SECTION IV — TECHNICAL ENVIRONMENT

Each trading partner needs three general resources to interchange data electronically: computer hardware, software, and communication capabilities.

To transmit data between trading partners, certain hardware and software components must be in place. These products serve to convert standard text data into an X12 structure, arrange data into sets which match the receiving system, and execute the action required to transmit data across the telecommunications network. A Value Added Network (VAN) serves the function of a bulk mail holder, providing temporary storage while waiting for addressees to retrieve their data items.

The items listed below are the *minimum* resources needed to begin submitting and receiving data via EDI:

➢ Mailbox ID from an established VAN provider;

➢ Microcomputer system that meets Y2K requirements;

➢ Modem;

➢ Data mapping interface or mapping software; and

➢ EDI X12 translation software.

This section of the Implementation Guide outlines each of these requirements and provides guidance for acquiring the appropriate resources to support the EDI efforts.

Hardware Requirements

Microcomputers, minicomputers, or mainframes can be used to transact EDI. The hardware platform selected depends upon the information system requirements and constraints of each trading partner.

Software Requirements

In the EDI environment, software serves the key role of routing and translating user application data into standard transaction sets. These processes entail moving data from an application by abstracting data from data bases, formatting or translating the file into a standard X12 format, and depositing that data into a mailbox for

delivery to the addressee (trading partner).

Mapping

The mapping process converts trading partner-specific application data into an EDI vendor-specific flat file. The flat file does not need to contain all of the data from the original application. However, this process must be customized to each application. The process can be accomplished either through programming **or** through the use of commercially available mapping software.
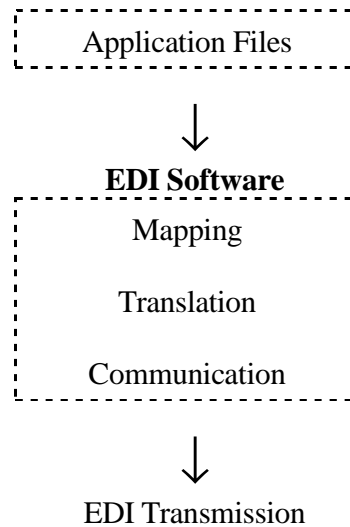
Mapping performs the following functions by setting up a profile for each type of incoming and outgoing file format (transaction set):

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   Application Files
└ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
            ↓
       EDI Software
┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
      Mapping

      Translation

    Communication
└ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
            ↓
     EDI Transmission
```

➢ **Separates EDI data from non-EDI data**. All information contained in an application system may not be relevant to the particular transaction set.

➢ **Filters information for trading partners**. The mapping function provides only that information from an application that is relevant to a particular message.

➢ **Converts data values**. Mapping converts data to the appropriate value range or equivalent value as required by a trading partner or the transaction set.

➢ **Reformats data**. Reformatting the application data includes:

· **Changes the position of the data** — An incoming data element is mapped to multiple places in the reformatted file.

Application Data File

				Default Reason	

X12 Transaction Set   ↗ ↙

			Default Reason		

·   **Changes alphanumeric data length** — Field lengths are truncated or expanded as required.

·   **Converts one type of numeric data to another type** — Numeric data can be rounded or the number of digits following a decimal can be truncated or expanded as required.

·   **Dates are reformatted** — For example, a date can be changed from the format 10/17/2002 to 10172002.

Translation Software

The translation process converts an EDI vendor-specific flat file (ASCII or EBCDIC format) into an X12 standard format.

EDI standards are *not* computer language and there is no *incompatibility* with existing systems — one electronic standard can be used across multiple languages. Translation software is required for this purpose. The major function that translation software performs is converting data from a company- or organization-specific format to an EDI standard format.

EDI software generally uses a table structure to perform the function of converting information to the proper EDI format. The software includes tables consisting of the standard data dictionary and syntax rules. This process is known as *translation* and relates the information formed in the mapping process to a particular transaction set.

Once translation is complete and basic error checking performed, the software dials the communication network and sends the formatted data to HUD's VAN using acceptable communication protocols.

For incoming EDI transmissions, this process occurs in reverse.

Translation software is multi-standard and contains all the rules, syntax, and dictionaries for all major standards. It is also multi-network with facilities to accommodate all possible communication scripts.

EDI software should possess the following characteristics:

➤ Table-driven (rather than code-drive) — Transaction sets, segments, and data elements are described in tables. "Table-driven" subroutines are used to generate processing of information. This mechanism permits the use of multiple transaction sets.

➤ Editing capabilities and error checking — The software provides built-in error checking capabilities such as identifying appropriate types of data (i.e., numeric versus alphanumeric) and data element length.

➤ Customizing ease — The software can be customized for multiple transaction sets and/or EDI applications.

➤ Audit options — An audit trail is the presence of information processing media (paper, tapes, disks, etc.) and procedures that permit an auditor to trace a transaction through the various steps of processing, communication, and storage. It may include data logs, transaction control numbers, and controlled computer processing procedures.

There are many EDI software vendors available that provide a wealth of software from which to choose. Before deciding on a software product, take a moment to determine what hardware platform to use, and decide what role beyond the HUD initiative, EDI will serve in other business communications to your trading partners.

Communication Requirements

Currently there are two options for communicating with HUD. They are a Service Bureau/or VAN connection or frame relay. For a list of Service Bureaus currently supporting HUD EDI transaction sets, contact the HUD EDI Help Desk at 1-800-HUD-4EDI (1-800 483-4334) or by email at EDI.Help.Desk@hud.gov.

For large business partners or business partners who need dedicated access to the HUD applications, a frame relay network connectivity option is offered. Information on the HUD business partner frame relay network can be obtained from the HUD EDI Help Desk at 1-800-HUD-4EDI (1-800-483-4334) or by email at EDI.Help.Desk@hud.gov.