 515
EC_T_MOTION_CMD_MOVE_RELATIVE_GET_DISTANCE = 509
```

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EC_T_MOTION_CMD_MOVE_RELATIVE_GET_DONE = 503
EC_T_MOTION_CMD_MOVE_RELATIVE_GET_EXECUTE = 505
EC_T_MOTION_CMD_MOVE_RELATIVE_GET_JERK = 517
EC_T_MOTION_CMD_MOVE_RELATIVE_GET_VELOCITY = 511
EC_T_MOTION_CMD_MOVE_RELATIVE_SET_ACCELERATION = 514
EC_T_MOTION_CMD_MOVE_RELATIVE_SET_AXIS = 502
EC_T_MOTION_CMD_MOVE_RELATIVE_SET_CONTINUOUSUPDATE = 508
EC_T_MOTION_CMD_MOVE_RELATIVE_SET_DECELERATION = 516
EC_T_MOTION_CMD_MOVE_RELATIVE_SET_DISTANCE = 510
EC_T_MOTION_CMD_MOVE_RELATIVE_SET_EXECUTE = 506
EC_T_MOTION_CMD_MOVE_RELATIVE_SET_JERK = 518
EC_T_MOTION_CMD_MOVE_RELATIVE_SET_VELOCITY = 512
EC_T_MOTION_CMD_MOVE_VELOCITY_CREATE = 550
EC_T_MOTION_CMD_MOVE_VELOCITY_DELETE = 551
EC_T_MOTION_CMD_MOVE_VELOCITY_EXEC_ONCYCLE = 569
EC_T_MOTION_CMD_MOVE_VELOCITY_GET_ACCELERATION = 561
EC_T_MOTION_CMD_MOVE_VELOCITY_GET_BUSY = 554
EC_T_MOTION_CMD_MOVE_VELOCITY_GET_CONTINUOUSUPDATE = 557
EC_T_MOTION_CMD_MOVE_VELOCITY_GET_DECELERATION = 563
EC_T_MOTION_CMD_MOVE_VELOCITY_GET_DIRECTION = 567
EC_T_MOTION_CMD_MOVE_VELOCITY_GET_EXECUTE = 555
EC_T_MOTION_CMD_MOVE_VELOCITY_GET_INVELOCITY = 553
EC_T_MOTION_CMD_MOVE_VELOCITY_GET_JERK = 565
EC_T_MOTION_CMD_MOVE_VELOCITY_GET_VELOCITY = 559
EC_T_MOTION_CMD_MOVE_VELOCITY_SET_ACCELERATION = 562
EC_T_MOTION_CMD_MOVE_VELOCITY_SET_AXIS = 552
EC_T_MOTION_CMD_MOVE_VELOCITY_SET_CONTINUOUSUPDATE = 558
EC_T_MOTION_CMD_MOVE_VELOCITY_SET_DECELERATION = 564
EC_T_MOTION_CMD_MOVE_VELOCITY_SET_DIRECTION = 568
EC_T_MOTION_CMD_MOVE_VELOCITY_SET_EXECUTE = 556
EC_T_MOTION_CMD_MOVE_VELOCITY_SET_JERK = 566
EC_T_MOTION_CMD_MOVE_VELOCITY_SET_VELOCITY = 560
EC_T_MOTION_CMD_POWER_CREATE = 250
EC_T_MOTION_CMD_POWER_DELETE = 251
EC_T_MOTION_CMD_POWER_EXEC_ONCYCLE = 262
EC_T_MOTION_CMD_POWER_GET_ENABLE = 256
EC_T_MOTION_CMD_POWER_GET_ENABLENEGATIVE = 260
EC_T_MOTION_CMD_POWER_GET_ENABLEPOSITIVE = 258
EC_T_MOTION_CMD_POWER_GET_FAULTREACTION = 255
```

```
EC_T_MOTION_CMD_POWER_GET_STATUS = 253
EC_T_MOTION_CMD_POWER_GET_VALID = 254
EC_T_MOTION_CMD_POWER_SET_AXIS = 252
EC_T_MOTION_CMD_POWER_SET_ENABLE = 257
EC_T_MOTION_CMD_POWER_SET_ENABLENEGATIVE = 261
EC_T_MOTION_CMD_POWER_SET_ENABLEPOSITIVE = 259
EC_T_MOTION_CMD_READ_ACTUAL_POSITION_CREATE = 1100
EC_T_MOTION_CMD_READ_ACTUAL_POSITION_DELETE = 1101
EC_T_MOTION_CMD_READ_ACTUAL_POSITION_EXEC_ONCYCLE = 1107
EC_T_MOTION_CMD_READ_ACTUAL_POSITION_GET_ENABLE = 1105
EC_T_MOTION_CMD_READ_ACTUAL_POSITION_GET_POSITION = 1104
EC_T_MOTION_CMD_READ_ACTUAL_POSITION_GET_VALID = 1103
EC_T_MOTION_CMD_READ_ACTUAL_POSITION_SET_AXIS = 1102
EC_T_MOTION_CMD_READ_ACTUAL_POSITION_SET_ENABLE = 1106
EC_T_MOTION_CMD_READ_ACTUAL_VELOCITY_CREATE = 1150
EC_T_MOTION_CMD_READ_ACTUAL_VELOCITY_DELETE = 1151
EC_T_MOTION_CMD_READ_ACTUAL_VELOCITY_EXEC_ONCYCLE = 1157
EC_T_MOTION_CMD_READ_ACTUAL_VELOCITY_GET_ENABLE = 1155
EC_T_MOTION_CMD_READ_ACTUAL_VELOCITY_GET_VALID = 1153
EC_T_MOTION_CMD_READ_ACTUAL_VELOCITY_GET_VELOCITY = 1154
EC_T_MOTION_CMD_READ_ACTUAL_VELOCITY_SET_AXIS = 1152
EC_T_MOTION_CMD_READ_ACTUAL_VELOCITY_SET_ENABLE = 1156
EC_T_MOTION_CMD_READ_AXIS_INFO_CREATE = 1250
EC_T_MOTION_CMD_READ_AXIS_INFO_DELETE = 1251
EC_T_MOTION_CMD_READ_AXIS_INFO_EXEC_ONCYCLE = 1264
EC_T_MOTION_CMD_READ_AXIS_INFO_GET_COMMANDEDPOSITION = 1259
EC_T_MOTION_CMD_READ_AXIS_INFO_GET_DRIVEERRORACK = 1262
EC_T_MOTION_CMD_READ_AXIS_INFO_GET_DRIVEERRORACKREQ = 1258
EC_T_MOTION_CMD_READ_AXIS_INFO_GET_DRIVESTATE = 1257
EC_T_MOTION_CMD_READ_AXIS_INFO_GET_ENABLE = 1260
EC_T_MOTION_CMD_READ_AXIS_INFO_GET_PLCOPENSTATE = 1256
EC_T_MOTION_CMD_READ_AXIS_INFO_GET_SIMULATION = 1254
EC_T_MOTION_CMD_READ_AXIS_INFO_GET_VALID = 1253
EC_T_MOTION_CMD_READ_AXIS_INFO_GET_VERBOSE = 1255
EC_T_MOTION_CMD_READ_AXIS_INFO_SET_AXIS = 1252
EC_T_MOTION_CMD_READ_AXIS_INFO_SET_DRIVEERRORACK = 1263
EC_T_MOTION_CMD_READ_AXIS_INFO_SET_ENABLE = 1261
EC_T_MOTION_CMD_READ_BOOL_PARAMETER_CREATE = 800
EC_T_MOTION_CMD_READ_BOOL_PARAMETER_DELETE = 801
```

```
EC_T_MOTION_CMD_READ_BOOL_PARAMETER_EXEC_ONCYCLE = 810
EC_T_MOTION_CMD_READ_BOOL_PARAMETER_GET_BUSY = 804
EC_T_MOTION_CMD_READ_BOOL_PARAMETER_GET_ENABLE = 806
EC_T_MOTION_CMD_READ_BOOL_PARAMETER_GET_PARAMETERNUMBER = 808
EC_T_MOTION_CMD_READ_BOOL_PARAMETER_GET_VALID = 803
EC_T_MOTION_CMD_READ_BOOL_PARAMETER_GET_VALUE = 805
EC_T_MOTION_CMD_READ_BOOL_PARAMETER_SET_AXIS = 802
EC_T_MOTION_CMD_READ_BOOL_PARAMETER_SET_ENABLE = 807
EC_T_MOTION_CMD_READ_BOOL_PARAMETER_SET_PARAMETERNUMBER = 809
EC_T_MOTION_CMD_READ_DIGITAL_INPUT_CREATE = 950
EC_T_MOTION_CMD_READ_DIGITAL_INPUT_DELETE = 951
EC_T_MOTION_CMD_READ_DIGITAL_INPUT_EXEC_ONCYCLE = 960
EC_T_MOTION_CMD_READ_DIGITAL_INPUT_GET_BUSY = 954
EC_T_MOTION_CMD_READ_DIGITAL_INPUT_GET_ENABLE = 956
EC_T_MOTION_CMD_READ_DIGITAL_INPUT_GET_INPUTNUMBER = 958
EC_T_MOTION_CMD_READ_DIGITAL_INPUT_GET_VALID = 953
EC_T_MOTION_CMD_READ_DIGITAL_INPUT_GET_VALUE = 955
EC_T_MOTION_CMD_READ_DIGITAL_INPUT_SET_AXIS = 952
EC_T_MOTION_CMD_READ_DIGITAL_INPUT_SET_ENABLE = 957
EC_T_MOTION_CMD_READ_DIGITAL_INPUT_SET_INPUTNUMBER = 959
EC_T_MOTION_CMD_READ_DIGITAL_OUTPUT_CREATE = 1000
EC_T_MOTION_CMD_READ_DIGITAL_OUTPUT_DELETE = 1001
EC_T_MOTION_CMD_READ_DIGITAL_OUTPUT_EXEC_ONCYCLE = 1010
EC_T_MOTION_CMD_READ_DIGITAL_OUTPUT_GET_BUSY = 1004
EC_T_MOTION_CMD_READ_DIGITAL_OUTPUT_GET_ENABLE = 1006
EC_T_MOTION_CMD_READ_DIGITAL_OUTPUT_GET_OUTPUTNUMBER = 1008
EC_T_MOTION_CMD_READ_DIGITAL_OUTPUT_GET_VALID = 1003
EC_T_MOTION_CMD_READ_DIGITAL_OUTPUT_GET_VALUE = 1005
EC_T_MOTION_CMD_READ_DIGITAL_OUTPUT_SET_AXIS = 1002
EC_T_MOTION_CMD_READ_DIGITAL_OUTPUT_SET_ENABLE = 1007
EC_T_MOTION_CMD_READ_DIGITAL_OUTPUT_SET_OUTPUTNUMBER = 1009
EC_T_MOTION_CMD_READ_ERROR_CREATE = 1300
EC_T_MOTION_CMD_READ_ERROR_DELETE = 1301
EC_T_MOTION_CMD_READ_ERROR_EXEC_ONCYCLE = 1306
EC_T_MOTION_CMD_READ_ERROR_GET_ENABLE = 1304
EC_T_MOTION_CMD_READ_ERROR_GET_VALID = 1303
EC_T_MOTION_CMD_READ_ERROR_SET_AXIS = 1302
EC_T_MOTION_CMD_READ_ERROR_SET_ENABLE = 1305
EC_T_MOTION_CMD_READ_MOTION_STATE_CREATE = 1200
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EC_T_MOTION_CMD_READ_MOTION_STATE_DELETE = 1201
EC_T_MOTION_CMD_READ_MOTION_STATE_EXEC_ONCYCLE = 1211
EC_T_MOTION_CMD_READ_MOTION_STATE_GET_ACCELERATING = 1205
EC_T_MOTION_CMD_READ_MOTION_STATE_GET_CONSTANTVELOCITY = 1204
EC_T_MOTION_CMD_READ_MOTION_STATE_GET_DECELERATING = 1206
EC_T_MOTION_CMD_READ_MOTION_STATE_GET_DIRECTIONNEGATIVE = 1208
EC_T_MOTION_CMD_READ_MOTION_STATE_GET_DIRECTIONPOSITIVE = 1207
EC_T_MOTION_CMD_READ_MOTION_STATE_GET_ENABLE = 1209
EC_T_MOTION_CMD_READ_MOTION_STATE_GET_VALID = 1203
EC_T_MOTION_CMD_READ_MOTION_STATE_SET_AXIS = 1202
EC_T_MOTION_CMD_READ_MOTION_STATE_SET_ENABLE = 1210
EC_T_MOTION_CMD_READ_PARAMETER_CREATE = 750
EC_T_MOTION_CMD_READ_PARAMETER_DELETE = 751
EC_T_MOTION_CMD_READ_PARAMETER_EXEC_ONCYCLE = 760
EC_T_MOTION_CMD_READ_PARAMETER_GET_BUSY = 754
EC_T_MOTION_CMD_READ_PARAMETER_GET_ENABLE = 756
EC_T_MOTION_CMD_READ_PARAMETER_GET_PARAMETERNUMBER = 758
EC_T_MOTION_CMD_READ_PARAMETER_GET_VALID = 753
EC_T_MOTION_CMD_READ_PARAMETER_GET_VALUE = 755
EC_T_MOTION_CMD_READ_PARAMETER_SET_AXIS = 752
EC_T_MOTION_CMD_READ_PARAMETER_SET_ENABLE = 757
EC_T_MOTION_CMD_READ_PARAMETER_SET_PARAMETERNUMBER = 759
EC_T_MOTION_CMD_RESET_CREATE = 1350
EC_T_MOTION_CMD_RESET_DELETE = 1351
EC_T_MOTION_CMD_RESET_EXEC_ONCYCLE = 1357
EC_T_MOTION_CMD_RESET_GET_BUSY = 1354
EC_T_MOTION_CMD_RESET_GET_DONE = 1353
EC_T_MOTION_CMD_RESET_GET_EXECUTE = 1355
EC_T_MOTION_CMD_RESET_SET_AXIS = 1352
EC_T_MOTION_CMD_RESET_SET_EXECUTE = 1356
EC_T_MOTION_CMD_SET_POSITION_CREATE = 700
EC_T_MOTION_CMD_SET_POSITION_DELETE = 701
EC_T_MOTION_CMD_SET_POSITION_EXEC_ONCYCLE = 713
EC_T_MOTION_CMD_SET_POSITION_GET_BUSY = 704
EC_T_MOTION_CMD_SET_POSITION_GET_DONE = 703
EC_T_MOTION_CMD_SET_POSITION_GET_EXECUTE = 705
EC_T_MOTION_CMD_SET_POSITION_GET_EXECUTIONMODE = 711
EC_T_MOTION_CMD_SET_POSITION_GET_POSITION = 707
EC_T_MOTION_CMD_SET_POSITION_GET_RELATIVE = 709
```

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EC_T_MOTION_CMD_SET_POSITION_SET_AXIS = 702
EC_T_MOTION_CMD_SET_POSITION_SET_EXECUTE = 706
EC_T_MOTION_CMD_SET_POSITION_SET_EXECUTIONMODE = 712
EC_T_MOTION_CMD_SET_POSITION_SET_POSITION = 708
EC_T_MOTION_CMD_SET_POSITION_SET_RELATIVE = 710
EC_T_MOTION_CMD_STOP_CREATE = 350
EC_T_MOTION_CMD_STOP_DELETE = 351
EC_T_MOTION_CMD_STOP_EXEC_ONCYCLE = 362
EC_T_MOTION_CMD_STOP_GET_BUSY = 354
EC_T_MOTION_CMD_STOP_GET_COMMANDABORTED = 355
EC_T_MOTION_CMD_STOP_GET_DECELERATION = 358
EC_T_MOTION_CMD_STOP_GET_DONE = 353
EC_T_MOTION_CMD_STOP_GET_EXECUTE = 356
EC_T_MOTION_CMD_STOP_GET_JERK = 360
EC_T_MOTION_CMD_STOP_SET_AXIS = 352
EC_T_MOTION_CMD_STOP_SET_DECELERATION = 359
EC_T_MOTION_CMD_STOP_SET_EXECUTE = 357
EC_T_MOTION_CMD_STOP_SET_JERK = 361
EC_T_MOTION_CMD_WRITE_BOOL_PARAMETER_CREATE = 900
EC_T_MOTION_CMD_WRITE_BOOL_PARAMETER_DELETE = 901
EC_T_MOTION_CMD_WRITE_BOOL_PARAMETER_EXEC_ONCYCLE = 910
EC_T_MOTION_CMD_WRITE_BOOL_PARAMETER_GET_BUSY = 903
EC_T_MOTION_CMD_WRITE_BOOL_PARAMETER_GET_EXECUTE = 904
EC_T_MOTION_CMD_WRITE_BOOL_PARAMETER_GET_PARAMETERNUMBER = 906
EC_T_MOTION_CMD_WRITE_BOOL_PARAMETER_GET_VALUE = 908
EC_T_MOTION_CMD_WRITE_BOOL_PARAMETER_SET_AXIS = 902
EC_T_MOTION_CMD_WRITE_BOOL_PARAMETER_SET_EXECUTE = 905
EC_T_MOTION_CMD_WRITE_BOOL_PARAMETER_SET_PARAMETERNUMBER = 907
EC_T_MOTION_CMD_WRITE_BOOL_PARAMETER_SET_VALUE = 909
EC_T_MOTION_CMD_WRITE_DIGITAL_OUTPUT_CREATE = 1050
EC_T_MOTION_CMD_WRITE_DIGITAL_OUTPUT_DELETE = 1051
EC_T_MOTION_CMD_WRITE_DIGITAL_OUTPUT_EXEC_ONCYCLE = 1062
EC_T_MOTION_CMD_WRITE_DIGITAL_OUTPUT_GET_BUSY = 1054
EC_T_MOTION_CMD_WRITE_DIGITAL_OUTPUT_GET_DONE = 1053
EC_T_MOTION_CMD_WRITE_DIGITAL_OUTPUT_GET_EXECUTE = 1055
EC_T_MOTION_CMD_WRITE_DIGITAL_OUTPUT_GET_EXECUTIONMODE = 1060
EC_T_MOTION_CMD_WRITE_DIGITAL_OUTPUT_GET_OUTPUTNUMBER = 1056
EC_T_MOTION_CMD_WRITE_DIGITAL_OUTPUT_GET_VALUE = 1058
EC_T_MOTION_CMD_WRITE_DIGITAL_OUTPUT_SET_AXIS = 1052
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EC_T_MOTION_CMD_WRITE_DIGITAL_OUTPUT_SET_EXECUTIONMODE = 1061

EC_T_MOTION_CMD_WRITE_DIGITAL_OUTPUT_SET_OUTPUTNUMBER = 1057

EC_T_MOTION_CMD_WRITE_DIGITAL_OUTPUT_SET_VALUE = 1059

EC_T_MOTION_CMD_WRITE_PARAMETER_CREATE = 850

EC_T_MOTION_CMD_WRITE_PARAMETER_DELETE = 851

EC_T_MOTION_CMD_WRITE_PARAMETER_EXEC_ONCYCLE = 860

EC_T_MOTION_CMD_WRITE_PARAMETER_GET_BUSY = 853

EC_T_MOTION_CMD_WRITE_PARAMETER_GET_EXECUTE = 854

EC_T_MOTION_CMD_WRITE_PARAMETER_GET_PARAMETERNUMBER = 856

EC_T_MOTION_CMD_WRITE_PARAMETER_GET_VALUE = 858

EC_T_MOTION_CMD_WRITE_PARAMETER_SET_AXIS = 852

EC_T_MOTION_CMD_WRITE_PARAMETER_SET_EXECUTE = 855

EC_T_MOTION_CMD_WRITE_PARAMETER_SET_PARAMETERNUMBER = 857

EC_T_MOTION_CMD_WRITE_PARAMETER_SET_VALUE = 859

class EcWrapperPythonTypes.**ECoEObjCode**(*value*)

OB Desc Object Code

ARRAY = 8

RECORD = 9

VARIABLE = 7

class EcWrapperPythonTypes.**ECoeObEntryAccess**(*value*)

OB Entry Access

R_OP = 4

R_PREOP = 1

R_SAFEOP = 2

W_OP = 32

W_PREOP = 8

W_SAFEOP = 16

class EcWrapperPythonTypes.**ECoeObEntryDescInfo**(*value*)

OB Entry Description Information

DEFAULTVALUE = 16

MAXVALUE = 64

MINVALUE = 32

OBJACCESS = 1

OBJCATEGORY = 2

PDOMAPPING = 4

UNITTYPE = 8

class EcWrapperPythonTypes.**EEscPort**(*value*)

ESC Ports (see defines ESC_PORT_A..D)

PORT_A = 0

PORT_B = 1

PORT_C = 2

PORT_D = 3

PORT_INVALID = 255

class EcWrapperPythonTypes.**ELinkMode**(*value*)
Link Layer Modi

INTERRUPT = 1

POLLING = 2

UNDEFINED = 0

class EcWrapperPythonTypes.**ELinkType**(*value*)
Link Layer Type

BCMNETXTREME = 14

CCAT = 8

DPDK = 15

EOM = 5

I8254X = 3

I8255X = 4

INTELGBE = 12

MULTIPLIER = 16

NDIS = 9

RTL8139 = 6

RTL8169 = 7

Remote = 11

SOCKRAW = 2

Simulator = 10

TAP = 13

UNDEFINED = 0

VLAN = 17

WINPCAP = 1

class EcWrapperPythonTypes.**EMailBoxFlags**(*value*)
MailBoxFlags

NONE_ = 0

SDO_COMPLETE = 1

class EcWrapperPythonTypes.**EMbxProtocol**(*value*)
Supported mailbox protocols

AOE = 1

COE = 4

EOE = 2

FOE = 8

SOE = 16

VOE = 32

class EcWrapperPythonTypes.**EcDeviceState**(*value*)
Specifies all possible Device states

BOOTSTRAP = 3

INIT = 1

OP = 8

PREOP = 2

SAFEOP = 4

Unknown = 65519

class EcWrapperPythonTypes.**EcRunMode**(*value*)
Run modes

Daq = 11

DaqReader = 12

LibAccess = 13

Master = 1

MbxGateway = 4

MbxGatewaySrv = 5

Monitor = 9

MonitorRasServer = 10

None_ = 0

RasClient = 3

RasServer = 2

SimulatorHil = 7

SimulatorRasServer = 8

SimulatorSil = 6

class EcWrapperPythonTypes.**uint32Enum**(*value*)
Base class for creating enumerated constants of unsigned 32 bit integers

3.4 Error Codes

class EcWrapperPythonTypes.**ECError**(*value*)
Specifies EtherCAT errors codes

EC_ACCESSDENIED = 2551250966
Access Denied (e.g. master internal software error)

Type
0x98110016

Type
ISW

EC_ACYC_FRM_FREEQ_EMPTY = 2551250953
Cannot queue acyclic EtherCAT command (Acyclic command queue is full. Possible solution: Increase of configuration value dwMaxQueuedEthFrames)

Type
0x98110009

Type
ISW

EC_ADO_NOT_SUPPORTED = 2551251326
ADO for slave identification not supported (e.g. Request ID mechanism (ADO 0x134) not supported by slave)

Type
0x9811017E

Type
SLV

EC_ADS_IS_RUNNING = 2551251250
ADS adapter (Pass Through Server) is running (API call conflicts with ADS state (running))

Type
0x98110132

Type
PTS

EC_AI_ADDRESS = 2551250985
Auto increment address increment mismatch (e.g. Network information file and bus topology doesn't match any more. Error shows only, if an already recognized slave isn't present any more)

Type
0x98110029

Type
SLV

EC_AOE_ABORTED = 2551251293
Request aborted

Type
0x9811015D

Type
AoE

EC_AOE_ACCESSDENIED = 2551251297
Access denied

Type
0x98110161

Type
AoE

EC_AOE_AMS_SYNC_AMS = 2551382041
Sync AMS error

Type
0x98130019

Type
AoE

EC_AOE_AMS_SYNC_NO_INDEX_MAP = 2551382042
Sync no index map

Type
0x9813001A

Type
AoE

EC_AOE_AMS_SYNC_TIMEOUT = 2551382040
Sync Timeout

Type
0x98130018

Type
AoE

EC_AOE_AMS_SYNC_WIN32 = 2551382039
Sync Win 32 error

Type
0x98130017

Type
AoE

EC_AOE_BAD_TASK_ID = 2551382033
Bad task ID

Type
0x98130011

Type
AoE

EC_AOE_BUSY = 2551251270
Device busy

Type
0x98110146

Type
AoE

EC_AOE_CLIENTUNKNOWN = 2551251283
Notification client not registered

Type
0x98110153

Type
AoE

EC_AOE_ERROR = 2551251262
Common AoE device error

Type
0x9811013E

Type
AoE

EC_AOE_EXISTS = 2551251277
Object already exists

Type
0x9811014D

Type
AoE

EC_AOE_HOST_UNREACHABLE = 2551382044
Host unreachable

Type
0x9813001C

Type
AoE

EC_AOE_INCOMPATIBLE = 2551251276
Objects do not match

Type
0x9811014C

Type
AoE

EC_AOE_INTERNAL = 2551251298
Internal error

Type
0x98110162

Type
AoE

EC_AOE_INVALIDACCESS = 2551251266
Reading/writing not permitted

Type
0x98110142

Type
AoE

EC_AOE_INVALIDAMSFRAGMENT = 2551382045
Invalid AMS fragment

Type
0x9813001D

Type
AoE

EC_AOE_INVALIDARRAYIDX = 2551251295
Invalid array index

Type
0x9811015F

Type
AoE

EC_AOE_INVALIDCLSID = 2551251290
Class ID invalid

Type
0x9811015A

Type
AoE

EC_AOE_INVALIDCONTEXT = 2551251271
Invalid context

Type
0x98110147

Type
AoE

EC_AOE_INVALIDDATA = 2551251268
Invalid parameter value(s)

Type
0x98110144

Type
AoE

EC_AOE_INVALIDGRP = 2551251264
Invalid index group

Type
0x98110140

Type
AoE

EC_AOE_INVALIDINTERFACE = 2551251289
Wrong interface required

Type
0x98110159

Type
AoE

EC_AOE_INVALIDOBJID = 2551251291
Object ID invalid

Type
0x9811015B

Type
AoE

EC_AOE_INVALIDOFFSET = 2551251265
Invalid index offset

Type
0x98110141

Type
AoE

EC_AOE_INVALIDPARM = 2551251273
Invalid parameter value(s)

Type
0x98110149

Type
AoE

EC_AOE_INVALIDSIZE = 2551251267
Parameter size not correct

Type
0x98110143

Type
AoE

EC_AOE_INVALIDSTATE = 2551251280
Server in invalid state

Type
0x98110150

Type
AoE

EC_AOE_INVALIDWATCHSIZE = 2551251285
Size for watch to big

Type
0x98110155

Type
AoE

EC_AOE_INVALID_AMS_ID = 2551251304
invalid AMS Net ID

Type
0x98110168

Type
AoE

EC_AOE_INVALID_AMS_LENGTH = 2551251303
Invalid AMS length

Type
0x98110167

Type
AoE

EC_AOE_INVALID_AMS_PORT = 2551251307
Invalid AMS port

Type
0x9811016B

Type
AoE

EC_AOE_INV_RESPONSE_SIZE = 2551251261
Invalid AoE response received

Type
0x9811013D

Type
AoE

EC_AOE_LOCKED_MEMORY = 2551382030
Allocation locked memory

Type
0x9813000E

Type
AoE

EC_AOE_LOW_INSTALL_LEVEL = 2551382037
Low installation level

Type
0x98130015

Type
AoE

EC_AOE_MAILBOX = 2551382031
Insert mailbox error

Type
0x9813000F

Type
AoE

EC_AOE_MAILBOX_FULL = 2551382047
Mailbox full

Type
0x9813001F

Type
AoE

EC_AOE_MBX_WKC_ERROR = 2551251234
Mailbox receive: working counter

Type
0x98110122

Type
AoE

EC_AOE_NOINTERFACE = 2551251288
Query interface failed

Type
0x98110158

Type
AoE

EC_AOE_NOMEMORY = 2551251272
Out of memory

Type
0x98110148

Type
AoE

EC_AOE_NOMOREHDLS = 2551251284
No more notification handles

Type
0x98110154

Type
AoE

EC_AOE_NOTFOUND = 2551251274
Not found

Type
0x9811014A

Type
AoE

EC_AOE_NOTIFYHNDINVALID = 2551251282
Notification handle invalid

Type
0x98110152

Type
AoE

EC_AOE_NOTINIT = 2551251286
Device not initialized

Type
0x98110156

Type
AoE

EC_AOE_NOTREADY = 2551251269
Device not in a ready state

Type
0x98110145

Type
AoE

EC_AOE_NO_DEBUG = 2551382038
No debug available

Type
0x98130016

Type
AoE

EC_AOE_NO_IO = 2551382034
No IO

Type
0x98130012

Type
AoE

EC_AOE_NO_LOCKED_MEMORY = 2551382046
No allocation locked memory

Type
0x9813001E

Type
AoE

EC_AOE_NO_MEMORY = 2551251308
No memory

Type
0x9811016C

Type
AoE

EC_AOE_NO_RTIME = 2551382029
No Rtime

Type
0x9813000D

Type
AoE

EC_AOE_PENDING = 2551251292
Request pending

Type
0x9811015C

Type
AoE

EC_AOE_PORT_CONNECTED = 2551251306
Port already connected

Type
0x9811016A

Type
AoE

EC_AOE_PORT_DISABLED = 2551251305
Port disabled

Type
0x98110169

Type
AoE

EC_AOE_PORT_NOT_CONNECTED = 2551251302
Port not connected

Type
0x98110166

Type
AoE

EC_AOE_SRVNOTSUPP = 2551251263
Service not supported by server

Type
0x9811013F

Type
AoE

EC_AOE_SYMBOLNOTACTIVE = 2551251296
Symbol not active -> release handle and try again

Type
0x98110160

Type
AoE

EC_AOE_SYMBOLNOTFOUND = 2551251278
Symbol not found

Type
0x9811014E

Type
AoE

EC_AOE_SYMBOLVERSIONINVALID = 2551251279
Symbol version invalid

Type
0x9811014F

Type
AoE

EC_AOE_SYNTAX = 2551251275
Syntax error in command or file

Type
0x9811014B

Type
AoE

EC_AOE_TARGET_MACHINE_NOT_FOUND = 2551251300
Target machine not found

Type
0x98110164

Type
AoE

EC_AOE_TARGET_PORT_NOT_FOUND = 2551251299
Target port not found

Type
0x98110163

Type
AoE

EC_AOE_TCP_SEND = 2551382043
TCP send error

Type
0x9813001B

Type
AoE

EC_AOE_TIMEOUT = 2551251287
Device has a timeout

Type
0x98110157

Type
AoE

EC_AOE_TRANSMODENOTSUPP = 2551251281
AdsTransMode not supported

Type
0x98110151

Type
AoE

EC_AOE_UNKNOWN_AMS_COMMAND = 2551382035
Unknown ADS command

Type
0x98130013

Type
AoE

EC_AOE_UNKNOWN_CMD_ID = 2551251301
Unknown command ID

Type
0x98110165

Type
AoE

EC_AOE_VENDOR_SPECIFIC = 2551251309
Vendor specific AoE device error

Type
0x9811016D

Type
AoE

EC_AOE_WARNING = 2551251294
Signal warning

Type
0x9811015E

Type
AoE

EC_AOE_WIN32 = 2551382036
Win 32 error

Type
0x98130014

Type
AoE

EC_AOE_WRONG_HMSG = 2551382032
Wrong receive HMSG

Type
0x98130010

Type
AoE

EC_BAD_CONNECTION = 2551382066
Bad connection

Type
0x98130032

EC_BUSCONFIG_MISMATCH = 2551250974
Bus configuration mismatch (e.g. Network information file and currently connected bus topology does not match)

Type
0x9811001E

Type
ENI

EC_BUSCONFIG_TOPOCHANGE = 2551251230
Bus configuration not detected, Topology changed (e.g. Topology changed while scanning bus)

Type
0x9811011E

EC_BUSY = 2551250952
Busy (e.g. EtherCAT stack is currently busy and not available to process the API request. The function may be called again later)

Type
0x98110008

Type
APP

EC_CANCEL = 2551250948
Cancel (e.g. EtherCAT stack should abort current mailbox transfer)

Type
0x98110004

Type
APP

EC_CFGFILENOTFOUND = 2551251056
Network configuration file not found (e.g. path to configuration file (XML) was wrong or the file is not available)

Type
0x98110070

Type
CFG

EC_CMD_MISSING = 2551250982
At least one EtherCAT command is missing in the received frame (e.g. received EtherCAT frame incomplete)

Type
0x98110026

Type
SLV

EC_COE_MBXRCV_WKC_ERROR = 2551250992
CoE mailbox receive: working counter (e.g. CoE mailbox couldn't be read from slave)

Type
0x98110030

Type
SLV

EC_COE_MBXSND_WKC_ERROR = 2551250991
CoE mailbox send: working counter (e.g. CoE mailbox couldn't be read on slave, slave didn't read out mailbox since last write)

Type
0x9811002F

Type
SLV

EC_CONFIGDATAREAD = 2551250975
Error reading configuration file (e.g. Network information file could not be read)

Type
0x9811001F

Type
ENI

EC_CYCCMD_WKC_ERROR = 2551250983
Cyclic command WKC error

Type
0x98110027

EC_CYC_CMDS_OVERFLOW = 2551250988
Too many cyclic commands in XML configuration file (e.g. EC_T_INIT_MASTER_PARMS.dwMaxAcycFramesQueued too small)

Type
0x9811002C

Type
ENI

EC_DATA_TYPE_CONVERSION_FAILED = 2551251321
Data type conversion failed

Type
0x98110179

EC_DC_REF_CLOCK_NOT_FOUND = 2551251257
Reference clock not found! May happen if reference clock is removed from network.

Type
0x98110139

Type
SLV

EC_DC_REF_CLOCK_SYNC_OUT_UNIT_DISABLED = 2551251256
DC (time loop control) unit of reference clock disabled

Type
0x98110138

EC_DC_SLAVES_BEFORE_REF_CLOCK = 2551251320
Slaves with DC configured present on bus before reference clock (e.g. The first DC Slave was not configured as potential reference clock)

Type
0x98110178

Type
ENI

EC_DLSTATUS_IRQ_TOPOCHANGED = 2551251248
Data link (DL) status interrupt because of changed topology (automatically handled by master)

Type
0x98110130

Type
SLV

EC_DUPLICATE = 2551250957
Duplicated fixed address detected (handled internally)

Type
0x9811000D

Type
ISW

EC_EEPROMASSIGNERROR = 2551251236
EEPROM assignment failed

Type
0x98110124

Type
SLV

EC_EEPROMREADERROR = 2551251057
Command error while EEPROM upload (read slave EEPROM)

Type
0x98110071

Type
SLV

EC_EEPROMRELOADERROR = 2551251216
Command error while EEPROM reload

Type
0x98110110

EC_EEPROMWRITEERROR = 2551251058
Command error while EEPROM download (write slave EEPROM)

Type
0x98110072

Type
SLV

EC_ENI_ENCRYPTED = 2551382026
Loading encrypted ENI needs OEM key

Type
0x9813000A

Type
OEM

EC_ENI_ENCRYPTION_WRONG_VERSION = 2551382025
ENI encryption algorithm version not supported

Type
0x98130009

Type
ENI, OEM

EC_ENI_NO_SAFEOP_OP_SUPPORT = 2551250976
Configuration doesn't support SAFEOP and OP requested state

Type
0x98110020

EC_EOE_MBX_WKC_ERROR = 2551251231
Mailbox receive: working counter

Type
0x9811011F

Type
EoE

EC_ERROR = 2551250944
Unspecific Error

Type
0x98110000

EC_ERROR2 = 2551382016
EC_ERROR2

EC_ERROR_LAST = 2551251327
EC_ERROR_LAST

EC_ERROR_LAST2 = 2551447551
EC_ERROR_LAST2

EC_EVAL_EXPIRED = 2551251000
Evaluation Time limit reached (e.g. License not provided and evaluation period (1 hour) of protected version exceeded)

Type
0x98110038

Type
CFG

EC_EVAL_VIOLATION = 2551250999
Configuration violates Evaluation limits (obsolete)

Type
0x98110037

Type
ENI

EC_FEATURE_DISABLED = 2551250972
Feature disabled (e.g. Application tried to perform a missing or disabled API function)

Type
0x9811001C

Type
APP

EC_FOE_ERRCODE_ACCESS = 2551251042
ERROR FoE: access denied (FoE Error Code 2 (0x8002) of slave)

Type
0x98110062

Type
SLV

EC_FOE_ERRCODE_BOOTSTRAPONLY = 2551251048
ERROR FoE: bootstrap only (FoE Error Code 8 (0x8008) of slave)

Type
0x98110068

Type
SLV

EC_FOE_ERRCODE_DISKFULL = 2551251043
ERROR FoE: disk full (FoE Error Code 3 (0x8003) of slave)

Type
0x98110063

Type
SLV

EC_FOE_ERRCODE_EXISTS = 2551251046
ERROR FoE: already exists (FoE Error Code 6 (0x8006) of slave)

Type
0x98110066

Type
SLV

EC_FOE_ERRCODE_FILE_HEAD_MISSING = 2551382017
ERROR FoE: File header does not exist (FoE Error Code 16 (0x8010) of slave)

Type
0x98130001

Type
SLV

EC_FOE_ERRCODE_FILE_INCOMPATIBLE = 2551382019
ERROR FoE: File incompatible (FoE Error Code 18 (0x8012) of slave)

Type
0x98130003

Type
SLV

EC_FOE_ERRCODE_FLASH_PROBLEM = 2551382018
ERROR FoE: Flash problem (FoE Error Code 17 (0x8011) of slave)

Type
0x98130002

Type
SLV

EC_FOE_ERRCODE_ILLEGAL = 2551251044
ERROR FoE: illegal (FoE Error Code 4 (0x8004) of slave)

Type
0x98110064

Type
SLV

EC_FOE_ERRCODE_INVALIDPASSWORD = 2551251050
ERROR FoE: no rights (FoE Error Code 10 (0x800A) of slave)

Type
0x9811006A

Type
SLV

EC_FOE_ERRCODE_INVALID_CHECKSUM = 2551251052
Wrong checksum

Type
0x9811006C

Type
FoE

EC_FOE_ERRCODE_INVALID_FIRMWARE = 2551251053
ERROR FoE: Firmware does not fit for Hardware (FoE Error Code 13 (0x800D) of slave)

Type
0x9811006D

Type
SLV

EC_FOE_ERRCODE_MAX_FILE_SIZE = 2551251322
ERROR FoE: File is bigger than max file size (e.g. Slave returned more data than the buffer provided by application can store.)

Type
0x9811017A

Type
APP

EC_FOE_ERRCODE_NOTDEFINED = 2551251040
ERROR FoE: not defined (FoE Error Code 0 (0x8000) of slave)

Type
0x98110060

Type
SLV

EC_FOE_ERRCODE_NOTFOUND = 2551251041
ERROR FoE: not found (FoE Error Code 1 (0x8001) of slave)

Type
0x98110061

Type
SLV

EC_FOE_ERRCODE_NOTINBOOTSTRAP = 2551251049
ERROR FoE: Downloaded file name is not valid in Bootstrap state (FoE Error Code 9 (0x8009) of slave)

Type
0x98110069

Type
SLV

EC_FOE_ERRCODE_NOUSER = 2551251047
ERROR FoE: no user (FoE Error Code 7 (0x8007) of slave)

Type
0x98110067

Type
SLV

EC_FOE_ERRCODE_NO_FILE = 2551251055
ERROR FoE: No file to read (FoE Error Code 15 (0x800F) of slave)

Type
0x9811006F

Type
SLV

EC_FOE_ERRCODE_PACKENO = 2551251045
ERROR FoE: packet number wrong (FoE Error Code 5 (0x8005) of slave)

Type
0x98110065

Type
SLV

EC_FOE_ERRCODE_PROGERROR = 2551251051
ERROR FoE: program error (FoE Error Code 11 (0x800B) of slave)

Type
0x9811006B

Type
SLV

EC_FOE_MBX_WKC_ERROR = 2551251232
Mailbox receive: working counter

Type
0x98110120

Type
FoE

EC_FRAMELOSS_AFTER_SLAVE = 2551251327
Frameloss after Slave (opening port destroys communication)

Type
0x9811017F

EC_FRAME_LOST = 2551250981
Frame lost, IDX mismatch (EtherCAT frame(s) lost on bus, means the response was not received. In case this error shows frequently a problem with the wiring could be the cause)

Type
0x98110025

Type
SLV

EC_IDENTIFICATIONFAILED = 2551250967
Identification failed (e.g. identification command failed)

Type
0x98110017

Type
ENI

EC_INSERTMAILBOX = 2551250963
Insert Mailbox error (internal limit MAX_QUEUED_COE_CMDS: 20)

Type
0x98110013

Type
CFG

EC_INVALIDCMD = 2551250964
Invalid Command (Unknown mailbox command code)

Type
0x98110014

Type
ISW

EC_INVALIDDATA = 2551250950
Invalid data (multiple error sources)

Type
0x98110006

Type
ISW

EC_INVALIDINDEX = 2551250946
Invalid index (e.g. CoE: invalid SDO index)

Type
0x98110002

Type
APP

EC_INVALIDOFFSET = 2551250947
Invalid offset (e.g. invalid offset while accessing Process Data Image)

Type
0x98110003

Type
ISW

EC_INVALIDPARM = 2551250955
Invalid parameter (e.g. API function called with erroneous parameter set)

Type
0x9811000B

Type
APP

EC_INVALIDSIZE = 2551250949
Invalid size

Type
0x98110005

Type
APP

EC_INVALIDSTATE = 2551250958
Invalid state (EtherCAT stack not initialized or not configured)

Type
0x9811000E

Type
ISW

EC_INVALID_DCL_MODE = 2551250984
IOCTL EC_IOCTL_DC_LATCH_REQ_LTIMVALS invalid in DCL auto read mode (this function cannot be used if DC Latching is running in mode “Auto Read”)

Type
0x98110028

Type
APP

EC_INVALID_SLAVE_STATE = 2551250986
Slave in invalid state, e.g. not in OP (API not callable in this state) (mailbox commands are not allowed in current slave state)

Type
0x9811002A

Type
APP

EC_JUNCTION_RED_LINE_BREAK = 2551382054
Junction redundancy line break

Type
0x98130026

EC_LICENSE_MISSING = 2551251001
License key invalid or missing

Type
0x98110039

EC_LINE_CROSSED = 2551251323
Line crossed (cabling wrong)

Type
0x9811017B

EC_LINE_CROSSED_SLAVE_INFO = 2551251324
Line crossed at slave (obsolete)

Type
0x9811017C

EC_LINK_DISCONNECTED = 2551250989
Ethernet link cable disconnected (e.g. EtherCAT bus segment not connected to network interface)

Type
0x9811002D

Type
SLV

EC_LOCK_CREATE_FAILED = 2551250968
Create lock failed (e.g. OsCreateLockTyped failed)

Type
0x98110018

Type
SYS

EC_MASTERCORE_INACCESSIBLE = 2551250990
Simulator core not accessible (e.g. Connection to remote server was terminated or simulator instance has been stopped on remote side)

Type
0x9811002E

Type
RAS

EC_MASTER_RED_STATE_ACTIVE = 2551382053
Master Redundancy State is ACTIVE (e.g. API not allowed in current Master Redundancy State)

Type
0x98130025

Type
APP

EC_MASTER_RED_STATE_INACTIVE = 2551382052
Master Redundancy State is INACTIVE (e.g. API not allowed in current Master Redundancy State)

Type
0x98130024

Type
APP

EC_MAX_BUS_SLAVES_EXCEEDED = 2551251311
Error: Maximum number of bus slave has been exceeded (The maximum number of preallocated bus slave objects is too small. The maximum number can be adjusted by the master initialization parameter EC_T_INITMASTERPARMS.dwMaxBusSlaves)

Type
0x9811016F

Type
CFG

EC_MBXERR_INVALIDCHANNEL = 2551251314
Mailbox error: Field contains wrong value (Slave error mailbox return value: 0x03)

Type
0x98110172

Type
SLV

EC_MBXERR_INVALIDHEADER = 2551251316
Mailbox error: The mailbox protocol header of the mailbox protocol is wrong (Slave error mailbox return value: 0x05)

Type
0x98110174

Type
SLV

EC_MBXERR_INVALIDSIZE = 2551251319
Mailbox error: The length of data is inconsistent (Slave error mailbox return value: 0x08)

Type
0x98110177

Type
SLV

EC_MBXERR_NOMOREMEMORY = 2551251318
Mailbox error: Mailbox protocol can not be processed because of limited resources (Slave error mailbox return value: 0x07)

Type
0x98110176

Type
SLV

EC_MBXERR_SERVICENOTSUPPORTED = 2551251315
Mailbox error: The addressed service in the mailbox protocol is not supported (Slave error mailbox return value: 0x04)

Type
0x98110173

Type
SLV

EC_MBXERR_SIZETOOSHORT = 2551251317
Mailbox error: Length of received mailbox data is too short (Slave error mailbox return value: 0x06)

Type
0x98110175

Type
SLV

EC_MBXERR_SYNTAX = 2551251312
Mailbox error: Syntax of 6 octet Mailbox header is wrong (Slave error mailbox return value: 0x01)

Type
0x98110170

Type
SLV

EC_MBXERR_UNSUPPORTEDPROTOCOL = 2551251313
Mailbox error: The Mailbox protocol is not supported (Slave error mailbox return value: 0x02)

Type
0x98110171

Type
SLV

EC_MBX_CMD_WKC_ERROR = 2551251259
Mailbox command working counter error (e.g. Mailbox init command Retry Count exceeded)

Type
0x9811013B

Type
SLV

EC_MBX_ERROR_TYPE = 2551251237
Unknown mailbox error code received in mailbox

Type
0x98110125

Type
SLV

EC_MCSM_FATAL_ERROR = 2551250979
Fatal internal McSm (master control state machine is in an undefined state)

Type
0x98110023

Type
ISW

EC_NOERROR = 0
No Error

Type
0x00000000

EC_NOMEMORY = 2551250954
No memory left (e.g. memory full / fragmented))

Type
0x9811000A

Type
CFG

EC_NOTFOUND = 2551250956
Not found (e.g. Network Information File ENI not found or API called with invalid slave ID)

Type
0x9811000C

Type
APP

EC_NOTREADY = 2551250951
Not ready (multiple error sources)

Type
0x98110007

Type
ISW

EC_NOTSUPPORTED = 2551250945
Feature not supported (e.g. function or property not available)

Type
0x98110001

Type
APP

EC_NO_AOE_SUPPORT = 2551251260
AoE: Protocol not supported (e.g. Application calls AoE-API although not implemented at slave)

Type
0x9811013C

Type
APP / SLV

EC_NO_COE_SUPPORT = 2551250994
CoE protocol not supported (e.g. Configuration error or slave information file doesn't match slave firmware)

Type
0x98110032

Type
ENI

EC_NO_EOE_SUPPORT = 2551250995
EoE protocol not supported (e.g. Configuration error or slave information file doesn't match slave firmware)

Type
0x98110033

Type
ENI

EC_NO_FOE_SUPPORT = 2551250996
FoE protocol not supported (e.g. Configuration error or slave information file doesn't match slave firmware)

Type
0x98110034

Type
ENI

EC_NO_FOE_SUPPORT_BS = 2551251215
ERROR FoE: Protocol not supported in boot strap (e.g. Application requested FoE in Bootstrap although slave does not support this)

Type
0x9811010F

Type
APP

EC_NO_MBX_SUPPORT = 2551250993
No mailbox support (e.g. Slave does not support mailbox access)

Type
0x98110031

Type
APP

EC_NO_SOE_SUPPORT = 2551250997
SoE protocol not supported (e.g. Configuration error or slave information file doesn't match slave firmware)

Type
0x98110035

Type
ENI

EC_NO_VOE_SUPPORT = 2551250998
VoE protocol not supported (e.g. Configuration error or slave information file doesn't match slave firmware)

Type
0x98110036

Type
ENI

EC_OEM_KEY_MISMATCH = 2551382027
OEM key mismatch

Type
0x9813000B

Type
RAS, APP

EC_OEM_KEY_MISSING = 2551382028
OEM key access needs OEM key set (e.g. Application must call esSetOemKey (HiL) or set EC_T_LINK_PARMS_SIMULATOR::qwOemKey (SiL))

Type
0x9813000C

Type
APP

EC_OEM_SIGNATURE_MISMATCH = 2551382024
Manufacturer signature mismatch

Type
0x98130008

Type
ENI, OEM

EC_OPENFAILED = 2551250961
Open failed

Type
0x98110011

Type
ISW

EC_PDIWATCHDOG = 2551382065
PDI watchdog expired

Type
0x98130031

EC_PORTCLOSE = 2551251062
Port close failed

Type
0x98110076

EC_PORTOPEN = 2551251063
Port open failed

Type
0x98110077

EC_PRODKEY_INVALID = 2551250970
Product Key Invalid (e.g. application using protected version of the stack, which stops operation after the evaluation time limit reached if a license is not provided)

Type
0x9811001A

Type
CFG

EC_PTS_IS_NOT_RUNNING = 2551251249
Pass Through Server is not running (Pass-Through-Server was tried to be enabled/disabled or stopped without being started)

Type
0x98110131

Type
PTS

EC_PTS_IS_RUNNING = 2551251250
Pass Through Server is running (obsolete, replaced by EC_E_ADS_IS_RUNNING)

Type
0x98110132

Type
PTS

EC_PTS_LL_MODE_NOT_SUPPORTED = 2551251254
The Link Layer mode is not supported by the Pass Through Server (e.g. The Master is running in interrupt mode but the Pass-Through-Server only supports polling mode)

Type
0x98110136

Type
PTS

EC_PTS_NOT_ENABLED = 2551251253
The Pass Through Server is running but not enabled

Type
0x98110135

Type
PTS

EC_PTS_SOCK_BIND_FAILED = 2551251252
The Pass Through Server could not bind the IP address with a socket (e.g. Possibly because the IPaddress (and Port) is already in use or the IP-address does not exist)

Type
0x98110134

Type
PTS

EC_PTS_THREAD_CREATE_FAILED = 2551251251
Could not start the Pass Through Server

Type
0x98110133

Type
PTS

EC_REDLINEBREAK = 2551251238
Redundancy line break (e.g. cable break between slaves or between EtherCAT network adapter and first slave)

Type
0x98110126

Type
SLV

EC_S2SMBX_DEST_SLAVE_NOT_FOUND = 2551382051
Destination Slave not found

Type
0x98130023

Type
S2S

EC_S2SMBX_NOT_CONFIGURED = 2551382048
Not Configured

Type
0x98130020

Type
S2S

EC_S2SMBX_NO_DESCRIPTOR = 2551382050
No Descriptor

Type
0x98130022

Type
S2S

EC_S2SMBX_NO_MEMORY = 2551382049
No Memory

Type
0x98130021

Type
S2S

EC_SDO_ABORTCODE_ACCESS = 2551251015
SDO: Unsupported access to an object (CoE abort code 0x06010000 of slave)

Type
0x98110047

Type
SLV

EC_SDO_ABORTCODE_BLK_SIZE = 2551251011
SDO: Invalid block size (block mode only) (CoE abort code 0x05040002 of slave)

Type
0x98110043

Type
SLV

EC_SDO_ABORTCODE_CA_TYPE_MISM = 2551382021
SDO: Complete access not supported for objects of variable length such as ENUM object types (CoE abort code 0x06010004 of slave)

Type
0x98130005

Type
SLV

EC_SDO_ABORTCODE_CCS_SCS = 2551251010
SDO: Client/server command specifier not valid or unknown (CoE abort code 0x05040001 of slave)

Type
0x98110042

Type
SLV

EC_SDO_ABORTCODE_CRC = 2551251013
SDO: CRC error (block mode only) (CoE abort code 0x05040004 of slave)

Type
0x98110045

Type
SLV

EC_SDO_ABORTCODE_DATA_LENGTH_NOT_MATCH = 2551251024
SDO: Data type does not match, length of service parameter does not match (CoE abort code 0x06070010 of slave)

Type
0x98110050

Type
SLV

EC_SDO_ABORTCODE_DATA_LENGTH_TOO_HIGH = 2551251025
SDO: Data type does not match, length of service parameter too high (CoE abort code 0x06070012 of slave)

Type
0x98110051

Type
SLV

EC_SDO_ABORTCODE_DATA_LENGTH_TOO_LOW = 2551251026
SDO: Data type does not match, length of service parameter too low (CoE abort code 0x06070013 of slave)

Type
0x98110052

Type
SLV

EC_SDO_ABORTCODE_DICTIONARY = 2551251036
SDO: Object dictionary dynamic generation fails or no object dictionary is present (e.g. object dictionary is generated from file and generation fails because of an file error) (CoE abort code 0x08000023 of slave)

Type
0x9811005C

Type
SLV

EC_SDO_ABORTCODE_FIRST = 2551251008
EC_SDO_ABORTCODE_FIRST

EC_SDO_ABORTCODE_GENERAL = 2551251032
SDO: General error (CoE abort code 0x08000000 of slave)

Type
0x98110058

Type
SLV

EC_SDO_ABORTCODE_HARDWARE = 2551251023
SDO: Access failed due to a hardware error (CoE abort code 0x06060000 of slave)

Type
0x9811004F

Type
SLV

EC_SDO_ABORTCODE_INDEX = 2551251018
SDO: Object does not exist in the object dictionary (CoE abort code 0x06020000 of slave)

Type
0x9811004A

Type
SLV

EC_SDO_ABORTCODE_I_INCOMP = 2551251022
SDO: General internal incompatibility in the device (CoE abort code 0x06040047 of slave)

Type
0x9811004E

Type
SLV

EC_SDO_ABORTCODE_LAST = 2551251038
EC_SDO_ABORTCODE_LAST

EC_SDO_ABORTCODE_MEMORY = 2551251014
SDO: Out of memory (CoE abort code 0x05040005 of slave)

Type
0x98110046

Type
SLV

EC_SDO_ABORTCODE_MINMAX = 2551251031
SDO: Maximum value is less than minimum value (CoE abort code 0x06090036 of slave)

Type
0x98110057

Type
SLV

EC_SDO_ABORTCODE_MODULE_ID_LIST_NOT_MATCH = 2551251038
Detected Module Ident List (0xF030) and Configured Module Ident list (0xF050) does not match

Type
0x9811005E

EC_SDO_ABORTCODE_OBJ_TOO_BIG = 2551382022
SDO: Object length exceeds mailbox size (CoE abort code 0x06010005 of slave)

Type
0x98130006

Type
SLV

EC_SDO_ABORTCODE_OFFSET = 2551251027
SDO: Sub-index does not exist (CoE abort code 0x06090011 of slave)

Type
0x98110053

Type
SLV

EC_SDO_ABORTCODE_PDO_LEN = 2551251020
SDO: The number and length of the objects to be mapped would exceed PDO length (CoE abort code 0x06040042 of slave)

Type
0x9811004C

Type
SLV

EC_SDO_ABORTCODE_PDO_MAP = 2551251019
SDO: Object cannot be mapped to the PDO (CoE abort code 0x06040041 of slave)

Type
0x9811004B

Type
SLV

EC_SDO_ABORTCODE_PDO_MAPPED = 2551382023
SDO: Object mapped to RxPDO, SDO Download blocked (CoE abort code 0x06010006 of slave)

Type
0x98130007

Type
SLV

EC_SDO_ABORTCODE_P_INCOMP = 2551251021
SDO: General parameter incompatibility reason (CoE abort code 0x06040043 of slave)

Type
0x9811004D

Type
SLV

EC_SDO_ABORTCODE_READONLY = 2551251017
SDO: Attempt to write a read only object (CoE abort code 0x06010002 of slave)

Type
0x98110049

Type
SLV

EC_SDO_ABORTCODE_SEQNO = 2551251012
SDO: Invalid sequence number (block mode only) (CoE abort code 0x05040003 of slave)

Type
0x98110044

Type
SLV

EC_SDO_ABORTCODE_SI_NOT_WRITTEN = 2551382020
SDO: Sub Index cannot be written, SI0 must be 0 for write access (CoE abort code 0x06010003 of slave)

Type
0x98130004

Type
SLV

EC_SDO_ABORTCODE_TIMEOUT = 2551251009
SDO: Protocol timed out (CoE abort code 0x05040000 of slave)

Type
0x98110041

Type
SLV

EC_SDO_ABORTCODE_TOGGLE = 2551251008
SDO: Toggle bit not alternated (CoE abort code 0x05030000 of slave)

Type
0x98110040

Type
SLV

EC_SDO_ABORTCODE_TRANSFER = 2551251033
SDO: Data cannot be transferred or stored to the application (CoE abort code 0x08000020 of slave)

Type
0x98110059

Type
SLV

EC_SDO_ABORTCODE_TRANSFER_DEVICE_STATE = 2551251035
SDO: Data cannot be transferred or stored to the application because of the present device state (CoE abort code 0x08000022 of slave)

Type
0x9811005B

Type
SLV

EC_SDO_ABORTCODE_TRANSFER_LOCAL_CONTROL = 2551251034
SDO: Data cannot be transferred or stored to the application because of local control (CoE abort code 0x08000021 of slave)

Type
0x9811005A

Type
SLV

EC_SDO_ABORTCODE_UNKNOWN = 2551251037
SDO: Unknown code (Unknown CoE abort code of slave)

Type
0x9811005D

Type
SLV

EC_SDO_ABORTCODE_VALUE_RANGE = 2551251028
SDO: Value range of parameter exceeded (only for write access) (CoE abort code 0x06090030 of slave)

Type
0x98110054

Type
SLV

EC_SDO_ABORTCODE_VALUE_TOO_HIGH = 2551251029
SDO: Value of parameter written too high (CoE abort code 0x06090031 of slave)

Type
0x98110055

Type
SLV

EC_SDO_ABORTCODE_VALUE_TOO_LOW = 2551251030
SDO: Value of parameter written too low (CoE abort code 0x06090032 of slave)

Type
0x98110056

Type
SLV

EC_SDO_ABORTCODE_WRITEONLY = 2551251016
SDO: Attempt to read a write only object (CoE abort code 0x06010001 of slave)

Type
0x98110048

Type
SLV

EC_SENDFAILED = 2551250962
Frame send failed

Type
0x98110012

Type
LLA

EC_SHADOW_MEMORY = 2551250973
Shadow memory requested in wrong mode

Type
0x9811001D

EC_SIGNATURE_MISMATCH = 2551382064
Signature mismatch

Type
0x98130030

EC_SLAVECTRLRESETERROR = 2551251217
Command error while Reset Slave Controller

Type
0x98110111

EC_SLAVE_ERROR = 2551250980
Slave error (e.g. A slave error was detected. See also EC_NOTIFY_STATUS_SLAVE_ERROR and EC_NOTIFY_SLAVE_ERROR_STATUS_INFO)

Type
0x98110024

Type
SLV

EC_SLAVE_NOT_ADDRESSABLE = 2551250987
Station address lost (or slave missing) - FPRD to AL_STATUS failed (e.g. Slave had a power cycle)

Type
0x9811002B

Type
SLV

EC_SLAVE_NOT_PRESENT = 2551251214
command not executed (slave not present on bus) (e.g. slave disappeared or was never present)

Type
0x9811010E

Type
APP / SLV

EC_SOCKET_DISCONNECTED = 2551251325
Socket disconnected (e.g. IP connection terminated or lost)

Type
0x9811017D

Type
RAS

EC_SOE_ERRCODE_NO_ELEM_ADR = 2551251213
No element addressed

Type
0x9811010D

Type
ERROR SoE

EC_SOE_ERRORCODE_ALREADY_ACTIVE = 2551251103
Command already active

Type
0x9811009F

Type
ERROR SoE

EC_SOE_ERRORCODE_ATTR_UNCHANGE = 2551251074
Attribute unchangeable

Type
0x98110082

Type
ERROR SoE

EC_SOE_ERRORCODE_ATTR_WR_PROT = 2551251075
Attribute currently write-protected

Type
0x98110083

Type
ERROR SoE

EC_SOE_ERRORCODE_BUFFER_FULL = 2551251206
RX buffer full (EtherCAT call with to small data-buffer)

Type
0x98110106

Type
ERROR SoE

EC_SOE_ERRORCODE_CMD_NOT_AVAIL = 2551251201
Command not available (in this phase)

Type
0x98110101

Type
ERROR SoE

EC_SOE_ERRORCODE_CMD_NOT_AVAIL1 = 2551251202
Command not available (invalid parameter)

Type
0x98110102

Type
ERROR SoE

EC_SOE_ERRORCODE_DATA_INCOR = 2551251098
Data item incorrect

Type
0x9811009A

Type
ERROR SoE

EC_SOE_ERRORCODE_DATA_MAX_LIMIT = 2551251097
Data item exceeds maximum input value limit

Type
0x98110099

Type
ERROR SoE

EC_SOE_ERRORCODE_DATA_MIN_LIMIT = 2551251096
Data item less than minimum input value limit

Type
0x98110098

Type
ERROR SoE

EC_SOE_ERRORCODE_DATA_NOT_EXIST = 2551251091
Data item does not exist

Type
0x98110093

Type
ERROR SoE

EC_SOE_ERRORCODE_DATA_OVERSIZE = 2551251093
Data item oversize in transmission

Type
0x98110095

Type
ERROR SoE

EC_SOE_ERRORCODE_DATA_UNCHANGE = 2551251094
Data item unchangeable

Type
0x98110096

Type
ERROR SoE

EC_SOE_ERRORCODE_DATA_UNDERSIZE = 2551251092
Data item undersize in transmission

Type
0x98110094

Type
ERROR SoE

EC_SOE_ERRORCODE_DATA_WR_PROT = 2551251095
Data item currently write-protected

Type
0x98110097

Type
ERROR SoE

EC_SOE_ERRORCODE_DEFAULT_LONG = 2551251209
Default value transmission too long

Type
0x98110109

Type
ERROR SoE

EC_SOE_ERRORCODE_DEFAULT_WP = 2551251210
Default value cannot be changed, read only

Type
0x9811010A

Type
ERROR SoE

EC_SOE_ERRORCODE_DRIVE_NO = 2551251203
Response drive number not identical with requested drive number

Type
0x98110103

Type
ERROR SoE

EC_SOE_ERRORCODE_FRAGMENT_LOST = 2551251205
At least one fragment lost

Type
0x98110105

Type
ERROR SoE

EC_SOE_ERRORCODE_GENERAL_ERROR = 2551251212
General error

Type
0x9811010C

Type
ERROR SoE

EC_SOE_ERRORCODE_IDN = 2551251204
Response IDN not identical with requested IDN

Type
0x98110104

Type
ERROR SoE

EC_SOE_ERRORCODE_INVALID_ACCESS = 2551251064
Invalid access to element 0

Type
0x98110078

Type
ERROR SoE

EC_SOE_ERRORCODE_INVL_ACC_ELEM1 = 2551251066
Invalid access to element 1

Type
0x9811007A

Type
ERROR SoE

EC_SOE_ERRORCODE_INVL_DRIVE_NO = 2551251211
Invalid drive number

Type
0x9811010B

Type
ERROR SoE

EC_SOE_ERRORCODE_INVL_INDIRECT = 2551251101
Invalid indirect

Type
0x9811009D

Type
ERROR SoE

EC_SOE_ERRORCODE_MAX_NOT_EXIST = 2551251086
Maximum input value does not exist

Type
0x9811008E

Type
ERROR SoE

EC_SOE_ERRORCODE_MAX_OVERSIZE = 2551251088
Maximum input value oversize in transmission

Type
0x98110090

Type
ERROR SoE

EC_SOE_ERRORCODE_MAX_UNCHANGE = 2551251089
Maximum input value unchangeable

Type
0x98110091

Type
ERROR SoE

EC_SOE_ERRORCODE_MAX_UNDERSIZE = 2551251087
Maximum input value undersize in transmission

Type
0x9811008F

Type
ERROR SoE

EC_SOE_ERRORCODE_MAX_WR_PROT = 2551251090
Maximum input value currently write-protected

Type
0x98110092

Type
ERROR SoE

EC_SOE_ERRORCODE_MIN_NOT_EXIST = 2551251081
Minimum input value does not exist

Type
0x98110089

Type
ERROR SoE

EC_SOE_ERRORCODE_MIN_OVERSIZE = 2551251083
Minimum input value oversize in transmission

Type
0x9811008B

Type
ERROR SoE

EC_SOE_ERRORCODE_MIN_UNCHANGE = 2551251084
Minimum input value unchangeable

Type
0x9811008C

Type
ERROR SoE

EC_SOE_ERRORCODE_MIN_UNDERSIZE = 2551251082
Minimum input value undersize in transmission

Type
0x9811008A

Type
ERROR SoE

EC_SOE_ERRORCODE_MIN_WR_PROT = 2551251085
Minimum input value currently write-protected

Type
0x9811008D

Type
ERROR SoE

EC_SOE_ERRORCODE_NAME_NOT_EXIST = 2551251067
Name does not exist

Type
0x9811007B

Type
ERROR SoE

EC_SOE_ERRORCODE_NAME_OVERSIZE = 2551251069
Name oversize in transmission

Type
0x9811007D

Type
ERROR SoE

EC_SOE_ERRORCODE_NAME_UNCHANGE = 2551251070
Name unchangeable

Type
0x9811007E

Type
ERROR SoE

EC_SOE_ERRORCODE_NAME_UNDERSIZE = 2551251068
Name undersize in transmission

Type
0x9811007C

Type
ERROR SoE

EC_SOE_ERRORCODE_NAME_WR_PROT = 2551251071
Name currently write-protected

Type
0x9811007F

Type
ERROR SoE

EC_SOE_ERRORCODE_NOT_EXIST = 2551251065
Does not exist

Type
0x98110079

Type
ERROR SoE

EC_SOE_ERRORCODE_NOT_INTERRUPT = 2551251200
Command not interruptible

Type
0x98110100

Type
ERROR SoE

EC_SOE_ERRORCODE_NO_DATA = 2551251207
No data state

Type
0x98110107

Type
ERROR SoE

EC_SOE_ERRORCODE_NO_DEFAULT_VALUE = 2551251208
No default value

Type
0x98110108

Type
ERROR SoE

EC_SOE_ERRORCODE_OVERS_TRANS = 2551251073
Attribute oversize in transmission

Type
0x98110081

Type
ERROR SoE

EC_SOE_ERRORCODE_PASWD_PROT = 2551251099
Data item protected by password

Type
0x9811009B

Type
ERROR SoE

EC_SOE_ERRORCODE_TEMP_UNCHANGE = 2551251100
Data item temporary unchangeable (in AT or MDT)

Type
0x9811009C

Type
ERROR SoE

EC_SOE_ERRORCODE_TEMP_UNCHANGE1 = 2551251102
Data item temporary unchangeable (parameter or opmode)

Type
0x9811009E

Type
ERROR SoE

EC_SOE_ERRORCODE_UNDERS_TRANS = 2551251072
Attribute undersize in transmission

Type
0x98110080

Type
ERROR SoE

EC_SOE_ERRORCODE_UNIT_NOT_EXIST = 2551251076
Unit does not exist

Type
0x98110084

Type
ERROR SoE

EC_SOE_ERRORCODE_UNIT_OVERSIZE = 2551251078
Unit oversize in transmission

Type
0x98110086

Type
ERROR SoE

EC_SOE_ERRORCODE_UNIT_UNCHANGE = 2551251079
Unit unchangeable

Type
0x98110087

Type
ERROR SoE

EC_SOE_ERRORCODE_UNIT_UNDERSIZE = 2551251077
Unit undersize in transmission

Type
0x98110085

Type
ERROR SoE

EC_SOE_ERRORCODE_UNIT_WR_PROT = 2551251080
Unit currently write-protected

Type
0x98110088

Type
ERROR SoE

EC_SOE_MBX_WKC_ERROR = 2551251233
mailbox receive: working counter

Type
0x98110121

Type
SoE

EC_SYSDRIVERMISSING = 2551251218
Cannot open system driver (e.g. system driver was not loaded)

Type
0x98110112

Type
SYS

EC_TIMEOUT = 2551250960
Timeout

Type
0x98110010

EC_TIMEOUT_WAITING_FOR_DC = 2551382056
Timeout waiting for DC

Type
0x98130028

EC_TIMEOUT_WAITING_FOR_DCM = 2551382057
Timeout waiting for DCM

Type
0x98130029

EC_TIMER_LIST_FULL = 2551250959
Cannot add slave to timer list (slave timer list full)

Type
0x9811000F

Type
ISW

EC_UNKNOWN_MBX_PROTOCOL = 2551250965
Unknown Mailbox Protocol Command (Unknown Mailbox protocol or mailbox command with unknown protocol association)

Type
0x98110015

Type
ISW

EC_VALIDATION_ERROR = 2551382055
Validation error (validation data mismatch)

Type
0x98130027

EC_VERSION_MISMATCH = 2551250969
Version mismatch for loaded library

Type
0x98110019

Type
APP

EC_VOE_MBX_WKC_ERROR = 2551251235
VoE mailbox send: working counter (VoE mailbox couldn't be written)

Type
0x98110123

Type
SLV

EC_VOE_NO_MBX_RECEIVED = 2551251255
No VoE mailbox received yet from specific slave

Type
0x98110137

Type
SLV

EC_WRONG_FORMAT = 2551250971
Wrong configuration format (e.g. Network information file empty or malformed), SLV: Malformed EEPROM content

Type
0x9811001B

Type
ENI

EC_XML_ALSTATUS_READ_MISSING = 2551250978
AL_STATUS register read missing in XML file for at least one state (e.g. Read of AL Status register is missing in cyclic part of given network information file)

Type
0x98110022

Type
ENI

EC_XML_AOE_NETID_INVALID = 2551251310
AoE: Invalid NetID (e.g. Error from Configuration Tool)

Type
0x9811016E

Type
ENI

EC_XML_CYCCMDS_MISSING = 2551250977
Cyclic commands are missing (e.g. Network information file does not contain cyclic commands)

Type
0x98110021

Type
ENI

EC_XML_CYCCMDS_SIZEMISMATCH = 2551251059
Cyclic command wrong size (too long) (size in network configuration file (XML) does not match size of process data)

Type
0x98110073

Type
ENI

EC_XML_DC_CYCCMDS_MISSING = 2551251241
DC enabled and DC cyclic commands missing (e.g. access to 0x0900)

Type
0x98110129

EC_XML_INCONSISTENT = 2551382067
Inconsistent content

Type
0x98130033

Type
ENI

EC_XML_INVALID_CMD_WITH_RED = 2551251239
Invalid EtherCAT command in cyclic frame with redundancy (e.g. BRW commands are not allowed with redundancy)

Type
0x98110127

Type
ENI

EC_XML_INVALID_INP_OFF = 2551251060
Invalid input offset in cyclic command, please check InputOffs

Type
0x98110074

Type
ENI

EC_XML_INVALID_OUT_OFF = 2551251061
Invalid output offset in cyclic command, please check OutputOffs

Type
0x98110075

Type
ENI

EC_XML_PREV_PORT_MISSING = 2551251240
<PreviousPort>-tag is missing (e.g. if the auto increment address is not the first slave on the bus we check if a previous port tag OR a hot connect tag is available)

Type
0x98110128

Type
ENI

EMRAS_ACCESSLESS = 2551251336
No access to this call at this access level (e.g. a higher SPoC access level is needed to use the called Remote API function)

Type
0x98110188

Type
RAS

EMRAS_ACCESS_NOT_FOUND = 2551251352
Access not configured for this call (e.g. SPoC access configuration missing)

Type
0x98110198

Type
RAS

EMRAS_CLIENTLOGON = 2551251348
Client logged on

Type
0x98110194

Type
RAS Server

EMRAS_CLNTDISC = 2551251351
Client disconnect

Type
0x98110197

Type
RAS

EMRAS_ERROR = 2551251328
Unspecific RAS Error

Type
0x98110180

EMRAS_ERROR_LAST = 2551251391
EMRAS_ERROR_LAST

EMRAS_INVALIDACCESSCONFIG = 2551251335
Access configuration is invalid (e.g. SPoC access configuration invalid)

Type
0x98110187

Type
RAS

EMRAS_INVALIDCOOKIE = 2551251329
Invalid Cookie (e.g.obsolete)

Type
0x98110181

Type
RAS

EMRAS_INVALIDDATARECEIVED = 2551251337
Invalid data received (communication corrupted)

Type
0x98110189

Type
RAS

EMRAS_INVALIDVERSION = 2551251334
Invalid Version (Connection reject because of using mismatching protocol versions on client and server side)

Type
0x98110186

Type
RAS

EMRAS_LOGONCANCELLED = 2551251332
Logon canceled (Server-side connection reject while opening a client connection.)

Type
0x98110184

Type
RAS

EMRAS_MULSRVDISMULCON = 2551251331
Connect 2nd server denied because Multi Server support is disabled (obsolete)

Type
0x98110183

Type
RAS

EMRAS_RECONEXPIRED = 2551251347
Reconnect expired (obsolete)

Type
0x98110193

Type
RAS

EMRAS_RECONNECT = 2551251349
obsolete

Type
0x98110195

Type
RAS

EMRAS_SERVERSTOPPED = 2551251345
Server stopped (e.g. connection dropped because of Remote API Server stop)

Type
0x98110191

Type
RAS

EMRAS_SOCKCHANGE = 2551251350
Socket exchanged after reconnect (obsolete)

Type
0x98110196

Type
RAS

EMRAS_TLS_CERTIFICATE_ERROR = 2551251356
TLS certificate error

Type
0x9811019C

Type
RAS

EMRAS_TLS_HANDSHAKE_FAILED = 2551251358
TLS handshake failed

Type
0x9811019E

Type
RAS

EMRAS_TLS_PRIVATEKEY_ERROR = 2551251357
TLS private key error

Type
0x9811019D

Type
RAS

EMRAS_TOKEN_DENIED = 2551251355
Token denied

Type
0x9811019B

Type
RAS

EMRAS_TOKEN_INVALID = 2551251354
Token invalid

Type
0x9811019A

Type
RAS

EMRAS_TOKEN_MISSING = 2551251353
Token missing

Type
0x98110199

Type
RAS

EMRAS_WDEXPIRED = 2551251346
Watchdog expired (e.g. connection dropped because of missing keep-alive messages)

Type
0x98110192

Type
RAS

4 Examples

4.1 CoeSdoUpload

```
def CoeSdoUploadExample(self):
    wSlaveAddress = 1012 # slave with station address 1012
    wObIndex = 0x1018 # object index 0x1018
    byObSubIndex = 1 # subindex 1 (Vendor ID, which is from type UDINT with 4␣
↪bytes)
    dwDataLen = 4 # 4 bytes
    pbyData = [0] * dwDataLen
    out_dwOutDataLen = CEcWrapperPythonOutParam()
    dwTimeout = 5000 # timeout 5s
    dwFlags = EMailBoxFlags.NONE_ # no complete access

    dwSlaveId = self.m_oEcWrapper.GetSlaveId(wSlaveAddress)
    eRes = self.m_oEcWrapper.CoeSdoUpload(dwSlaveId, wObIndex, byObSubIndex,␣
↪pbyData, dwDataLen, out_dwOutDataLen, dwTimeout, dwFlags)
    if eRes != ECError.EC_NOERROR:
        self.LogMasterError("CoeSdoUpload failed: ", eRes)
        return

    dwOutDataLen = out_dwOutDataLen.value
    szValue = CEcWrapperPython.ConvValueToString(DN_EC_T_DEFTYPE.ARRAY_OF_BYTE,␣
↪pbyData)
    self.LogInfo("CoeSdoUpload success: " + szValue) # 02 00 00 00
```

4.2 CoeSdoDownload

```
def CoeSdoDownloadExample(self):
    wSlaveAddress = 1012 # slave with station address 1012
    wObIndex = 0x40A2 # object index 0x40A2
    byObSubIndex = 2 # subindex 2
    dwValue = 123 # value 123
    dwTimeout = 5000 # timeout 5s
    dwFlags = EMailBoxFlags.NONE_ # no complete access

    # convert UNSIGNED32 value to 4 bytes
    out_pbyData = CEcWrapperPythonOutParam()
    eRes = CEcWrapperPython.ConvValueToBytes(DN_EC_T_DEFTYPE.UNSIGNED32, dwValue,␣
↪out_pbyData)
    if eRes != ECError.EC_NOERROR:
        LogMasterError("ConvValueToBytes failed: ", eRes)
        return

    pbyData = out_pbyData.value
    dwSlaveId = self.m_oEcWrapper.GetSlaveId(wSlaveAddress)
    eRes = self.m_oEcWrapper.CoeSdoDownload(dwSlaveId, wObIndex, byObSubIndex,␣
↪pbyData, len(pbyData), dwTimeout, dwFlags)
    if eRes != ECError.EC_NOERROR:
        self.LogMasterError("CoeSdoDownload failed: ", eRes)
        return

    self.LogInfo("CoeSdoDownload success")
```

4.3 ReadSlaveEEPRom

```
def ReadSlaveEEPRomExample(self):
    bFixedAddressing = True # enable fixed addressing
    wSlaveAddress = 1006 # slave with station address 1006
    wEEPRomStartOffset = 0x0 # offset 0
    dwReadLen = 10 # 10 bytes
    pwReadData = [0] * dwReadLen
    out_dwNumOutData = CEcWrapperPythonOutParam()
    dwTimeout = 2000 # timeout 2s

    eRes = self.m_oEcWrapper.ReadSlaveEEPRom(bFixedAddressing, wSlaveAddress,␣
↪wEEPRomStartOffset, pwReadData, dwReadLen, out_dwNumOutData, dwTimeout)
    if eRes != ECError.EC_NOERROR:
        self.LogMasterError("ReadSlaveEEPRom failed: ", eRes)
        return

    dwNumOutDat = out_dwNumOutData.value
    szValue = CEcWrapperPython.ConvValueToString(DN_EC_T_DEFTYPE.ARRAY_OF_BYTE,␣
↪pwReadData)
    self.LogInfo("ReadSlaveEEPRom success: " + szValue)
```

4.4 FoeFileDownload

```
def FoeFileDownloadExample(self):
    wSlaveAddress = 1012 # slave with station address 1012
    szFileName = "foe.txt" # filename of file in slave
    pbyData = [ 1, 2, 3, 4 ] # 4 bytes
    dwPassword = 0  # password is 0
    dwTimeout = 2000 # timeout 2s

    dwSlaveId = self.m_oEcWrapper.GetSlaveId(wSlaveAddress)
    eRes = self.m_oEcWrapper.FoeFileDownload(dwSlaveId, szFileName,␣
↪len(szFileName), pbyData, len(pbyData), dwPassword, dwTimeout)
    if eRes != ECError.EC_NOERROR:
        self.LogMasterError("FoeFileDownload failed: ", eRes)
        return

    self.LogInfo("FoeFileDownload success")
```

5 FAQ

PyQt5 cannot be installed on Ubuntu 14.04 x64, because it requires Python 3.5. How can I install it?

It can be installed by calling

```
$ sudo apt-get install python3-pyqt5
```

I installed Python and the demo crashes with strange errors. What can I do?

This might be a problem of mixing x86 with x64 binaries. Verify that if you have installed the Python runtime for x64 bit, please install also EC-Simulator for x64 bit.

Python Module Index

e