

IPCRESS File Format

file offset
in words

0

Title: (2) 8-byte words

[0] 'nirvana' or 'ipccress'
[1] not used

16

Table of Contents: (24) 8-byte integers

[0] - disk address of 'number of words of data' array
[1] - disk address of 'array of disk addresses for data' array (file_map[0]+mxrec)
[2] - logical length of prefix (always == 24)
[3] - disk length of prefix
[4] - disk address of prefix (always 2)
[5] - logical length of information block (always 0)
[6] - disk length of information block
[7] - disk address of information block
[8] - logical length of index block
[9] - disk length of index block (3*mxkey+2)*mxrec
[10] - disk address of keys ([1]+mxrec)
[11] - disk length of data block used.
[12] - disk length of data block
[13] - no longer used
[14] - number of data records in data block
[15] - word length of key entry for data record
[16] - maximum number of search keys (mxkey)
[17] - disk address of last index entry ([0]+[14]-1)
[18] - logical length of last data record
[19] - disk length of last data record
[20] - disk address of last data record
[21] - disk length of file
[22] - last address on file
[23] - logical data space used

TOC[N]

- maximum number of records on ipccress file, mxrec = [1]-[0].
- maximum number of search keys, mxkey = [16].

- All records are stored as 8-byte double (big endian). For Linux the value must be read as char[8], memcpy'd to double, byte-swapped and then cast as int or unsigned.

Checks

- [2] == 24
- [4] == 2
- [5] == 0
- [10] == [1]+mxrec = 2*[1]-[0]

TOC[0]

Table of Data Sizes (DS):
(TOC[14]) 8-byte integers.

[0] - number of materials on file
[1] ... [TOC[14]]

DS[N]

- DS[0] contains the maximum number of allowed materials for the IPCRESS file (one 8-byte integer == 99?)
- Remaining fields (tgrid, rgrid, hnguid, etc.) are in an unspecified order.

TOC[1]

Table of Data File Offsets:
(TOC[14]) 8-byte integers

[0] - file offset to list of materials on file.
[1] ... [TOC[14]]

DFO[N]

DFO[0]

Table of material identifiers
Data size: (DS[0]) 8-byte integers.

[0] - number of materials (int)
[1] - material id (int)
[2] - material id (int)
[3] - etc

- [0] contains the number of defined materials in this file (one 8-byte integer)
- [1] and following contain the material identification numbers.

TOC[10]

Table of data fields for each material:
(TOC[14]) arrays of (TOC[16]) length arrays with 24-byte values.

[0] - 'mats', 'fill', 'fill' # (three 24-byte strings)
matid 0
[1] - '10001', 'tgrid', 'fill' # (three 24-byte strings)
[2] - '10001', 'rgrid', 'fill'
[...]
matid 1
[26] - '10002', 'tgrid', 'fill'
[27] - '10002', 'rgrid', 'fill'
[...]

TDF[N]

- List of data keys (tgrid, rgrid, hnguid)
- Each entry has TOC[16] (==3) 24-byte words.
- Al_BeCu.ipccress has 2 mats (10001,10002), and 25 keywords per material: 2*25+mats entry = 51 entries (each entry has three 24-byte values)
- The primary index is aligned with the DS and DSO arrays from page 1.

- TDF[1] says that 'tgrid' is available for matid 10001. There are DS[1] grid values for matid 10001. These tgrid values are located at DFO[1].

Data Tables per Material

DFO[1]

'tgrid' field (mat 10001):
[0]...[DS[1]] - double tgrid values.

- TDF[i] (i=1) says that 'tgrid' is available for material 10001. There are DS[i] grid values 'tgrid' for material 10001. These values are located at DFO[i], i=1.
- Similarly, load data for i=1, TOC[14].

DFO[20]

'comp' field: (size and addr from DS and DFO).
[0] - ZZ
[1] - AA

- if AA==0, then set AA=2*ZZ (pre 7/2005).
- if size == 0 for 'comp', then zz=0.5, aa=1.0.
- zoa = zz/aa.
- Save seszoo[nmat] array.

DFO[26]

'tgrid' field (mat 10002):
[0]...[DS[26]] - double tgrid values.

- Material 1002