

Exception Handling

```
System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 1)
Unknown directive type "highlight".

.. highlight:: c
```

The functions described in this chapter will let you handle and raise Python exceptions. It is important to understand some of the basics of Python exception handling. It works somewhat like the POSIX `xdata:errno` variable: there is a global indicator (per thread) of the last error that occurred. Most C API functions don't clear this on success, but will set it to indicate the cause of the error on failure. Most C API functions also return an error indicator, usually `NULL` if they are supposed to return a pointer, or `-1` if they return an integer (exception: the `xfunc:PyArg_*` functions return `1` for success and `0` for failure).

```
System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 10); backlink
Unknown interpreted text role "cdata".
```

```
System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 10); backlink
Unknown interpreted text role "cfunc".
```

Concretely, the error indicator consists of three object pointers: the exception's type, the exception's value, and the traceback object. Any of those pointers can be `NULL` if non-set (although some combinations are forbidden, for example you can't have a non-`NULL` traceback if the exception type is `NULL`).

When a function must fail because some function it called failed, it generally doesn't set the error indicator; the function it called already set it. It is responsible for either handling the error and clearing the exception or returning after cleaning up any resources it holds (such as object references or memory allocations); it should *not* continue normally if it is not prepared to handle the error. If returning due to an error, it is important to indicate to the caller that an error has been set. If the error is not handled or carefully propagated, additional calls into the Python/C API may not behave as intended and may fail in mysterious ways.

Note

The error indicator is **not** the result of `func:sys.exc_info()`. The former corresponds to an exception that is not yet caught (and is therefore still propagating), while the latter returns an exception after it is caught (and has therefore stopped propagating).

```
System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 37); backlink
Unknown interpreted text role "func".
```

Printing and clearing

```
System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 47)
Unknown directive type "c:function".
```

```
.. c:function:: void PyErr_Clear()

Clear the error indicator. If the error indicator is not set, there is no effect.
```

```
System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 53)
Unknown directive type "c:function".
```

```
.. c:function:: void PyErr_PrintEx(int set_sys_last_vars)

Print a standard traceback to ``sys.stderr`` and clear the error indicator.
**Unless** the error is a ``SystemExit``, in that case no traceback is
printed and the Python process will exit with the error code specified by
the ``SystemExit`` instance.

Call this function **only** when the error indicator is set. Otherwise it
will cause a fatal error!

If *set_sys_last_vars* is nonzero, the variables :data:'sys.last_type',
:data:'sys.last_value' and :data:'sys.last_traceback' will be set to the
type, value and traceback of the printed exception, respectively.
```

```
System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 68)
Unknown directive type "c:function".
```

```
.. c:function:: void PyErr_Print()

Alias for ``PyErr_PrintEx(1)``.
```

```
System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 73)
Unknown directive type "c:function".
```

```
.. c:function:: void PyErr_WriteUnraisable(PyObject *obj)

Call :func:'sys.unraisablehook' using the current exception and *obj*
argument.

This utility function prints a warning message to ``sys.stderr`` when an
exception has been set but it is impossible for the interpreter to actually
raise the exception. It is used, for example, when an exception occurs in an
:meth:'__del__' method.

The function is called with a single argument *obj* that identifies the context
in which the unraisable exception occurred. If possible,
```

the repr of *obj* will be printed in the warning message.

An exception must be set when calling this function.

Raising exceptions

These functions help you set the current thread's error indicator. For convenience, some of these functions will always return a NULL pointer for use in a return statement.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 98)

Unknown directive type "c:function".

```
.. c:function:: void PyErr_SetString(PyObject *type, const char *message)
```

This is the most common way to set the error indicator. The first argument specifies the exception type; it is normally one of the standard exceptions, e.g. :c:data:`PyExc_RuntimeError`. You need not increment its reference count. The second argument is an error message; it is decoded from ``'utf-8'``.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 106)

Unknown directive type "c:function".

```
.. c:function:: void PyErr_SetObject(PyObject *type, PyObject *value)
```

This function is similar to :c:func:`PyErr_SetString` but lets you specify an arbitrary Python object for the "value" of the exception.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 112)

Unknown directive type "c:function".

```
.. c:function:: PyObject* PyErr_Format(PyObject *exception, const char *format, ...)
```

This function sets the error indicator and returns ``NULL``. *exception* should be a Python exception class. The *format* and subsequent parameters help format the error message; they have the same meaning and values as in :c:func:`PyUnicode_FromFormat`. *format* is an ASCII-encoded string.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 121)

Unknown directive type "c:function".

```
.. c:function:: PyObject* PyErr_FormatV(PyObject *exception, const char *format, va_list vargs)
```

Same as :c:func:`PyErr_Format`, but taking a :c:type:`va_list` argument rather than a variable number of arguments.

```
.. versionadded:: 3.5
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 129)

Unknown directive type "c:function".

```
.. c:function:: void PyErr_SetNone(PyObject *type)
```

This is a shorthand for ``PyErr_SetObject(type, Py_None)``.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 134)

Unknown directive type "c:function".

```
.. c:function:: int PyErr_BadArgument()
```

This is a shorthand for ``PyErr_SetString(PyExc_TypeError, message)`` , where *message* indicates that a built-in operation was invoked with an illegal argument. It is mostly for internal use.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 141)

Unknown directive type "c:function".

```
.. c:function:: PyObject* PyErr_NoMemory()
```

This is a shorthand for ``PyErr_SetNone(PyExc_MemoryError)``; it returns ``NULL`` so an object allocation function can write ``return PyErr_NoMemory();`` when it runs out of memory.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 148)

Unknown directive type "c:function".

```
.. c:function:: PyObject* PyErr_SetFromErrno(PyObject *type)
```

```
.. index:: single: strerror()
```

This is a convenience function to raise an exception when a C library function has returned an error and set the C variable :c:data:`errno`. It constructs a tuple object whose first item is the integer :c:data:`errno` value and whose second item is the corresponding error message (gotten from :c:func:`strerror`), and then calls ``PyErr_SetObject(type, object)``. On Unix, when the :c:data:`errno` value is :const:`EINTR`, indicating an interrupted system call, this calls :c:func:`PyErr_CheckSignals`, and if that set the error indicator, leaves it set to that. The function always returns ``NULL``, so a wrapper function around a system call can write ``return PyErr_SetFromErrno(type);``

when the system call returns an error.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc][c-api]exceptions.rst, line 164)

Unknown directive type "c:function".

```
.. c:function:: PyObject* PyErr_SetFromErrnoWithFilenameObject(PyObject *type, PyObject *filenameObject)
```

Similar to :c:func:`PyErr_SetFromErrno`, with the additional behavior that if *filenameObject* is not ``NULL``, it is passed to the constructor of *type* as a third parameter. In the case of :exc:`OSError` exception, this is used to define the :attr:`filename` attribute of the exception instance.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc][c-api]exceptions.rst, line 173)

Unknown directive type "c:function".

```
.. c:function:: PyObject* PyErr_SetFromErrnoWithFilenameObjects(PyObject *type, PyObject *filenameObject, PyObject *filenameObject)
```

Similar to :c:func:`PyErr_SetFromErrnoWithFilenameObject`, but takes a second filename object, for raising errors when a function that takes two filenames fails.

```
.. versionadded:: 3.4
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc][c-api]exceptions.rst, line 182)

Unknown directive type "c:function".

```
.. c:function:: PyObject* PyErr_SetFromErrnoWithFilename(PyObject *type, const char *filename)
```

Similar to :c:func:`PyErr_SetFromErrnoWithFilenameObject`, but the filename is given as a C string. *filename* is decoded from the :term:`filesystem encoding` and error handler`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc][c-api]exceptions.rst, line 189)

Unknown directive type "c:function".

```
.. c:function:: PyObject* PyErr_SetFromWindowsErr(int ierr)
```

This is a convenience function to raise :exc:`WindowsError`. If called with *ierr* of :c:data:`0`, the error code returned by a call to :c:func:`GetLastError` is used instead. It calls the Win32 function :c:func:`FormatMessage` to retrieve the Windows description of error code given by *ierr* or :c:func:`GetLastError`, then it constructs a tuple object whose first item is the *ierr* value and whose second item is the corresponding error message (gotten from :c:func:`FormatMessage`), and then calls ``PyErr_SetObject(PyExc_WindowsError, object)``. This function always returns ``NULL``.

```
.. availability:: Windows.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc][c-api]exceptions.rst, line 203)

Unknown directive type "c:function".

```
.. c:function:: PyObject* PyErr_SetExcFromWindowsErr(PyObject *type, int ierr)
```

Similar to :c:func:`PyErr_SetFromWindowsErr`, with an additional parameter specifying the exception type to be raised.

```
.. availability:: Windows.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc][c-api]exceptions.rst, line 211)

Unknown directive type "c:function".

```
.. c:function:: PyObject* PyErr_SetFromWindowsErrWithFilename(int ierr, const char *filename)
```

Similar to :c:func:`PyErr_SetFromWindowsErrWithFilenameObject`, but the filename is given as a C string. *filename* is decoded from the filesystem encoding (:c:func:`os.fsdecode`).

```
.. availability:: Windows.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc][c-api]exceptions.rst, line 220)

Unknown directive type "c:function".

```
.. c:function:: PyObject* PyErr_SetExcFromWindowsErrWithFilenameObject(PyObject *type, int ierr, PyObject *filename)
```

Similar to :c:func:`PyErr_SetFromWindowsErrWithFilenameObject`, with an additional parameter specifying the exception type to be raised.

```
.. availability:: Windows.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc][c-api]exceptions.rst, line 228)

Unknown directive type "c:function".

```
.. c:function:: PyObject* PyErr_SetExcFromWindowsErrWithFilenameObjects(PyObject *type, int ierr, PyObject *filename, PyObject *filename)
```

Similar to :c:func:`PyErr_SetExcFromWindowsErrWithFilenameObject`, but accepts a second filename object.

```
.. availability:: Windows.
```

<pre>.. versionadded:: 3.4</pre>
<div><div>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 238)</div><div>Unknown directive type "c:function".</div><div><pre>.. c:function:: PyObject* PyErr_SetExcFromWindowsErrWithFilename(PyObject *type, int ierr, const char *filename) Similar to :c:func:`PyErr_SetFromWindowsErrWithFilename`, with an additional parameter specifying the exception type to be raised. .. availability:: Windows.</pre></div></div>
<div><div>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 246)</div><div>Unknown directive type "c:function".</div><div><pre>.. c:function:: PyObject* PyErr_SetImportError(PyObject *msg, PyObject *name, PyObject *path) This is a convenience function to raise :exc:`ImportError`. *msg* will be set as the exception's message string. *name* and *path*, both of which can be ``NULL``, will be set as the :exc:`ImportError`'s respective ``name`` and ``path`` attributes. .. versionadded:: 3.3</pre></div></div>
<div><div>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 256)</div><div>Unknown directive type "c:function".</div><div><pre>.. c:function:: PyObject* PyErr_SetImportErrorSubclass(PyObject *exception, PyObject *msg, PyObject *name, PyObject *path) Much like :c:func:`PyErr_SetImportError` but this function allows for specifying a subclass of :exc:`ImportError` to raise. .. versionadded:: 3.6</pre></div></div>
<div><div>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 264)</div><div>Unknown directive type "c:function".</div><div><pre>.. c:function:: void PyErr_SyntaxLocationObject(PyObject *filename, int lineno, int col_offset) Set file, line, and offset information for the current exception. If the current exception is not a :exc:`SyntaxError`, then it sets additional attributes, which make the exception printing subsystem think the exception is a :exc:`SyntaxError`. .. versionadded:: 3.4</pre></div></div>
<div><div>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 274)</div><div>Unknown directive type "c:function".</div><div><pre>.. c:function:: void PyErr_SyntaxLocationEx(const char *filename, int lineno, int col_offset) Like :c:func:`PyErr_SyntaxLocationObject`, but *filename* is a byte string decoded from the :term:`filesystem encoding and error handler`. .. versionadded:: 3.2</pre></div></div>
<div><div>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 282)</div><div>Unknown directive type "c:function".</div><div><pre>.. c:function:: void PyErr_SyntaxLocation(const char *filename, int lineno) Like :c:func:`PyErr_SyntaxLocationEx`, but the *col_offset* parameter is omitted.</pre></div></div>
<div><div>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 288)</div><div>Unknown directive type "c:function".</div><div><pre>.. c:function:: void PyErr_BadInternalCall() This is a shorthand for ``PyErr_SetString(PyExc_SystemError, message)``, where *message* indicates that an internal operation (e.g. a Python/C API function) was invoked with an illegal argument. It is mostly for internal use.</pre></div></div>

Issuing warnings

Use these functions to issue warnings from C code. They mirror similar functions exported by the Python `mod:`warnings`` module. They normally print a warning message to `sys.stderr`; however, it is also possible that the user has specified that warnings are to be turned into errors, and in that case they will raise an exception. It is also possible that the functions raise an exception because of a problem with the warning machinery. The return value is 0 if no exception is raised, or -1 if an exception is raised. (It is not possible to determine whether a warning message is actually printed, nor what the reason is for the exception; this is intentional.) If an exception is raised, the caller should do its normal exception handling (for example, `x:func:Py_DECREF` owned references and return an error value).

<div><div>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 299); backlink</div><div>Unknown interpreted text role "mod".</div></div>

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 299); [backlink](#)

Unknown interpreted text role "c:func".

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Unknown directive type "c:function".

```
.. c:function:: int PyErr_WarnEx(PyObject *category, const char *message, Py_ssize_t stack_level)
```

Issue a warning message. The `*category*` argument is a warning category (see below) or ```NULL```; the `*message*` argument is a UTF-8 encoded string. `*stack_level*` is a positive number giving a number of stack frames; the warning will be issued from the currently executing line of code in that stack frame. A `*stack_level*` of 1 is the function calling `:c:func:'PyErr_WarnEx'`, 2 is the function above that, and so forth.

Warning categories must be subclasses of `:c:data:'PyExc_Warning'`; `:c:data:'PyExc_Warning'` is a subclass of `:c:data:'PyExc_Exception'`; the default warning category is `:c:data:'PyExc_RuntimeWarning'`. The standard Python warning categories are available as global variables whose names are enumerated at `:ref:'standardwarningcategories'`.

For information about warning control, see the documentation for the `:mod:'warnings'` module and the `:option:'-W'` option in the command line documentation. There is no C API for warning control.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 332)

Unknown directive type "c:function".

```
.. c:function:: int PyErr_WarnExplicit(PyObject *category, PyObject *message, PyObject *filename, int lineno, PyObject *module)
```

Issue a warning message with explicit control over all warning attributes. This is a straightforward wrapper around the Python function `:func:'warnings.warn_explicit'`; see there for more information. The `*module*` and `*registry*` arguments may be set to ```NULL``` to get the default effect described there.

```
.. versionadded:: 3.4
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 343)

Unknown directive type "c:function".

```
.. c:function:: int PyErr_WarnExplicit(PyObject *category, const char *message, const char *filename, int lineno, const char *module)
```

Similar to `:c:func:'PyErr_WarnExplicitObject'` except that `*message*` and `*module*` are UTF-8 encoded strings, and `*filename*` is decoded from the `:term:'filesystem encoding and error handler'`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 350)

Unknown directive type "c:function".

```
.. c:function:: int PyErr_WarnFormat(PyObject *category, Py_ssize_t stack_level, const char *format, ...)
```

Function similar to `:c:func:'PyErr_WarnEx'`, but use `:c:func:'PyUnicode_FromFormat'` to format the warning message. `*format*` is an ASCII-encoded string.

```
.. versionadded:: 3.2
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 359)

Unknown directive type "c:function".

```
.. c:function:: int PyErr_ResourceWarning(PyObject *source, Py_ssize_t stack_level, const char *format, ...)
```

Function similar to `:c:func:'PyErr_WarnFormat'`, but `*category*` is `:exc:'ResourceWarning'` and it passes `*source*` to `:func:'warnings.WarningMessage'`.

```
.. versionadded:: 3.6
```

Querying the error indicator

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 370)

Unknown directive type "c:function".

```
.. c:function:: PyObject* PyErr_Occurred()
```

Test whether the error indicator is set. If set, return the exception `*type*` (the first argument to the last call to one of the `:c:func:'PyErr_Set'*` functions or to `:c:func:'PyErr_Restore'`). If not set, return ```NULL```. You do not own a reference to the return value, so you do not need to `:c:func:'Py_DECREF'` it.

The caller must hold the GIL.

```
.. note::
```

Do not compare the return value to a specific exception; use `:c:func:'PyErr_ExceptionMatches'` instead, shown below. (The comparison could easily fail since the exception may be an instance instead of a class, in the case of a class exception, or it may be a subclass of the expected exception.)

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Unknown directive type "c:function".

```
.. c:function:: int PyErr_ExceptionMatches(PyObject *exc)
```

Equivalent to ``PyErr_GivenExceptionMatches(PyErr_Occurred(), exc)``. This should only be called when an exception is actually set; a memory access violation will occur if no exception has been raised.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main [Doc] [c-api]exceptions.rst, line 395)

Unknown directive type "c:function".

```
.. c:function:: int PyErr_GivenExceptionMatches(PyObject *given, PyObject *exc)
```

Return true if the *given* exception matches the exception type in *exc*. If *exc* is a class object, this also returns true when *given* is an instance of a subclass. If *exc* is a tuple, all exception types in the tuple (and recursively in sub tuples) are searched for a match.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main [Doc] [c-api]exceptions.rst, line 403)

Unknown directive type "c:function".

```
.. c:function:: void PyErr_Fetch(PyObject **ptype, PyObject **pvalue, PyObject **ptraceback)
```

Retrieve the error indicator into three variables whose addresses are passed. If the error indicator is not set, set all three variables to ``NULL``. If it is set, it will be cleared and you own a reference to each object retrieved. The value and traceback object may be ``NULL`` even when the type object is not.

.. note::

This function is normally only used by code that needs to catch exceptions or by code that needs to save and restore the error indicator temporarily, e.g.::

```
{
    PyObject *type, *value, *traceback;
    PyErr_Fetch(&type, &value, &traceback);

    /* ... code that might produce other errors ... */

    PyErr_Restore(type, value, traceback);
}
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main [Doc] [c-api]exceptions.rst, line 425)

Unknown directive type "c:function".

```
.. c:function:: void PyErr_Restore(PyObject *type, PyObject *value, PyObject *traceback)
```

Set the error indicator from the three objects. If the error indicator is already set, it is cleared first. If the objects are ``NULL``, the error indicator is cleared. Do not pass a ``NULL`` type and non-``NULL`` value or traceback. The exception type should be a class. Do not pass an invalid exception type or value. (Violating these rules will cause subtle problems later.) This call takes away a reference to each object: you must own a reference to each object before the call and after the call you no longer own these references. (If you don't understand this, don't use this function. I warned you.)

.. note::

This function is normally only used by code that needs to save and restore the error indicator temporarily. Use :c:func:`PyErr_Fetch` to save the current error indicator.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main [Doc] [c-api]exceptions.rst, line 444)

Unknown directive type "c:function".

```
.. c:function:: void PyErr_NormalizeException(PyObject **exc, PyObject **val, PyObject **tb)
```

Under certain circumstances, the values returned by :c:func:`PyErr_Fetch` below can be "unnormalized", meaning that ``*exc`` is a class object but ``*val`` is not an instance of the same class. This function can be used to instantiate the class in that case. If the values are already normalized, nothing happens. The delayed normalization is implemented to improve performance.

.. note::

This function *does not* implicitly set the ``_traceback`` attribute on the exception value. If setting the traceback appropriately is desired, the following additional snippet is needed::

```
if (tb != NULL) {
    PyException_SetTraceback(val, tb);
}
```

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Unknown directive type "c:function".

```
.. c:function:: void PyErr_GetExcInfo(PyObject **ptype, PyObject **pvalue, PyObject **ptraceback)
```

Retrieve the exception info, as known from ``sys.exc_info()``. This refers to an exception that was *already caught*, not to an exception that was freshly raised. Returns new references for the three objects, any of which may be ``NULL``. Does not modify the exception info state.

.. note::

This function is not normally used by code that wants to handle exceptions. Rather, it can be used when code needs to save and restore the exception state temporarily. Use :c:func:`PyErr_SetExcInfo` to restore or clear the exception state.

.. versionadded:: 3.3

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main [Doc] [c-api]exceptions.rst, line 480)

Unknown directive type "c:function".

```
.. c:function:: void PyErr_SetExcInfo(PyObject *type, PyObject *value, PyObject *traceback)
```

Set the exception info, as known from ``sys.exc_info()``. This refers to an exception that was *already caught*, not to an exception that was freshly raised. This function steals the references of the arguments. To clear the exception state, pass ``NULL`` for all three arguments.

.. note::

This function is not normally used by code that wants to handle exceptions. Rather, it can be used when code needs to save and restore the exception state temporarily. Use :c:func:`PyErr_GetExcInfo` to read the exception state.

.. versionadded:: 3.3

.. versionchanged:: 3.11

The ``type`` and ``traceback`` arguments are no longer used and can be NULL. The interpreter now derives them from the exception instance (the ``value`` argument). The function still steals references of all three arguments.

Signal Handling

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main [Doc][c-api]exceptions.rst, line 507)

Unknown directive type "c:function".

```
.. c:function:: int PyErr_CheckSignals()
```

.. index::
module: signal
single: SIGINT
single: KeyboardInterrupt (built-in exception)

This function interacts with Python's signal handling.

If the function is called from the main thread and under the main Python interpreter, it checks whether a signal has been sent to the processes and if so, invokes the corresponding signal handler. If the :mod:`signal` module is supported, this can invoke a signal handler written in Python.

The function attempts to handle all pending signals, and then returns ``0``. However, if a Python signal handler raises an exception, the error indicator is set and the function returns ``-1`` immediately (such that other pending signals may not have been handled yet: they will be on the next :c:func:`PyErr_CheckSignals()` invocation).

If the function is called from a non-main thread, or under a non-main Python interpreter, it does nothing and returns ``0``.

This function can be called by long-running C code that wants to be interruptible by user requests (such as by pressing Ctrl-C).

.. note::

The default Python signal handler for :const:`SIGINT` raises the :exc:`KeyboardInterrupt` exception.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main [Doc][c-api]exceptions.rst, line 538)

Unknown directive type "c:function".

```
.. c:function:: void PyErr_SetInterrupt()
```

.. index::
module: signal
single: SIGINT
single: KeyboardInterrupt (built-in exception)

Simulate the effect of a :const:`SIGINT` signal arriving. This is equivalent to ``PyErr_SetInterruptEx(SIGINT)``.

.. note::

This function is async-signal-safe. It can be called without the :term:`GIL` and from a C signal handler.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main [Doc][c-api]exceptions.rst, line 553)

Unknown directive type "c:function".

```
.. c:function:: int PyErr_SetInterruptEx(int signum)
```

.. index::
module: signal
single: KeyboardInterrupt (built-in exception)

Simulate the effect of a signal arriving. The next time :c:func:`PyErr_CheckSignals` is called, the Python signal handler for the given signal number will be called.

This function can be called by C code that sets up its own signal handling and wants Python signal handlers to be invoked as expected when an interruption is requested (for example when the user presses Ctrl-C to interrupt an operation).

If the given signal isn't handled by Python (it was set to :data:`signal.SIG_DFL` or :data:`signal.SIG_IGN`), it will be ignored.

If *signum* is outside of the allowed range of signal numbers, ``-1`` is returned. Otherwise, ``0`` is returned. The error indicator is never changed by this function.

.. note::

This function is async-signal-safe. It can be called without the :term:`GIL` and from a C signal handler.

.. versionadded:: 3.10

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main [Doc][c-api]exceptions.rst, line 582)

Unknown directive type "c:function".

```
.. c:function:: int PySignal_SetWakeupFd(int fd)

This utility function specifies a file descriptor to which the signal number
is written as a single byte whenever a signal is received. *fd* must be
non-blocking. It returns the previous such file descriptor.

The value ``-1`` disables the feature; this is the initial state.
This is equivalent to :func:`signal.set_wakeup_fd` in Python, but without any
error checking. *fd* should be a valid file descriptor. The function should
only be called from the main thread.

.. versionchanged:: 3.5
    On Windows, the function now also supports socket handles.
```

Exception Classes

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 600)

Unknown directive type "c:function".

```
.. c:function:: PyObject* PyErr_NewException(const char *name, PyObject *base, PyObject *dict)

This utility function creates and returns a new exception class. The *name*
argument must be the name of the new exception, a C string of the form
``module.classname``. The *base* and *dict* arguments are normally ``NULL``.
This creates a class object derived from :exc:`Exception` (accessible in C as
:c:data:`PyExc_Exception`).

The :attr:`__module__` attribute of the new class is set to the first part (up
to the last dot) of the *name* argument, and the class name is set to the last
part (after the last dot). The *base* argument can be used to specify alternate
base classes; it can either be only one class or a tuple of classes. The *dict*
argument can be used to specify a dictionary of class variables and methods.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 615)

Unknown directive type "c:function".

```
.. c:function:: PyObject* PyErr_NewExceptionWithDoc(const char *name, const char *doc, PyObject *base, PyObject *dict)

Same as :c:func:`PyErr_NewException`, except that the new exception class can
easily be given a docstring: If *doc* is non-``NULL``, it will be used as the
docstring for the exception class.

.. versionadded:: 3.2
```

Exception Objects

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 627)

Unknown directive type "c:function".

```
.. c:function:: PyObject* PyException_GetTraceback(PyObject *ex)

Return the traceback associated with the exception as a new reference, as
accessible from Python through :attr:`__traceback__`. If there is no
traceback associated, this returns ``NULL``.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 634)

Unknown directive type "c:function".

```
.. c:function:: int PyException_SetTraceback(PyObject *ex, PyObject *tb)

Set the traceback associated with the exception to *tb*. Use ``Py_None`` to
clear it.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 640)

Unknown directive type "c:function".

```
.. c:function:: PyObject* PyException_GetContext(PyObject *ex)

Return the context (another exception instance during whose handling *ex* was
raised) associated with the exception as a new reference, as accessible from
Python through :attr:`__context__`. If there is no context associated, this
returns ``NULL``.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 648)

Unknown directive type "c:function".

```
.. c:function:: void PyException_SetContext(PyObject *ex, PyObject *ctx)

Set the context associated with the exception to *ctx*. Use ``NULL`` to clear
it. There is no type check to make sure that *ctx* is an exception instance.
This steals a reference to *ctx*.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 655)

Unknown directive type "c:function".

```
.. c:function:: PyObject* PyException_GetCause(PyObject *ex)

Return the cause (either an exception instance, or :const:`None`,
set by ``raise ... from ...``) associated with the exception as a new
reference, as accessible from Python through :attr:`__cause__`.
```


System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 662)

Unknown directive type "c:function".

```
.. c:function:: void PyException_SetCause(PyObject *ex, PyObject *cause)

Set the cause associated with the exception to *cause*. Use ``NULL`` to clear
it. There is no type check to make sure that *cause* is either an exception
instance or :const:'None'. This steals a reference to *cause*.

:attr: ``_suppress_context`` is implicitly set to ``True`` by this function.
```

Unicode Exception Objects

The following functions are used to create and modify Unicode exceptions from C.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 678)

Unknown directive type "c:function".

```
.. c:function:: PyObject* PyUnicodeDecodeError_Create(const char *encoding, const char *object, Py_ssize_t length, Py_ssize_t start)

Create a :class:'UnicodeDecodeError' object with the attributes *encoding*,
*object*, *length*, *start*, *end* and *reason*. *encoding* and *reason* are
UTF-8 encoded strings.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 684)

Unknown directive type "c:function".

```
.. c:function:: PyObject* PyUnicodeDecodeError_GetEncoding(PyObject *exc)
               PyObject* PyUnicodeEncodeError_GetEncoding(PyObject *exc)

Return the *encoding* attribute of the given exception object.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 689)

Unknown directive type "c:function".

```
.. c:function:: PyObject* PyUnicodeDecodeError_GetObject(PyObject *exc)
               PyObject* PyUnicodeEncodeError_GetObject(PyObject *exc)
               PyObject* PyUnicodeTranslateError_GetObject(PyObject *exc)

Return the *object* attribute of the given exception object.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 695)

Unknown directive type "c:function".

```
.. c:function:: int PyUnicodeDecodeError_GetStart(PyObject *exc, Py_ssize_t *start)
               int PyUnicodeEncodeError_GetStart(PyObject *exc, Py_ssize_t *start)
               int PyUnicodeTranslateError_GetStart(PyObject *exc, Py_ssize_t *start)

Get the *start* attribute of the given exception object and place it into
*start*. *start* must not be ``NULL``. Return ``0`` on success, ``-1`` on
failure.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 703)

Unknown directive type "c:function".

```
.. c:function:: int PyUnicodeDecodeError_SetStart(PyObject *exc, Py_ssize_t start)
               int PyUnicodeEncodeError_SetStart(PyObject *exc, Py_ssize_t start)
               int PyUnicodeTranslateError_SetStart(PyObject *exc, Py_ssize_t start)

Set the *start* attribute of the given exception object to *start*. Return
``0`` on success, ``-1`` on failure.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 710)

Unknown directive type "c:function".

```
.. c:function:: int PyUnicodeDecodeError_GetEnd(PyObject *exc, Py_ssize_t *end)
               int PyUnicodeEncodeError_GetEnd(PyObject *exc, Py_ssize_t *end)
               int PyUnicodeTranslateError_GetEnd(PyObject *exc, Py_ssize_t *end)

Get the *end* attribute of the given exception object and place it into
*end*. *end* must not be ``NULL``. Return ``0`` on success, ``-1`` on
failure.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 718)

Unknown directive type "c:function".

```
.. c:function:: int PyUnicodeDecodeError_SetEnd(PyObject *exc, Py_ssize_t end)
               int PyUnicodeEncodeError_SetEnd(PyObject *exc, Py_ssize_t end)
               int PyUnicodeTranslateError_SetEnd(PyObject *exc, Py_ssize_t end)

Set the *end* attribute of the given exception object to *end*. Return ``0``
on success, ``-1`` on failure.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 725)

Unknown directive type "c:function".

```
.. c:function:: PyObject* PyUnicodeDecodeError_GetReason(PyObject *exc)
               PyObject* PyUnicodeEncodeError_GetReason(PyObject *exc)
               PyObject* PyUnicodeTranslateError_GetReason(PyObject *exc)

Return the *reason* attribute of the given exception object.
```

```
System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 731)
Unknown directive type "c:function".

.. c:function:: int PyUnicodeDecodeError_SetReason(PyObject *exc, const char *reason)
               int PyUnicodeEncodeError_SetReason(PyObject *exc, const char *reason)
               int PyUnicodeTranslateError_SetReason(PyObject *exc, const char *reason)

Set the *reason* attribute of the given exception object to *reason*. Return
``0`` on success, ``-1`` on failure.
```

Recursion Control

These two functions provide a way to perform safe recursive calls at the C level, both in the core and in extension modules. They are needed if the recursive code does not necessarily invoke Python code (which tracks its recursion depth automatically). They are also not needed for *tp_call* implementations because the [ref call protocol <call>](#) takes care of recursion handling.

```
System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 744); backlink
Unknown interpreted text role "ref".
```

```
System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 751)
Unknown directive type "c:function".

.. c:function:: int Py_EnterRecursiveCall(const char *where)

Marks a point where a recursive C-level call is about to be performed.

If :const:'USE_STACKCHECK' is defined, this function checks if the OS
stack overflowed using :c:func:'PyOS_CheckStack'. In this is the case, it
sets a :exc:'MemoryError' and returns a nonzero value.

The function then checks if the recursion limit is reached. If this is the
case, a :exc:'RecursionError' is set and a nonzero value is returned.
Otherwise, zero is returned.

*where* should be a UTF-8 encoded string such as ``" in instance check"`` to
be concatenated to the :exc:'RecursionError' message caused by the recursion
depth limit.

.. versionchanged:: 3.9
   This function is now also available in the limited API.
```

```
System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 770)
Unknown directive type "c:function".

.. c:function:: void Py_LeaveRecursiveCall(void)

Ends a :c:func:'Py_EnterRecursiveCall'. Must be called once for each
*successful* invocation of :c:func:'Py_EnterRecursiveCall'.

.. versionchanged:: 3.9
   This function is now also available in the limited API.
```

Properly implementing `:x:member:~PyTypeObject.tp_repr` for container types requires special recursion handling. In addition to protecting the stack, `:x:member:~PyTypeObject.tp_repr` also needs to track objects to prevent cycles. The following two functions facilitate this functionality. Effectively, these are the C equivalent to `:func:replib.recursive_repr`.

```
System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 778); backlink
Unknown interpreted text role "c:member".
```

```
System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 778); backlink
Unknown interpreted text role "c:member".
```

```
System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 778); backlink
Unknown interpreted text role "func".
```

```
System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 784)
Unknown directive type "c:function".

.. c:function:: int Py_ReprEnter(PyObject *object)

Called at the beginning of the :c:member:~PyTypeObject.tp_repr implementation to
detect cycles.

If the object has already been processed, the function returns a
positive integer. In that case the :c:member:~PyTypeObject.tp_repr implementation
should return a string object indicating a cycle. As examples,
:class:'dict' objects return ``{...}`` and :class:'list' objects
return ``[...]``.

The function will return a negative integer if the recursion limit
is reached. In that case the :c:member:~PyTypeObject.tp_repr implementation should
typically return ``NULL``.

Otherwise, the function returns zero and the :c:member:~PyTypeObject.tp_repr
implementation can continue normally.
```

```
System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 802)
Unknown directive type "c:function".

.. c:function:: void Py_ReprLeave(PyObject *object)

Ends a :c:func:'Py_ReprEnter'. Must be called once for each
invocation of :c:func:'Py_ReprEnter' that returns zero.
```

Standard Exceptions

All standard Python exceptions are available as global variables whose names are `PyExc_` followed by the Python exception name. These have the type `ctype: PyObject*`; they are all class objects. For completeness, here are all the variables:

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 813); [backlink](#)

Unknown interpreted text role "ctype".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 818)

Unknown directive type "index".

```
.. index::
   single: PyExc_BaseException
   single: PyExc_Exception
   single: PyExc_ArithmeticError
   single: PyExc_AssertionError
   single: PyExc_AttributeError
   single: PyExc_BlockingIOError
   single: PyExc_BrokenPipeError
   single: PyExc_BufferError
   single: PyExc_ChildProcessError
   single: PyExc_ConnectionAbortedError
   single: PyExc_ConnectionError
   single: PyExc_ConnectionRefusedError
   single: PyExc_ConnectionResetError
   single: PyExc_EOFError
   single: PyExc_FileExistsError
   single: PyExc_FileNotFoundError
   single: PyExc_FloatingPointError
   single: PyExc_GeneratorExit
   single: PyExc_ImportError
   single: PyExc_IndentationError
   single: PyExc_IndexError
   single: PyExc_InterruptedError
   single: PyExc_IsADirectoryError
   single: PyExc_KeyError
   single: PyExc_KeyboardInterrupt
   single: PyExc_LookupError
   single: PyExc_MemoryError
   single: PyExc_ModuleNotFoundError
   single: PyExc_NameError
   single: PyExc_NotADirectoryError
   single: PyExc_NotImplementedError
   single: PyExc_OSError
   single: PyExc_OverflowError
   single: PyExc_PermissionError
   single: PyExc_ProcessLookupError
   single: PyExc_RecursionError
   single: PyExc_ReferenceError
   single: PyExc_RuntimeError
   single: PyExc_StopAsyncIteration
   single: PyExc_StopIteration
   single: PyExc_SyntaxError
   single: PyExc_SystemError
   single: PyExc_SystemExit
   single: PyExc_TabError
   single: PyExc_TimeoutError
   single: PyExc_TypeError
   single: PyExc_UnboundLocalError
   single: PyExc_UnicodeDecodeError
   single: PyExc_UnicodeEncodeError
   single: PyExc_UnicodeError
   single: PyExc_UnicodeTranslateError
   single: PyExc_ValueError
   single: PyExc_ZeroDivisionError
```

C Name	Python Name	Notes
<div><code>cdata:PyExc_BaseException</code></div> <div>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 877); backlink</div> <div>Unknown interpreted text role "cdata".</div>	<div><code>exc:'BaseException'</code></div> <div>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 877); backlink</div> <div>Unknown interpreted text role "exc".</div>	(1)
<div><code>cdata:PyExc_Exception</code></div> <div>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 879); backlink</div> <div>Unknown interpreted text role "cdata".</div>	<div><code>exc:'Exception'</code></div> <div>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api]exceptions.rst, line 879); backlink</div> <div>Unknown interpreted text role "exc".</div>	(1)

C Name	Python Name	Notes
<p><code>xcdata:PyExc_ArithmeticError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api] exceptions.rst, line 881); backlink</p> <p>Unknown interpreted text role "xcdata".</p> </div>	<p><code>xcxc:ArithmeticError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api] exceptions.rst, line 881); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	(1)
<p><code>xcdata:PyExc_AssertionError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api] exceptions.rst, line 883); backlink</p> <p>Unknown interpreted text role "xcdata".</p> </div>	<p><code>xcxc:AssertionError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api] exceptions.rst, line 883); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	
<p><code>xcdata:PyExc_AttributeError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api] exceptions.rst, line 885); backlink</p> <p>Unknown interpreted text role "xcdata".</p> </div>	<p><code>xcxc:AttributeError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api] exceptions.rst, line 885); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	
<p><code>xcdata:PyExc_BlockingIOError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api] exceptions.rst, line 887); backlink</p> <p>Unknown interpreted text role "xcdata".</p> </div>	<p><code>xcxc:BlockingIOError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api] exceptions.rst, line 887); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	
<p><code>xcdata:PyExc_BrokenPipeError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api] exceptions.rst, line 889); backlink</p> <p>Unknown interpreted text role "xcdata".</p> </div>	<p><code>xcxc:BrokenPipeError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api] exceptions.rst, line 889); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	
<p><code>xcdata:PyExc_BufferError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api] exceptions.rst, line 891); backlink</p> <p>Unknown interpreted text role "xcdata".</p> </div>	<p><code>xcxc:BufferError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api] exceptions.rst, line 891); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	

C Name	Python Name	Notes
<p><code>xcdata:PyExc_ChildProcessError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 893); backlink</p> <p>Unknown interpreted text role "xcdata".</p> </div>	<p><code>xcxc:ChildProcessError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 893); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	
<p><code>xcdata:PyExc_ConnectionAbortedError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 895); backlink</p> <p>Unknown interpreted text role "xcdata".</p> </div>	<p><code>xcxc:ConnectionAbortedError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 895); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	
<p><code>xcdata:PyExc_ConnectionError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 897); backlink</p> <p>Unknown interpreted text role "xcdata".</p> </div>	<p><code>xcxc:ConnectionError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 897); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	
<p><code>xcdata:PyExc_ConnectionRefusedError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 899); backlink</p> <p>Unknown interpreted text role "xcdata".</p> </div>	<p><code>xcxc:ConnectionRefusedError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 899); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	
<p><code>xcdata:PyExc_ConnectionResetError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 901); backlink</p> <p>Unknown interpreted text role "xcdata".</p> </div>	<p><code>xcxc:ConnectionResetError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 901); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	
<p><code>xcdata:PyExc_EOFError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 903); backlink</p> <p>Unknown interpreted text role "xcdata".</p> </div>	<p><code>xcxc:EOFError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 903); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	

C Name	Python Name	Notes
<p><code>cxdata:PyExc_FileExistsError</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 905); backlink Unknown interpreted text role "cxdata". </div>	<p><code>exc:FileExistsError</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 905); backlink Unknown interpreted text role "exc". </div>	
<p><code>cxdata:PyExc_FileNotFoundError</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 907); backlink Unknown interpreted text role "cxdata". </div>	<p><code>exc:FileNotFoundError</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 907); backlink Unknown interpreted text role "exc". </div>	
<p><code>cxdata:PyExc_FloatingPointError</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 909); backlink Unknown interpreted text role "cxdata". </div>	<p><code>exc:FloatingPointError</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 909); backlink Unknown interpreted text role "exc". </div>	
<p><code>cxdata:PyExc_GeneratorExit</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 911); backlink Unknown interpreted text role "cxdata". </div>	<p><code>exc:GeneratorExit</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 911); backlink Unknown interpreted text role "exc". </div>	
<p><code>cxdata:PyExc_ImportError</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 913); backlink Unknown interpreted text role "cxdata". </div>	<p><code>exc:ImportError</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 913); backlink Unknown interpreted text role "exc". </div>	
<p><code>cxdata:PyExc_IndentationError</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 915); backlink Unknown interpreted text role "cxdata". </div>	<p><code>exc:IndentationError</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 915); backlink Unknown interpreted text role "exc". </div>	

C Name	Python Name	Notes
<p><code>:xdata:PyExc_IndexError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 917); backlink</p> <p>Unknown interpreted text role "cdata".</p> </div>	<p><code>:exc:IndexError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 917); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	
<p><code>:xdata:PyExc_InterruptedError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 919); backlink</p> <p>Unknown interpreted text role "cdata".</p> </div>	<p><code>:exc:InterruptedError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 919); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	
<p><code>:xdata:PyExc_IsADirectoryError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 921); backlink</p> <p>Unknown interpreted text role "cdata".</p> </div>	<p><code>:exc:IsADirectoryError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 921); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	
<p><code>:xdata:PyExc_KeyError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 923); backlink</p> <p>Unknown interpreted text role "cdata".</p> </div>	<p><code>:exc:KeyError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 923); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	
<p><code>:xdata:PyExc_KeyboardInterrupt</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 925); backlink</p> <p>Unknown interpreted text role "cdata".</p> </div>	<p><code>:exc:KeyboardInterrupt</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 925); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	
<p><code>:xdata:PyExc_LookupError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 927); backlink</p> <p>Unknown interpreted text role "cdata".</p> </div>	<p><code>:exc:LookupError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 927); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	(1)

C Name	Python Name	Notes
<p><code>:xdata:PyExc_MemoryError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api] exceptions.rst, line 929); backlink</p> <p>Unknown interpreted text role "xdata".</p> </div>	<p><code>:exc:MemoryError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api] exceptions.rst, line 929); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	
<p><code>:xdata:PyExc_ModuleNotFoundError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api] exceptions.rst, line 931); backlink</p> <p>Unknown interpreted text role "xdata".</p> </div>	<p><code>:exc:ModuleNotFoundError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api] exceptions.rst, line 931); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	
<p><code>:xdata:PyExc_NameError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api] exceptions.rst, line 933); backlink</p> <p>Unknown interpreted text role "xdata".</p> </div>	<p><code>:exc:NameError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api] exceptions.rst, line 933); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	
<p><code>:xdata:PyExc_NotADirectoryError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api] exceptions.rst, line 935); backlink</p> <p>Unknown interpreted text role "xdata".</p> </div>	<p><code>:exc:NotADirectoryError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api] exceptions.rst, line 935); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	
<p><code>:xdata:PyExc_NotImplementedError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api] exceptions.rst, line 937); backlink</p> <p>Unknown interpreted text role "xdata".</p> </div>	<p><code>:exc:NotImplementedError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api] exceptions.rst, line 937); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	
<p><code>:xdata:PyExc_OSError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api] exceptions.rst, line 939); backlink</p> <p>Unknown interpreted text role "xdata".</p> </div>	<p><code>:exc:OSError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\cpython-main) [Doc] [c-api] exceptions.rst, line 939); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	(1)

C Name	Python Name	Notes
<p><code>xcdata:PyExc_OverflowError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 941); backlink</p> <p>Unknown interpreted text role "xcdata".</p> </div>	<p><code>exc:OverflowError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 941); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	
<p><code>xcdata:PyExc_PermissionError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 943); backlink</p> <p>Unknown interpreted text role "xcdata".</p> </div>	<p><code>exc:PermissionError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 943); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	
<p><code>xcdata:PyExc_ProcessLookupError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 945); backlink</p> <p>Unknown interpreted text role "xcdata".</p> </div>	<p><code>exc:ProcessLookupError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 945); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	
<p><code>xcdata:PyExc_RecursionError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 947); backlink</p> <p>Unknown interpreted text role "xcdata".</p> </div>	<p><code>exc:RecursionError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 947); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	
<p><code>xcdata:PyExc_ReferenceError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 949); backlink</p> <p>Unknown interpreted text role "xcdata".</p> </div>	<p><code>exc:ReferenceError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 949); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	(2)
<p><code>xcdata:PyExc_RuntimeError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 951); backlink</p> <p>Unknown interpreted text role "xcdata".</p> </div>	<p><code>exc:RuntimeError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 951); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	

C Name	Python Name	Notes
<p><code>xcdata:PyExc_StopAsyncIteration</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 953); backlink Unknown interpreted text role "xcdata". </div>	<p><code>xcxc:'StopAsyncIteration'</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 953); backlink Unknown interpreted text role "exc". </div>	
<p><code>xcdata:PyExc_StopIteration</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 955); backlink Unknown interpreted text role "xcdata". </div>	<p><code>xcxc:'StopIteration'</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 955); backlink Unknown interpreted text role "exc". </div>	
<p><code>xcdata:PyExc_SyntaxError</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 957); backlink Unknown interpreted text role "xcdata". </div>	<p><code>xcxc:'SyntaxError'</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 957); backlink Unknown interpreted text role "exc". </div>	
<p><code>xcdata:PyExc_SystemError</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 959); backlink Unknown interpreted text role "xcdata". </div>	<p><code>xcxc:'SystemError'</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 959); backlink Unknown interpreted text role "exc". </div>	
<p><code>xcdata:PyExc_SystemExit</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 961); backlink Unknown interpreted text role "xcdata". </div>	<p><code>xcxc:'SystemExit'</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 961); backlink Unknown interpreted text role "exc". </div>	
<p><code>xcdata:PyExc_TabError</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 963); backlink Unknown interpreted text role "xcdata". </div>	<p><code>xcxc:'TabError'</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 963); backlink Unknown interpreted text role "exc". </div>	

C Name	Python Name	Notes
<p><code>cxdata:PyExc_TimeoutError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api] exceptions.rst, line 965); backlink</p> <p>Unknown interpreted text role "cxdata".</p> </div>	<p><code>exc:TimeoutError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api] exceptions.rst, line 965); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	
<p><code>cxdata:PyExc_TypeError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api] exceptions.rst, line 967); backlink</p> <p>Unknown interpreted text role "cxdata".</p> </div>	<p><code>exc:TypeError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api] exceptions.rst, line 967); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	
<p><code>cxdata:PyExc_UnboundLocalError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api] exceptions.rst, line 969); backlink</p> <p>Unknown interpreted text role "cxdata".</p> </div>	<p><code>exc:UnboundLocalError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api] exceptions.rst, line 969); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	
<p><code>cxdata:PyExc_UnicodeDecodeError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api] exceptions.rst, line 971); backlink</p> <p>Unknown interpreted text role "cxdata".</p> </div>	<p><code>exc:UnicodeDecodeError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api] exceptions.rst, line 971); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	
<p><code>cxdata:PyExc_UnicodeEncodeError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api] exceptions.rst, line 973); backlink</p> <p>Unknown interpreted text role "cxdata".</p> </div>	<p><code>exc:UnicodeEncodeError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api] exceptions.rst, line 973); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	
<p><code>cxdata:PyExc_UnicodeError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api] exceptions.rst, line 975); backlink</p> <p>Unknown interpreted text role "cxdata".</p> </div>	<p><code>exc:UnicodeError</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api] exceptions.rst, line 975); backlink</p> <p>Unknown interpreted text role "exc".</p> </div>	

C Name	Python Name	Notes
<code>:xddata:PyExc_UnicodeTranslateError</code> <div><div>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 977); backlink</div><div>Unknown interpreted text role "cxddata".</div></div>	<code>:exc:UnicodeTranslateError</code> <div><div>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 977); backlink</div><div>Unknown interpreted text role "exc".</div></div>	
<code>:xddata:PyExc_ValueError</code> <div><div>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 979); backlink</div><div>Unknown interpreted text role "cxddata".</div></div>	<code>:exc:ValueError</code> <div><div>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 979); backlink</div><div>Unknown interpreted text role "exc".</div></div>	
<code>:xddata:PyExc_ZeroDivisionError</code> <div><div>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 981); backlink</div><div>Unknown interpreted text role "cxddata".</div></div>	<code>:exc:ZeroDivisionError</code> <div><div>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 981); backlink</div><div>Unknown interpreted text role "exc".</div></div>	

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 983)

Unknown directive type "versionadded".

```
.. versionadded:: 3.3
   :data: `PyExc_BlockingIOError`, :data: `PyExc_BrokenPipeError`,
   :data: `PyExc_ChildProcessError`, :data: `PyExc_ConnectionError`,
   :data: `PyExc_ConnectionAbortedError`, :data: `PyExc_ConnectionRefusedError`,
   :data: `PyExc_ConnectionResetError`, :data: `PyExc_FileExistsError`,
   :data: `PyExc_FileNotFoundError`, :data: `PyExc_InterruptedError`,
   :data: `PyExc_IsADirectoryError`, :data: `PyExc_NotADirectoryError`,
   :data: `PyExc_PermissionError`, :data: `PyExc_ProcessLookupError`
   and :data: `PyExc_TimeoutError` were introduced following :pep:`3151`.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 993)

Unknown directive type "versionadded".

```
.. versionadded:: 3.5
   :data: `PyExc_StopAsyncIteration` and :data: `PyExc_RecursionError`.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 996)

Unknown directive type "versionadded".

```
.. versionadded:: 3.6
   :data: `PyExc_ModuleNotFoundError`.
```

These are compatibility aliases to `:xddata:PyExc_OSError`:

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 999); [backlink](#)

Unknown interpreted text role "cxddata".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1001)

Unknown directive type "index".

```
.. index::
   single: PyExc_EnvironmentError
   single: PyExc_IOError
   single: PyExc_WindowsError
```

C Name	Notes
<code>:xddata:PyExc_EnvironmentError</code> <div><div>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1010); backlink</div><div>Unknown interpreted text role "cxddata".</div></div>	

C Name	Notes
:xdata:PyExc_IOError' <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1012); backlink Unknown interpreted text role "cdata". </div>	
:xdata:PyExc_WindowsError' <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1014); backlink Unknown interpreted text role "cdata". </div>	(3)

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1016)
 Unknown directive type "versionchanged".

```

.. versionchanged:: 3.3
   These aliases used to be separate exception types.
```

Notes:

1. This is a base class for other standard exceptions.
2. Only defined on Windows; protect code that uses this by testing that the preprocessor macro `MS_WINDOWS` is defined.

Standard Warning Categories

All standard Python warning categories are available as global variables whose names are `PyExc_` followed by the Python exception name. These have the type `:xtype:PyObject*`; they are all class objects. For completeness, here are all the variables:

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1033); [backlink](#)
 Unknown interpreted text role "cstype".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1038)
 Unknown directive type "index".

```

.. index::
   single: PyExc_Warning
   single: PyExc_BytesWarning
   single: PyExc_DeprecationWarning
   single: PyExc_FutureWarning
   single: PyExc_ImportWarning
   single: PyExc_PendingDeprecationWarning
   single: PyExc_ResourceWarning
   single: PyExc_RuntimeWarning
   single: PyExc_SyntaxWarning
   single: PyExc_UnicodeWarning
   single: PyExc_UserWarning
```

C Name	Python Name	Notes
:xdata:PyExc_Warning' <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1055); backlink Unknown interpreted text role "cdata". </div>	:exc:'Warning' <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1055); backlink Unknown interpreted text role "exc". </div>	(1)
:xdata:PyExc_BytesWarning' <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1057); backlink Unknown interpreted text role "cdata". </div>	:exc:'BytesWarning' <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1057); backlink Unknown interpreted text role "exc". </div>	
:xdata:PyExc_DeprecationWarning' <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1059); backlink Unknown interpreted text role "cdata". </div>	:exc:'DeprecationWarning' <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1059); backlink Unknown interpreted text role "exc". </div>	

C Name	Python Name	Notes
<p><code>xcdata:PyExc_FutureWarning</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1061); backlink Unknown interpreted text role "xcdata". </div>	<p><code>xcxc:FutureWarning</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1061); backlink Unknown interpreted text role "exc". </div>	
<p><code>xcdata:PyExc_ImportWarning</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1063); backlink Unknown interpreted text role "xcdata". </div>	<p><code>xcxc:ImportWarning</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1063); backlink Unknown interpreted text role "exc". </div>	
<p><code>xcdata:PyExc_PendingDeprecationWarning</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1065); backlink Unknown interpreted text role "xcdata". </div>	<p><code>xcxc:PendingDeprecationWarning</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1065); backlink Unknown interpreted text role "exc". </div>	
<p><code>xcdata:PyExc_ResourceWarning</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1067); backlink Unknown interpreted text role "xcdata". </div>	<p><code>xcxc:ResourceWarning</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1067); backlink Unknown interpreted text role "exc". </div>	
<p><code>xcdata:PyExc_RuntimeWarning</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1069); backlink Unknown interpreted text role "xcdata". </div>	<p><code>xcxc:RuntimeWarning</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1069); backlink Unknown interpreted text role "exc". </div>	
<p><code>xcdata:PyExc_SyntaxWarning</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1071); backlink Unknown interpreted text role "xcdata". </div>	<p><code>xcxc:SyntaxWarning</code></p> <div> System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1071); backlink Unknown interpreted text role "exc". </div>	

C Name	Python Name	Notes
<div><code>:xdata:PyExc_UnicodeWarning'</code></div> <div><div>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1073); backlink</div><div>Unknown interpreted text role "cdata".</div></div>	<div><code>:exc:'UnicodeWarning'</code></div> <div><div>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1073); backlink</div><div>Unknown interpreted text role "exc".</div></div>	
<div><code>:xdata:PyExc_UserWarning'</code></div> <div><div>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1075); backlink</div><div>Unknown interpreted text role "cdata".</div></div>	<div><code>:exc:'UserWarning'</code></div> <div><div>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1075); backlink</div><div>Unknown interpreted text role "exc".</div></div>	
<div><div>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]exceptions.rst, line 1077)</div><div>Unknown directive type "versionadded".</div><div><pre>.. versionadded:: 3.2 :cdata:`PyExc_ResourceWarning`.</pre></div></div>		

- Notes:
1. This is a base class for other standard warning categories.