

More on bitmap +Quality Informantion

First order statistic

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Bitmap+quality information

First order statistics (FOS) contains statistical information about the data(2□ maximum value, 4□ mean value, etc) see Code table 0 08 023.

To convey this information we need to create a sequence that contains the operator 224000 to open the FOS and 224255 to close it.

As we will add the FOS information to some keys we have to know which keys are going to be affected. To encode this information a bit map is needed inside the 224000/224255 sequence.

The bitmap can have normal replications or delayed replications.

Bitmap+quality information

- For example the following filter contains a sequence of 17 keys. We want to add FOS information to the latitude, longitude and height keys.
- To achieve this we have to create a FOS sequence that contains a bit map. The bitmap is a string of 1s and 0s that will be applied over the 17 keys sequences. The 0s will allow the FOS the 1s will block the FOS.

224000 , 236000 , 101000 , 31001 , 031031 ,
08023 , 101000 , 31001 , 224255

- The 224000/224255 opens/closes the FOS sequence
- The 236000 opens a bitmap that contains a replication of the descriptor 31031.
- The numbers of replications must match the 1s and the 0s of the bitmap.

Bitmap+quality information

```
set inputDataPresentIndicator={1,1,1,1,1,1,1,1,1,1,1,0,0,0,1,1,1};  
set inputDelayedDescriptorReplicationFactor={17,3};  
set unexpandedDescriptors={1001, 1002,1015, 2001, 1035,  
1034, 4001, 4002,4003, 4004, 4005,5001,6001,7001,11077,11083,11084,  
224000,236000,101000,31001,031031,  
08023,101000,31001,224255};  
write;
```

Bitmap and quality information

1001 WMO BLOCK NUMBER
1002 WMO STATION NUMBER
1015 STATION OR SITE NAME
2001 TYPE OF STATION
1035 ORIGINATING CENTRE
1034 IDENTIFICATION OF ORIGINATING/GENERATING SUB-CENTRE
4001 YEAR
4002 MONTH
4003 DAY
4004 HOUR
4005 MINUTE
5001 LATITUDE (HIGH ACCURACY)
6001 LONGITUDE (HIGH ACCURACY)
7001 HEIGHT OF STATION (SEE NOTE 1)
11077 REPORTING INTERVAL OR AVERAGING TIME FOR EDDY DISSIPATION RATE
11083 WIND SPEED
11084 WIND SPEED

224000 The statistical values which follow relate to the data defined by the data present bit-map

236000 This operator defines the data present bit-map which follows for possible re-use; only one data present bitmap may be defined between this operator and the cancel use defined data present bit-map operator

101000 101000

31001 DELAYED DESCRIPTOR REPLICATION FACTOR

31031 DATA PRESENT INDICATOR

8023 FIRST ORDER STATISTICS

101000 101000

31001 DELAYED DESCRIPTOR REPLICATION FACTOR

224255 224255

Bitmap and quality information

- We may think as the keys of the message were in a column and we place the bitmap mask over it. As the number of keys we have before the bitmap is 17, we need to add the dataPresentIndicator with 17 elements. 14 of them are 1s and 3 are 0s (latitude, longitude and height).

Then we have to set the proper replications, so now we set the delayed replications. For the bitmap we need 17 replications but only 3 to close it. As we use two replications we have to set

```
set inputDelayedDescriptorReplicationFactor={17,3};
```

Bitmap and quality information

- As a result, the three keys latitude/longitude/heightOfStation will have a FOS associated

```
"key" : "latitude",  
    "value" : null,  
    "index" : 12,  
    "code" : "005001",  
    "units" : "deg",  
    "scale" : 5,  
    "reference" : -9000000,  
    "width" : 25,  
    "firstOrderStatisticalValue" :  
    {  
        "key" : "firstOrderStatisticalValue",  
        "value" : null,  
        "index" : 40  
    }  
},  
[
```

Bitmap and quality information

- To populate the keys

```
set inputDataPresentIndicator={1,1,1,1,1,1,1,1,1,1,1,0,0,0,1,1,1};

set inputDelayedDescriptorReplicationFactor={17,3};

set unexpandedDescriptors={1001, 1002,1015, 2001, 1035, 1034, 4001, 4002,

4003, 4004,

4005,5001,6001,7001,11077,11083,11084,224000,236000,101000,31001,031031,08

023,101000,31001,224255};

set #1#latitude=48;
set #1#latitude->firstOrderStatisticalValue=11;
set #1#longitude=128;
set #1#longitude->firstOrderStatisticalValue=29;
set #1#heightOfStation=340;
set #1#heightOfStation->firstOrderStatisticalValue=17;
set firstOrderStatistics=9;
set pack=1;
write;
```