Data Download
HP3000 to any Vectra Clone

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The purpose of this article is to show, by example, the concept of a Data Download. The body of this work is divided into four parts: 1) A definition of the topic;   2) an overview of the application detailed in this story;   3) traversal of the products and techniques involved in constructing this specific application; and, 4) a conclusion.

The Definition

Given the migration of defined, fixed end user functionality from the central host to one or more local processors, the Data Download · is the scheduled data refresh, via electronic connectivity,   providing local application processing input without continuous, direct online host interface during local application execution.

The term Data Download is not new.   It should not be confused with Application Download.   The former is a far more extensive topic. There, the central maintenance and downloading of common local application programs is involved, not only the refresh of the data.   Its scope is beyond the confines of this small column.

The Application

The client organization processes compensation payments for salesmen located in branch offices.   The product is insurance.   The salesmen are known as Regional Insurance Specialist (RIS).   An RIS requires monthly statement generation detailing compensable transactions.   Statement processing is handled centrally from home office by the Compensation Unit.   Paper statements are couriered to the RIS force in the branch offices.

Sale of product results in issuance of production credits. These are reflected in the monthly compensation sheet of the RIS.   Production credits can be likened to green stamps,   i.e.,   Sale of product accrues various amounts of production credits; US dollars are distributed to the RIS as a percentage of total production credits collected, etc.   Product returns and cancellations cause chargeback against the compensation sheet of the RIS.   In essence, payout must be calculated and reported to the branch sales force in an exact and timely manner.

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Previously, Compensation Unit personnel transcribed individual transactions from home office generated host production reports. These figures became input to local processors for ultimate statement generation and distribution. As volumes grew, transcription time increased proportionately. The client requested a more expedient methodology.

The Technique

Prior to implementing the download, the existing system was composed of the following. Weekly production reports detailing RIS compensation were produced on the host HP3000 series 70. The output was recorded and summarized for entry into a local DBase III+ application, resident on a stand alone IBM PC/XT. The HP produced the Total RIS Compensation Report; the PC generated the Individual RIS Compensation Statement. A procedure was needed to remove the human element needed to reenter data into the PC.

The HP report was generated via a COBOL program. It accesses multiple Image sets to create the printer spool file. The first step was to modify the program enabling it to additionally write output to an MPE disk file. Because statements were produced on a monthly basis, some modifications were required to summarize the weekly data. These changes were not extensive. They were incorporated into weekly batch production.

Next, a package called DataExpress was used. The product is supplied by a firm known as Imacs Systems, Corp. in Marina del Rey, California. "DataExpress is a program that allows users to extract data from multiple files and/or data bases on the HP3000, to manipulate and reformat it for use in another application program. It allows users to make use of the extracted data in programs on their microcomputer, or to use the data in other HP3000 programs." [*1] A review of the DataExpress package is not possible. For now, let it suffice that pleasurable results have been attained from product usage.

DataExpress was used to convert the ·MPE file to DBase format. The output from DataExpress resides on the HP until downloaded. DataExpress has an option that allows downloading of the file when processing is completed, but this requires the user to run DataExpress online, from the PC. The example uses a combination of SuprTool, a product by Robelle, and DataExpress. SuprTool was used to extract the information quickly from an HP Image dataset. This is done because DataExpress is much slower doing "simple" extractions. The SuprTool output, an MPE file, is now read into the DataExpress procedure, where it is sorted, on three items, and summarized on each level. (Note: DataExpress will not allow summarizing unless it sorts the file first, therefore, it is of no use to sort the file prior to using DataExpress.)

Another problem arose in this SuprTool/DataExpress interface. Numeric output to SuprTool ASCII files is not padded with leading zeros. DataExpress generated a data exception when attempting to read a numeric field with leading spaces. A COBOL program was written to inspect the field and replace spaces with zeros.

DataExpress requires interface with another package to perform the actual file transfer. In this case, a product called Reflection-3, by Walker Richer & Quinn, stationed in Seattle, was used. "Reflection enables the IBM Personal Computer or workalike PC to emulate, or operate like, the terminal of a much larger computer system. Reflection emulates Hewlett-Packard ... You can transfer data between the PC and a host computer, and send data from the display memory of the PC to a printer or a disk file." [*2]

Reflection requires no added PC hardware. The program utilizes the standard serial ports soft labelled COM1 and COM2. Either modem or direct connections are acceptable.

Originally, usage of the Reflection product was ceded to operations. Because the generation of the compensation figures and the DBase file was a production job, operations controlled the actual download. Monthly, operations invoked Reflections on a PC earmarked for production usage. The operator would execute a canned Reflection procedure that would initiate an HP session, download the compensation file to a Drive A floppy disk on the PC and terminate the HP session. This floppy was handed to Compensation Unit personnel. Workers in that unit could then insert the floppy into Drive A prior to invocation of the DBase process that generated the compensation statements. No prompted input was necessary from the user.

The ultimate scenario is to design for a direct download into the PC of the end user, bypassing operations completely, as shown in the example on the following pages. In the example, the user invokes a Reflection Command File that will initiate an HP session, wait for user passwords, download the data to the correct hard disc directory on their PC, and terminate the HP session. If any errors occurred in the actual download, the user is given the opportunity to re-try the download.

Arguments can be made that good procedures would dictate that communications, specifically file transfers of a non ad hoc, fixed production nature, would best be handled and controlled by production operation. Additionally, stand-alone workstations do not have online host communication requirements other than for the download of limited scheduled production data. In such a case, a single sharable download workstation could serve sufficiently and align communications costs. The decision would vary based on the users requirements.

The Conclusion

The concept of a Data Download was new to this technical and end user community. The first installation has been a substantial success. The client has requested other downloads. Some financial reports are being considered. Overall, experience with the products mentioned and the concepts presented has been very favorable.

Footnotes

*1 Imacs Systems Corp., DataExpress Reference Manual, 11/87, p. 1-1.

*2 Walker Richer & Quinn, Inc., Reflection User Manual, 10/86, p. 3.

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DataExpress Procedure and Explanation

Procedure Review Report

```
-------------------------------------------------------------------------
ANNUDX(AJC.MTEST)          created on 87.09.25 by AJC      page   1 of 1
-------------------------------------------------------------------------
OUTPUT FILE FORMAT: Report listing                    Type of output that
                                                      is to be created

OUTPUT FILE LAYOUT: Suppress detail records           Display only total
                                                      lines when each
                                                      sort item changes
        ISSUE-DATE                      X(4)
        PROD-ID                         X(8)
        POLICY-STATUS                   X(2)
        subtotal(FACE)                  S9(11)
        subtotal(PC)                    S9(12)


SORTED BY:                                            Items are to be
                                                      sorted in the
                                                      following order
        ISSUE-DATE              X(4)
        PROD-ID                 X(8)
        POLICY-STATUS           X(2)


SUMMARIZED BY:                                        What  fields  are
                                                      summarized.  As
                                                      each item changes
                                                      these fields will
                                                      contain totals

        ISSUE-DATE              X(4)  = subtotal(FACE)  Print the total FACE
                                                        for given date
                                        subtotal(PC)
                                        count(FACE)     Print the number of
                                                        records for given
                                                        date
                                        count(PC)
        PROD-ID                 X(8)  = subtotal(FACE)
                                        subtotal(PC)
                                        count(FACE)
                                        count(PC)
        POLICY-STATUS           X(2)  = count(FACE)
                                        count(PC)
```

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.

```
SELECTED BY:                                          To report only
                                                         certain records,
                                                         the user can use
                                                         the following
     ISSUE-DATE            X(4)                          choices for
and PROD-ID                X(8)                          selection. Enter
and POLICY-STATUS          X(2)                          blanks to use
and FACE                   9(10)                         all records
and PC                     9(11)


FILE ACCESS PATH:

     ANNUOUT(type=MPE)                                MPE input file
      1   filler           X(4)      .                  and   layout.
      5   ISSUE-DATE       X(4)
      9   filler           X(3)
     12   PROD-ID          X(8)
     20   filler           X(1)
     21   POLICY-STATUS    X(2)
     23   FACE             9(10)
     33   PC               9(11)


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Reflection Command File Example and Explanation


```
;    THIS IS A COMMAND FILE USED TO DOWNLOAD DATA FROM
;    THE HP3000 TO THE IBM/PC.  THE HP FILE IS CALLED
;    M0078P06, WHILE THE IBM/PC FILE IS TISFILE.DB3
;    IN DIRECTORY DBASE\COMPnn, WHERE "nn" IS THE YEAR.
;
LET V1=0                               Sets counter V1 to zero
:PROMPTER                              Label name
TRANSMIT "^M"                          Transmit a Carraige Return
WAIT 0:0:2 FOR ":"                     Wait up to 2 seconds for the
                                           colon prompt
IF NOT FOUND                           Result determined by above WAIT
   LET V1=V1+1                         Increment V1 by 1
   IF V1>3                             If V1 is 4 or above, then
      DISPLAY "^[&dA HOST NOT READY"      Display message on terminal,
                                           in inverse video
      WAIT 0:0:5                          Wait 5 seconds
      EXIT                                Return to PC
   ENDIF
   GOTO PROMPTER                       Go to PROMPTER label
ENDIF
WAIT 0:0:2
TRANSMIT "HELLO DOUG.MTEST ^M"         Transmit MPE "HELLO" Command
HOLD 0:0:30 FOR "HP3000"               Wait 30 seconds for system to
                                           return Logon Banner
                                       At this time the user goes
                                           from Reflections Mode
                                           to HP Mode, allowing
                                           the user to enter the
                                           password(s).
                                       If the user has not entered
                                           the password(s) within
                                           the 30 seconds, HOLD
                                           will automatically end
                                           put the user back into
                                           Reflections Mode, and
                                           this command file will
                                           continue.
IF NOT FOUND                           If Logon Banner wasn't displayed
   TRANSMIT "^M"                          Transmit 3 Carriage Returns
   WAIT 0:0:1                              to exit HP Security,
   TRANSMIT "^M"                           if it was active
   WAIT 0:0:1
   TRANSMIT "^M"
   WAIT 0:0:1
   DISPLAY "^[&A LOGON FAILED "        Display message on terminal
   WAIT 0:0:10
   EXIT
ENDIF
WAIT 0:0:15 FOR "^Q"                   Wait for DC1 character to be
                                           returned from host
```

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```
:TRANSFER                                    Label name
CONTINUE                                     This will cause the command file
                                                to continue whether an error
                                                occurred or not

RECEIVE C:\DBASE\COMP88\TISFILE.DB3 FROM M0078P06.DATA ASCII DELETE

                                             Transfer file M0078P06.DATA from
                                                the HP to the PC directory
                                                DBASE\COMP88.  If the file
                                                already exists, delete it.
IF ERROR                                     If there is an error in transfer

   DISPLAY " ERROR TRANSFERRING DATA TO PC.  TRY AGAIN (Y or N)? ^M^J"

                                             Display message on terminal,
                                                with Carriage Return and
                                                Line Feed
   ACCEPT V2 LIMIT 1                         Accept user response of 1 char.
   IF V2="Y"
      GOTO TRANSFER
   ENDIF
ELSE
   TRANSMIT "PURGE M0078O06.DATA^M"          Purge old M0078P06 file
   WAIT 0:0:5 FOR ":"
   TRANSMIT "RENAME M0078P06.DATA,M0078O06.DATA ^M"

                                             Rename datafile for storage
ENDIF
TRANSMIT "^M"
TRANSMIT "^M"
TRANSMIT "BYE ^M"
WAIT 0:0:5
EXIT
```

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