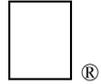


Apple II Technical Notes



Developer Technical Support

Apple IIGS

#103: Inline Procedure Name Format

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This Technical Note describes a simple format for imbedding procedure names in object code, for use by debugging utilities.

GSBug 1.5b18 and later support a simple convention for including procedure names inline in the object code, for debugging purposes.

Inline Name Format

```
82 xx xx          brl pastName
71 77            dc.w $7771
nn xx xx xx xx... str 'the name string'
                    pastName    ...
```

That is, an imbedded name is a BRL around a signature word and a Pascal string. The name string can theoretically be up to 255 characters long, but in practice only short names are useful. For example, GSBug displays only the first 15 characters of a name when it is encountered, and only the first 11 when it appears as the operand of a JSR or JSL instruction.

Names in this format always start with a BRL, not a BRA or JMP. Signature word values other than \$7771 are **reserved** for future definition, as is the space after the Pascal string.

Be careful what you name!

Be careful not to name something important—like a table, or a label from which you compute other addresses. The extra bytes generated by the inline name would mess up your calculations. If you name a heartbeat task, out-of-memory queue routine, or other construction that needs a special header, be sure to put the name where the executable code starts, not at the beginning of the header.

APW Assembly Macro

The following macro is for the APW assembler. If you equate `DebugSymbols` to zero, the macro generates no object code. If `DebugSymbols` is nonzero, the macro generates an inline name corresponding to its label.

Use the `name` macro anywhere you would use a label. For example:

```
DebugSymbols    GEQU 1
...
CountItems     name
```

The macro:

```
        MACRO
&lab name
&lab anop
    aif DebugSymbols=0, .pasteName
    brl pasteName&syscnt
    dc i'$7771'
    dc il'L:&lab',c'&lab'
pasteName&syscnt anop
.pasteName
        MEND
```

MPW IIGS Assembly Macros

The following macros are for the MPW IIGS assembler. If you equate `DebugSymbols` to zero, the macros generate no object code. If `DebugSymbols` is nonzero, the macros generate inline names corresponding to their labels.

Use the `name` macro anywhere you would use a label. Use the `procname` macro in place of a `proc` directive, at the beginning of a procedure. For example:

```
DebugSymbols    equ 1
...
CountItems     name
TaskLoop       procname
```

The macros:

```
        macro
&lab      name
&lab
    if DebugSymbols<>0 then
    brl @pasteName
    lclc &olds
&olds    setc &setting('string')
    string asis
    dc.w $7771
    dc.b &len(&lab), '&lab'
    string &olds
@pasteName
    endif
    mend

* You can use procname instead of proc

        macro
&lab      procname &x
&lab      proc      &x
    if DebugSymbols<>0 then
    brl @pasteName
    lclc &olds
```

```
&olds      setc &setting('string')
           string asis
           dc.w $7771
           dc.b &len(&lab), '&lab'
           string &olds
@pastName
           endif
           mend
```

Writing utilities that recognize inline names

If you write a utility that recognizes inline procedure names in this format, check for a signature word of \$777x, not specifically \$7771. This allows more information to be added to the format later (a signature of \$7772 could mean there is a Pascal string followed by parameter-passing information, for example).