X-565-70-243
PREPRINT

NASA TM X- 63964

DATAGRAPHIX 4060 PROCESS PROGRAM UPDATING

GEORGE L. FLEMING

MAY 1970

GODDARD SPACE FLIGHT CENTER
GREENBELT, MARYLAND

X-565-70-243

DATAGRAPHIX 4060 PROCESS PROGRAM UPDATING

George L. Fleming
Information Processing Division
Telemetry Computation Branch
Programming Systems Section

May 1970

GODDARD SPACE FLIGHT CENTER
Greenbelt, Maryland

INTRODUCTION

The Datagraphix 4060 printer and plotter operates with a Product Control Unit (PCU) having a buffer and an internally-stored program capacity of 8192 words. Tapes with varying format may be processed, as the stored program may be so changed; however, the procedure to modify these existing process programs has not been published previous to this document. The occasion arose where the process program for printing Univac 1108 Exec II tapes had to be modified to handle Exec 8 tapes; the procedure outlined below was accomplished with the aid of G. Rosen of Wolf Research and Development Corporation, and has been released to provide other users with this documentation.

Comments relating to this manual may be addressed to

George L. Fleming
X5129
Programming Systems Section 565.1

Key Words: 4060; print tapes; process; Datagraphix

CREATING OR UPDATING SCRIP PROCESSOR ROUTINES

NOTE: The use of two tape drives is necessary.

1. Create the Symbolic Tape:

If updating a symbolic scrip tape:

*Mount the scrip operating tape, load LL16, and use it to load UPD2 (an update of UPDT which operates similarly). Start at $P=3\emptyset\emptyset\emptyset_8$.[1]

*Demount the above tape and mount the old symbolic tape and a blank tape. Since an end-of-file is necessary at the end of the new, updated element, your last copy card (CO) should copy through and beyond the EOF on the old symbolic tape. For instance, if you are updating UNPR and that element is followed by P7Ø9 on the symbolic tape, your last two images in the update stream should be

```
CO    P74ØØØ1Ø
EN
```

*Replace the old symbolic tape with the scrip operating tape and go to LL16, in core from the above step. Remove the write ring on the new symbolic tape.

2. Compile the Object Tape

Load DP16 with LL16.

*Replace the scrip tape with a blank tape. The blank must be on unit 2, the updated symbolic tape on unit 1. After hitting the "Master Clear" button, load the A register as required and start running with $P=4\emptyset\emptyset_8$. Be sure to set bit 1 on in the A register for a two pass assembly. A different P setting may be used as required.[2]

*Place the scrip operating tape on unit 1 and reboot from paper tape. Leave the new object tape up, but rewind to load point; also, remove its write ring. Removing the write rings is fairly important here when tapes and unit numbers are changing as they are!

3. Load the Object Tape Into Core Using SLDT

With MCS in core from the boot, load LL16.

Using LL16, then load LLØ1.

Using LLØ1, now load SLDT. Before running SLDT, set the following sense switches:

SS1 - Down for magnetic object tape, up for paper object tape

SS2 - Down to load presently positioned file, up to by-pass presently positioned file.

UNIT:	1	2	3	4
SS3:	down	down	up	up
SS4:	down	up	down	up

Enter the octal address where the inter-sector indirect address word table is to begin into the B register. No address implies a setting of $1ØØ_8$.

Now enter $17ØØØ_8$ into P and press START.

A reply of LC implies loading complete and successful.[3]

4. Use SYSG to Generate a Modular Tape

With LLØ1, in the system from Step 3, load LL16. After going to $16ØØØ_8$ and replying to TU NO?, and if a basing address is needed, put the MA/SI/RUN switch into SI, and enter the basing or load address into the B register; otherwise an address of $1ØØØ_8$ is assumed. Reset the above switch to RUN, hit START, and reply SYSG to "LABEL?".

*Mount a blank tape on either tape unit. If a basing address was used, go to that address; otherwise, go to $1ØØ_8$ and START. To the message UNIT, give the output tape number. The message ID should be answered with a four character name which will be the new library name. Characters after the fourth are accepted as comments to be inserted on the tape. The last character is a carriage return.

At this point the program halts.

Load the address of the first word of the core area to be dumped into the A register; the address of the last word, into the B register; hit START and reply YES or NO to the message MORE. If YES, continue as above with the A and B registers. If NO, the system responds with ID. If you have another program to dump, continue as above; otherwise reply END and carriage return. An end-of-library record and an EOF will be output.

*Rewind the output (Modular) tape.

5. Load the New Process Program

Go to $16ØØØ_8$, and, with the modular tape rewound and on unit 1, load your new program with LOAD NAME.

Congratulations! You are now finally ready to test your new process program.

To ascertain that it's really there, tape "STAT". The four character name typed during Step 4 above should be the first word out. "NO PG" indicates that an error was made in one of the above steps, such as the contents of the A and B registers during the modular tape make. To test the program, remount the SCRIP tape on unit 1, put your test input tape on unit 2, and type START.

REFERENCES

1. Scrip Programmer's Reference Manual, Vol. II, P. 3-37 ff.

2. DDP-516 Users Guide, Honewell Document No. 13ØØ71627/M-1Ø43, p. 5-3 ff.

3. DDP-516 Users Guide, p. 5-2 (for any other reply).

4. Scrip PRM, Vol. II, p. 3-3Ø.