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# **python-cybox Documentation**

*Release 2.1.0.20*

**The MITRE Corporation**

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The python-cybox library provides an API for developing and consuming Cyber Observable eXpression (CybOX) content. Developers can leverage the API to create applications that create, consume, translate, or otherwise work with CybOX content.



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**Versions**

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Each version of python-cybox is designed to work with a single version of the CybOX Language. The table below shows the latest version the library for each version of CybOX.

CybOX Version	python-cybox Version
2.1	2.1.0.20 ( <a href="#">PyPI</a> ) ( <a href="#">GitHub</a> )
2.0.1	2.0.1.4 ( <a href="#">PyPI</a> ) ( <a href="#">GitHub</a> )
2.0	2.0.0.1 ( <a href="#">PyPI</a> ) ( <a href="#">GitHub</a> )
1.0	1.0.0b3 ( <a href="#">PyPI</a> ) ( <a href="#">GitHub</a> )





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## 2.1 Getting Started with python-cybox

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**Note:** The python-cybox library is intended for developers who want to add CybOX support to existing programs or create new programs that handle CybOX content. Experience with Python development is assumed.

Other users should look at existing [tools](#) that support CybOX.

Understanding XML, XML Schema, and the CybOX language is also incredibly helpful when using python-cybox in an application.

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First, you should follow the *Installation* procedures.

### 2.1.1 Example Scripts

The python-cybox repository contains several [example scripts](#) that help illustrate the capabilities of the APIs. These scripts are simple command line utilities that can be executed by passing the name of the script to a Python interpreter.

```
$ python simple_email_instance.py
```

### 2.1.2 Writing Your Own Application

See the *Examples* page for more examples of using python-cybox in your own application.

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## 2.2 Installation

### 2.2.1 Recommended Installation

Use `pip`:

```
$ pip install cybox
```

You might also want to consider using a [virtualenv](#).

## 2.2.2 Dependencies

The python-cybox library is developed on Python 2.7 and tested against both Python 2.6 and 2.7. Besides the Python Standard Library, python-cybox relies on the following Python libraries:

- [lxml](#) - A Pythonic binding for the C libraries **libxml2** and **libxslt**.
- [python-dateutil](#) - A library for parsing datetime information.
- [importlib](#) (Python 2.6) - Convenience wrappers for `__import__()`.

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**Note:** `importlib` is [built into](#) Python 2.7, and is available on PyPI for Python 2.6.

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Each of these can be installed with `pip` or by manually downloading packages from PyPI. On Windows, you will probably have the most luck using [pre-compiled binaries](#) for `lxml`. On Ubuntu (12.04 or 14.04), you should make sure the following packages are installed before attempting to compile `lxml` from source:

- `libxml2-dev`
- `libxslt1-dev`
- `zlib1g-dev`

## 2.2.3 Manual Installation

If you are unable to use `pip`, you can also install python-cybox with [setuptools](#). If you don't already have `setuptools` installed, please install it before continuing.

1. Download and install the [dependencies](#) above. Although `setuptools` will generally install dependencies automatically, installing the dependencies manually beforehand helps distinguish errors in dependency installation from errors in python-cybox installation. Make sure you check to ensure the versions you install are compatible with the version of python-cybox you plan to install.
2. Download the desired version of python-cybox from [PyPI](#) or the [GitHub releases](#) page. The steps below assume you are using the 2.1.0.20 release.
3. Extract the downloaded file. This will leave you with a directory named `cybox-2.1.0.20`.

```
$ tar -zxf cybox-2.1.0.20.tar.gz
$ ls
cybox-2.1.0.20  cybox-2.1.0.20.tar.gz
```

OR

```
$ unzip cybox-2.1.0.20.zip
$ ls
cybox-2.1.0.20  cybox-2.1.0.20.zip
```

4. Run the installation script.

```
$ cd cybox-2.1.0.20
$ python setup.py install
```

5. Test the installation.

```
$ python
Python 2.7.6 (default, Mar 22 2014, 22:59:56)
[GCC 4.8.2] on linux2
Type "help", "copyright", "credits" or "license" for more information.
>>> import cybox
>>>
```

If you don't see an `ImportError`, the installation was successful.

## 2.2.4 Further Information

If you're new to installing Python packages, you can learn more at the [Python Packaging User Guide](#), specifically the [Installing Python Packages](#) section.

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## 2.3 Overview

This page provides a quick overview needed to understand the inner workings of the python-cybox library. If you prefer a more hands-on approach, browse the [Examples](#).

### 2.3.1 CybOX Entities

Each type within CybOX is represented by a class which derives from `cybox.Entity`. In general, there is one Python class per CybOX type, though in some cases classes which would have identical functionality have been reused rather than writing duplicating classes. One example of this is that many enumerated values are implemented using the `cybox.common.properties.String`, since values aren't checked to make sure they are valid enumeration values.

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**Note:** Not all CybOX types have yet been implemented.

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### 2.3.2 Controlled Vocabulary Strings

Controlled Vocabulary strings are a concept originally designed for STIX and adapted for use in CybOX as well. For background, see the [STIX documentation](#). Controlled Vocabulary strings are implemented in the `cybox` Python package very similarly to how they are implemented in the `stix` package, so viewing the [python-stix documentation](#) should help explain how to work with CybOX Controlled Vocabulary strings as well. CybOX vocabularies are defined in the `cybox.common.vocabs` module.

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## 2.4 Examples

This page includes some basic examples of creating and parsing CybOX content.

There are a couple things we do in these examples for purposes of demonstration that shouldn't be done in production code:

- When calling `to_xml()`, we use `include_namespaces=False`. This is to make the example output easier to read, but means the resulting output cannot be successfully parsed. The XML parser doesn't know what namespaces to use if they aren't included. In production code, you should explicitly set `include_namespaces` to `True` or omit it entirely (`True` is the default).
- We use `set_id_method(IDGenerator.METHOD_INT)` to make IDs for Objects and Observables easier to read and cross-reference within the XML document. In production code, you should omit this statement, which causes random UUIDs to be created instead, or create explicit IDs yourself for objects and observables.

## 2.4.1 Creating Objects

The easiest way to create an object is to construct one and then set various properties on it.

```
from cybox.objects.file_object import File
f = File()
f.file_name = "malware.exe"
f.file_path = "C:\Windows\Temp\malware.exe"
print(f.to_xml(include_namespaces=False, encoding=None))
```

Which outputs:

```
<FileObj:FileObjectType xsi:type="FileObj:FileObjectType">
  <FileObj:File_Name>malware.exe</FileObj:File_Name>
  <FileObj:File_Path>C:\Windows\Temp\malware.exe</FileObj:File_Path>
</FileObj:FileObjectType>
```

For some objects, such as the `AddressObject`, you can pass parameters directly into the constructor.

```
from cybox.objects.address_object import Address
a = Address("1.2.3.4", Address.CAT_IPV4)
print(a.to_xml(include_namespaces=False, encoding=None))
```

```
<AddressObj:AddressObjectType xsi:type="AddressObj:AddressObjectType" category="ipv4-addr">
  <AddressObj:Address_Value>1.2.3.4</AddressObj:Address_Value>
</AddressObj:AddressObjectType>
```

## 2.4.2 Creating Observables

Full CybOX documents are expected to have `Observables` as the root element. You can pass any object to the `Observables` constructor to generate the proper XML.

```
from mixbox.idgen import IDGenerator, set_id_method
from cybox.core import Observables
from cybox.objects.file_object import File
set_id_method(IDGenerator.METHOD_INT)
f = File()
f.file_name = "malware.exe"
f.file_path = "C:\Windows\Temp\malware.exe"
print(Observables(f).to_xml(include_namespaces=False, encoding=None))
```

```
<cybox:Observables cybox_major_version="2" cybox_minor_version="1" cybox_update_version="0">
  <cybox:Observable id="example:Observable-1">
    <cybox:Object id="example:File-2">
      <cybox:Properties xsi:type="FileObj:FileObjectType">
        <FileObj:File_Name>malware.exe</FileObj:File_Name>
        <FileObj:File_Path>C:\Windows\Temp\malware.exe</FileObj:File_Path>
```

```

        </cybox:Properties>
    </cybox:Object>
</cybox:Observable>
</cybox:Observables>

```

To include multiple objects as individual Observables within one document, you can pass them as a list to the Observables constructor.

```

from mixbox.idgen import IDGenerator, set_id_method
from cybox.core import Observables
from cybox.objects.address_object import Address
from cybox.objects.uri_object import URI
set_id_method(IDGenerator.METHOD_INT)
a = Address("1.2.3.4", Address.CAT_IPV4)
u = URI("http://cybox.mitre.org/")
print(Observables([a, u]).to_xml(include_namespaces=False, encoding=None))

```

```

<cybox:Observables cybox_major_version="2" cybox_minor_version="1" cybox_update_version="0">
  <cybox:Observable id="example:Observable-1">
    <cybox:Object id="example:Address-2">
      <cybox:Properties xsi:type="AddressObj:AddressObjectType" category="ipv4-addr">
        <AddressObj:Address_Value>1.2.3.4</AddressObj:Address_Value>
      </cybox:Properties>
    </cybox:Object>
  </cybox:Observable>
  <cybox:Observable id="example:Observable-3">
    <cybox:Object id="example:URI-4">
      <cybox:Properties xsi:type="URIObj:URIObjectType">
        <URIObj:Value>http://cybox.mitre.org/</URIObj:Value>
      </cybox:Properties>
    </cybox:Object>
  </cybox:Observable>
</cybox:Observables>

```

### 2.4.3 HTTP Message Body

When outputting XML, by default, reserved XML characters such as < and > are escaped by default.

```

from cybox.objects.http_session_object import HTTPMessage
m = HTTPMessage()
m.message_body = "<html><title>An HTML page</title><body><p>Body text</p></body></html>"
m.length = len(m.message_body.value)
print(m.to_xml(include_namespaces=False, encoding=None))

```

```

<HTTPSessionObj:HTTPMessageType>
  <HTTPSessionObj:Length>69</HTTPSessionObj:Length>
  <HTTPSessionObj:Message_Body>&lt;html&gt;&lt;title&gt;An HTML page&lt;/title&gt;&lt;body&gt;&lt;p&gt;Body text&lt;/p&gt;&lt;/body&gt;&lt;/html&gt;
</HTTPSessionObj:HTTPMessageType>

```

When you parse this content, these characters are converted back.

```

from cybox.bindings.http_session_object import parseString
m2 = HTTPMessage.from_obj(parseString(m.to_xml(encoding=None)))
print(m2.message_body)

```

```

<html><title>An HTML page</title><body><p>Body text</p></body></html>

```

## 2.4.4 HTTP User Agent

```

from cybox.objects.http_session_object import *
fields = HTTPRequestHeaderFields()
fields.user_agent = 'Mozilla/5.0 (Windows NT 6.1; Win64; x64; rv:25.0) Gecko/20100101 Firefox/25.0'

header = HTTPRequestHeader()
header.parsed_header = fields

request = HTTPClientRequest()
request.http_request_header = header

req_res = HTTPRequestResponse()
req_res.http_client_request = request

session = HTTPSession()
session.http_request_response = [req_res]

print(session.to_xml(include_namespaces=False, encoding=None))

```

```

<HTTPSessionObj:HTTPSessionObjectType xsi:type="HTTPSessionObj:HTTPSessionObjectType">
  <HTTPSessionObj:HTTP_Request_Response>
    <HTTPSessionObj:HTTP_Client_Request>
      <HTTPSessionObj:HTTP_Request_Header>
        <HTTPSessionObj:Parsed_Header>
          <HTTPSessionObj:User_Agent>Mozilla/5.0 (Windows NT 6.1; Win64; x64; rv:25.0) Gecko/20100101 Firefox/25.0
        </HTTPSessionObj:Parsed_Header>
      </HTTPSessionObj:HTTP_Request_Header>
    </HTTPSessionObj:HTTP_Client_Request>
  </HTTPSessionObj:HTTP_Request_Response>
</HTTPSessionObj:HTTPSessionObjectType>

```

## 2.4.5 Objects with DateTime properties

When setting DateTime properties on objects, you can either use a native Python `datetime.datetime` or a string. The `python-dateutil` library is used to parse strings into dates, so a wide variety of formats is supported.

```

import datetime
from cybox.objects.email_message_object import EmailMessage
e = EmailMessage()
e.from_ = "spammer@spam.com"
e.subject = "This is not spam"
e.date = datetime.datetime(2012, 1, 17, 8, 35, 6)
print(e.to_xml(include_namespaces=False, encoding=None))

```

```

<EmailMessageObj:EmailMessageObjectType xsi:type="EmailMessageObj:EmailMessageObjectType">
  <EmailMessageObj:Header>
    <EmailMessageObj:From xsi:type="AddressObj:AddressObjectType" category="e-mail">
      <AddressObj:Address_Value>spammer@spam.com</AddressObj:Address_Value>
    </EmailMessageObj:From>
    <EmailMessageObj:Subject>This is not spam</EmailMessageObj:Subject>
    <EmailMessageObj:Date>2012-01-17T08:35:06</EmailMessageObj:Date>
  </EmailMessageObj:Header>
</EmailMessageObj:EmailMessageObjectType>

```

```

from cybox.objects.email_message_object import EmailMessage
e = EmailMessage()
e.date = "Mon, 14 Oct, 2013 12:32:03 -0500"
print(e.to_xml(include_namespaces=False, encoding=None))

```

```

<EmailMessageObj:EmailMessageObjectType xsi:type="EmailMessageObj:EmailMessageObjectType">
  <EmailMessageObj:Header>
    <EmailMessageObj:Date>2013-10-14T12:32:03-05:00</EmailMessageObj:Date>
  </EmailMessageObj:Header>
</EmailMessageObj:EmailMessageObjectType>

```

## 2.4.6 Hashes

In many cases you can pass a dictionary or a list to create an instance of a CybOX type.

```

from cybox.common import HashList
h = HashList.from_list([{'type': 'MD5', 'simple_hash_value': 'FFFFFF'},
                       {'type': 'SHA1', 'simple_hash_value': 'FFFFFF'}])
print(h.to_xml(include_namespaces=False, encoding=None))

```

```

<cyboxCommon:HashListType>
  <cyboxCommon:Hash>
    <cyboxCommon:Type>MD5</cyboxCommon:Type>
    <cyboxCommon:Simple_Hash_Value>FFFFFF</cyboxCommon:Simple_Hash_Value>
  </cyboxCommon:Hash>
  <cyboxCommon:Hash>
    <cyboxCommon:Type>SHA1</cyboxCommon:Type>
    <cyboxCommon:Simple_Hash_Value>FFFFFF</cyboxCommon:Simple_Hash_Value>
  </cyboxCommon:Hash>
</cyboxCommon:HashListType>

```

This can easily be incorporated into constructing objects as well.

```

from cybox.objects.win_file_object import WinFile
f = WinFile()
f.file_name = "foo.exe"
f.drive = "C:\\\\"
f.hashes = h
print(f.to_xml(include_namespaces=False, encoding=None))

```

```

<WinFileObj:WindowsFileObjectType xsi:type="WinFileObj:WindowsFileObjectType">
  <FileObj:File_Name>foo.exe</FileObj:File_Name>
  <FileObj:Hashes>
    <cyboxCommon:Hash>
      <cyboxCommon:Type>MD5</cyboxCommon:Type>
      <cyboxCommon:Simple_Hash_Value>FFFFFF</cyboxCommon:Simple_Hash_Value>
    </cyboxCommon:Hash>
    <cyboxCommon:Hash>
      <cyboxCommon:Type>SHA1</cyboxCommon:Type>
      <cyboxCommon:Simple_Hash_Value>FFFFFF</cyboxCommon:Simple_Hash_Value>
    </cyboxCommon:Hash>
  </FileObj:Hashes>
  <WinFileObj:Drive>C:\\</WinFileObj:Drive>
</WinFileObj:WindowsFileObjectType>

```

## 2.4.7 Object Subclasses

The WindowsFile object is a subclass of the File object. As you can see, the correct namespaces for the various properties are set.

```
from cybox.objects.win_file_object import WinFile
f = WinFile()
f.file_name = "blah.exe"
f.drive = "C:\\\\"
print(f.to_xml(include_namespaces=False, encoding=None))
```

```
<WinFileObj:WindowsFileObjectType xsi:type="WinFileObj:WindowsFileObjectType">
  <FileObj:File_Name>blah.exe</FileObj:File_Name>
  <WinFileObj:Drive>C:\\</WinFileObj:Drive>
</WinFileObj:WindowsFileObjectType>
```

As another example, the WinUser object is a refinement of the UserAccount object, which itself is a refinement of the Account object. As with Hashes, these can be constructed from a dictionary representation.

```
from cybox.objects.win_user_object import WinUser
winuser_dict = {
    # Account-specific fields
    'disabled': False,
    'domain': 'ADMIN',
    # UserAccount-specific fields
    'password_required': True,
    'full_name': "Steve Ballmer",
    'home_directory': "C:\\Users\\ballmer\\",
    'last_login': "2011-05-12T07:14:01+07:00",
    'username': "ballmer",
    'user_password_age': "P180D",
    # WinUser-specific fields
    'security_id': "S-1-5-21-3623811015-3361044348-30300820-1013",
    'security_type': "SidTypeUser",
    'xsi:type': 'WindowsUserAccountObjectType',
}
print(WinUser.from_dict(winuser_dict).to_xml(include_namespaces=False, encoding=None))
```

```
<WinUserAccountObj:WindowsUserAccountObjectType xsi:type="WinUserAccountObj:WindowsUserAccountObjectType">
  disabled="false" password_required="true">
  <AccountObj:Domain>ADMIN</AccountObj:Domain>
  <UserAccountObj:Full_Name>Steve Ballmer</UserAccountObj:Full_Name>
  <UserAccountObj:Home_Directory>C:\\Users\\ballmer\\</UserAccountObj:Home_Directory>
  <UserAccountObj:Last_Login>2011-05-12T07:14:01+07:00</UserAccountObj:Last_Login>
  <UserAccountObj:Username>ballmer</UserAccountObj:Username>
  <UserAccountObj:User_Password_Age>P180D</UserAccountObj:User_Password_Age>
  <WinUserAccountObj:Security_ID>S-1-5-21-3623811015-3361044348-30300820-1013</WinUserAccountObj:Security_ID>
  <WinUserAccountObj:Security_Type>SidTypeUser</WinUserAccountObj:Security_Type>
</WinUserAccountObj:WindowsUserAccountObjectType>
```

## 2.4.8 ObservableCompositions

```
from mixbox.idgen import IDGenerator, set_id_method
from cybox.core import Observable, Observables, ObservableComposition
from cybox.objects.file_object import File
from cybox.objects.process_object import Process
set_id_method(IDGenerator.METHOD_INT)
```



```

observables = Observables()

proc = Process.from_dict(
    {"name": "cmd.exe",
     "image_info": {"command_line": "cmd.exe /c blah.bat"}})
proc.name.condition = "Equals"
proc.image_info.command_line.condition = "Contains"
oproc = Observable(proc)
observables.add(oproc)

f = File.from_dict({"file_name": "blah", "file_extension": "bat"})
f.file_name.condition = "Contains"
f.file_extension.condition = "Equals"
ofile = Observable(f)
observables.add(ofile)

oproc_ref = Observable()
oproc_ref.id_ = None
oproc_ref.idref = oproc.id_

ofile_ref = Observable()
ofile_ref.id_ = None
ofile_ref.idref = ofile.id_

o_comp = ObservableComposition(operator="OR")
o_comp.add(oproc_ref)
o_comp.add(ofile_ref)
observables.add(Observable(o_comp))

print(observables.to_xml(include_namespaces=False, encoding=None))

```

```

<cybox:Observables cybox_major_version="2" cybox_minor_version="1" cybox_update_version="0">
  <cybox:Observable id="example:Observable-1">
    <cybox:Object id="example:Process-2">
      <cybox:Properties xsi:type="ProcessObj:ProcessObjectType">
        <ProcessObj:Name condition="Equals">cmd.exe</ProcessObj:Name>
        <ProcessObj:Image_Info>
          <ProcessObj:Command_Line condition="Contains">cmd.exe /c blah.bat</ProcessObj:Command_Line>
        </ProcessObj:Image_Info>
      </cybox:Properties>
    </cybox:Object>
  </cybox:Observable>
  <cybox:Observable id="example:Observable-3">
    <cybox:Object id="example:File-4">
      <cybox:Properties xsi:type="FileObj:FileObjectType">
        <FileObj:File_Name condition="Contains">blah</FileObj:File_Name>
        <FileObj:File_Extension condition="Equals">bat</FileObj:File_Extension>
      </cybox:Properties>
    </cybox:Object>
  </cybox:Observable>
  <cybox:Observable id="example:Observable-7">
    <cybox:Observable_Composition operator="OR">
      <cybox:Observable idref="example:Observable-1">
      </cybox:Observable>
      <cybox:Observable idref="example:Observable-3">
      </cybox:Observable>
    </cybox:Observable_Composition>
  </cybox:Observable>
</cybox:Observables>

```

```
</cybox:Observables>
```

## 2.4.9 Parsing example

Just as you can call `to_xml()` to generate XML, you can call `parseString` to parse an XML string.

```
>>> import cybox.bindings.file_object as file_binding
>>> from cybox.objects.file_object import File
>>> a = """
... <FileObj:FileObjectType
...     xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
...     xmlns:FileObj="http://cybox.mitre.org/objects#FileObject-2"
...     xsi:type="FileObj:FileObjectType">
...     <FileObj:File_Name condition="Contains">bad.exe</FileObj:File_Name>
... </FileObj:FileObjectType>
... """
>>> file_obj = file_binding.parseString(a)
>>> type(file_obj)
<class 'cybox.bindings.file_object.FileObjectType'>
>>> f = File.from_obj(file_obj)
>>> f.file_name.value
'bad.exe'
>>> str(f.file_name)
'bad.exe'
>>> f.file_name.condition
'Contains'
```

## 2.4.10 Comparisons

CyBOX objects can be compared for equality using the standard Python equality operator. By default, every field must be equal between the two objects. However, you can explicitly say that some fields should not be considered.

```
>>> from cybox.objects.file_object import File

>>> file_1 = File.from_dict({'file_name': 'abcd.dll', 'size_in_bytes': '25556'})
>>> file_2 = File.from_dict({'file_name': 'abcd.dll', 'size_in_bytes': '25556'})
>>> file_3 = File.from_dict({'file_name': 'abcd.dll', 'size_in_bytes': '1337'})

# First, disable the use of ``size_in_bytes`` comparisons.
>>> File.size_in_bytes.comparable = False

>>> file_1 == file_2
True
>>> file_1 == file_3
True

# Now, set it back to True (the default).
>>> File.size_in_bytes.comparable = True

>>> file_1 == file_2
True
>>> file_1 == file_3
False
```

## 2.4.11 Custom Objects

The CybOX Custom Object is used to specify objects which do not have their own object type in CybOX. These objects should be used with care, as they can make interoperability more challenging if both producer and consumer do not agree on the fields used in the Custom object.

```

from cybox.common.object_properties import CustomProperties, Property
from cybox.objects.custom_object import Custom

c = Custom()

# This should be a QName with a prefix specific to the application
# (i.e. not "example"). The prefix should be included in the output
# namespaces.
c.custom_name = "example:OfficePassword"
c.description = "This is a string used as a password to protect an Microsoft Office document."
c.custom_properties = CustomProperties()

p1 = Property()
p1.name = "password"
p1.description = "MS Office encryption password"
p1.value = "SuP3rS3cr3T!"
c.custom_properties.append(p1)

print(c.to_xml(include_namespaces=False, encoding=None))

```

```

<CustomObj:CustomObjectType xsi:type="CustomObj:CustomObjectType" custom_name="example:OfficePassword"
  <cyboxCommon:Custom_Properties>
    <cyboxCommon:Property name="password" description="MS Office encryption password">SuP3rS3cr3T!</cyboxCommon:Property>
  </cyboxCommon:Custom_Properties>
  <CustomObj:Description>This is a string used as a password to protect an Microsoft Office document.</CustomObj:Description>
</CustomObj:CustomObjectType>

```

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## 2.5 Contributing

If you notice a bug, have a suggestion for a new feature, or find that that something just isn't behaving the way you'd expect it to, please submit an issue to our [issue tracker](#).

If you'd like to contribute code to our repository, you can do so by issuing a pull request and we will work with you to try and integrate that code into our repository. Users who want to contribute code to the python-cybox repository should be familiar with [git](#) and the [GitHub pull request process](#).



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## API Reference

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Version: 2.1.0.20

### 3.1 API Reference

#### 3.1.1 CybOX Common

Modules located in the base `cybox.common` package

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**Note:** Most objects from the CybOX Common schema can be implemented directly from the `cybox.common` package, rather than needing to remember which submodule they are defined in.

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Version: 2.1.0.20

##### `cybox.common` package

The `cybox.common` module contains classes needed to implement the types found in the CybOX Common schema (`cybox_common.xsd`). Although the implementation is spread between different modules within the `cybox.common` package, types should be imported directly from this module in case the implementations are reorganized in the future.

In other words, do this:

```
from cybox.common import String
```

rather than:

```
from cybox.common.properties import String
```

##### Submodules

Version: 2.1.0.20

`cybox.common.attribute_groups` module   Version: 2.1.0.20

**cybox.common.byterun module**

**class** cybox.common.byterun.**ByteRun**  
Bases: mixbox.entities.Entity

XML binding class: cybox.bindings.cybox\_common.ByteRunType

**byte\_order**

Type: *cybox.common.properties.String*

XML Binding class name: Byte\_Order

Dictionary key name: byte\_order

**byte\_run\_data**

XML Binding class name: Byte\_Run\_Data

Dictionary key name: byte\_run\_data

**file\_system\_offset**

Type: *cybox.common.properties.Integer*

XML Binding class name: File\_System\_Offset

Dictionary key name: file\_system\_offset

**hashes**

Type: *cybox.common.hashes.HashList*

XML Binding class name: Hashes

Dictionary key name: hashes

**image\_offset**

Type: *cybox.common.properties.Integer*

XML Binding class name: Image\_Offset

Dictionary key name: image\_offset

**length**

Type: *cybox.common.properties.PositiveInteger*

XML Binding class name: Length

Dictionary key name: length

**offset**

Type: *cybox.common.properties.Integer*

XML Binding class name: Offset

Dictionary key name: offset

**class** cybox.common.byterun.**ByteRuns** (\*args)  
Bases: mixbox.entities.EntityList

XML binding class: `cybox.bindings.cybox_common.ByteRunsType`

### **byte\_run**

(List of values permitted)

Type: `cybox.common.byterun.ByteRun`

XML Binding class name: `Byte_Run`

Dictionary key name: `byte_run`

Version: 2.1.0.20

### **cybox.common.contributor module**

**class** `cybox.common.contributor.Contributor`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.cybox_common.ContributorType`

### **contribution\_location**

XML Binding class name: `Contribution_Location`

Dictionary key name: `contribution_location`

### **date**

Type: `cybox.common.daterange.DateRange`

XML Binding class name: `Date`

Dictionary key name: `date`

### **email**

XML Binding class name: `Email`

Dictionary key name: `email`

### **name**

XML Binding class name: `Name`

Dictionary key name: `name`

### **organization**

XML Binding class name: `Organization`

Dictionary key name: `organization`

### **phone**

XML Binding class name: `Phone`

Dictionary key name: `phone`

### **role**

XML Binding class name: Role

Dictionary key name: role

**class** `cybox.common.contributor.Personnel` (\*args)

Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.cybox_common.PersonnelType`

### **contributor**

(List of values permitted)

Type: `cybox.common.contributor.Contributor`

XML Binding class name: Contributor

Dictionary key name: contributor

**Version:** 2.1.0.20

### **cybox.common.data\_segment module**

**class** `cybox.common.data_segment.DataSegment`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.cybox_common.DataSegmentType`

### **byte\_order**

Type: `cybox.common.properties.String`

XML Binding class name: Byte\_Order

Dictionary key name: byte\_order

### **data\_format**

XML Binding class name: Data\_Format

Dictionary key name: data\_format

### **data\_segment**

Type: `cybox.common.properties.String`

XML Binding class name: Data\_Segment

Dictionary key name: data\_segment

### **data\_size**

Type: `cybox.common.data_segment.DataSize`

XML Binding class name: Data\_Size

Dictionary key name: data\_size



**id\_**

XML Binding class name: id

Dictionary key name: id

**offset**Type: *cybox.common.properties.Integer*

XML Binding class name: Offset

Dictionary key name: offset

**search\_distance**Type: *cybox.common.properties.Integer*

XML Binding class name: Search\_Distance

Dictionary key name: search\_distance

**search\_within**Type: *cybox.common.properties.Integer*

XML Binding class name: Search\_Within

Dictionary key name: search\_within

**class** *cybox.common.data\_segment.DataSize* (*value=None*)Bases: *cybox.common.properties.String*XML binding class: *cybox.bindings.cybox\_common.DataSizeType***is\_plain()****units**

XML Binding class name: units

Dictionary key name: units

**Version:** 2.1.0.20**cybox.common.daterange module****class** *cybox.common.daterange.DateRange*Bases: *mixbox.entities.Entity*XML binding class: *cybox.bindings.cybox\_common.DateRangeType***end\_date**Type: *cybox.common.datetimewithprecision.DateWithPrecision*

XML Binding class name: End\_Date

Dictionary key name: end\_date

**start\_date**

Type: `cybox.common.datetimewithprecision.DateWithPrecision`

XML Binding class name: `Start_Date`

Dictionary key name: `start_date`

Version: 2.1.0.20

**cybox.common.datetimewithprecision module**

**class** `cybox.common.datetimewithprecision.DateTimeWithPrecision` (*value=None, precision='second'*)

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.cybox_common.DateTimeWithPrecisionType`

**precision**

XML Binding class name: `precision`

Dictionary key name: `precision`

**to\_dict** ()

**value**

XML Binding class name: `valueOf_`

Dictionary key name: `value`

**class** `cybox.common.datetimewithprecision.DateWithPrecision` (*value=None, precision='day'*)

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.cybox_common.DateWithPrecisionType`

**precision**

XML Binding class name: `precision`

Dictionary key name: `precision`

**to\_dict** ()

**value**

XML Binding class name: `valueOf_`

Dictionary key name: `value`

`cybox.common.datetimewithprecision.validate_date_precision` (*instance, value*)

`cybox.common.datetimewithprecision.validate_datetime_precision` (*instance, value*)

`cybox.common.datetimewithprecision.validate_time_precision` (*instance, value*)

Version: 2.1.0.20

**cybox.common.digitalsignature module****class** cybox.common.digitalsignature.**DigitalSignature**

Bases: mixbox.entities.Entity

XML binding class: cybox.bindings.cybox\_common.DigitalSignatureInfoType

**certificate\_issuer**Type: *cybox.common.properties.String*

XML Binding class name: Certificate\_Issuer

Dictionary key name: certificate\_issuer

**certificate\_subject**Type: *cybox.common.properties.String*

XML Binding class name: Certificate\_Subject

Dictionary key name: certificate\_subject

**signature\_description**Type: *cybox.common.properties.String*

XML Binding class name: Signature\_Description

Dictionary key name: signature\_description

**signature\_exists**

XML Binding class name: signature\_exists

Dictionary key name: signature\_exists

**signature\_verified**

XML Binding class name: signature\_verified

Dictionary key name: signature\_verified

**class** cybox.common.digitalsignature.**DigitalSignatureList** (\*args)

Bases: mixbox.entities.EntityList

XML binding class: cybox.bindings.cybox\_common.DigitalSignaturesType

**digital\_signature**

(List of values permitted)

Type: *cybox.common.digitalsignature.DigitalSignature*

XML Binding class name: Digital\_Signature

Dictionary key name: digital\_signature

**Version:** 2.1.0.20

**cybox.common.environment\_variable module**

**class** cybox.common.environment\_variable.**EnvironmentVariable**

Bases: mixbox.entities.Entity

XML binding class: cybox.bindings.cybox\_common.EnvironmentVariableType

**name**

Type: *cybox.common.properties.String*

XML Binding class name: Name

Dictionary key name: name

**value**

Type: *cybox.common.properties.String*

XML Binding class name: Value

Dictionary key name: value

**class** cybox.common.environment\_variable.**EnvironmentVariableList** (\*args)

Bases: mixbox.entities.EntityList

XML binding class: cybox.bindings.cybox\_common.EnvironmentVariableListType

**environment\_variable**

(List of values permitted)

Type: *cybox.common.environment\_variable.EnvironmentVariable*

XML Binding class name: Environment\_Variable

Dictionary key name: environment\_variable

**Version:** 2.1.0.20

**cybox.common.extracted\_features module**

**class** cybox.common.extracted\_features.**CodeSnippets** (\*args)

Bases: mixbox.entities.EntityList

XML binding class: cybox.bindings.cybox\_common.CodeSnippetsType

**code\_snippet**

(List of values permitted)

Type: *cybox.common.object\_properties.ObjectProperties*

XML Binding class name: Code\_Snippet

Dictionary key name: code\_snippet

**class** cybox.common.extracted\_features.**ExtractedFeatures**

Bases: mixbox.entities.Entity

XML binding class: `cybox.bindings.cybox_common.ExtractedFeaturesType`

#### **code\_snippets**

Type: `cybox.common.extracted_features.CodeSnippets`

XML Binding class name: `Code_Snippets`

Dictionary key name: `code_snippets`

#### **functions**

Type: `cybox.common.extracted_features.Functions`

XML Binding class name: `Functions`

Dictionary key name: `functions`

#### **imports**

Type: `cybox.common.extracted_features.Imports`

XML Binding class name: `Imports`

Dictionary key name: `imports`

#### **strings**

Type: `cybox.common.extracted_string.ExtractedStrings`

XML Binding class name: `Strings`

Dictionary key name: `strings`

**class** `cybox.common.extracted_features.Functions(*args)`  
Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.cybox_common.FunctionsType`

#### **function**

(List of values permitted)

Type: `cybox.common.properties.String`

XML Binding class name: `Function`

Dictionary key name: `function`

**class** `cybox.common.extracted_features.Imports(*args)`  
Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.cybox_common.ImportsType`

#### **import\_**

(List of values permitted)

Type: `cybox.common.properties.String`

XML Binding class name: Import

Dictionary key name: import

Version: 2.1.0.20

### **cybox.common.extracted\_string module**

**class** `cybox.common.extracted_string.ExtractedString` (*string\_value=None*)

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.cybox_common.ExtractedStringType`

### **address**

Type: `cybox.common.properties.HexBinary`

XML Binding class name: Address

Dictionary key name: address

### **byte\_string\_value**

Type: `cybox.common.properties.HexBinary`

XML Binding class name: Byte\_String\_Value

Dictionary key name: byte\_string\_value

### **encoding**

TypedField subclass for VocabString fields.

Type: `cybox.common.vocabs.CharacterEncoding`

XML Binding class name: Encoding

Dictionary key name: encoding

### **english\_translation**

Type: `cybox.common.properties.String`

XML Binding class name: English\_Translation

Dictionary key name: english\_translation

### **hashes**

Type: `cybox.common.hashes.HashList`

XML Binding class name: Hashes

Dictionary key name: hashes

### **language**

Type: `cybox.common.properties.String`

XML Binding class name: Language

Dictionary key name: language

**length**

Type: *cybox.common.properties.PositiveInteger*

XML Binding class name: Length

Dictionary key name: length

**string\_value**

Type: *cybox.common.properties.String*

XML Binding class name: String\_Value

Dictionary key name: string\_value

**class** *cybox.common.extracted\_string.ExtractedStrings* (\*args)

Bases: *mixbox.entities.EntityList*

XML binding class: *cybox.bindings.cybox\_common.ExtractedStringsType*

**extracted\_string**

(List of values permitted)

Type: *cybox.common.extracted\_string.ExtractedString*

XML Binding class name: String

Dictionary key name: string

**Version:** 2.1.0.20

**cybox.common.hashes module**

**class** *cybox.common.hashes.Hash* (*hash\_value=None, type\_=None, exact=False*)

Bases: *mixbox.entities.Entity*

XML binding class: *cybox.bindings.cybox\_common.HashType*

**fuzzy\_hash\_value**

Type: *cybox.common.properties.String*

XML Binding class name: Fuzzy\_Hash\_Value

Dictionary key name: fuzzy\_hash\_value

**simple\_hash\_value**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Simple\_Hash\_Value

Dictionary key name: simple\_hash\_value

**type\_**

TypedField subclass for VocabString fields.

Type: *cybox.common.vocabs.HashName*  
XML Binding class name: Type  
Dictionary key name: type

**class** `cybox.common.hashes.HashList` (\*args)  
Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.cybox_common.HashListType`

#### hashes

(List of values permitted)  
Type: *cybox.common.hashes.Hash*  
XML Binding class name: Hash  
Dictionary key name: hash

Version: 2.1.0.20

#### **cybox.common.measuresource module**

**class** `cybox.common.measuresource.MeasureSource`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.cybox_common.MeasureSourceType`

#### **class\_**

XML Binding class name: classxx  
Dictionary key name: class

#### **contributors**

Type: *cybox.common.contributor.Personnel*  
XML Binding class name: Contributors  
Dictionary key name: contributors

#### **description**

Type: *cybox.common.structured\_text.StructuredText*  
XML Binding class name: Description  
Dictionary key name: description

#### **information\_source\_type**

TypedField subclass for VocabString fields.

Type: *cybox.common.vocabs.InformationSourceType*  
XML Binding class name: Information\_Source\_Type



Dictionary key name: `information_source_type`

**instance**

Type: `cybox.common.object_properties.ObjectProperties`

XML Binding class name: `Instance`

Dictionary key name: `instance`

**name**

XML Binding class name: `name`

Dictionary key name: `name`

**platform**

Type: `cybox.common.platform_specification.PlatformSpecification`

XML Binding class name: `Platform`

Dictionary key name: `platform`

**sighting\_count**

XML Binding class name: `sighting_count`

Dictionary key name: `sighting_count`

**source\_type**

XML Binding class name: `source_type`

Dictionary key name: `source_type`

**system**

Type: `cybox.common.object_properties.ObjectProperties`

XML Binding class name: `System`

Dictionary key name: `system`

**time**

Type: `cybox.common.time.Time`

XML Binding class name: `Time`

Dictionary key name: `time`

**tool\_type**

TypedField subclass for `VocabString` fields.

Type: `cybox.common.vocabs.ToolType`

XML Binding class name: `Tool_Type`

Dictionary key name: `tool_type`

## tools

Type: *cybox.common.tools.ToolInformationList*

XML Binding class name: Tools

Dictionary key name: tools

Version: 2.1.0.20

## cybox.common.object\_properties module

**class** `cybox.common.object_properties.CustomProperties` (\*args)

Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.cybox_common.CustomPropertiesType`

## property\_

(List of values permitted)

Type: *cybox.common.object\_properties.Property*

XML Binding class name: Property

Dictionary key name: property

**class** `cybox.common.object_properties.ObjectProperties`

Bases: `mixbox.entities.Entity`

The Cybox ObjectProperties base class.

XML binding class: `cybox.bindings.cybox_common.ObjectPropertiesType`

**add\_related** (*related, relationship, inline=True*)

## custom\_properties

Type: *cybox.common.object\_properties.CustomProperties*

XML Binding class name: Custom\_Properties

Dictionary key name: custom\_properties

## object\_reference

XML Binding class name: object\_reference

Dictionary key name: object\_reference

**to\_dict** ()

**to\_obj** (*ns\_info=None*)

**class** `cybox.common.object_properties.Property` (*value=None*)

Bases: *cybox.common.properties.String*

XML binding class: `cybox.bindings.cybox_common.PropertyType`

**description**

XML Binding class name: description

Dictionary key name: description

**is\_plain()**

Whether the Property can be represented as a single value.

**name**

XML Binding class name: name

Dictionary key name: name

Version: 2.1.0.20

**cybox.common.platform\_specification module**

**class** `cybox.common.platform_specification.PlatformIdentifier` (*value=None*)

Bases: `cybox.common.properties.String`

XML binding class: `cybox.bindings.cybox_common.PlatformIdentifierType`

**system**

XML Binding class name: system

Dictionary key name: system

**system\_ref**

XML Binding class name: system\_ref

Dictionary key name: system\_ref

**class** `cybox.common.platform_specification.PlatformSpecification`

Bases: `mixbox.entities.Entity`

CyBOX Common PlatformSpecification object representation

XML binding class: `cybox.bindings.cybox_common.PlatformSpecificationType`

**description**

Type: `cybox.common.structured_text.StructuredText`

XML Binding class name: Description

Dictionary key name: description

**identifiers**

(List of values permitted)

Type: `cybox.common.platform_specification.PlatformIdentifier`

XML Binding class name: Identifier

Dictionary key name: `identifier`

Version: 2.1.0.20

### **cybox.common.properties module**

**class** `cybox.common.properties.BaseProperty` (*value=None*)

XML binding class: `cybox.bindings.cybox_common.BaseObjectPropertyType`

**is\_plain** ()

Whether the Property can be represented as a single value.

The *datatype* can be inferred by the particular BaseProperty subclass, so if *datatype* and *value* are the only non-None properties, the BaseProperty can be represented by a single value rather than a dictionary. This makes the JSON representation simpler without losing any data fidelity.

**class** `cybox.common.properties.AnyURI` (*value=None*)

XML binding class: `cybox.bindings.cybox_common.AnyURIObjectPropertyType`

**class** `cybox.common.properties.Base64Binary` (*value=None*)

XML binding class: `cybox.bindings.cybox_common.Base64BinaryObjectPropertyType`

**class** `cybox.common.properties.Date` (*value=None, precision='day'*)

XML binding class: `cybox.bindings.cybox_common.DateObjectPropertyType`

**class** `cybox.common.properties.DateTime` (*value=None, precision='second'*)

XML binding class: `cybox.bindings.cybox_common.DateTimeObjectPropertyType`

**class** `cybox.common.properties.Double` (*value=None*)

XML binding class: `cybox.bindings.cybox_common.DoubleObjectPropertyType`

**class** `cybox.common.properties.Duration` (*value=None*)

XML binding class: `cybox.bindings.cybox_common.DurationObjectPropertyType`

**class** `cybox.common.properties.Float` (*value=None*)

XML binding class: `cybox.bindings.cybox_common.FloatObjectPropertyType`

**class** `cybox.common.properties.HexBinary` (*value=None*)

XML binding class: `cybox.bindings.cybox_common.HexBinaryObjectPropertyType`

**class** `cybox.common.properties.Integer` (*value=None*)

XML binding class: `cybox.bindings.cybox_common.IntegerObjectPropertyType`

**class** `cybox.common.properties.Long` (*value=None*)

XML binding class: `cybox.bindings.cybox_common.LongObjectPropertyType`

**class** `cybox.common.properties.Name` (*value=None*)

XML binding class: `cybox.bindings.cybox_common.NameObjectPropertyType`

**class** `cybox.common.properties.NonNegativeInteger` (*value=None*)

XML binding class:

`cybox.bindings.cybox_common.NonNegativeIntegerObjectPropertyType`

**class** `cybox.common.properties.PositiveInteger` (*value=None*)

XML binding class:

`cybox.bindings.cybox_common.PositiveIntegerObjectPropertyType`

**class** `cybox.common.properties.String` (*value=None*)

XML binding class: `cybox.bindings.cybox_common.StringObjectPropertyType`

**class** `cybox.common.properties.Time` (*value=None, precision='second'*)

XML binding class: `cybox.bindings.cybox_common.TimeObjectPropertyType`

**class** `cybox.common.properties.UnsignedInteger` (*value=None*)

XML binding class:

`cybox.bindings.cybox_common.UnsignedIntegerObjectPropertyType`

**class** `cybox.common.properties.UnsignedLong` (*value=None*)

XML binding class: `cybox.bindings.cybox_common.UnsignedLongObjectPropertyType`

**Version:** 2.1.0.20

#### **cybox.common.structured\_text** module

**class** `cybox.common.structured_text.StructuredText` (*value=None*)

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.cybox_common.StructuredTextType`

**is\_plain()**

Whether this can be represented as a string rather than a dictionary

Subclasses can override this to include their custom fields in this check:

return `(super(..., self).is_plain() and self.other_field is None)`

**structuring\_format**

XML Binding class name: `structuring_format`

Dictionary key name: `structuring_format`

**to\_dict()**

#### value

XML Binding class name: valueOf\_

Dictionary key name: value

Version: 2.1.0.20

#### cybox.common.time module

**class** `cybox.common.time.Time` (*start\_time=None, end\_time=None, produced\_time=None, received\_time=None*)

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.cybox_common.TimeType`

#### end\_time

Type: `cybox.common.datetimewithprecision.DateTimeWithPrecision`

XML Binding class name: End\_Time

Dictionary key name: end\_time

#### produced\_time

Type: `cybox.common.datetimewithprecision.DateTimeWithPrecision`

XML Binding class name: Produced\_Time

Dictionary key name: produced\_time

#### received\_time

Type: `cybox.common.datetimewithprecision.DateTimeWithPrecision`

XML Binding class name: Received\_Time

Dictionary key name: received\_time

#### start\_time

Type: `cybox.common.datetimewithprecision.DateTimeWithPrecision`

XML Binding class name: Start\_Time

Dictionary key name: start\_time

Version: 2.1.0.20

#### cybox.common.tools module

**class** `cybox.common.tools.ToolInformation` (*tool\_name=None, tool\_vendor=None*)

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.cybox_common.ToolInformationType`

#### description

Type: *cybox.common.structured\_text.StructuredText*  
 XML Binding class name: Description  
 Dictionary key name: description

**id\_**

XML Binding class name: id  
 Dictionary key name: id

**idref**

XML Binding class name: idref  
 Dictionary key name: idref

**name**

XML Binding class name: Name  
 Dictionary key name: name

**service\_pack**

XML Binding class name: Service\_Pack  
 Dictionary key name: service\_pack

**tool\_hashes**

Type: *cybox.common.hashses.HashList*  
 XML Binding class name: Tool\_Hashes  
 Dictionary key name: tool\_hashes

**type\_**

TypedField subclass for VocabString fields.

(List of values permitted)

Type: *cybox.common.vocabs.ToolType*  
 XML Binding class name: Type  
 Dictionary key name: type

**vendor**

XML Binding class name: Vendor  
 Dictionary key name: vendor

**version**

XML Binding class name: Version  
 Dictionary key name: version

**class** `cybox.common.tools.ToolInformationList` (\*args)  
 Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.cybox_common.ToolsInformationType`

#### **tool**

(List of values permitted)

Type: `cybox.common.tools.ToolInformation`

XML Binding class name: `Tool`

Dictionary key name: `tool`

Version: 2.1.0.20

#### **cybox.common.vocabs module**

**class** `cybox.common.vocabs.ActionArgumentName` (*value=None*)

Bases: `cybox.common.vocabs.VocabString`

XML binding class: `cybox.bindings.cybox_common.ControlledVocabularyStringType`

**class** `cybox.common.vocabs.ActionName` (*value=None*)

Bases: `cybox.common.vocabs.VocabString`

XML binding class: `cybox.bindings.cybox_common.ControlledVocabularyStringType`

**class** `cybox.common.vocabs.ActionObjectAssociationType` (*value=None*)

Bases: `cybox.common.vocabs.VocabString`

XML binding class: `cybox.bindings.cybox_common.ControlledVocabularyStringType`

**class** `cybox.common.vocabs.ActionRelationshipType` (*value=None*)

Bases: `cybox.common.vocabs.VocabString`

XML binding class: `cybox.bindings.cybox_common.ControlledVocabularyStringType`

**class** `cybox.common.vocabs.ActionType` (*value=None*)

Bases: `cybox.common.vocabs.VocabString`

XML binding class: `cybox.bindings.cybox_common.ControlledVocabularyStringType`

**class** `cybox.common.vocabs.CharacterEncoding` (*value=None*)

Bases: `cybox.common.vocabs.VocabString`

XML binding class: `cybox.bindings.cybox_common.ControlledVocabularyStringType`



**class** `cybox.common.vocabs.EventType` (*value=None*)  
Bases: `cybox.common.vocabs.VocabString`

XML binding class: `cybox.bindings.cybox_common.ControlledVocabularyStringType`

**class** `cybox.common.vocabs.HashName` (*value=None*)  
Bases: `cybox.common.vocabs.VocabString`

XML binding class: `cybox.bindings.cybox_common.ControlledVocabularyStringType`

**class** `cybox.common.vocabs.InformationSourceType` (*value=None*)  
Bases: `cybox.common.vocabs.VocabString`

XML binding class: `cybox.bindings.cybox_common.ControlledVocabularyStringType`

**class** `cybox.common.vocabs.ObjectRelationship` (*value=None*)  
Bases: `cybox.common.vocabs.VocabString`

XML binding class: `cybox.bindings.cybox_common.ControlledVocabularyStringType`

**class** `cybox.common.vocabs.ObjectState` (*value=None*)  
Bases: `cybox.common.vocabs.VocabString`

XML binding class: `cybox.bindings.cybox_common.ControlledVocabularyStringType`

**class** `cybox.common.vocabs.ToolType` (*value=None*)  
Bases: `cybox.common.vocabs.VocabString`

XML binding class: `cybox.bindings.cybox_common.ControlledVocabularyStringType`

**class** `cybox.common.vocabs.VocabString` (*value=None*)  
Bases: `cybox.common.attribute_groups.PatternFieldGroup`,  
`mixbox.entities.Entity`

XML binding class: `cybox.bindings.cybox_common.ControlledVocabularyStringType`

**classmethod** `from_obj` (*cls\_obj*)

**is\_plain** ()

Whether the VocabString can be represented as a single value.

**to\_dict** ()

**to\_obj** (*ns\_info=None*)

**value**

XML Binding class name: valueOf\_

Dictionary key name: value

**vocab\_name**

XML Binding class name: vocab\_name

Dictionary key name: vocab\_name

**vocab\_reference**

XML Binding class name: vocab\_reference

Dictionary key name: vocab\_reference

**xsi\_type**

XML Binding class name: xsi\_type

Dictionary key name: xsi:type

`cybox.common.vocabs.register_vocab` (*cls*)

Register a VocabString subclass.

Also, calculate all the permitted values for class being decorated by adding an `_ALLOWED_VALUES` tuple of all the values of class members beginning with `TERM_`.

`cybox.common.vocabs.validate_value` (*instance, value*)

### 3.1.2 CybOX Core

Modules located in the base `cybox.core` package

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**Note:** Most objects from the CybOX Core schema can be implemented directly from the `cybox.core` package, rather than needing to remember which submodule they are defined in.

---

**Version:** 2.1.0.20

**cybox.core package**

**Submodules**

**Version:** 2.1.0.20

**cybox.core.action module**

**class** `cybox.core.action.Action`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.cybox_core.ActionType`

#### **action\_aliases**

Type: `cybox.core.action.ActionAliases`

XML Binding class name: `ActionAliases`

Dictionary key name: `action_aliases`

#### **action\_arguments**

Type: `cybox.core.action.ActionArguments`

XML Binding class name: `ActionArguments`

Dictionary key name: `action_arguments`

#### **action\_status**

XML Binding class name: `action_status`

Dictionary key name: `action_status`

#### **associated\_objects**

Type: `cybox.core.action.AssociatedObjects`

XML Binding class name: `AssociatedObjects`

Dictionary key name: `associated_objects`

#### **context**

XML Binding class name: `context`

Dictionary key name: `context`

#### **description**

Type: `cybox.common.structured_text.StructuredText`

XML Binding class name: `Description`

Dictionary key name: `description`

#### **discovery\_method**

Type: `cybox.common.measuresource.MeasureSource`

XML Binding class name: `Discovery_Method`

Dictionary key name: `discovery_method`

#### **frequency**

Type: `cybox.core.frequency.Frequency`

XML Binding class name: `Frequency`

Dictionary key name: `frequency`

#### **id\_**

XML Binding class name: id

Dictionary key name: id

#### **idref**

XML Binding class name: idref

Dictionary key name: idref

#### **name**

TypedField subclass for VocabString fields.

Type: *cybox.common.vocabs.ActionName*

XML Binding class name: Name

Dictionary key name: name

#### **ordinal\_position**

XML Binding class name: ordinal\_position

Dictionary key name: ordinal\_position

#### **relationships**

Type: *cybox.core.action.ActionRelationships*

XML Binding class name: Relationships

Dictionary key name: relationships

#### **timestamp**

XML Binding class name: timestamp

Dictionary key name: timestamp

#### **type\_**

TypedField subclass for VocabString fields.

Type: *cybox.common.vocabs.ActionType*

XML Binding class name: Type

Dictionary key name: type

**class** `cybox.core.action.ActionAliases` (\*args)

Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.cybox_core.ActionAliasesType`

#### **action\_alias**

(List of values permitted)

Type: `cybox.Unicode`

XML Binding class name: Action\_Alias

Dictionary key name: action\_alias

**class** cybox.core.action.ActionArgument

Bases: mixbox.entities.Entity

XML binding class: cybox.bindings.cybox\_core.ActionArgumentType

#### **argument\_name**

TypedField subclass for VocabString fields.

Type: *cybox.common.vocabs.ActionArgumentName*

XML Binding class name: Argument\_Name

Dictionary key name: argument\_name

#### **argument\_value**

XML Binding class name: Argument\_Value

Dictionary key name: argument\_value

**class** cybox.core.action.ActionArguments (\*args)

Bases: mixbox.entities.EntityList

XML binding class: cybox.bindings.cybox\_core.ActionArgumentsType

#### **action\_argument**

(List of values permitted)

Type: *cybox.core.action.ActionArgument*

XML Binding class name: Action\_Argument

Dictionary key name: action\_argument

**class** cybox.core.action.ActionRelationship

Bases: mixbox.entities.Entity

XML binding class: cybox.bindings.cybox\_core.ActionRelationshipType

#### **action\_references**

(List of values permitted)

Type: *cybox.core.action\_reference.ActionReference*

XML Binding class name: Action\_Reference

Dictionary key name: action\_reference

**type**

TypedField subclass for VocabString fields.

Type: *cybox.common.vocabs.ActionType*

XML Binding class name: Type

Dictionary key name: type

**class** `cybox.core.action.ActionRelationships` (\*args)

Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.cybox_core.ActionRelationshipsType`

**relationship**

(List of values permitted)

Type: *cybox.core.action.ActionRelationship*

XML Binding class name: Relationship

Dictionary key name: relationship

**class** `cybox.core.action.Actions` (\*args)

Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.cybox_core.ActionsType`

**action**

(List of values permitted)

Type: *cybox.core.action.Action*

XML Binding class name: Action

Dictionary key name: action

**class** `cybox.core.action.AssociatedObjects` (\*args)

Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.cybox_core.AssociatedObjectsType`

**associated\_object**

(List of values permitted)

Type: *cybox.core.associated\_object.AssociatedObject*

XML Binding class name: Associated\_Object

Dictionary key name: associated\_object

**Version:** 2.1.0.20

**cybox.core.action\_reference module** CyBOX Action Reference Class

**class** `cybox.core.action_reference.ActionReference` (*action\_id=None*)  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.cybox_core.ActionReferenceType`

#### **action\_id**

XML Binding class name: `action_id`

Dictionary key name: `action_id`

**Version:** 2.1.0.20

**cybox.core.associated\_object module**

**class** `cybox.core.associated_object.AssociatedObject` (*defined\_object=None, type\_=None, association\_type=None*)

Bases: `cybox.core.object.Object`

The CyBOX Associated Object element.

Currently only supports the `id`, `association_type` and `ObjectProperties` properties

XML binding class: `cybox.bindings.cybox_core.AssociatedObjectType`

#### **association\_type**

TypedField subclass for `VocabString` fields.

Type: `cybox.common.vocabs.ActionObjectAssociationType`

XML Binding class name: `Association_Type`

Dictionary key name: `association_type`

**Version:** 2.1.0.20

**cybox.core.event module**

**class** `cybox.core.event.Event`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.cybox_core.EventType`

#### **actions**

Type: `cybox.core.action.Actions`

XML Binding class name: `Actions`

Dictionary key name: `actions`

### **description**

Type: *cybox.common.structured\_text.StructuredText*

XML Binding class name: Description

Dictionary key name: description

### **event**

(List of values permitted)

Type: *cybox.core.event.Event*

XML Binding class name: Event

Dictionary key name: event

### **frequency**

Type: *cybox.core.frequency.Frequency*

XML Binding class name: Frequency

Dictionary key name: frequency

### **id\_**

XML Binding class name: id

Dictionary key name: id

### **idref**

XML Binding class name: idref

Dictionary key name: idref

### **location**

Type: *cybox.common.location.Location*

XML Binding class name: Location

Dictionary key name: location

### **observation\_method**

Type: *cybox.common.measuresource.MeasureSource*

XML Binding class name: Observation\_Method

Dictionary key name: observation\_method

### **type\_**

TypedField subclass for VocabString fields.

Type: *cybox.common.vocabs.EventType*

XML Binding class name: Type

Dictionary key name: type

Version: 2.1.0.20



**cybox.core.frequency module**

**class** `cybox.core.frequency.Frequency`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.cybox_core.FrequencyType`

**rate**

XML Binding class name: `rate`  
Dictionary key name: `rate`

**scale**

XML Binding class name: `scale`  
Dictionary key name: `scale`

**trend**

XML Binding class name: `trend`  
Dictionary key name: `trend`

**units**

XML Binding class name: `units`  
Dictionary key name: `units`

**Version:** 2.1.0.20

**cybox.core.object module**

**class** `cybox.core.object.DomainSpecificObjectProperties`  
Bases: `mixbox.entities.Entity`

The Cybox DomainSpecificObjectProperties base class.

XML binding class: `cybox.bindings.cybox_core.DomainSpecificObjectPropertiesType`

**to\_dict** ()

**to\_obj** (*ns\_info=None*)

**class** `cybox.core.object.Object` (*properties=None, id=None, idref=None*)  
Bases: `mixbox.entities.Entity`

The CyBOX Object construct identifies and specifies the characteristics of a specific cyber-relevant object (e.g. a file, a registry key or a process).

Currently only supports the following data members: - `id` - `idref` - `has_changed` - `description` - `properties` - `related_objects` - `domain_specific_object_properties`

## Notes

By default `cybox.core.object.Object` will cache objects when instantiated. If you are experiencing memory issues in your environment, we encourage the use of `cybox.utils.caches.cache_clear()` in your script to prevent an Out of Memory error. Depending on your use case, it can be after serialization or if a certain threshold is met (e.g. %30 of memory consumed by cache mechanism).

XML binding class: `cybox.bindings.cybox_core.ObjectType`

**add\_related** (*related, relationship, inline=True*)

### description

Type: `cybox.common.structured_text.StructuredText`

XML Binding class name: `Description`

Dictionary key name: `description`

**domain\_specific\_object\_properties**

Type: `cybox.core.object.DomainSpecificObjectProperties`

XML Binding class name: `Domain_Specific_Object_Properties`

Dictionary key name: `domain_specific_object_properties`

**has\_changed**

XML Binding class name: `has_changed`

Dictionary key name: `has_changed`

**id\_**

XML Binding class name: `id`

Dictionary key name: `id`

**idref**

XML Binding class name: `idref`

Dictionary key name: `idref`

**properties**

Type: `cybox.common.object_properties.ObjectProperties`

XML Binding class name: `Properties`

Dictionary key name: `properties`

**related\_objects**

Type: `cybox.core.object.RelatedObjects`

XML Binding class name: `Related_Objects`

Dictionary key name: `related_objects`

**state**

TypedField subclass for VocabString fields.

Type: *cybox.common.vocabs.VocabString*

XML Binding class name: State

Dictionary key name: state

**class** `cybox.core.object.RelatedObject` (\*args, \*\*kwargs)

Bases: *cybox.core.object.Object*

XML binding class: `cybox.bindings.cybox_core.RelatedObjectType`

**classmethod** `from_dict` (*cls\_dict*)

**classmethod** `from_obj` (*cls\_obj*)

**get\_properties** ()

**relationship**

TypedField subclass for VocabString fields.

Type: *cybox.common.vocabs.ObjectRelationship*

XML Binding class name: Relationship

Dictionary key name: relationship

**to\_dict** ()

**to\_obj** (*ns\_info=None*)

**class** `cybox.core.object.RelatedObjects` (\*args)

Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.cybox_core.RelatedObjectsType`

**related\_object**

(List of values permitted)

Type: *cybox.core.object.RelatedObject*

XML Binding class name: Related\_Object

Dictionary key name: related\_object

`cybox.core.object.add_external_class` (*klass, xsi\_type*)

Adds a class implementation to this binding's globals() dict.

These classes can be used to implement Properties, Domain\_Specific\_Object\_Properties, or Defined\_Effect fields on an Object.

**Parameters**

- **klass** (*class*) – Python class that implements the new type
- **xsi\_type** (*str*) – An xsi:type value corresponding to the *klass*.

Version: 2.1.0.20

### cybox.core.observable module

**class** cybox.core.observable.**Keywords** (\*args)  
Bases: mixbox.entities.EntityList

XML binding class: cybox.bindings.cybox\_core.KeywordsType

#### keyword

(List of values permitted)

Type: cybox.Unicode

XML Binding class name: Keyword

Dictionary key name: keyword

**class** cybox.core.observable.**Observable** (item=None, id\_=None, idref=None, title=None, description=None)

Bases: mixbox.entities.Entity

A single Observable.

XML binding class: cybox.bindings.cybox\_core.ObservableType

**add\_keyword** (value)

#### description

Type: cybox.common.structured\_text.StructuredText

XML Binding class name: Description

Dictionary key name: description

#### event

Type: cybox.core.event.Event

XML Binding class name: Event

Dictionary key name: event

#### id\_

XML Binding class name: id

Dictionary key name: id

#### idref

XML Binding class name: idref

Dictionary key name: idref

**keywords**

Type: `cybox.core.observable.Keywords`

XML Binding class name: Keywords

Dictionary key name: keywords

**object\_**

Type: `cybox.core.object.Object`

XML Binding class name: Object

Dictionary key name: object

**observable\_composition**

Type: `cybox.core.observable.ObservableComposition`

XML Binding class name: Observable\_Composition

Dictionary key name: observable\_composition

**observable\_source**

(List of values permitted)

Type: `cybox.common.measuresource.MeasureSource`

XML Binding class name: Observable\_Source

Dictionary key name: observable\_source

**pattern\_fidelity**

Type: `cybox.core.pattern_fidelity.PatternFidelity`

XML Binding class name: Pattern\_Fidelity

Dictionary key name: pattern\_fidelity

**sighting\_count**

XML Binding class name: sighting\_count

Dictionary key name: sighting\_count

**title**

XML Binding class name: Title

Dictionary key name: title

**class** `cybox.core.observable.ObservableComposition` (*operator='AND', observables=None*)

Bases: `mixbox.entities.EntityList`

The `ObservableCompositionType` entity defines a logical compositions of CybOX Observables. The combinatorial behavior is derived from the `operator` property.

XML binding class: `cybox.bindings.cybox_core.ObservableCompositionType`

**add** (*observable*)

### **observables**

(List of values permitted)

Type: `cybox.core.observable.Observable`

XML Binding class name: Observable

Dictionary key name: observables

### **operator**

XML Binding class name: operator

Dictionary key name: operator

**class** `cybox.core.observable.Observables` (*observables=None*)

Bases: `mixbox.entities.EntityList`

The root CyBOX Observables object.

XML binding class: `cybox.bindings.cybox_core.ObservablesType`

**add** (*object\_*)

### **observable\_package\_source**

Type: `cybox.common.measuresource.MeasureSource`

XML Binding class name: Observable\_Package\_Source

Dictionary key name: observable\_package\_source

### **observables**

(List of values permitted)

Type: `cybox.core.observable.Observable`

XML Binding class name: Observable

Dictionary key name: observables

### **pools**

Type: `cybox.core.pool.Pools`

XML Binding class name: Pools

Dictionary key name: pools

**to\_dict** ()

**to\_obj** (*ns\_info=None*)

`cybox.core.observable.validate_event` (*instance, value*)

`cybox.core.observable.validate_object` (*instance, value*)

`cybox.core.observable.validate_observable_composition` (*instance, value*)

`cybox.core.observable.validate_operator` (*instance, value*)

### 3.1.3 CybOX Objects

Modules located in the base `cybox.objects` package

**Version:** 2.1.0.20

#### `cybox.objects` package

##### Submodules

**Version:** 2.1.0.20

#### `cybox.objects.account_object` module

**class** `cybox.objects.account_object.Account`

Bases: `cybox.common.object_properties.ObjectProperties`

XML binding class: `cybox.bindings.account_object.AccountObjectType`

#### **authentication**

(List of values permitted)

Type: `cybox.objects.account_object.Authentication`

XML Binding class name: Authentication

Dictionary key name: authentication

#### **creation\_date**

Type: `cybox.common.properties.DateTime`

XML Binding class name: Creation\_Date

Dictionary key name: creation\_date

#### **description**

Type: `cybox.common.properties.String`

XML Binding class name: Description

Dictionary key name: description

#### **disabled**

XML Binding class name: disabled

Dictionary key name: disabled

#### **domain**

Type: `cybox.common.properties.String`

XML Binding class name: Domain

Dictionary key name: domain

#### **last\_accessed\_time**

Type: *cybox.common.properties.DateTime*

XML Binding class name: Last\_Accessed\_Time

Dictionary key name: last\_accessed\_time

#### **locked\_out**

XML Binding class name: locked\_out

Dictionary key name: locked\_out

#### **modified\_date**

Type: *cybox.common.properties.DateTime*

XML Binding class name: Modified\_Date

Dictionary key name: modified\_date

**class** *cybox.objects.account\_object.Authentication*

Bases: *mixbox.entities.Entity*

XML binding class: *cybox.bindings.account\_object.AuthenticationType*

#### **authentication\_data**

Type: *cybox.common.properties.String*

XML Binding class name: Authentication\_Data

Dictionary key name: authentication\_data

#### **authentication\_token\_protection\_mechanism**

TypedField subclass for VocabString fields.

Type: *cybox.common.vocabs.VocabString*

XML Binding class name: Authentication-Token-Protection-Mechanism

Dictionary key name: authentication\_token\_protection\_mechanism

#### **authentication\_type**

TypedField subclass for VocabString fields.

Type: *cybox.common.vocabs.VocabString*

XML Binding class name: Authentication\_Type

Dictionary key name: authentication\_type

#### **structured\_authentication\_mechanism**

Type: *cybox.objects.account\_object.StructuredAuthenticationMechanism*

XML Binding class name: Structured\_Authentication\_Mechanism



Dictionary key name: structured\_authentication\_mechanism

**class** `cybox.objects.account_object.StructuredAuthenticationMechanism`  
Bases: `mixbox.entities.Entity`

XML binding class:

`cybox.bindings.account_object.StructuredAuthenticationMechanismType`

#### **description**

Type: `cybox.common.properties.String`

XML Binding class name: Description

Dictionary key name: description

Version: 2.1.0.20

#### **cybox.objects.address\_object module**

**class** `cybox.objects.address_object.Address` (*address\_value=None, category=None*)  
Bases: `cybox.common.object_properties.ObjectProperties`

XML binding class: `cybox.bindings.address_object.AddressObjectType`

#### **address\_value**

Type: `cybox.common.properties.String`

XML Binding class name: Address\_Value

Dictionary key name: address\_value

#### **category**

XML Binding class name: category

Dictionary key name: category

#### **is\_destination**

XML Binding class name: is\_destination

Dictionary key name: is\_destination

#### **is\_source**

XML Binding class name: is\_source

Dictionary key name: is\_source

#### **is\_spoofed**

XML Binding class name: is\_spoofed

Dictionary key name: is\_spoofed

**vlan\_name**

Type: *cybox.common.properties.String*

XML Binding class name: VLAN\_Name

Dictionary key name: vlan\_name

**vlan\_num**

Type: *cybox.common.properties.Integer*

XML Binding class name: VLAN\_Num

Dictionary key name: vlan\_num

**class** *cybox.objects.address\_object.EmailAddress* (*addr\_string=None*)

Bases: *cybox.objects.address\_object.Address*

Convenience class for creating email addresses.

Note that this is not an actual CybOX type.

XML binding class: *cybox.bindings.address\_object.AddressObjectType*

**classmethod** *istypeof* (*obj*)

**Version:** 2.1.0.20

**cybox.objects.api\_object module**

**class** *cybox.objects.api\_object.API*

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: *cybox.bindings.api\_object.APIObjectType*

**address**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Address

Dictionary key name: address

**description**

Type: *cybox.common.structured\_text.StructuredText*

XML Binding class name: Description

Dictionary key name: description

**function\_name**

Type: *cybox.common.properties.String*

XML Binding class name: Function\_Name

Dictionary key name: function\_name

**normalized\_function\_name**

Type: *cybox.common.properties.String*  
XML Binding class name: Normalized\_Function\_Name  
Dictionary key name: normalized\_function\_name

**platform**

Type: *cybox.common.platform\_specification.PlatformSpecification*  
XML Binding class name: Platform  
Dictionary key name: platform

Version: 2.1.0.20

**cybox.objects.archive\_file\_object module**

class `cybox.objects.archive_file_object.ArchiveFile`

Bases: *cybox.objects.file\_object.File*

XML binding class: `cybox.bindings.archive_file_object.ArchiveFileObjectType`

**archive\_format**

Type: *cybox.common.properties.String*  
XML Binding class name: Archive\_Format  
Dictionary key name: archive\_format

**archived\_file**

(List of values permitted)  
Type: *cybox.objects.file\_object.File*  
XML Binding class name: Archived\_File  
Dictionary key name: archived\_file

**comment**

Type: *cybox.common.properties.String*  
XML Binding class name: Comment  
Dictionary key name: comment

**decryption\_key**

Type: *cybox.common.properties.String*  
XML Binding class name: Decryption\_Key  
Dictionary key name: decryption\_key

**encryption\_algorithm**

Type: *cybox.common.properties.String*  
XML Binding class name: Encryption\_Algorithm

Dictionary key name: encryption\_algorithm

#### **file\_count**

Type: *cybox.common.properties.Integer*

XML Binding class name: File\_Count

Dictionary key name: file\_count

#### **version**

Type: *cybox.common.properties.String*

XML Binding class name: Version

Dictionary key name: version

**Version:** 2.1.0.20

### **cybox.objects.artifact\_object module**

**class** cybox.objects.artifact\_object.**Artifact** (*data=None, type\_=None*)

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: cybox.bindings.artifact\_object.ArtifactObjectType

#### **content\_type**

XML Binding class name: content\_type

Dictionary key name: content\_type

#### **content\_type\_version**

XML Binding class name: content\_type\_version

Dictionary key name: content\_type\_version

**classmethod** **from\_dict** (*cls\_dict*)

**classmethod** **from\_obj** (*cls\_obj*)

#### **hashes**

Type: *cybox.common.hashes.HashList*

XML Binding class name: Hashes

Dictionary key name: hashes

#### **packaging**

Type: *cybox.objects.artifact\_object.Packaging*

XML Binding class name: Packaging

Dictionary key name: packaging

#### **raw\_artifact**

Type: *cybox.objects.artifact\_object.RawArtifact*

XML Binding class name: Raw\_Artifact

Dictionary key name: raw\_artifact

#### **raw\_artifact\_reference**

XML Binding class name: Raw\_Artifact\_Reference

Dictionary key name: raw\_artifact\_reference

#### **suspected\_malicious**

XML Binding class name: suspected\_malicious

Dictionary key name: suspected\_malicious

**to\_dict** ()

**to\_obj** (*ns\_info=None*)

**type\_**

XML Binding class name: type\_

Dictionary key name: type

**class** cybox.objects.artifact\_object.**Base64Encoding**

Bases: *cybox.objects.artifact\_object.Encoding*

XML binding class: cybox.bindings.artifact\_object.EncodingType

**pack** (*data*)

**unpack** (*packed\_data*)

**class** cybox.objects.artifact\_object.**Bz2Compression**

Bases: *cybox.objects.artifact\_object.Compression*

XML binding class: cybox.bindings.artifact\_object.CompressionType

**pack** (*data*)

**unpack** (*packed\_data*)

**class** cybox.objects.artifact\_object.**Compression** (*compression\_mechanism=None, compression\_mechanism\_ref=None*)

Bases: mixbox.entities.Entity

A Compression packaging layer

Currently only zlib and bz2 are supported. Also, compression\_mechanism\_ref is not currently supported.

XML binding class: cybox.bindings.artifact\_object.CompressionType

**compression\_mechanism**

XML Binding class name: `compression_mechanism`

Dictionary key name: `compression_mechanism`

**compression\_mechanism\_ref**

XML Binding class name: `compression_mechanism_ref`

Dictionary key name: `compression_mechanism_ref`

**pack** (*data*)

This should accept byte data and return byte data

**unpack** (*packed\_data*)

This should accept byte data and return byte data

**class** `cybox.objects.artifact_object.Encoding` (*algorithm=None, character\_set=None, custom\_character\_set\_ref=None*)

Bases: `mixbox.entities.Entity`

An encoding packaging layer.

Currently only base64 with a standard alphabet is supported.

XML binding class: `cybox.bindings.artifact_object.EncodingType`

**algorithm**

XML Binding class name: `algorithm`

Dictionary key name: `algorithm`

**character\_set**

XML Binding class name: `character_set`

Dictionary key name: `character_set`

**custom\_character\_set\_ref**

XML Binding class name: `custom_character_set_ref`

Dictionary key name: `custom_character_set_ref`

**pack** (*data*)

This should accept byte data and return byte data

**unpack** (*packed\_data*)

This should accept byte data and return byte data

**class** `cybox.objects.artifact_object.Encryption` (*encryption\_mechanism=None, encryption\_key=None, encryption\_mechanism\_ref=None, encryption\_key\_ref=None*)

Bases: `mixbox.entities.Entity`

An encryption packaging layer.

XML binding class: `cybox.bindings.artifact_object.EncryptionType`

**encryption\_key**

XML Binding class name: encryption\_key

Dictionary key name: encryption\_key

**encryption\_key\_ref**

XML Binding class name: encryption\_key\_ref

Dictionary key name: encryption\_key\_ref

**encryption\_mechanism**

XML Binding class name: encryption\_mechanism

Dictionary key name: encryption\_mechanism

**encryption\_mechanism\_ref**

XML Binding class name: encryption\_mechanism\_ref

Dictionary key name: encryption\_mechanism\_ref

**pack** (*data*)

This should accept byte data and return byte data

**unpack** (*packed\_data*)

This should accept byte data and return byte data

```
class cybox.objects.artifact_object.Packaging (is_encrypted=None, is_compressed=None,  

                                             compression=None, encryption=None,  

                                             encoding=None)
```

Bases: mixbox.entities.Entity

An individual packaging layer.

XML binding class: cybox.bindings.artifact\_object.PackagingType

**compression**

(List of values permitted)

Type: *cybox.objects.artifact\_object.Compression*

XML Binding class name: Compression

Dictionary key name: compression

**encoding**

(List of values permitted)

Type: *cybox.objects.artifact\_object.Encoding*

XML Binding class name: Encoding

Dictionary key name: encoding

**encryption**

(List of values permitted)

Type: *cybox.objects.artifact\_object.Encryption*

XML Binding class name: Encryption

Dictionary key name: encryption

**is\_compressed**

XML Binding class name: is\_compressed

Dictionary key name: is\_compressed

**is\_encrypted**

XML Binding class name: is\_encrypted

Dictionary key name: is\_encrypted

**class** *cybox.objects.artifact\_object.PasswordProtectedZipEncryption* (*key=None*)  
Bases: *cybox.objects.artifact\_object.Encryption*

XML binding class: *cybox.bindings.artifact\_object.EncryptionType*

**unpack** (*packed\_data*)

**class** *cybox.objects.artifact\_object.RawArtifact* (*value=None*)  
Bases: *cybox.common.properties.String*

XML binding class: *cybox.bindings.artifact\_object.RawArtifactType*

**byte\_order**

XML Binding class name: byte\_order

Dictionary key name: byte\_order

**class** *cybox.objects.artifact\_object.XOREncryption* (*key=None*)  
Bases: *cybox.objects.artifact\_object.Encryption*

XML binding class: *cybox.bindings.artifact\_object.EncryptionType*

**pack** (*data*)

**unpack** (*packed\_data*)

**class** *cybox.objects.artifact\_object.ZlibCompression*  
Bases: *cybox.objects.artifact\_object.Compression*

XML binding class: *cybox.bindings.artifact\_object.CompressionType*

**pack** (*data*)

**unpack** (*packed\_data*)



`cybox.objects.artifact_object.validate_artifact_type` (*instance, value*)

`cybox.objects.artifact_object.validate_byte_order_endianness` (*instance, value*)

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### **cybox.objects.as\_object module**

`cybox.objects.as_object.AS`

alias of *AutonomousSystem* | XML binding class: `cybox.bindings.as_object.ASObjectType`

**class** `cybox.objects.as_object.AutonomousSystem`

Bases: `cybox.common.object_properties.ObjectProperties`

XML binding class: `cybox.bindings.as_object.ASObjectType`

#### **handle**

Type: `cybox.common.properties.String`

XML Binding class name: Handle

Dictionary key name: handle

#### **name**

Type: `cybox.common.properties.String`

XML Binding class name: Name

Dictionary key name: name

#### **number**

Type: `cybox.common.properties.NonNegativeInteger`

XML Binding class name: Number

Dictionary key name: number

#### **regional\_internet\_registry**

Type: `cybox.common.properties.String`

XML Binding class name: Regional\_Internet\_Registry

Dictionary key name: regional\_internet\_registry

**Version:** 2.1.0.20

### **cybox.objects.arp\_cache\_object module**

**class** `cybox.objects.arp_cache_object.ARPCache`

Bases: `cybox.common.object_properties.ObjectProperties`

XML binding class: `cybox.bindings.arp_cache_object.ARPCacheObjectType`

#### **arp\_cache\_entry**

(List of values permitted)

Type: *cybox.objects.arp\_cache\_object.ARPCacheEntry*

XML Binding class name: ARP\_Cache\_Entry

Dictionary key name: arp\_cache\_entry

**class** `cybox.objects.arp_cache_object.ARPCacheEntry`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.arp_cache_object.ARPCacheEntryType`

### **ip\_address**

Type: *cybox.objects.address\_object.Address*

XML Binding class name: IP\_Address

Dictionary key name: ip\_address

### **network\_interface**

Type: *cybox.objects.system\_object.NetworkInterface*

XML Binding class name: Network\_Interface

Dictionary key name: network\_interface

### **physical\_address**

Type: *cybox.common.properties.String*

XML Binding class name: Physical\_Address

Dictionary key name: physical\_address

### **type\_**

Type: *cybox.common.properties.String*

XML Binding class name: Type

Dictionary key name: type

**Version:** 2.1.0.20

### **cybox.objects.code\_object module**

**class** `cybox.objects.code_object.Code`

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: `cybox.bindings.code_object.CodeObjectType`

### **code\_language**

Type: *cybox.common.properties.String*

XML Binding class name: Code\_Language

Dictionary key name: code\_language

**code\_segment**

Type: *cybox.common.properties.String*

XML Binding class name: Code\_Segment

Dictionary key name: code\_segment

**code\_segment\_xor**

Type: *cybox.objects.code\_object.CodeSegmentXOR*

XML Binding class name: Code\_Segment\_XOR

Dictionary key name: code\_segment\_xor

**description**

Type: *cybox.common.structured\_text.StructuredText*

XML Binding class name: Description

Dictionary key name: description

**digital\_signatures**

Type: *cybox.common.digitalsignature.DigitalSignatureList*

XML Binding class name: Digital\_Signatures

Dictionary key name: digital\_signatures

**discovery\_method**

Type: *cybox.common.measuresource.MeasureSource*

XML Binding class name: Discovery\_Method

Dictionary key name: discovery\_method

**extracted\_features**

Type: *cybox.common.extracted\_features.ExtractedFeatures*

XML Binding class name: Extracted\_Features

Dictionary key name: extracted\_features

**processor\_family**

(List of values permitted)

Type: *cybox.common.properties.String*

XML Binding class name: Processor\_Family

Dictionary key name: processor\_family

**purpose**

Type: *cybox.common.properties.String*

XML Binding class name: Purpose

Dictionary key name: purpose

**start\_address**

Type: *cybox.common.properties.HexBinary*  
XML Binding class name: Start\_Address  
Dictionary key name: start\_address

#### **targeted\_platforms**

Type: *cybox.objects.code\_object.TargetedPlatforms*  
XML Binding class name: Targeted\_Platforms  
Dictionary key name: targeted\_platforms

#### **type\_**

Type: *cybox.common.properties.String*  
XML Binding class name: Type  
Dictionary key name: type

**class** *cybox.objects.code\_object.CodeSegmentXOR* (*value=None*)  
Bases: *cybox.common.properties.String*

XML binding class: *cybox.bindings.code\_object.CodeSegmentXORType*

#### **is\_plain()**

#### **xor\_pattern**

XML Binding class name: xor\_pattern  
Dictionary key name: xor\_pattern

**class** *cybox.objects.code\_object.TargetedPlatforms* (*\*args*)  
Bases: *mixbox.entities.EntityList*

XML binding class: *cybox.bindings.code\_object.TargetedPlatformsType*

#### **targeted\_platform**

(List of values permitted)  
Type: *cybox.common.platform\_specification.PlatformSpecification*  
XML Binding class name: Targeted\_Platform  
Dictionary key name: targeted\_platform

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#### **cybox.objects.device\_object module**

**class** *cybox.objects.device\_object.Device*  
Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: *cybox.bindings.device\_object.DeviceObjectType*

**description**

Type: *cybox.common.structured\_text.StructuredText*

XML Binding class name: Description

Dictionary key name: description

**device\_type**

Type: *cybox.common.properties.String*

XML Binding class name: Device\_Type

Dictionary key name: device\_type

**firmware\_version**

Type: *cybox.common.properties.String*

XML Binding class name: Firmware\_Version

Dictionary key name: firmware\_version

**manufacturer**

Type: *cybox.common.properties.String*

XML Binding class name: Manufacturer

Dictionary key name: manufacturer

**model**

Type: *cybox.common.properties.String*

XML Binding class name: Model

Dictionary key name: model

**serial\_number**

Type: *cybox.common.properties.String*

XML Binding class name: Serial\_Number

Dictionary key name: serial\_number

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**cybox.objects.disk\_object module**

**class** `cybox.objects.disk_object.Disk`

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: `cybox.bindings.disk_object.DiskObjectType`

**disk\_name**

Type: *cybox.common.properties.String*

XML Binding class name: Disk\_Name

Dictionary key name: disk\_name

#### **disk\_size**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: *Disk\_Size*

Dictionary key name: *disk\_size*

#### **free\_space**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: *Free\_Space*

Dictionary key name: *free\_space*

#### **partition\_list**

Type: *cybox.objects.disk\_object.PartitionList*

XML Binding class name: *Partition\_List*

Dictionary key name: *partition\_list*

#### **type\_**

Type: *cybox.common.properties.String*

XML Binding class name: *Type*

Dictionary key name: *type*

**class** *cybox.objects.disk\_object.PartitionList* (\*args)

Bases: *mixbox.entities.EntityList*

XML binding class: *cybox.bindings.disk\_object.PartitionListType*

#### **partition**

(List of values permitted)

Type: *cybox.objects.disk\_partition\_object.DiskPartition*

XML Binding class name: *Partition*

Dictionary key name: *partition*

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#### **cybox.objects.disk\_partition\_object module**

**class** *cybox.objects.disk\_partition\_object.DiskPartition*

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: *cybox.bindings.disk\_partition\_object.DiskPartitionObjectType*

#### **created**

Type: *cybox.common.properties.DateTime*

XML Binding class name: Created

Dictionary key name: created

#### **device\_name**

Type: *cybox.common.properties.Name*

XML Binding class name: Device\_Name

Dictionary key name: device\_name

#### **mount\_point**

Type: *cybox.common.properties.String*

XML Binding class name: Mount\_Point

Dictionary key name: mount\_point

#### **partition\_id**

Type: *cybox.common.properties.Integer*

XML Binding class name: Partition\_ID

Dictionary key name: partition\_id

#### **partition\_length**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: Partition\_Length

Dictionary key name: partition\_length

#### **partition\_offset**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: Partition\_Offset

Dictionary key name: partition\_offset

#### **space\_left**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: Space\_Left

Dictionary key name: space\_left

#### **space\_used**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: Space\_Used

Dictionary key name: space\_used

#### **total\_space**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: Total\_Space

Dictionary key name: total\_space

### **type\_**

Type: *cybox.common.properties.String*

XML Binding class name: Type

Dictionary key name: type

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### **cybox.objects.dns\_cache\_object module**

**class** `cybox.objects.dns_cache_object.DNSCache`

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: `cybox.bindings.dns_cache_object.DNSCacheObjectType`

### **dns\_cache\_entry**

(List of values permitted)

Type: *cybox.objects.dns\_cache\_object.DNSCacheEntry*

XML Binding class name: DNS\_Cache\_Entry

Dictionary key name: dns\_cache\_entry

**class** `cybox.objects.dns_cache_object.DNSCacheEntry`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.dns_cache_object.DNSCacheEntryType`

### **dns\_entry**

Type: *cybox.objects.dns\_record\_object.DNSRecord*

XML Binding class name: DNS\_Entry

Dictionary key name: dns\_entry

### **t11**

Type: *cybox.common.properties.PositiveInteger*

XML Binding class name: TTL

Dictionary key name: t11

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### **cybox.objects.dns\_query\_object module**

**class** `cybox.objects.dns_query_object.DNSQuery`

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: `cybox.bindings.dns_query_object.DNSQueryObjectType`



**additional\_records**

Type: *cybox.objects.dns\_query\_object.DNSResourceRecords*

XML Binding class name: Additional\_Records

Dictionary key name: additional\_records

**answer\_resource\_records**

Type: *cybox.objects.dns\_query\_object.DNSResourceRecords*

XML Binding class name: Answer\_Resource\_Records

Dictionary key name: answer\_resource\_records

**authority\_resource\_records**

Type: *cybox.objects.dns\_query\_object.DNSResourceRecords*

XML Binding class name: Authority\_Resource\_Records

Dictionary key name: authority\_resource\_records

**date\_ran**

Type: *cybox.common.properties.DateTime*

XML Binding class name: Date\_Ran

Dictionary key name: date\_ran

**question**

Type: *cybox.objects.dns\_query\_object.DNSQuestion*

XML Binding class name: Question

Dictionary key name: question

**service\_used**

Type: *cybox.common.properties.String*

XML Binding class name: Service\_Used

Dictionary key name: service\_used

**successful**

XML Binding class name: successful

Dictionary key name: successful

**transaction\_id**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Transaction\_ID

Dictionary key name: transaction\_id

**class** *cybox.objects.dns\_query\_object.DNSQuestion*

Bases: *mixbox.entities.Entity*

XML binding class: *cybox.bindings.dns\_query\_object.DNSQuestionType*

#### **qclass**

Type: *cybox.common.properties.String*

XML Binding class name: QClass

Dictionary key name: qclass

#### **qname**

Type: *cybox.objects.uri\_object.URI*

XML Binding class name: QName

Dictionary key name: qname

#### **qtype**

Type: *cybox.common.properties.String*

XML Binding class name: QType

Dictionary key name: qtype

**class** `cybox.objects.dns_query_object.DNSResourceRecords` (\*args)

Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.dns_query_object.DNSResourceRecordsType`

#### **resource\_record**

(List of values permitted)

Type: *cybox.objects.dns\_record\_object.DNSRecord*

XML Binding class name: Resource\_Record

Dictionary key name: resource\_record

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#### **cybox.objects.dns\_record\_object module**

**class** `cybox.objects.dns_record_object.DNSRecord`

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: `cybox.bindings.dns_record_object.DNSRecordObjectType`

#### **address\_class**

Type: *cybox.common.properties.String*

XML Binding class name: Address\_Class

Dictionary key name: address\_class

#### **data\_length**

Type: *cybox.common.properties.Integer*

XML Binding class name: Data\_Length

Dictionary key name: data\_length

#### **description**

Type: *cybox.common.structured\_text.StructuredText*

XML Binding class name: Description

Dictionary key name: description

#### **domain\_name**

Type: *cybox.objects.uri\_object.URI*

XML Binding class name: Domain\_Name

Dictionary key name: domain\_name

#### **entry\_type**

Type: *cybox.common.properties.String*

XML Binding class name: Entry\_Type

Dictionary key name: entry\_type

#### **flags**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Flags

Dictionary key name: flags

#### **ip\_address**

Type: *cybox.objects.address\_object.Address*

XML Binding class name: IP\_Address

Dictionary key name: ip\_address

#### **queried\_date**

Type: *cybox.common.properties.DateTime*

XML Binding class name: Queried\_Date

Dictionary key name: queried\_date

#### **record\_data**

XML Binding class name: Record\_Data

Dictionary key name: record\_data

#### **record\_name**

Type: *cybox.common.properties.String*

XML Binding class name: Record\_Name

Dictionary key name: record\_name

#### **record\_type**

Type: *cybox.common.properties.String*  
XML Binding class name: Record\_Type  
Dictionary key name: record\_type

**ttl**

Type: *cybox.common.properties.Integer*  
XML Binding class name: TTL  
Dictionary key name: ttl

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#### **cybox.objects.domain\_name\_object module**

**class** `cybox.objects.domain_name_object.DomainName`

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: `cybox.bindings.domain_name_object.DomainNameObjectType`

**type\_**

XML Binding class name: type\_  
Dictionary key name: type

**value**

Type: *cybox.common.properties.String*  
XML Binding class name: Value  
Dictionary key name: value

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#### **cybox.objects.email\_message\_object module**

**class** `cybox.objects.email_message_object.AttachmentReference` (*object\_reference=None*)

Bases: `cybox.objects.email_message_object._Reference`, `mixbox.entities.Entity`

XML binding class: `cybox.bindings.email_message_object.AttachmentReferenceType`

**class** `cybox.objects.email_message_object.Attachments` (*\*args*)

Bases: `cybox.objects.email_message_object._ReferenceList`,  
`mixbox.entities.EntityList`

XML binding class: `cybox.bindings.email_message_object.AttachmentsType`

**file**

(List of values permitted)  
Type: *cybox.objects.email\_message\_object.AttachmentReference*

XML Binding class name: File

Dictionary key name: file

**class** `cybox.objects.email_message_object.EmailHeader`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.email_message_object.EmailHeaderType`

#### **bcc**

Type: `cybox.objects.email_message_object.EmailRecipients`

XML Binding class name: BCC

Dictionary key name: bcc

#### **boundary**

Type: `cybox.common.properties.String`

XML Binding class name: Boundary

Dictionary key name: boundary

#### **cc**

Type: `cybox.objects.email_message_object.EmailRecipients`

XML Binding class name: CC

Dictionary key name: cc

#### **content\_type**

Type: `cybox.common.properties.String`

XML Binding class name: Content\_Type

Dictionary key name: content\_type

#### **date**

Type: `cybox.common.properties.DateTime`

XML Binding class name: Date

Dictionary key name: date

#### **errors\_to**

Type: `cybox.common.properties.String`

XML Binding class name: Errors\_To

Dictionary key name: errors\_to

#### **from\_**

Type: `cybox.objects.address_object.EmailAddress`

XML Binding class name: From

Dictionary key name: from

**in\_reply\_to**

Type: *cybox.common.properties.String*

XML Binding class name: In\_Reply\_To

Dictionary key name: in\_reply\_to

**message\_id**

Type: *cybox.common.properties.String*

XML Binding class name: Message\_ID

Dictionary key name: message\_id

**mime\_version**

Type: *cybox.common.properties.String*

XML Binding class name: MIME\_Version

Dictionary key name: mime\_version

**precedence**

Type: *cybox.common.properties.String*

XML Binding class name: Precedence

Dictionary key name: precedence

**received\_lines**

Type: *cybox.objects.email\_message\_object.ReceivedLineList*

XML Binding class name: Received\_Lines

Dictionary key name: received\_lines

**reply\_to**

Type: *cybox.objects.address\_object.EmailAddress*

XML Binding class name: Reply\_To

Dictionary key name: reply\_to

**sender**

Type: *cybox.objects.address\_object.EmailAddress*

XML Binding class name: Sender

Dictionary key name: sender

**subject**

Type: *cybox.common.properties.String*

XML Binding class name: Subject

Dictionary key name: subject

**to**

Type: *cybox.objects.email\_message\_object.EmailRecipients*

XML Binding class name: To

Dictionary key name: to

#### **user\_agent**

Type: *cybox.common.properties.String*

XML Binding class name: User\_Agent

Dictionary key name: user\_agent

#### **x\_mailer**

Type: *cybox.common.properties.String*

XML Binding class name: X\_Mailer

Dictionary key name: x\_mailer

#### **x\_originating\_ip**

Type: *cybox.objects.address\_object.Address*

XML Binding class name: X\_Originating\_IP

Dictionary key name: x\_originating\_ip

#### **x\_priority**

Type: *cybox.common.properties.PositiveInteger*

XML Binding class name: X\_Priority

Dictionary key name: x\_priority

**class** `cybox.objects.email_message_object.EmailMessage`

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: `cybox.bindings.email_message_object.EmailMessageObjectType`

#### **attachments**

Type: *cybox.objects.email\_message\_object.Attachments*

XML Binding class name: Attachments

Dictionary key name: attachments

#### **email\_server**

Type: *cybox.common.properties.String*

XML Binding class name: Email\_Server

Dictionary key name: email\_server

#### **header**

Type: *cybox.objects.email\_message\_object.EmailHeader*

XML Binding class name: Header

Dictionary key name: header

### links

Type: *cybox.objects.email\_message\_object.Links*

XML Binding class name: Links

Dictionary key name: links

### raw\_body

Type: *cybox.common.properties.String*

XML Binding class name: Raw\_Body

Dictionary key name: raw\_body

### raw\_header

Type: *cybox.common.properties.String*

XML Binding class name: Raw\_Header

Dictionary key name: raw\_header

**class** `cybox.objects.email_message_object.EmailRecipients` (\*args)

Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.email_message_object.EmailRecipientsType`

### recipient

(List of values permitted)

Type: *cybox.objects.address\_object.EmailAddress*

XML Binding class name: Recipient

Dictionary key name: recipient

**class** `cybox.objects.email_message_object.LinkReference` (*object\_reference=None*)

Bases: `cybox.objects.email_message_object._Reference`, `mixbox.entities.Entity`

XML binding class: `cybox.bindings.email_message_object.LinkReferenceType`

**class** `cybox.objects.email_message_object.Links` (\*args)

Bases: `cybox.objects.email_message_object._ReferenceList`,  
`mixbox.entities.EntityList`

XML binding class: `cybox.bindings.email_message_object.LinksType`

### link

(List of values permitted)

Type: *cybox.objects.email\_message\_object.LinkReference*

XML Binding class name: Link



Dictionary key name: link

**class** `cybox.objects.email_message_object.ReceivedLine`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.email_message_object.EmailReceivedLineType`

**by**

Type: `cybox.common.properties.String`

XML Binding class name: By

Dictionary key name: by

**for\_**

Type: `cybox.common.properties.String`

XML Binding class name: For

Dictionary key name: for

**from\_**

Type: `cybox.common.properties.String`

XML Binding class name: From

Dictionary key name: from

**id\_**

Type: `cybox.common.properties.String`

XML Binding class name: ID

Dictionary key name: id

**timestamp**

Type: `cybox.common.properties.DateTime`

XML Binding class name: Timestamp

Dictionary key name: timestamp

**via**

Type: `cybox.common.properties.String`

XML Binding class name: Via

Dictionary key name: via

**with\_**

Type: `cybox.common.properties.String`

XML Binding class name: With

Dictionary key name: with

**class** `cybox.objects.email_message_object.ReceivedLineList` (\*args)  
Bases: `mixbox.entities.EntityList`

XML binding class:

`cybox.bindings.email_message_object.EmailReceivedLineListType`

#### **received**

(List of values permitted)

Type: `cybox.objects.email_message_object.ReceivedLine`

XML Binding class name: `Received`

Dictionary key name: `received`

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#### **cybox.objects.file\_object module**

**class** `cybox.objects.file_object.EPJumpCode`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.file_object.EPJumpCodeType`

#### **depth**

Type: `cybox.common.properties.Integer`

XML Binding class name: `Depth`

Dictionary key name: `depth`

#### **opcodes**

Type: `cybox.common.properties.String`

XML Binding class name: `Opcodes`

Dictionary key name: `opcodes`

**class** `cybox.objects.file_object.EntryPointSignature`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.file_object.EntryPointSignatureType`

#### **name**

Type: `cybox.common.properties.String`

XML Binding class name: `Name`

Dictionary key name: `name`

#### **type\_**

XML Binding class name: Type

Dictionary key name: type

**class** `cybox.objects.file_object.EntryPointSignatureList` (\*args)  
 Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.file_object.EntryPointSignatureListType`

#### **entry\_point\_signature**

(List of values permitted)

Type: `cybox.objects.file_object.EntryPointSignature`

XML Binding class name: `Entry_Point_Signature`

Dictionary key name: `entry_point_signature`

**class** `cybox.objects.file_object.File`  
 Bases: `cybox.common.object_properties.ObjectProperties`

XML binding class: `cybox.bindings.file_object.FileObjectType`

#### **accessed\_time**

Type: `cybox.common.properties.DateTime`

XML Binding class name: `Accessed_Time`

Dictionary key name: `accessed_time`

#### **add\_hash** (*hash\_*)

#### **byte\_runs**

Type: `cybox.common.byterun.ByteRuns`

XML Binding class name: `Byte_Runs`

Dictionary key name: `byte_runs`

#### **compression\_comment**

Type: `cybox.common.properties.String`

XML Binding class name: `Compression_Comment`

Dictionary key name: `compression_comment`

#### **compression\_method**

Type: `cybox.common.properties.String`

XML Binding class name: `Compression_Method`

Dictionary key name: `compression_method`

#### **compression\_version**

Type: `cybox.common.properties.String`

XML Binding class name: Compression\_Version

Dictionary key name: compression\_version

#### **created\_time**

Type: *cybox.common.properties.DateTime*

XML Binding class name: Created\_Time

Dictionary key name: created\_time

#### **decryption\_key**

Type: *cybox.common.properties.String*

XML Binding class name: Decryption\_Key

Dictionary key name: decryption\_key

#### **device\_path**

Type: *cybox.common.properties.String*

XML Binding class name: Device\_Path

Dictionary key name: device\_path

#### **digital\_signatures**

Type: *cybox.common.digitalsignature.DigitalSignatureList*

XML Binding class name: Digital\_Signatures

Dictionary key name: digital\_signatures

#### **encryption\_algorithm**

Type: *cybox.common.properties.String*

XML Binding class name: Encryption\_Algorithm

Dictionary key name: encryption\_algorithm

#### **extracted\_features**

Type: *cybox.common.extracted\_features.ExtractedFeatures*

XML Binding class name: Extracted\_Features

Dictionary key name: extracted\_features

#### **file\_attributes\_list**

Type: *cybox.objects.file\_object.FileAttribute*

XML Binding class name: File\_Attributes\_List

Dictionary key name: file\_attributes\_list

#### **file\_extension**

Type: *cybox.common.properties.String*

XML Binding class name: File\_Extension

Dictionary key name: file\_extension

**file\_format**

Type: *cybox.common.properties.String*

XML Binding class name: File\_Format

Dictionary key name: file\_format

**file\_name**

Type: *cybox.common.properties.String*

XML Binding class name: File\_Name

Dictionary key name: file\_name

**file\_path**

Type: *cybox.objects.file\_object.FilePath*

XML Binding class name: File\_Path

Dictionary key name: file\_path

**full\_path**

Type: *cybox.common.properties.String*

XML Binding class name: Full\_Path

Dictionary key name: full\_path

**hashes**

Type: *cybox.common.hashes.HashList*

XML Binding class name: Hashes

Dictionary key name: hashes

**is\_masqueraded**

XML Binding class name: is\_masqueraded

Dictionary key name: is\_masqueraded

**is\_packed**

XML Binding class name: is\_packed

Dictionary key name: is\_packed

**magic\_number**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Magic\_Number

Dictionary key name: magic\_number

**modified\_time**

Type: *cybox.common.properties.DateTime*

XML Binding class name: Modified\_Time

Dictionary key name: modified\_time

### **packer\_list**

Type: *cybox.objects.file\_object.PackerList*

XML Binding class name: Packer\_List

Dictionary key name: packer\_list

### **peak\_entropy**

Type: *cybox.common.properties.Double*

XML Binding class name: Peak\_Entropy

Dictionary key name: peak\_entropy

### **permissions**

Type: *cybox.objects.file\_object.FilePermissions*

XML Binding class name: Permissions

Dictionary key name: permissions

### **size\_in\_bytes**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: Size\_In\_Bytes

Dictionary key name: size\_in\_bytes

### **sym\_links**

Type: *cybox.objects.file\_object.SymLinksList*

XML Binding class name: Sym\_Links

Dictionary key name: sym\_links

### **user\_owner**

Type: *cybox.common.properties.String*

XML Binding class name: User\_Owner

Dictionary key name: user\_owner

**class** `cybox.objects.file_object.FileAttribute`

Bases: `mixbox.entities.Entity`

An abstract class for file attributes.

XML binding class: `cybox.bindings.file_object.FileAttributeType`

**class** `cybox.objects.file_object.FilePath` (*value=None*)

Bases: *cybox.common.properties.String*

XML binding class: `cybox.bindings.file_object.FilePathType`

**fully\_qualified**

XML Binding class name: `fully_qualified`

Dictionary key name: `fully_qualified`

**is\_plain()**

**class** `cybox.objects.file_object.FilePermissions`

Bases: `mixbox.entities.Entity`

An abstract class for file permissions.

XML binding class: `cybox.bindings.file_object.FilePermissionsType`

**class** `cybox.objects.file_object.Packer`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.file_object.PackerType`

**detected\_entrypoint\_signatures**

Type: `cybox.objects.file_object.EntryPointSignatureList`

XML Binding class name: `Detected_Entrypoint_Signatures`

Dictionary key name: `detected_entrypoint_signatures`

**entry\_point**

Type: `cybox.common.properties.HexBinary`

XML Binding class name: `Entry_Point`

Dictionary key name: `entry_point`

**ep\_jump\_codes**

Type: `cybox.objects.file_object.EPJumpCode`

XML Binding class name: `EP_Jump_Codes`

Dictionary key name: `ep_jump_codes`

**name**

Type: `cybox.common.properties.String`

XML Binding class name: `Name`

Dictionary key name: `name`

**signature**

Type: `cybox.common.properties.String`

XML Binding class name: `Signature`

Dictionary key name: `signature`

#### **type\_**

Type: *cybox.common.properties.String*

XML Binding class name: Type

Dictionary key name: type

#### **version**

Type: *cybox.common.properties.String*

XML Binding class name: Version

Dictionary key name: version

**class** `cybox.objects.file_object.PackerList` (\*args)

Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.file_object.PackerListType`

#### **packer**

(List of values permitted)

Type: *cybox.objects.file\_object.Packer*

XML Binding class name: Packer

Dictionary key name: packer

**class** `cybox.objects.file_object.SymLinksList` (\*args)

Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.file_object.SymLinksListType`

#### **sym\_link**

(List of values permitted)

Type: *cybox.common.properties.String*

XML Binding class name: Sym\_Link

Dictionary key name: sym\_link

**Version:** 2.1.0.20

**cybox.objects.gui\_dialogbox\_object module**

**class** `cybox.objects.gui_dialogbox_object.GUIDialogbox`

Bases: *cybox.objects.gui\_object.GUI*

XML binding class: `cybox.bindings.gui_dialogbox_object.GUIDialogboxObjectType`

#### **box\_caption**



Type: *cybox.common.properties.String*  
XML Binding class name: Box\_Caption  
Dictionary key name: box\_caption

**box\_text**

Type: *cybox.common.properties.String*  
XML Binding class name: Box\_Text  
Dictionary key name: box\_text

Version: 2.1.0.20

**cybox.objects.gui\_object module**

**class** `cybox.objects.gui_object.GUI`

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: `cybox.bindings.gui_object.GUIObjectType`

**height**

Type: *cybox.common.properties.Integer*  
XML Binding class name: Height  
Dictionary key name: height

**width**

Type: *cybox.common.properties.Integer*  
XML Binding class name: Width  
Dictionary key name: width

Version: 2.1.0.20

**cybox.objects.gui\_window\_object module**

**class** `cybox.objects.gui_window_object.GUIWindow`

Bases: *cybox.objects.gui\_object.GUI*

XML binding class: `cybox.bindings.gui_window_object.GUIWindowObjectType`

**owner\_window**

Type: *cybox.common.properties.String*  
XML Binding class name: Owner\_Window  
Dictionary key name: owner\_window

**parent\_window**

Type: *cybox.common.properties.String*  
XML Binding class name: Parent\_Window

Dictionary key name: parent\_window

#### **window\_display\_name**

Type: *cybox.common.properties.String*

XML Binding class name: Window\_Display\_Name

Dictionary key name: window\_display\_name

Version: 2.1.0.20

### **cybox.objects.hostname\_object module**

**class** cybox.objects.hostname\_object.**Hostname**

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: cybox.bindings.hostname\_object.HostnameObjectType

#### **hostname\_value**

Type: *cybox.common.properties.String*

XML Binding class name: Hostname\_Value

Dictionary key name: hostname\_value

#### **is\_domain\_name**

XML Binding class name: is\_domain\_name

Dictionary key name: is\_domain\_name

#### **naming\_system**

(List of values permitted)

Type: *cybox.common.properties.String*

XML Binding class name: Naming\_System

Dictionary key name: naming\_system

Version: 2.1.0.20

### **cybox.objects.http\_session\_object module**

**class** cybox.objects.http\_session\_object.**HTTPClientRequest**

Bases: mixbox.entities.Entity

XML binding class: cybox.bindings.http\_session\_object.HTTPClientRequestType

#### **http\_message\_body**

Type: *cybox.objects.http\_session\_object.HTTPMessage*

XML Binding class name: HTTP\_Message\_Body

Dictionary key name: http\_message\_body

**http\_request\_header**

Type: *cybox.objects.http\_session\_object.HTTPRequestHeader*

XML Binding class name: HTTP\_Request\_Header

Dictionary key name: http\_request\_header

**http\_request\_line**

Type: *cybox.objects.http\_session\_object.HTTPRequestLine*

XML Binding class name: HTTP\_Request\_Line

Dictionary key name: http\_request\_line

**class** *cybox.objects.http\_session\_object.HTTPMessage*

Bases: *mixbox.entities.Entity*

XML binding class: *cybox.bindings.http\_session\_object.HTTPMessageType*

**length**

Type: *cybox.common.properties.PositiveInteger*

XML Binding class name: Length

Dictionary key name: length

**message\_body**

Type: *cybox.common.properties.String*

XML Binding class name: Message\_Body

Dictionary key name: message\_body

**class** *cybox.objects.http\_session\_object.HTTPRequestHeader*

Bases: *mixbox.entities.Entity*

XML binding class: *cybox.bindings.http\_session\_object.HTTPRequestHeaderType*

**parsed\_header**

Type: *cybox.objects.http\_session\_object.HTTPRequestHeaderFields*

XML Binding class name: Parsed\_Header

Dictionary key name: parsed\_header

**raw\_header**

Type: *cybox.common.properties.String*

XML Binding class name: Raw\_Header

Dictionary key name: raw\_header

**class** *cybox.objects.http\_session\_object.HTTPRequestHeaderFields*

Bases: *mixbox.entities.Entity*

XML binding class:

`cybox.bindings.http_session_object.HTTPRequestHeaderFieldsType`

#### **accept**

Type: `cybox.common.properties.String`

XML Binding class name: `Accept`

Dictionary key name: `accept`

#### **accept\_charset**

Type: `cybox.common.properties.String`

XML Binding class name: `Accept_Charset`

Dictionary key name: `accept_charset`

#### **accept\_datetime**

Type: `cybox.common.properties.String`

XML Binding class name: `Accept_Datetime`

Dictionary key name: `accept_datetime`

#### **accept\_encoding**

Type: `cybox.common.properties.String`

XML Binding class name: `Accept_Encoding`

Dictionary key name: `accept_encoding`

#### **accept\_language**

Type: `cybox.common.properties.String`

XML Binding class name: `Accept_Language`

Dictionary key name: `accept_language`

#### **authorization**

Type: `cybox.common.properties.String`

XML Binding class name: `Authorization`

Dictionary key name: `authorization`

#### **cache\_control**

Type: `cybox.common.properties.String`

XML Binding class name: `Cache_Control`

Dictionary key name: `cache_control`

#### **connection**

Type: `cybox.common.properties.String`

XML Binding class name: `Connection`

Dictionary key name: `connection`

**content\_length**

Type: *cybox.common.properties.Integer*

XML Binding class name: Content\_Length

Dictionary key name: content\_length

**content\_md5**

Type: *cybox.common.properties.String*

XML Binding class name: Content\_MD5

Dictionary key name: content\_md5

**content\_type**

Type: *cybox.common.properties.String*

XML Binding class name: Content\_Type

Dictionary key name: content\_type

**cookie**

Type: *cybox.common.properties.String*

XML Binding class name: Cookie

Dictionary key name: cookie

**date**

Type: *cybox.common.properties.DateTime*

XML Binding class name: Date

Dictionary key name: date

**dnt**

Type: *cybox.common.properties.String*

XML Binding class name: DNT

Dictionary key name: dnt

**expect**

Type: *cybox.common.properties.String*

XML Binding class name: Expect

Dictionary key name: expect

**from\_**

Type: *cybox.objects.address\_object.EmailAddress*

XML Binding class name: From

Dictionary key name: from

**host**

Type: *cybox.objects.http\_session\_object.HostField*

XML Binding class name: Host

Dictionary key name: host

#### **if\_match**

Type: *cybox.common.properties.String*

XML Binding class name: If\_Match

Dictionary key name: if\_match

#### **if\_modified\_since**

Type: *cybox.common.properties.DateTime*

XML Binding class name: If\_Modified\_Since

Dictionary key name: if\_modified\_since

#### **if\_none\_match**

Type: *cybox.common.properties.String*

XML Binding class name: If\_None\_Match

Dictionary key name: if\_none\_match

#### **if\_range**

Type: *cybox.common.properties.String*

XML Binding class name: If\_Range

Dictionary key name: if\_range

#### **if\_unmodified\_since**

Type: *cybox.common.properties.DateTime*

XML Binding class name: If\_Unmodified\_Since

Dictionary key name: if\_unmodified\_since

#### **max\_forwards**

Type: *cybox.common.properties.Integer*

XML Binding class name: Max\_Forwards

Dictionary key name: max\_forwards

#### **pragma**

Type: *cybox.common.properties.String*

XML Binding class name: Pragma

Dictionary key name: pragma

#### **proxy\_authorization**

Type: *cybox.common.properties.String*

XML Binding class name: Proxy\_Authorization

Dictionary key name: proxy\_authorization

**range\_**

Type: *cybox.common.properties.String*

XML Binding class name: Range

Dictionary key name: range

**referer**

Type: *cybox.objects.uri\_object.URI*

XML Binding class name: Referer

Dictionary key name: referer

**te**

Type: *cybox.common.properties.String*

XML Binding class name: TE

Dictionary key name: te

**user\_agent**

Type: *cybox.common.properties.String*

XML Binding class name: User\_Agent

Dictionary key name: user\_agent

**via**

Type: *cybox.common.properties.String*

XML Binding class name: Via

Dictionary key name: via

**warning**

Type: *cybox.common.properties.String*

XML Binding class name: Warning

Dictionary key name: warning

**x\_att\_deviceid**

Type: *cybox.common.properties.String*

XML Binding class name: X\_ATT\_DeviceId

Dictionary key name: x\_att\_deviceid

**x\_forwarded\_for**

Type: *cybox.common.properties.String*

XML Binding class name: X\_Forwarded\_For

Dictionary key name: x\_forwarded\_for

**x\_forwarded\_proto**

Type: *cybox.common.properties.String*

XML Binding class name: X\_Forwarded\_Proto

Dictionary key name: x\_forwarded\_proto

#### **x\_requested\_with**

Type: *cybox.common.properties.String*

XML Binding class name: X\_Requested\_With

Dictionary key name: x\_requested\_with

#### **x\_wap\_profile**

Type: *cybox.objects.uri\_object.URI*

XML Binding class name: X\_Wap\_Profile

Dictionary key name: x\_wap\_profile

**class** `cybox.objects.http_session_object.HTTPRequestLine`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.http_session_object.HTTPRequestLineType`

#### **http\_method**

Type: *cybox.common.properties.String*

XML Binding class name: HTTP\_Method

Dictionary key name: http\_method

#### **value**

Type: *cybox.common.properties.String*

XML Binding class name: Value

Dictionary key name: value

#### **version**

Type: *cybox.common.properties.String*

XML Binding class name: Version

Dictionary key name: version

**class** `cybox.objects.http_session_object.HTTPRequestResponse`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.http_session_object.HTTPRequestResponseType`

#### **http\_client\_request**

Type: *cybox.objects.http\_session\_object.HTTPClientRequest*

XML Binding class name: HTTP\_Client\_Request

Dictionary key name: http\_client\_request



**http\_provisional\_server\_response**

Type: *cybox.objects.http\_session\_object.HTTPServerResponse*

XML Binding class name: HTTP\_Provisional\_Server\_Response

Dictionary key name: http\_provisional\_server\_response

**http\_server\_response**

Type: *cybox.objects.http\_session\_object.HTTPServerResponse*

XML Binding class name: HTTP\_Server\_Response

Dictionary key name: http\_server\_response

**ordinal\_position**

XML Binding class name: ordinal\_position

Dictionary key name: ordinal\_position

**class** `cybox.objects.http_session_object.HTTPResponseHeader`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.http_session_object.HTTPResponseHeaderType`

**parsed\_header**

Type: *cybox.objects.http\_session\_object.HTTPResponseHeaderFields*

XML Binding class name: Parsed\_Header

Dictionary key name: parsed\_header

**raw\_header**

Type: *cybox.common.properties.String*

XML Binding class name: Raw\_Header

Dictionary key name: raw\_header

**class** `cybox.objects.http_session_object.HTTPResponseHeaderFields`

Bases: `mixbox.entities.Entity`

XML binding class:

`cybox.bindings.http_session_object.HTTPResponseHeaderFieldsType`

**accept\_ranges**

Type: *cybox.common.properties.String*

XML Binding class name: Accept\_Ranges

Dictionary key name: accept\_ranges

**access\_control\_allow\_origin**

Type: *cybox.common.properties.String*  
XML Binding class name: Access\_Control-Allow-Origin  
Dictionary key name: access\_control\_allow\_origin

**age**

Type: *cybox.common.properties.Integer*  
XML Binding class name: Age  
Dictionary key name: age

**cache\_control**

Type: *cybox.common.properties.String*  
XML Binding class name: Cache\_Control  
Dictionary key name: cache\_control

**connection**

Type: *cybox.common.properties.String*  
XML Binding class name: Connection  
Dictionary key name: connection

**content\_disposition**

Type: *cybox.common.properties.String*  
XML Binding class name: Content\_Disposition  
Dictionary key name: content\_disposition

**content\_encoding**

Type: *cybox.common.properties.String*  
XML Binding class name: Content\_Encoding  
Dictionary key name: content\_encoding

**content\_language**

Type: *cybox.common.properties.String*  
XML Binding class name: Content\_Language  
Dictionary key name: content\_language

**content\_length**

Type: *cybox.common.properties.Integer*  
XML Binding class name: Content\_Length  
Dictionary key name: content\_length

**content\_location**

Type: *cybox.common.properties.String*  
XML Binding class name: Content\_Location  
Dictionary key name: content\_location

**content\_md5**

Type: *cybox.common.properties.String*

XML Binding class name: Content\_MD5

Dictionary key name: content\_md5

**content\_range**

Type: *cybox.common.properties.String*

XML Binding class name: Content\_Range

Dictionary key name: content\_range

**content\_type**

Type: *cybox.common.properties.String*

XML Binding class name: Content\_Type

Dictionary key name: content\_type

**date**

Type: *cybox.common.properties.DateTime*

XML Binding class name: Date

Dictionary key name: date

**etag**

Type: *cybox.common.properties.String*

XML Binding class name: ETag

Dictionary key name: etag

**expires**

Type: *cybox.common.properties.DateTime*

XML Binding class name: Expires

Dictionary key name: expires

**last\_modified**

Type: *cybox.common.properties.DateTime*

XML Binding class name: Last\_Modified

Dictionary key name: last\_modified

**link**

Type: *cybox.common.properties.String*

XML Binding class name: Link

Dictionary key name: link

**location**

Type: *cybox.objects.uri\_object.URI*

XML Binding class name: Location

Dictionary key name: location

### **p3p**

Type: *cybox.common.properties.String*

XML Binding class name: P3P

Dictionary key name: p3p

### **pragma**

Type: *cybox.common.properties.String*

XML Binding class name: Pragma

Dictionary key name: pragma

### **proxy\_authenticate**

Type: *cybox.common.properties.String*

XML Binding class name: Proxy\_Authenticate

Dictionary key name: proxy\_authenticate

### **refresh**

Type: *cybox.common.properties.String*

XML Binding class name: Refresh

Dictionary key name: refresh

### **retry\_after**

Type: *cybox.common.properties.Integer*

XML Binding class name: Retry\_After

Dictionary key name: retry\_after

### **server**

Type: *cybox.common.properties.String*

XML Binding class name: Server

Dictionary key name: server

### **set\_cookie**

Type: *cybox.common.properties.String*

XML Binding class name: Set\_Cookie

Dictionary key name: set\_cookie

### **strict\_transport\_security**

Type: *cybox.common.properties.String*

XML Binding class name: Strict\_Transport\_Security

Dictionary key name: strict\_transport\_security

**trailer**

Type: *cybox.common.properties.String*

XML Binding class name: Trailer

Dictionary key name: trailer

**transfer\_encoding**

Type: *cybox.common.properties.String*

XML Binding class name: Transfer\_Encoding

Dictionary key name: transfer\_encoding

**vary**

Type: *cybox.common.properties.String*

XML Binding class name: Vary

Dictionary key name: vary

**via**

Type: *cybox.common.properties.String*

XML Binding class name: Via

Dictionary key name: via

**warning**

Type: *cybox.common.properties.String*

XML Binding class name: Warning

Dictionary key name: warning

**www\_authenticate**

Type: *cybox.common.properties.String*

XML Binding class name: WWW\_Authenticate

Dictionary key name: www\_authenticate

**x\_content\_type\_options**

Type: *cybox.common.properties.String*

XML Binding class name: X\_Content\_Type\_Options

Dictionary key name: x\_content\_type\_options

**x\_frame\_options**

Type: *cybox.common.properties.String*

XML Binding class name: X\_Frame\_Options

Dictionary key name: x\_frame\_options

**x\_powered\_by**

Type: *cybox.common.properties.String*

XML Binding class name: X\_Powered\_By  
Dictionary key name: x\_powered\_by

#### **x\_ua\_compatible**

Type: *cybox.common.properties.String*  
XML Binding class name: X\_UA-Compatible  
Dictionary key name: x\_ua\_compatible

#### **x\_xss\_protection**

Type: *cybox.common.properties.String*  
XML Binding class name: X\_XSS-Protection  
Dictionary key name: x\_xss\_protection

**class** *cybox.objects.http\_session\_object.HTTPServerResponse*  
Bases: *mixbox.entities.Entity*

XML binding class: *cybox.bindings.http\_session\_object.HTTPServerResponseType*

#### **http\_message\_body**

Type: *cybox.objects.http\_session\_object.HTTPMessage*  
XML Binding class name: HTTP\_Message\_Body  
Dictionary key name: http\_message\_body

#### **http\_response\_header**

Type: *cybox.objects.http\_session\_object.HTTPResponseHeader*  
XML Binding class name: HTTP\_Response\_Header  
Dictionary key name: http\_response\_header

#### **http\_status\_line**

Type: *cybox.objects.http\_session\_object.HTTPStatusLine*  
XML Binding class name: HTTP\_Status\_Line  
Dictionary key name: http\_status\_line

**class** *cybox.objects.http\_session\_object.HTTPSession*  
Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: *cybox.bindings.http\_session\_object.HTTPSessionObjectType*

#### **http\_request\_response**

(List of values permitted)  
Type: *cybox.objects.http\_session\_object.HTTPRequestResponse*  
XML Binding class name: HTTP\_Request\_Response

Dictionary key name: `http_request_response`

**class** `cybox.objects.http_session_object.HTTPStatusLine`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.http_session_object.HTTPStatusLineType`

#### **reason\_phrase**

Type: `cybox.common.properties.String`

XML Binding class name: `Reason_Phrase`

Dictionary key name: `reason_phrase`

#### **status\_code**

Type: `cybox.common.properties.PositiveInteger`

XML Binding class name: `Status_Code`

Dictionary key name: `status_code`

#### **version**

Type: `cybox.common.properties.String`

XML Binding class name: `Version`

Dictionary key name: `version`

**class** `cybox.objects.http_session_object.HostField`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.http_session_object.HostFieldType`

#### **domain\_name**

Type: `cybox.objects.uri_object.URI`

XML Binding class name: `Domain_Name`

Dictionary key name: `domain_name`

#### **port**

Type: `cybox.objects.port_object.Port`

XML Binding class name: `Port`

Dictionary key name: `port`

**Version:** 2.1.0.20

#### **cybox.objects.image\_file\_object module**

**class** `cybox.objects.image_file_object.ImageFile`  
Bases: `cybox.objects.file_object.File`

XML binding class: `cybox.bindings.image_file_object.ImageFileObjectType`

#### **bits\_per\_pixel**

Type: `cybox.common.properties.PositiveInteger`

XML Binding class name: `Bits_Per_Pixel`

Dictionary key name: `bits_per_pixel`

#### **compression\_algorithm**

Type: `cybox.common.properties.String`

XML Binding class name: `Compression_Algorithm`

Dictionary key name: `compression_algorithm`

#### **image\_file\_format**

Type: `cybox.common.properties.String`

XML Binding class name: `Image_File_Format`

Dictionary key name: `image_file_format`

#### **image\_height**

Type: `cybox.common.properties.Integer`

XML Binding class name: `Image_Height`

Dictionary key name: `image_height`

#### **image\_is\_compressed**

XML Binding class name: `image_is_compressed`

Dictionary key name: `image_is_compressed`

#### **image\_width**

Type: `cybox.common.properties.Integer`

XML Binding class name: `Image_Width`

Dictionary key name: `image_width`

Version: 2.1.0.20

#### **cybox.objects.library\_object module**

**class** `cybox.objects.library_object.Library`

Bases: `cybox.common.object_properties.ObjectProperties`

XML binding class: `cybox.bindings.library_object.LibraryObjectType`

#### **base\_address**

Type: `cybox.common.properties.HexBinary`



XML Binding class name: Base\_Address

Dictionary key name: base\_address

#### **extracted\_features**

Type: *cybox.common.extracted\_features.ExtractedFeatures*

XML Binding class name: Extracted\_Features

Dictionary key name: extracted\_features

#### **name**

Type: *cybox.common.properties.String*

XML Binding class name: Name

Dictionary key name: name

#### **path**

Type: *cybox.common.properties.String*

XML Binding class name: Path

Dictionary key name: path

#### **size**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: Size

Dictionary key name: size

#### **type\_**

Type: *cybox.common.properties.String*

XML Binding class name: Type

Dictionary key name: type

#### **version**

Type: *cybox.common.properties.String*

XML Binding class name: Version

Dictionary key name: version

Version: 2.1.0.20

### **cybox.objects.link\_object module**

**class** `cybox.objects.link_object.Link` (*value=None, type\_=None*)

Bases: *cybox.objects.uri\_object.URI*

XML binding class: `cybox.bindings.link_object.LinkObjectType`

#### **url\_label**

Type: *cybox.common.properties.String*

XML Binding class name: URL\_Label

Dictionary key name: url\_label

Version: 2.1.0.20

### **cybox.objects.linux\_package\_object module**

**class** cybox.objects.linux\_package\_object.LinuxPackage

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: cybox.bindings.linux\_package\_object.LinuxPackageObjectType

#### **architecture**

TypedField subclass for VocabString fields.

Type: *cybox.objects.linux\_package\_object.LinuxPackageArchitecture*

XML Binding class name: Architecture

Dictionary key name: architecture

#### **category**

Type: *cybox.common.properties.String*

XML Binding class name: Category

Dictionary key name: category

#### **description**

Type: *cybox.common.properties.String*

XML Binding class name: Description

Dictionary key name: description

#### **epoch**

Type: *cybox.common.properties.String*

XML Binding class name: Epoch

Dictionary key name: epoch

#### **evr**

Type: *cybox.common.properties.String*

XML Binding class name: EVR

Dictionary key name: evr

#### **name**

Type: *cybox.common.properties.String*

XML Binding class name: Name

Dictionary key name: name

**release**

Type: *cybox.common.properties.String*

XML Binding class name: Release

Dictionary key name: release

**vendor**

Type: *cybox.common.properties.String*

XML Binding class name: Vendor

Dictionary key name: vendor

**version**

Type: *cybox.common.properties.String*

XML Binding class name: Version

Dictionary key name: version

**class** `cybox.objects.linux_package_object.LinuxPackageArchitecture` (*value=None*)

Bases: *cybox.common.vocabs.VocabString*

XML binding class: `cybox.bindings.cybox_common.ControlledVocabularyStringType`

**Version:** 2.1.0.20

**cybox.objects.memory\_object module**

**class** `cybox.objects.memory_object.Memory`

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: `cybox.bindings.memory_object.MemoryObjectType`

**block\_type**

Type: *cybox.common.properties.String*

XML Binding class name: Block\_Type

Dictionary key name: block\_type

**extracted\_features**

Type: *cybox.common.extracted\_features.ExtractedFeatures*

XML Binding class name: Extracted\_Features

Dictionary key name: extracted\_features

**hashes**

Type: *cybox.common.hashes.HashList*

XML Binding class name: Hashes

Dictionary key name: hashes

**is\_injected**

XML Binding class name: is\_injected

Dictionary key name: is\_injected

**is\_mapped**

XML Binding class name: is\_mapped

Dictionary key name: is\_mapped

**is\_protected**

XML Binding class name: is\_protected

Dictionary key name: is\_protected

**is\_volatile**

XML Binding class name: is\_volatile

Dictionary key name: is\_volatile

**memory\_source**

Type: *cybox.common.properties.String*

XML Binding class name: Memory\_Source

Dictionary key name: memory\_source

**name**

Type: *cybox.common.properties.String*

XML Binding class name: Name

Dictionary key name: name

**region\_end\_address**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Region\_End\_Address

Dictionary key name: region\_end\_address

**region\_size**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: Region\_Size

Dictionary key name: region\_size

**region\_start\_address**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Region\_Start\_Address

Dictionary key name: region\_start\_address

Version: 2.1.0.20

**cybox.objects.mutex\_object module****class** `cybox.objects.mutex_object.Mutex`Bases: `cybox.common.object_properties.ObjectProperties`XML binding class: `cybox.bindings.mutex_object.MutexObjectType`**name**Type: `cybox.common.properties.String`

XML Binding class name: Name

Dictionary key name: name

**named**

XML Binding class name: named

Dictionary key name: named

**Version:** 2.1.0.20**cybox.objects.network\_connection\_object module****class** `cybox.objects.network_connection_object.Layer7Connections`Bases: `mixbox.entities.Entity`

XML binding class:

`cybox.bindings.network_connection_object.Layer7ConnectionsType`**dns\_query**

(List of values permitted)

Type: `cybox.objects.dns_query_object.DNSQuery`

XML Binding class name: DNS\_Query

Dictionary key name: dns\_query

**http\_session**Type: `cybox.objects.http_session_object.HTTPSession`

XML Binding class name: HTTP\_Session

Dictionary key name: http\_session

**class** `cybox.objects.network_connection_object.NetworkConnection`Bases: `cybox.common.object_properties.ObjectProperties`

XML binding class:

`cybox.bindings.network_connection_object.NetworkConnectionObjectType`**creation\_time**

Type: *cybox.common.properties.DateTime*  
XML Binding class name: `Creation_Time`  
Dictionary key name: `creation_time`

**destination\_socket\_address**

Type: *cybox.objects.socket\_address\_object.SocketAddress*  
XML Binding class name: `Destination_Socket_Address`  
Dictionary key name: `destination_socket_address`

**destination\_tcp\_state**

XML Binding class name: `Destination_TCP_State`  
Dictionary key name: `destination_tcp_state`

**layer3\_protocol**

Type: *cybox.common.properties.String*  
XML Binding class name: `Layer3_Protocol`  
Dictionary key name: `layer3_protocol`

**layer4\_protocol**

Type: *cybox.common.properties.String*  
XML Binding class name: `Layer4_Protocol`  
Dictionary key name: `layer4_protocol`

**layer7\_connections**

Type: *cybox.objects.network\_connection\_object.Layer7Connections*  
XML Binding class name: `Layer7_Connections`  
Dictionary key name: `layer7_connections`

**layer7\_protocol**

Type: *cybox.common.properties.String*  
XML Binding class name: `Layer7_Protocol`  
Dictionary key name: `layer7_protocol`

**source\_socket\_address**

Type: *cybox.objects.socket\_address\_object.SocketAddress*  
XML Binding class name: `Source_Socket_Address`  
Dictionary key name: `source_socket_address`

**source\_tcp\_state**

XML Binding class name: `Source_TCP_State`  
Dictionary key name: `source_tcp_state`

**tls\_used**

XML Binding class name: `tls_used`

Dictionary key name: `tls_used`

**Version:** 2.1.0.20

### **cybox.objects.network\_packet\_object module**

**class** `cybox.objects.network_packet_object.ARP`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.ARPTyp`

#### **hardware\_addr\_size**

Type: `cybox.common.properties.HexBinary`

XML Binding class name: `Hardware_Addr_Size`

Dictionary key name: `hardware_addr_size`

#### **hardware\_addr\_type**

Type: `cybox.common.properties.String`

XML Binding class name: `Hardware_Addr_Type`

Dictionary key name: `hardware_addr_type`

#### **op\_type**

Type: `cybox.common.properties.String`

XML Binding class name: `Op_Type`

Dictionary key name: `op_type`

#### **proto\_addr\_size**

Type: `cybox.common.properties.HexBinary`

XML Binding class name: `Proto_Addr_Size`

Dictionary key name: `proto_addr_size`

#### **proto\_addr\_type**

Type: `cybox.common.properties.String`

XML Binding class name: `Proto_Addr_Type`

Dictionary key name: `proto_addr_type`

#### **recip\_hardware\_addr**

Type: `cybox.objects.address_object.Address`

XML Binding class name: `Recip_Hardware_Addr`

Dictionary key name: `recip_hardware_addr`

#### **recip\_protocol\_addr**

Type: *cybox.objects.address\_object.Address*  
XML Binding class name: Recip\_Protocol\_Addr  
Dictionary key name: recip\_protocol\_addr

**sender\_hardware\_addr**

Type: *cybox.objects.address\_object.Address*  
XML Binding class name: Sender\_Hardware\_Addr  
Dictionary key name: sender\_hardware\_addr

**sender\_protocol\_addr**

Type: *cybox.objects.address\_object.Address*  
XML Binding class name: Sender\_Protocol\_Addr  
Dictionary key name: sender\_protocol\_addr

**class** *cybox.objects.network\_packet\_object.AuthenticationHeader*  
Bases: *mixbox.entities.Entity*

XML binding class:  
*cybox.bindings.network\_packet\_object.AuthenticationHeaderType*

**authentication\_data**

Type: *cybox.common.properties.HexBinary*  
XML Binding class name: Authentication\_Data  
Dictionary key name: authentication\_data

**header\_ext\_len**

Type: *cybox.common.properties.HexBinary*  
XML Binding class name: Header\_Ext\_Len  
Dictionary key name: header\_ext\_len

**next\_header**

Type: *cybox.common.properties.String*  
XML Binding class name: Next\_Header  
Dictionary key name: next\_header

**security\_parameters\_index**

Type: *cybox.common.properties.HexBinary*  
XML Binding class name: Security\_Parameters\_Index  
Dictionary key name: security\_parameters\_index

**sequence\_number**

Type: *cybox.common.properties.HexBinary*  
XML Binding class name: Sequence\_Number



Dictionary key name: `sequence_number`

**class** `cybox.objects.network_packet_object.DestinationOptions`  
Bases: `cybox.objects.network_packet_object._IPv6ExtHeader`

XML binding class: `cybox.bindings.network_packet_object.DestinationOptionsType`

**class** `cybox.objects.network_packet_object.EncapsulatingSecurityPayload`  
Bases: `mixbox.entities.Entity`

XML binding class:  
`cybox.bindings.network_packet_object.EncapsulatingSecurityPayloadType`

#### **authentication\_data**

Type: `cybox.common.properties.HexBinary`  
XML Binding class name: `Authentication_Data`  
Dictionary key name: `authentication_data`

#### **next\_header**

Type: `cybox.common.properties.String`  
XML Binding class name: `Next_Header`  
Dictionary key name: `next_header`

#### **padding**

Type: `cybox.common.properties.HexBinary`  
XML Binding class name: `Padding`  
Dictionary key name: `padding`

#### **padding\_len**

Type: `cybox.common.properties.HexBinary`  
XML Binding class name: `Padding_Len`  
Dictionary key name: `padding_len`

#### **payload\_data**

Type: `cybox.common.properties.HexBinary`  
XML Binding class name: `Payload_Data`  
Dictionary key name: `payload_data`

#### **security\_parameters\_index**

Type: `cybox.common.properties.HexBinary`  
XML Binding class name: `Security_Parameters_Index`  
Dictionary key name: `security_parameters_index`

#### **sequence\_number**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Sequence\_Number

Dictionary key name: sequence\_number

**class** `cybox.objects.network_packet_object.EthernetHeader`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.EthernetHeaderType`

#### **checksum**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Checksum

Dictionary key name: checksum

#### **destination\_mac\_addr**

Type: *cybox.objects.address\_object.Address*

XML Binding class name: Destination\_MAC\_Addr

Dictionary key name: destination\_mac\_addr

#### **source\_mac\_addr**

Type: *cybox.objects.address\_object.Address*

XML Binding class name: Source\_MAC\_Addr

Dictionary key name: source\_mac\_addr

#### **type\_or\_length**

Type: *cybox.objects.network\_packet\_object.TypeLength*

XML Binding class name: Type\_Or\_Length

Dictionary key name: type\_or\_length

**class** `cybox.objects.network_packet_object.EthernetInterface`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.EthernetInterfaceType`

#### **ethernet\_header**

Type: *cybox.objects.network\_packet\_object.EthernetHeader*

XML Binding class name: Ethernet\_Header

Dictionary key name: ethernet\_header

**class** `cybox.objects.network_packet_object.Fragment`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.FragmentType`

#### **fragment**

Type: `cybox.common.properties.HexBinary`

XML Binding class name: `Fragment`

Dictionary key name: `fragment`

#### **fragment\_header**

Type: `cybox.objects.network_packet_object.FragmentHeader`

XML Binding class name: `Fragment_Header`

Dictionary key name: `fragment_header`

**class** `cybox.objects.network_packet_object.FragmentHeader`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.FragmentHeaderType`

#### **fragment\_offset**

Type: `cybox.common.properties.HexBinary`

XML Binding class name: `Fragment_Offset`

Dictionary key name: `fragment_offset`

#### **identification**

Type: `cybox.common.properties.HexBinary`

XML Binding class name: `Identification`

Dictionary key name: `identification`

#### **m\_flag**

Type: `cybox.common.properties.String`

XML Binding class name: `M_Flag`

Dictionary key name: `m_flag`

#### **next\_header**

Type: `cybox.common.properties.HexBinary`

XML Binding class name: `Next_Header`

Dictionary key name: `next_header`

**class** `cybox.objects.network_packet_object.FragmentationRequired`

Bases: `mixbox.entities.Entity`

XML binding class:

`cybox.bindings.network_packet_object.FragmentationRequiredType`

#### **fragmentation\_required**

XML Binding class name: Fragmentation\_Required

Dictionary key name: fragmentation\_required

#### **next\_hop\_mtu**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Next\_Hop\_MTU

Dictionary key name: next\_hop\_mtu

**class** `cybox.objects.network_packet_object.HopByHopOptions`

Bases: `cybox.objects.network_packet_object._IPv6ExtHeader`

XML binding class: `cybox.bindings.network_packet_object.HopByHopOptionsType`

**class** `cybox.objects.network_packet_object.ICMPv4AddressMaskReply`

Bases: `mixbox.entities.Entity`

XML binding class:

`cybox.bindings.network_packet_object.ICMPv4AddressMaskReplyType`

#### **address\_mask**

Type: *cybox.objects.address\_object.Address*

XML Binding class name: Address\_Mask

Dictionary key name: address\_mask

#### **address\_mask\_reply**

XML Binding class name: Address\_Mask\_Reply

Dictionary key name: address\_mask\_reply

**class** `cybox.objects.network_packet_object.ICMPv4AddressMaskRequest`

Bases: `mixbox.entities.Entity`

XML binding class:

`cybox.bindings.network_packet_object.ICMPv4AddressMaskRequestType`

#### **address\_mask**

Type: *cybox.objects.address\_object.Address*

XML Binding class name: Address\_Mask

Dictionary key name: address\_mask

#### **address\_mask\_request**

XML Binding class name: Address\_Mask\_Request

Dictionary key name: address\_mask\_request

**class** `cybox.objects.network_packet_object.ICMPv4DestinationUnreachable`

Bases: `mixbox.entities.Entity`

XML binding class:

`cybox.bindings.network_packet_object.ICMPv4DestinationUnreachableType`

#### **communication\_administratively\_prohibited**

XML Binding class name: Communication\_Administratively\_Prohibited

Dictionary key name: communication\_administratively\_prohibited

#### **destination\_host\_unknown**

XML Binding class name: Destination\_Host\_Unknown

Dictionary key name: destination\_host\_unknown

#### **destination\_host\_unreachable**

XML Binding class name: Destination\_Host\_Unreachable

Dictionary key name: destination\_host\_unreachable

#### **destination\_network\_unknown**

XML Binding class name: Destination\_Network\_Unknown

Dictionary key name: destination\_network\_unknown

#### **destination\_network\_unreachable**

XML Binding class name: Destination\_Network\_Unreachable

Dictionary key name: destination\_network\_unreachable

#### **destination\_port\_unreachable**

XML Binding class name: Destination\_Port\_Unreachable

Dictionary key name: destination\_port\_unreachable

#### **destination\_protocol\_unreachable**

XML Binding class name: Destination\_Protocol\_Unreachable

Dictionary key name: destination\_protocol\_unreachable

#### **fragmentation\_required**

Type: `cybox.objects.network_packet_object.FragmentationRequired`

XML Binding class name: Fragmentation\_Required

Dictionary key name: fragmentation\_required

**host\_administratively\_prohibited**

XML Binding class name: Host\_Administratively\_Prohibited

Dictionary key name: host\_administratively\_prohibited

**host\_precedence\_violation**

XML Binding class name: Host\_Precedence\_Violation

Dictionary key name: host\_precedence\_violation

**host\_unreachable\_for\_tos**

XML Binding class name: Host\_Unreachable\_For\_TOS

Dictionary key name: host\_unreachable\_for\_tos

**network\_administratively\_prohibited**

XML Binding class name: Network\_Administratively\_Prohibited

Dictionary key name: network\_administratively\_prohibited

**network\_unreachable\_for\_tos**

XML Binding class name: Network\_Unreachable\_For\_TOS

Dictionary key name: network\_unreachable\_for\_tos

**precedence\_cutoff\_in\_effect**

XML Binding class name: Precedence\_Cutoff\_In\_Effect

Dictionary key name: precedence\_cutoff\_in\_effect

**source\_host\_isolated**

XML Binding class name: Source\_Host\_Isolated

Dictionary key name: source\_host\_isolated

**source\_route\_failed**

XML Binding class name: Source\_Route\_Failed

Dictionary key name: source\_route\_failed

**class** cybox.objects.network\_packet\_object.ICMPv4EchoReply

Bases: cybox.objects.network\_packet\_object.\_ICMPEchoReply

XML binding class: cybox.bindings.network\_packet\_object.ICMPv4EchoReplyType

**class** cybox.objects.network\_packet\_object.ICMPv4EchoRequest

Bases: cybox.objects.network\_packet\_object.\_ICMPEchoRequest

XML binding class: cybox.bindings.network\_packet\_object.ICMPv4EchoRequestType

**class** `cybox.objects.network_packet_object.ICMPv4ErrorMessage`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.ICMPv4ErrorMessageType`

#### **destination\_unreachable**

Type: `cybox.objects.network_packet_object.ICMPv4DestinationUnreachable`  
XML Binding class name: `Destination_Unreachable`  
Dictionary key name: `destination_unreachable`

#### **error\_msg\_content**

Type: `cybox.objects.network_packet_object.ICMPv4ErrorMessageContent`  
XML Binding class name: `Error_Msg_Content`  
Dictionary key name: `error_msg_content`

#### **redirect\_message**

Type: `cybox.objects.network_packet_object.ICMPv4RedirectMessage`  
XML Binding class name: `Redirect_Message`  
Dictionary key name: `redirect_message`

#### **source\_quench**

Type: `cybox.objects.network_packet_object.ICMPv4SourceQuench`  
XML Binding class name: `Source_Quench`  
Dictionary key name: `source_quench`

#### **time\_exceeded**

Type: `cybox.objects.network_packet_object.ICMPv4TimeExceeded`  
XML Binding class name: `Time_Exceeded`  
Dictionary key name: `time_exceeded`

**class** `cybox.objects.network_packet_object.ICMPv4ErrorMessageContent`  
Bases: `mixbox.entities.Entity`

XML binding class:  
`cybox.bindings.network_packet_object.ICMPv4ErrorMessageContentType`

#### **first\_eight\_bytes**

Type: `cybox.common.properties.HexBinary`  
XML Binding class name: `First_Eight_Bytes`  
Dictionary key name: `first_eight_bytes`

### **ip\_header**

Type: *cybox.objects.network\_packet\_object.IPv4Header*

XML Binding class name: IP\_Header

Dictionary key name: ip\_header

**class** *cybox.objects.network\_packet\_object.ICMPv4Header*

Bases: *cybox.objects.network\_packet\_object.\_ICMPHeader*

XML binding class: *cybox.bindings.network\_packet\_object.ICMPv4HeaderType*

**class** *cybox.objects.network\_packet\_object.ICMPv4InfoMessage*

Bases: *mixbox.entities.Entity*

XML binding class: *cybox.bindings.network\_packet\_object.ICMPv4InfoMessageType*

### **address\_mask\_reply**

Type: *cybox.objects.network\_packet\_object.ICMPv4AddressMaskReply*

XML Binding class name: Address\_Mask\_Reply

Dictionary key name: address\_mask\_reply

### **address\_mask\_request**

Type: *cybox.objects.network\_packet\_object.ICMPv4AddressMaskRequest*

XML Binding class name: Address\_Mask\_Request

Dictionary key name: address\_mask\_request

### **echo\_reply**

Type: *cybox.objects.network\_packet\_object.ICMPv4EchoReply*

XML Binding class name: Echo\_Reply

Dictionary key name: echo\_reply

### **echo\_request**

Type: *cybox.objects.network\_packet\_object.ICMPv4EchoRequest*

XML Binding class name: Echo\_Request

Dictionary key name: echo\_request

### **info\_msg\_content**

Type: *cybox.objects.network\_packet\_object.ICMPv4InfoMessageContent*

XML Binding class name: Info\_Msg\_Content

Dictionary key name: info\_msg\_content

### **timestamp\_reply**



Type: `cybox.objects.network_packet_object.ICMPv4TimestampReply`  
 XML Binding class name: `Timestamp_Reply`  
 Dictionary key name: `timestamp_reply`

#### **timestamp\_request**

Type: `cybox.objects.network_packet_object.ICMPv4TimestampRequest`  
 XML Binding class name: `Timestamp_Request`  
 Dictionary key name: `timestamp_request`

**class** `cybox.objects.network_packet_object.ICMPv4InfoMessageContent`  
 Bases: `cybox.objects.network_packet_object._ICMPInfoMessageContent`

XML binding class:  
`cybox.bindings.network_packet_object.ICMPv4InfoMessageContentType`

**class** `cybox.objects.network_packet_object.ICMPv4Packet`  
 Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.ICMPv4PacketType`

#### **error\_msg**

Type: `cybox.objects.network_packet_object.ICMPv4ErrorMessage`  
 XML Binding class name: `Error_Msg`  
 Dictionary key name: `error_msg`

#### **icmpv4\_header**

Type: `cybox.objects.network_packet_object.ICMPv4Header`  
 XML Binding class name: `ICMPv4_Header`  
 Dictionary key name: `icmpv4_header`

#### **info\_msg**

Type: `cybox.objects.network_packet_object.ICMPv4InfoMessage`  
 XML Binding class name: `Info_Msg`  
 Dictionary key name: `info_msg`

#### **traceroute**

Type: `cybox.objects.network_packet_object.ICMPv4Traceroute`  
 XML Binding class name: `Traceroute`  
 Dictionary key name: `traceroute`

**class** `cybox.objects.network_packet_object.ICMPv4RedirectMessage`  
 Bases: `mixbox.entities.Entity`

XML binding class:

`cybox.bindings.network_packet_object.ICMPv4RedirectMessageType`

#### **host\_redirect**

XML Binding class name: `Host_Redirect`

Dictionary key name: `host_redirect`

#### **ip\_address**

Type: `cybox.objects.address_object.Address`

XML Binding class name: `IP_Address`

Dictionary key name: `ip_address`

#### **network\_redirect**

XML Binding class name: `Network_Redirect`

Dictionary key name: `network_redirect`

#### **tos\_host\_redirect**

XML Binding class name: `ToS_Host_Redirect`

Dictionary key name: `tos_host_redirect`

#### **tos\_network\_redirect**

XML Binding class name: `ToS_Network_Redirect`

Dictionary key name: `tos_network_redirect`

**class** `cybox.objects.network_packet_object.ICMPv4SourceQuench`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.ICMPv4SourceQuenchType`

#### **source\_quench**

XML Binding class name: `Source_Quench`

Dictionary key name: `source_quench`

**class** `cybox.objects.network_packet_object.ICMPv4TimeExceeded`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.ICMPv4TimeExceededType`

#### **frag\_reassembly\_time\_exceeded**

XML Binding class name: `Frag_Reassembly_Time_Exceeded`

Dictionary key name: frag\_reassembly\_time\_exceeded

#### **ttl\_exceeded\_in\_transit**

XML Binding class name: TTL\_Exceeded\_In\_Transit

Dictionary key name: ttl\_exceeded\_in\_transit

**class** cybox.objects.network\_packet\_object.ICMPv4TimestampReply  
Bases: mixbox.entities.Entity

XML binding class:

cybox.bindings.network\_packet\_object.ICMPv4TimestampReplyType

#### **originate\_timestamp**

Type: *cybox.common.properties.UnsignedInteger*

XML Binding class name: Originate\_Timestamp

Dictionary key name: originate\_timestamp

#### **receive\_timestamp**

Type: *cybox.common.properties.UnsignedInteger*

XML Binding class name: Receive\_Timestamp

Dictionary key name: receive\_timestamp

#### **timestamp\_reply**

XML Binding class name: Timestamp\_Reply

Dictionary key name: timestamp\_reply

#### **transmit\_timestamp**

Type: *cybox.common.properties.UnsignedInteger*

XML Binding class name: Transmit\_Timestamp

Dictionary key name: transmit\_timestamp

**class** cybox.objects.network\_packet\_object.ICMPv4TimestampRequest  
Bases: mixbox.entities.Entity

XML binding class:

cybox.bindings.network\_packet\_object.ICMPv4TimestampRequestType

#### **originate\_timestamp**

Type: *cybox.common.properties.UnsignedInteger*

XML Binding class name: Originate\_Timestamp

Dictionary key name: originate\_timestamp

#### **timestamp**

XML Binding class name: Timestamp

Dictionary key name: timestamp

**class** cybox.objects.network\_packet\_object.ICMPv4Traceroute

Bases: mixbox.entities.Entity

XML binding class: cybox.bindings.network\_packet\_object.ICMPv4TracerouteType

#### **identifier**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Identifier

Dictionary key name: identifier

#### **outbound\_hop\_count**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Outbound\_Hop\_Count

Dictionary key name: outbound\_hop\_count

#### **outbound\_packet\_forward\_success**

XML Binding class name: Outbound\_Packet\_Forward\_Success

Dictionary key name: outbound\_packet\_forward\_success

#### **outbound\_packet\_no\_route**

XML Binding class name: Outbound\_Packet\_no\_Route

Dictionary key name: outbound\_packet\_no\_route

#### **output\_link\_mtu**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Output\_Link\_MTU

Dictionary key name: output\_link\_mtu

#### **output\_link\_speed**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Output\_Link\_Speed

Dictionary key name: output\_link\_speed

#### **return\_hop\_count**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Return\_Hop\_Count

Dictionary key name: return\_hop\_count

**class** `cybox.objects.network_packet_object.ICMPv6DestinationUnreachable`  
Bases: `mixbox.entities.Entity`

XML binding class:

`cybox.bindings.network_packet_object.ICMPv6DestinationUnreachableType`

#### **address\_unreachable**

XML Binding class name: `Address_Unreachable`

Dictionary key name: `address_unreachable`

#### **beyond\_scope**

XML Binding class name: `Beyond_Scope`

Dictionary key name: `beyond_scope`

#### **comm\_prohibited**

XML Binding class name: `Comm_Prohibited`

Dictionary key name: `comm_prohibited`

#### **no\_route**

XML Binding class name: `No_Route`

Dictionary key name: `no_route`

#### **port\_unreachable**

XML Binding class name: `Port_Unreachable`

Dictionary key name: `port_unreachable`

#### **reject\_route**

XML Binding class name: `Reject_Route`

Dictionary key name: `reject_route`

#### **src\_addr\_failed\_policy**

XML Binding class name: `Src_Addr_Failed_Policy`

Dictionary key name: `src_addr_failed_policy`

**class** `cybox.objects.network_packet_object.ICMPv6EchoReply`  
Bases: `cybox.objects.network_packet_object._ICMPEchoReply`

XML binding class: `cybox.bindings.network_packet_object.ICMPv6EchoReplyType`

**class** `cybox.objects.network_packet_object.ICMPv6EchoRequest`  
Bases: `cybox.objects.network_packet_object._ICMPEchoRequest`

XML binding class: `cybox.bindings.network_packet_object.ICMPv6EchoRequestType`

**class** `cybox.objects.network_packet_object.ICMPv6ErrorMessage`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.ICMPv6ErrorMessageType`

#### **destination\_unreachable**

Type: `cybox.objects.network_packet_object.ICMPv6DestinationUnreachable`

XML Binding class name: `Destination_Unreachable`

Dictionary key name: `destination_unreachable`

#### **invoking\_packet**

Type: `cybox.common.properties.HexBinary`

XML Binding class name: `Invoking_Packet`

Dictionary key name: `invoking_packet`

#### **packet\_too\_big**

Type: `cybox.objects.network_packet_object.ICMPv6PacketTooBig`

XML Binding class name: `Packet_Too_Big`

Dictionary key name: `packet_too_big`

#### **parameter\_problem**

Type: `cybox.objects.network_packet_object.ICMPv6ParameterProblem`

XML Binding class name: `Parameter_Problem`

Dictionary key name: `parameter_problem`

#### **time\_exceeded**

Type: `cybox.objects.network_packet_object.ICMPv6TimeExceeded`

XML Binding class name: `Time_Exceeded`

Dictionary key name: `time_exceeded`

**class** `cybox.objects.network_packet_object.ICMPv6Header`

Bases: `cybox.objects.network_packet_object._ICMPHeader`

XML binding class: `cybox.bindings.network_packet_object.ICMPv6HeaderType`

**class** `cybox.objects.network_packet_object.ICMPv6InfoMessage`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.ICMPv6InfoMessageType`

**echo\_reply**

Type: *cybox.objects.network\_packet\_object.ICMPv6EchoReply*

XML Binding class name: Echo\_Reply

Dictionary key name: echo\_reply

**echo\_request**

Type: *cybox.objects.network\_packet\_object.ICMPv6EchoRequest*

XML Binding class name: Echo\_Request

Dictionary key name: echo\_request

**info\_msg\_content**

Type: *cybox.objects.network\_packet\_object.ICMPv6InfoMessageContent*

XML Binding class name: Info\_Msg\_Content

Dictionary key name: info\_msg\_content

**class** *cybox.objects.network\_packet\_object.ICMPv6InfoMessageContent*

Bases: *cybox.objects.network\_packet\_object.\_ICMPInfoMessageContent*

XML binding class:

*cybox.bindings.network\_packet\_object.ICMPv6InfoMessageType*

**class** *cybox.objects.network\_packet\_object.ICMPv6Packet*

Bases: *mixbox.entities.Entity*

XML binding class: *cybox.bindings.network\_packet\_object.ICMPv6PacketType*

**error\_msg**

Type: *cybox.objects.network\_packet\_object.ICMPv6ErrorMessage*

XML Binding class name: Error\_Msg

Dictionary key name: error\_msg

**icmpv6\_header**

Type: *cybox.objects.network\_packet\_object.ICMPv6Header*

XML Binding class name: ICMPv6\_Header

Dictionary key name: icmpv6\_header

**info\_msg**

Type: *cybox.objects.network\_packet\_object.ICMPv6InfoMessage*

XML Binding class name: Info\_Msg

Dictionary key name: info\_msg

**class** `cybox.objects.network_packet_object.ICMPv6PacketTooBig`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.ICMPv6PacketTooBigType`

**mtu**

Type: `cybox.common.properties.HexBinary`

XML Binding class name: MTU

Dictionary key name: mtu

**packet\_too\_big**

XML Binding class name: Packet\_Too\_Big

Dictionary key name: packet\_too\_big

**class** `cybox.objects.network_packet_object.ICMPv6ParameterProblem`  
Bases: `mixbox.entities.Entity`

XML binding class:

`cybox.bindings.network_packet_object.ICMPv6ParameterProblemType`

**erroneous\_header\_field**

XML Binding class name: Erroneous\_Header\_Field

Dictionary key name: erroneous\_header\_field

**pointer**

Type: `cybox.common.properties.HexBinary`

XML Binding class name: Pointer

Dictionary key name: pointer

**unrecognized\_ipv6\_option**

XML Binding class name: Unrecognized\_IPv6\_Option

Dictionary key name: unrecognized\_ipv6\_option

**unrecognized\_next\_header\_type**

XML Binding class name: Unrecognized\_Next\_Header\_Type

Dictionary key name: unrecognized\_next\_header\_type

**class** `cybox.objects.network_packet_object.ICMPv6TimeExceeded`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.ICMPv6TimeExceededType`



**fragment\_reassem\_time\_exceeded**

XML Binding class name: Fragment\_Reassem\_Time\_Exceeded

Dictionary key name: fragment\_reassem\_time\_exceeded

**hop\_limit\_exceeded**

XML Binding class name: Hop\_Limit\_Exceeded

Dictionary key name: hop\_limit\_exceeded

**class** cybox.objects.network\_packet\_object.**IPv4Flags**

Bases: mixbox.entities.Entity

XML binding class: cybox.bindings.network\_packet\_object.IPv4FlagsType

**do\_not\_fragment**

Type: *cybox.common.properties.String*

XML Binding class name: Do\_Not\_Fragment

Dictionary key name: do\_not\_fragment

**more\_fragments**

Type: *cybox.common.properties.String*

XML Binding class name: More\_Fragments

Dictionary key name: more\_fragments

**reserved**

Type: *cybox.common.properties.Integer*

XML Binding class name: Reserved

Dictionary key name: reserved

**class** cybox.objects.network\_packet\_object.**IPv4Header**

Bases: mixbox.entities.Entity

XML binding class: cybox.bindings.network\_packet\_object.IPv4HeaderType

**checksum**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Checksum

Dictionary key name: checksum

**dest\_ipv4\_addr**

Type: *cybox.objects.address\_object.Address*

XML Binding class name: Dest\_IPv4\_Addr

Dictionary key name: dest\_ipv4\_addr

#### **dscp**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: DSCP

Dictionary key name: dscp

#### **ecn**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: ECN

Dictionary key name: ecn

#### **flags**

Type: *cybox.objects.network\_packet\_object.IPv4Flags*

XML Binding class name: Flags

Dictionary key name: flags

#### **fragment\_offset**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Fragment\_Offset

Dictionary key name: fragment\_offset

#### **header\_length**

Type: *cybox.common.properties.Integer*

XML Binding class name: Header\_Length

Dictionary key name: header\_length

#### **identification**

Type: *cybox.common.properties.PositiveInteger*

XML Binding class name: Identification

Dictionary key name: identification

#### **ip\_version**

Type: *cybox.common.properties.String*

XML Binding class name: IP\_Version

Dictionary key name: ip\_version

#### **option**

(List of values permitted)

Type: *cybox.objects.network\_packet\_object.IPv4Option*

XML Binding class name: Option

Dictionary key name: option

**protocol**

Type: *cybox.common.properties.String*

XML Binding class name: Protocol

Dictionary key name: protocol

**src\_ipv4\_addr**

Type: *cybox.objects.address\_object.Address*

XML Binding class name: Src\_IPv4\_Addr

Dictionary key name: src\_ipv4\_addr

**total\_length**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Total\_Length

Dictionary key name: total\_length

**ttl**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: TTL

Dictionary key name: ttl

**class** `cybox.objects.network_packet_object.IPv4Option`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.IPv4OptionType`

**class\_**

Type: *cybox.common.properties.String*

XML Binding class name: Class

Dictionary key name: class

**copy\_flag**

Type: *cybox.common.properties.String*

XML Binding class name: Copy\_Flag

Dictionary key name: copy\_flag

**option**

Type: *cybox.common.properties.String*

XML Binding class name: Option

Dictionary key name: option

**class** `cybox.objects.network_packet_object.IPv4Packet`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.Ipv4PacketType`

#### **data**

Type: `cybox.common.properties.HexBinary`

XML Binding class name: Data

Dictionary key name: data

#### **ipv4\_header**

Type: `cybox.objects.network_packet_object.Ipv4Header`

XML Binding class name: Ipv4\_Header

Dictionary key name: ipv4\_header

**class** `cybox.objects.network_packet_object.Ipv6ExtHeader`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.Ipv6ExtHeaderType`

#### **authentication\_header**

Type: `cybox.objects.network_packet_object.AuthenticationHeader`

XML Binding class name: Authentication\_Header

Dictionary key name: authentication\_header

#### **destination\_options**

(List of values permitted)

Type: `cybox.objects.network_packet_object.DestinationOptions`

XML Binding class name: Destination\_Options

Dictionary key name: destination\_options

#### **encapsulating\_security\_payload**

Type: `cybox.objects.network_packet_object.EncapsulatingSecurityPayload`

XML Binding class name: Encapsulating\_Security\_Payload

Dictionary key name: encapsulating\_security\_payload

#### **fragment**

Type: `cybox.objects.network_packet_object.Fragment`

XML Binding class name: Fragment

Dictionary key name: fragment

#### **hop\_by\_hop\_options**

Type: `cybox.objects.network_packet_object.HopByHopOptions`

XML Binding class name: Hop\_by\_Hop\_Options

Dictionary key name: hop\_by\_hop\_options

#### **routing**

Type: *cybox.objects.network\_packet\_object.Routing*

XML Binding class name: Routing

Dictionary key name: routing

**class** `cybox.objects.network_packet_object.IPv6Header`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.IPv6HeaderType`

#### **dest\_ipv6\_addr**

Type: *cybox.objects.address\_object.Address*

XML Binding class name: Dest\_IPv6\_Addr

Dictionary key name: dest\_ipv6\_addr

#### **flow\_label**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Flow\_Label

Dictionary key name: flow\_label

#### **ip\_version**

Type: *cybox.common.properties.String*

XML Binding class name: IP\_Version

Dictionary key name: ip\_version

#### **next\_header**

Type: *cybox.common.properties.String*

XML Binding class name: Next\_Header

Dictionary key name: next\_header

#### **payload\_length**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Payload\_Length

Dictionary key name: payload\_length

#### **src\_ipv6\_addr**

Type: *cybox.objects.address\_object.Address*

XML Binding class name: Src\_IPv6\_Addr

Dictionary key name: src\_ipv6\_addr

**traffic\_class**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Traffic\_Class

Dictionary key name: traffic\_class

**ttl**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: TTL

Dictionary key name: ttl

**class** `cybox.objects.network_packet_object.IPv6Option`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.IPv6OptionType`

**do\_not\_recogn\_action**

Type: *cybox.common.properties.String*

XML Binding class name: Do\_Not\_Recogn\_Action

Dictionary key name: do\_not\_recogn\_action

**option\_byte**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Option\_Byte

Dictionary key name: option\_byte

**packet\_change**

Type: *cybox.common.properties.String*

XML Binding class name: Packet\_Change

Dictionary key name: packet\_change

**class** `cybox.objects.network_packet_object.IPv6Packet`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.IPv6PacketType`

**data**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Data

Dictionary key name: data

**ext\_headers**

(List of values permitted)

Type: *cybox.objects.network\_packet\_object.IPv6ExtHeader*

XML Binding class name: Ext\_Headers

Dictionary key name: ext\_headers

#### **ipv6\_header**

Type: *cybox.objects.network\_packet\_object.IPv6Header*

XML Binding class name: IPv6\_Header

Dictionary key name: ipv6\_header

**class** *cybox.objects.network\_packet\_object.InternetLayer*

Bases: *mixbox.entities.Entity*

XML binding class: *cybox.bindings.network\_packet\_object.InternetLayerType*

#### **icmpv4**

Type: *cybox.objects.network\_packet\_object.ICMPv4Packet*

XML Binding class name: ICMPv4

Dictionary key name: icmpv4

#### **icmpv6**

Type: *cybox.objects.network\_packet\_object.ICMPv6Packet*

XML Binding class name: ICMPv6

Dictionary key name: icmpv6

#### **ipv4**

Type: *cybox.objects.network\_packet\_object.IPv4Packet*

XML Binding class name: IPv4

Dictionary key name: ipv4

#### **ipv6**

Type: *cybox.objects.network\_packet\_object.IPv6Packet*

XML Binding class name: IPv6

Dictionary key name: ipv6

**class** *cybox.objects.network\_packet\_object.LinkLayer*

Bases: *mixbox.entities.Entity*

XML binding class: *cybox.bindings.network\_packet\_object.LinkLayerType*

#### **logical\_protocols**

Type: *cybox.objects.network\_packet\_object.LogicalProtocol*

XML Binding class name: Logical\_Protocols

Dictionary key name: logical\_protocols

#### **physical\_interface**

Type: *cybox.objects.network\_packet\_object.PhysicalInterface*

XML Binding class name: Physical\_Interface

Dictionary key name: physical\_interface

**class** `cybox.objects.network_packet_object.LogicalProtocol`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.LogicalProtocolType`

#### **arp\_rarp**

Type: *cybox.objects.network\_packet\_object.ARP*

XML Binding class name: ARP\_RARP

Dictionary key name: arp\_rarp

#### **ndp**

Type: *cybox.objects.network\_packet\_object.NDP*

XML Binding class name: NDP

Dictionary key name: ndp

**class** `cybox.objects.network_packet_object.NDP`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.NDPType`

#### **icmpv6\_header**

Type: *cybox.objects.network\_packet\_object.ICMPv6Header*

XML Binding class name: ICMPv6\_Header

Dictionary key name: icmpv6\_header

#### **neighbor\_advertisement**

Type: *cybox.objects.network\_packet\_object.NeighborAdvertisement*

XML Binding class name: Neighbor\_Advertisement

Dictionary key name: neighbor\_advertisement

#### **neighbor\_solicitation**

Type: *cybox.objects.network\_packet\_object.NeighborSolicitation*

XML Binding class name: Neighbor\_Solicitation

Dictionary key name: neighbor\_solicitation



**redirect**

Type: *cybox.objects.network\_packet\_object.Redirect*

XML Binding class name: Redirect

Dictionary key name: redirect

**router\_advertisement**

Type: *cybox.objects.network\_packet\_object.RouterAdvertisement*

XML Binding class name: Router\_Advertisement

Dictionary key name: router\_advertisement

**router\_solicitation**

Type: *cybox.objects.network\_packet\_object.RouterSolicitation*

XML Binding class name: Router\_Solicitation

Dictionary key name: router\_solicitation

**class** *cybox.objects.network\_packet\_object.NDPLinkAddr*

Bases: *mixbox.entities.Entity*

Abstract Type

XML binding class: *cybox.bindings.network\_packet\_object.NDPLinkAddrType*

**length**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Length

Dictionary key name: length

**link\_layer\_mac\_addr**

Type: *cybox.objects.address\_object.Address*

XML Binding class name: Link\_Layer\_MAC\_Addr

Dictionary key name: link\_layer\_mac\_addr

**class** *cybox.objects.network\_packet\_object.NDPMTU*

Bases: *mixbox.entities.Entity*

XML binding class: *cybox.bindings.network\_packet\_object.NDPMTUType*

**length**

Type: *cybox.common.properties.Integer*

XML Binding class name: Length

Dictionary key name: length

#### **mtu**

Type: *cybox.common.properties.Integer*

XML Binding class name: MTU

Dictionary key name: mtu

**class** `cybox.objects.network_packet_object.NDPPrefixInfo`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.NDPPrefixInfoType`

#### **addr\_config\_flag**

XML Binding class name: `addr_config_flag`

Dictionary key name: `addr_config_flag`

#### **length**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Length

Dictionary key name: length

#### **link\_flag**

XML Binding class name: `link_flag`

Dictionary key name: `link_flag`

#### **preferred\_lifetime**

Type: *cybox.common.properties.Integer*

XML Binding class name: Preferred\_Lifetime

Dictionary key name: `preferred_lifetime`

#### **prefix**

Type: *cybox.objects.network\_packet\_object.Prefix*

XML Binding class name: Prefix

Dictionary key name: prefix

#### **prefix\_length**

Type: *cybox.common.properties.Integer*

XML Binding class name: Prefix\_Length

Dictionary key name: `prefix_length`

#### **valid\_lifetime**

Type: *cybox.common.properties.Integer*

XML Binding class name: Valid\_Lifetime

Dictionary key name: `valid_lifetime`

**class** `cybox.objects.network_packet_object.NDPRedirectedHeader`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.NDPRedirectedHeaderType`

#### **ipheader\_and\_data**

Type: `cybox.common.properties.HexBinary`

XML Binding class name: `IPHeader_And_Data`

Dictionary key name: `ipheader_and_data`

#### **length**

Type: `cybox.common.properties.HexBinary`

XML Binding class name: `Length`

Dictionary key name: `length`

**class** `cybox.objects.network_packet_object.NeighborAdvertisement`  
Bases: `mixbox.entities.Entity`

XML binding class:

`cybox.bindings.network_packet_object.NeighborAdvertisementType`

#### **options**

Type: `cybox.objects.network_packet_object.NeighborOptions`

XML Binding class name: `Options`

Dictionary key name: `options`

#### **override\_flag**

XML Binding class name: `override_flag`

Dictionary key name: `override_flag`

#### **router\_flag**

XML Binding class name: `router_flag`

Dictionary key name: `router_flag`

#### **solicited\_flag**

XML Binding class name: `solicited_flag`

Dictionary key name: `solicited_flag`

#### **target\_ipv6\_addr**

Type: `cybox.objects.address_object.Address`

XML Binding class name: Target\_IPv6\_Addr

Dictionary key name: target\_ipv6\_addr

**class** cybox.objects.network\_packet\_object.**NeighborOptions**

Bases: mixbox.entities.Entity

XML binding class: cybox.bindings.network\_packet\_object.NeighborOptionsType

#### **target\_link\_addr**

Type: *cybox.objects.network\_packet\_object.NDPLinkAddr*

XML Binding class name: Target\_Link\_Addr

Dictionary key name: target\_link\_addr

**class** cybox.objects.network\_packet\_object.**NeighborSolicitation**

Bases: mixbox.entities.Entity

XML binding class:

cybox.bindings.network\_packet\_object.NeighborSolicitationType

#### **options**

Type: *cybox.objects.network\_packet\_object.NeighborSolicitationOptions*

XML Binding class name: Options

Dictionary key name: options

#### **target\_ipv6\_addr**

Type: *cybox.objects.address\_object.Address*

XML Binding class name: Target\_IPv6\_Addr

Dictionary key name: target\_ipv6\_addr

**class** cybox.objects.network\_packet\_object.**NeighborSolicitationOptions**

Bases: mixbox.entities.Entity

XML binding class:

cybox.bindings.network\_packet\_object.NeighborSolicitationOptionsType

#### **src\_link\_addr**

Type: *cybox.objects.network\_packet\_object.NDPLinkAddr*

XML Binding class name: Src\_Link\_Addr

Dictionary key name: src\_link\_addr

**class** cybox.objects.network\_packet\_object.**NetworkPacket**

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: `cybox.bindings.network_packet_object.NetworkPacketObjectType`

#### **internet\_layer**

Type: `cybox.objects.network_packet_object.InternetLayer`

XML Binding class name: `Internet_Layer`

Dictionary key name: `internet_layer`

#### **link\_layer**

Type: `cybox.objects.network_packet_object.LinkLayer`

XML Binding class name: `Link_Layer`

Dictionary key name: `link_layer`

#### **transport\_layer**

Type: `cybox.objects.network_packet_object.TransportLayer`

XML Binding class name: `Transport_Layer`

Dictionary key name: `transport_layer`

**class** `cybox.objects.network_packet_object.OptionData`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.OptionDataType`

#### **option\_data\_len**

Type: `cybox.common.properties.HexBinary`

XML Binding class name: `Option_Data_Len`

Dictionary key name: `option_data_len`

#### **option\_type**

Type: `cybox.objects.network_packet_object.IPv6Option`

XML Binding class name: `Option_Type`

Dictionary key name: `option_type`

#### **pad1**

Type: `cybox.objects.network_packet_object.Pad1`

XML Binding class name: `Pad1`

Dictionary key name: `pad1`

#### **padn**

Type: `cybox.objects.network_packet_object.PadN`

XML Binding class name: `PadN`

Dictionary key name: `padn`

**class** `cybox.objects.network_packet_object.Pad1`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.Pad1Type`

#### **octet**

Type: `cybox.common.properties.HexBinary`  
XML Binding class name: `Octet`  
Dictionary key name: `octet`

**class** `cybox.objects.network_packet_object.PadN`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.PadNType`

#### **octet**

Type: `cybox.common.properties.HexBinary`  
XML Binding class name: `Octet`  
Dictionary key name: `octet`

#### **option\_data**

Type: `cybox.common.properties.Integer`  
XML Binding class name: `Option_Data`  
Dictionary key name: `option_data`

#### **option\_data\_length**

Type: `cybox.common.properties.Integer`  
XML Binding class name: `Option_Data_Length`  
Dictionary key name: `option_data_length`

**class** `cybox.objects.network_packet_object.PhysicalInterface`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.PhysicalInterfaceType`

#### **ethernet**

Type: `cybox.objects.network_packet_object.EthernetInterface`  
XML Binding class name: `Ethernet`  
Dictionary key name: `ethernet`

**class** `cybox.objects.network_packet_object.Prefix`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.PrefixType`

#### **ip\_addr\_prefix**

Type: `cybox.objects.address_object.Address`  
XML Binding class name: `IP_Addr_Prefix`  
Dictionary key name: `ip_addr_prefix`

#### **ipv6\_addr**

Type: `cybox.objects.address_object.Address`  
XML Binding class name: `IPv6_Addr`  
Dictionary key name: `ipv6_addr`

**class** `cybox.objects.network_packet_object.Redirect`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.RedirectType`

#### **dest\_ipv6\_addr**

Type: `cybox.objects.address_object.Address`  
XML Binding class name: `Dest_IPv6_Addr`  
Dictionary key name: `dest_ipv6_addr`

#### **options**

Type: `cybox.objects.network_packet_object.RedirectOptions`  
XML Binding class name: `Options`  
Dictionary key name: `options`

#### **target\_ipv6\_addr**

Type: `cybox.objects.address_object.Address`  
XML Binding class name: `Target_IPv6_Addr`  
Dictionary key name: `target_ipv6_addr`

**class** `cybox.objects.network_packet_object.RedirectOptions`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.RedirectOptionsType`

**redirected\_header**

Type: *cybox.objects.network\_packet\_object.NDPRedirectedHeader*

XML Binding class name: Redirected\_Header

Dictionary key name: redirected\_header

**target\_link\_addr**

Type: *cybox.objects.network\_packet\_object.NDPLinkAddr*

XML Binding class name: Target\_Link\_Addr

Dictionary key name: target\_link\_addr

**class** `cybox.objects.network_packet_object.RouterAdvertisement`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.RouterAdvertisementType`

**cur\_hop\_limit**

Type: *cybox.common.properties.Integer*

XML Binding class name: Cur\_Hop\_Limit

Dictionary key name: cur\_hop\_limit

**managed\_address\_config\_flag**

XML Binding class name: managed\_address\_config\_flag

Dictionary key name: managed\_address\_config\_flag

**options**

Type: *cybox.objects.network\_packet\_object.RouterAdvertisementOptions*

XML Binding class name: Options

Dictionary key name: options

**other\_config\_flag**

XML Binding class name: other\_config\_flag

Dictionary key name: other\_config\_flag

**reachable\_time**

Type: *cybox.common.properties.Integer*

XML Binding class name: Reachable\_Time

Dictionary key name: reachable\_time

**retrans\_timer**

Type: *cybox.common.properties.Integer*

XML Binding class name: Retrans\_Timer



Dictionary key name: retrans\_timer

#### **router\_lifetime**

Type: *cybox.common.properties.Integer*

XML Binding class name: Router\_Lifetime

Dictionary key name: router\_lifetime

**class** `cybox.objects.network_packet_object.RouterAdvertisementOptions`

Bases: `mixbox.entities.Entity`

XML binding class:

`cybox.bindings.network_packet_object.RouterAdvertisementOptionsType`

#### **mtu**

Type: *cybox.objects.network\_packet\_object.NDPMTU*

XML Binding class name: MTU

Dictionary key name: mtu

#### **prefix\_info**

Type: *cybox.objects.network\_packet\_object.NDPPrefixInfo*

XML Binding class name: Prefix\_Info

Dictionary key name: prefix\_info

#### **src\_link\_addr**

Type: *cybox.objects.network\_packet\_object.NDPLinkAddr*

XML Binding class name: Src\_Link\_Addr

Dictionary key name: src\_link\_addr

**class** `cybox.objects.network_packet_object.RouterSolicitation`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.RouterSolicitationType`

#### **options**

(List of values permitted)

Type: *cybox.objects.network\_packet\_object.RouterSolicitationOptions*

XML Binding class name: Options

Dictionary key name: options

**class** `cybox.objects.network_packet_object.RouterSolicitationOptions`

Bases: `mixbox.entities.Entity`

XML binding class:

`cybox.bindings.network_packet_object.RouterSolicitationOptionsType`

#### **src\_link\_addr**

Type: `cybox.objects.network_packet_object.NDPLinkAddr`

XML Binding class name: `Src_Link_Addr`

Dictionary key name: `src_link_addr`

**class** `cybox.objects.network_packet_object.Routing`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.RoutingType`

#### **header\_ext\_len**

Type: `cybox.common.properties.Integer`

XML Binding class name: `Header_Ext_Len`

Dictionary key name: `header_ext_len`

#### **next\_header**

Type: `cybox.common.properties.String`

XML Binding class name: `Next_Header`

Dictionary key name: `next_header`

#### **routing\_type**

Type: `cybox.common.properties.HexBinary`

XML Binding class name: `Routing_Type`

Dictionary key name: `routing_type`

#### **segments\_left**

Type: `cybox.common.properties.Integer`

XML Binding class name: `Segments_Left`

Dictionary key name: `segments_left`

#### **type\_specific\_data**

Type: `cybox.common.properties.String`

XML Binding class name: `Type_Specific_Data`

Dictionary key name: `type_specific_data`

**class** `cybox.objects.network_packet_object.TCP`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.TCPType`

**data**

Type: *cybox.common.data\_segment.DataSegment*

XML Binding class name: Data

Dictionary key name: data

**options**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Options

Dictionary key name: options

**tcp\_header**

Type: *cybox.objects.network\_packet\_object.TCPHeader*

XML Binding class name: TCP\_Header

Dictionary key name: tcp\_header

**class** *cybox.objects.network\_packet\_object.TCPFlags*

Bases: *mixbox.entities.Entity*

XML binding class: *cybox.bindings.network\_packet\_object.TCPFlagsType*

**ack**

XML Binding class name: ack

Dictionary key name: ack

**cwr**

XML Binding class name: cwr

Dictionary key name: cwr

**ece**

XML Binding class name: ece

Dictionary key name: ece

**fin**

XML Binding class name: fin

Dictionary key name: fin

**ns**

XML Binding class name: ns

Dictionary key name: ns

**psh**

XML Binding class name: psh

Dictionary key name: psh

**rst**

XML Binding class name: rst

Dictionary key name: rst

**syn**

XML Binding class name: syn

Dictionary key name: syn

**urg**

XML Binding class name: urg

Dictionary key name: urg

**class** `cybox.objects.network_packet_object.TCPHeader`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.TCPHeaderType`

**ack\_num**

Type: `cybox.common.properties.HexBinary`

XML Binding class name: ACK\_Num

Dictionary key name: ack\_num

**checksum**

Type: `cybox.common.properties.HexBinary`

XML Binding class name: Checksum

Dictionary key name: checksum

**data\_offset**

Type: `cybox.common.properties.HexBinary`

XML Binding class name: Data\_Offset

Dictionary key name: data\_offset

**dest\_port**

Type: `cybox.objects.port_object.Port`

XML Binding class name: Dest\_Port

Dictionary key name: dest\_port

**reserved**

Type: `cybox.common.properties.Integer`

XML Binding class name: Reserved

Dictionary key name: reserved

#### **seq\_num**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Seq\_Num

Dictionary key name: seq\_num

#### **src\_port**

Type: *cybox.objects.port\_object.Port*

XML Binding class name: Src\_Port

Dictionary key name: src\_port

#### **tcp\_flags**

Type: *cybox.objects.network\_packet\_object.TCPFlags*

XML Binding class name: TCP\_Flags

Dictionary key name: tcp\_flags

#### **urg\_ptr**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Urg\_Ptr

Dictionary key name: urg\_ptr

#### **window**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Window

Dictionary key name: window

**class** `cybox.objects.network_packet_object.TransportLayer`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.TransportLayerType`

#### **tcp**

Type: *cybox.objects.network\_packet\_object.TCP*

XML Binding class name: TCP

Dictionary key name: tcp

#### **udp**

Type: *cybox.objects.network\_packet\_object.UDP*

XML Binding class name: UDP

Dictionary key name: udp

**class** `cybox.objects.network_packet_object.TypeLength`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.TypeLengthType`

#### **internet\_layer\_type**

Type: `cybox.common.properties.String`  
XML Binding class name: `Internet_Layer_Type`  
Dictionary key name: `internet_layer_type`

#### **length**

Type: `cybox.common.properties.HexBinary`  
XML Binding class name: `Length`  
Dictionary key name: `length`

**class** `cybox.objects.network_packet_object.UDP`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.UDPType`

#### **data**

Type: `cybox.common.data_segment.DataSegment`  
XML Binding class name: `Data`  
Dictionary key name: `data`

#### **udp\_header**

Type: `cybox.objects.network_packet_object.UDPHeader`  
XML Binding class name: `UDP_Header`  
Dictionary key name: `udp_header`

**class** `cybox.objects.network_packet_object.UDPHeader`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_packet_object.UDPHeaderType`

#### **checksum**

Type: `cybox.common.properties.HexBinary`  
XML Binding class name: `Checksum`  
Dictionary key name: `checksum`

**destport**

Type: *cybox.objects.port\_object.Port*

XML Binding class name: DestPort

Dictionary key name: destport

**length**

Type: *cybox.common.properties.Integer*

XML Binding class name: Length

Dictionary key name: length

**srcport**

Type: *cybox.objects.port\_object.Port*

XML Binding class name: SrcPort

Dictionary key name: srcport

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**cybox.objects.network\_route\_entry\_object module**

**class** `cybox.objects.network_route_entry_object.NetworkRouteEntry`

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class:

`cybox.bindings.network_route_entry_object.NetworkRouteEntryObjectType`

**destination\_address**

Type: *cybox.objects.address\_object.Address*

XML Binding class name: Destination\_Address

Dictionary key name: destination\_address

**gateway\_address**

Type: *cybox.objects.address\_object.Address*

XML Binding class name: Gateway\_Address

Dictionary key name: gateway\_address

**interface**

Type: *cybox.common.properties.String*

XML Binding class name: Interface

Dictionary key name: interface

**is\_autoconfigure\_address**

XML Binding class name: is\_autoconfigure\_address

Dictionary key name: is\_autoconfigure\_address

**is\_immortal**

XML Binding class name: `is_immortal`

Dictionary key name: `is_immortal`

**is\_ipv6**

XML Binding class name: `is_ipv6`

Dictionary key name: `is_ipv6`

**is\_loopback**

XML Binding class name: `is_loopback`

Dictionary key name: `is_loopback`

**is\_publish**

XML Binding class name: `is_publish`

Dictionary key name: `is_publish`

**metric**

Type: `cybox.common.properties.UnsignedLong`

XML Binding class name: `Metric`

Dictionary key name: `metric`

**netmask**

Type: `cybox.objects.address_object.Address`

XML Binding class name: `Netmask`

Dictionary key name: `netmask`

**origin**

Type: `cybox.objects.address_object.Address`

XML Binding class name: `Origin`

Dictionary key name: `origin`

**preferred\_lifetime**

Type: `cybox.common.properties.Duration`

XML Binding class name: `Preferred_Lifetime`

Dictionary key name: `preferred_lifetime`

**protocol**

Type: `cybox.common.properties.String`

XML Binding class name: `Protocol`

Dictionary key name: `protocol`

**route\_age**



Type: *cybox.common.properties.Duration*  
XML Binding class name: Route\_Age  
Dictionary key name: route\_age

**type\_**

Type: *cybox.common.properties.String*  
XML Binding class name: Type  
Dictionary key name: type

**valid\_lifetime**

Type: *cybox.common.properties.Duration*  
XML Binding class name: Valid\_Lifetime  
Dictionary key name: valid\_lifetime

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**cybox.objects.network\_route\_object module**

**class** `cybox.objects.network_route_object.NetRoute`

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: `cybox.bindings.network_route_object.NetRouteObjectType`

**description**

Type: *cybox.common.structured\_text.StructuredText*  
XML Binding class name: Description  
Dictionary key name: description

**is\_autoconfigure\_address**

XML Binding class name: is\_autoconfigure\_address  
Dictionary key name: is\_autoconfigure\_address

**is\_immortal**

XML Binding class name: is\_immortal  
Dictionary key name: is\_immortal

**is\_ipv6**

XML Binding class name: is\_ipv6  
Dictionary key name: is\_ipv6

**is\_loopback**

XML Binding class name: is\_loopback  
Dictionary key name: is\_loopback

#### **is\_publish**

XML Binding class name: `is_publish`

Dictionary key name: `is_publish`

#### **network\_route\_entries**

Type: `cybox.objects.network_route_object.NetworkRouteEntries`

XML Binding class name: `Network_Route_Entries`

Dictionary key name: `network_route_entries`

#### **preferred\_lifetime**

Type: `cybox.common.properties.Duration`

XML Binding class name: `Preferred_Lifetime`

Dictionary key name: `preferred_lifetime`

#### **route\_age**

Type: `cybox.common.properties.Duration`

XML Binding class name: `Route_Age`

Dictionary key name: `route_age`

#### **valid\_lifetime**

Type: `cybox.common.properties.Duration`

XML Binding class name: `Valid_Lifetime`

Dictionary key name: `valid_lifetime`

**class** `cybox.objects.network_route_object.NetworkRouteEntries` (\*args)

Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.network_route_object.NetworkRouteEntriesType`

#### **network\_route\_entry**

(List of values permitted)

Type: `cybox.objects.network_route_entry_object.NetworkRouteEntry`

XML Binding class name: `Network_Route_Entry`

Dictionary key name: `network_route_entry`

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#### **cybox.objects.network\_socket\_object module**

**class** `cybox.objects.network_socket_object.NetworkSocket`

Bases: `cybox.common.object_properties.ObjectProperties`

XML binding class: `cybox.bindings.network_socket_object.NetworkSocketObjectType`

**address\_family**

Type: *cybox.common.properties.String*

XML Binding class name: Address\_Family

Dictionary key name: address\_family

**domain**

Type: *cybox.common.properties.String*

XML Binding class name: Domain

Dictionary key name: domain

**is\_blocking**

XML Binding class name: is\_blocking

Dictionary key name: is\_blocking

**is\_listening**

XML Binding class name: is\_listening

Dictionary key name: is\_listening

**local\_address**

Type: *cybox.objects.socket\_address\_object.SocketAddress*

XML Binding class name: Local\_Address

Dictionary key name: local\_address

**options**

Type: *cybox.objects.network\_socket\_object.SocketOptions*

XML Binding class name: Options

Dictionary key name: options

**protocol**

Type: *cybox.common.properties.String*

XML Binding class name: Protocol

Dictionary key name: protocol

**remote\_address**

Type: *cybox.objects.socket\_address\_object.SocketAddress*

XML Binding class name: Remote\_Address

Dictionary key name: remote\_address

**socket\_descriptor**

Type: *cybox.common.properties.NonNegativeInteger*

XML Binding class name: Socket\_Descriptor

Dictionary key name: socket\_descriptor

### **type\_**

Type: *cybox.common.properties.String*

XML Binding class name: Type

Dictionary key name: type

**class** `cybox.objects.network_socket_object.SocketOptions`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.network_socket_object.SocketOptionsType`

### **ip\_multicast\_if**

Type: *cybox.common.properties.String*

XML Binding class name: IP\_MULTICAST\_IF

Dictionary key name: ip\_multicast\_if

### **ip\_multicast\_if2**

Type: *cybox.common.properties.String*

XML Binding class name: IP\_MULTICAST\_IF2

Dictionary key name: ip\_multicast\_if2

### **ip\_multicast\_loop**

XML Binding class name: IP\_MULTICAST\_LOOP

Dictionary key name: ip\_multicast\_loop

### **ip\_tos**

Type: *cybox.common.properties.String*

XML Binding class name: IP\_TOS

Dictionary key name: ip\_tos

### **so\_broadcast**

XML Binding class name: SO\_BROADCAST

Dictionary key name: so\_broadcast

### **so\_conditional\_accept**

XML Binding class name: SO\_CONDITIONAL\_ACCEPT

Dictionary key name: so\_conditional\_accept

### **so\_debug**

XML Binding class name: SO\_DEBUG

Dictionary key name: so\_debug

### **so\_dontlinger**

XML Binding class name: SO\_DONTLINGER

Dictionary key name: so\_dontlinger

#### **so\_dontroute**

XML Binding class name: SO\_DONTRROUTE

Dictionary key name: so\_dontroute

#### **so\_group\_priority**

Type: *cybox.common.properties.UnsignedInteger*

XML Binding class name: SO\_GROUP\_PRIORITY

Dictionary key name: so\_group\_priority

#### **so\_keepalive**

XML Binding class name: SO\_KEEPALIVE

Dictionary key name: so\_keepalive

#### **so\_linger**

Type: *cybox.common.properties.UnsignedInteger*

XML Binding class name: SO\_LINGER

Dictionary key name: so\_linger

#### **so\_oobinline**

XML Binding class name: SO\_OOBINLINE

Dictionary key name: so\_oobinline

#### **so\_rcvbuf**

Type: *cybox.common.properties.UnsignedInteger*

XML Binding class name: SO\_RCVBUF

Dictionary key name: so\_rcvbuf

#### **so\_rcvtimeo**

Type: *cybox.common.properties.UnsignedInteger*

XML Binding class name: SO\_RCVTIMEO

Dictionary key name: so\_rcvtimeo

#### **so\_reuseaddr**

XML Binding class name: SO\_REUSEADDR

Dictionary key name: so\_reuseaddr

#### **so\_sndbuf**

Type: *cybox.common.properties.UnsignedInteger*

XML Binding class name: SO\_SNDBUF

Dictionary key name: so\_sndbuf

**so\_sndtimeo**

Type: *cybox.common.properties.UnsignedInteger*

XML Binding class name: SO\_SNDTIMEO

Dictionary key name: so\_sndtimeo

**so\_timeout**

Type: *cybox.common.properties.UnsignedInteger*

XML Binding class name: SO\_TIMEOUT

Dictionary key name: so\_timeout

**so\_update\_accept\_context**

Type: *cybox.common.properties.UnsignedInteger*

XML Binding class name: SO\_UPDATE\_ACCEPT\_CONTEXT

Dictionary key name: so\_update\_accept\_context

**tcp\_nodelay**

XML Binding class name: TCP\_NODELAY

Dictionary key name: tcp\_nodelay

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**cybox.objects.network\_subnet\_object module**

**class** `cybox.objects.network_subnet_object.NetworkSubnet`

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: `cybox.bindings.network_subnet_object.NetworkSubnetObjectType`

**description**

Type: *cybox.common.structured\_text.StructuredText*

XML Binding class name: Description

Dictionary key name: description

**name**

Type: *cybox.common.properties.String*

XML Binding class name: Name

Dictionary key name: name

**number\_of\_ip\_addresses**

Type: *cybox.common.properties.Integer*

XML Binding class name: Number\_Of\_IP\_Addresses

Dictionary key name: number\_of\_ip\_addresses

**routes**

Type: *cybox.objects.network\_subnet\_object.Routes*

XML Binding class name: Routes

Dictionary key name: routes

**class** *cybox.objects.network\_subnet\_object.Routes* (\*args)

Bases: *mixbox.entities.EntityList*

XML binding class: *cybox.bindings.network\_subnet\_object.RoutesType*

**route**

(List of values permitted)

Type: *cybox.objects.network\_route\_entry\_object.NetworkRouteEntry*

XML Binding class name: Route

Dictionary key name: route

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**cybox.objects.pdf\_file\_object module**

**class** *cybox.objects.pdf\_file\_object.PDFDictionary*

Bases: *mixbox.entities.Entity*

XML binding class: *cybox.bindings.pdf\_file\_object.PDFDictionaryType*

**object\_reference**

Type: *cybox.objects.pdf\_file\_object.PDFIndirectObjectID*

XML Binding class name: Object\_Reference

Dictionary key name: object\_reference

**raw\_contents**

Type: *cybox.common.properties.String*

XML Binding class name: Raw\_Contents

Dictionary key name: raw\_contents

**class** *cybox.objects.pdf\_file\_object.PDFDocumentInformationDictionary*

Bases: *mixbox.entities.Entity*

XML binding class:

*cybox.bindings.pdf\_file\_object.PDFDocumentInformationDictionaryType*

**author**

Type: *cybox.common.properties.String*  
XML Binding class name: Author  
Dictionary key name: author

**creationdate**

Type: *cybox.common.properties.DateTime*  
XML Binding class name: CreationDate  
Dictionary key name: creationdate

**creator**

Type: *cybox.common.properties.String*  
XML Binding class name: Creator  
Dictionary key name: creator

**keywords**

Type: *cybox.common.properties.String*  
XML Binding class name: Keywords  
Dictionary key name: keywords

**moddate**

Type: *cybox.common.properties.DateTime*  
XML Binding class name: ModDate  
Dictionary key name: moddate

**producer**

Type: *cybox.common.properties.String*  
XML Binding class name: Producer  
Dictionary key name: producer

**subject**

Type: *cybox.common.properties.String*  
XML Binding class name: Subject  
Dictionary key name: subject

**title**

Type: *cybox.common.properties.String*  
XML Binding class name: Title  
Dictionary key name: title

**trapped**

Type: *cybox.common.properties.String*  
XML Binding class name: Trapped  
Dictionary key name: trapped



**class** `cybox.objects.pdf_file_object.PDFFile`  
Bases: `cybox.objects.file_object.File`

XML binding class: `cybox.bindings.pdf_file_object.PDFFileObjectType`

#### **cross\_reference\_tables**

Type: `cybox.objects.pdf_file_object.PDFXRefTableList`  
XML Binding class name: `Cross_Reference_Tables`  
Dictionary key name: `cross_reference_tables`

#### **indirect\_objects**

Type: `cybox.objects.pdf_file_object.PDFIndirectObjectList`  
XML Binding class name: `Indirect_Objects`  
Dictionary key name: `indirect_objects`

#### **metadata**

Type: `cybox.objects.pdf_file_object.PDFFileMetadata`  
XML Binding class name: `Metadata`  
Dictionary key name: `metadata`

#### **trailers**

Type: `cybox.objects.pdf_file_object.PDFTrailerList`  
XML Binding class name: `Trailers`  
Dictionary key name: `trailers`

#### **version**

Type: `cybox.common.properties.Double`  
XML Binding class name: `Version`  
Dictionary key name: `version`

**class** `cybox.objects.pdf_file_object.PDFFileID`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.pdf_file_object.PDFFileIDType`

#### **id\_string**

(List of values permitted)  
Type: `cybox.common.properties.String`  
XML Binding class name: `ID_String`  
Dictionary key name: `id_string`

**class** `cybox.objects.pdf_file_object.PDFFileMetadata`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.pdf_file_object.PDFFileMetadataType`

#### **document\_information\_dictionary**

Type: `cybox.objects.pdf_file_object.PDFDocumentInformationDictionary`  
XML Binding class name: `Document_Information_Dictionary`  
Dictionary key name: `document_information_dictionary`

#### **encrypted**

XML Binding class name: `encrypted`  
Dictionary key name: `encrypted`

#### **keyword\_counts**

Type: `cybox.objects.pdf_file_object.PDFKeywordCounts`  
XML Binding class name: `Keyword_Counts`  
Dictionary key name: `keyword_counts`

#### **number\_of\_cross\_reference\_tables**

Type: `cybox.common.properties.PositiveInteger`  
XML Binding class name: `Number_Of_Cross_Reference_Tables`  
Dictionary key name: `number_of_cross_reference_tables`

#### **number\_of\_indirect\_objects**

Type: `cybox.common.properties.PositiveInteger`  
XML Binding class name: `Number_Of_Indirect_Objects`  
Dictionary key name: `number_of_indirect_objects`

#### **number\_of\_trailers**

Type: `cybox.common.properties.PositiveInteger`  
XML Binding class name: `Number_Of_Trailers`  
Dictionary key name: `number_of_trailers`

#### **optimized**

XML Binding class name: `optimized`  
Dictionary key name: `optimized`

**class** `cybox.objects.pdf_file_object.PDFIndirectObject`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.pdf_file_object.PDFIndirectObjectType`

**contents**

Type: *cybox.objects.pdf\_file\_object.PDFIndirectObjectContents*

XML Binding class name: Contents

Dictionary key name: contents

**hashes**

Type: *cybox.common.hashes.HashList*

XML Binding class name: Hashes

Dictionary key name: hashes

**id\_**

Type: *cybox.objects.pdf\_file\_object.PDFIndirectObjectID*

XML Binding class name: ID

Dictionary key name: id

**offset**

Type: *cybox.common.properties.PositiveInteger*

XML Binding class name: Offset

Dictionary key name: offset

**type\_**

XML Binding class name: type\_

Dictionary key name: type

**class** *cybox.objects.pdf\_file\_object.PDFIndirectObjectContents*

Bases: *mixbox.entities.Entity*

XML binding class: *cybox.bindings.pdf\_file\_object.PDFIndirectObjectContentsType*

**non\_stream\_contents**

Type: *cybox.common.properties.String*

XML Binding class name: Non\_Stream\_Contents

Dictionary key name: non\_stream\_contents

**stream\_contents**

Type: *cybox.objects.pdf\_file\_object.PDFStream*

XML Binding class name: Stream\_Contents

Dictionary key name: stream\_contents

**class** *cybox.objects.pdf\_file\_object.PDFIndirectObjectID*

Bases: *mixbox.entities.Entity*

XML binding class: `cybox.bindings.pdf_file_object.PDFIndirectObjectIDType`

#### **generation\_number**

Type: `cybox.common.properties.NonNegativeInteger`

XML Binding class name: `Generation_Number`

Dictionary key name: `generation_number`

#### **object\_number**

Type: `cybox.common.properties.PositiveInteger`

XML Binding class name: `Object_Number`

Dictionary key name: `object_number`

**class** `cybox.objects.pdf_file_object.PDFIndirectObjectList` (\*args)

Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.pdf_file_object.PDFIndirectObjectListType`

#### **indirect\_object**

(List of values permitted)

Type: `cybox.objects.pdf_file_object.PDFIndirectObject`

XML Binding class name: `Indirect_Object`

Dictionary key name: `indirect_object`

**class** `cybox.objects.pdf_file_object.PDFKeywordCount`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.pdf_file_object.PDFKeywordCountType`

#### **non\_obfuscated\_count**

Type: `cybox.common.properties.NonNegativeInteger`

XML Binding class name: `Non_Obfuscated_Count`

Dictionary key name: `non_obfuscated_count`

#### **obfuscated\_count**

Type: `cybox.common.properties.NonNegativeInteger`

XML Binding class name: `Obfuscated_Count`

Dictionary key name: `obfuscated_count`

**class** `cybox.objects.pdf_file_object.PDFKeywordCounts`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.pdf_file_object.PDFKeywordCountsType`

#### **aa\_count**

Type: `cybox.objects.pdf_file_object.PDFKeywordCount`

XML Binding class name: `AA_Count`

Dictionary key name: `aa_count`

#### **ascii85decode\_count**

Type: `cybox.objects.pdf_file_object.PDFKeywordCount`

XML Binding class name: `ASCII85Decode_Count`

Dictionary key name: `ascii85decode_count`

#### **asciihexdecode\_count**

Type: `cybox.objects.pdf_file_object.PDFKeywordCount`

XML Binding class name: `ASCIHexDecode_Count`

Dictionary key name: `asciihexdecode_count`

#### **ccittfaxdecode\_count**

Type: `cybox.objects.pdf_file_object.PDFKeywordCount`

XML Binding class name: `CCITTFaxDecode_Count`

Dictionary key name: `ccittfaxdecode_count`

#### **dctdecode\_count**

Type: `cybox.objects.pdf_file_object.PDFKeywordCount`

XML Binding class name: `DCTDecode_Count`

Dictionary key name: `dctdecode_count`

#### **encrypt\_count**

Type: `cybox.objects.pdf_file_object.PDFKeywordCount`

XML Binding class name: `Encrypt_Count`

Dictionary key name: `encrypt_count`

#### **flateddecode\_count**

Type: `cybox.objects.pdf_file_object.PDFKeywordCount`

XML Binding class name: `FlateDecode_Count`

Dictionary key name: `flateddecode_count`

#### **javascript\_count**

Type: `cybox.objects.pdf_file_object.PDFKeywordCount`

XML Binding class name: `JavaScript_Count`

Dictionary key name: `javascript_count`

#### **jbig2decode\_count**

Type: *cybox.objects.pdf\_file\_object.PDFKeywordCount*

XML Binding class name: JBIG2Decode\_Count

Dictionary key name: jbig2decode\_count

#### **js\_count**

Type: *cybox.objects.pdf\_file\_object.PDFKeywordCount*

XML Binding class name: JS\_Count

Dictionary key name: js\_count

#### **launch\_count**

Type: *cybox.objects.pdf\_file\_object.PDFKeywordCount*

XML Binding class name: Launch\_Count

Dictionary key name: launch\_count

#### **lzwdecode\_count**

Type: *cybox.objects.pdf\_file\_object.PDFKeywordCount*

XML Binding class name: LZWDecode\_Count

Dictionary key name: lzwdecode\_count

#### **objstm\_count**

Type: *cybox.objects.pdf\_file\_object.PDFKeywordCount*

XML Binding class name: ObjStm\_Count

Dictionary key name: objstm\_count

#### **openaction\_count**

Type: *cybox.objects.pdf\_file\_object.PDFKeywordCount*

XML Binding class name: OpenAction\_Count

Dictionary key name: openaction\_count

#### **page\_count**

Type: *cybox.objects.pdf\_file\_object.PDFKeywordCount*

XML Binding class name: Page\_Count

Dictionary key name: page\_count

#### **richmedia\_count**

Type: *cybox.objects.pdf\_file\_object.PDFKeywordCount*

XML Binding class name: RichMedia\_Count

Dictionary key name: richmedia\_count

#### **runlengthdecode\_count**

Type: *cybox.objects.pdf\_file\_object.PDFKeywordCount*

XML Binding class name: RunLengthDecode\_Count

Dictionary key name: runlengthdecode\_count

#### **xfa\_count**

Type: *cybox.objects.pdf\_file\_object.PDFKeywordCount*

XML Binding class name: XFA\_Count

Dictionary key name: xfa\_count

**class** `cybox.objects.pdf_file_object.PDFStream`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.pdf_file_object.PDFStreamType`

#### **decoded\_stream**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Decoded\_Stream

Dictionary key name: decoded\_stream

#### **decoded\_stream\_hashes**

Type: *cybox.common.hashes.HashList*

XML Binding class name: Decoded\_Stream\_Hashes

Dictionary key name: decoded\_stream\_hashes

#### **raw\_stream**

Type: *cybox.common.properties.String*

XML Binding class name: Raw\_Stream

Dictionary key name: raw\_stream

#### **raw\_stream\_hashes**

Type: *cybox.common.hashes.HashList*

XML Binding class name: Raw\_Stream\_Hashes

Dictionary key name: raw\_stream\_hashes

**class** `cybox.objects.pdf_file_object.PDFTrailer`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.pdf_file_object.PDFTrailerType`

#### **encrypt**

Type: *cybox.objects.pdf\_file\_object.PDFDictionary*

XML Binding class name: Encrypt

Dictionary key name: encrypt

### hashes

Type: *cybox.common.hashes.HashList*

XML Binding class name: Hashes

Dictionary key name: hashes

### id\_

Type: *cybox.objects.pdf\_file\_object.PDFFileID*

XML Binding class name: ID

Dictionary key name: id

### info

Type: *cybox.objects.pdf\_file\_object.PDFIndirectObjectID*

XML Binding class name: Info

Dictionary key name: info

### last\_cross\_reference\_offset

Type: *cybox.common.properties.PositiveInteger*

XML Binding class name: Last\_Cross\_Reference\_Offset

Dictionary key name: last\_cross\_reference\_offset

### offset

Type: *cybox.common.properties.PositiveInteger*

XML Binding class name: Offset

Dictionary key name: offset

### prev

Type: *cybox.common.properties.PositiveInteger*

XML Binding class name: Prev

Dictionary key name: prev

### root

Type: *cybox.objects.pdf\_file\_object.PDFIndirectObjectID*

XML Binding class name: Root

Dictionary key name: root

### size

Type: *cybox.common.properties.PositiveInteger*

XML Binding class name: Size

Dictionary key name: size

**class** `cybox.objects.pdf_file_object.PDFTrailerList` (\*args)  
Bases: `mixbox.entities.EntityList`



XML binding class: `cybox.bindings.pdf_file_object.PDFTrailerListType`

#### **trailer**

(List of values permitted)

Type: `cybox.objects.pdf_file_object.PDFTrailer`

XML Binding class name: Trailer

Dictionary key name: trailer

**class** `cybox.objects.pdf_file_object.PDFXRefTable`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.pdf_file_object.PDFXRefTableType`

#### **hashes**

Type: `cybox.common.hashes.HashList`

XML Binding class name: Hashes

Dictionary key name: hashes

#### **offset**

Type: `cybox.common.properties.PositiveInteger`

XML Binding class name: Offset

Dictionary key name: offset

#### **subsections**

Type: `cybox.objects.pdf_file_object.PDFXrefTableSubsectionList`

XML Binding class name: Subsections

Dictionary key name: subsections

**class** `cybox.objects.pdf_file_object.PDFXRefTableList (*args)`

Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.pdf_file_object.PDFXRefTableListType`

#### **cross\_reference\_table**

(List of values permitted)

Type: `cybox.objects.pdf_file_object.PDFXRefTable`

XML Binding class name: Cross\_Reference\_Table

Dictionary key name: cross\_reference\_table

**class** `cybox.objects.pdf_file_object.PDFXrefEntry`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.pdf_file_object.PDFXrefEntryType`

#### **byte\_offset**

Type: `cybox.common.properties.Integer`

XML Binding class name: `Byte_Offset`

Dictionary key name: `byte_offset`

#### **generation\_number**

Type: `cybox.common.properties.NonNegativeInteger`

XML Binding class name: `Generation_Number`

Dictionary key name: `generation_number`

#### **object\_number**

Type: `cybox.common.properties.NonNegativeInteger`

XML Binding class name: `Object_Number`

Dictionary key name: `object_number`

#### **type\_**

XML Binding class name: `type_`

Dictionary key name: `type`

**class** `cybox.objects.pdf_file_object.PDFXrefEntryList` (\*args)

Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.pdf_file_object.PDFXrefEntryListType`

#### **cross\_reference\_entry**

(List of values permitted)

Type: `cybox.objects.pdf_file_object.PDFXrefEntry`

XML Binding class name: `Cross_Reference_Entry`

Dictionary key name: `cross_reference_entry`

**class** `cybox.objects.pdf_file_object.PDFXrefTableSubsection`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.pdf_file_object.PDFXrefTableSubsectionType`

#### **cross\_reference\_entries**

Type: `cybox.objects.pdf_file_object.PDFXrefEntryList`

XML Binding class name: `Cross_Reference_Entries`

Dictionary key name: `cross_reference_entries`

**first\_object\_number**

Type: *cybox.common.properties.NonNegativeInteger*

XML Binding class name: First\_Object\_Number

Dictionary key name: first\_object\_number

**number\_of\_objects**

Type: *cybox.common.properties.NonNegativeInteger*

XML Binding class name: Number\_Of\_Objects

Dictionary key name: number\_of\_objects

**class** `cybox.objects.pdf_file_object.PDFXrefTableSubsectionList` (\*args)  
 Bases: `mixbox.entities.EntityList`

XML binding class:

`cybox.bindings.pdf_file_object.PDFXrefTableSubsectionListType`

**subsection**

(List of values permitted)

Type: *cybox.objects.pdf\_file\_object.PDFXrefTableSubsection*

XML Binding class name: Subsection

Dictionary key name: subsection

`cybox.objects.pdf_file_object.validate_id_string` (instance, value)

`cybox.objects.pdf_file_object.validate_pdf_object_type` (instance, value)

`cybox.objects.pdf_file_object.validate_pdf_ref_entry_type` (instance, value)

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**cybox.objects.pipe\_object module**

**class** `cybox.objects.pipe_object.Pipe`

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: `cybox.bindings.pipe_object.PipeObjectType`

**name**

Type: *cybox.common.properties.String*

XML Binding class name: Name

Dictionary key name: name

**named**

XML Binding class name: named

Dictionary key name: named

Version: 2.1.0.20

#### **cybox.objects.port\_object module**

**class** cybox.objects.port\_object.**Port**

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: cybox.bindings.port\_object.PortObjectType

#### **layer4\_protocol**

Type: *cybox.common.properties.String*

XML Binding class name: Layer4\_Protocol

Dictionary key name: layer4\_protocol

#### **port\_value**

Type: *cybox.common.properties.PositiveInteger*

XML Binding class name: Port\_Value

Dictionary key name: port\_value

Version: 2.1.0.20

#### **cybox.objects.process\_object module**

**class** cybox.objects.process\_object.**ArgumentList** (\*args)

Bases: mixbox.entities.EntityList

XML binding class: cybox.bindings.process\_object.ArgumentListType

#### **argument**

(List of values permitted)

Type: *cybox.common.properties.String*

XML Binding class name: Argument

Dictionary key name: argument

**class** cybox.objects.process\_object.**ChildPIDList** (\*args)

Bases: mixbox.entities.EntityList

XML binding class: cybox.bindings.process\_object.ChildPIDListType

#### **child\_pid**

(List of values permitted)

Type: *cybox.common.properties.UnsignedInteger*

XML Binding class name: Child\_PID

Dictionary key name: child\_pid

**class** `cybox.objects.process_object.ImageInfo`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.process_object.ImageInfoType`

#### **command\_line**

Type: `cybox.common.properties.String`  
XML Binding class name: `Command_Line`  
Dictionary key name: `command_line`

#### **current\_directory**

Type: `cybox.common.properties.String`  
XML Binding class name: `Current_Directory`  
Dictionary key name: `current_directory`

#### **file\_name**

Type: `cybox.common.properties.String`  
XML Binding class name: `File_Name`  
Dictionary key name: `file_name`

#### **path**

Type: `cybox.common.properties.String`  
XML Binding class name: `Path`  
Dictionary key name: `path`

**class** `cybox.objects.process_object.NetworkConnectionList` (\*args)  
Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.process_object.NetworkConnectionListType`

#### **network\_connection**

(List of values permitted)  
Type: `cybox.objects.network_connection_object.NetworkConnection`  
XML Binding class name: `Network_Connection`  
Dictionary key name: `network_connection`

**class** `cybox.objects.process_object.PortList` (\*args)  
Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.process_object.PortListType`

### **port**

(List of values permitted)

Type: *cybox.objects.port\_object.Port*

XML Binding class name: Port

Dictionary key name: port

### **class** *cybox.objects.process\_object.Process*

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: *cybox.bindings.process\_object.ProcessObjectType*

### **argument\_list**

Type: *cybox.objects.process\_object.ArgumentList*

XML Binding class name: Argument\_List

Dictionary key name: argument\_list

### **child\_pid\_list**

Type: *cybox.objects.process\_object.ChildPIDList*

XML Binding class name: Child\_PID\_List

Dictionary key name: child\_pid\_list

### **creation\_time**

Type: *cybox.common.properties.DateTime*

XML Binding class name: Creation\_Time

Dictionary key name: creation\_time

### **environment\_variable\_list**

Type: *cybox.common.environment\_variable.EnvironmentVariableList*

XML Binding class name: Environment\_Variable\_List

Dictionary key name: environment\_variable\_list

### **extracted\_features**

Type: *cybox.common.extracted\_features.ExtractedFeatures*

XML Binding class name: Extracted\_Features

Dictionary key name: extracted\_features

### **image\_info**

Type: *cybox.objects.process\_object.ImageInfo*

XML Binding class name: Image\_Info

Dictionary key name: image\_info

### **is\_hidden**

XML Binding class name: `is_hidden`

Dictionary key name: `is_hidden`

#### **kernel\_time**

Type: `cybox.common.properties.Duration`

XML Binding class name: `Kernel_Time`

Dictionary key name: `kernel_time`

#### **name**

Type: `cybox.common.properties.String`

XML Binding class name: `Name`

Dictionary key name: `name`

#### **network\_connection\_list**

Type: `cybox.objects.process_object.NetworkConnectionList`

XML Binding class name: `Network_Connection_List`

Dictionary key name: `network_connection_list`

#### **parent\_pid**

Type: `cybox.common.properties.UnsignedInteger`

XML Binding class name: `Parent_PID`

Dictionary key name: `parent_pid`

#### **pid**

Type: `cybox.common.properties.UnsignedInteger`

XML Binding class name: `PID`

Dictionary key name: `pid`

#### **port\_list**

Type: `cybox.objects.process_object.PortList`

XML Binding class name: `Port_List`

Dictionary key name: `port_list`

#### **start\_time**

Type: `cybox.common.properties.DateTime`

XML Binding class name: `Start_Time`

Dictionary key name: `start_time`

#### **user\_time**

Type: `cybox.common.properties.Duration`

XML Binding class name: `User_Time`

Dictionary key name: `user_time`

#### **username**

Type: *cybox.common.properties.String*

XML Binding class name: Username

Dictionary key name: username

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#### **cybox.objects.product\_object module**

**class** `cybox.objects.product_object.Product`

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: `cybox.bindings.product_object.ProductObjectType`

#### **device\_details**

Type: *cybox.common.object\_properties.ObjectProperties*

XML Binding class name: Device\_Details

Dictionary key name: device\_details

#### **edition**

Type: *cybox.common.properties.String*

XML Binding class name: Edition

Dictionary key name: edition

#### **language**

Type: *cybox.common.properties.String*

XML Binding class name: Language

Dictionary key name: language

#### **product**

Type: *cybox.common.properties.String*

XML Binding class name: Product

Dictionary key name: product

#### **update**

Type: *cybox.common.properties.String*

XML Binding class name: Update

Dictionary key name: update

#### **vendor**

Type: *cybox.common.properties.String*

XML Binding class name: Vendor

Dictionary key name: vendor



**version**

Type: *cybox.common.properties.String*

XML Binding class name: Version

Dictionary key name: version

Version: 2.1.0.20

**cybox.objects.semaphore\_object module**

class `cybox.objects.semaphore_object.Semaphore`

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: `cybox.bindings.semaphore_object.SemaphoreObjectType`

**current\_count**

Type: *cybox.common.properties.UnsignedInteger*

XML Binding class name: Current\_Count

Dictionary key name: current\_count

**maximum\_count**

Type: *cybox.common.properties.PositiveInteger*

XML Binding class name: Maximum\_Count

Dictionary key name: maximum\_count

**name**

Type: *cybox.common.properties.String*

XML Binding class name: Name

Dictionary key name: name

**named**

XML Binding class name: named

Dictionary key name: named

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**cybox.objects.socket\_address\_object module**

class `cybox.objects.socket_address_object.SocketAddress`

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: `cybox.bindings.socket_address_object.SocketAddressObjectType`

**hostname**

Type: *cybox.objects.hostname\_object.Hostname*

XML Binding class name: Hostname

Dictionary key name: hostname

#### **ip\_address**

Type: *cybox.objects.address\_object.Address*

XML Binding class name: IP\_Address

Dictionary key name: ip\_address

#### **port**

Type: *cybox.objects.port\_object.Port*

XML Binding class name: Port

Dictionary key name: port

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### **cybox.objects.sms\_message\_object module**

**class** *cybox.objects.sms\_message\_object.SMSMessage*

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: *cybox.bindings.sms\_message\_object.SMSMessageObjectType*

#### **bits\_per\_character**

Type: *cybox.common.properties.PositiveInteger*

XML Binding class name: Bits\_Per\_Character

Dictionary key name: bits\_per\_character

#### **body**

Type: *cybox.common.properties.String*

XML Binding class name: Body

Dictionary key name: body

#### **encoding**

Type: *cybox.common.properties.String*

XML Binding class name: Encoding

Dictionary key name: encoding

#### **is\_premium**

XML Binding class name: is\_premium

Dictionary key name: is\_premium

#### **length**

Type: *cybox.common.properties.Integer*

XML Binding class name: Length

Dictionary key name: length

#### **recipient\_phone\_number**

Type: *cybox.common.properties.String*

XML Binding class name: Recipient\_Phone\_Number

Dictionary key name: recipient\_phone\_number

#### **sender\_phone\_number**

Type: *cybox.common.properties.String*

XML Binding class name: Sender\_Phone\_Number

Dictionary key name: sender\_phone\_number

#### **sent\_datetime**

Type: *cybox.common.properties.DateTime*

XML Binding class name: Sent\_DateTime

Dictionary key name: sent\_datetime

#### **size**

Type: *cybox.common.properties.Integer*

XML Binding class name: Size

Dictionary key name: size

#### **user\_data\_header**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: User\_Data\_Header

Dictionary key name: user\_data\_header

**Version:** 2.1.0.20

### **cybox.objects.system\_object module**

**class** cybox.objects.system\_object.**BIOSInfo**

Bases: mixbox.entities.Entity

XML binding class: cybox.bindings.system\_object.BIOSInfoType

#### **bios\_date**

Type: *cybox.common.properties.Date*

XML Binding class name: BIOS\_Date

Dictionary key name: bios\_date

#### **bios\_manufacturer**

Type: *cybox.common.properties.String*

XML Binding class name: BIOS\_Manufacturer

Dictionary key name: bios\_manufacturer

#### **bios\_release\_date**

Type: *cybox.common.properties.Date*

XML Binding class name: BIOS\_Release\_Date

Dictionary key name: bios\_release\_date

#### **bios\_serial\_number**

Type: *cybox.common.properties.String*

XML Binding class name: BIOS\_Serial\_Number

Dictionary key name: bios\_serial\_number

#### **bios\_version**

Type: *cybox.common.properties.String*

XML Binding class name: BIOS\_Version

Dictionary key name: bios\_version

**class** `cybox.objects.system_object.DHCPServerList` (\*args)

Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.system_object.DHCPServerListType`

#### **dhcp\_server\_address**

(List of values permitted)

Type: *cybox.objects.address\_object.Address*

XML Binding class name: DHCP\_Server\_Address

Dictionary key name: dhcp\_server\_address

**class** `cybox.objects.system_object.IPGatewayList` (\*args)

Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.system_object.IPGatewayListType`

#### **ip\_gateway\_address**

(List of values permitted)

Type: *cybox.objects.address\_object.Address*

XML Binding class name: IP\_Gateway\_Address

Dictionary key name: ip\_gateway\_address

**class** `cybox.objects.system_object.IPInfo`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.system_object.IPInfoType`

**ip\_address**

Type: *cybox.objects.address\_object.Address*

XML Binding class name: IP\_Address

Dictionary key name: ip\_address

**subnet\_mask**

Type: *cybox.objects.address\_object.Address*

XML Binding class name: Subnet\_Mask

Dictionary key name: subnet\_mask

**class** *cybox.objects.system\_object.IPInfoList* (\*args)

Bases: *mixbox.entities.EntityList*

XML binding class: *cybox.bindings.system\_object.IPInfoListType*

**ip\_info\_list**

(List of values permitted)

Type: *cybox.objects.system\_object.IPInfo*

XML Binding class name: IP\_Info\_List

Dictionary key name: ip\_info\_list

**class** *cybox.objects.system\_object.NetworkInterface*

Bases: *mixbox.entities.Entity*

XML binding class: *cybox.bindings.system\_object.NetworkInterfaceType*

**adapter**

Type: *cybox.common.properties.String*

XML Binding class name: Adapter

Dictionary key name: adapter

**description**

Type: *cybox.common.properties.String*

XML Binding class name: Description

Dictionary key name: description

**dhcp\_lease\_expires**

Type: *cybox.common.properties.DateTime*

XML Binding class name: DHCP\_Lease\_Expires

Dictionary key name: dhcp\_lease\_expires

#### **dhcp\_lease\_obtained**

Type: *cybox.common.properties.DateTime*  
XML Binding class name: DHCP\_Lease\_Obtained  
Dictionary key name: dhcp\_lease\_obtained

#### **dhcp\_server\_list**

Type: *cybox.objects.system\_object.DHCPServerList*  
XML Binding class name: DHCP\_Server\_List  
Dictionary key name: dhcp\_server\_list

#### **ip\_gateway\_list**

Type: *cybox.objects.system\_object.IPGatewayList*  
XML Binding class name: IP\_Gateway\_List  
Dictionary key name: ip\_gateway\_list

#### **ip\_list**

Type: *cybox.objects.system\_object.IPInfoList*  
XML Binding class name: IP\_List  
Dictionary key name: ip\_list

#### **mac**

Type: *cybox.common.properties.String*  
XML Binding class name: MAC  
Dictionary key name: mac

**class** *cybox.objects.system\_object.NetworkInterfaceList* (\*args)  
Bases: *mixbox.entities.EntityList*

XML binding class: *cybox.bindings.system\_object.NetworkInterfaceListType*

#### **network\_interface**

(List of values permitted)  
Type: *cybox.objects.system\_object.NetworkInterface*  
XML Binding class name: Network\_Interface  
Dictionary key name: network\_interface

**class** *cybox.objects.system\_object.OS*  
Bases: *mixbox.entities.Entity*

XML binding class: *cybox.bindings.system\_object.OSType*

**bitness**

Type: *cybox.common.properties.String*

XML Binding class name: Bitness

Dictionary key name: bitness

**build\_number**

Type: *cybox.common.properties.String*

XML Binding class name: Build\_Number

Dictionary key name: build\_number

**environment\_variable\_list**

Type: *cybox.common.environment\_variable.EnvironmentVariableList*

XML Binding class name: Environment\_Variable\_List

Dictionary key name: environment\_variable\_list

**install\_date**

Type: *cybox.common.properties.Date*

XML Binding class name: Install\_Date

Dictionary key name: install\_date

**patch\_level**

Type: *cybox.common.properties.String*

XML Binding class name: Patch\_Level

Dictionary key name: patch\_level

**platform**

Type: *cybox.common.platform\_specification.PlatformSpecification*

XML Binding class name: Platform

Dictionary key name: platform

**class** `cybox.objects.system_object.System`

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: `cybox.bindings.system_object.SystemObjectType`

**available\_physical\_memory**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: Available\_Physical\_Memory

Dictionary key name: available\_physical\_memory

**bios\_info**

Type: *cybox.objects.system\_object.BIOSInfo*  
XML Binding class name: BIOS\_Info  
Dictionary key name: bios\_info

#### **date**

Type: *cybox.common.properties.Date*  
XML Binding class name: Date  
Dictionary key name: date

#### **hostname**

Type: *cybox.common.properties.String*  
XML Binding class name: Hostname  
Dictionary key name: hostname

#### **local\_time**

Type: *cybox.common.properties.Time*  
XML Binding class name: Local\_Time  
Dictionary key name: local\_time

#### **network\_interface\_list**

Type: *cybox.objects.system\_object.NetworkInterfaceList*  
XML Binding class name: Network\_Interface\_List  
Dictionary key name: network\_interface\_list

#### **os**

Type: *cybox.objects.system\_object.OS*  
XML Binding class name: OS  
Dictionary key name: os

#### **processor**

Type: *cybox.common.properties.String*  
XML Binding class name: Processor  
Dictionary key name: processor

#### **system\_time**

Type: *cybox.common.properties.Time*  
XML Binding class name: System\_Time  
Dictionary key name: system\_time

#### **timezone\_dst**

Type: *cybox.common.properties.String*  
XML Binding class name: Timezone\_DST  
Dictionary key name: timezone\_dst



**timezone\_standard**

Type: *cybox.common.properties.String*

XML Binding class name: Timezone\_Standard

Dictionary key name: timezone\_standard

**total\_physical\_memory**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: Total\_Physical\_Memory

Dictionary key name: total\_physical\_memory

**uptime**

Type: *cybox.common.properties.Duration*

XML Binding class name: Uptime

Dictionary key name: uptime

**username**

Type: *cybox.common.properties.String*

XML Binding class name: Username

Dictionary key name: username

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**cybox.objects.uri\_object module**

class `cybox.objects.uri_object.URI` (*value=None, type\_=None*)

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: `cybox.bindings.uri_object.URIOBJECTType`

**type\_**

XML Binding class name: type\_

Dictionary key name: type

**value**

Type: *cybox.common.properties.AnyURI*

XML Binding class name: Value

Dictionary key name: value

Version: 2.1.0.20

**cybox.objects.user\_account\_object module**

class `cybox.objects.user_account_object.Group`

Bases: `mixbox.entities.Entity`

An abstract class for account groups.

XML binding class: `cybox.bindings.user_account_object.GroupType`

**to\_dict ()**

**class** `cybox.objects.user_account_object.GroupList (*args)`  
Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.user_account_object.GroupListType`

### **group**

(List of values permitted)

Type: `cybox.objects.user_account_object.Group`

XML Binding class name: `Group`

Dictionary key name: `group`

**class** `cybox.objects.user_account_object.Privilege`  
Bases: `mixbox.entities.Entity`

An abstract class for account privileges.

XML binding class: `cybox.bindings.user_account_object.PrivilegeType`

**to\_dict ()**

**class** `cybox.objects.user_account_object.PrivilegeList (*args)`  
Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.user_account_object.PrivilegeListType`

### **privilege**

(List of values permitted)

Type: `cybox.objects.user_account_object.Privilege`

XML Binding class name: `Privilege`

Dictionary key name: `privilege`

**class** `cybox.objects.user_account_object.UserAccount`  
Bases: `cybox.objects.account_object.Account`

XML binding class: `cybox.bindings.user_account_object.UserAccountObjectType`

### **full\_name**

Type: `cybox.common.properties.String`

XML Binding class name: Full\_Name

Dictionary key name: full\_name

#### **group\_list**

Type: *cybox.objects.user\_account\_object.GroupList*

XML Binding class name: Group\_List

Dictionary key name: group\_list

#### **home\_directory**

Type: *cybox.common.properties.String*

XML Binding class name: Home\_Directory

Dictionary key name: home\_directory

#### **last\_login**

Type: *cybox.common.properties.DateTime*

XML Binding class name: Last\_Login

Dictionary key name: last\_login

#### **password\_required**

XML Binding class name: password\_required

Dictionary key name: password\_required

#### **privilege\_list**

Type: *cybox.objects.user\_account\_object.PrivilegeList*

XML Binding class name: Privilege\_List

Dictionary key name: privilege\_list

#### **script\_path**

Type: *cybox.common.properties.String*

XML Binding class name: Script\_Path

Dictionary key name: script\_path

#### **user\_password\_age**

Type: *cybox.common.properties.Duration*

XML Binding class name: User\_Password\_Age

Dictionary key name: user\_password\_age

#### **username**

Type: *cybox.common.properties.String*

XML Binding class name: Username

Dictionary key name: username

Version: 2.1.0.20

**cybox.objects.volume\_object module**

**class** `cybox.objects.volume_object.FileSystemFlagList` (\*args)  
Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.volume_object.FileSystemFlagListType`

**file\_system\_flag**

(List of values permitted)

Type: `cybox.common.properties.String`

XML Binding class name: `File_System_Flag`

Dictionary key name: `file_system_flag`

**class** `cybox.objects.volume_object.Volume`  
Bases: `cybox.common.object_properties.ObjectProperties`

XML binding class: `cybox.bindings.volume_object.VolumeObjectType`

**actual\_available\_allocation\_units**

Type: `cybox.common.properties.UnsignedLong`

XML Binding class name: `Actual_Available_Allocation_Units`

Dictionary key name: `actual_available_allocation_units`

**bytes\_per\_sector**

Type: `cybox.common.properties.PositiveInteger`

XML Binding class name: `Bytes_Per_Sector`

Dictionary key name: `bytes_per_sector`

**creation\_time**

Type: `cybox.common.properties.DateTime`

XML Binding class name: `Creation_Time`

Dictionary key name: `creation_time`

**device\_path**

Type: `cybox.common.properties.String`

XML Binding class name: `Device_Path`

Dictionary key name: `device_path`

**file\_system\_flag\_list**

Type: `cybox.objects.volume_object.FileSystemFlagList`

XML Binding class name: `File_System_Flag_List`

Dictionary key name: `file_system_flag_list`

**file\_system\_type**

Type: *cybox.common.properties.String*

XML Binding class name: File\_System\_Type

Dictionary key name: file\_system\_type

**is\_mounted**

XML Binding class name: is\_mounted

Dictionary key name: is\_mounted

**name**

Type: *cybox.common.properties.String*

XML Binding class name: Name

Dictionary key name: name

**sectors\_per\_allocation\_unit**

Type: *cybox.common.properties.UnsignedInteger*

XML Binding class name: Sectors\_Per\_Allocation\_Unit

Dictionary key name: sectors\_per\_allocation\_unit

**serial\_number**

Type: *cybox.common.properties.String*

XML Binding class name: Serial\_Number

Dictionary key name: serial\_number

**total\_allocation\_units**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: Total\_Allocation\_Units

Dictionary key name: total\_allocation\_units

**Version:** 2.1.0.20

**cybox.objects.whois\_object module**

**class** cybox.objects.whois\_object.**WhoisContact**

Bases: mixbox.entities.Entity

XML binding class: cybox.bindings.whois\_object.WhoisContactType

**address**

Type: *cybox.common.properties.String*

XML Binding class name: Address

Dictionary key name: address

**contact\_id**

Type: *cybox.common.properties.String*

XML Binding class name: Contact\_ID

Dictionary key name: contact\_id

**contact\_type**

XML Binding class name: contact\_type

Dictionary key name: contact\_type

**email\_address**

Type: *cybox.objects.address\_object.EmailAddress*

XML Binding class name: Email\_Address

Dictionary key name: email\_address

**fax\_number**

Type: *cybox.common.properties.String*

XML Binding class name: Fax\_Number

Dictionary key name: fax\_number

**name**

Type: *cybox.common.properties.String*

XML Binding class name: Name

Dictionary key name: name

**organization**

Type: *cybox.common.properties.String*

XML Binding class name: Organization

Dictionary key name: organization

**phone\_number**

Type: *cybox.common.properties.String*

XML Binding class name: Phone\_Number

Dictionary key name: phone\_number

**class** `cybox.objects.whois_object.WhoisContacts` (\*args)

Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.whois_object.WhoisContactsType`

**contact**

(List of values permitted)

Type: *cybox.objects.whois\_object.WhoisContact*

XML Binding class name: Contact

Dictionary key name: contact

**class** `cybox.objects.whois_object.WhoisEntry`

Bases: `cybox.common.object_properties.ObjectProperties`

XML binding class: `cybox.bindings.whois_object.WhoisObjectType`

#### **contact\_info**

Type: `cybox.objects.whois_object.WhoisContact`

XML Binding class name: Contact\_Info

Dictionary key name: contact\_info

#### **creation\_date**

Type: `cybox.common.properties.Date`

XML Binding class name: Creation\_Date

Dictionary key name: creation\_date

#### **dnssec**

XML Binding class name: DNSSEC

Dictionary key name: dnssec

#### **domain\_id**

Type: `cybox.common.properties.String`

XML Binding class name: Domain\_ID

Dictionary key name: domain\_id

#### **domain\_name**

Type: `cybox.objects.uri_object.URI`

XML Binding class name: Domain\_Name

Dictionary key name: domain\_name

#### **expiration\_date**

Type: `cybox.common.properties.Date`

XML Binding class name: Expiration\_Date

Dictionary key name: expiration\_date

#### **ip\_address**

Type: `cybox.objects.address_object.Address`

XML Binding class name: IP\_Address

Dictionary key name: ip\_address

#### **lookup\_date**

Type: *cybox.common.properties.DateTime*

XML Binding class name: Lookup\_Date

Dictionary key name: lookup\_date

#### **nameservers**

Type: *cybox.objects.whois\_object.WhoisNameservers*

XML Binding class name: Nameservers

Dictionary key name: nameservers

#### **regional\_internet\_registry**

Type: *cybox.common.properties.String*

XML Binding class name: Regional\_Internet\_Registry

Dictionary key name: regional\_internet\_registry

#### **registrants**

Type: *cybox.objects.whois\_object.WhoisRegistrants*

XML Binding class name: Registrants

Dictionary key name: registrants

#### **registrar\_info**

Type: *cybox.objects.whois\_object.WhoisRegistrar*

XML Binding class name: Registrar\_Info

Dictionary key name: registrar\_info

#### **remarks**

Type: *cybox.common.properties.String*

XML Binding class name: Remarks

Dictionary key name: remarks

#### **server\_name**

Type: *cybox.objects.uri\_object.URI*

XML Binding class name: Server\_Name

Dictionary key name: server\_name

#### **sponsoring\_registrar**

Type: *cybox.common.properties.String*

XML Binding class name: Sponsoring\_Registrar

Dictionary key name: sponsoring\_registrar

#### **status**

Type: *cybox.objects.whois\_object.WhoisStatuses*



XML Binding class name: Status

Dictionary key name: status

#### **updated\_date**

Type: *cybox.common.properties.Date*

XML Binding class name: Updated\_Date

Dictionary key name: updated\_date

**class** `cybox.objects.whois_object.WhoisNameservers` (\*args)

Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.whois_object.WhoisNameserversType`

#### **nameserver**

(List of values permitted)

Type: *cybox.objects.uri\_object.URI*

XML Binding class name: Nameserver

Dictionary key name: nameserver

**class** `cybox.objects.whois_object.WhoisRegistrant`

Bases: *cybox.objects.whois\_object.WhoisContact*

XML binding class: `cybox.bindings.whois_object.WhoisRegistrantInfoType`

#### **registrant\_id**

Type: *cybox.common.properties.String*

XML Binding class name: Registrant\_ID

Dictionary key name: registrant\_id

**class** `cybox.objects.whois_object.WhoisRegistrants` (\*args)

Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.whois_object.WhoisRegistrantsType`

#### **registrant**

(List of values permitted)

Type: *cybox.objects.whois\_object.WhoisRegistrant*

XML Binding class name: Registrant

Dictionary key name: registrant

**class** `cybox.objects.whois_object.WhoisRegistrar`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.whois_object.WhoisRegistrarInfoType`

**address**

Type: `cybox.common.properties.String`

XML Binding class name: Address

Dictionary key name: address

**contacts**

Type: `cybox.objects.whois_object.WhoisContacts`

XML Binding class name: Contacts

Dictionary key name: contacts

**email\_address**

Type: `cybox.objects.address_object.EmailAddress`

XML Binding class name: Email\_Address

Dictionary key name: email\_address

**name**

Type: `cybox.common.properties.String`

XML Binding class name: Name

Dictionary key name: name

**phone\_number**

Type: `cybox.common.properties.String`

XML Binding class name: Phone\_Number

Dictionary key name: phone\_number

**referral\_url**

Type: `cybox.objects.uri_object.URI`

XML Binding class name: Referral\_URL

Dictionary key name: referral\_url

**registrar\_guid**

Type: `cybox.common.properties.String`

XML Binding class name: Registrar\_GUID

Dictionary key name: registrar\_guid

**registrar\_id**

Type: `cybox.common.properties.String`

XML Binding class name: Registrar\_ID

Dictionary key name: registrar\_id

**whois\_server**

Type: *cybox.objects.uri\_object.URI*

XML Binding class name: Whois\_Server

Dictionary key name: whois\_server

**class** `cybox.objects.whois_object.WhoisStatus` (*value=None*)

Bases: *cybox.common.properties.BaseProperty*

XML binding class: `cybox.bindings.whois_object.WhoisStatusType`

**class** `cybox.objects.whois_object.WhoisStatuses` (*\*args*)

Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.whois_object.WhoisStatusesType`

**status**

(List of values permitted)

Type: *cybox.objects.whois\_object.WhoisStatus*

XML Binding class name: Status

Dictionary key name: status

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**cybox.objects.win\_computer\_account\_object module**

**class** `cybox.objects.win_computer_account_object.FullyQualifiedName`

Bases: `mixbox.entities.Entity`

XML binding class:

`cybox.bindings.win_computer_account_object.FullyQualifiedNameType`

**full\_name**

Type: *cybox.common.properties.String*

XML Binding class name: Full\_Name

Dictionary key name: full\_name

**netbeui\_name**

Type: *cybox.common.properties.String*

XML Binding class name: NetBEUI\_Name

Dictionary key name: netbeui\_name

**class** `cybox.objects.win_computer_account_object.Kerberos`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.win_computer_account_object.KerberosType`

#### **delegation**

Type: `cybox.objects.win_computer_account_object.KerberosDelegation`

XML Binding class name: Delegation

Dictionary key name: delegation

#### **ticket**

Type: `cybox.common.properties.UnsignedLong`

XML Binding class name: Ticket

Dictionary key name: ticket

**class** `cybox.objects.win_computer_account_object.KerberosDelegation`

Bases: `mixbox.entities.Entity`

XML binding class:

`cybox.bindings.win_computer_account_object.KerberosDelegationType`

#### **bitmask**

Type: `cybox.common.properties.HexBinary`

XML Binding class name: Bitmask

Dictionary key name: bitmask

#### **service**

Type: `cybox.objects.win_computer_account_object.KerberosService`

XML Binding class name: Service

Dictionary key name: service

**class** `cybox.objects.win_computer_account_object.KerberosService`

Bases: `mixbox.entities.Entity`

XML binding class:

`cybox.bindings.win_computer_account_object.KerberosServiceType`

#### **computer**

Type: `cybox.common.properties.String`

XML Binding class name: Computer

Dictionary key name: computer

#### **name**

Type: `cybox.common.properties.String`

XML Binding class name: Name

Dictionary key name: name

#### **port**

Type: *cybox.objects.port\_object.Port*

XML Binding class name: Port

Dictionary key name: port

#### **user**

Type: *cybox.common.properties.String*

XML Binding class name: User

Dictionary key name: user

**class** *cybox.objects.win\_computer\_account\_object.WinComputerAccount*

Bases: *cybox.objects.account\_object.Account*

XML binding class:

*cybox.bindings.win\_computer\_account\_object.WindowsComputerAccountObjectType*

#### **fully\_qualified\_name**

Type: *cybox.objects.win\_computer\_account\_object.FullyQualifiedName*

XML Binding class name: Fully\_Qualified\_Name

Dictionary key name: fully\_qualified\_name

#### **kerberos**

Type: *cybox.objects.win\_computer\_account\_object.Kerberos*

XML Binding class name: Kerberos

Dictionary key name: kerberos

#### **security\_id**

Type: *cybox.common.properties.String*

XML Binding class name: Security\_ID

Dictionary key name: security\_id

#### **type\_**

Type: *cybox.common.properties.String*

XML Binding class name: Type

Dictionary key name: type

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**cybox.objects.win\_critical\_section\_object module**

**class** *cybox.objects.win\_critical\_section\_object.WinCriticalSection*

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class:

`cybox.bindings.win_critical_section_object.WindowsCriticalSectionObjectType`

#### **address**

Type: `cybox.common.properties.HexBinary`

XML Binding class name: Address

Dictionary key name: address

#### **spin\_count**

Type: `cybox.common.properties.NonNegativeInteger`

XML Binding class name: Spin\_Count

Dictionary key name: spin\_count

Version: 2.1.0.20

### **cybox.objects.win\_driver\_object module**

**class** `cybox.objects.win_driver_object.DeviceObjectList` (\*args)

Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.win_driver_object.DeviceObjectListType`

#### **device\_object\_struct**

(List of values permitted)

Type: `cybox.objects.win_driver_object.DeviceObjectStruct`

XML Binding class name: Device\_Object\_Struct

Dictionary key name: device\_object\_struct

**class** `cybox.objects.win_driver_object.DeviceObjectStruct`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.win_driver_object.DeviceObjectStructType`

#### **attached\_device\_name**

Type: `cybox.common.properties.String`

XML Binding class name: Attached\_Device\_Name

Dictionary key name: attached\_device\_name

#### **attached\_device\_object**

Type: `cybox.common.properties.UnsignedLong`

XML Binding class name: Attached\_Device\_Object

Dictionary key name: attached\_device\_object

**attached\_to\_device\_name**

Type: *cybox.common.properties.String*  
XML Binding class name: Attached\_To\_Device\_Name  
Dictionary key name: attached\_to\_device\_name

**attached\_to\_device\_object**

Type: *cybox.common.properties.UnsignedLong*  
XML Binding class name: Attached\_To\_Device\_Object  
Dictionary key name: attached\_to\_device\_object

**attached\_to\_driver\_name**

Type: *cybox.common.properties.String*  
XML Binding class name: Attached\_To\_Driver\_Name  
Dictionary key name: attached\_to\_driver\_name

**attached\_to\_driver\_object**

Type: *cybox.common.properties.UnsignedLong*  
XML Binding class name: Attached\_To\_Driver\_Object  
Dictionary key name: attached\_to\_driver\_object

**device\_name**

Type: *cybox.common.properties.String*  
XML Binding class name: Device\_Name  
Dictionary key name: device\_name

**device\_object**

Type: *cybox.common.properties.UnsignedLong*  
XML Binding class name: Device\_Object  
Dictionary key name: device\_object

**class** `cybox.objects.win_driver_object.WinDriver`

Bases: *cybox.objects.win\_executable\_file\_object.WinExecutableFile*

XML binding class: `cybox.bindings.win_driver_object.WindowsDriverObjectType`

**device\_object\_list**

Type: *cybox.objects.win\_driver\_object.DeviceObjectList*  
XML Binding class name: Device\_Object\_List  
Dictionary key name: device\_object\_list

**driver\_init**

Type: *cybox.common.properties.UnsignedLong*  
XML Binding class name: Driver\_Init  
Dictionary key name: driver\_init

**driver\_name**

Type: *cybox.common.properties.String*  
XML Binding class name: Driver\_Name  
Dictionary key name: driver\_name

**driver\_object\_address**

Type: *cybox.common.properties.HexBinary*  
XML Binding class name: Driver\_Object\_Address  
Dictionary key name: driver\_object\_address

**driver\_start\_io**

Type: *cybox.common.properties.HexBinary*  
XML Binding class name: Driver\_Start\_IO  
Dictionary key name: driver\_start\_io

**driver\_unload**

Type: *cybox.common.properties.HexBinary*  
XML Binding class name: Driver\_Unload  
Dictionary key name: driver\_unload

**image\_base**

Type: *cybox.common.properties.HexBinary*  
XML Binding class name: Image\_Base  
Dictionary key name: image\_base

**image\_size**

Type: *cybox.common.properties.HexBinary*  
XML Binding class name: Image\_Size  
Dictionary key name: image\_size

**irp\_mj\_cleanup**

Type: *cybox.common.properties.UnsignedLong*  
XML Binding class name: IRP\_MJ\_CLEANUP  
Dictionary key name: irp\_mj\_cleanup

**irp\_mj\_close**

Type: *cybox.common.properties.UnsignedLong*  
XML Binding class name: IRP\_MJ\_CLOSE  
Dictionary key name: irp\_mj\_close



**irp\_mj\_create**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: IRP\_MJ\_CREATE

Dictionary key name: irp\_mj\_create

**irp\_mj\_create\_mailslot**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: IRP\_MJ\_CREATE\_MAILSLLOT

Dictionary key name: irp\_mj\_create\_mailslot

**irp\_mj\_create\_named\_pipe**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: IRP\_MJ\_CREATE\_NAMED\_PIPE

Dictionary key name: irp\_mj\_create\_named\_pipe

**irp\_mj\_device\_change**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: IRP\_MJ\_DEVICE\_CHANGE

Dictionary key name: irp\_mj\_device\_change

**irp\_mj\_device\_control**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: IRP\_MJ\_DEVICE\_CONTROL

Dictionary key name: irp\_mj\_device\_control

**irp\_mj\_directory\_control**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: IRP\_MJ\_DIRECTORY\_CONTROL

Dictionary key name: irp\_mj\_directory\_control

**irp\_mj\_file\_system\_control**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: IRP\_MJ\_FILE\_SYSTEM\_CONTROL

Dictionary key name: irp\_mj\_file\_system\_control

**irp\_mj\_flush\_buffers**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: IRP\_MJ\_FLUSH\_BUFFERS

Dictionary key name: irp\_mj\_flush\_buffers

**irp\_mj\_internal\_device\_control**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: IRP\_MJ\_INTERNAL\_DEVICE\_CONTROL

Dictionary key name: irp\_mj\_internal\_device\_control

#### **irp\_mj\_lock\_control**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: IRP\_MJ\_LOCK\_CONTROL

Dictionary key name: irp\_mj\_lock\_control

#### **irp\_mj\_pnp**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: IRP\_MJ\_PNP

Dictionary key name: irp\_mj\_pnp

#### **irp\_mj\_power**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: IRP\_MJ\_POWER

Dictionary key name: irp\_mj\_power

#### **irp\_mj\_query\_ea**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: IRP\_MJ\_QUERY\_EA

Dictionary key name: irp\_mj\_query\_ea

#### **irp\_mj\_query\_information**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: IRP\_MJ\_QUERY\_INFORMATION

Dictionary key name: irp\_mj\_query\_information

#### **irp\_mj\_query\_quota**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: IRP\_MJ\_QUERY\_QUOTA

Dictionary key name: irp\_mj\_query\_quota

#### **irp\_mj\_query\_security**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: IRP\_MJ\_QUERY\_SECURITY

Dictionary key name: irp\_mj\_query\_security

#### **irp\_mj\_query\_volume\_information**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: IRP\_MJ\_QUERY\_VOLUME\_INFORMATION

Dictionary key name: irp\_mj\_query\_volume\_information

**irp\_mj\_read**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: IRP\_MJ\_READ

Dictionary key name: irp\_mj\_read

**irp\_mj\_set\_ea**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: IRP\_MJ\_SET\_EA

Dictionary key name: irp\_mj\_set\_ea

**irp\_mj\_set\_information**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: IRP\_MJ\_SET\_INFORMATION

Dictionary key name: irp\_mj\_set\_information

**irp\_mj\_set\_quota**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: IRP\_MJ\_SET\_QUOTA

Dictionary key name: irp\_mj\_set\_quota

**irp\_mj\_set\_security**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: IRP\_MJ\_SET\_SECURITY

Dictionary key name: irp\_mj\_set\_security

**irp\_mj\_set\_volume\_information**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: IRP\_MJ\_SET\_VOLUME\_INFORMATION

Dictionary key name: irp\_mj\_set\_volume\_information

**irp\_mj\_shutdown**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: IRP\_MJ\_SHUTDOWN

Dictionary key name: irp\_mj\_shutdown

**irp\_mj\_system\_control**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: IRP\_MJ\_SYSTEM\_CONTROL

Dictionary key name: irp\_mj\_system\_control

**irp\_mj\_write**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: IRP\_MJ\_WRITE

Dictionary key name: irp\_mj\_write

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### **cybox.objects.win\_event\_log\_object module**

**class** cybox.objects.win\_event\_log\_object.**UnformattedMessageList** (\*args)

Bases: mixbox.entities.EntityList

XML binding class:

cybox.bindings.win\_event\_log\_object.UnformattedMessageListType

### **unformatted\_message**

(List of values permitted)

Type: *cybox.common.properties.String*

XML Binding class name: Unformatted\_Message

Dictionary key name: unformatted\_message

**class** cybox.objects.win\_event\_log\_object.**WinEventLog**

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class:

cybox.bindings.win\_event\_log\_object.WindowsEventLogObjectType

### **blob**

Type: *cybox.common.properties.Base64Binary*

XML Binding class name: Blob

Dictionary key name: blob

### **category**

Type: *cybox.common.properties.String*

XML Binding class name: Category

Dictionary key name: category

### **category\_num**

Type: *cybox.common.properties.Long*

XML Binding class name: Category\_Num

Dictionary key name: category\_num

### **correlation\_activity\_id**

Type: *cybox.common.properties.String*

XML Binding class name: Correlation\_Activity\_ID

Dictionary key name: correlation\_activity\_id

**correlation\_related\_activity\_id**

Type: *cybox.common.properties.String*  
XML Binding class name: Correlation\_Related\_Activity\_ID  
Dictionary key name: correlation\_related\_activity\_id

**eid**

Type: *cybox.common.properties.Long*  
XML Binding class name: EID  
Dictionary key name: eid

**execution\_process\_id**

Type: *cybox.common.properties.String*  
XML Binding class name: Execution\_Process\_ID  
Dictionary key name: execution\_process\_id

**execution\_thread\_id**

Type: *cybox.common.properties.String*  
XML Binding class name: Execution\_Thread\_ID  
Dictionary key name: execution\_thread\_id

**generation\_time**

Type: *cybox.common.properties.DateTime*  
XML Binding class name: Generation\_Time  
Dictionary key name: generation\_time

**index**

Type: *cybox.common.properties.Long*  
XML Binding class name: Index  
Dictionary key name: index

**log**

Type: *cybox.common.properties.String*  
XML Binding class name: Log  
Dictionary key name: log

**machine**

Type: *cybox.common.properties.String*  
XML Binding class name: Machine  
Dictionary key name: machine

**message**

Type: *cybox.common.properties.String*

XML Binding class name: Message

Dictionary key name: message

#### **reserved**

Type: *cybox.common.properties.Long*

XML Binding class name: Reserved

Dictionary key name: reserved

#### **source**

Type: *cybox.common.properties.String*

XML Binding class name: Source

Dictionary key name: source

#### **type\_**

Type: *cybox.common.properties.String*

XML Binding class name: Type

Dictionary key name: type

#### **unformatted\_message\_list**

Type: *cybox.objects.win\_event\_log\_object.UnformattedMessageList*

XML Binding class name: Unformatted\_Message\_List

Dictionary key name: unformatted\_message\_list

#### **user**

Type: *cybox.common.properties.String*

XML Binding class name: User

Dictionary key name: user

#### **write\_time**

Type: *cybox.common.properties.DateTime*

XML Binding class name: Write\_Time

Dictionary key name: write\_time

Version: 2.1.0.20

#### **cybox.objects.win\_event\_object module**

**class** *cybox.objects.win\_event\_object.WinEvent*

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: *cybox.bindings.win\_event\_object.WindowsEventObjectType*

#### **handle**

Type: *cybox.objects.win\_handle\_object.WinHandle*  
 XML Binding class name: Handle  
 Dictionary key name: handle

**name**

Type: *cybox.common.properties.String*  
 XML Binding class name: Name  
 Dictionary key name: name

**type\_**

Type: *cybox.common.properties.String*  
 XML Binding class name: Type  
 Dictionary key name: type

Version: 2.1.0.20

**cybox.objects.win\_executable\_file\_object module**

**class** `cybox.objects.win_executable_file_object.DOSHeader`  
 Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.win_executable_file_object.DOSHeaderType`

**e\_cblp**

Type: *cybox.common.properties.HexBinary*  
 XML Binding class name: e\_cblp  
 Dictionary key name: e\_cblp

**e\_cp**

Type: *cybox.common.properties.HexBinary*  
 XML Binding class name: e\_cp  
 Dictionary key name: e\_cp

**e\_cparhdr**

Type: *cybox.common.properties.HexBinary*  
 XML Binding class name: e\_cparhdr  
 Dictionary key name: e\_cparhdr

**e\_crlc**

Type: *cybox.common.properties.HexBinary*  
 XML Binding class name: e\_crlc  
 Dictionary key name: e\_crlc

**e\_cs**

Type: *cybox.common.properties.HexBinary*  
XML Binding class name: e\_cs  
Dictionary key name: e\_cs

#### **e\_csum**

Type: *cybox.common.properties.HexBinary*  
XML Binding class name: e\_csum  
Dictionary key name: e\_csum

#### **e\_ip**

Type: *cybox.common.properties.HexBinary*  
XML Binding class name: e\_ip  
Dictionary key name: e\_ip

#### **e\_lfanew**

Type: *cybox.common.properties.HexBinary*  
XML Binding class name: e\_lfanew  
Dictionary key name: e\_lfanew

#### **e\_lfarlc**

Type: *cybox.common.properties.HexBinary*  
XML Binding class name: e\_lfarlc  
Dictionary key name: e\_lfarlc

#### **e\_magic**

Type: *cybox.common.properties.HexBinary*  
XML Binding class name: e\_magic  
Dictionary key name: e\_magic

#### **e\_maxalloc**

Type: *cybox.common.properties.HexBinary*  
XML Binding class name: e\_maxalloc  
Dictionary key name: e\_maxalloc

#### **e\_minalloc**

Type: *cybox.common.properties.HexBinary*  
XML Binding class name: e\_minalloc  
Dictionary key name: e\_minalloc

#### **e\_oemid**

Type: *cybox.common.properties.HexBinary*  
XML Binding class name: e\_oemid  
Dictionary key name: e\_oemid



**e\_oeminfo**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: e\_oeminfo

Dictionary key name: e\_oeminfo

**e\_ovro**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: e\_ovro

Dictionary key name: e\_ovro

**e\_sp**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: e\_sp

Dictionary key name: e\_sp

**e\_ss**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: e\_ss

Dictionary key name: e\_ss

**hashes**

Type: *cybox.common.hashes.HashList*

XML Binding class name: Hashes

Dictionary key name: hashes

**reserved2**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: reserved2

Dictionary key name: reserved2

**class** *cybox.objects.win\_executable\_file\_object.DataDirectory*

Bases: *mixbox.entities.Entity*

XML binding class: *cybox.bindings.win\_executable\_file\_object.DataDirectoryType*

**architecture**

Type: *cybox.objects.win\_executable\_file\_object.PEDataDirectoryStruct*

XML Binding class name: Architecture

Dictionary key name: architecture

**base\_relocation\_table**

Type: *cybox.objects.win\_executable\_file\_object.PEDataDirectoryStruct*

XML Binding class name: Base\_Relocation\_Table

Dictionary key name: base\_relocation\_table

#### **bound\_import**

Type: *cybox.objects.win\_executable\_file\_object.PEDataDirectoryStruct*

XML Binding class name: Bound\_Import

Dictionary key name: bound\_import

#### **certificate\_table**

Type: *cybox.objects.win\_executable\_file\_object.PEDataDirectoryStruct*

XML Binding class name: Certificate\_Table

Dictionary key name: certificate\_table

#### **clr\_runtime\_header**

Type: *cybox.objects.win\_executable\_file\_object.PEDataDirectoryStruct*

XML Binding class name: CLR\_Runtime\_Header

Dictionary key name: clr\_runtime\_header

#### **debug**

Type: *cybox.objects.win\_executable\_file\_object.PEDataDirectoryStruct*

XML Binding class name: Debug

Dictionary key name: debug

#### **delay\_import\_descriptor**

Type: *cybox.objects.win\_executable\_file\_object.PEDataDirectoryStruct*

XML Binding class name: Delay\_Import\_Descriptor

Dictionary key name: delay\_import\_descriptor

#### **exception\_table**

Type: *cybox.objects.win\_executable\_file\_object.PEDataDirectoryStruct*

XML Binding class name: Exception\_Table

Dictionary key name: exception\_table

#### **export\_table**

Type: *cybox.objects.win\_executable\_file\_object.PEDataDirectoryStruct*

XML Binding class name: Export\_Table

Dictionary key name: export\_table

#### **global\_ptr**

Type: *cybox.objects.win\_executable\_file\_object.PEDataDirectoryStruct*

XML Binding class name: Global\_Ptr

Dictionary key name: global\_ptr

**import\_address\_table**

Type: *cybox.objects.win\_executable\_file\_object.PEDataDirectoryStruct*

XML Binding class name: Import\_Address\_Table

Dictionary key name: import\_address\_table

**import\_table**

Type: *cybox.objects.win\_executable\_file\_object.PEDataDirectoryStruct*

XML Binding class name: Import\_Table

Dictionary key name: import\_table

**load\_config\_table**

Type: *cybox.objects.win\_executable\_file\_object.PEDataDirectoryStruct*

XML Binding class name: Load\_Config\_Table

Dictionary key name: load\_config\_table

**reserved**

Type: *cybox.objects.win\_executable\_file\_object.PEDataDirectoryStruct*

XML Binding class name: Reserved

Dictionary key name: reserved

**resource\_table**

Type: *cybox.objects.win\_executable\_file\_object.PEDataDirectoryStruct*

XML Binding class name: Resource\_Table

Dictionary key name: resource\_table

**tls\_table**

Type: *cybox.objects.win\_executable\_file\_object.PEDataDirectoryStruct*

XML Binding class name: Tls\_Table

Dictionary key name: tls\_table

**class** *cybox.objects.win\_executable\_file\_object*.Entropy

Bases: *mixbox.entities.Entity*

XML binding class: *cybox.bindings.win\_executable\_file\_object.EntropyType*

**max**

Type: *cybox.common.properties.Float*

XML Binding class name: Max

Dictionary key name: max

**min**

Type: *cybox.common.properties.Float*  
XML Binding class name: Min  
Dictionary key name: min

**value**

Type: *cybox.common.properties.Float*  
XML Binding class name: Value  
Dictionary key name: value

**class** `cybox.objects.win_executable_file_object.PEBuildInformation`  
Bases: `mixbox.entities.Entity`

XML binding class:  
`cybox.bindings.win_executable_file_object.PEBuildInformationType`

**compiler\_name**

Type: *cybox.common.properties.String*  
XML Binding class name: Compiler\_Name  
Dictionary key name: compiler\_name

**compiler\_version**

Type: *cybox.common.properties.String*  
XML Binding class name: Compiler\_Version  
Dictionary key name: compiler\_version

**linker\_name**

Type: *cybox.common.properties.String*  
XML Binding class name: Linker\_Name  
Dictionary key name: linker\_name

**linker\_version**

Type: *cybox.common.properties.String*  
XML Binding class name: Linker\_Version  
Dictionary key name: linker\_version

**class** `cybox.objects.win_executable_file_object.PEChecksum`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.win_executable_file_object.PEChecksumType`

**pe\_computed\_api**

Type: *cybox.common.properties.Long*

XML Binding class name: PE\_Computed\_API

Dictionary key name: pe\_computed\_api

#### **pe\_file\_api**

Type: *cybox.common.properties.Long*

XML Binding class name: PE\_File\_API

Dictionary key name: pe\_file\_api

#### **pe\_file\_raw**

Type: *cybox.common.properties.Long*

XML Binding class name: PE\_File\_Raw

Dictionary key name: pe\_file\_raw

**class** `cybox.objects.win_executable_file_object.PEDataDirectoryStruct`

Bases: `mixbox.entities.Entity`

XML binding class:

`cybox.bindings.win_executable_file_object.PEDataDirectoryStructType`

#### **size**

Type: *cybox.common.properties.NonNegativeInteger*

XML Binding class name: Size

Dictionary key name: size

#### **virtual\_address**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Virtual\_Address

Dictionary key name: virtual\_address

**class** `cybox.objects.win_executable_file_object.PEExportedFunction`

Bases: `mixbox.entities.Entity`

XML binding class:

`cybox.bindings.win_executable_file_object.PEExportedFunctionType`

#### **entry\_point**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Entry\_Point

Dictionary key name: entry\_point

#### **function\_name**

Type: *cybox.common.properties.String*

XML Binding class name: Function\_Name

Dictionary key name: function\_name

#### **ordinal**

Type: *cybox.common.properties.NonNegativeInteger*

XML Binding class name: Ordinal

Dictionary key name: ordinal

**class** `cybox.objects.win_executable_file_object.PEExportedFunctions` (\*args)

Bases: `mixbox.entities.EntityList`

XML binding class:

`cybox.bindings.win_executable_file_object.PEExportedFunctionsType`

#### **exported\_function**

(List of values permitted)

Type: *cybox.objects.win\_executable\_file\_object.PEExportedFunction*

XML Binding class name: Exported\_Function

Dictionary key name: exported\_function

**class** `cybox.objects.win_executable_file_object.PEExports`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.win_executable_file_object.PEExportsType`

#### **exported\_functions**

Type: *cybox.objects.win\_executable\_file\_object.PEExportedFunctions*

XML Binding class name: Exported\_Functions

Dictionary key name: exported\_functions

#### **exports\_time\_stamp**

Type: *cybox.common.properties.DateTime*

XML Binding class name: Exports\_Time\_Stamp

Dictionary key name: exports\_time\_stamp

#### **name**

Type: *cybox.common.properties.String*

XML Binding class name: Name

Dictionary key name: name

#### **number\_of\_addresses**

Type: *cybox.common.properties.Long*

XML Binding class name: Number\_Of\_Addresses

Dictionary key name: number\_of\_addresses

#### **number\_of\_functions**

Type: *cybox.common.properties.Integer*

XML Binding class name: Number\_Of\_Functions

Dictionary key name: number\_of\_functions

#### **number\_of\_names**

Type: *cybox.common.properties.Long*

XML Binding class name: Number\_Of\_Names

Dictionary key name: number\_of\_names

**class** `cybox.objects.win_executable_file_object.PEFileHeader`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.win_executable_file_object.PEFileHeaderType`

#### **characteristics**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Characteristics

Dictionary key name: characteristics

#### **hashes**

Type: *cybox.common.hashes.HashList*

XML Binding class name: Hashes

Dictionary key name: hashes

#### **machine**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Machine

Dictionary key name: machine

#### **number\_of\_sections**

Type: *cybox.common.properties.NonNegativeInteger*

XML Binding class name: Number\_Of\_Sections

Dictionary key name: number\_of\_sections

#### **number\_of\_symbols**

Type: *cybox.common.properties.NonNegativeInteger*

XML Binding class name: Number\_Of\_Symbols

Dictionary key name: number\_of\_symbols

#### **pointer\_to\_symbol\_table**

Type: *cybox.common.properties.HexBinary*  
XML Binding class name: Pointer\_To\_Symbol\_Table  
Dictionary key name: pointer\_to\_symbol\_table

#### **size\_of\_optional\_header**

Type: *cybox.common.properties.HexBinary*  
XML Binding class name: Size\_Of\_Optional\_Header  
Dictionary key name: size\_of\_optional\_header

#### **time\_date\_stamp**

Type: *cybox.common.properties.HexBinary*  
XML Binding class name: Time\_Date\_Stamp  
Dictionary key name: time\_date\_stamp

**class** `cybox.objects.win_executable_file_object.PEHeaders`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.win_executable_file_object.PEHeadersType`

#### **dos\_header**

Type: *cybox.objects.win\_executable\_file\_object.DOSHeader*  
XML Binding class name: DOS\_Header  
Dictionary key name: dos\_header

#### **entropy**

Type: *cybox.objects.win\_executable\_file\_object.Entropy*  
XML Binding class name: Entropy  
Dictionary key name: entropy

#### **file\_header**

Type: *cybox.objects.win\_executable\_file\_object.PEFileHeader*  
XML Binding class name: File\_Header  
Dictionary key name: file\_header

#### **hashes**

Type: *cybox.common.hashes.HashList*  
XML Binding class name: Hashes  
Dictionary key name: hashes

#### **optional\_header**



Type: *cybox.objects.win\_executable\_file\_object.PEOptionalHeader*

XML Binding class name: `Optional_Header`

Dictionary key name: `optional_header`

#### **signature**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: `Signature`

Dictionary key name: `signature`

**class** `cybox.objects.win_executable_file_object.PEImport`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.win_executable_file_object.PEImportType`

#### **delay\_load**

XML Binding class name: `delay_load`

Dictionary key name: `delay_load`

#### **file\_name**

Type: *cybox.common.properties.String*

XML Binding class name: `File_Name`

Dictionary key name: `file_name`

#### **imported\_functions**

Type: *cybox.objects.win\_executable\_file\_object.PEImportedFunctions*

XML Binding class name: `Imported_Functions`

Dictionary key name: `imported_functions`

#### **initially\_visible**

XML Binding class name: `initially_visible`

Dictionary key name: `initially_visible`

#### **virtual\_address**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: `Virtual_Address`

Dictionary key name: `virtual_address`

**class** `cybox.objects.win_executable_file_object.PEImportList (*args)`

Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.win_executable_file_object.PEImportListType`

#### **import\_**

(List of values permitted)

Type: *cybox.objects.win\_executable\_file\_object.PEImport*

XML Binding class name: Import

Dictionary key name: import

**class** *cybox.objects.win\_executable\_file\_object.PEImportedFunction*

Bases: *mixbox.entities.Entity*

XML binding class:

*cybox.bindings.win\_executable\_file\_object.PEImportedFunctionType*

#### **bound**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Bound

Dictionary key name: bound

#### **function\_name**

Type: *cybox.common.properties.String*

XML Binding class name: Function\_Name

Dictionary key name: function\_name

#### **hint**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Hint

Dictionary key name: hint

#### **ordinal**

Type: *cybox.common.properties.NonNegativeInteger*

XML Binding class name: Ordinal

Dictionary key name: ordinal

#### **virtual\_address**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Virtual\_Address

Dictionary key name: virtual\_address

**class** *cybox.objects.win\_executable\_file\_object.PEImportedFunctions* (\*args)

Bases: *mixbox.entities.EntityList*

XML binding class:

*cybox.bindings.win\_executable\_file\_object.PEImportedFunctionsType*

**imported\_function**

(List of values permitted)

Type: *cybox.objects.win\_executable\_file\_object.PEImportedFunction*

XML Binding class name: Imported\_Function

Dictionary key name: imported\_function

**class** *cybox.objects.win\_executable\_file\_object.PEOptionalHeader*

Bases: *mixbox.entities.Entity*

XML binding class:

*cybox.bindings.win\_executable\_file\_object.PEOptionalHeaderType*

**address\_of\_entry\_point**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Address\_Of\_Entry\_Point

Dictionary key name: address\_of\_entry\_point

**base\_of\_code**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Base\_Of\_Code

Dictionary key name: base\_of\_code

**base\_of\_data**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Base\_Of\_Data

Dictionary key name: base\_of\_data

**checksum**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Checksum

Dictionary key name: checksum

**data\_directory**

Type: *cybox.objects.win\_executable\_file\_object.DataDirectory*

XML Binding class name: Data\_Directory

Dictionary key name: data\_directory

**dll\_characteristics**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: DLL\_Characteristics

Dictionary key name: dll\_characteristics

#### **file\_alignment**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: File\_Alignment

Dictionary key name: file\_alignment

#### **hashes**

Type: *cybox.common.hashes.HashList*

XML Binding class name: Hashes

Dictionary key name: hashes

#### **image\_base**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Image\_Base

Dictionary key name: image\_base

#### **loader\_flags**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Loader\_Flags

Dictionary key name: loader\_flags

#### **magic**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Magic

Dictionary key name: magic

#### **major\_image\_version**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Major\_Image\_Version

Dictionary key name: major\_image\_version

#### **major\_linker\_version**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Major\_Linker\_Version

Dictionary key name: major\_linker\_version

#### **major\_os\_version**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Major\_OS\_Version

Dictionary key name: major\_os\_version

#### **major\_subsystem\_version**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Major\_Subsystem\_Version

Dictionary key name: major\_subsystem\_version

#### **minor\_image\_version**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Minor\_Image\_Version

Dictionary key name: minor\_image\_version

#### **minor\_linker\_version**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Minor\_Linker\_Version

Dictionary key name: minor\_linker\_version

#### **minor\_os\_version**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Minor\_OS\_Version

Dictionary key name: minor\_os\_version

#### **minor\_subsystem\_version**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Minor\_Subsystem\_Version

Dictionary key name: minor\_subsystem\_version

#### **number\_of\_rva\_and\_sizes**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Number\_Of\_Rva\_And\_Sizes

Dictionary key name: number\_of\_rva\_and\_sizes

#### **section\_alignment**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Section\_Alignment

Dictionary key name: section\_alignment

#### **size\_of\_code**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Size\_Of\_Code

Dictionary key name: size\_of\_code

#### **size\_of\_headers**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Size\_Of\_Headers

Dictionary key name: size\_of\_headers

**size\_of\_heap\_commit**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Size\_Of\_Heap\_Commit

Dictionary key name: size\_of\_heap\_commit

**size\_of\_heap\_reserve**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Size\_Of\_Heap\_Reserve

Dictionary key name: size\_of\_heap\_reserve

**size\_of\_image**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Size\_Of\_Image

Dictionary key name: size\_of\_image

**size\_of\_initialized\_data**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Size\_Of\_Initialized\_Data

Dictionary key name: size\_of\_initialized\_data

**size\_of\_stack\_commit**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Size\_Of\_Stack\_Commit

Dictionary key name: size\_of\_stack\_commit

**size\_of\_stack\_reserve**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Size\_Of\_Stack\_Reserve

Dictionary key name: size\_of\_stack\_reserve

**size\_of\_uninitialized\_data**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Size\_Of\_Uninitialized\_Data

Dictionary key name: size\_of\_uninitialized\_data

**subsystem**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Subsystem

Dictionary key name: subsystem

**win32\_version\_value**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Win32\_Version\_Value

Dictionary key name: win32\_version\_value

**class** cybox.objects.win\_executable\_file\_object.PEResource

Bases: mixbox.entities.Entity

XML binding class: cybox.bindings.win\_executable\_file\_object.PEResourceType

#### **data**

Type: *cybox.common.properties.String*

XML Binding class name: Data

Dictionary key name: data

#### **hashes**

Type: *cybox.common.hashes.HashList*

XML Binding class name: Hashes

Dictionary key name: hashes

#### **language**

Type: *cybox.common.properties.String*

XML Binding class name: Language

Dictionary key name: language

#### **name**

Type: *cybox.common.properties.String*

XML Binding class name: Name

Dictionary key name: name

#### **size**

Type: *cybox.common.properties.PositiveInteger*

XML Binding class name: Size

Dictionary key name: size

#### **sub\_language**

Type: *cybox.common.properties.String*

XML Binding class name: Sub\_Language

Dictionary key name: sub\_language

#### **type\_**

Type: *cybox.common.properties.String*

XML Binding class name: Type

Dictionary key name: type

### **virtual\_address**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: *Virtual\_Address*

Dictionary key name: *virtual\_address*

**class** *cybox.objects.win\_executable\_file\_object.PEResourceList* (\*args)

Bases: *mixbox.entities.EntityList*

XML binding class: *cybox.bindings.win\_executable\_file\_object.PEResourceListType*

### **classmethod from\_list** (seq)

#### **resource**

(List of values permitted)

Type: *cybox.objects.win\_executable\_file\_object.PEResource*

XML Binding class name: *Resource*

Dictionary key name: *resource*

**class** *cybox.objects.win\_executable\_file\_object.PESection*

Bases: *mixbox.entities.Entity*

XML binding class: *cybox.bindings.win\_executable\_file\_object.PESectionType*

### **data\_hashes**

Type: *cybox.common.hashes.HashList*

XML Binding class name: *Data\_Hashes*

Dictionary key name: *data\_hashes*

### **entropy**

Type: *cybox.objects.win\_executable\_file\_object.Entropy*

XML Binding class name: *Entropy*

Dictionary key name: *entropy*

### **header\_hashes**

Type: *cybox.common.hashes.HashList*

XML Binding class name: *Header\_Hashes*

Dictionary key name: *header\_hashes*

### **section\_header**

Type: *cybox.objects.win\_executable\_file\_object.PESectionHeaderStruct*

XML Binding class name: *Section\_Header*

Dictionary key name: *section\_header*



**class** `cybox.objects.win_executable_file_object.PESectionHeaderStruct`  
Bases: `mixbox.entities.Entity`

XML binding class:

`cybox.bindings.win_executable_file_object.PESectionHeaderStructType`

#### **characteristics**

Type: `cybox.common.properties.HexBinary`

XML Binding class name: `Characteristics`

Dictionary key name: `characteristics`

#### **name**

Type: `cybox.common.properties.String`

XML Binding class name: `Name`

Dictionary key name: `name`

#### **number\_of\_linenumbers**

Type: `cybox.common.properties.NonNegativeInteger`

XML Binding class name: `Number_Of_Linenumbers`

Dictionary key name: `number_of_linenumbers`

#### **number\_of\_relocations**

Type: `cybox.common.properties.NonNegativeInteger`

XML Binding class name: `Number_Of_Relocations`

Dictionary key name: `number_of_relocations`

#### **pointer\_to\_linenumbers**

Type: `cybox.common.properties.HexBinary`

XML Binding class name: `Pointer_To_Linenumbers`

Dictionary key name: `pointer_to_linenumbers`

#### **pointer\_to\_raw\_data**

Type: `cybox.common.properties.HexBinary`

XML Binding class name: `Pointer_To_Raw_Data`

Dictionary key name: `pointer_to_raw_data`

#### **pointer\_to\_relocations**

Type: `cybox.common.properties.HexBinary`

XML Binding class name: `Pointer_To_Relocations`

Dictionary key name: `pointer_to_relocations`

#### **size\_of\_raw\_data**

Type: *cybox.common.properties.HexBinary*  
XML Binding class name: *Size\_Of\_Raw\_Data*  
Dictionary key name: *size\_of\_raw\_data*

#### **virtual\_address**

Type: *cybox.common.properties.HexBinary*  
XML Binding class name: *Virtual\_Address*  
Dictionary key name: *virtual\_address*

#### **virtual\_size**

Type: *cybox.common.properties.HexBinary*  
XML Binding class name: *Virtual\_Size*  
Dictionary key name: *virtual\_size*

**class** *cybox.objects.win\_executable\_file\_object.PESectionList* (\*args)  
Bases: *mixbox.entities.EntityList*

XML binding class: *cybox.bindings.win\_executable\_file\_object.PESectionListType*

#### **section**

(List of values permitted)  
Type: *cybox.objects.win\_executable\_file\_object.PESection*  
XML Binding class name: *Section*  
Dictionary key name: *section*

**class** *cybox.objects.win\_executable\_file\_object.PEVersionInfoResource*  
Bases: *cybox.objects.win\_executable\_file\_object.PEResource*

XML binding class:  
*cybox.bindings.win\_executable\_file\_object.PEVersionInfoResourceType*

#### **comments**

Type: *cybox.common.properties.String*  
XML Binding class name: *Comments*  
Dictionary key name: *comments*

#### **companyname**

Type: *cybox.common.properties.String*  
XML Binding class name: *CompanyName*  
Dictionary key name: *companyname*

#### **filedescription**

Type: *cybox.common.properties.String*  
XML Binding class name: FileDescription  
Dictionary key name: filedescription

**fileversion**

Type: *cybox.common.properties.String*  
XML Binding class name: FileVersion  
Dictionary key name: fileversion

**internalname**

Type: *cybox.common.properties.String*  
XML Binding class name: InternalName  
Dictionary key name: internalname

**static keyword\_test** (*pe\_resource\_dict*)

**langid**

Type: *cybox.common.properties.String*  
XML Binding class name: LangID  
Dictionary key name: langid

**legalcopyright**

Type: *cybox.common.properties.String*  
XML Binding class name: LegalCopyright  
Dictionary key name: legalcopyright

**legaltrademarks**

Type: *cybox.common.properties.String*  
XML Binding class name: LegalTrademarks  
Dictionary key name: legaltrademarks

**originalfilename**

Type: *cybox.common.properties.String*  
XML Binding class name: OriginalFilename  
Dictionary key name: originalfilename

**privatebuild**

Type: *cybox.common.properties.String*  
XML Binding class name: PrivateBuild  
Dictionary key name: privatebuild

**productname**

Type: *cybox.common.properties.String*  
XML Binding class name: ProductName

Dictionary key name: productname

#### **productversion**

Type: *cybox.common.properties.String*

XML Binding class name: ProductVersion

Dictionary key name: productversion

#### **specialbuild**

Type: *cybox.common.properties.String*

XML Binding class name: SpecialBuild

Dictionary key name: specialbuild

**class** `cybox.objects.win_executable_file_object.WinExecutableFile`

Bases: *cybox.objects.win\_file\_object.WinFile*

XML binding class:

`cybox.bindings.win_executable_file_object.WindowsExecutableFileObjectType`

#### **build\_information**

Type: *cybox.objects.win\_executable\_file\_object.PEBuildInformation*

XML Binding class name: Build\_Information

Dictionary key name: build\_information

#### **digital\_signature**

Type: *cybox.common.digitalsignature.DigitalSignature*

XML Binding class name: Digital\_Signature

Dictionary key name: digital\_signature

#### **exports**

Type: *cybox.objects.win\_executable\_file\_object.PEExports*

XML Binding class name: Exports

Dictionary key name: exports

#### **extraneous\_bytes**

Type: *cybox.common.properties.Integer*

XML Binding class name: Extraneous\_Bytes

Dictionary key name: extraneous\_bytes

#### **headers**

Type: *cybox.objects.win\_executable\_file\_object.PEHeaders*

XML Binding class name: Headers

Dictionary key name: headers

**imports**

Type: *cybox.objects.win\_executable\_file\_object.PEImportList*

XML Binding class name: Imports

Dictionary key name: imports

**pe\_checksum**

Type: *cybox.objects.win\_executable\_file\_object.PEChecksum*

XML Binding class name: PE\_Checksum

Dictionary key name: pe\_checksum

**resources**

Type: *cybox.objects.win\_executable\_file\_object.PEResourceList*

XML Binding class name: Resources

Dictionary key name: resources

**sections**

Type: *cybox.objects.win\_executable\_file\_object.PESectionList*

XML Binding class name: Sections

Dictionary key name: sections

**type\_**

Type: *cybox.common.properties.String*

XML Binding class name: Type

Dictionary key name: type

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**cybox.objects.win\_file\_object module**

**class** *cybox.objects.win\_file\_object.Stream*

Bases: *mixbox.entities.Entity*

XML binding class: *cybox.bindings.win\_file\_object.StreamObjectType*

**hashes**

(List of values permitted)

Type: *cybox.common.hashes.Hash*

XML Binding class name: Hash

Dictionary key name: hashes

**name**

Type: *cybox.common.properties.String*

XML Binding class name: Name

Dictionary key name: name

#### **size\_in\_bytes**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: Size\_In\_Bytes

Dictionary key name: size\_in\_bytes

**class** *cybox.objects.win\_file\_object.StreamList*(\*args)

Bases: *mixbox.entities.EntityList*

XML binding class: *cybox.bindings.win\_file\_object.StreamListType*

#### **stream**

(List of values permitted)

Type: *cybox.objects.win\_file\_object.Stream*

XML Binding class name: Stream

Dictionary key name: stream

**class** *cybox.objects.win\_file\_object.WinFile*

Bases: *cybox.objects.file\_object.File*

XML binding class: *cybox.bindings.win\_file\_object.WindowsFileType*

#### **drive**

Type: *cybox.common.properties.String*

XML Binding class name: Drive

Dictionary key name: drive

#### **file\_attributes\_list**

Type: *cybox.objects.win\_file\_object.WindowsFileAttributes*

XML Binding class name: File\_Attributes\_List

Dictionary key name: file\_attributes\_list

#### **filename\_accessed\_time**

Type: *cybox.common.properties.DateTime*

XML Binding class name: Filename\_Accessed\_Time

Dictionary key name: filename\_accessed\_time

#### **filename\_created\_time**

Type: *cybox.common.properties.DateTime*

XML Binding class name: Filename\_Created\_Time

Dictionary key name: filename\_created\_time

**filename\_modified\_time**

Type: *cybox.common.properties.DateTime*  
 XML Binding class name: `Filename_Modified_Time`  
 Dictionary key name: `filename_modified_time`

**permissions**

Type: *cybox.objects.win\_file\_object.WindowsFilePermissions*  
 XML Binding class name: `Permissions`  
 Dictionary key name: `permissions`

**security\_id**

Type: *cybox.common.properties.String*  
 XML Binding class name: `Security_ID`  
 Dictionary key name: `security_id`

**security\_type**

Type: *cybox.common.properties.String*  
 XML Binding class name: `Security_Type`  
 Dictionary key name: `security_type`

**stream\_list**

Type: *cybox.objects.win\_file\_object.StreamList*  
 XML Binding class name: `Stream_List`  
 Dictionary key name: `stream_list`

**class** `cybox.objects.win_file_object.WindowsFileAttribute` (*value=None*)  
 Bases: *cybox.common.properties.String*

XML binding class: `cybox.bindings.win_file_object.WindowsFileAttributeType`

**class** `cybox.objects.win_file_object.WindowsFileAttributes` (*\*args*)  
 Bases: *cybox.objects.file\_object.FileAttribute*, *mixbox.entities.EntityList*

XML binding class: `cybox.bindings.win_file_object.WindowsFileAttributesType`

**attribute**

(List of values permitted)  
 Type: *cybox.objects.win\_file\_object.WindowsFileAttribute*  
 XML Binding class name: `Attribute`  
 Dictionary key name: `attribute`

**class** `cybox.objects.win_file_object.WindowsFilePermissions`

Bases: `cybox.objects.file_object.FilePermissions`

XML binding class: `cybox.bindings.win_file_object.WindowsFilePermissionsType`

**full\_control**

XML Binding class name: `Full_Control`

Dictionary key name: `full_control`

**modify**

XML Binding class name: `Modify`

Dictionary key name: `modify`

**read**

XML Binding class name: `Read`

Dictionary key name: `read`

**read\_and\_execute**

XML Binding class name: `Read_And_Execute`

Dictionary key name: `read_and_execute`

**write**

XML Binding class name: `Write`

Dictionary key name: `write`

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**cybox.objects.win\_filemapping\_object module**

**class** `cybox.objects.win_filemapping_object.WinFilemapping`

Bases: `cybox.common.object_properties.ObjectProperties`

XML binding class:

`cybox.bindings.win_filemapping_object.WindowsFilemappingObjectType`

**actual\_size**

Type: `cybox.common.properties.UnsignedLong`

XML Binding class name: `Actual_Size`

Dictionary key name: `actual_size`

**file\_handle**

Type: `cybox.objects.win_handle_object.WinHandle`



XML Binding class name: File\_Handle

Dictionary key name: file\_handle

#### **handle**

Type: *cybox.objects.win\_handle\_object.WinHandle*

XML Binding class name: Handle

Dictionary key name: handle

#### **maximum\_size**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: Maximum\_Size

Dictionary key name: maximum\_size

#### **name**

Type: *cybox.common.properties.String*

XML Binding class name: Name

Dictionary key name: name

#### **page\_protection\_attribute**

(List of values permitted)

Type: *cybox.common.properties.String*

XML Binding class name: Page\_Protection\_Attribute

Dictionary key name: page\_protection\_attribute

#### **page\_protection\_value**

Type: *cybox.common.properties.String*

XML Binding class name: Page\_Protection\_Value

Dictionary key name: page\_protection\_value

#### **security\_attributes**

Type: *cybox.common.properties.String*

XML Binding class name: Security\_Attributes

Dictionary key name: security\_attributes

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### **cybox.objects.win\_handle\_object module**

**class** `cybox.objects.win_handle_object.WinHandle`

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: `cybox.bindings.win_handle_object.WindowsHandleObjectType`

#### **access\_mask**

Type: *cybox.common.properties.UnsignedLong*  
XML Binding class name: Access\_Mask  
Dictionary key name: access\_mask

**id\_**

Type: *cybox.common.properties.UnsignedInteger*  
XML Binding class name: ID  
Dictionary key name: id

**name**

Type: *cybox.common.properties.String*  
XML Binding class name: Name  
Dictionary key name: name

**object\_address**

Type: *cybox.common.properties.UnsignedLong*  
XML Binding class name: Object\_Address  
Dictionary key name: object\_address

**pointer\_count**

Type: *cybox.common.properties.UnsignedLong*  
XML Binding class name: Pointer\_Count  
Dictionary key name: pointer\_count

**type\_**

Type: *cybox.common.properties.String*  
XML Binding class name: Type  
Dictionary key name: type

**class** `cybox.objects.win_handle_object.WinHandleList` (\*args)  
Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.win_handle_object.WindowsHandleListType`

**handle**

(List of values permitted)  
Type: *cybox.objects.win\_handle\_object.WinHandle*  
XML Binding class name: Handle  
Dictionary key name: handle

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**cybox.objects.win\_hook\_object module**

**class** `cybox.objects.win_hook_object.WinHook`  
Bases: `cybox.common.object_properties.ObjectProperties`

XML binding class: `cybox.bindings.win_hook_object.WindowsHookObjectType`

#### **handle**

Type: `cybox.objects.win_handle_object.WinHandle`  
XML Binding class name: `Handle`  
Dictionary key name: `handle`

#### **hooking\_function\_name**

Type: `cybox.common.properties.String`  
XML Binding class name: `Hooking_Function_Name`  
Dictionary key name: `hooking_function_name`

#### **hooking\_module**

Type: `cybox.objects.library_object.Library`  
XML Binding class name: `Hooking_Module`  
Dictionary key name: `hooking_module`

#### **thread\_id**

Type: `cybox.common.properties.NonNegativeInteger`  
XML Binding class name: `Thread_ID`  
Dictionary key name: `thread_id`

#### **type\_**

Type: `cybox.common.properties.String`  
XML Binding class name: `Type`  
Dictionary key name: `type`

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### **cybox.objects.win\_kernel\_object module**

**class** `cybox.objects.win_kernel_object.IDTEntry`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.win_kernel_object.IDTEntryType`

#### **offset\_high**

Type: `cybox.common.properties.HexBinary`  
XML Binding class name: `Offset_High`

Dictionary key name: offset\_high

#### **offset\_low**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Offset\_Low

Dictionary key name: offset\_low

#### **offset\_middle**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Offset\_Middle

Dictionary key name: offset\_middle

#### **selector**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Selector

Dictionary key name: selector

#### **type\_attr**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Type\_Attr

Dictionary key name: type\_attr

**class** `cybox.objects.win_kernel_object.IDTEntryList` (\*args)

Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.win_kernel_object.IDTEntryListType`

#### **idt\_entry**

(List of values permitted)

Type: *cybox.objects.win\_kernel\_object.IDTEntry*

XML Binding class name: IDT\_Entry

Dictionary key name: idt\_entry

**class** `cybox.objects.win_kernel_object.SSDTEntry`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.win_kernel_object.SSDTEntryType`

#### **argument\_table\_base**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Argument\_Table\_Base

Dictionary key name: argument\_table\_base

**hooked**

XML Binding class name: hooked

Dictionary key name: hooked

**number\_of\_services**

Type: *cybox.common.properties.NonNegativeInteger*

XML Binding class name: Number\_Of\_Services

Dictionary key name: number\_of\_services

**service\_counter\_table\_base**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Service\_Counter\_Table\_Base

Dictionary key name: service\_counter\_table\_base

**service\_table\_base**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Service\_Table\_Base

Dictionary key name: service\_table\_base

**class** `cybox.objects.win_kernel_object.SSDTEntryList` (\*args)  
Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.win_kernel_object.SSDTEntryListType`

**ssdt\_entry**

(List of values permitted)

Type: *cybox.objects.win\_kernel\_object.SSDTEntry*

XML Binding class name: SSDT\_Entry

Dictionary key name: ssdt\_entry

**class** `cybox.objects.win_kernel_object.WinKernel`  
Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: `cybox.bindings.win_kernel_object.WindowsKernelObjectType`

**idt**

Type: *cybox.objects.win\_kernel\_object.IDTEntryList*

XML Binding class name: IDT

Dictionary key name: idt

**ssdt**

Type: *cybox.objects.win\_kernel\_object.SSDTEntryList*  
XML Binding class name: SSDT  
Dictionary key name: ssdt

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#### **cybox.objects.win\_kernel\_hook\_object module**

**class** `cybox.objects.win_kernel_hook_object.WinKernelHook`  
Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class:  
`cybox.bindings.win_kernel_hook_object.WindowsKernelHookObjectType`

#### **digital\_signature\_hooked**

Type: *cybox.common.digitalsignature.DigitalSignature*  
XML Binding class name: Digital\_Signature\_Hooked  
Dictionary key name: digital\_signature\_hooked

#### **digital\_signature\_hooking**

Type: *cybox.common.digitalsignature.DigitalSignature*  
XML Binding class name: Digital\_Signature\_Hooking  
Dictionary key name: digital\_signature\_hooking

#### **hook\_description**

Type: *cybox.common.properties.String*  
XML Binding class name: Hook\_Description  
Dictionary key name: hook\_description

#### **hooked\_function**

Type: *cybox.common.properties.String*  
XML Binding class name: Hooked\_Function  
Dictionary key name: hooked\_function

#### **hooked\_module**

Type: *cybox.common.properties.String*  
XML Binding class name: Hooked\_Module  
Dictionary key name: hooked\_module

#### **hooking\_address**

Type: *cybox.common.properties.UnsignedLong*  
XML Binding class name: Hooking\_Address  
Dictionary key name: hooking\_address

**hooking\_module**

Type: *cybox.common.properties.String*

XML Binding class name: Hooking\_Module

Dictionary key name: hooking\_module

**type\_**

Type: *cybox.common.properties.String*

XML Binding class name: Type

Dictionary key name: type

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**cybox.objects.win\_mailslot\_object module**

class `cybox.objects.win_mailslot_object.WinMailslot`

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: `cybox.bindings.win_mailslot_object.WindowsMailslotObjectType`

**handle**

Type: *cybox.objects.win\_handle\_object.WinHandle*

XML Binding class name: Handle

Dictionary key name: handle

**max\_message\_size**

Type: *cybox.common.properties.NonNegativeInteger*

XML Binding class name: Max\_Message\_Size

Dictionary key name: max\_message\_size

**name**

Type: *cybox.common.properties.String*

XML Binding class name: Name

Dictionary key name: name

**read\_timeout**

Type: *cybox.common.properties.NonNegativeInteger*

XML Binding class name: Read\_Timeout

Dictionary key name: read\_timeout

**security\_attributes**

Type: *cybox.common.properties.String*

XML Binding class name: Security\_Attributes

Dictionary key name: security\_attributes

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### **cybox.objects.win\_memory\_page\_region\_object module**

**class** cybox.objects.win\_memory\_page\_region\_object.**WinMemoryPageRegion**

Bases: *cybox.objects.memory\_object.Memory*

XML binding class:

cybox.bindings.win\_memory\_page\_region\_object.WindowsMemoryPageRegionObjectType

#### **allocation\_base\_address**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Allocation\_Base\_Address

Dictionary key name: allocation\_base\_address

#### **allocation\_protect**

Type: *cybox.common.properties.String*

XML Binding class name: Allocation\_Protect

Dictionary key name: allocation\_protect

#### **block\_type**

Type: *cybox.common.properties.String*

XML Binding class name: Block\_Type

Dictionary key name: block\_type

#### **extracted\_features**

Type: *cybox.common.extracted\_features.ExtractedFeatures*

XML Binding class name: Extracted\_Features

Dictionary key name: extracted\_features

#### **hashes**

Type: *cybox.common.hashes.HashList*

XML Binding class name: Hashes

Dictionary key name: hashes

#### **is\_injected**

XML Binding class name: is\_injected

Dictionary key name: is\_injected

#### **is\_mapped**

XML Binding class name: is\_mapped

Dictionary key name: is\_mapped



**is\_protected**

XML Binding class name: `is_protected`

Dictionary key name: `is_protected`

**is\_volatile**

XML Binding class name: `is_volatile`

Dictionary key name: `is_volatile`

**memory\_source**

Type: `cybox.common.properties.String`

XML Binding class name: `Memory_Source`

Dictionary key name: `memory_source`

**name**

Type: `cybox.common.properties.String`

XML Binding class name: `Name`

Dictionary key name: `name`

**protect**

Type: `cybox.common.properties.String`

XML Binding class name: `Protect`

Dictionary key name: `protect`

**region\_end\_address**

Type: `cybox.common.properties.HexBinary`

XML Binding class name: `Region_End_Address`

Dictionary key name: `region_end_address`

**region\_size**

Type: `cybox.common.properties.UnsignedLong`

XML Binding class name: `Region_Size`

Dictionary key name: `region_size`

**region\_start\_address**

Type: `cybox.common.properties.HexBinary`

XML Binding class name: `Region_Start_Address`

Dictionary key name: `region_start_address`

**state**

Type: `cybox.common.properties.String`

XML Binding class name: `State`

Dictionary key name: `state`

### **type\_**

Type: *cybox.common.properties.String*

XML Binding class name: Type

Dictionary key name: type

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### **cybox.objects.win\_mutex\_object module**

**class** `cybox.objects.win_mutex_object.WinMutex`

Bases: *cybox.objects.mutex\_object.Mutex*

XML binding class: `cybox.bindings.win_mutex_object.WindowsMutexObjectType`

### **handle**

Type: *cybox.objects.win\_handle\_object.WinHandle*

XML Binding class name: Handle

Dictionary key name: handle

### **security\_attributes**

Type: *cybox.common.properties.String*

XML Binding class name: Security\_Attributes

Dictionary key name: security\_attributes

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### **cybox.objects.win\_network\_route\_entry\_object module**

**class** `cybox.objects.win_network_route_entry_object.WinNetworkRouteEntry`

Bases: *cybox.objects.network\_route\_entry\_object.NetworkRouteEntry*

XML binding class:

`cybox.bindings.win_network_route_entry_object.WindowsNetworkRouteEntryObjectType`

### **nl\_route\_origin**

Type: *cybox.common.properties.String*

XML Binding class name: NL\_ROUTE\_ORIGIN

Dictionary key name: nl\_route\_origin

### **nl\_route\_protocol**

Type: *cybox.common.properties.String*

XML Binding class name: NL\_ROUTE\_PROTOCOL

Dictionary key name: nl\_route\_protocol

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**cybox.objects.win\_network\_share\_object** module**class** `cybox.objects.win_network_share_object.WinNetworkShare`Bases: `cybox.common.object_properties.ObjectProperties`

XML binding class:

`cybox.bindings.win_network_share_object.WindowsNetworkShareObjectType`**access\_all**

XML Binding class name: ACCESS\_ALL

Dictionary key name: access\_all

**access\_atrib**

XML Binding class name: ACCESS\_ATRIB

Dictionary key name: access\_atrib

**access\_create**

XML Binding class name: ACCESS\_CREATE

Dictionary key name: access\_create

**access\_delete**

XML Binding class name: ACCESS\_DELETE

Dictionary key name: access\_delete

**access\_exec**

XML Binding class name: ACCESS\_EXEC

Dictionary key name: access\_exec

**access\_perm**

XML Binding class name: ACCESS\_PERM

Dictionary key name: access\_perm

**access\_read**

XML Binding class name: ACCESS\_READ

Dictionary key name: access\_read

**access\_write**

XML Binding class name: ACCESS\_WRITE

Dictionary key name: access\_write

**current\_uses**Type: `cybox.common.properties.NonNegativeInteger`

XML Binding class name: Current\_Uses

Dictionary key name: current\_uses

#### **local\_path**

Type: *cybox.common.properties.String*

XML Binding class name: Local\_Path

Dictionary key name: local\_path

#### **max\_uses**

Type: *cybox.common.properties.NonNegativeInteger*

XML Binding class name: Max\_Uses

Dictionary key name: max\_uses

#### **netname**

Type: *cybox.common.properties.String*

XML Binding class name: Netname

Dictionary key name: netname

#### **type\_**

Type: *cybox.common.properties.String*

XML Binding class name: Type

Dictionary key name: type

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### **cybox.objects.win\_pipe\_object module**

**class** `cybox.objects.win_pipe_object.WinPipe`

Bases: *cybox.objects.pipe\_object.Pipe*

XML binding class: `cybox.bindings.win_pipe_object.WindowsPipeObjectType`

#### **default\_time\_out**

Type: *cybox.common.properties.NonNegativeInteger*

XML Binding class name: Default\_Time\_Out

Dictionary key name: default\_time\_out

#### **handle**

Type: *cybox.objects.win\_handle\_object.WinHandle*

XML Binding class name: Handle

Dictionary key name: handle

#### **in\_buffer\_size**

Type: *cybox.common.properties.NonNegativeInteger*

XML Binding class name: In\_Buffer\_Size

Dictionary key name: in\_buffer\_size

#### **max\_instances**

Type: *cybox.common.properties.NonNegativeInteger*

XML Binding class name: Max\_Instances

Dictionary key name: max\_instances

#### **open\_mode**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Open\_Mode

Dictionary key name: open\_mode

#### **out\_buffer\_size**

Type: *cybox.common.properties.NonNegativeInteger*

XML Binding class name: Out\_Buffer\_Size

Dictionary key name: out\_buffer\_size

#### **pipe\_mode**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Pipe\_Mode

Dictionary key name: pipe\_mode

#### **security\_attributes**

Type: *cybox.common.properties.String*

XML Binding class name: Security\_Attributes

Dictionary key name: security\_attributes

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### **cybox.objects.win\_prefetch\_object module**

**class** `cybox.objects.win_prefetch_object.AccessedDirectoryList` (\*args)

Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.win_prefetch_object.AccessedDirectoryListType`

#### **accessed\_directory**

(List of values permitted)

Type: *cybox.common.properties.String*

XML Binding class name: Accessed\_Directory

Dictionary key name: accessed\_directory

**class** `cybox.objects.win_prefetch_object.AccessedFileList` (\*args)

Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.win_prefetch_object.AccessedFileListType`

#### **accessed\_file**

(List of values permitted)

Type: `cybox.common.properties.String`

XML Binding class name: `Accessed_File`

Dictionary key name: `accessed_file`

**class** `cybox.objects.win_prefetch_object.Volume`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.win_prefetch_object.VolumeType`

#### **deviceitem**

(List of values permitted)

Type: `cybox.objects.device_object.Device`

XML Binding class name: `DeviceItem`

Dictionary key name: `deviceitem`

#### **volumeitem**

(List of values permitted)

Type: `cybox.objects.win_volume_object.WinVolume`

XML Binding class name: `VolumeItem`

Dictionary key name: `volumeitem`

**class** `cybox.objects.win_prefetch_object.WinPrefetch`

Bases: `cybox.common.object_properties.ObjectProperties`

XML binding class: `cybox.bindings.win_prefetch_object.WindowsPrefetchObjectType`

#### **accessed\_directory\_list**

Type: `cybox.objects.win_prefetch_object.AccessedDirectoryList`

XML Binding class name: `Accessed_Directory_List`

Dictionary key name: `accessed_directory_list`

#### **accessed\_file\_list**

Type: `cybox.objects.win_prefetch_object.AccessedFileList`

XML Binding class name: `Accessed_File_List`

Dictionary key name: `accessed_file_list`

#### **application\_file\_name**

Type: *cybox.common.properties.String*  
XML Binding class name: Application\_File\_Name  
Dictionary key name: application\_file\_name

**first\_run**

Type: *cybox.common.properties.DateTime*  
XML Binding class name: First\_Run  
Dictionary key name: first\_run

**last\_run**

Type: *cybox.common.properties.DateTime*  
XML Binding class name: Last\_Run  
Dictionary key name: last\_run

**prefetch\_hash**

Type: *cybox.common.properties.String*  
XML Binding class name: Prefetch\_Hash  
Dictionary key name: prefetch\_hash

**times\_executed**

Type: *cybox.common.properties.Long*  
XML Binding class name: Times\_Executed  
Dictionary key name: times\_executed

**volume**

Type: *cybox.objects.win\_volume\_object.WinVolume*  
XML Binding class name: Volume  
Dictionary key name: volume

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**cybox.objects.win\_process\_object module**

**class** `cybox.objects.win_process_object.MemorySectionList` (\*args)

Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.win_process_object.MemorySectionListType`

**memory\_section**

(List of values permitted)

Type: *cybox.objects.memory\_object.Memory*  
XML Binding class name: Memory\_Section  
Dictionary key name: memory\_section

**class** `cybox.objects.win_process_object.StartupInfo`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.win_process_object.StartupInfoType`

#### **dwfillattribute**

Type: `cybox.common.properties.Integer`  
XML Binding class name: `dwFillAttribute`  
Dictionary key name: `dwfillattribute`

#### **dwflags**

Type: `cybox.common.properties.Integer`  
XML Binding class name: `dwFlags`  
Dictionary key name: `dwflags`

#### **dwx**

Type: `cybox.common.properties.Integer`  
XML Binding class name: `dwX`  
Dictionary key name: `dwx`

#### **dwxcntchars**

Type: `cybox.common.properties.PositiveInteger`  
XML Binding class name: `dwXCountChars`  
Dictionary key name: `dwxcntchars`

#### **dwxsize**

Type: `cybox.common.properties.PositiveInteger`  
XML Binding class name: `dwXSize`  
Dictionary key name: `dwxsize`

#### **dwy**

Type: `cybox.common.properties.Integer`  
XML Binding class name: `dwY`  
Dictionary key name: `dwy`

#### **dwycntchars**

Type: `cybox.common.properties.PositiveInteger`  
XML Binding class name: `dwYCountChars`  
Dictionary key name: `dwycntchars`

#### **dwysize**



Type: *cybox.common.properties.PositiveInteger*  
 XML Binding class name: dwYSize  
 Dictionary key name: dwysize

**hstderror**

Type: *cybox.objects.win\_handle\_object.WinHandle*  
 XML Binding class name: hStdError  
 Dictionary key name: hstderror

**hstdinput**

Type: *cybox.objects.win\_handle\_object.WinHandle*  
 XML Binding class name: hStdInput  
 Dictionary key name: hstdinput

**hstdoutput**

Type: *cybox.objects.win\_handle\_object.WinHandle*  
 XML Binding class name: hStdOutput  
 Dictionary key name: hstdoutput

**lpdesktop**

Type: *cybox.common.properties.String*  
 XML Binding class name: lpDesktop  
 Dictionary key name: lpdesktop

**lptitle**

Type: *cybox.common.properties.String*  
 XML Binding class name: lpTitle  
 Dictionary key name: lptitle

**wshowwindow**

Type: *cybox.common.properties.Integer*  
 XML Binding class name: wShowWindow  
 Dictionary key name: wshowwindow

**class** *cybox.objects.win\_process\_object.WinProcess*

Bases: *cybox.objects.process\_object.Process*

XML binding class: *cybox.bindings.win\_process\_object.WindowsProcessObjectType*

**aslr\_enabled**

XML Binding class name: aslr\_enabled  
 Dictionary key name: aslr\_enabled

#### **dep\_enabled**

XML Binding class name: `dep_enabled`

Dictionary key name: `dep_enabled`

#### **handle\_list**

Type: `cybox.objects.win_handle_object.WinHandleList`

XML Binding class name: `Handle_List`

Dictionary key name: `handle_list`

#### **priority**

Type: `cybox.common.properties.String`

XML Binding class name: `Priority`

Dictionary key name: `priority`

#### **section\_list**

Type: `cybox.objects.win_process_object.MemorySectionList`

XML Binding class name: `Section_List`

Dictionary key name: `section_list`

#### **security\_id**

Type: `cybox.common.properties.String`

XML Binding class name: `Security_ID`

Dictionary key name: `security_id`

#### **security\_type**

Type: `cybox.common.properties.String`

XML Binding class name: `Security_Type`

Dictionary key name: `security_type`

#### **startup\_info**

Type: `cybox.objects.win_process_object.StartupInfo`

XML Binding class name: `Startup_Info`

Dictionary key name: `startup_info`

#### **thread**

(List of values permitted)

Type: `cybox.objects.win_thread_object.WinThread`

XML Binding class name: `Thread`

Dictionary key name: `thread`

#### **window\_title**

Type: `cybox.common.properties.String`

XML Binding class name: Window\_Title

Dictionary key name: window\_title

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### **cybox.objects.win\_registry\_key\_object module**

**class** cybox.objects.win\_registry\_key\_object.**RegistrySubkeys** (\*args)

Bases: mixbox.entities.EntityList

XML binding class: cybox.bindings.win\_registry\_key\_object.RegistrySubkeysType

#### **subkey**

(List of values permitted)

Type: *cybox.objects.win\_registry\_key\_object.WinRegistryKey*

XML Binding class name: Subkey

Dictionary key name: subkey

**class** cybox.objects.win\_registry\_key\_object.**RegistryValue**

Bases: mixbox.entities.Entity

XML binding class: cybox.bindings.win\_registry\_key\_object.RegistryValueType

#### **byte\_runs**

Type: *cybox.common.byterun.ByteRuns*

XML Binding class name: Byte\_Runs

Dictionary key name: byte\_runs

#### **data**

Type: *cybox.common.properties.String*

XML Binding class name: Data

Dictionary key name: data

#### **datatype**

Type: *cybox.common.properties.String*

XML Binding class name: Datatype

Dictionary key name: datatype

#### **name**

Type: *cybox.common.properties.String*

XML Binding class name: Name

Dictionary key name: name

**class** `cybox.objects.win_registry_key_object.RegistryValues` (\*args)  
Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.win_registry_key_object.RegistryValueType`

#### **value**

(List of values permitted)

Type: `cybox.objects.win_registry_key_object.RegistryValue`

XML Binding class name: Value

Dictionary key name: value

**class** `cybox.objects.win_registry_key_object.WinRegistryKey`  
Bases: `cybox.common.object_properties.ObjectProperties`

XML binding class:

`cybox.bindings.win_registry_key_object.WindowsRegistryKeyObjectType`

#### **byte\_runs**

Type: `cybox.common.byterun.ByteRuns`

XML Binding class name: Byte\_Runs

Dictionary key name: byte\_runs

#### **creator\_username**

Type: `cybox.common.properties.String`

XML Binding class name: Creator\_Username

Dictionary key name: creator\_username

#### **handle\_list**

Type: `cybox.objects.win_handle_object.WinHandleList`

XML Binding class name: Handle\_List

Dictionary key name: handle\_list

#### **hive**

Type: `cybox.common.properties.String`

XML Binding class name: Hive

Dictionary key name: hive

#### **key**

Type: `cybox.common.properties.String`

XML Binding class name: Key

Dictionary key name: key

**modified\_time**

Type: *cybox.common.properties.DateTime*

XML Binding class name: Modified\_Time

Dictionary key name: modified\_time

**number\_subkeys**

Type: *cybox.common.properties.UnsignedInteger*

XML Binding class name: Number\_Subkeys

Dictionary key name: number\_subkeys

**number\_values**

Type: *cybox.common.properties.UnsignedInteger*

XML Binding class name: Number\_Values

Dictionary key name: number\_values

**subkeys**

Type: *cybox.objects.win\_registry\_key\_object.RegistrySubkeys*

XML Binding class name: Subkeys

Dictionary key name: subkeys

**values**

Type: *cybox.objects.win\_registry\_key\_object.RegistryValues*

XML Binding class name: Values

Dictionary key name: values

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**cybox.objects.win\_service\_object module**

**class** `cybox.objects.win_service_object.ServiceDescriptionList` (\*args)

Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.win_service_object.ServiceDescriptionListType`

**description**

(List of values permitted)

Type: *cybox.common.properties.String*

XML Binding class name: Description

Dictionary key name: description

**class** `cybox.objects.win_service_object.WinService`

Bases: *cybox.objects.win\_process\_object.WinProcess*

XML binding class: `cybox.bindings.win_service_object.WindowsServiceObjectType`

**description\_list**

Type: *cybox.objects.win\_service\_object.ServiceDescriptionList*

XML Binding class name: Description\_List

Dictionary key name: description\_list

**display\_name**

Type: *cybox.common.properties.String*

XML Binding class name: Display\_Name

Dictionary key name: display\_name

**group\_name**

Type: *cybox.common.properties.String*

XML Binding class name: Group\_Name

Dictionary key name: group\_name

**service\_dll**

Type: *cybox.common.properties.String*

XML Binding class name: Service\_DLL

Dictionary key name: service\_dll

**service\_dll\_certificate\_issuer**

Type: *cybox.common.properties.String*

XML Binding class name: Service\_DLL\_Certificate\_Issuer

Dictionary key name: service\_dll\_certificate\_issuer

**service\_dll\_certificate\_subject**

Type: *cybox.common.properties.String*

XML Binding class name: Service\_DLL\_Certificate\_Subject

Dictionary key name: service\_dll\_certificate\_subject

**service\_dll\_hashes**

Type: *cybox.common.hashes.HashList*

XML Binding class name: Service\_DLL\_Hashes

Dictionary key name: service\_dll\_hashes

**service\_dll\_signature\_description**

Type: *cybox.common.properties.String*

XML Binding class name: Service\_DLL\_Signature\_Description

Dictionary key name: service\_dll\_signature\_description

**service\_dll\_signature\_exists**

XML Binding class name: service\_dll\_signature\_exists

Dictionary key name: `service_dll_signature_exists`

#### **service\_dll\_signature\_verified**

XML Binding class name: `service_dll_signature_verified`

Dictionary key name: `service_dll_signature_verified`

#### **service\_name**

Type: `cybox.common.properties.String`

XML Binding class name: `Service_Name`

Dictionary key name: `service_name`

#### **service\_status**

Type: `cybox.common.properties.String`

XML Binding class name: `Service_Status`

Dictionary key name: `service_status`

#### **service\_type**

Type: `cybox.common.properties.String`

XML Binding class name: `Service_Type`

Dictionary key name: `service_type`

#### **started\_as**

Type: `cybox.common.properties.String`

XML Binding class name: `Started_As`

Dictionary key name: `started_as`

#### **startup\_command\_line**

Type: `cybox.common.properties.String`

XML Binding class name: `Startup_Command_Line`

Dictionary key name: `startup_command_line`

#### **startup\_type**

Type: `cybox.common.properties.String`

XML Binding class name: `Startup_Type`

Dictionary key name: `startup_type`

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#### **cybox.objects.win\_semaphore\_object module**

**class** `cybox.objects.win_semaphore_object.WinSemaphore`

Bases: `cybox.objects.semaphore_object.Semaphore`

XML binding class:

`cybox.bindings.win_semaphore_object.WindowsSemaphoreObjectType`

### **handle**

Type: *cybox.objects.win\_handle\_object.WinHandle*

XML Binding class name: Handle

Dictionary key name: handle

### **security\_attributes**

Type: *cybox.common.properties.String*

XML Binding class name: Security\_Attributes

Dictionary key name: security\_attributes

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### **cybox.objects.win\_system\_object module**

**class** `cybox.objects.win_system_object.GlobalFlag`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.win_system_object.GlobalFlagType`

### **abbreviation**

Type: *cybox.common.properties.String*

XML Binding class name: Abbreviation

Dictionary key name: abbreviation

### **destination**

Type: *cybox.common.properties.String*

XML Binding class name: Destination

Dictionary key name: destination

### **hexadecimal\_value**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Hexadecimal\_Value

Dictionary key name: hexadecimal\_value

### **symbolic\_name**

Type: *cybox.common.properties.String*

XML Binding class name: Symbolic\_Name

Dictionary key name: symbolic\_name

**class** `cybox.objects.win_system_object.GlobalFlagList (*args)`

Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.win_system_object.GlobalFlagListType`



**global\_flag**

(List of values permitted)

Type: *cybox.objects.win\_system\_object.GlobalFlag*

XML Binding class name: Global\_Flag

Dictionary key name: global\_flag

**class** *cybox.objects.win\_system\_object.WinSystem*

Bases: *cybox.objects.system\_object.System*

XML binding class: *cybox.bindings.win\_system\_object.WindowsSystemObjectType*

**domain**

(List of values permitted)

Type: *cybox.common.properties.String*

XML Binding class name: Domain

Dictionary key name: domain

**global\_flag\_list**

Type: *cybox.objects.win\_system\_object.GlobalFlagList*

XML Binding class name: Global\_Flag\_List

Dictionary key name: global\_flag\_list

**netbios\_name**

Type: *cybox.common.properties.String*

XML Binding class name: NetBIOS\_Name

Dictionary key name: netbios\_name

**open\_handle\_list**

Type: *cybox.objects.win\_handle\_object.WinHandleList*

XML Binding class name: Open\_Handle\_List

Dictionary key name: open\_handle\_list

**product\_id**

Type: *cybox.common.properties.String*

XML Binding class name: Product\_ID

Dictionary key name: product\_id

**product\_name**

Type: *cybox.common.properties.String*

XML Binding class name: Product\_Name

Dictionary key name: product\_name

**registered\_organization**

Type: *cybox.common.properties.String*  
XML Binding class name: Registered\_Organization  
Dictionary key name: registered\_organization

**registered\_owner**

Type: *cybox.common.properties.String*  
XML Binding class name: Registered\_Owner  
Dictionary key name: registered\_owner

**windows\_directory**

Type: *cybox.common.properties.String*  
XML Binding class name: Windows\_Directory  
Dictionary key name: windows\_directory

**windows\_system\_directory**

Type: *cybox.common.properties.String*  
XML Binding class name: Windows\_System\_Directory  
Dictionary key name: windows\_system\_directory

**windows\_temp\_directory**

Type: *cybox.common.properties.String*  
XML Binding class name: Windows\_Temp\_Directory  
Dictionary key name: windows\_temp\_directory

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**cybox.objects.win\_system\_restore\_object module**

**class** `cybox.objects.win_system_restore_object.HiveList` (\*args)  
Bases: `mixbox.entities.EntityList`

XML binding class: `cybox.bindings.win_system_restore_object.HiveListType`

**hive**

(List of values permitted)  
Type: *cybox.common.properties.String*  
XML Binding class name: Hive  
Dictionary key name: hive

**class** `cybox.objects.win_system_restore_object.WinSystemRestore`  
Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class:

`cybox.bindings.win_system_restore_object.WindowsSystemRestoreObjectType`

#### **acl\_change\_sid**

Type: `cybox.common.properties.String`

XML Binding class name: `ACL_Change_SID`

Dictionary key name: `acl_change_sid`

#### **acl\_change\_username**

Type: `cybox.common.properties.String`

XML Binding class name: `ACL_Change_Username`

Dictionary key name: `acl_change_username`

#### **backup\_file\_name**

Type: `cybox.common.properties.String`

XML Binding class name: `Backup_File_Name`

Dictionary key name: `backup_file_name`

#### **change\_event**

Type: `cybox.common.properties.String`

XML Binding class name: `Change_Event`

Dictionary key name: `change_event`

#### **changelog\_entry\_flags**

Type: `cybox.common.properties.String`

XML Binding class name: `ChangeLog_Entry_Flags`

Dictionary key name: `changelog_entry_flags`

#### **changelog\_entry\_sequence\_number**

Type: `cybox.common.properties.Long`

XML Binding class name: `ChangeLog_Entry_Sequence_Number`

Dictionary key name: `changelog_entry_sequence_number`

#### **changelog\_entry\_type**

Type: `cybox.common.properties.String`

XML Binding class name: `ChangeLog_Entry_Type`

Dictionary key name: `changelog_entry_type`

#### **created**

Type: `cybox.common.properties.DateTime`

XML Binding class name: `Created`

Dictionary key name: `created`

**file\_attributes**

Type: *cybox.common.properties.String*

XML Binding class name: File\_Attributes

Dictionary key name: file\_attributes

**new\_file\_name**

Type: *cybox.common.properties.String*

XML Binding class name: New\_File\_Name

Dictionary key name: new\_file\_name

**original\_file\_name**

Type: *cybox.common.properties.String*

XML Binding class name: Original\_File\_Name

Dictionary key name: original\_file\_name

**original\_short\_file\_name**

Type: *cybox.common.properties.String*

XML Binding class name: Original\_Short\_File\_Name

Dictionary key name: original\_short\_file\_name

**process\_name**

Type: *cybox.common.properties.String*

XML Binding class name: Process\_Name

Dictionary key name: process\_name

**registry\_hive\_list**

Type: *cybox.objects.win\_system\_restore\_object.HiveList*

XML Binding class name: Registry\_Hive\_List

Dictionary key name: registry\_hive\_list

**restore\_point\_description**

Type: *cybox.common.properties.String*

XML Binding class name: Restore\_Point\_Description

Dictionary key name: restore\_point\_description

**restore\_point\_full\_path**

Type: *cybox.common.properties.String*

XML Binding class name: Restore\_Point\_Full\_Path

Dictionary key name: restore\_point\_full\_path

**restore\_point\_name**

Type: *cybox.common.properties.String*

XML Binding class name: Restore\_Point\_Name

Dictionary key name: restore\_point\_name

#### **restore\_point\_type**

Type: *cybox.common.properties.String*

XML Binding class name: Restore\_Point\_Type

Dictionary key name: restore\_point\_type

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### **cybox.objects.win\_task\_object module**

**class** cybox.objects.win\_task\_object.**IComHandlerAction**

Bases: mixbox.entities.Entity

XML binding class: cybox.bindings.win\_task\_object.IComHandlerActionType

#### **com\_class\_id**

Type: *cybox.common.properties.String*

XML Binding class name: COM\_Class\_ID

Dictionary key name: com\_class\_id

#### **com\_data**

Type: *cybox.common.properties.String*

XML Binding class name: COM\_Data

Dictionary key name: com\_data

**class** cybox.objects.win\_task\_object.**IExecAction**

Bases: mixbox.entities.Entity

XML binding class: cybox.bindings.win\_task\_object.IExecActionType

#### **exec\_arguments**

Type: *cybox.common.properties.String*

XML Binding class name: Exec\_Arguments

Dictionary key name: exec\_arguments

#### **exec\_program\_hashes**

Type: *cybox.common.hashes.HashList*

XML Binding class name: Exec\_Program\_Hashes

Dictionary key name: exec\_program\_hashes

#### **exec\_program\_path**

Type: *cybox.common.properties.String*  
XML Binding class name: Exec\_Program\_Path  
Dictionary key name: exec\_program\_path

**exec\_working\_directory**

Type: *cybox.common.properties.String*  
XML Binding class name: Exec\_Working\_Directory  
Dictionary key name: exec\_working\_directory

**class** `cybox.objects.win_task_object.IShowMessageAction`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.win_task_object.IShowMessageType`

**show\_message\_body**

Type: *cybox.common.properties.String*  
XML Binding class name: Show\_Message\_Body  
Dictionary key name: show\_message\_body

**show\_message\_title**

Type: *cybox.common.properties.String*  
XML Binding class name: Show\_Message\_Title  
Dictionary key name: show\_message\_title

**class** `cybox.objects.win_task_object.TaskAction`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.win_task_object.TaskActionType`

**action\_id**

Type: *cybox.common.properties.String*  
XML Binding class name: Action\_ID  
Dictionary key name: action\_id

**action\_type**

Type: *cybox.common.properties.String*  
XML Binding class name: Action\_Type  
Dictionary key name: action\_type

**icomhandleraction**

Type: *cybox.objects.win\_task\_object.IComHandlerAction*  
XML Binding class name: IComHandlerAction

Dictionary key name: icomhandleraction

#### **iemailaction**

Type: *cybox.objects.email\_message\_object.EmailMessage*

XML Binding class name: IEmailAction

Dictionary key name: iemailaction

#### **iexecaction**

Type: *cybox.objects.win\_task\_object.IExecAction*

XML Binding class name: IExecAction

Dictionary key name: iexecaction

#### **ishowmessageaction**

Type: *cybox.objects.win\_task\_object.IShowMessageAction*

XML Binding class name: IShowMessageAction

Dictionary key name: ishowmessageaction

**class** *cybox.objects.win\_task\_object.TaskActionList* (\*args)

Bases: *mixbox.entities.EntityList*

XML binding class: *cybox.bindings.win\_task\_object.TaskActionListType*

#### **action**

(List of values permitted)

Type: *cybox.objects.win\_task\_object.TaskAction*

XML Binding class name: Action

Dictionary key name: action

**class** *cybox.objects.win\_task\_object.Trigger*

Bases: *mixbox.entities.Entity*

XML binding class: *cybox.bindings.win\_task\_object.TriggerType*

#### **trigger\_begin**

Type: *cybox.common.properties.DateTime*

XML Binding class name: Trigger\_Begin

Dictionary key name: trigger\_begin

#### **trigger\_delay**

Type: *cybox.common.properties.Duration*

XML Binding class name: Trigger\_Delay

Dictionary key name: trigger\_delay

**trigger\_end**

Type: *cybox.common.properties.DateTime*

XML Binding class name: *Trigger\_End*

Dictionary key name: *trigger\_end*

**trigger\_frequency**

Type: *cybox.common.properties.String*

XML Binding class name: *Trigger\_Frequency*

Dictionary key name: *trigger\_frequency*

**trigger\_max\_run\_time**

Type: *cybox.common.properties.Duration*

XML Binding class name: *Trigger\_Max\_Run\_Time*

Dictionary key name: *trigger\_max\_run\_time*

**trigger\_session\_change\_type**

Type: *cybox.common.properties.String*

XML Binding class name: *Trigger\_Session\_Change\_Type*

Dictionary key name: *trigger\_session\_change\_type*

**trigger\_type**

Type: *cybox.common.properties.String*

XML Binding class name: *Trigger\_Type*

Dictionary key name: *trigger\_type*

**class** *cybox.objects.win\_task\_object.TriggerList* (\*args)

Bases: *mixbox.entities.EntityList*

XML binding class: *cybox.bindings.win\_task\_object.TriggerListType*

**trigger**

(List of values permitted)

Type: *cybox.objects.win\_task\_object.Trigger*

XML Binding class name: *Trigger*

Dictionary key name: *trigger*

**class** *cybox.objects.win\_task\_object.WinTask*

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: *cybox.bindings.win\_task\_object.WindowsTaskObjectType*



**account\_logon\_type**

Type: *cybox.common.properties.String*  
XML Binding class name: Account\_Logon\_Type  
Dictionary key name: account\_logon\_type

**account\_name**

Type: *cybox.common.properties.String*  
XML Binding class name: Account\_Name  
Dictionary key name: account\_name

**account\_run\_level**

Type: *cybox.common.properties.String*  
XML Binding class name: Account\_Run\_Level  
Dictionary key name: account\_run\_level

**action\_list**

Type: *cybox.objects.win\_task\_object.TaskActionList*  
XML Binding class name: Action\_List  
Dictionary key name: action\_list

**application\_name**

Type: *cybox.common.properties.String*  
XML Binding class name: Application\_Name  
Dictionary key name: application\_name

**comment**

Type: *cybox.common.properties.String*  
XML Binding class name: Comment  
Dictionary key name: comment

**creation\_date**

Type: *cybox.common.properties.DateTime*  
XML Binding class name: Creation\_Date  
Dictionary key name: creation\_date

**creator**

Type: *cybox.common.properties.String*  
XML Binding class name: Creator  
Dictionary key name: creator

**exit\_code**

Type: *cybox.common.properties.Long*

XML Binding class name: Exit\_Code

Dictionary key name: exit\_code

**flags**

Type: *cybox.common.properties.String*

XML Binding class name: Flags

Dictionary key name: flags

**max\_run\_time**

Type: *cybox.common.properties.UnsignedLong*

XML Binding class name: Max\_Run\_Time

Dictionary key name: max\_run\_time

**most\_recent\_run\_time**

Type: *cybox.common.properties.DateTime*

XML Binding class name: Most\_Recent\_Run\_Time

Dictionary key name: most\_recent\_run\_time

**name**

Type: *cybox.common.properties.String*

XML Binding class name: Name

Dictionary key name: name

**next\_run\_time**

Type: *cybox.common.properties.DateTime*

XML Binding class name: Next\_Run\_Time

Dictionary key name: next\_run\_time

**parameters**

Type: *cybox.common.properties.String*

XML Binding class name: Parameters

Dictionary key name: parameters

**priority**

Type: *cybox.common.properties.String*

XML Binding class name: Priority

Dictionary key name: priority

**status**

Type: *cybox.common.properties.String*

XML Binding class name: Status

Dictionary key name: status

**trigger\_list**

Type: *cybox.objects.win\_task\_object.TriggerList*

XML Binding class name: Trigger\_List

Dictionary key name: trigger\_list

**work\_item\_data**

Type: *cybox.common.properties.Base64Binary*

XML Binding class name: Work\_Item\_Data

Dictionary key name: work\_item\_data

**working\_directory**

Type: *cybox.common.properties.String*

XML Binding class name: Working\_Directory

Dictionary key name: working\_directory

Version: 2.1.0.20

**cybox.objects.win\_thread\_object module**

**class** `cybox.objects.win_thread_object.WinThread`

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class: `cybox.bindings.win_thread_object.WindowsThreadObjectType`

**context**

Type: *cybox.common.properties.String*

XML Binding class name: Context

Dictionary key name: context

**creation\_flags**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Creation\_Flags

Dictionary key name: creation\_flags

**creation\_time**

Type: *cybox.common.properties.DateTime*

XML Binding class name: Creation\_Time

Dictionary key name: creation\_time

**handle**

Type: *cybox.objects.win\_handle\_object.WinHandle*

XML Binding class name: Handle

Dictionary key name: handle

**parameter\_address**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Parameter\_Address

Dictionary key name: parameter\_address

**priority**

Type: *cybox.common.properties.UnsignedInteger*

XML Binding class name: Priority

Dictionary key name: priority

**running\_status**

Type: *cybox.common.properties.String*

XML Binding class name: Running\_Status

Dictionary key name: running\_status

**security\_attributes**

Type: *cybox.common.properties.String*

XML Binding class name: Security\_Attributes

Dictionary key name: security\_attributes

**stack\_size**

Type: *cybox.common.properties.NonNegativeInteger*

XML Binding class name: Stack\_Size

Dictionary key name: stack\_size

**start\_address**

Type: *cybox.common.properties.HexBinary*

XML Binding class name: Start\_Address

Dictionary key name: start\_address

**thread\_id**

Type: *cybox.common.properties.NonNegativeInteger*

XML Binding class name: Thread\_ID

Dictionary key name: thread\_id

Version: 2.1.0.20

**cybox.objects.win\_user\_object module**

**class** `cybox.objects.win_user_object.WinGroup`

Bases: *cybox.objects.user\_account\_object.Group*

XML binding class: `cybox.bindings.win_user_account_object.WindowsGroupType`

**name**

Type: *cybox.common.properties.String*

XML Binding class name: Name

Dictionary key name: name

**class** *cybox.objects.win\_user\_object.WinGroupList* (\*args)  
 Bases: *cybox.objects.user\_account\_object.GroupList*

XML binding class: *cybox.bindings.user\_account\_object.GroupListType*

**group**

(List of values permitted)

Type: *cybox.objects.win\_user\_object.WinGroup*

XML Binding class name: Group

Dictionary key name: group

**class** *cybox.objects.win\_user\_object.WinPrivilege*  
 Bases: *cybox.objects.user\_account\_object.Privilege*

XML binding class: *cybox.bindings.win\_user\_account\_object.WindowsPrivilegeType*

**user\_right**

Type: *cybox.common.properties.String*

XML Binding class name: User\_Right

Dictionary key name: user\_right

**class** *cybox.objects.win\_user\_object.WinPrivilegeList* (\*args)  
 Bases: *cybox.objects.user\_account\_object.PrivilegeList*

XML binding class: *cybox.bindings.user\_account\_object.PrivilegeListType*

**privilege**

(List of values permitted)

Type: *cybox.objects.win\_user\_object.WinPrivilege*

XML Binding class name: Privilege

Dictionary key name: privilege

**class** *cybox.objects.win\_user\_object.WinUser*  
 Bases: *cybox.objects.user\_account\_object.UserAccount*

XML binding class:  
*cybox.bindings.win\_user\_account\_object.WindowsUserAccountObjectType*

#### **group\_list**

Type: *cybox.objects.win\_user\_object.WinGroupList*

XML Binding class name: Group\_List

Dictionary key name: group\_list

#### **privilege\_list**

Type: *cybox.objects.win\_user\_object.WinPrivilegeList*

XML Binding class name: Privilege\_List

Dictionary key name: privilege\_list

#### **security\_id**

Type: *cybox.common.properties.String*

XML Binding class name: Security\_ID

Dictionary key name: security\_id

#### **security\_type**

Type: *cybox.common.properties.String*

XML Binding class name: Security\_Type

Dictionary key name: security\_type

Version: 2.1.0.20

#### **cybox.objects.win\_volume\_object module**

**class** *cybox.objects.win\_volume\_object.WinVolume*

Bases: *cybox.objects.volume\_object.Volume*

XML binding class: *cybox.bindings.win\_volume\_object.WindowsVolumeObjectType*

#### **attributes\_list**

Type: *cybox.objects.win\_volume\_object.WindowsVolumeAttributesList*

XML Binding class name: Attributes\_List

Dictionary key name: attributes\_list

#### **drive\_letter**

Type: *cybox.common.properties.String*

XML Binding class name: Drive\_Letter

Dictionary key name: drive\_letter

#### **drive\_type**

Type: *cybox.common.properties.String*

XML Binding class name: Drive\_Type

Dictionary key name: drive\_type

**class** `cybox.objects.win_volume_object.WindowsVolumeAttributesList` (\*args)  
Bases: `mixbox.entities.EntityList`

XML binding class:

`cybox.bindings.win_volume_object.WindowsVolumeAttributesListType`

#### **attribute**

(List of values permitted)

Type: `cybox.common.properties.String`

XML Binding class name: `Attribute`

Dictionary key name: `attribute`

Version: 2.1.0.20

#### **cybox.objects.win\_waitable\_timer\_object module**

**class** `cybox.objects.win_waitable_timer_object.WinWaitableTimer`  
Bases: `cybox.common.object_properties.ObjectProperties`

XML binding class:

`cybox.bindings.win_waitable_timer_object.WindowsWaitableTimerObjectType`

#### **name**

Type: `cybox.common.properties.String`

XML Binding class name: `Name`

Dictionary key name: `name`

#### **security\_attributes**

Type: `cybox.common.properties.String`

XML Binding class name: `Security_Attributes`

Dictionary key name: `security_attributes`

#### **type\_**

Type: `cybox.common.properties.String`

XML Binding class name: `Type`

Dictionary key name: `type`

Version: 2.1.0.20

#### **cybox.objects.x509\_certificate\_object module**

**class** `cybox.objects.x509_certificate_object.RSAPublicKey`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.x509_certificate_object.RSAPublicKeyType`

#### **exponent**

Type: *cybox.common.properties.Integer*

XML Binding class name: Exponent

Dictionary key name: exponent

#### **modulus**

Type: *cybox.common.properties.String*

XML Binding class name: Modulus

Dictionary key name: modulus

**class** `cybox.objects.x509_certificate_object.SubjectPublicKey`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.x509_certificate_object.SubjectPublicKeyType`

#### **public\_key\_algorithm**

Type: *cybox.common.properties.String*

XML Binding class name: Public\_Key\_Algorithm

Dictionary key name: public\_key\_algorithm

#### **rsa\_public\_key**

Type: *cybox.objects.x509\_certificate\_object.RSAPublicKey*

XML Binding class name: RSA\_Public\_Key

Dictionary key name: rsa\_public\_key

**class** `cybox.objects.x509_certificate_object.Validity`

Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.x509_certificate_object.ValidityType`

#### **not\_after**

Type: *cybox.common.properties.DateTime*

XML Binding class name: Not\_After

Dictionary key name: not\_after

#### **not\_before**

Type: *cybox.common.properties.DateTime*

XML Binding class name: Not\_Before

Dictionary key name: not\_before

**class** `cybox.objects.x509_certificate_object.X509Cert`

Bases: `mixbox.entities.Entity`



XML binding class:

`cybox.bindings.x509_certificate_object.X509CertificateContentsType`

#### **issuer**

Type: `cybox.common.properties.String`

XML Binding class name: Issuer

Dictionary key name: issuer

#### **non\_standard\_extensions**

Type: `cybox.objects.x509_certificate_object.X509NonStandardExtensions`

XML Binding class name: Non\_Standard\_Extensions

Dictionary key name: non\_standard\_extensions

#### **serial\_number**

Type: `cybox.common.properties.String`

XML Binding class name: Serial\_Number

Dictionary key name: serial\_number

#### **signature\_algorithm**

Type: `cybox.common.properties.String`

XML Binding class name: Signature\_Algorithm

Dictionary key name: signature\_algorithm

#### **standard\_extensions**

Type: `cybox.objects.x509_certificate_object.X509V3Extensions`

XML Binding class name: Standard\_Extensions

Dictionary key name: standard\_extensions

#### **subject**

Type: `cybox.common.properties.String`

XML Binding class name: Subject

Dictionary key name: subject

#### **subject\_public\_key**

Type: `cybox.objects.x509_certificate_object.SubjectPublicKey`

XML Binding class name: Subject\_Public\_Key

Dictionary key name: subject\_public\_key

#### **validity**

Type: `cybox.objects.x509_certificate_object.Validity`

XML Binding class name: Validity

Dictionary key name: validity

#### **version**

Type: *cybox.common.properties.Integer*

XML Binding class name: Version

Dictionary key name: version

**class** `cybox.objects.x509_certificate_object.X509Certificate`

Bases: *cybox.common.object\_properties.ObjectProperties*

XML binding class:

`cybox.bindings.x509_certificate_object.X509CertificateObjectType`

#### **certificate**

Type: *cybox.objects.x509\_certificate\_object.X509Cert*

XML Binding class name: Certificate

Dictionary key name: certificate

#### **certificate\_signature**

Type: *cybox.objects.x509\_certificate\_object.X509CertificateSignature*

XML Binding class name: Certificate\_Signature

Dictionary key name: certificate\_signature

#### **raw\_certificate**

Type: *cybox.common.properties.String*

XML Binding class name: Raw\_Certificate

Dictionary key name: raw\_certificate

**class** `cybox.objects.x509_certificate_object.X509CertificateSignature`

Bases: `mixbox.entities.Entity`

XML binding class:

`cybox.bindings.x509_certificate_object.X509CertificateSignatureType`

#### **signature**

Type: *cybox.common.properties.String*

XML Binding class name: Signature

Dictionary key name: signature

#### **signature\_algorithm**

Type: *cybox.common.properties.String*

XML Binding class name: Signature\_Algorithm

Dictionary key name: signature\_algorithm

**class** `cybox.objects.x509_certificate_object.X509NonStandardExtensions`  
Bases: `mixbox.entities.Entity`

XML binding class:

`cybox.bindings.x509_certificate_object.X509NonStandardExtensionsType`

#### **netscape\_certificate\_type**

Type: `cybox.common.properties.String`

XML Binding class name: `Netscape_Certificate_Type`

Dictionary key name: `netscape_certificate_type`

#### **netscape\_comment**

Type: `cybox.common.properties.String`

XML Binding class name: `Netscape_Comment`

Dictionary key name: `netscape_comment`

#### **old\_authority\_key\_identifier**

Type: `cybox.common.properties.String`

XML Binding class name: `Old_Authority_Key_Identifier`

Dictionary key name: `old_authority_key_identifier`

#### **old\_primary\_key\_attributes**

Type: `cybox.common.properties.String`

XML Binding class name: `Old_Primary_Key_Attributes`

Dictionary key name: `old_primary_key_attributes`

**class** `cybox.objects.x509_certificate_object.X509V3Extensions`  
Bases: `mixbox.entities.Entity`

XML binding class: `cybox.bindings.x509_certificate_object.X509V3ExtensionsType`

#### **authority\_key\_identifier**

Type: `cybox.common.properties.String`

XML Binding class name: `Authority_Key_Identifier`

Dictionary key name: `authority_key_identifier`

#### **basic\_constraints**

Type: `cybox.common.properties.String`

XML Binding class name: `Basic_Constraints`

Dictionary key name: `basic_constraints`

#### **certificate\_policies**

Type: *cybox.common.properties.String*  
XML Binding class name: Certificate\_Policies  
Dictionary key name: certificate\_policies

#### **crl\_distribution\_points**

Type: *cybox.common.properties.String*  
XML Binding class name: CRL\_Distribution\_Points  
Dictionary key name: crl\_distribution\_points

#### **extended\_key\_usage**

Type: *cybox.common.properties.String*  
XML Binding class name: Extended\_Key\_Usage  
Dictionary key name: extended\_key\_usage

#### **inhibit\_any\_policy**

Type: *cybox.common.properties.NonNegativeInteger*  
XML Binding class name: Inhibit\_Any\_Policy  
Dictionary key name: inhibit\_any\_policy

#### **issuer\_alternative\_name**

Type: *cybox.common.properties.String*  
XML Binding class name: Issuer\_Alternative\_Name  
Dictionary key name: issuer\_alternative\_name

#### **key\_usage**

Type: *cybox.common.properties.String*  
XML Binding class name: Key\_Usage  
Dictionary key name: key\_usage

#### **name\_constraints**

Type: *cybox.common.properties.String*  
XML Binding class name: Name\_Constraints  
Dictionary key name: name\_constraints

#### **policy\_constraints**

Type: *cybox.common.properties.String*  
XML Binding class name: Policy\_Constraints  
Dictionary key name: policy\_constraints

#### **policy\_mappings**

Type: *cybox.common.properties.String*

XML Binding class name: Policy\_Mappings

Dictionary key name: policy\_mappings

#### **private\_key\_usage\_period**

Type: *cybox.objects.x509\_certificate\_object.Validity*

XML Binding class name: Private\_Key\_Usage\_Period

Dictionary key name: private\_key\_usage\_period

#### **subject\_alternative\_name**

Type: *cybox.common.properties.String*

XML Binding class name: Subject\_Alternative\_Name

Dictionary key name: subject\_alternative\_name

#### **subject\_directory\_attributes**

Type: *cybox.common.properties.String*

XML Binding class name: Subject\_Directory\_Attributes

Dictionary key name: subject\_directory\_attributes

#### **subject\_key\_identifier**

Type: *cybox.common.properties.String*

XML Binding class name: Subject\_Key\_Identifier

Dictionary key name: subject\_key\_identifier

### **Module contents**

**exception** `cybox.objects.UnknownObjectType`

Bases: `exceptions.Exception`

`cybox.objects.get_class_for_object_type(object_type)`

## **3.1.4 Utility Classes and Functions**

Version: 2.1.0.20

### **cybox.utils package**

#### **Submodules**

Version: 2.1.0.20

#### **cybox.utils.autoentity module**

`cybox.utils.autoentity.make_class_ref(cls)`

`cybox.utils.autoentity.setup(app)`

Version: 2.1.0.20

### **cybox.utils.caches module**

**exception** `cybox.utils.caches.CacheMiss`

Bases: `exceptions.Exception`

Item was not found in a cache.

`cybox.utils.caches.cache_clear()`

Clear the global cache

`cybox.utils.caches.cache_count()`

Get the number of items in the global cache

`cybox.utils.caches.cache_get(id_)`

Retrieve a value from the global cache

`cybox.utils.caches.cache_put(value, id_=None)`

Save a value in the global cache

**Version:** 2.1.0.20

### **cybox.utils.nsparser module**

#### **Module contents**

Common utility methods

`cybox.utils.denormalize_from_xml(value, delimiter)`

`cybox.utils.normalize_to_xml(value, delimiter)`

`cybox.utils.unwrap_cdata(value)`

Remove CDATA wrapping from *value* if present

`cybox.utils.wrap_cdata(value)`

## **3.1.5 CybOX Helper module**

**Version:** 2.1.0.20

### **cybox.helper module**

CybOX Common Indicator API

An api for creating observables for common indicators: ipv4 addresses, domain names, file hashes, and urls.

`cybox.helper.create_domain_name_observable(domain_name)`

Create a CybOX Observable representing a domain name.

`cybox.helper.create_email_address_observable(email_address)`

Create a CybOX Observable representing an IPv4 address

`cybox.helper.create_file_hash_observable(fn, hash_value)`

Create a CybOX Observable representing a file hash.

`cybox.helper.create_ipv4_list_observables(list_ipv4_addresses)`

Create a list of CybOX Observables, each representing an IPv4 address

`cybox.helper.create_ipv4_observable(ipv4_address)`

Create a CybOX Observable representing an IPv4 address

`cybox.helper.create_url_observable(url)`

Version: 2.1.0.20

## 3.2 API Coverage

The *python-cybox* APIs currently provide partial coverage of all CybOX-defined constructs. Development is ongoing toward the goal of providing full CybOX language support in the APIs. Until such time that full coverage is provided, an overview of which constructs are available in these APIs will be maintained below.

### 3.2.1 CybOX Features

CybOX Construct	API Coverage	Documentation
Composite Observable	Full	<code>cybox.core.observable.ObservableComposition</code>
Event	Partial	<code>cybox.core.event.Event</code>
Object	Partial	<code>cybox.core.object.Object</code>
Observables	Partial	<code>cybox.core.observable.Observables</code>
Observable	Partial	<code>cybox.core.observable.Observable</code>
Relationships	Partial	

### 3.2.2 CybOX Objects

CybOX Construct	API Coverage	Documentation
Account Object	Full	<code>cybox.objects.account_object.Account</code>
Address Object	Full	<code>cybox.objects.address_object.Address</code>
API Object	Full	<code>cybox.objects.api_object.API</code>
Archive File Object	Full	<code>cybox.objects.archive_file_object.ArchiveFile</code>
ARP Cache Object	Full	<code>cybox.objects.arp_cache_object.ARPCache</code>
Artifact Object	Full	<code>cybox.objects.artifact_object.Artifact</code>
AS Object	Full	<code>cybox.objects.as_object.AutonomousSystem</code>
Code Object	Full	<code>cybox.objects.code_object.Code</code>
Custom Object	× None	
Device Object	Full	<code>cybox.objects.device_object.Device</code>
Disk Object	Full	<code>cybox.objects.disk_object.Disk</code>
Disk Partition Object	Full	<code>cybox.objects.disk_partition_object.DiskPartition</code>
DNS Cache Object	Full	<code>cybox.objects.dns_cache_object.DNSCache</code>
DNS Query Object	Full	<code>cybox.objects.dns_query_object.DNSQuery</code>
DNS Record Object	Full	<code>cybox.objects.dns_record_object.DNSRecord</code>
Domain Name Object	Full	<code>cybox.objects.domain_name_object.DomainName</code>
Email Message Object	Full	<code>cybox.objects.email_message_object.EmailMessage</code>
File Object	Full	<code>cybox.objects.file_object.File</code>
GUI Dialogbox Object	Full	<code>cybox.objects.gui_dialogbox_object.GUIDialogbox</code>
GUI Object	Full	<code>cybox.objects.gui_object.GUI</code>
GUI Window Object	Full	<code>cybox.objects.gui_window_object.GUIWindow</code>
HTTP Session Object	Full	<code>cybox.objects.http_session_object.HTTPSession</code>
Hostname Object	Full	<code>cybox.objects.hostname_object.Hostname</code>
Image File Object	Full	<code>cybox.objects.image_file_object.ImageFile</code>
Library Object	Full	<code>cybox.objects.library_object.Library</code>

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Table 3.1 – continued from previous page

CybOX Construct	API Coverage	Documentation
Link Object	Full	<code>cybox.objects.link_object.Link</code>
Linux Package Object	Full	<code>cybox.objects.linux_package_object.LinuxPackage</code>
Memory Object	Full	<code>cybox.objects.memory_object.Memory</code>
Mutex Object	Full	<code>cybox.objects.mutex_object.Mutex</code>
Network Connection Object	Full	<code>cybox.objects.network_connection_object.NetworkConnec</code>
Network Flow Object	× None	
Network Packet Object	Full	<code>cybox.objects.network_packet_object.NetworkPacket</code>
Network Route Entry Object	Full	<code>cybox.objects.network_route_entry_object.NetworkRoute</code>
Network Route Object	Full	<code>cybox.objects.network_route_object.NetRoute</code>
Network Socket Object	Full	<code>cybox.objects.network_socket_object.NetworkSocket</code>
Network Subnet Object	Full	<code>cybox.objects.network_subnet_object.NetworkSubnet</code>
PDF File Object	Full	<code>cybox.objects.pdf_file_object.PDFFile</code>
Pipe Object	Full	<code>cybox.objects.pipe_object.Pipe</code>
Port Object	Full	<code>cybox.objects.port_object.Port</code>
Process Object	Full	<code>cybox.objects.process_object.Process</code>
Product Object	Full	<code>cybox.objects.product_object.Product</code>
Semaphore Object	Full	<code>cybox.objects.semaphore_object.Semaphore</code>
SMS Message Object	Full	<code>cybox.objects.sms_message_object.SMSMessage</code>
Socket Address Object	Full	<code>cybox.objects.socket_address_object.SocketAddress</code>
System Object	Partial	<code>cybox.objects.system_object.System</code>
URI Object	Full	<code>cybox.objects.uri_object.URI</code>
URL History Object	× None	
Unix File Object	× None	
Unix Network Route Entry Object	× None	
Unix Pipe Object	× None	
Unix Process Object	× None	
Unix User Account Object	× None	
Unix Volume Object	× None	
User Account Object	Full	<code>cybox.objects.user_account_object.UserAccount</code>
User Session Object	× None	
Volume Object	Full	<code>cybox.objects.volume_object.Volume</code>
Whois Object	Full	<code>cybox.objects.whois_object.WhoisEntry</code>
Win Computer Account Object	Full	<code>cybox.objects.win_computer_account_object.WinCompute</code>
Win Critical Section Object	Full	<code>cybox.objects.win_critical_section_object.WinCritica</code>
Win Driver Object	Full	<code>cybox.objects.win_driver_object.WinDriver</code>
Win Event Log Object	Full	<code>cybox.objects.win_event_log_object.WinEventLog</code>
Win Event Object	Full	<code>cybox.objects.win_event_object.WinEvent</code>
Win Executable File Object	Full	<code>cybox.objects.win_executable_file_object.WinExecutab</code>
Win File Object	Full	<code>cybox.objects.win_file_object.WinFile</code>
Win Filemapping Object	Full	<code>cybox.objects.win_filemapping_object.WinFilemapping</code>
Win Handle Object	Full	<code>cybox.objects.win_handle_object.WinHandle</code>
Win Hook Object	Full	<code>cybox.objects.win_hook_object.WinHook</code>
Win Kernel Hook Object	Full	<code>cybox.objects.win_kernel_hook_object.WinKernelHook</code>
Win Kernel Object	Full	<code>cybox.objects.win_kernel_object.WinKernel</code>
Win Mailslot Object	Full	<code>cybox.objects.win_mailslot_object.WinMailslot</code>
Win Memory Page Region Object	Full	<code>cybox.objects.win_memory_page_region_object.WinMemor</code>
Win Mutex Object	Full	<code>cybox.objects.win_mutex_object.WinMutex</code>
Win Network Route Entry Object	Full	<code>cybox.objects.win_network_route_entry_object.WinNetw</code>
Win Network Share Object	Full	<code>cybox.objects.win_network_share_object.WinNetworkSha</code>

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Table 3.1 – continued from previous page

Cybox Construct	API Coverage	Documentation
Win Pipe Object	Full	<code>cybox.objects.win_pipe_object.WinPipe</code>
Win Prefetch Object	Full	<code>cybox.objects.win_prefetch_object.WinPrefetch</code>
Win Process Object	Full	<code>cybox.objects.win_process_object.WinProcess</code>
Win Registry Key Object	Full	<code>cybox.objects.win_registry_key_object.WinRegistryKey</code>
Win Semaphore Object	Full	<code>cybox.objects.win_semaphore_object.WinSemaphore</code>
Win Service Object	Full	<code>cybox.objects.win_service_object.WinService</code>
Win System Object	Full	<code>cybox.objects.win_system_object.WinSystem</code>
Win System Restore Object	Full	<code>cybox.objects.win_system_restore_object.WinSystemRes</code>
Win Task Object	Full	<code>cybox.objects.win_task_object.WinTask</code>
Win Thread Object	Full	<code>cybox.objects.win_thread_object.WinThread</code>
Win User Account Object	Full	<code>cybox.objects.win_user_object.WinUser</code>
Win Volume Object	Full	<code>cybox.objects.win_volume_object.WinVolume</code>
Win Waitable Timer Object	Full	<code>cybox.objects.win_waitable_timer_object.WinWaitable</code>
X509 Certificate Object	Full	<code>cybox.objects.x509_certificate_object.X509Certificat</code>

### 3.2.3 Cybox Vocabularies

Cybox Construct	API Coverage	Documentation
ActionArgumentNameVocab-1.0	Full	<code>cybox.common.vocabs.ActionArgumentName</code>
ActionNameVocab-1.0	× None (replaced by version 1.1)	
ActionNameVocab-1.1	Full	<code>cybox.common.vocabs.ActionName</code>
ActionObjectAssociationTypeVocab-1.0	Full	<code>cybox.common.vocabs.AssociationType</code>
ActionRelationshipTypeVocab-1.0	× None	
ActionTypeVocab-1.0	Full	<code>cybox.common.vocabs.ActionType</code>
CharacterEncodingVocab-1.0	Full	<code>cybox.common.vocabs.CharacterEncoding</code>
EventTypeVocab-1.0	× None (replaced by version 1.0.1)	
EventTypeVocab-1.0.1	Full	<code>cybox.common.vocabs.EventType</code>
HashNameVocab-1.0	Full	<code>cybox.common.vocabs.HashName</code>
InformationSourceTypeVocab-1.0	Full	<code>cybox.common.vocabs.InformationSourceType</code>
ObjectRelationshipVocab-1.0	× None (replaced by version 1.1)	
ObjectRelationshipVocab-1.1	Full	<code>cybox.common.vocabs.ObjectRelationship</code>
ObjectStateVocab-1.0	× None	
ToolTypeVocab-1.0	× None (replaced by version 1.1)	
ToolTypeVocab-1.1	Full	<code>cybox.common.vocabs.ToolType</code>



### FAQ

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- **My RAM consumption rises when processing a large amount of files.** This is a known behavior caused the caching mechanism built into the `cybox.core.object.Object` class. To prevent this issue from happening use the `cybox.utils.caches.cache_clear` method in your code/script to release the cached resources as appropriate. For example, it could be every time you parse or serialize a document.



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## Indices and tables

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