

**NAME**

**dwarf\_get\_types**, **dwarf\_type\_cu\_offset**, **dwarf\_type\_die\_offset**, **dwarf\_type\_name\_offsets**, **dwarf\_typename** - retrieve information about user-defined types

**LIBRARY**

DWARF Access Library (libdwarf, -ldwarf)

**SYNOPSIS**

```
#include <libdwarf.h>
```

*int*

```
dwarf_get_types(Dwarf_Debug dbg, Dwarf_Type **types, Dwarf_Signed *ntypes, Dwarf_Error *err);
```

*int*

```
dwarf_type_cu_offset(Dwarf_Type type, Dwarf_Off *cu_offset, Dwarf_Error *err);
```

*int*

```
dwarf_type_die_offset(Dwarf_Type type, Dwarf_Off *die_offset, Dwarf_Error *err);
```

*int*

```
dwarf_type_name_offsets(Dwarf_Type type, char **name, Dwarf_Off *die_offset,  
    Dwarf_Off *cu_die_offset, Dwarf_Error *err);
```

*int*

```
dwarf_typename(Dwarf_Type type, char **name, Dwarf_Error *err);
```

**DESCRIPTION**

These APIs retrieve information about user-defined types from the SGI-specific ".debug\_typenames" section.

Standards-conformant applications should use the functions `dwarf_get_pubtypes(3)`, `dwarf_pubtype_cu_offset(3)`, `dwarf_pubtype_die_offset(3)`, `dwarf_pubtype_name_offsets(3)` and `dwarf_pubtypename(3)`, which operate on the equivalent ".debug\_pubtypes" section defined by the DWARF3 standard.

Information about user-defined types is returned using opaque descriptors of type *Dwarf\_Type*. Applications need to use the functions described below to retrieve the name and offset information contained in these descriptors.

Function **dwarf\_get\_types()** retrieves descriptors for all user-defined types associated with the DWARF

debug context specified by argument *dbg*. The argument *types* should point to a location that will be set to a pointer to an array of *Dwarf\_Type* descriptors. The argument *ntypes* should point to a location that will be set to the number of descriptors returned.

Function **dwarf\_type\_cu\_offset()** returns the offset, relative to the ".debug\_info" section, of the compilation unit that contains the debugging information entry associated with the argument *type*. Argument *cu\_offset* should point to a location that will hold the returned offset.

Function **dwarf\_type\_die\_offset()** retrieves the offset, relative to the ".debug\_info" section, of the debugging information entry associated with the argument *type*, and stores it into the location pointed to by the argument *die\_offset*.

Function **dwarf\_type\_name\_offsets()** retrieves the name and offsets for the debugging information entry for argument *type*. Argument *name* should point to a location which will be set to a pointer to a NUL-terminated string containing the name of the associated debugging information entry. Argument *die\_offset* should point to a location which will be set to the offset, relative to the ".debug\_info" section, of the associated debugging information entry. Argument *cu\_die\_offset* should point to a location which will be set to an offset, relative to the ".debug\_info" section, of the first debugging information entry in the compilation unit associated with argument *type*.

Function **dwarf\_typename()** sets the location pointed to by argument *name* to a pointer to a NUL-terminated string holding the name of the debugging information entry associated with the argument *type*.

### Memory Management

The memory area used for the array of *Dwarf\_Type* descriptors returned in argument *types* by function **dwarf\_get\_types()** is owned by the DWARF Access Library (`libdwarf`, `-ldwarf`). Application code should not attempt to directly free this pointer. Portable code should instead use the function `dwarf_types_dealloc(3)` to indicate that the memory area may be freed.

The memory area used for the string returned in the *name* argument to functions **dwarf\_type\_name\_offsets()** and **dwarf\_typename()** is owned by the DWARF Access Library (`libdwarf`, `-ldwarf`). Portable code should indicate that the memory area can be freed using the `dwarf_dealloc(3)` function.

### Error Returns

If argument *err* is not NULL, these functions will use it to store error information, in case of an error.

### RETURN VALUES

On success, these functions return `DW_DLV_OK`. In case of an error, they return `DW_DLV_ERROR`.

and set the argument *err*.

## ERRORS

These functions may fail with the following errors:

[DW\_DLE\_ARGUMENT] One of the arguments *cu\_die\_offset*, *cu\_offset*, *dbg*, *die\_offset*, *type*, *types*, *name*, or *ntypes* was NULL.

[DW\_DLE\_NO\_ENTRY] The DWARF debugging context referenced by argument *dbg* did not contain information about user-defined types.

## SEE ALSO

`dwarf(3)`, `dwarf_get_cu_die_offset_given_cu_header_offset(3)`, `dwarf_get_pubtypes(3)`, `dwarf_pubtype_cu_offset(3)`, `dwarf_pubtype_die_offset(3)`, `dwarf_pubtype_name_offsets(3)`, `dwarf_pubtypename(3)`, `dwarf_types_dealloc(3)`