

# Documentation for write\_shef 11/4/02

## 1.0 General Information

### 1.1 Application Description

The write\_shef utility program is a function that can be called by other programs to output data in SHEF format. This program is written in C.

### 1.2 Design Considerations

The SHEF output is written in either the .A format or the .E format, it does not write in the .B format. The .A format is used when the data array contains only one value, otherwise .E is used.

### 1.3 Application Assumptions

## 2.0 Configuration Information

## 3.0 User How-To

The write\_shef function has the following format:

```
int write_shef(FILE *fp, char lid[9], char pcode[8], char sdate[9], char
stime[7], char tz[3], char cdate[13], char dt[5], float val[], int nval, char
qual[], int nqual, int rev, char *comment)
```

where:

- fp = file pointer to file open for read
- lid = location identifier
- pcode = shef parameter code
- sdate = observation date for start of data – in a SHEF-approved format
- stime = observation time for start of data – should begin with hour because program uses DH qualifier; may include minutes and seconds
- tz = time zone code
- cdate = creation date; if zero or null will not be included in message
- dt = time interval specified as NQ where
  - N = integer time step of data (.i.e. 1, 3, 6); can be negative
  - Q = qualifier to time step where
    - s = seconds
    - n = minutes
    - h = hours
    - d = days

- m = months
- e = end-of-month
- y = years
- val = evenly spaced data values array
- nval = number of values in val array
- qual = shef quality code array (char data type, not string)
- nqual = number of values in qual array; should be equal to nval
- rev = revision flag where
  - 1 = revised data
  - 0 = not revised
- comment = comment; if zero or null will not be included in message, otherwise a maximum of 20 characters will be written

See Attachment A for sample inputs and outputs.

**\*\* Please note:** This program does not perform any error checks. It assumes all passed arguments are in the correct format and valid for SHEF version 1.3.

## **4.0 Troubleshooting Information**

## **5.0 Installation Instructions**

## **6.0 Maintenance Information**

Originating Programmer/Office: Alcorn, Brenda  
Colorado Basin River Forecast Center  
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Maintenance Programmer/Office: Alcorn, Brenda  
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## **7.0 References**

SHEF Version 1.3

## Attachment A sample inputs and outputs

### Example 1:

**input:**

```
write_shef(fout, "SLRA3", "QRIRGZZ", "20020710", "12", "Z", "200207161200",  
"1h", val, 25, qual, 25, 1, "0")
```

**output:**

```
.ER SLRA3 20020710 Z DH12/DC200207161200/QRIRGZZ/DIH+1  
.E1 / 0.6Z/ 1.2Z/ 1.8Z/ 2.4Z/ 3.0Z/ 3.6Z/ 4.2Z/ 4.8Z/ 5.4Z/ 6.0Z  
.E1 / 6.6Z/ 7.2Z/ 7.8Z/ 8.4Z/ 9.0Z/ 9.6Z/ 10.2Z/ 10.8Z/ 11.4Z/ 12.0Z  
.E1 / 12.6Z/ 13.2Z/ 13.8Z/ 14.4Z/ 15.0Z
```

### Example 2:

**input:**

```
write_shef(fout, "SLRA3", "QRIRGZZ", "20020710", "6", "MDT", "0", "30n", val, 25,  
qual, 25, 0, "Salt River near Roosevelt")
```

**output:**

```
.E SLRA3 20020710 MDT DH6/QRIRGZZ/DIN+30: Salt River near Roos  
.E1 / 0.6Z/ 1.2Z/ 1.8Z/ 2.4Z/ 3.0Z/ 3.6Z/ 4.2Z/ 4.8Z/ 5.4Z/ 6.0Z  
.E1 / 6.6Z/ 7.2Z/ 7.8Z/ 8.4Z/ 9.0Z/ 9.6Z/ 10.2Z/ 10.8Z/ 11.4Z/ 12.0Z  
.E1 / 12.6Z/ 13.2Z/ 13.8Z/ 14.4Z/ 15.0Z
```

### Example 3:

**input:**

```
write_shef(fout, "SLRA3", "QRIRGZZ", "20020710", "12", "Z", "0", "0", val, 1, qual,  
1, 0, "Salt River near Roosevelt")
```

**output:**

```
.A SLRA3 20020710 Z DH12/QRIRGZZ 0.6Z: Salt River near Roos
```