

-S option

The `-S` option is the facility to search for a specific text representation of the attribute name or attribute value, which allows something like

```
dwarfdump -S match=DW_AT_low_pc test.o
dwarfdump -S match=0x0000001c test.o
```

In this case any DIE that has the attribute `DW_AT_low_pc` or the value `0x0000001c` will be printed.

Sample output (Attribute name):

```
d:\work\dwarfdump -S match=DW_AT_high_pc
dwarfdump [Aug 16 2011 15:37:55 Debug]
Arguments: -S match=DW_AT_high_pc test.o
```

```
CU Name = test.cpp
CU Producer = SN Systems ps3ppusnc - 'ps3ppucf.exe' (dev,unified @127945 debug) WIN32
DIE OFF = 0x0000000b GOFF = 0x0000000b, Low PC = 0x00000000, High PC = 0x00000058
DW_AT_high_pc      0x00000058
```

```
CU Name = test.cpp
CU Producer = SN Systems ps3ppusnc - 'ps3ppucf.exe' (dev,unified @127945 debug) WIN32
DIE OFF = 0x00000098 GOFF = 0x00000098, Low PC = 0x00000000, High PC = 0x00000058
DW_AT_high_pc      0x0000001c
```

```
CU Name = test.cpp
CU Producer = SN Systems ps3ppusnc - 'ps3ppucf.exe' (dev,unified @127945 debug) WIN32
DIE OFF = 0x000000da GOFF = 0x000000da, Low PC = 0x00000000, High PC = 0x00000058
DW_AT_high_pc      0x00000058
```

Sample output (Attribute value):

```
d:\work\dwarfdump -S match=0x0000001c test.o
dwarfdump [Aug 16 2011 15:37:55 Debug]
Arguments: -S match=0x0000001c test.o
```

```
CU Name = test.cpp
CU Producer = SN Systems ps3ppusnc - 'ps3ppucf.exe' (dev,unified @127945 debug) WIN32
DIE OFF = 0x00000098 GOFF = 0x00000098, Low PC = 0x00000000, High PC = 0x00000058
DW_AT_high_pc      0x0000001c
```

```
CU Name = test.cpp
CU Producer = SN Systems ps3ppusnc - 'ps3ppucf.exe' (dev,unified @127945 debug) WIN32
DIE OFF = 0x000000da GOFF = 0x000000da, Low PC = 0x00000000, High PC = 0x00000058
DW_AT_low_pc       0x0000001c
```

There are three (3) qualifiers for the `-S` option:

1) `-S any=<text>`

Any attribute name or attribute value, that contains `<text>` , will be printed.

Sample output:

```
d:\work\dwarfdump -S any=DW_OP_plus test.o
dwarfdump [Aug 16 2011 15:37:55 Debug]
Arguments: -S any=DW_OP_plus test.o
```

```
CU Name = test.cpp
```

CU Producer = SN Systems ps3ppusnc - 'ps3ppucf.exe' (dev,unified @127945 debug) WIN32
DIE OFF = 0x0000007e GOFF = 0x0000007e, Low PC = 0x00000000, High PC = 0x00000058
DW_AT_data_member_location DW_OP_plus_uconst 00000000

CU Name = test.cpp
CU Producer = SN Systems ps3ppusnc - 'ps3ppucf.exe' (dev,unified @127945 debug) WIN32
DIE OFF = 0x00000177 GOFF = 0x00000177, Low PC = 0x00000000, High PC = 0x00000058
DW_AT_data_member_location DW_OP_plus_uconst 00000000

CU Name = test.cpp
CU Producer = SN Systems ps3ppusnc - 'ps3ppucf.exe' (dev,unified @127945 debug) WIN32
DIE OFF = 0x000001e7 GOFF = 0x000001e7, Low PC = 0x00000000, High PC = 0x00000058
DW_AT_data_member_location DW_OP_plus_uconst 00000000

CU Name = test.cpp
CU Producer = SN Systems ps3ppusnc - 'ps3ppucf.exe' (dev,unified @127945 debug) WIN32
DIE OFF = 0x000001fe GOFF = 0x000001fe, Low PC = 0x00000000, High PC = 0x00000058
DW_AT_data_member_location DW_OP_plus_uconst 00000004

CU Name = test.cpp
CU Producer = SN Systems ps3ppusnc - 'ps3ppucf.exe' (dev,unified @127945 debug) WIN32
DIE OFF = 0x00000215 GOFF = 0x00000215, Low PC = 0x00000000, High PC = 0x00000058
DW_AT_data_member_location DW_OP_plus_uconst 00000008

Any attribute that contains the string 'DW_OP_plus' on its name or its value will be printed.

2) match=<text>

Any attribute name or attribute value that matches (case and length) <text> will be printed.

Sample output:

```
d:\work\dwafdump -S match="DW_OP_plus_uconst 00000008" test.o
dwafdump [Aug 16 2011 15:37:55 Debug]
Arguments: -S match=DW_OP_plus_uconst 00000008 test.o
```

CU Name = test.cpp
CU Producer = SN Systems ps3ppusnc - 'ps3ppucf.exe' (dev,unified @127945 debug) WIN32
DIE OFF = 0x00000215 GOFF = 0x00000215, Low PC = 0x00000000, High PC = 0x00000058
DW_AT_data_member_location DW_OP_plus_uconst 00000008

Any attribute that matches the string 'DW_OP_plus_uconst 00000008' on its name or its value will be printed. Note the double quotes around the text, as the text includes a space character.

3) regex=<text>

Any attribute name or attribute value that matches the regular expression represented by <text> will be printed.

Sample output:

```
D:\Perforce\Test\Work\Test>dwafdump -S regex=reg[0-9] test.o
dwafdump [Aug 16 2011 15:37:55 Debug]
Arguments: -S regex=reg[0-9] test.o
```

CU Name = test.cpp
CU Producer = SN Systems ps3ppusnc - 'ps3ppucf.exe' (dev,unified @127945 debug) WIN32
DIE OFF = 0x00000098 GOFF = 0x00000098, Low PC = 0x00000000, High PC = 0x00000058
DW_AT_frame_base DW_OP_reg1

```
CU Name = test.cpp
CU Producer = SN Systems ps3ppusnc - 'ps3ppucf.exe' (dev,unified @127945 debug) WIN32
DIE OFF = 0x000000da GOFF = 0x000000da, Low PC = 0x00000000, High PC = 0x00000058
DW_AT_frame_base      DW_OP_reg1
```

Any attribute that matches the string 'reg' followed by a single decimal digit on its name or its value will be printed.

Only one `-S` option is allowed; `any=` and `regex=` are only usable if the functions required are found at configure time.

-W option

The `-W` option controls the way the output from the `-S` option is printed. There are three (3) variations:

```
-W      print parent and children tree (wide format)
-Wp     print parent tree (wide format)
-Wc     print children tree (wide format)
```

The idea behind the implementation of this feature is the ability to see in more detail the context in which a specific attribute is located. The `-S` option, gives only the information about the DIE containing the matched attribute, along with the CU name, producer and offset. By using the `-W` option, we can print the hierarchy associated with the matched attribute (parents and/or children).

For the `-W` option, we will use the following sample test code:

```
namespace nsp {
  struct ee {
    struct ff {
      struct gg {
        int v_integer;
      };
    };
  };
}

int main() {
  nsp::ee::ff::gg v_gg;
  v_gg.v_integer = 620;

  return 0;
}
```

For the `-S` option the searched string is 'gg', specified by the command line:

Sample output:

```
d:\work\dwarfdump -S match=gg test.o
dwarfdump [Aug 16 2011 15:37:55 Debug]
Arguments: -S match=gg test.o
```

```
CU Name = test.cpp
CU Producer = SN Systems ps3ppusnc - 'ps3ppucf.exe' (dev,unified @127945 debug) WIN32
DIE OFF = 0x000000d7 GOFF = 0x000000d7, Low PC = 0x00000000, High PC = 0x00000020
DW_AT_name      gg
```

Only basic information is printed for the DIE containing the matched attribute.

1) ***-W***

Print the parent and children tree for the matched attribute found by the -S option.

Sample output:

```
d:\work\dwafddump -S match=gg -W test.o
dwafddump [Aug 16 2011 15:37:55 Debug]
Arguments: -S match=gg -W test.o
```

COMPILE_UNIT<header overall offset = 0x00000000>:

```
< 4><0x0000000b> DW_TAG_compile_unit
                  DW_AT_name          test.cpp
                  DW_AT_comp_dir       d:/work/Test
                  DW_AT_producer        SN Systems ps3ppusnc
                  DW_AT_language        DW_LANG_C_plus_plus
                  DW_AT_stmt_list       0x00000000
                  DW_AT_low_pc          0x00000000
                  DW_AT_high_pc         0x00000020
```

LOCAL_SYMBOLS:

```
< 4><0x00000096> DW_TAG_namespace
                  DW_AT_sibling         <0x00000138>
                  DW_AT_decl_file       0x00000001
                  DW_AT_decl_line       0x00000001
                  DW_AT_decl_column     0x00000031
                  DW_AT_name            nsp
< 4><0x000000a9> DW_TAG_structure_type
                  DW_AT_sibling         <0x00000137>
                  DW_AT_decl_file       0x00000001
                  DW_AT_decl_line       0x00000002
                  DW_AT_decl_column     0x00000032
                  DW_AT_name            ee
                  DW_AT_byte_size       0x00000001
< 4><0x000000c0> DW_TAG_structure_type
                  DW_AT_sibling         <0x00000136>
                  DW_AT_decl_file       0x00000001
                  DW_AT_decl_line       0x00000003
                  DW_AT_decl_column     0x00000034
                  DW_AT_name            ff
                  DW_AT_byte_size       0x00000001
< 4><0x000000d7> DW_TAG_structure_type
                  DW_AT_sibling         <0x00000106>
                  DW_AT_decl_file       0x00000001
                  DW_AT_decl_line       0x00000004
                  DW_AT_decl_column     0x00000035
                  DW_AT_name            gg ←-----
                  DW_AT_byte_size       0x00000004
< 5><0x000000ee> DW_TAG_member
                  DW_AT_decl_file       0x00000001
                  DW_AT_decl_line       0x00000005
                  DW_AT_decl_column     0x00000003
                  DW_AT_name            v_integer
                  DW_AT_type            <0x00000025>
                  DW_AT_accessibility    DW_ACCESS_public
                  DW_AT_data_member_location DW_OP_plus_uconst
00000000
```

The output contains the parent tree for the DIE containing the matched attribute for the string 'gg' and the children tree for the DIE containing the matched attribute for the string 'gg'.

2) -Wp

Print the parent tree for the matched attribute found by the -S option.

Sample output:

```
d:\work\dwafddump -S match=gg -Wp test.o
dwafddump [Aug 16 2011 15:37:55 Debug]
Arguments: -S match=gg -Wp test.o
```

COMPILE_UNIT<header overall offset = 0x00000000>:

```
< 4><0x0000000b> DW_TAG_compile_unit
                  DW_AT_name          test.cpp
                  DW_AT_comp_dir      d:/work/Test
                  DW_AT_producer      SN Systems ps3ppusnc
                  DW_AT_language      DW_LANG_C_plus_plus
                  DW_AT_stmt_list     0x00000000
                  DW_AT_low_pc        0x00000000
                  DW_AT_high_pc       0x00000020
```

LOCAL_SYMBOLS:

```
< 4><0x00000096> DW_TAG_namespace
                  DW_AT_sibling        <0x00000138>
                  DW_AT_decl_file      0x00000001
                  DW_AT_decl_line      0x00000001
                  DW_AT_decl_column    0x00000031
                  DW_AT_name           nsp
< 4><0x000000a9> DW_TAG_structure_type
                  DW_AT_sibling        <0x00000137>
                  DW_AT_decl_file      0x00000001
                  DW_AT_decl_line      0x00000002
                  DW_AT_decl_column    0x00000032
                  DW_AT_name           ee
                  DW_AT_byte_size      0x00000001
< 4><0x000000c0> DW_TAG_structure_type
                  DW_AT_sibling        <0x00000136>
                  DW_AT_decl_file      0x00000001
                  DW_AT_decl_line      0x00000003
                  DW_AT_decl_column    0x00000034
                  DW_AT_name           ff
                  DW_AT_byte_size      0x00000001
< 4><0x000000d7> DW_TAG_structure_type
                  DW_AT_sibling        <0x00000106>
                  DW_AT_decl_file      0x00000001
                  DW_AT_decl_line      0x00000004
                  DW_AT_decl_column    0x00000035
                  DW_AT_name           gg ←-----
                  DW_AT_byte_size      0x00000004
```

The output contains the parent tree for the DIE containing the matched attribute for the string 'gg'.

3) **-Wc**

Print the children tree for the matched attribute found by the -S option.

```
d:\work\dwafddump -S match=gg -Wc test.o
dwafddump [Aug 16 2011 15:37:55 Debug]
Arguments: -S match=gg -Wc test.o
```

```
< 4><0x000000d7> DW_TAG_structure_type
                  DW_AT_sibling        <0x00000106>
                  DW_AT_decl_file      0x00000001
```

	DW_AT_decl_line	0x00000004
	DW_AT_decl_column	0x00000035
	DW_AT_name	gg ←-----
	DW_AT_byte_size	0x00000004
< 5><0x000000ee>	DW_TAG_member	
	DW_AT_decl_file	0x00000001
	DW_AT_decl_line	0x00000005
	DW_AT_decl_column	0x00000003
	DW_AT_name	v_integer
	DW_AT_type	<0x00000025>
	DW_AT_accessibility	DW_ACCESS_public
	DW_AT_data_member_location	DW_OP_plus_uconst
00000000		

The output contains the children tree for the DIE containing the matched attribute for the string 'gg'.