

APPENDICES

To standardize the system generation procedure for all systems, a set of system generation processors has been developed which provides great flexibility, extensive logging of the process and improved efficiency.

The three steps inherent in any system generation process, i.e. monitor tables generation, monitor body generation and system medium generation are handled by a number of generation processors which are loaded and started successively.

For the generation of a Disc Operating Monitor these are:

- GENMON, a generation monitor used only during the system generation process to run the generation processors.
- DOMGEN, which generates the monitor tables from the answers it receives from the user in a conversational process with a standard list of questions.
- PREMDK, which is used to premark the system disc and write an Initial Program Loader on it, as the first module on the system disc. PREMDK runs under any monitor.
- GENLKE, which runs under GENMON and scans the library of system modules (DOMLIB), to select the ones requested during the DOMGEN phase and link them with the tables generated during DOMGEN.
- DISLOD, which, running under GENMON, is used to record the system processors on disc in load module format.

Depending on his configuration, the user may receive his sysgen tools, i.e. the above-mentioned processors, on punched tape or on cassette. In the first case, each processor is contained on a separate punched tape, in the second case all the processors are contained on one cassette.

In the description which follows in the paragraphs below, the cassette case is the basis, as this is the assumed standard for this sysgen process. It is very easy for the user, however, to redefine these standards (under GENMON) in case he works with punched tape. Apart from the redefinition of the standards, the main difference in the description is that from cassette the successive processors can be loaded and started without any manual

operation, whereas with punched tape, for each following step a new tape with the following sysgen processor must be put on the tape reader and then loaded and started.

Note: For DataCom SysGen, see Data Communication User Manual

In the following paragraphs, the whole set of operations necessary for the generation of a DOM is described in a number of sections corresponding to the system generation processors listed above. At the end of each section a number of notes and remarks is given, which the user must carefully read before starting the operation.

OPERATION

The minimum configuration required for generating a DOM is:

- CPU with 16k memory
- typewriter with address 10
- paper tape reader and punch, or
two magnetic tape cassette drives on 1 control unit
- one X1215 disc unit

If the configuration is paper tape-oriented, the user receives 25 tapes, containing:

- IPL + GENMON
- DOMGEN
- PREMDK
- GENLKE
- DOMLIB (the DOM Standard Library)
- DISLOD
- one tape for each of the monitor segments and system processors:
CCI, CSEG1, CSEG2, CSEG3, CSEG4, CSEG5, LED (Line Editor),
CSEG7, CSEG8, CSEG9, CSEGA, CSEGB, CSEGC, CSEGD, CSEGE,
ASM (Assembler), LKE (Linkage Editor), DEB (Debugging Package),
IPLGEN (IPL Generator).

If the configuration is cassette tape-oriented, the user receives two so called generation cassettes, containing:

- cassette 1: side A: IPL
GENMON
DOMGEN

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                                PREMDK
                                GENLKE
side B:  DOMLIB
                                DISLOD
- cassette 2: side A: monitor segments and system processors:
                                CCI
                                CSEG1
                                CSEG2
                                CSEG3
                                CSEG4
                                CSEG5
                                LED
                                CSEG7
                                CSEG8
                                CSEG9
                                CSEGA
                                CSEGB
                                CSEGC
                                CSEGD
                                CSEGE
                                ASM
                                LKE
                                DEB
                                IPLGEN
side B:  -----

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The user needs two cassettes or paper tapes of his own, to be used for intermediate storage of sysgen output.

Note:

Throughout this chapter, user replies typed in response to questions output by one of the sysgen processors, are underlined.

To start the process:

- switch on the CPU
- for cassette:
 - load generation cassette 1 (hereafter called cassette G1) in cassette drive TK05 with side A up
 - set the data switches on the CPU control panel to allow the bootstrap to load from TK05:

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0	0	0	0	1	1	1	1	0	0	0	0	1	0	1

(hexa 0785)

(for the significance of the bits, see your Programmer's Guide, Vol. 1; suffice it to mention here that bit 3 is 0 if the cassette drives are connected to the I/O processor and 1 if they are connected to the programmed channel, and bits 10 to 15 contain the device address.)

- for paper tape:

- put the tape containing IPL +GENMON on the tape reader and make it operable
- switch on the paper tape punch and feed tape
- set the data switches on the CPU control panel to allow the bootstrap to load from the tape reader:

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0

(hexa 1020)

(for the significance of the bits, see page 68 ; suffice it to mention here that bit 3 is 1 because the reader is connected to Programmed channel and that bits 10 to 15 contain the device address which is here assumed to be 20).

Then:

- press the MC button
- press the IPL button

Now the bootstrap is loaded which loads the first sysgen processor from either the cassette in drive TK05 or the paper tape reader into memory:

GENMON

GENMON is a special monitor used only during the sysgen process. To be able to do this, it must know the system configuration, the device addresses, interrupt levels and file codes. It is here that this system generation procedure shows its flexibility, for the great number of definition possibili-

ties which the user has at this point. GENMON outputs two questions, allowing the user to give his definitions and assignments. However, the system generation will handle a set of built-in standards if these are acceptable to the user. In this case he does not have to define anything, but if one of the user's assignments or definitions is different from the standard ones as listed below, he must redefine under GENMON.

When GENMON is loaded its identification is output on the typewriter:

GENMON

When loading is terminated,

:EOS

:EOF

is output on the typewriter, followed by the question STANDARD CONFIGURATION?

The reply to this question can be Y[E]S or N[O].

If the user replies Y or YES followed by (LF) (CR), GENMON assumes the following standard configuration definition:

- typewriter : TY10 at level /6
 - tape reader : PR20 at level /4
 - tape punch : PP30 at level /5
 - line printer : LP07 at level /17
 - card reader : CR06 at level /15
 - cassette tape : TK05 at level /14
TK15 at level /14
TK25 at level /14
 - magnetic tape : MT04 at level /13
MT14 at level /13
MT24 at level /13

 - X1215 disc : BM02 at level /10 (removable cartridge).
- (It is not necessary for the user to have all these devices in his configuration to be able to answer YES; but the ones he does have must then correspond to these standards.)

If the user replies N or NO, i.e. if one or more of the device addresses or levels is different from the standards above, GENMON outputs the following list on the typewriter, thereby allowing the user to define the configuration himself:

TY:
PP:
PR:
LP:
TK:
MT:
CR:
DK:

DISK TYPE: (type in B)
LKM LEVEL: (standard = 1)
RTC LEVEL: (standard = 2)
PANEL INTERRUPT LEVEL: (standard = 7)

For each of the devices listed, the user can reply as follows:

- CR if he wants the standard address and level (see above);
- <address>,<level> if one of these is different from the standards, followed by CR
- N or NO followed by CR if he wants the device excluded from the system.

When the user has terminated his reply to the first question, GENMON types out:

STANDARD FILE CODE ASSIGNMENT?

The procedure here is the same as for the first question: the reply may be either Y[ES] or N[O].

If the user replies Y or YES followed by LF CR GENMON assumes the following standard file code assignments:

- file code 1 : TY10 (system keyboard)
- file code 2 : LP07 (listing output)
- file code 3 : TK15 (object output)
- file code 4 : TK05 (object input)
- file code 5 : TY10 (system keyboard)
- file code 6 : TK05 (object input)
- file code 7 : TK25 (object input)
- file code 8 : PR20 (object input)
- file code A : TY10 (sysgen source input)

- file code B : TK15 (sysgen object output)
- file code E0: TY10 (system keyboard)
- file code E2: TK05 (Disload object input)
- file code EF: TY10 (system keyboard)
- file code F0: BM02 (Disload disc output;i.e. X1215)

If the user replies N or NO to this second GENMON question, i.e. if one or more of his file code assignments is going to be different from the standard list above, which is the case when the user works with paper tape, GENMON outputs the following list on the typewriter, thereby allowing the user to give his own file code assignments (since the GENMON processor is the same for all monitors, some of the file codes given in this list are irrelevant to the generation of a DOM and the user must type in NO after those):

LOAD INPUT DEV. AND MAIN LKE INPUT DEV.	F.C./4: (standard = TK05)
SYSGEN INPUT DEV.	F.C./A: (standard = TY10)
SYSGEN OUTPUT DEV.	F.C./B: (standard = TK15)
AUX. LKE INPUT DEV 1	F.C./6: (standard = TK05)
AUX. LKE INPUT DEV 2	F.C./7: (standard = TK25)
AUX. LKE INPUT DEV 3	F.C./8: (standard = PR20)
AUX. LKE INPUT DEV 4	F.C./9: (no standard)
IPLGEN/LKE/CASLOAD OUTPUT DEV.	F.C./3: (standard = TK15)
LISTING OUTPUT DEV	F.C./2: (standard = LP07)
CASLOAD INPUT DEV.	F.C./C: (type in <u>NO</u>)
DISLOAD INPUT DEV.	F.C./E2:(standard = TK05)

For each of the file codes listed, the user can reply as follows:

- (CR) if he wants the standard assignment (see above);
- <dev.name><dev.address> if one of these is different from the standards, followed by (LF) (CR)
- N or NO followed by (CR) if he does not want this file code taken into account
- if there is only one device of its kind, e.g. one PP, or in case a device which must be taken is the first of a series encountered in the standard list above, e.g. TK05, it suffices to specify only the device name, i.e. PP or TK.

When the user has terminated his reply to this question,
GENMON types out:
END OF GENMON INITIALIZATION
READY TO LOAD PROGRAMS

Now the user can proceed to the next phase: DOMGEN.

Notes on GENMON:

For the question STANDARD CONFIGURATION:

- From the time the MC button has been pushed up to the end of GENMON initialization, no ready interrupts should occur.
- If the user has answered N or NO to this question, in the list typed out by GENMON, specification of a level is mandatory for LKM LEVEL. For RTC LEVEL it is mandatory if the CPU key is in the RTC/ON or LOCK position. For PANEL LEVEL it is also mandatory.
- The standards imply that the system disc will be the removable cartridge of the X1215 disc unit; therefore, if the user wants his system on the fixed cartridge, he must redefine DK under this question, e.g. as BM22.

For the question STANDARD FILE CODE ASSIGNMENT:

- File code /4: all programs will be loaded from this file code. During the syslink phase it is used as GENLKE object input, so it must be cassette or punched tape.
- File code /A: from this file code the parameters for table generation will be read. This may be done in interactive mode (e.g. TY) or not (PTR, cassette, magnetic tape, card reader).
- File code /B: this may be cassette, punched tape or magnetic tape.
- AUX. INPUT DEV.: these may be assigned in advance, especially for syslink if libraries are to be scanned on various devices.
- File code /3: this is the main output device (sequential), i.e. cassette tape, punched tape or magnetic tape.
- File code /2: for logging of the sysgen operation: LP.
- File codes /4, /A, /B and /3 are mandatory; file codes /6 up to /9 and /2 are optional.

When answers to GENMON questions are given on an ASR type-

ties which the user has at this point. GENMON outputs two questions, allowing the user to give his definitions and assignments. However, the system generation will handle a set of built-in standards if these are acceptable to the user. In this case he does not have to define anything, but if one of the user's assignments or definitions is different from the standard ones as listed below, he must redefine under GENMON.

When GENMON is loaded its identification is output on the typewriter:

GENMON

When loading is terminated,

:EOS

:EOF

is output on the typewriter, followed by the question STANDARD CONFIGURATION?

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If the user replies Y or YES followed by (LF) (CR), GENMON assumes the following standard configuration definition:

- typewriter : TY10 at level /6
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 - cassette tape : TK05 at level /14
TK15 at level /14
TK25 at level /14
 - magnetic tape : MT04 at level /13
MT14 at level /13
MT24 at level /13
 - X1215 disc : BM02 at level /10 (removable cartridge).
- (It is not necessary for the user to have all these devices in his configuration to be able to answer YES; but the ones he does have must then correspond to these standards.)

If the user replies N or NO, i.e. if one or more of the device addresses or levels is different from the standards above, GENMON outputs the following list on the typewriter, thereby allowing the user to define the configuration himself:

TY:
PP:
PR:
LP:
TK:
MT:
CR:
DK:

DISK TYPE: (type in B)
LKM LEVEL: (standard = 1)
RTC LEVEL: (standard = 2)
PANEL INTERRUPT LEVEL: (standard = 7)

For each of the devices listed, the user can reply as follows:

- CR if he wants the standard address and level (see above);
- <address>,<level> if one of these is different from the standards, followed by CR
- N or NO followed by CR if he wants the device excluded from the system.

When the user has terminated his reply to the first question, GENMON types out:

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The procedure here is the same as for the first question: the reply may be either Y[ES] or N[O].

If the user replies Y or YES followed by LF CR GENMON assumes the following standard file code assignments:

- file code 1 : TY10 (system keyboard)
- file code 2 : LP07 (listing output)
- file code 3 : TK15 (object output)
- file code 4 : TK05 (object input)
- file code 5 : TY10 (system keyboard)
- file code 6 : TK05 (object input)
- file code 7 : TK25 (object input)
- file code 8 : PR20 (object input)
- file code A : TY10 (sysgen source input)

