

# Allocating Objects on the Heap

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]allocation.rst, line 1)**

Unknown directive type "highlight".

```
.. highlight:: c
```

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]allocation.rst, line 9)**

Unknown directive type "c:function".

```
.. c:function:: PyObject* _PyObject_New(PyTypeObject *type)
```

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]allocation.rst, line 12)**

Unknown directive type "c:function".

```
.. c:function:: PyVarObject* _PyObject_NewVar(PyTypeObject *type, Py_ssize_t size)
```

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]allocation.rst, line 15)**

Unknown directive type "c:function".

```
.. c:function:: PyObject* PyObject_Init(PyObject *op, PyTypeObject *type)
```

Initialize a newly-allocated object \*op\* with its type and initial reference. Returns the initialized object. If \*type\* indicates that the object participates in the cyclic garbage detector, it is added to the detector's set of observed objects. Other fields of the object are not affected.

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]allocation.rst, line 24)**

Unknown directive type "c:function".

```
.. c:function:: PyVarObject* PyObject_InitVar(PyVarObject *op, PyTypeObject *type, Py_ssize_t size)
```

This does everything :c:func:`PyObject\_Init` does, and also initializes the length information for a variable-size object.

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]allocation.rst, line 30)**

Unknown directive type "c:function".

```
.. c:function:: TYPE* PyObject_New(TYPE, PyTypeObject *type)
```

Allocate a new Python object using the C structure type \*TYPE\* and the Python type object \*type\*. Fields not defined by the Python object header are not initialized; the object's reference count will be one. The size of the memory allocation is determined from the :c:member:`~PyTypeObject.tp\_basicsize` field of the type object.

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]allocation.rst, line 39)**

Unknown directive type "c:function".

```
.. c:function:: TYPE* PyObject_NewVar(TYPE, PyTypeObject *type, Py_ssize_t size)
```

Allocate a new Python object using the C structure type `*TYPE*` and the Python type object `*type*`. Fields not defined by the Python object header are not initialized. The allocated memory allows for the `*TYPE*` structure plus `*size*` fields of the size given by the `:c:member:~PyTypeObject.tp_itemsize` field of *type*. This is useful for implementing objects like tuples, which are able to determine their size at construction time. Embedding the array of fields into the same allocation decreases the number of allocations, improving the memory management efficiency.`

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]allocation.rst, line 51)**

Unknown directive type "c:function".

```
.. c:function:: void PyObject_Del(void *op)
```

Releases memory allocated to an object using `:c:func:~PyObject_New` or :c:func:~PyObject_NewVar`. This is normally called from the :c:member:~PyTypeObject.tp_dealloc` handler specified in the object's type. The fields of the object should not be accessed after this call as the memory is no longer a valid Python object.`

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]allocation.rst, line 60)**

Unknown directive type "c:var".

```
.. c:var:: PyObject _Py_NoneStruct
```

Object which is visible in Python as ```None```. This should only be accessed using the `:c:macro:~Py_None` macro, which evaluates to a pointer to this object.`

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\c-api\[cpython-main] [Doc] [c-api]allocation.rst, line 67)**

Unknown directive type "seealso".

```
.. seealso::
```

```
:c:func:~PyModule_Create`  
    To allocate and create extension modules.
```