Title:

RC3600 System Generation with DOMUS GEN User's Guide

Version 2

A/S REGNECENTRALEN

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Abstract:

This manual describes how to generate program magnetic tapes, flexible discs, paper tapes and card decks with the DOMUS utility system GEN.

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CONTENTS PAGE

1. INTRODUCTION. 1.

System GEN is used to generate program magnetic tapes, DOMUS magnetic tapes, card decks, program flexible discs and program paper tapes.

GEN is running as a DOMUS utility.

GEN consists of 6 program modules:
One input and control module and four device dependent output modules. Those five programs must be installed on the DOMUS disc in the files:

		Process name
GEN:	RC36-00663 input and control module	GEN
GENOM:	RC36-00664 output module magnetic tape	GENO
GENOF:	RC36-00665 output module flexible disc	
GENOP:	RC36-00666 output module paper tape	
GENOR:	RC36-00667 output module punched cards	
GENON:	RC36-00976 output module flexible disc	RC3750-51

2. REQUIREMENTS:

2.1. Core.

GEN and one of the output modules require approx. 12 KB memory. If output on magnetic tape or flexible disc new format, memory must be available to get a core item as big as the biggest abs.bin module (autoload and basis) to be put on the tape.

2.2. Drivers.

For all output devices except flexible disc, the latest version (at present: MT008, PP002, RP001) must be used. For flexible discs FD200 must be used. Flexible disc in new format can be generated in two ways:

1) On RC3650 with the flexible disc driver FD205 and the magtape emulator module RC36-00280.01 or equivalent.

2) On RC3750-51 with the newest version of FL000 and the same magtape emulator as in 1).

If a LOG is produced, the relevant driver for the LOG device as well as the program TIME must be loaded to get the creation date.

2.3. Disc Files.

A work file (GENL) is created in which the LOG is written. When it has been written on the LOG device or another disc file, GENL is removed before program termination.

3. CALL. 3.

GEN OUT.<device> OCOPY.<number> CONTR.<file>
LOG.<devicedescriptor> LCOPY.<number> MARG.<number>

OUT: The output device:
MT ~ magnetic tape
FD ~ flexible disc
PTP ~ paper tape punch
RDP ~ card reader punch
NFD ~ new flexible disc format (RC3750-51)
(Default is MT)

OCOPY: Number of copies of the output.
(If 2 identical program tapes should be generated, the control file will be syntax checked twice, if the program is called twice. This is avoided by using this parameter).
(Default is 1).

CONTR: The control file:
A disc file generated by the text editor containing the commands to GEN. Syntax for this file, see section 4.
(No default - must be specified).

LOG: A file descriptor describing the device where the LOG should be written. If the name does not exist, a disc file is created, and the LOG is written in a format that can be printed with the text editor or the DOMUS utility PRINT.
(Default no LOG).

LCOPY: Number of copies of the LOG. Only relevant if not logging in disc file.
(Default is 1).

MARG: Margin on the LOG (number of spaces max. 10 to be printed before each line).
(Default is 0).

4. CONTROL FILE

The control file is a disc file written with the text editor. The file contains alle information needed for system generation.

Before any output is made, a complete syntax check of the control file and a lookup on all disc files is performed. The syntax is as follows (Appendix A shows a complete example):

4.1 Head Function.

This function is used to write the head of the LOG. The syntax is:

/HEAD	initials
IDEN(T)	P: xxx-xxx
CUST(OMER)	customer name
ADDR(ESS)	city and country of customer
DENS(ITY)	nnnn BPI (only magnetic tape)
PREV(IOUS)	P: xxx-xxx

4.2. Autoload Function.

This function is used to write an autoload file on the output device. The syntax is:

/AUTO(LOAD)	<loadfile> <comment>
<loadfile>	is the name of the disc file in which the basic system is in abs.bin format. If the OUT parameter NFD is used the file contains a bootstrap program and the basic system is placed as seperate modules on the following files with the /PROG function.

The basic system modules has a predefined sequence as:

1) First files must be all non process modules (Monitor, interprete)

2) Following files must be all process modules (drivers, operating system) Operating System must be the last one.
3) The last module must be a non process module ie the MUS-Initialization.

See Appendix D which contains a control file example for generating of flexible disc in the new format.

<comment> is a text string written on the log as comment, e.g. BIM08: RCSL: 43-GL3160. From the comment max. 47 characters is used.
TAB (CNTRL I) is interpreted as one space.

4.3. Command function. 4.3.

This function is used to write a command file on the output device. The syntax is:

```
/COMM(AND)      <ident>
command 1
command 2
.
.
.
command n
end
```

<ident> is the file ident on the output device (ordinarily not used on paper tape and punched cards).

In each command a maximum of 511 characters is allowed. Only when generating DOMUS tapes it may be more than 80 characters (not checked by GEN).

If a LOG is produced, and a command line is too long for 1 line, the command is divided into more lines on the log to avoid any loss of documentation.

The command end must be the last in the command file, and it must be placed on a seperate line, because GEN uses end as terminator for the command function.

4.4 Program Function.

This function is used to write a program file on the output device. The syntax is:

```
/PROG(RAM)
<loadfile>  <ident>  <comment>
<loadfile>  <ident>  <comment>
<loadfile>   is the name of the disc file in which
             the program is in rel. binary format.
<ident>      is the file ident on the output device.
<comment>    is a text string written on the LOG,
             e.g. PR006 RCSL: 43-GL2400.
             From the comment max. 47 characters
             are used.
             TAB (CNTRL I) is interpreted as one
             space.
```

If no <ident> is wanted on the output device, but a <comment> should be written on the LOG, put a <-> instead of <ident>.

This function can be used to copy anything from the disc, because no check of the data is performed (e.g. to copy a code procedure library to a program tape).

The program function is not terminated until the next /FUNCTION is read.

4.5 Note Function. 4.5.

This function is used to put comments on the LOG.
The suntax is:

```
/NOTE
line 1
line 2
.
.
.
line n
```

The function is not terminated until the next /FUNCTION is read. Also empty lines and formfeeds are copied to the LOG, so when using this function it is possible to divide the LOG into logically parts and pages.

4.6 Basis Function 4.6

This function is only relevant, when the output device is magnetic tape. If not, it will be the same as the program function.

The basis function is used to make a core image from an abs. binary file like the autoload function, byt the autoload function writes the core image in one big block on the magnetic tape. The basis function divides the core image into blocks of the current used blocksize (see block function).
The syntax is:

```
/BASI(S)
<loadfile>   <ident>  <comment>
```

(Description of the parameters, see program function).

4.7 Append Function

This function is only relevant when output device is magnetic tape or flexible disc. Append function is used to append some files to an already existing program tape or program flexible disc.
The syntax is:

/APPE(N)	<filenumber>
<filenumber>	is next file to write on magnetic tape or flexible disc (starting with a)

4.8. Block Function

This function is only relevant when output device is magnetic tape. If not, it will be ignored.

Block function is used to change the block size (default is 80 bytes). The syntax is:

/BLOC(K)	<size>
<size>	is the new block size (1 - 512 bytes)

4.9 End Function.

This function is used to terminate the GEN program.
The syntax is:

/END

4.10 General Syntax.

Each line in the control file must be terminated by a carriage return. As seperator between <loadfile>, <ident> and <comment> all characters less than or equal to space (decimal value = 32) are legal (i.e. LF, CR, space). If <loadfile> is more than 5 characters, the first 5 are used, and the rest is skipped.

For <ident> the first 5 characters are transferred to the output device, the first 11 to the LOG, and the rest is skipped.

5. SYSTEM MESSAGES. 5.

If an error occurs on the disc, a message is written on the console and the program execution is terminated.

If an error occurs on the output device, a message is written on the console and the output operation is repeated each second. To stop the execution, type "STOP".

If an error occurs while writing the LOG to a device different from disc, a message is written on the console, and the operation is repeated each second. To stop the execution, type "STOP".

When execution is terminated the disc file (GENL) is removed, and the programs GEN, GENO and all area processes used by GEN are removed from memory.

The system messages are divided into 4 groups:

1. Program messages.
2. Messages concerning the disc and the catalog.
3. Messages concerning the devices.
4. System messages.

5.1. Program messages. 5.1.

Following messages will cause stop of the execution:

ILLEGAL OUT DEVICE

Syntax error in the call

NO CONTROL FILE

Syntax error in the call

SYNTAX ERROR IN <file>

The disc file <file>, which is specified to be control file, contains something that does not correspond to the description in section 4.

5.1.

SUM ERROR

NOT ENOUGH CORE

Appears when loading an abs.binary module (only when output is magnetic tape and function is /AUTO or /BASIS).

EXECUTION STOPPED BY OPERATOR

Appears after device message and operator reply "STOP".

ILLEGAL MESSAGE TO OUTPUT MODULE

Should not appear (Software malfunction).

GEN READY

LOAD OUTPUT DEVICE TO GET COPY

The OCOPY parameter has been set greater than 1, a generation is ended and GEN is ready for the next.
To continue, make the output device ready and press return.
To stop and get the LOG (if specified), type "STOP".

LOAD/INITIALIZE TIME

Appears when LOG is wanted and the program TIME is not loaded or initialized. It is possible to take three different actions:

1) Load and/or initialize TIME.
   GEN automatically continues when TIME is initialized.
2) Type the command SKIP.
   Execution will continue, and the date will be empty on the LOG.
3) Type the command STOP.
   Execution is terminated.

5.2. Disc Messages. 5.2.

All disc messages will cause stop of the execution. The messages are fetched from the DOMUS error text file (SSYSE) and are described in DOMUS User's Guide.

5.3. Device Messages. 5.3.

Device messages are from the log device or the output device. To continue, make the device ready (the output operation is automatically repeated each second). To stop execution, type "STOP".

The messages appear in the following format:

<device> STATUS
< error text>

<device> indicates the device, and <error text> explains what is wrong.

5.4. System Messages. 5.4.

System messages cause stop of the execution. System messages may appear when GEN asks S to GET or FREE core items or to LOAD or KILL processes. The messages are fetched form the DOMUS error text file (SSYSE) and are described in DOMUS User's Guide.

APPENDIX A - EXAMPLE OF CONTROL FILE.

This an example of a control file:

```
/HEAD       TGR
IDEN        P: 600-007
CUST        RC-TUG
ADDR        GLOSTRUP, COPENHAGEN
PREV        P: 600-006
DENS        1600 BPI

/AUTO       BTM09       BTM09           RCSL: 43-GL4326

/COMM       DRIVERS
CLEAR
LOAD PTR LPT PTP CLTAB
END

/COMM       EDITOR
CLEAR
LOAD PTR LPT PTP CLTAB P16
END

/NOTE
Here any comments that is wanted on the log could be written.
Anything from here to the next "slash" is interpreted as com-
ment.

/PROG
PR006       PTR         PR006           RCSL: 43-GL2400
LP010       LPT         LP010           RCSL: 43-GL3762
PP002       PTP         PP002           RCSL: 43-GL3272
CLTAB       CLTAB       RC36-00222      RCSL: 43-GL2949
EDIT        P16         RC36-00016      RCSL: 43-GL1661

/END
```

APPENDIX B - EXAMPLE OF LOG.

This is an example of a LOG (generated by the control file in Appendix A):

```
RC3600 MUS PROGRAM TAPE:    P: 600-007
DENSITY                 :   1600 BPI
CUSTOMERNAME            :   RC-TUG
COUNTRY, TOWN           :   GLOSTRUP, COPENHAGEN
CREATING DATE           :   77.10.10
CREATED BY              :   TGR
REPLACING               :   P: 600-006

FILE 001 AUTOLOAD    BTM09              RCSL: 43-GL4326

FILE 002* DRIVERS    CLEAR
                     LOAD PTR LPT PTP CLTAB
                     END

FILE 003* EDITOR     CLEAR
                     LOAD PTR LPT PTP CLTAB P16
                     END
```

Here any comments that is wanted on the log could be written. Anything from here to the next "slash" is interpreted as comment.

```
FILE 004 PTR        PR006          RCSL: 43-GL2400
FILE 005 LPT        LP010          RCSL: 43-GL3762
FILE 006 PTP        PP002          RCSL: 43-GL3272
FILE 007 CLTAB      RC36-00222     RCSL: 43-GL2949
FILE 008 P16        RC36-00016     RCSL: 43-GL1661
```

APPENDIX C - VALID FOR PUNCHING CARDS ONLY.

When punching cards (each card in one module) are numbered in succession starting with 1, the number is printed in colomn 68 - 72.

When function is /AUTO or /PROG the <comment> is also printed on each card in the module from column 1.

When function is /COMM each command is printed on the card over the punch of the command.

APPENDIX D - EXAMPLE OF CONTROL FILE FOR GENERATION OF NEW FORMATED FLEXIBLE DISC

```
/HEAD      001

TOPNT      FLEXIBLE DISC SYSTEM

CUSTOMER   DMY

ADDRESS    RC DENMARK

DENSITY

PREVIOUS       -

/NOTE

SYSTEM GENERATION MODULES FOR RC3651 SYSTEMS

/AUTOLOAD FDBOT    FDBOT RCSL: 43-GL7781  BOOTSTRAP LOADER

/NOTE

BASIC SYSTEM MODULES WITHOUT IDENTS

/PROGRAM

 MUM05    -     MUM05  RCSL: 43-GL5739  MONITOR
 MUU01    -     MUU01  RCSL: 43-GL524   UTILITY PROCEDURES
 MUB06    -     MUB06  RCSL: 43-GL4107  BASIC I/O PROCEDURES
 MUC02    -     MUC02  RCSL: 43-GL5335  CHARACTER I/O PROCEDURES
 MUR03    -     MUR03  RCSL: 43-GL2369  RECORD I/O PROCEDURES
 INT10    -     INT10  RCSL: 43-GL2558  MUSIL INTERPRETER
 FL000    -     FL000  RCSL: 43-GL6437  FLEXIBLE DISC DRIVER
 P250     -     RC36-00250.01   RCSL: 43-GL7423   MAGTAPE EMULATOR
 TT005    -     TT005  RCSL: 43-GL2839  CONSOLE DRIVER
 SS006    -     SS006  RCSL: 43-*10789  OPERATING SYSTEM
 MUI04    -     MUI04  RCSL: 43-GL2807  MUS INIT MODULE

/NOTE

 CUSTOMER PROGRAMS, DRIVERS AND CONVERSION TABLES


/COMMAND DRIVERS

 LOAD LPT PTR PTP MT0 MT1 CDR
 END

/PROGRAM

 LP013    LPT      LP013 RCSL: 43-GL7095, LINEPRINTER DRIVER
 PR006    PTR      PR006 RCSL: 43-GL2398, PAPERTAPE READER DRIVER
 PP002    PTP      PP002 RCSL: 43-GL2609, PAPERTAPE PUNCH DRIVER
 MT006    MT0      MT006 RCSL: 43-GL3159, MAGNETIC TAPE DRIVER 0
 CR003    CDR      CR003 RCSL: 43-GL4012, CARD READER DRIVER
 MT102    MT1      MT102 RCSL: 43-GL2603, MAGNETIC TAPE DRIVER 1

/END
```