DESKTOP GENERATION
SOFTWARE RELEASE NOTICE

DG/RDOS   DG/XAP   REV 1.31

MODEL NUMBER 30559

DECEMBER 1983

085-000356-00

THIS RELEASE NOTICE PROVIDES SPECIFIC PRODUCT INFORMATION
WHICH IS NOT SUPPLIED IN THE SOFTWARE DOCUMENTATION.

THE SECTIONS ARE:

         1. PRODUCT DESCRIPTION
         2. PREREQUISITES
         3. ENHANCEMENTS
         4. FIXES
         5. TIPS AND TECHNIQUES
         6. DOCUMENTATION CHANGES AND ADDITIONS
         7. PRODUCT ORGANIZATION
               A.   SOFTWARE
               B.   DOCUMENTATION
         8. INSTALLATION INSTRUCTIONS

    PLEASE READ ALL SECTIONS CAREFULLY. THANK YOU.

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1. PRODUCT DESCRIPTION

DG/XAP IS A FILE TRANSFER UTILITY, PERMITTING THE TRANSFER OF FILES
FROM ONE DATA GENERAL COMPUTER TO ANOTHER DATA GENERAL COMPUTER OVER
ASYNCHRONOUS COMMUNICATIONS LINES.

DG/XAP RUNS UNDER THE AOS/VS, AOS, DG/AOS, ECLIPSE RDOS, AND DG/RDOS
OPERATING SYSTEMS. SOME OF THE MORE IMPORTANT FEATURES OF DG/XAP
INCLUDE :

> TRANSFER OF DATA OVER ASYNCHRONOUS COMMUNICATION LINES
>
> BLOCK CHECKING WITH ERROR RECOVERY, DATA COMPRESSION, AND
> CRC-16 CHECKSUM
>
> UNATTENDED OPERATION USING PREVIOUSLY DEFINED COMMAND FILES
> AND AUTOMATIC DIALING OF THE REMOTE SYSTEM
>
> AUTOMATIC RESTART OF FILE TRANSFER IF THE COMMUNICATIONS
> LINE DISCONNECTS
>
> COMMUNICATIONS AND ACTIVITY LOGGING

DG/XAP REVISION 1.31 ADDS THIS ADDITIONAL COMMAND FUNCTIONALITY :

> CANCEL <SEQ NO> - NOW ALLOWS CANCEL OF AN ACTIVE CONTROL UNIT
>
> END CONTROL   - NOW HAS AN ARGUMENT TO HALT THE SLAVE SYSTEM
>   AFTER COMPLETION OF A CONTROL UNIT

THIS REVISION ALSO SUPPORTS THE HAYES SMARTMODEM, WHICH INCORPORATES
AN AUTO CALL UNIT IN THE SAME BOX AS THE MODEM.

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ECLIPSE IS A REGISTERED TRADEMARK OF DATA GENERAL CORPORATION

HAYES SMARTMODEM IS A TRADEMARK OF HAYES MICROCOMPUTER PRODUCTS, INC

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2. PREREQUISITES

DG/XAP CONFIGURATIONS FOR THE DESKTOP GENERATION REQUIRE A MODEL 10,
10SP, 20, OR 30 DESKTOP COMPUTER UTILIZING THE DG/RDOS PRE-GEN OR SYSGEN
OPERATING SYSTEM. THE MINIMUM AMOUNT OF REQUIRED COMPUTER
MEMORY IS THE MINIMUM REQUIRED FOR THE DG/RDOS OPERATING SYSTEM. DG/XAP
REQUIRES 64KB OF PROGRAM SPACE, A CONSOLE, ANY PERMISSABLE TYPE OF
DISK STORAGE, A REAL-TIME CLOCK, AND AT LEAST ONE USAM/ASLM
COMMUNICATIONS LINE. DG/XAP RUNS UNDER REVISION 1.09 OR LATER OF
DG/RDOS.

THE TWO SYSTEMS MAY BE CONNECTED DIRECTLY OR BY TELEPHONE LINES.

3. ENHANCEMENTS

NOTE :
DG/XAP REVISION 1.31 SHOULD NOT BE RUN WITH PRIOR
VERSIONS.

1   YOU MAY NOW 'CANCEL' AN ACTIVE CONTROL UNIT. THIS COMMAND IS
DOCUMENTED IN THE DG/XAP USERS MANUAL. (SEE DOCUMENTATION
CHANGES)

2   THE HAYES SMARTMODEM AUTO CALL UNIT HAS BEEN TESTED IN THIS
RELEASE.

3   YOU MAY NOW HALT THE SLAVE SYSTEM BY A COMMAND IN THE CONTROL
UNIT COMMUNICATING WITH THE SLAVE. BY SUPPLYING A STOP ARGUMENT
TO THE END CONTROL COMMAND (SEE DOCUMENTATION CHANGES), THE
CONTROL UNIT WILL CAUSE A HALT LINE, AND STOP COMMAND TO BE
ISSUED TO THE SLAVE SYSTEM.

4   XAPGEN HAS BEEN MODIFIED TO ASK A DIFFERENT QUESTION IF THE USER
ANSWERS THE QUESTION OF "LINE TYPE (DIRECT,DIAL) ?" WITH DIRECT.
NOW THE USER IS PROMPTED WITH A QUESTION OF "DIRECT LINE TYPE
(MODEM,NONMODEM) ?". AN ANSWER OF NONMODEM WILL ALLOW USERS
TO DIRECTLY CONNECT TWO SYSTEMS WITHOUT A MODEM BEING REQUIRED.
(SEE DOCUMENTATION CHANGES)

5   DG/XAP WILL SUPPORT 1 LINE AT SPEEDS UP TO 1200 BAUD PER XAP
PROCESS.

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4. FIXES

1   THE COMMAND 'STATUS LINE XX' RETURNED THE STATUS OF ALL LINES.
     IT NOW ONLY RETURNS THE STATUS FOR THE LINE SPECIFIED.

2   MOVING A FILE FROM AN AOS/VS SYSTEM TO A DG/RDOS SYSTEM NOW
     PLACES THE CORRECT DATE AND TIME STAMP ON THE FILE MOVED.

3   THE COMMANDS SCREEN OFF, NORESTART, AND MOVE/RECENT ARE TESTED
     IN THIS RELEASE.

4   WHEN MOVING FILENAME1 TO FILENAME2, AND FILENAME2 ALREADY
     EXISTS, DG/XAP DID NOT INFORM THE USER THAT THE MOVE DID NOT
     TAKE PLACE. NOW DG/XAP DOES INFORM THE USER.

5   A BUG EXISTED IN THE DATA COMPRESSION / EXPANSION ALGORITHM
     SUCH THAT OCCASIONALLY 1 BYTE OF DATA WAS LOST DURING FILE
     TRANSFER. THIS HAS BEEN FIXED.

6   OCCASIONALLY A BLOCK OF DATA HAS BEEN RE-SENT (DURING A MOVE)
     BECAUSE THE ACK BLOCK WAS DESTROYED BY TRANSMISSION ERRORS,
     RESULTING IN THE DESTINATION FILE BEING LARGER THAN THE SOURCE
     FILE. THIS HAS BEEN FIXED.

7   DG/XAP IN SLAVE MODE UNDER DG/RDOS HAS BEEN REPORTED TO HANG
     INTERMITTENTLY. WE BELIEVE THIS HAS BEEN FIXED.

8   WHEN TRANSFERRING FILES FROM ANOTHER OPERATING SYSTEM TO
     DG/RDOS, NO ATTRIBUTES WERE PLACED IN THE FILE. DG/XAP
     PLACES THE PROPER ATTRIBUTES ON PROGRAM FILES.

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5. TIPS AND TECHNIQUES

A. NOTES AND WARNINGS ON USING DG/XAP 1.31

1. IN ORDER TO USE DG/XAP WITH MODEMS, THE LINE CHARACTERISTICS MUST INCLUDE THE MODEM CHARACTERISTIC. IF YOU ARE NOT USING MODEMS, DO NOT DEFINE THE LINE AS HAVING THE MODEM CHARACTERISTIC. (SEE INSTALLATION INSTRUCTIONS)

2. IF YOU USE AN AUTO CALL UNIT, DG/XAP WILL NOT RECOGNIZE LOSS OF CARRIER (IT IS CABLED HIGH) ON THE CONTROL SIDE. DG/XAP, UPON MULTIPLE CONSECUTIVE TIMEOUTS, WILL ABORT THE CALL AND TRY TO RE-ESTABLISH COMMUNICATIONS.

3. WHEN USING CODEX AUTO CALL UNITS BE SURE TO SET THE ABORT TIMER FOR 25 SECONDS, SO THAT THE CALL UNIT WILL ABORT THE CALL BEFORE XAP TIMES OUT. (XAP ALWAYS USES 45 SECONDS TO COMPLETE A CALL).

4. THE MAXIMUM LENGTH OF A PATHNAME FOR ANY COMMAND IS DEPENDENT UPON THE LENGTH OF THE COMMAND LINE (132 CHARACTERS). THE MAXIMUM LENGTH FOR THE PATHNAME(S) USED CAN BE CALCULATED BY SUBTRACTING THE LENGTH OF THE TOKENS AND SPACES IN THE COMMAND LINE FROM 132.

5. TIMEOUTS CAN OCCUR DURING THE PROCESSING OF COMMANDS, WITH THE RESULT THAT THE COMMANDS TAKE LONGER TO COMPLETE. TO HAVE A USEFUL TIMEOUT VALUE FOR DG/XAP TO USE, THE ENTIRE SYSTEM(S) LOAD, BOTH LOCAL AND REMOTE MUST BE CONSIDERED.

   FOR A LIGHTLY LOADED SYSTEM, 10 - 15 SECONDS MAY BE ENTIRELY SUFFICIENT. FOR A HEAVY LOAD, WHERE THE SYSTEM IS HANDELING SEVERAL CRTS, AS MUCH AS 30 SECONDS MAY BE REQUIRED. SOME EXPERIMENTATION MAY BE REQUIRED TO DETERMINE THE PROPER TIMEOUT VALUE FOR YOUR SYSTEM.

6. NOTE THAT THERE ARE NO TEMPLATES ALLOWED ON THE MOVE COMMAND; THIS MAY BE ADDRESSED IN A LATER REVISION OF DG/XAP.

7. THE SPECIAL FILENAME TEMPLATE "!" FOR USE WITH TEMPLATES ON THE MOVE COMMAND IS NOT YET IMPLEMENTED. DG/XAP WILL NOT REPORT THIS AS A SYNTAX ERROR; THE REMOTE SYSTEM WILL RETURN AN INVALID FILENAME CHARACTER.

8. IT IS POSSIBLE TO USE DG/XAP BETWEEN TWO SYSTEMS WITHOUT A MODEM. ON AN AOS SYSTEM THE LINES USED MAY BE STANDARD EIA CONSOLE LINES WITH A BUFFER SIZE OF 255, CONNECTED WITH A STANDARD LOOPBACK CONNECTOR. (SEE INSTALLATION INSTRUCTIONS).

9. THE CODEX AUTO CALL UNIT WILL RECOGNIZE A BUSY SIGNAL DURING PLACEMENT OF A CALL. HOWEVER, IF YOU ARE USING THE HAYES SMARTMODEM, A TIMER IS EMPLOYED TO ABORT THE CALL IF NO CONNECTION OCCURS. IF THIS HAPPENS DG/XAP WILL AUTOMATICALLY TRY TO REDIAL THE REMOTE SYSTEM. IF THE REDIAL IS UNSUCCESSFUL, THE CONTROL UNIT WILL BE REQUEUED A MAXIMUM OF 4 TIMES.

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10. DG/XAP CREATES A FILE IN YOUR WORKING DIRECTORY, DISP$Q, THAT
    CONTAINS INFORMATION PERTINENT TO EXECUTION OF CONTROL UNITS.
    IF YOU EXPERIENCE A SYSTEM CRASH OR OTHERWISE HAVE PROBLEMS
    WHERE YOU DO NOT WISH TO HAVE DG/XAP ATTEMPT TO RESTART
    EXECUTION OF CONTROL UNITS WHEN IT BEGINS EXECUTION AGAIN,
    DELETE THIS FILE.

11. AFTER A DG/RDOS CRASH, BE SURE TO SET THE USE COUNTS OF ALL
    FILES IN THE SYSTEM TO ZERO BY ISSUING THE CLI COMMAND

        CLEAR/A/V/D

    IN ALL DIRECTORIES THAT WERE IN USE AT THE TIME OF THE CRASH.

B. KNOWN PROBLEMS USING DG/XAP 1.31

  1. USING THE LIST REMOTE COMMAND ON TWO SYSTEMS RUNNING UNDER
     EITHER AOS OR AOS/VS FAILS IF THE USERNAME ON THE TWO SYSTEMS
     IS NOT IDENTICAL. THIS WILL BE FIXED IN REVISION 1.40. FOR
     NOW YOU SHOULD SET UP THE SAME USERNAME FOR EACH SYSTEM.

  2. IF A CONTROL UNIT ABORTS DURING PROCESSING OF A MOVE COMMAND,
     UPON RESTART OF THE CONTROL UNIT, THE WHOLE FILE WILL BE
     MOVED AGAIN. (I.E., THE CHECKPOINT RESTART DOES NOT WORK IN
     THIS RELEASE, SEE NOTES BELOW ON RESULTS OF USING VARIOUS
     MOVE COMMANDS)

  3. THE FOLLOWING INFORMATION DETAILS THE RESULTS OF A RESTART
     OF A CONTROL UNIT THAT HAD BEEN IN THE PROCESS OF DOING A
     MOVE. (IT WOULD PROBABLY BE DESIRABLE TO USE THE MOVE/DELETE
     FOR UNATTENDED OPERATION):

INITIAL COMMAND	AFTER RESTART
MOVE	WILL DISPLAY "FILE ALREADY EXISTS" MESSAGE
MOVE/DELETE	WILL MOVE ENTIRE FILE AGAIN
MOVE/APPEND	WILL APPEND THE CONTENTS OF THE SOURCE FILE TO THE CONTENTS OF DESTINATION (AS IT APPEARED AFTER THE CONTROL UNIT ABORTED)
MOVE/RECENT	NOT TESTED

  4. DUE TO A BUG IN REVISION 1.09 OF DG/RDOS, AN AUTO-ANSWER DG/XAP
     SLAVE WILL ONLY PROCESS ONE CONTROL UNIT PER DG/XAP SESSION. AFTER
     THIS FIRST CONTROL UNIT HAS BEEN PROCESSED, DG/RDOS WILL ENTER A
     STATE IN WHICH IT WILL NO LONGER ANSWER THE PHONE. A WORKAROUND IS
     TO TERMINATE AND RESTART THE DG/XAP SLAVE AFTER EACH CONTROL UNIT.
     THIS PROBLEM WILL BE RESOLVED IN A FUTURE RELEASE OF DG/RDOS.

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6. DOCUMENTATION CHANGES AND ADDITIONS
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NEW COMMANDS
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END CONTROL STOP   - ISSUES HALT LINE AND STOP ON SLAVE SYSTEM AFTER
                      THE CONTROL UNIT PROCESSING COMPLETES

MODIFIED COMMANDS
==================

CANCEL <SEQ NO>   - YOU MAY NOW CANCEL AN ACTIVE CONTROL UNIT. THE
                     CONTROL UNIT WILL COMPLETE EXECUTION OF THE
                     CURRENT COMMAND BEFORE BEING CANCELLED.

CORRECTION OF COMMAND SYNTAX
==============================

USERNAME USERNAME PASSWORD - THE CORRECT COMMAND SYNTAX FOR THE USERNAME
                      COMMAND IS AS SHOWN HERE. THERE IS NO PASSWORD
                      COMMAND.

USING XAPGEN TO SPECIFY LINE CHARACTERISTICS
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IN ANSWERING THE QUESTION OF LINE TYPE (DIRECT,DIAL) :

    DIAL INDICATES TO DG/XAP THAT AN AUTO DIAL UNIT IS IN USE WITH THE
    MODEM. THE AUTO DIAL UNIT (CODEX,HAYES) QUESTION MUST BE ANSWERED
    WITH THE AUTO DIAL UNIT TYPE.

    DIRECT INDICATES THAT NO AUTO DIAL UNIT IS IN USE. THE DIRECT LINE
    TYPE (MODEM,NONMODEM), QUESTION SHOULD BE ANSWERED WITH NONMODEM IF
    THE USER WISHES TO CONNECT TWO SYSTEMS DIRECTLY TOGETHER, OR WITH
    MODEM, IF A MODEM IS EMPLOYED WITHOUT AN AUTO DIAL UNIT.

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7. PRODUCT ORGANIZATION
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    DG/XAP   ON 5-1/4 INCH 368-KB DISKETTE

    MODEL NUMBER 30559

    A. SOFTWARE
    -- --------

    PART NUMBER   DESCRIPTION
    -----------   -----------

    082-000238-00   CONTENTS OF THE DISKETTE :

                                XAPERMES
                                XAPGEN.SV
                                XAP.GN
                                XAP.SV
                                XAP.OL

    B. DOCUMENTATION
    -- -------------

    PART NUMBER   DESCRIPTION
    -----------   -----------

    093-000352-00   GENERATING, RUNNING, AND USING DG/XAP

    085-000356-00   SOFTWARE RELEASE NOTICE

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8. INSTALLATION INSTRUCTIONS
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THE FOLLOWING PROCEDURE SHOULD BE USED TO BRING UP A DG/XAP SYSTEM.

        1. THE COMMUNICATION LINE(S) ON YOUR DESKTOP GENERATION COMPUTER
                SHOULD BE GENNED ACCORDING TO YOUR HARDWARE AND DESIRED
                USE OF DG/XAP. THE FOLLOWING APPLICABLE PAGE(S) SHOULD
                BE REFERENCED FOR EXAMPLES OF CONFIG, AND
                XAPGEN DIALOGS IN SETTING UP YOUR SYSTEM TO USE DG/XAP :

                DIRECT CONNECT   --> PAGE 10
                MODEM CONNECTION WITHOUT AUTO DIAL ->   PAGE 14
                MODEM CONNECTION WITH AUTO CALL   ->   PAGE 18

        2. LOAD THE APPROPRIATE FILES FROM THE SUPPLIED DISKETTE IN THE
                DESIRED DIRECTORY USING THE FOLLOWING PROCEDURE:

                        DIR DJX
                        MOVE/V/R XAPDIR

                HERE, "X" IS THE DISKETTE UNIT NUMBER.

        3. TYPE XAP FROM THE CONSOLE THAT YOU WISH TO USE.

DIRECT CONNECT SUPPORT FOR DG/XAP SYSTEMS

DG/XAP SUPPORTS THE DIRECT CONNECTION OF TWO DG/XAP SYSTEMS, AS
LONG AS THE LINES ON THE RESPECTIVE SYSTEMS ARE RS232 LINES AND
HAVE BEEN SPECIFIED AS OPERATING AT THE SAME LINE SPEED. DIRECT
CONNECTION BETWEEN TWO DATA GENERAL SYSTEMS MAY BE PERFORMED VERY
RELIABLY AS LONG AS THE TWO SYSTEMS ARE SEPARATED BY A DISTANCE
OF LESS THAN FIFTY (50) FEET. DIRECT CONNECTION MAY BE POSSIBLE
AT GREATER DISTANCES THAN THAT, BUT ABSOLUTE RELIABILITY IS NOT
GUARANTEED BY THE RS232 STANDARD.

A.   DG/XAP WILL SUPPORT 1 LINE AT SPEEDS UP TO 1200 BAUD ON A
       DESKTOP SYSTEM USING THE DG/RDOS OPERATING SYSTEM. A DIALOG
       SIMILAR TO THE FOLLOWING SHOULD BE FOLLOWED WHEN GENNING YOUR
       OPERATING SYSTEM.

           HERE IS A SAMPLE CONFIG DIALOG THAT SPECIFIES A 1200 BAUD
           NON-MODEM DG/XAP LINE AS USAM LINE NUMBER 0:

```
-----------------------------------------------------------------
MEMORY SIZE IN KB (128-2048): 128
NUMBER OF FG/BG SHARABLE PAGES (0-255): 0
NUMBER OF BG I/O CHANNELS (0-255): 32
NUMBER OF FG I/O CHANNELS (0-255): 0
NUMBER OF STACKS (1-10): 4
NUMBER OF SYSTEM BUFFERS (8-36): 8
NUMBER OF CELLS (9-64): 64
NUMBER OF DIRECTORIES ACCESSIBLE AT ONE TIME (1-64): 10
-----------------------------------------------------------------
8 BIT CHARACTER SUPPORT FOR MASTER CONSOLE ($TTO)? (Y/N): N
8 BIT CHARACTER SUPPORT FOR SECOND CONSOLE ($TTO1)? (Y/N): N
PRINTER ($LPT) ? (0=NONE, 1=$TTO, 2=$TTO1, 3=USAM LINE 0,
        4=USAM LINE 1, 5=USAM LINE 2, 6=USAM LINE 3): 0
PLOTTER ($PLT) ? (0=NONE, 1=$TTO, 2=$TTO1, 3=USAM LINE 0,
        4=USAM LINE 1, 5=USAM LINE 2, 6=USAM LINE 3): 0
MAGNETIC TAPE DRIVE ? (Y/N): N
USAM ? (Y/N): Y
-----------------------------------------------------------------
BREAK CHARACTER FOR USAM : 1
NUMBER OF LINES ON USAM (1-4): 4
-----------------------------------------------------------------
LINE NUMBER (0-3) : 0
LINE SPEED (IN BITS/SECOND) FOR USAM FROM TABLE BELOW : 11
        0=3600, 1=19200, 2=50, 3=75, 4=134.5, 5=2000, 6=600,
        7=2400, 8=9600, 9=4800, 10=1800, 11=1200, 12=7200,
        13=300, 14=150, 15=110
NUMBER OF STOP BITS : 1
NUMBER OF DATA BITS : 8
PARITY (0=NONE, 1=ODD, 2=EVEN) : 0
MODEM (Y/N) : N
LOOPBACK MODE (Y/N) : N
INITIAL STATE OF THE CONTROL SIGNALS (0=LOW 1=HIGH) :
    DATA SET READY      (DSR) : 0
    REQUEST TO SEND     (RTS) : 1
    DATA TERMINAL READY (DTR) : 1
```

SEVERAL TYPES OF CABLES ARE NECESSARY TO EFFECT A DIRECT CONNECTION
BETWEEN TWO DG/XAP SYSTEMS.

THE FIRST TYPE OF CABLE, CALLED AN "INTERNAL" CABLE, IS
CONNECTED TO THE COMMUNICATIONS MULTIPLEXOR. ONE END OF THIS
CABLE PLUGS INTO THE COMMUNICATIONS MULTIPLEXOR AND THE OTHER
END EITHER HANGS FREELY OR IS SUPPORTED BY AN EIA CONNECTOR PANEL.
THE FREE END OF THIS CABLE IS A MALE 25-PIN CONNECTOR. THE
DATA GENERAL PART NUMBER OF THE INTERNAL CABLE DEPENDS ON THE
TYPE OF COMMUNICATIONS MULTIPLEXOR YOU HAVE. PLEASE REFER TO THE
FOLLOWING TABLE:

MULTIPLEXOR TYPE	DG PART #
IAC-8	005-14115
ATI-8	005-14111
ALM-8	005-13703
USAM-4 (DESKTOP)	005-21041
USAM-1	005-20688

THE SECOND TYPE OF CABLE, CALLED A MODEM CABLE, MAY OR MAY NOT
NEEDED. IF THE TWO SYSTEMS YOU ARE CONNECTING TOGETHER ARE VERY
CLOSE TOGETHER, YOU MAY NOT NEED THIS MODEM CABLE. THE MODEM
CABLE IS USED AS AN EXTENSION CABLE FOR THE PURPOSES OF DIRECT
CONNECTION BETWEEN SYSTEMS MORE THAN 6 INCHES APART. ONE
END OF THE MODEM CABLE IS A MALE 25-PIN CONNECTOR WHILE THE
OTHER END IS A FEMALE. THE DATA GENERAL PART NUMBER FOR A MODEM
CABLE IS 005-014692.

THE THIRD TYPE OF CABLE, CALLED A LOOPBACK CABLE, IS USED
TO SWAP THE RX DATA AND TX DATA SIGNALS OF THE TWO SYSTEMS.
EXACTLY ONE LOOPBACK CABLE MUST BE PRESENT IN EVERY DIRECT
CONNECTION BETWEEN TWO DG/XAP SYSTEMS. LOOPBACK CABLES ARE
VERY SHORT AND HAVE TWO FEMALE CONNECTORS: ONE ON EACH END
OF THE CABLE. THE DATA GENERAL PART NUMBER FOR A LOOPBACK
CABLE IS 005-13450.

IF YOU WISH TO MAKE A LOOPBACK CABLE YOURSELF, YOU MAY USE THE
FOLLOWING LAYOUT TO ACCOMPLISH THE SAME SIGNAL-CROSSING THAT THE
LOOPBACK CABLE DOES:

```
          FEMALE                              FEMALE
          ------                              ------

          TD    2 _____ 3   RD
          RD    3 _____ 2   TD

          DSR   6 _____ 4   RTS
                                          _ 22  RI

          RTS   4 _
          RI   22 _____ 6   DSR

          CD    8 _____ 5   CTS
                                          _ 20  DTR

          CTS   5 _
          DTR  20 _____ 8   CD
```
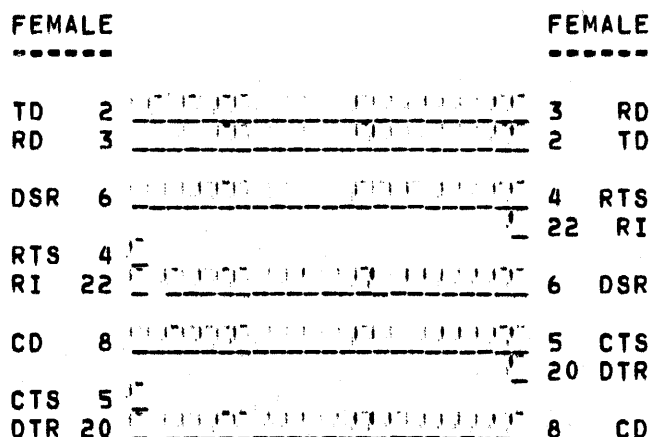
HERE ARE SOME EXAMPLES OF DIRECT CONNECTIONS. IN THESE
EXAMPLES, THE SYMBOLS " --> " AND " <-- " REPRESENT MALE
TYPE CONNECTORS, WHILE THE SYMBOLS " --< " AND " >-- "
REPRESENT FEMALE TYPE CONNECTORS. ALL CABLES IN THE
FOLLOWING EXAMPLES HAVE THEIR DG PART NUMBERS EMBEDDED IN
THEIR REPRESENTATIONS.

A) TWO DG/20 SYSTEMS VERY CLOSE TOGETHER. NO MODEM CABLE NEEDE.

```
    -------                                        -------
    DG/20   --005-21041--> >--005-13450--< <--005-21041--  DG/20
    -------        OR                             OR        -------
             005-20688                       005-20688
```
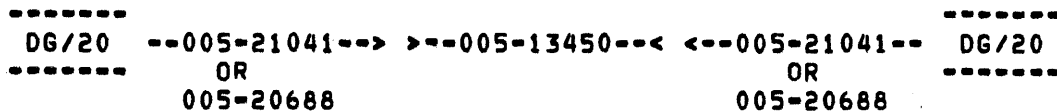
B) TWO DG/20 SYSTEMS 20 FEET APART. MODEM CABLE NEEDED.

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--------
   DG/20   --005-21041-->  >--005-13450--<  <---------------
--------           OR
             005-20688
--------
   DG/20   --005-21041-->  >--005-010711----------------
--------           OR
             005-20688
```

C) DG/20 SYSTEM AND MV/4000 IAC-8 SYSTEM 20 FEET APART.
   MODEM CABLE NEEDED.

```
--------
   DG/20   --005-21041-->  >--005-13450--<  <--------------
--------           OR
             005-20688
----------
   MV/4000  --005-14115-->  >--005-010711----------------
----------
```

D) DG/20 SYSTEM AND MV/8000 ATI-8 SYSTEM 20 FEET APART.
   MODEM CABLE NEEDED.

```
--------
   DG/20   --005-21041-->  >--005-13450--<  <--------------
--------           OR
             005-20688
----------
   MV/8000  --005-14111-->  >--005-010711----------------
----------
```

E) C/330 ALM-8 SYSTEM AND MV/4000 IAC-8 SYSTEM 20 FEET APART.
   MODEM CABLE NEEDED.

```
--------
   C/330   --005-13703-->  >--005-13450--<  <--------------
--------
----------
   MV/4000  --005-14115-->  >--005-010711----------------
----------
```

NOTE: BECAUSE OF THE SYMMETRY OF THE LOOPBACK CABLE DESIGN,
      THE LOOPBACK CABLE MAY BE POSITIONED CLOSEST TO THE
      THE COMPUTER SYSTEM OF YOUR CHOICE.

B.   USE THE SUPPLIED XAPGEN TO MODIFY XAP.GN TO SPECIFY DIRECT
      FOR LINE TYPE, AND NONMODEM FOR DIRECT LINE TYPE. (TYPE HELP
      ONCE IN XAPGEN FOR HELP ABOUT COMMANDS)

MODEM SUPPORT FOR DG/XAP SYSTEMS WITHOUT AUTO-DIAL

TWO DG/XAP SYSTEMS MAY BE CONNECTED VIA MODEMS OVER PUBLIC OR
PRIVATE PHONE LINES. MAKE SURE THAT EACH OF THE SYSTEMS TO BE
CONNECTED IN THIS MANNER ARE SPECIFIED AS OPERATING AT THE SAME
LINE SPEED, AND THAT BOTH MODEMS ARE CAPABLE OF SUPPORTING
THAT COMMON LINE SPEED.

A.   DG/XAP WILL SUPPORT 1 FULL DUPLEX ASYNC MODEM AT SPEEDS UP TO
      1200 BAUD ON A DESKTOP SYSTEM. SOMETHING LIKE THE FOLLOWING
      CONFIG DIALOG SHOULD BE FOLLOWED WHEN GENERATING YOUR
      OPERATING SYSTEM.

      HERE IS A SAMPLE CONFIG DIALOG THAT SPECIFIES A 1200 BAUD
      MODEM DG/XAP LINE AS USAM LINE NUMBER 0:

```
------------------------------------------------------------------
MEMORY SIZE IN KB (128-2048): 128
NUMBER OF FG/BG SHARABLE PAGES (0-255): 0
NUMBER OF BG I/O CHANNELS (0-255): 32
NUMBER OF FG I/O CHANNELS (0-255): 0
NUMBER OF STACKS (1-10): 4
NUMBER OF SYSTEM BUFFERS (8-36): 8
NUMBER OF CELLS (9-64): 64
NUMBER OF DIRECTORIES ACCESSIBLE AT ONE TIME (1-64): 10
------------------------------------------------------------------
8 BIT CHARACTER SUPPORT FOR MASTER CONSOLE ($TTO)? (Y/N): N
8 BIT CHARACTER SUPPORT FOR SECOND CONSOLE ($TTO1)? (Y/N): N
PRINTER ($LPT) ? (0=NONE, 1=$TTO, 2=$TTO1, 3=USAM LINE 0,
          4=USAM LINE 1, 5=USAM LINE 2, 6=USAM LINE 3): 0
PLOTTER ($PLT) ? (0=NONE, 1=$TTO, 2=$TTO1, 3=USAM LINE 0,
          4=USAM LINE 1, 5=USAM LINE 2, 6=USAM LINE 3): 0
MAGNETIC TAPE DRIVE ? (Y/N): N
USAM ? (Y/N): Y
------------------------------------------------------------------
BREAK CHARACTER FOR USAM : 1
NUMBER OF LINES ON USAM (1-4): 4
------------------------------------------------------------------
LINE NUMBER (0-3) : 0
LINE SPEED (IN BITS/SECOND) FOR USAM FROM TABLE BELOW : 11
      0=3600, 1=19200, 2=50, 3=75, 4=134.5, 5=2000, 6=600,
      7=2400, 8=9600, 9=4800, 10=1800, 11=1200, 12=7200,
      13=300, 14=150, 15=110
NUMBER OF STOP BITS : 1
NUMBER OF DATA BITS : 8
PARITY (0=NONE, 1=ODD, 2=EVEN) : 0
MODEM (Y/N) : Y
LOOPBACK MODE (Y/N) : N
INITIAL STATE OF THE CONTROL SIGNALS (0=LOW 1=HIGH) :
    DATA SET READY       (DSR) : 0
    REQUEST TO SEND      (RTS) : 1
    DATA TERMINAL READY (DTR) : 1
```

TWO TYPES OF CABLES ARE NECESSARY TO CONNECT A DG/XAP SYSTEM TO
AN ASYNC MODEM.

THE FIRST TYPE OF CABLE, CALLED AN "INTERNAL" CABLE, IS
CONNECTED TO THE COMMUNICATIONS MULTIPLEXOR. ONE END OF THIS
CABLE PLUGS INTO THE COMMUNICATIONS MULTIPLEXOR AND THE OTHER
END EITHER HANGS FREELY OR IS SUPPORTED BY AN EIA CONNECTOR PANEL.
THE FREE END OF THIS CABLE IS A MALE 25-PIN CONNECTOR. THE
DATA GENERAL PART NUMBER OF THE INTERNAL CABLE DEPENDS ON THE
TYPE OF COMMUNICATIONS MULTIPLEXOR YOU HAVE. PLEASE REFER TO THE
FOLLOWING TABLE:

MULTIPLEXOR TYPE	DG PART #
IAC-8	005-14115
ATI-8	005-14111
ALM-8	005-13703
USAM-4 (DESKTOP)	005-21011

THE SECOND TYPE OF CABLE, CALLED A MODEM CABLE, RUNS FROM THE
INTERNAL CABLE OF YOUR DG/XAP SYSTEM TO THE ASYNC MODEM. ONE
END OF THE MODEM CABLE IS A MALE 25-PIN CONNECTOR WHILE THE
OTHER END IS A FEMALE. THE DATA GENERAL PART NUMBER FOR A MODEM
CABLE IS 005-014692.

HERE ARE SOME EXAMPLES OF MODEM CONNECTIONS. IN THESE
EXAMPLES, THE SYMBOLS " --> " AND " <-- " REPRESENT MALE
TYPE CONNECTORS, WHILE THE SYMBOLS " --< " AND " >-- "
REPRESENT FEMALE TYPE CONNECTORS. ALL CABLES IN THE
FOLLOWING EXAMPLES HAVE THEIR DG PART NUMBERS EMBEDDED IN
THEIR REPRESENTATIONS.

A) TWO DG/20 SYSTEMS CONNECTED VIA MODEMS.

```
 --------                                            -------
  DG/20   --005-21041--> >--005-010711 --------------> >  MODEM
 --------        OR                                   -------
            005-20688

                                                    PHONE LINK


 --------                                            -------
  DG/20   --005-21041--> >--005-010711 -------------> >  MODEM
 --------        OR                                   -------
            005-20688
```

B) DG/20 SYSTEM AND MV/4000 IAC-8 SYSTEM CONNECTED VIA
   MODEMS.

```
 -------                                             -------
  DG/20   --005-21041--> >--005-010711 -------------> >  MODEM
 -------         OR                                   -------
            005-20688

                                                    PHONE LINK


 ---------                                           -------
  MV/4000  --005-14115--> >--005-010711-------------> >  MODEM
 ---------                                           -------
```

C) DG/20 SYSTEM AND MV/8000 ATI-8 SYSTEM CONNECTED VIA
   MODEMS.

    DG/20   --005-21041--> >--005-010711---------------> >   MODEM
    -------   OR   -------
                005-20688

                                                         PHONE LINK

    MV/8000 --005-14111--> >--005-010711------------> >   MODEM
    ---------   -------

D) C/330 ALM-8 SYSTEM AND MV/4000 IAC-8 SYSTEM CONNECTED VIA
   MODEMS.

    C/330   --005-13703--> >--005-010711---------------> >   MODEM
    -------   -------

                                                         PHONE LINK

    MV/4000 --005-14115--> >--005-010711-------------> >   MODEM
    ---------   -------

B.   USE THE SUPPLIED XAPGEN TO MODIFY XAP.GN TO SPECIFY DIRECT
     FOR LINE TYPE, AND MODEM FOR DIRECT LINE TYPE. (TYPE HELP
     ONCE IN XAPGEN FOR HELP ABOUT COMMANDS)

MODEM SUPPORT FOR DG/XAP SYSTEMS WITH AUTO-DIAL

A. DG/XAP CONTAINS PROVISIONS FOR SUPPORT OF THE HAYES SMARTMODEM
    FULL DUPLEX AUTO-DIAL MODEM AND THE CODEX 5801R AUTO-DIAL UNIT.
    TWO DG/XAP SYSTEMS MAY BE CONNECTED VIA MODEMS OVER PUBLIC OR
    PRIVATE PHONE LINES. MAKE SURE THAT EACH OF THE SYSTEMS TO BE
    CONNECTED IN THIS MANNER ARE SPECIFIED AS OPERATING AT THE SAME
    LINE SPEED AND THAT BOTH MODEMS ARE CAPABLE OF SUPPORTING THAT
    COMMON LINE SPEED.

        HERE IS A SAMPLE CONFIG DIALOG THAT SPECIFIES A 1200 BAUD
        MODEM DG/XAP LINE AS USAM LINE NUMBER 0:

        MEMORY SIZE IN KB (128-2048): 128
        NUMBER OF FG/BG SHARABLE PAGES (0-255): 0
        NUMBER OF BG I/O CHANNELS (0-255): 32
        NUMBER OF FG I/O CHANNELS (0-255): 0
        NUMBER OF STACKS (1-10): 4
        NUMBER OF SYSTEM BUFFERS (8-36): 8
        NUMBER OF CELLS (9-64): 64
        NUMBER OF DIRECTORIES ACCESSIBLE AT ONE TIME (1-64): 10
        ----
        8 BIT CHARACTER SUPPORT FOR MASTER CONSOLE ($TTO)? (Y/N): N
        8 BIT CHARACTER SUPPORT FOR SECOND CONSOLE ($TTO1)? (Y/N): N
        PRINTER ($LPT) ? (0=NONE, 1=$TTO, 2=$TTO1, 3=USAM LINE 0,
                4=USAM LINE 1, 5=USAM LINE 2, 6=USAM LINE 3): 0
        PLOTTER ($PLT) ? (0=NONE, 1=$TTO, 2=$TTO1, 3=USAM LINE 0,
                4=USAM LINE 1, 5=USAM LINE 2, 6=USAM LINE 3): 0
        MAGNETIC TAPE DRIVE ? (Y/N): N
        USAM ? (Y/N): Y

        BREAK CHARACTER FOR USAM : 1
        NUMBER OF LINES ON USAM (1-4): 4

        LINE NUMBER (0-3) : 0
        LINE SPEED (IN BITS/SECOND) FOR USAM FROM TABLE BELOW : 11
            0=3600, 1=19200, 2=50, 3=75, 4=134.5, 5=2000, 6=600,
            7=2400, 8=9600, 9=4800, 10=1800, 11=1200, 12=7200,
            13=300, 14=150, 15=110
        NUMBER OF STOP BITS : 1
        NUMBER OF DATA BITS : 8
        PARITY (0=NONE, 1=ODD, 2=EVEN) : 0
        MODEM (Y/N) : Y
        LOOPBACK MODE (Y/N) : N
        INITIAL STATE OF THE CONTROL SIGNALS (0=LOW 1=HIGH) :
            DATA SET READY   (DSR) : 0
            REQUEST TO SEND   (RTS) : 1
            DATA TERMINAL READY (DTR) : 1

TWO TYPES OF CABLES ARE NECESSARY TO CONNECT A DG/XAP SYSTEM
TO AN AUTO-DIAL UNIT OR MODEM.

THE FIRST TYPE OF CABLE, CALLED AN "INTERNAL" CABLE, IS
CONNECTED TO THE COMMUNICATIONS MULTIPLEXOR. ONE END OF THIS
CABLE PLUGS INTO THE COMMUNICATIONS MULTIPLEXOR AND THE OTHER
END EITHER HANGS FREELY OR IS SUPPORTED BY AN EIA CONNECTOR PANEL.
THE FREE END OF THIS CABLE IS A MALE 25-PIN CONNECTOR. THE
DATA GENERAL PART NUMBER OF THE INTERNAL CABLE DEPENDS ON THE
TYPE OF COMMUNICATIONS MULTIPLEXOR YOU HAVE. PLEASE REFER TO THE
FOLLOWING TABLE:

MULTIPLEXOR TYPE	DG PART #
IAC-8	005-14115
ATI-8	005-14111
ALM-8	005-13703
USAM-4 (DESKTOP)	005-21041
USAM-1	005-20688

THE SECOND TYPE OF CABLE, CALLED AN AUTO-DIAL CABLE, RUNS FROM THE
INTERNAL CABLE OF YOUR DG/XAP SYSTEM TO THE AUTO-DIAL MODEM OR UNIT.
ONE END OF THE MODEM CABLE IS A MALE 25-PIN CONNECTOR WHILE THE
OTHER END IS A FEMALE. THEIR IS NO DATA GENERAL PART NUMBER FOR A
AN AUTO-DIAL CABLE. HERE IS THE SIGNAL LAYOUT OF AN AUTO-DIAL
MODEM CABLE:

```
          COMPUTER                          MODEM

          FEMALE                            MALE
          ------                            ------

          RX   2  ---------------------- 2  RX
          TX   3  ---------------------- 3  TX
          RTS  4  ---------------------- 4  RTS
          CTS  5  ---------------------- 5  CTS
          GND  7  ---------------------- 7  GND

          DSR  6  -                      6  DSR

          DCD  8  -                      8  DCD

          DTR 20  -------------------- 20  DTR
```

HERE ARE SOME EXAMPLES OF MODEM CONNECTIONS. IN THESE
EXAMPLES, THE SYMBOLS " --> " AND " <-- " REPRESENT MALE
TYPE CONNECTORS, WHILE THE SYMBOLS " --< " AND " >-- "
REPRESENT FEMALE TYPE CONNECTORS. ALL CABLES IN THE
FOLLOWING EXAMPLES HAVE EITHER THEIR DG PART NUMBERS OR THE
STRING "AUTO-DIAL" EMBEDDED IN THEIR REPRESENTATIONS.

A) TWO DG/20 SYSTEMS CONNECTED VIA MODEMS.

```
-------                                                  -------
 DG/20  --005-21041--> >--AUTO-DIAL--------------> >  MODEM
-------        OR                                        -------
        005-20688
```

                                                        PHONE LINK

```
-------                                                  -------
 DG/20  --005-21041--> >--AUTO-DIAL--------------> >  MODEM
-------        OR                                        -------
        005-20688
```

B) DG/20 SYSTEM AND MV/4000 IAC-8 SYSTEM CONNECTED VIA
   MODEMS.

```
-------                                                  -------
 DG/20  --005-21041--> >--AUTO-DIAL--------------> >  MODEM
-------        OR                                        -------
        005-20688
```

                                                        PHONE LINK

```
---------                                                -------
 MV/4000  --005-14115--> >--AUTO-DIAL-------------> >  MODEM
---------                                                -------
```

C) DG/20 SYSTEM AND MV/8000 ATI-8 SYSTEM CONNECTED VIA
   MODEMS.

```
-------                                                  -------
 DG/20  --005-21041--> >--AUTO-DIAL--------------> >  MODEM
-------        OR                                        -------
        005-20688
```

                                                        PHONE LINK

```
---------                                                -------
 MV/8000  --005-14111--> >--AUTO-DIAL-------------> >  MODEM
---------                                                -------
```

D) C/330 ALM-8 SYSTEM AND MV/4000 IAC-8 SYSTEM CONNECTED VIA
   MODEMS.


```
    --------                                               -------
    C/330  --005-13703-->  >---AUTO-DIAL----------------->  >   MODEM
    --------                                               -------
```

                                                        PHONE LINK


```
    ----------                                             -------
    MV/4000  --005-14115-->  >---AUTO-DIAL-------------->  >   MODEM
    ----------                                             -------
```


B.   USE THE SUPPLIED XAPGEN TO MODIFY XAP.GN TO SPECIFY DIAL
     FOR LINE TYPE, AND HAYES OR CODEX FOR DIAL LINE TYPE.
     (TYPE HELP ONCE IN XAPGEN FOR HELP ABOUT COMMANDS)

THE STRAPPINGS FOR THE CODEX MODEM, AUTO-DIAL UNIT AND THE HAYES
SMARTMODEM USED WHILE TESTING DG/XAP, ARE PROVIDED FOR YOUR CONVENIENCE.

CODEX 5212R MODEM

A. CLOCK OPTION (INTERNAL)
B. GROUND OPTION (CHASSIS)
C. SWITCH 27
       1 - OFF (FORCE ORIGINATE)
       2 - OFF (DIAL LINE)
       3 - OFF (RX LONG SPACE DISCONNECT)
       4 - OFF (XMIT LONG SPACE DISCONNECT)
       5 - OFF (DO NOT MAKE BUSY IDAL)
       6 - ON (DTR DISCONNECT)
       7 - ON (CARRIER FAIL DISCONNECT)
       8 - ON (AUTO ANSWER)

D. SWITCH 28
       1 - OFF (CONTROLLED AUTO-ANSWER)
       2 - OFF (ASYNC)
       3 - ON (10 BITS
       4 - OFF   CHARACTER)

CODEX DIALER 5801R

A. BOARD 8012068

      ANSWER TONE (SOFTWARE WITH EDN)
      MODEM TYPE 103
      SERIAL/PARALLEL INPUT (SERIAL)
      ABORT TIMER (25.6)
      PAUSE OPTION (2.56)
      ACR AT REMOTE BUSY (OUT)
      O/H DELAY (2.56)
      ACU TYPE (TOUCHTONE)
      TYPE INTERFACE (RS232)
      TYPE MODEM (UDS)
      TYPE DATA JACK (NORMAL)

B. BOARD 8011894

      MULTI-HOUSING (OUT)
      BAUD RATE (1200)
      DIAL CONTROL (STX)
      CTS CONTROL (OUT)
      PARITY (NONE)
      DATA BITS (8)
      STOP BITS (1)

HAYES SMARTMODEM

SWITCH	SETTING	EXPLANATION
1	UP	DTR FALSE --- SET TRUE BY FILE OPEN
2	DOWN	1 DIGIT RESULT CODE RETURNED TO COMPUTER
3	DOWN	RESULT CODES RETURNED TO COMPUTER
4	DOWN	DO NOT ECHO CHARACTERS IN COMMAND STATE
5	UP	AUTO-ANSWER OF INCOMING CALL
6	UP	CARRIER DETECT FROM DISTANT MODEM
7	UP	SINGLE TELEPHONE-JACK INSTALLATION
8	DOWN	ENABLES SMARTMODEM 1200 COMMAND RECOGNITION

-END OF RELEASE NOTICE-