

To : Pipeline Group
Subject : MAPIO Improvements
From : R Payne

Date : 15 Aug 1983

Several months ago a version of the MAPIO routines was implemented and it is currently being used by several programs in the PIPELINE. It is now time to review those routines and to improve their efficiency if possible. Also the memo describing map names was completed after the MAPIO package and so calls to open maps should now change to reflect the suggestions in that memo.

CHANGES IN MAPNAMES (the OPMIO routine)

The OPMIO call was passed just a single 12 character string and version number such as "3C9.MIL;2". The catalog required a 12 character name and a version number to make the mapname unique. The Ron Ekers memo defines the mapname to be a 12 character name string plus a 6 character class name plus a version number. I propose to change the OPMIO call to reflect this change:

original call:

```
CALL OPMIO (MID,NAME,L1,MODE,HDR,ERR)
```

here NAME is a character variable whose length is specified by L1. This name string was parsed to separate the name and the version number.

proposed call:

```
CALL OPMIO (MID,NAME,CLASS,VERSION,MODE,HDR,ERR,END)
```

the NAME is a length 12 character variable, CLASS a length 6 character variable and VERSION is an integer*2 variable. The original call returned an ERR condition if the map open for input did not exit. The new call has a logical variable set true if the map matching the mapname could not be found. ERR is reserved for actual file io errs.

There is also the need to decide on how MAPIO will handle disk assignments. It is especially important for the shared disks on DISPLY and GRIDER. I propose to add a DSK argument to the INIMIO call.

original call:

```
CALL INIMIO(MID,PPN,LUN,IRES,ERR)
```

proposed call:

CALL INIMIO(MID,PPN,LUN,DSK,IREC,ERR)

where DSK is the character string returned by the DSKINFO routine. There seem to be conflicting design goals here. One desire is to have a system insensitive to a particular disk going down and the other is the desire to have all disks look like one large disk to the user.

EFFICIENT IO

The MAPIO routines as currently called by the IIS image loading program for example are very slow. It is proposed that changes be made to the RDMIO and WRMIO routines to enhance the efficiency of these routines. The original design called for allowing larger buffers and possibly queued IO. I propose to turn on these options and to evaluate the need for additional read and write calls to improve the IO efficiency. Also modification to the header to indicate whether any BLANK pixels are present may speed up application tasks using map data.

ASSOCIATED FILES

Variable length parameter lists such as the history file and the clean components file should be added to the map database. I suggest the following calls which I need immediately for the CLEAN program.

To access history files:

```
CALL OPHIS(MID,LUN,ERR)
CALL RDHIS(MID,LUN,BUF,ERR,END)
CALL WRHIS(MID,LUN,BUF,ERR,END)
CALL CLHIS(MID,LUN)
CALL DLHIS(MID,LUN)
```

To access components files:

```
CALL OPCMP(MID,NAME,CLASS,VERSION,ERR,END)
CALL RDCMP(MID,BUF,NCMP,IPT,ERR)
CALL WRCMP(MID,BUF,NCMP,IPT,ERR)
CALL CLCMP(MID,ERR)
CALL DLCMP(MID,ERR)
```

Other files such as plot and slice files will be added as the need arises.

CATALOG FORMAT

The current header record is defined more or less by the CATREC.DCL in the [210,10] area. It is proposed that this header record be modified to reflect the new MAPIO structure. The format for this

header is not complete at this time. The major change will be to generalize the axis types and definition. Changes to the definition of the coordinates will require rewriting various coordinate transformation routines currently in the library.