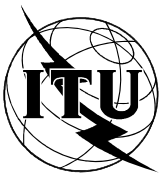

INTERNATIONAL TELECOMMUNICATION UNION

CCITT

THE INTERNATIONAL
TELEGRAPH AND TELEPHONE
CONSULTATIVE COMMITTEE

T.564

(11/1988)

SERIES T: TERMINAL EQUIPMENT AND PROTOCOLS FOR TELEMATIC SERVICES

GATEWAY CHARACTERISTICS FOR VIDEOTEX INTERWORKING

Reedition of CCITT Recommendation T.564 published in the Blue Book, Fascicle VII.7 (1988)

NOTES

1 CCITT Recommendation T.564 was published in Fascicle VII.7 of the *Blue Book*. This file is an extract from the *Blue Book*. While the presentation and layout of the text might be slightly different from the *Blue Book* version, the contents of the file are identical to the *Blue Book* version and copyright conditions remain unchanged (see below).

2 In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

Recommendation T.564

GATEWAY CHARACTERISTICS FOR VIDEOTEX INTERWORKING

1 Introduction

This Recommendation specifies gateway characteristics which should be used for international videotex interworking between gateways.

This document is a part of a set of standards produced to facilitate the interconnection of national videotex services. This set of standards is positioned with respect to the open systems interconnection basic reference model (Recommendation X.200). This document lies within the field of application layer of the OSI application layer. Inside the application layer it makes use of DTAM (document transfer, access and manipulation) specific application service element (Recommendation T.400).

2 Scope and field of application

This Recommendation applies to the international videotex interworking between gateways as specified in this section.

2.1 *National videotex services*

It is the responsibility of Administrations to decide the configuration of the national videotex services.

2.2 *Videotex interworking definition*

Videotex interworking allows a videotex terminal pertaining to a given videotex service of a given country to interact in real time with a videotex host computer located in a different country. This videotex host may be either a videotex center of an external computer.

2.3 *Relation to other Recommendations*

Videotex interworking gateway characteristics are based upon concepts of DTAM defined in T.400 Series of Recommendations.

Videotex interworking is conform to the videotex service defined in Recommendation F.300 and it is specified by the following profiles:

- a document application profile specified in Recommendation T.504;
- a communication application profile specified in Recommendation T.523;
- an operational application profile specified in Recommendation T.541.

General concepts of the international videotex interworking and the data syntaxes relevant for the videotex interworking are defined in Recommendation T.101.

3 References

- Rec. F.300: Videotex service
- Rec. X.200: Reference model of open systems interconnection for CCITT applications
- Rec. X.213: Network service definition for open systems interconnection for CCITT applications
- Rec. X.214: Transport service definition for open systems interconnection for CCITT applications
- Rec. X.224: Transport protocol specification for open systems interconnection for CCITT applications
- Rec. X.215: Session service definition for open systems interconnection for CCITT applications
- Rec. X.225: Session protocol specification for open systems interconnection for CCITT applications
- Rec. X.216: Presentation service definition for open systems interconnection for CCITT applications
- Rec. X.226: Presentation protocol specification for open systems interconnection for CCITT applications

– Rec. X.217: Association control service definition for open systems interconnection for CCITT applications
– Rec. X.227: Association control protocol specification for open systems interconnection for CCITT applications
– Rec. T.101: International interworking for videotex services
– Rec. T.400 (1988): Introduction to document architecture, transfer and manipulation
– Rec. T.411 (1988): Open document architecture (ODA) and interchange format – Introduction and general principles
– Rec. T.412 (1988): Open document architecture (ODA) and interchange format – Document structures
– Rec. T.414 (1988): Open document architecture (ODA) and interchange format – Document profile
– Rec. T.415 (1988): Open document architecture (ODA) and interchange format – Open document interchange format (ODIF)
– Rec. T.431 (1988): Document transfer and manipulation (DTAM) – Services and protocols – Introduction and general principles
– Rec. T.432 (1988): Document transfer and manipulation (DTAM) – Services and protocols – Service definition
– Rec. T.433 (1988): Document transfer and manipulation (DTAM) – Services and protocols – Protocol specification
– Rec. T.441 (1988): Document transfer and manipulation (DTAM) – Operational structure
– Rec. T.504: Document application profile for videotex interworking
– Rec. T.523: Communication application profile DM-1 for videotex interworking
– Rec. T.541: Operational application profile for videotex interworking

4 Definitions

The following definitions apply to all other parts of the Recommendation.

This Recommendation makes use of the following terms as they are defined in Recommendation F.300:

– videotex access point;
– videotex frame;
– videotex gateway;
– videotex host;
– videotex service;
– videotex service center;
– videotex terminal;
– videotex user.

This Recommendation makes use of the following terms as they are defined in Recommendation T.400:

– attribute;
– content portion;
– page;
– block;
– specific layout structure;
– subordinate.

5 Abbreviations

ACSE	Association control service element
CASE	Common application service elements
DDA	Defined display area
DTAM	Document transfer, access and manipulation

OSI Open systems interconnection

SASE Specific application service element

SE Structure element

VIA Videotex interworking architecture

6 Model of the communication between local and external host

6.1 *International videotex interworking between gateways*

Videotex interworking may take place between videotex services in different countries, independently from the national configuration being used. An abstract configuration model has been established in Recommendation F.300 to represent an international videotex interworking configuration using gateways. In this abstract model, each cooperating country is represented by a videotex gateway. The DTAM protocol is intended to be used between the two gateways. Consequently a typical communication may be described as shown in Figure 1/T.564.

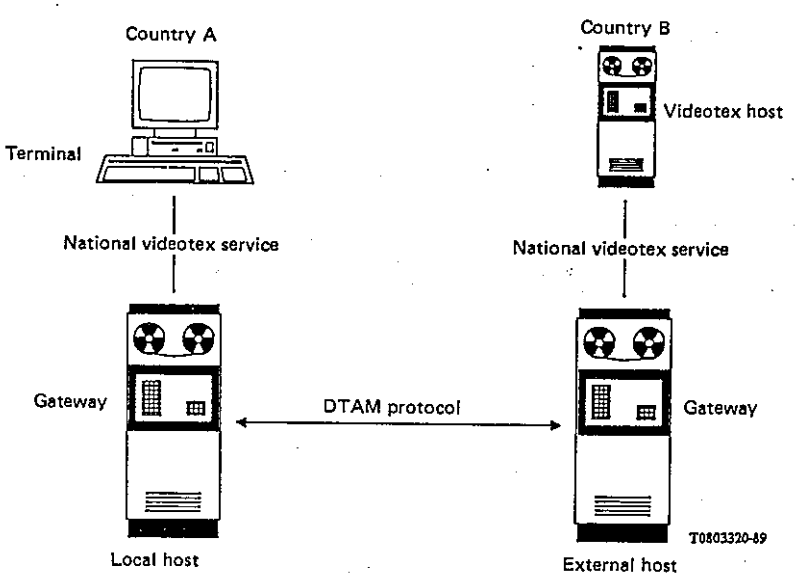

FIGURE 1/T.564

The abstract model is not intended to be implemented as such. It is the responsibility of Administrations to decide how a gateway may be implemented.

Throughout this document, and for a given terminal to videotex host communication, the gateway which supports the videotex terminal through its own national videotex service is called local host. On the other hand, the gateway which supports the videotex host through its own national videotex service is called external host.

6.2 *Position of videotex interworking relative to OSI*

Videotex interworking between gateways is specified in a set of Recommendations (see § 2.3) which are a part of the OSI application layer as defined by the OSI reference model (Recommendation X.200).

Videotex interworking between gateways handles a specific architecture called videotex interworking architecture (VIA), conforming to DTAM document structures (T.410 Series of Recommendations) and DTAM operational structure (T.440 Series of Recommendations), and makes use of services and protocol provided by DTAM (T.430 Series of Recommendations).

Videotex interworking gateway characteristics are specifying the general concepts of handling the VIA. The application profiles are specifying the use of DTAM document structures, DTAM operational structures, and DTAM service and protocol.

Figure 2/T.564 depicts this situation:

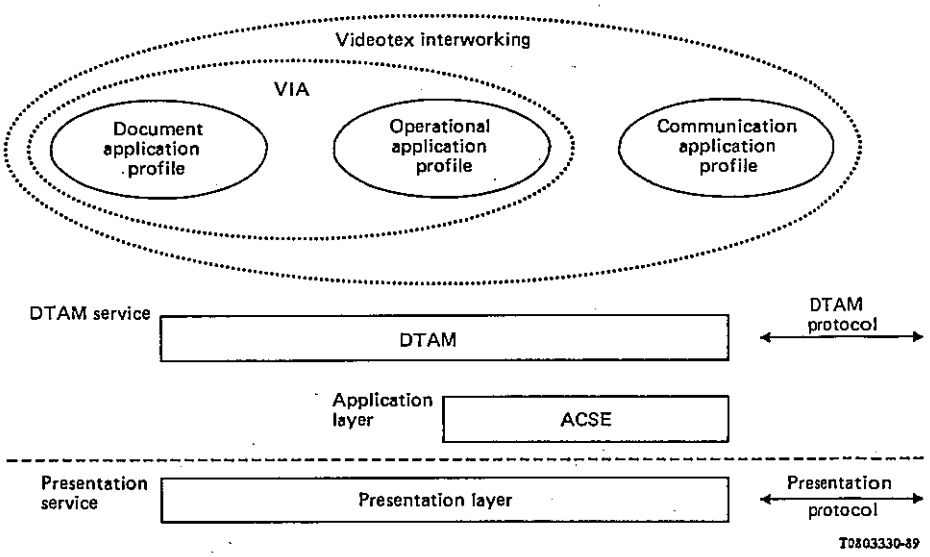

FIGURE 2/T.564

6.3 *Organization of the videotex interworking*

The videotex interworking application process consists of two parts which are in charge respectively of:

– managing the communication with the peer entity;

– supporting the local application process.

The videotex interworking architecture (VIA), the DTAM service and the DTAM protocol correspond to the communicating part of the application process and represent those aspects of the application process which are pertinent to OSI.

The VIA is a virtual data structure with a set of possible actions that can be performed on it. This structure is used to represent the current state of the communication between the two

Any operation on VIA must be reported to the peer entity and to the videotex service user. These operations are reported to the peer entity by using the DTAM service which is provided by the DTAM protocol.

Therefore, any action on the VIA implies:

– an update of the local VIA;

– the exchange of DTAM protocol elements in order to update accordingly the peer VIA.

The local application process may also be expressed in terms of a videotex service which is offered on a national basis to a human user. This local application process is in charge of the mapping between the videotex service and the DTAM service.

Note – Figure 3/T.564 is for information on the videotex interworking organization only.

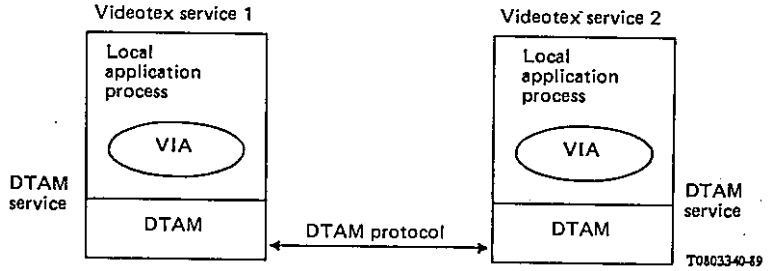

FIGURE 3/T.564

7 Relation between videotex and DTAM service (see Figure 4/T.564)

This section does not form an integral part of this Recommendation.

The local application process is in charge of the local mapping between the communicating OSI environment and the videotex service as defined by a given Administration. On the local host side, the local application process is in charge of converting the local host to external host dialogue into a videotex user dialogue. On the external host side, the local application process is in charge of converting the external host to local host dialogue into a national videotex host access dialogue.

The two local application processes are able to communicate on an international basis by updating both their own and the peer entity VIA, which represents the common view of the communi- cation as seen by both partners. To indicate that a VIA update is needed, the local process may express all the VIA modifications as DTAM service elements through the DTAM service interface. Any modification of the VIA must be reported to both the local and the remote users.

When receiving a DTAM service primitive, the VIA is updated and the receiving local application process takes the updating into account.

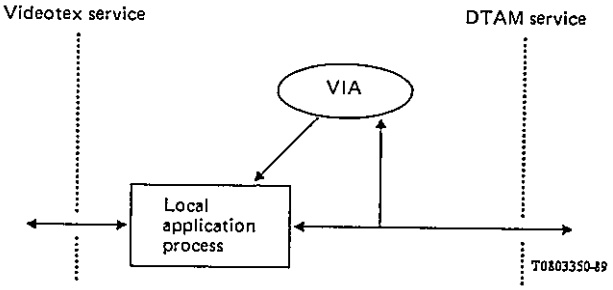

FIGURE 4/T.564

For a given definition of a videotex service, several local application processes may exist with different levels of complexity. For example, a given local application process may not take into account the existing VIA, or for each new frame to be displayed, delete the existing VIA and create a brand new one. A more clever local application process may, on its own, take care of the previous VIA and express through the DTAM service interface the sole modification of the VIA.

It is up to the Administrations concerned to define all the details of the local application process to communicate through the DTAM service, which supports the local application process.

8 Use of lower layer services

The use of lower layer services is specified in Recommendation T.101.

9 General structure of the VIA

9.1 *General data structure*

The following list is a basic set of requirements for the properties of a general data structure handled by the videotex interworking gateway.

Videotex interworking is an application profile on top of DTAM and the videotex interworking architecture (VIA) is in line with the general structuring principles defined in Recommendation T.400.

The VIA consists of a document profile, an operational profile and five data structures:

- a specific layout structure: the display structure;
- four operational structures which are used to carry:
  1) the data entry structure;
  2) the application control memory structure;
  3) the administrative structure;
  4) the special terminal facilities structure.

Note – Only one operation profile is used for the four concerned operational structures.

The data structure is composed of structure elements (SE) which can be manipulated indepen- dently as long as the protocol and other dependency rules are observed.

The state of the VIA is determined by the states of all the elements of the VIA and the relationship between them.

The station of the VIA expresses the current state of communication between the two partners.

Manipulations of the structure elements of the VIA are specified as VIA operations and mapped to DTAM service elements.

9.2 *Attributes*

The categories of SE attributes are:

a) identification attributes which specify the type of the SE and identify individual SE;

b) application defined attributes which are only meaningful for the videotex interworking architecture;

c) specific attributes which depend on the SE type;

d) default-value attributes which specify values to be used in identified SE types at lower level in the hierarchy;

e) reference attributes which specify the relation between SEs.

9.2.1 *Identification attributes*

The identification attributes are the object type and object identifier attributes defined in Recommendation T.412 and in Recommendation T.441 (resp. Annex A to Recommendation T.541).

9.2.2 *Application defined attributes*

Application defined attributes are attributes specified within this Recommendation for the structure elements of the VIA, with non-equivalent attributes within the T.400 Series of Recommendations. They are either mapped to the attribute “application comments” specified in Recommendation T.412 (for attributes pertaining to the display structure) or mapped on the “application defined attribute list” specified in Recommendation T.441 (for attributes pertaining to one of the four other VIA data structures). The mapping is specified in Recommendation T.504 or in Recommendation T.541 respectively.

9.2.3 *Specific attributes*

These attributes are depending on the SE-type. Examples of specific attributes are attributes specifying the position or the dimension of the text. These attributes are defined in Recommendation T.412.

9.2.4 *Default value attributes*

Since no generic structure, neither object class specification, nor styles are used for the VIA, the values of defaultable attributes may only be derived from either standard default values specified for the VIA (in a relevant CCITT Recommendation) or from a default value list. A default value list may only be used at the highest level of hierarchy in a given data structure.

Therefore, to determine the value of an attribute classified as defaultable the priority order is:

1) attribute values specified explicitly in the attribute list of the SE itself;

2) attribute values specified in the “default value list” attributes of the SE situated at the highest level of hierarchy in the considered data structure;

3) the default value derived from the document profile (see Recommendation T.504) or from the operational application profile (see Recommendation T.541);

4) the default value defined in Recommendation T.412 or Recommendation T.441 (resp. Annex A to Recommendation T.541).

9.2.5 *Reference attributes*

Reference attributes specify the relationships between the SEs aside from the tree-structure. Reference attributes are specified in Recommendation T.441 (resp. Annex A to Recommendation T.541). The use of the reference attribute is specified in this Recommendation.

9.3 *General VIA operation*

The VIA data structure is partly initialized at the connection establishment time. A number of SEs are implicitly created (see Annex A).

The VIA is then created and modified by a series of general VIA-operations on SEs. All the VIA operations provoke:

– a modification of the local VIA;

– the exchange of DTAM primitives specifying which VIA operations are to be performed on the remote VIA. Recommendation T.523 specifies the mapping of the general VIA operations onto the relevant DTAM operations and the rules for the use of the DTAM service.

After reception of an indication primitive from the DTAM service the VIA is updated and the VIA operations are indicated to the local videotex service user.

The general VIA operations to be performed on the SEs are:

a) CREATE: the creation of an SE;

b) DELETE: the deletion of an SE and all its subordinate SEs;

c) MODIFY: the modification of attributes of an SE;

Note – Use of MODIFY operation to add text to both content information attribute of text-unit and operational element content attribute is for further study.

d) REBUILD: the deletion of an SE and its subordinates followed by the creation of a new SE replacing the previously deleted one. This is for further study.

e) CALL MEMORY: the invocation of predefined or stored sequences of VIA operations.

A DTAM service primitive addressing a particular SE has influence on the existence of that SE (CREATE, DELETE) or on the attributes of the SE (MODIFY).

10 Videotex structure

The videotex structure consists of a document profile, an operational profile and the following structures:

– *The display structure (layout structure)*

It contains informations concerning the layout and informations to be displayed. In the VIA the display structure is represented by the DOCUMENT-SE and the subordinate SEs of the DOCUMENT-SE.

– *Four operational structures*

1) *The data entry structure*

It provides the user with a flexible means of entering data. It contains elements for describing the layout of fields, for storing data and for describing the reaction to various user inputs. It is represented in the VIA by the DATA-ENTRY-SE and its subordinate SEs.

2) *The application control memory structure*

It is used to store VIA operations which can be repeatedly invoked. It is repre- sented in the VIA by the APPLICATION-CONTROL-MEMORY-SE and its subordinate SEs.

3) *The administrative structure*

It copes with informations such as accounting and identification and is represented in the VIA by the ADMINISTRATIVE-INFORMATION-SE and its subordinate SEs.

4) *The special terminal facilities structure*

It is used to handle data necessary to set the terminal in a special state. This data is sent to the terminal before the actual “display data” is sent (e.g. character of dynamically redefinable character set). It is represented in the VIA by the SPECIAL-TERMINAL-FACILITIES-SE and its subordinate SEs.

10.1 *Display structure*

10.1.1 *Overview of the display structure*

The display structure is concerned with the data to be displayed on the videotex terminal. The following paragraphs only describe the elements specific to the display structure. The text of a document to be displayed on a screen can be separated into various parts in order to:

– distinguish between presentation units (such as areas on the screen) or logical units and the rest of the screen;

– use of different types of coding;

– allow some parts of the screen to be protected or scrolled;

– allow some parts of the screen to be updated independently from the rest of the screen and have a longer or shorter life than other parts.

This separation introduces a subimage concept which allows different logical and independent areas to be recognized within the screen. These subimages can be:

– updated independently;

– coded independently;

– organized in order to take care of application requirements.

The subimage concept also allows:

– to clearly separate data entry and display areas;

– to compose a screen via a library of subimages;

– to store subimages independently of the final position on the screen.

The display structure consists of:

– one DOCUMENT-SE;

– one PAGE-SE describing the page structure which is used to display videotex frames;

– one or more BLOCK-SEs subordinate to the page;

– at most one content portion subordinate to each block.

Figure 5/T.564 describes the hierarchy of the display structure elements.

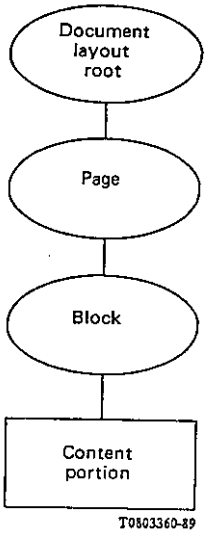

FIGURE 5/T.564

In the context of videotex interworking between gateways, a page is a rectangular area that correspond to the interchanged defined display area (DDA). A page is always a composite object.

Blocks are immediately subordinate to a page. Blocks are rectangular areas. Block-size is restricted to be equal to the page. The use of block-size not equal to page is for further study.

All constituents of the display structure conform the definitions of the document structures as specified in T.400 Series of Recommendations.

The document application profile defined in Recommendation T.504 specifies details on the document profile and the display structure for the videotex interworking between gateways.

10.1.2 *Application defined attributes*

This section identifies specific attributes used by the videotex interworking gateway which do not influence the layout process as defined in T.400 Series of Recommendations. These attributes have no direct equivalent in Recommendation T.412 and are mapped to the attribute "application comments".

10.1.2.1 *Write-access attribute*

This attribute is associated with each SE. The specification of this attribute is valid for all structures of the VIA. Its value is used to control the independent manipulation of the SE by any of two communicating hosts (local and external), specifying which host may, at any time:

– modify the attributes of the SE;

– delete or create subordinates SEs.

This attribute also specifies the way how the write access may be transferred between the two hosts.

This attribute is introduced for further structuring and controlling of the dialogue. This is for further study.

10.1.2.2 *Display-indication*

This attribute identifies if the block is to be displayed or not. It may take the value "mandatory" or "optional".

If the value "mandatory" is selected, then the block is to be displayed, even if the user types ahead.

If the value "optional" is selected, then the local host may decide not to display the block when the user types ahead.

All "mandatory" blocks within the page must be displayed.

10.2 *Data entry structure*

10.2.1 *Overview of the data entry structure*

The data entry structure is used to represent the data entry function. This function is sometimes also referred to as data collection function. It allows for a controlled entrance of user suppled information in a truly distributed environment between the local and external hosts. In order to prevent exchange of data through the network for each elementary action of the user, several dialogue steps have to considered between the local and external host:

a) In the first dialogue step, the external host defines a data entry program which describes all the actions the local host must follow when the user enters data. This data entry program contains the description of the form, i.e. the description of the different areas of the screen where entry will be performed. It also contains the reactions to user's inputs the local host has to follow. These reactions, called rules, contain e.g. the list of allowed character, the type of echo to be performed, the list of possible commands, etc. Moreover, a guidance message, called prompts, may be associated with each field. Theses messages are displayed each time the cursor reaches or leaves the corresponding field in order to give to the user some information about the filling of the form;

b) When the local host then receives the run (in the case of duplex mode) the local host immediately sends it back to external host. It executes the defined data entry program till encountering an event which provokes the termination of the entry. This events must be one of the termination reasons defined by the external host and correspond either to a valid user command or to the running out of a time out or to the entire filling of a field. The termination reason is reported back to the external host as the second dialogue step. According to the regulations of the videotex service at the local host side, the report may or may not contain the data entered by the videotex user.

10.2.2 *Data entry structure description* (see Figure 6/T.564)

The data entry structure consists of:

a) one DATA-ENTRY-SE;

b) subordinate to the DATA-ENTRY-SE:

– zero, none or more FIELD-SEs;

– one DATA-ENTRY-PROGRAM-SE;

– one or more RULES-SEs;

– zero, one or more PROMPT-SEs;
– one RESULT-SE;

c) a single content portion subordinate to a FIELD-SE;

d) a single content portion subordinate to RESULT-SE;

e) one or more DATA-ENTRY-SUBPROGRAM-SEs subordinate to the DATA-ENTRY-- PROGRAM-SE;

f) a single content portion subordinate to a PROMPT-SE.

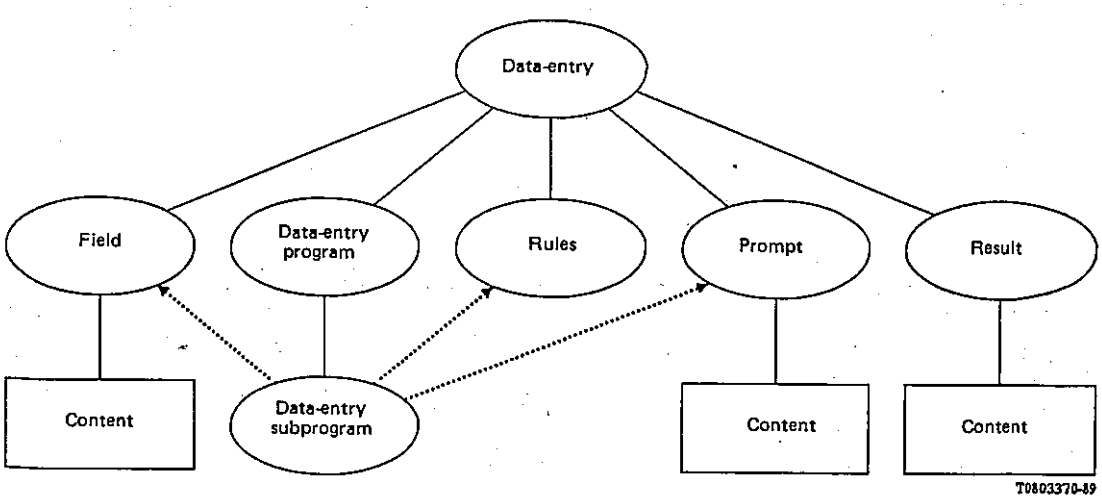

FIGURE 6/T.564

10.2.3 *Modes of communication*

Two modes of communication between local and external host are defined:

– alternate mode;
– duplex mode.

The communication between local and external host may be based on the alternate mode, on the duplex mode, or on both modes.

If the communication is based on the alternate mode, the local host should support data entry type 1, type 2 and type 3.

If the communication is based on the duplex mode, the local host should support data entry type 4.

If the communication us based on both modes, the local host should support all types of data entry.

The mode of communication is negotiated in the DTAM association initialization phase. Details are specified in Recommendation T.523.

10.2.4 *Types of data entry*

The four different types of data entry program which have been identified, are corresponding to different types of applications and different characteristics of fields:

a) *Type 1 – Information retrieval*

This type makes use of a single implicit information retrieval field which is always present when data entry type1 is selected. The position and dimensions of the field are determined by the lost host, generally corresponding to an area located in the bottom part of the screen. Consequently, non-specific FIELD-SE must be used and the reference-to-a-FIELD-SE attribute of the DATA-ENTRY-SUBPROGRAM-SE may be set to undefined or not be taken into account if defined. When the user has terminated the data entry, the information which is sent back to the external host consists of the RESULT-SE which describes all the conditions encountered when the entry is stopped (termination reason, ...). The text associated with the termination reason, if any, is sent to the external host via the content portion associated with the RESULT-SE.

b) *Type 2 – Data collection*

This type generally corresponds to a form type of entry and makes use of one or more fields entirely defined by the external host. Moreover, in some videotex services, a single implicit information retrieval field may also be associates with this entry type to enter a videotex command (see 10.2.12.8.1). When the user has terminated the data entry, the information which is sent back to the external host are the content portions associated with the fields and the RESULT-SE. The text associated with the termination reason, if any, is sent to the external host via the content portion associated with the RESULT-SE.

c) *Type 3 – Data entry "on the fly"*

This type makes use of a single implicit field which is always present when data entry type 3 is selected. The position and dimensions of this implicit field are determined by the cursor position after the display of the information sent by the external host. Consequently, no specified FIELD-SE is used and reference-to-a-FIELD-SE attribute of the DATA-ENTRY-SUBPROGRAM-SE may be set to undefined and should not be taken into account when defined. The size of the field is fixed to 128 bytes. When the user has terminated the data entry, the information which is sent back to the external host consists of the RESULT-SE. The text associated with the termination reason, if any, is sent to the external host via the content portion associated with the RESULT-SE.

d) *Type 4 – Duplex data entry*

This types makes use of a single implicit field which is always present when data entry type 4 is selected. The position and dimensions of this implicit field are determined by the current cursor position. Consequently, no specific FIELD-SE is used and reference-to- a-FIELD-SE attribute of the DATA-ENTRY-SUBPROGRAM-SE may be set to undefined and should not be taken into account when defined. The size of the field is fixed to 128 bytes. When the user has terminated the data entry, the information which is sent back to the external host consists of the RESULT-SE. The text associated with the termination reason, if any, is sent to the external host via the content portion associates with the RESULT-SE.

10.2.5 *DATA-ENTRY-SE*

This is the SE at the highest level of the data entry structure. Only one DATA-ENTRY-SE may be defined at a given time.

10.2.6 *DATA-ENTRY-PROGRAM-SE*

This SE is subordinate to the DATA-ENTRY-SE. At a given time, one and only one DATA-ENTRY-PROGRAM-SE may be subordinate to the DATA-ENTRY-SE. A data entry program performs a data collection function on a form. A form corresponds to a screen structured into none, one or more fields where the user may enter data.

The following attribute is mapped to the reference attribute defined in Recommendation T.441 (resp. Annex A to Recommendation T.541).

10.2.6.1 *First-subprogram*

This attribute is set by the external host to indicate to the local host the reference to the first data entry subprogram to be executed. However if the local host is not able to start with the indicated first subprogram the local host may fall back to process the subprograms in the natural order of the SE-identifiers.

The application defined attributes of the DATA-ENTRY-PROGRAM-SE are the following:

10.2.6.2 *Data-entry-type*

This attribute is specified by the external host to indicate which interpretation the local host has to perform in order to be able to support the entry. This attribute may take the value type 1, 2, 3 or 4. The value indicates which type of data entry has to be performed.

Remark on the control of the user input

In the general situation of an international videotex interworking the following attributes, specified to allow local hosts to control the users' input, may not be supported by some local hosts. In these cases no checking of the relevant attributes will be performed by the local host.

10.2.6.3 *Allowed-characters-for-a-keyword-access-command*

This attribute set by the external host indicates whether the list of characters represents the allowed or forbidden characters.

Possible values: Yes: means allowed characters in the list;
No: means forbidden characters in the list.

This attribute is not taken into account if the D1 d command is disabled.

10.2.6.4 *Character-list-for-keyword-access*

This attribute set by the external host contains a list of allowed or forbidden characters for keyword access. The list is encoded according to T.51 plus "space".

This attribute is not taken into account if the D1 d command is disabled.

10.2.6.5 *Max-length-keyword-access*

This attribute set by the external host specifies the maximum length of the input field for keyword access.

10.2.6.6 *Allowed-character-for-a-direct-access-command*

This attribute indicates whether alphabetic characters (a, b, ... z) may be used inside a direct access command. This attribute is defined by the external host but not taken into account if the D1 b command is disabled.

Possible values: Yes: means alphabetic characters are allowed;
No: means alphabetic characters are not allowed.

10.2.6.7 *Max-length-direct-access*

This attribute set by the external host specifies the maximum length of the direct access input.

10.2.7 *RESULT-SE*

The RESULT-SE is subordinate to the DATA-ENTRY-SE. At a given time only one RESULT-SE may be subordinate to the DATA-ENTRY-SE.

The following attribute is mapped to the reference attribute defined in Recommendation T.441 (resp. Annex A to Recommendation T.541).

10.2.7.1 *Last subprogram*

This attribute set by the local host reflects the reference to the data entry subprogram currently being executed when a termination reason was detected. Some local hosts may not be able to update this attribute when the user aborts the filling of the form. Consequently, this attribute may be left undefined when the termination reason is D17.

The application defined attribute of the RESULT-SE is the following:

10.2.7.2 *Termination reason*

This attribute set by the local host indicates the reason which provoked the termination of the data entry. This reason may be either a valid command, the entire filling of the field or the expiration of a time out.

10.2.8 *Result content portion*

This content portion set by the local host and reported in some cases to the external host if the termination reason attribute of the RESULT-SE corresponds to a command with parameter: D1.

The result content portion makes use of the attribute operational element content type (see Recommendation T.441, resp. Annex A to Recommendation T.541), as follows:

10.2.8.1 *Type of coding*

This attribute is set by the local host and specifies the coding used to represent the content and may take one of the following values:

– T.50 (IRV);

– T.51 "plus space".

The result content portion makes use of the attribute operational element content (see Recommendation T.441, or Annex A to Recommendation T.541), as follows:

10.2.8.2 *Content information*

This attribute is set by the local host to report the text associated with the termination-reason attribute of the RESULT-SE, if any.

10.2.9 *FIELD-SE*

A field is used to defined a subimage where user inputs are to be echoed. It is used by the local host for reporting to the external host user inputs. It may also be used by the external host to describe a subimage or to set initial data into an entry area. A FIELD-SE is subordinate to a DATA-ENTRY-SE. At a given time, several FIELD-SEs may be subordinate to a DATA-ENTRY-SE.

The application defined attributes of the FIELD-SE are the following:

10.2.9.1 *Field layout*

This attribute specifies the layout characteristics of the field. A field is described as a sequence of rectangular areas called hereafter field-blocks. Each field-block is described by its position (X, Y) and its dimensions (DX, DY).

Remarks on the use of system fields

The system field facility is an optional function provided by a videotex service. A system field is a data collection field in which predetermined type of data is filled in by the videotex service or by the user.

When using system fields in an international connection it has to be taken into account that a general user identification mechanism based on the ongoing work on ACSE and the use of association (D-INITIATE service) is for further study, and that the harmonization of the concerned type of data with other telematic services is still under study.

It is up to the Administrations to decide to set up or not the system field facility.

The implementation and use of the above system fields in international connections may be subject to legal restrictions (e.g. consumer privacy) that may be in effect nationally or internationally.

Services which do not support the system field facility will ignore all the associated protocol items and consider all the system fields as normal data collection fields.

The international availability of this data or parts of it may be subject to legal restrictions or restrictions imposed by users or Administrations.

10.2.9.2 *Field-type*

This attribute is set by the external host to indicate whether or not the field is a system field. A system field is a field that should be filled in by the local host system itself and not by the user. If this attribute has the value “0” then the field is to be completed by the user – i.e. a normal data collection field. A non-zero value indicates that (if possible) the local host should complete the field with system data as follows:

1 Country code

1a National telephone number

2 Subscriber No.

2a Co-user-suffix

2b User No.

3 Subscriber title

4 Subscriber name

5 Additional name

6 Street

7 Town

8 Postcode

9 Date

10 Time

11 Date and time

Note – Local hosts which do not support system fields regard all system fields as marked with a zero value.

If on the other hand an external host does not support system fields, local hosts requiring this attribute are defaulting the value of the field-type attribute to “0”.

10.2.9.3 *Protected*

This attribute is only meaningful for system fields. For those local hosts which are not able to process system fields, this attribute is not taken into account.

This attribute indicates whether or not the system field may be modified by the user. The value "yes" indicates that the local host must prevent the user from modifying the contents of the field.

10.2.9.4 *Data-source*

This attribute is only meaningful when the field-type attribute is used, the value is not equal to "0" and the protected attribute has the value "not protected".

This attribute can have the values "local host" and "user" to indicate whether the data returned to the external host was supplied by the local host or by the user.

10.2.9.5 *Field-text-marking*

This attribute specifies the visual appearance on the terminal of the contents of the field. The following values have been identified:

a) "explicit" means that a value for one or more of the following attributes:
   - foreground colour;
   - background colour;
   - underlining;
   - flashing;
   - reverse video;

   may explicitly be defined by the external host.

b) "keep current attributes" means that the value of the foreground colour, background colour, underlining, flashing and reverse video are then those naturally defined by positioning the cursor in the field.

In both cases, this attribute is applied by the local host as far as possible but the local host may ignore it.

10.2.10 *Field content portion*

This content portion is used when data entry type 2 is selected. The field content portion makes use of the attribute operational element content type (see Recommendation T.441, or Annex A of Recommendation T.541) as follows:

10.2.10.1 *Type of coding*

This attribute may be set either by the external or local host and specifies the coding used to represent the content and may take one of the following values:

- T.50 (IRV);
- T.51 "plus space"

The field content portion makes use of the attribute operational element content (see Recommendation T.441, or Annex A of Recommendation T.541) as follows:

10.2.10.2 *Content information*

This attribute may be set either by the external or by the local host and represents the contents of the field. The correspondence between the content information and the different field- blocks of the field is given by the defined order of these field-blocks in the layout attribute of the FIELD-SE, regardless of the relative position of these parts with respect to the screen.

When set by the external host, this attribute represents the initial content of the field.

When set by the local host, this attribute represents the data entered by the user.

10.2.11 *DATA-ENTRY-SUBPROGRAM-SE*

The DATA-ENTRY-SUBPROGRAM-SE is subordinate to the DATA-ENTRY-PROGRAM-SE. Each data entry subprogram applies to one and only one field. There are as many subprograms as fields in the form; consequently, depending on the complexity of the form, one or more data entry subprograms may be defined at the same time.

The following attributes are mapped to the reference attribute defined in Recommendation T.441 (or in Annex A to Recommendation T.541).

10.2.11.1 *Reference-to-a-RULES-SE*

This attribute points to a RULES-SE. This attribute cannot take the value "undefined" and must be defined either explicitly or via the default value list mechanism.

Remark on the use of prompts

Prompts are guidance messages that may be associated with each data entry subprogram and are described by the corresponding PROMPT-SEs. Zero, one or two prompts may be associated with each data entry subprogram. If no prompt is associated, both of the relevant reference attributes will not be defined and no prompt message is to be displayed. It is up to the external host to use only a prompt- in or a prompt-in and a prompt-out. On the other hand some local hosts may not support the use of a prompt-out and consequently will ignore the relevant attribute and automatically erase the prompt-in.

10.2.11.2 *Reference-to-a-PROMPT-IN-SE*

This attribute set by the external host points to a PROMPT-SE which is displayed by the local host when this data entry subprogram starts. This attribute may be set to undefined if no prompt-in message is to be displayed.

10.2.11.3 *Reference-to-a-PROMPT-OUT-SE*

This attribute set by the external host points to a PROMPT-SE which is displayed by the local host when this data entry subprogram is stopped. This attribute may be set to undefined if no prompt- out message is to be displayed.

Using a prompt-in and a prompt-out instead of one prompt has not been finally discussed. This is for further study.

10.2.11.4 *Reference-to-a-FIELD-SE*

The value of this attribute depends on the type of the data entry subprogram concerned (information retrieval, data collection or data entry "on-the-fly" or duplex data entry). When defined, it indicates the area in which input characters have to be echoed.

The application defined attributes of the data entry subprogram are the following:

10.2.11.5 *Echo*

This attribute set by the external host specifies the type of echo to be performed by the local host. It may take one of the three values:

- normal echo: the input character is echoed;
- fixed echo: a fixed character is displayed;
- null: no echo is performed.

10.2.11.6 *Echoed character*

This attribute set by the external host and taken into account only if the echo attribute is set to "fixed echo". This attribute specifies a character from the list described in Recommendation T.51 "plus space".

10.2.11.7 *Echoed parameter*

This attribute set by the external host specifies the videotex attributes which should apply to the echo, if any. This attribute may specify values for one or several of the following attributes: foreground colour, background colour, underline, echo size (normal size, double high, double width, double size), flashing and reverse video.

This attribute is applied by the local host as far as possible, but the local host may ignore it.

10.2.12 *RULES-SE*

This SE is subordinate to the DATA-ENTRY-SE. It describes the rules applicable to the entry in a field: list of allowed characters, list of authorized retrieval functions, etc.

The application defined attributes of the RULES-SE are the following:

10.2.12.1 *Time-out*

This attribute set by the external host defines the maximum time allowed to the user to enter data. The length of time is measured in seconds. Value 0 indicates that there is no time limit imposed in seconds. Value 1 is reserved for data entry type 1 and will be interpreted by some external hosts as a request for chained frames. A value 1 should be interpreted by the local host as a normal time-out. some local hosts may overwrite with their own value a time-out whose value is greater than 1.

Expiration of time-out provokes termination of the data entry.

10.2.12.2 *Entry-invoke-character*

This attribute set by the external host defines how the empty positions of the field are filled after displaying the initial contents. The following value is identified:

– a fixed character from T.51 plus the character “space”.

The visual appearance of the entry-invoke-character is controlled by the field-text-marking attribute. These characters are not entered in the field content portion and not reported to the external host.

10.2.12.3 *Local editing*

This attribute set by the external host indicates that powerful editing capabilities should be performed in the associated field. Such a local editing capability defined by the local host, would allow to insert/delete character/word/line, powerful cursor movement, etc. This local editing facility is intended to be used by applications dealing with message handling.

Remark on the control of the user input

In the general situation of an international videotex interworking the following attributes (from §§ 10.2.12.4 to 10.2.12.7), specified to allow local hosts to control the users input, may not be supported by some local hosts. In those cases no checking of the relevant attributes will be performed by the local host.

10.2.12.4 *Length of valid choices*

This attribute may take the value 1 or 2 depending on the size of the choice (one or two digits). This attribute is used only in data entry type 1 and not taken into account if the D1 c command is disabled.

10.2.12.5 *List-of-enabled-choices*

This attribute is set by the external host and specifies the list of enabled choices. This attribute is not taken into account by the local host if the D1 c command is disabled. This attribute is used only in data entry type 1.

10.2.12.6 *Allowed-characters (for data collections)*

This attribute set by the external host indicates if the list of characters represents the allowed or forbidden characters.

Possible values:

– “allowed”: means allowed characters in the list;

– “not allowed”: means forbidden characters in the list;

– “alphabetic”: only alphabetic characters may be entered;

– “alphanumeric”: only alphanumeric characters may be entered;

– “numeric”: only numeric characters may be entered.

When this attribute does not have the value “allowed” or “not allowed”, the character-list attribute must not be used or will be ignored.

This attribute is only used in data-entry-type 2.

10.2.12.7 *Character-list (for data collection)*

List of characters according to the specified set in the type of coding attribute of the FIELD-SE. This attribute is set by the external host. It specifies the list of characters which may or may not be entered as user inputs in the field associated with the DATA-ENTRY-SUBPROGRAM-SE from which the RULES-SE is referred. The list of characters is encoded according to T.51 plus “space”.

This attribute is only used in data-entry-type 2.

then may be used as values for the termination reason attribute of the RESULT-SE. Other commands are disabled and cannot be used as value for the termination-reason attribute. However, enabling of commands does not imply that the local host is forced to support all the enabled commands. It is up to the local host to do its best to properly image some commands. Some local hosts may transform some commands into a disconnect.

Abbreviations:

E: Enabled

D: Disabled

Y: Yes

N: No

CP: Indicates if a result content portion may be associated with the command

local: Functions handled locally between the user and the local host; such functions are not exchanged on the international link between gateways. Some functions of this type may provoke a disconnect between the local and the external host.

not used: Not used for a given type of data entry.

Note – Further development of videotex interworking may identify a requirement to use also the commands V1, V4, V7 on the international link. This is for further study.

The following list defines the valid commands taken from the list of functions defined by Recommendation F.300.

a) *Type 1: Information retrieval*

Termination reason	*Command*	*Local*	*CP*	*E/D*
– Select an application on a videotex service	V1	Y		
– Leave the application and return to the first effective choice of the national videotex service (see Note 1)	V2	N	N	E/D
– Return to the first effective choice of the foreign videotex service	V3	N	N	E
– Leave the application and return to the point from which this application was selected	V4	Y		
– Provide billing information	V5	Y		
– Leave the videotex service (mandatory) (see Note 2)	V6	Y		
– Request service/application Id	V7	Y		
– Declare and validate an input (see Note 3)	D1			
a) free text input	a)	N	Y	E/D
b) direct selection of a frame	b)	N	Y	E/D
c) progress through a choice from one frame to another by the use of one or two digits	c)	N	Y	E/D
d) select a frame through the use of a keyword	d)	N	Y	E/D
– Correcting an input	D2	Y		
– Clearing an input	D3	Y		
– Move one step forward in the application	D4	N	N	E/D
– Move to the next input field	D5	-- not used --		
– Retrace the previous step	D6	N	N	E/D
– Move to the previous field	D7	-- not used --		
– Repeat the frame	D8	Y		
– Repeat the updated frame	D9	N	N	E/D
– Return to the first menu in the application	D10	N	N	E/D
– Previous menu	D11	N	N	E/D

–	Ask for help or guidance without leaving the application	D12	N	N	E/D
–	Redisplay the initial version of the currently active form	D13	N	N	E/D
–	Redisplay the completed version of the currently active form	D14	N	N	E/D
–	Interrupt the action in progress	D15	Y		
–	Set a marker at the current point in the application for access at a later time within the same session	D16	Y		
–	Abstain from forwarding the contents of the input field	D17	-- not used --		
–	Declare valid a "set" of inputs	D18	-- not used --		
–	Time out (see Note 4)	N	N	E	
–	End of field		-- not used --		

Note 1 – If this command is not supported by the local host or if this command is disabled, then the corresponding local command is mapped to a D-TERMINATE.

Note 2 – This command is directly mapped to a D-TERMINATE.

Note 3 – Some local hosts may not be able to make the difference between the four D1 sub-commands and consequently may replace D1 b, D1 c and D1 d by D1 a, even if disabled.

Note 4 – The time-out is disabled by setting its value to 0.

Remark on the use of "good-by" frames

1) The local host does not support the use of "good-by" frames: in this case the local host maps the local V2 command to a D-TERMINATE req. on the international connection.

2) The external host does not support the use of "good-by" frames: in this case the external host should disable the V2 command and the local host consequently maps a local V2 command to a D-TERMINATE req. on the international connection.

3) Both hosts are supporting the use of "good-by" frames: in this case the external host enables the V2 command. If the local host sends a V2 command to the external host, the external host may send the "good-by" frame, followed by a D-TERMINATE req.

b) *Type 2: Data collection*

Termination reason		*Command*	*Local*	*CP*	*E/D*
–-	Select an application on a videotex service	V1	Y		
–	Leave the application and return to the first effective choice of the national videotex service (see Note 1)	V2	N	N	E/D
–	Return to the first effective choice of the foreign videotex service	V3	N	N	E
–	Leave the application and return to the point from which this application was selected	V4	Y		
–	Provide billing information	V5	Y		
–	Leave the videotex service (mandatory) (see Note 2)	V6	Y		
–	Request service/application Id	V7	Y		
–	Declare and valid an input (see Note 3)	D1			
a)	free text input	a)	N	Y	E/D
b)	direct selection of a frame	b)	N	Y	E/D
c)	progress through a choice from one frame to another by the use of one or two digits	c)	-- not used --		
d)	select a frame through the use of a keyword	d)	N	Y	E/D
–	Correcting an input	D2	Y		

–	Clearing an input	D3	Y		
–	Move one step forward in the application	D4	N	N	E/D
–	Move to the next input field	D5	N	N	E/D
–	Retrace the previous step	D6	N	N	E/D
–	Move to the previous field	D7	N	N	E/D
–	Repeat the frame	D8	Y		
–	Repeat the updated frame	D9	N	N	E/D
–	Return to the first menu in the application	D10	N	N	E/D
–	Previous menu	D11	N	N	E/D
–	Ask for help or guidance without leaving the application	D12	N	N	E/D
–	Redisplay the initial version of the currently active form	D13	N	N	E/D
–	Redisplay the completed version of the currently active form	D14	N	N	E/D
–	Interrupt the action in progress	D15	Y		
–	Set a marker at the current point in the application for access at a later time within the same session	D16	Y		
–	Abstain from forwarding the contents of the input field	D17	N	N	E/D
–	Declare valid a "set" of inputs	D18	N	N	E/D
–	Time out (see Note 4)	N	N	E	
–	End of field	N	N	E/D	

Note 1 – If this command is not supported by the local host or if this command is disabled, then the corresponding local command is mapped to a D-TERMINATE.

Note 2 – This command is directly mapped to a D-TERMINATE.

Note 3 – Some local hosts may not be able to make the difference between the four D1 sub-commands and consequently may replace D1 b, D1 c and D1 d by D1 a, even if disabled.

Note 4 – The time-out is disabled by setting its value to 0.

Remark – See also remark to data-entry type 1.

c) Types 3 and 4: Data entry on the fly/duplex data entry

	Termination reason	*Command*	*Local*	*CP*	*E/D*
–	Select an application on a videotex service	V1	Y		
–	Leave the application and return to the first effective choice of the national videotex service (see Note 1)	V2	N	N	E/D
–	Return to the first effective choice of the foreign videotex service	V3	N	N	E
–	Leave the application and return to the point from which this application was selected	V4	Y		
–	Provide billing information	V5	Y		
–	Leave the videotex service (see Note 2) (mandatory)	V6	Y		
–	Request service/application Id	V7	Y		
–	Declare and valid an input (see Note 3)	D1			
a)	free text input	a)	N	Y	E/D
b)	direct selection of a frame	b)	-- not used --		
c)	progress through a choice from one frame to another by the use of one or two digits	c)	-- not used --		

d)	select a frame through the use of a keyword	d)		-- not used --	
–	Correcting an input	D2	Y		
–	Clearing an input	D3	Y		
–	Move one step forward in the application move to the next input field	D4 D5	N	N -- not used --	E/D
–	Retrace the previous step	D6	N	N	E/D
–	Move to the previous field	D7		-- not used --	
–	Repeat the frame	D8	Y		
–	Repeat the updated frame	D9	N	N	E/D
–	Return to the first menu in the application	D10	N	N	E/D
–	Previous menu	D11	N	N	E/D
–	Ask for help or guidance without leaving the application	D12	N	N	E/D
–	Redisplay the initial version of the currently active form	D13	N	N	E/D
–	Redisplay the completed version of the currently active form	D14	N	N	E/D
–	Interrupt the action in progress	D15	Y		
–	Set a marker at the current point in the application for access at a later time within the same session	D16	Y		
–	Abstain from forwarding the contents of the input field	D17	N	N	E/D
–	Declare valid a “set” of inputs	D18		-- not used --	
–	Time out (see Note 3)		N	N	E
–	End of field		N	N	E/D

Note 1 – If this command is not supported by the local host or if this command is disabled, then the corresponding local command is mapped to a D-TERMINATE.

Note 2 – This command is directly mapped to a D-TERMINATE.

Note 3 – Time-out is disabled by setting its value to 0.

Remark – See also remark to data-entry type 1.

10.2.12.8.1 *Specification of local characteristics*

Within the national videotex service of country A the user may enter commands which are:

– disabled by the external host;

– specified as local in the list of valid commands;

– or not used in a specific type of data entry.

As these commands may not be passed to the external host, the following list describes the behaviour a local host should perform when receiving such a command:

V1: Select an application on a videotex service
Local action

V2: Leave the application and return to the first effective choice of the national videotex service
Enabled: send to the EH or D-TERMINATE
Disabled: D-TERMINATE

V3: Return to the first effective choice of the foreign videotex service
Enabled: send to the EH
Disabled: local error indication

V4: Leave the application and return to the point from which this application was selected
Local action

V5: Provide billing information
Local action

V6: Leave the videotex service
D-TERMINATE

V7: Request service/application id
Local action

D1: Declare and valid an input
Enabled: send to the EH
Disabled: local error indication

D2: Correcting an input
Local action: delete the character, if any

D3: Clearing an input
Local action: delete the current field content and restart the current input

D4: Move one step forward in the application (typically Next or # on the last field)
Enabled: send to the EH
Disabled: local error indication

D5: Move to the next input field
Enabled: send to the EH
Disabled: move to the next field if any

D6: Retrace the previous field
Enabled: send to the EH
Disabled: local error indication

D7: Move to the previous field
Enabled: send to the EH
Disabled: move to the previous field if any

D8: Repeat the frame
Local action: redisplay the display structure and the content of the data entry structure (field contents and prompts) then restart the data entry at the interrupted point

D9: Repeat the updated frame
Enabled: send to the EH
Disabled: local error indication

D10: Return to the first menu in the application
Enabled: send to the EH
Disabled: local error indication

D11: Previous menu
Enabled: send to the EH
Disabled: local error indication

D12: Ask for help or guidance without leaving the application
Enabled: send to the EH
Disabled: local error indication

D13: Redisplay the initial version of the currently active form
Enabled: local error indication. (When no user input has been transmitted to the external host, also other local actions may be taken)

D14: Redisplay the completed version of the currently active form
Enabled: send to the EH
Disabled: local error indication

D15: Interrupt the action in progress

D16: Set a marker at the current point
For further study

D17: Abstain from forwarding the content (abort data collection)
Enabled: send to the EH
Disabled: local error indication

D18: Declare valid a set of inputs
Enabled: send to the EH
Disabled: local error indication

– : End of field
Enabled: send to the EH
Disabled: move to the next field if any, otherwise local error indication

– : Time-out
Enabled: send to the EH
Disabled: no action

10.2.12.8.2 *Use of the information retrieval field in data collection*

In some videotex services, some userw's keying action (e.g. * or Next) may automatically provoke, even in a data entry subprogram, the termination of the filling of the current field and a cursor movement to the information retrieval field where a retrieval command may be entered. Such a command, once completed, will be interpreted as a termination event by the local host and reported back to the external host as a termination reason.

Moreover, in the case of a direct access or keyword command, an associated text is also to be reported to the external host, setting the termination-reason-text attribute of the DATA-ENTRY-PROGRAM-SE.

There is not a DATA-ENTRY-SUBPROGRAM-SE present in the VIA for the information retrieval field when "data-collection-type" has been selected. This includes that the RULES-SE of the last data collection field, the user has "touched", before going to the information retrieval field, is to be used also for the information retrieval field.

10.2.13 *PROMPT-SE*

The PROMPT-SE is subordinate to the DATA-ENTRY-SE. The attributes of a PROMPT-SE are those of a BLOCK-SE, except for the SE-type which is PROMPT. A prompt is a message to be displayed to the user for guidance by the filling of a field.

The prompt referred from a DATA-ENTRY-SUBPROGRAM-SE is automatically displayed when the data entry subprogram becomes active. The prompt is cancelled by the local host when the associated data entry subprogram becomes inactive i.e. when another data entry subprogram becomes active or when the data entry program is terminated.

The cancelled prompt text on the screen must be replaced by a new prompt text and/or by "spaces".

The application defined attributes of a PROMPT-SE are the following (as defined for the display structure):

10.2.13.1 *Position*

10.2.13.2 *Dimensions*

10.2.14 *Prompt content portion*

The prompt content portion makes use of the attributes operational element identifier, operational element content type, operational element content (see Recommendation T.441, resp. Annex A of Recommendation T.541) as the related attributes for content portions (defined in Recommendation T.412) are used for blocks.

The application defined attributes for prompt is the following:

10.2.14.1 *Coding attributes*

This attribute is used in the same way as for blocks, it is specified within Recommendation T.412.

10.2.15 *Application control memory structure*

The application control memory structure can be used to store any operation on the VIA, for example:

– the display structure or parts of it (e.g. create BLOCK-SE or modify FIELD-SE) or parts of it;
– the data entry structure or parts of it;
– the administrative structure or parts of it;
– the special terminal facilities structure or parts of it.

An element from the application control memory is invoked by a D-CALL operation and applied to the VIA, if applicable, in both hosts.

The application control memory structure consists of:

– the APPLICATION-CONTROL-MEMORY-SE;
– one or more RECORD-SEs subordinate to the APPLICATION-CONTROL-MEMORY-SE.

The RECORD-SE contains a sequence of one or more of the operations: D-CREATE, D-DELETE, D-MODIFY, which do not concern SEs of the application control memory structure.

Figure 7/T.564 describes the hierarchy of the application control memory structure constituents.

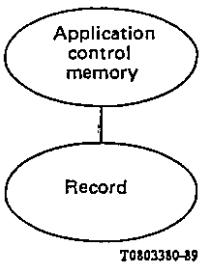

FIGURE 7/T.564

10.2.16 *APPLICATION-CONTROL-MEMORY-SE*

10.2.17 *RECORD-SE*

The application defined attributes of the RECORD-SE are the following:

10.2.17.1 *Record content*

This attribute consists of a list of VIA operations which do not concern the RECORD-SE or the APPLICATION-CONTROL-MEMORY-SE.

Details are depending on the ongoing work on operational structures.

10.3 *Administrative structure*

Note – This section is provisional. Final version will be established taken into account the results of CCITT Study Groups I and III concerning videotex administrative and charging matters.

10.3.1 *Overview of the administrative structure*

This structure is used for exchanging supervisory information such as:

– items subject to negotiation (e.g. limits);
– accounting information;
– global information related to the state of the association;
– global information related to the document transferred.

This structure consists of the ADMINISTRATIVE-INFORMATION-SE which has three subordinates:

– LOCAL-HOST-INFORMATION-SE;
– EXTERNAL-HOST-INFORMATION-SE;
– DOCUMENT-INFORMATION-SE.

One and only one SE of each type should exist within the administrative structure (see Figure 8/T.564).

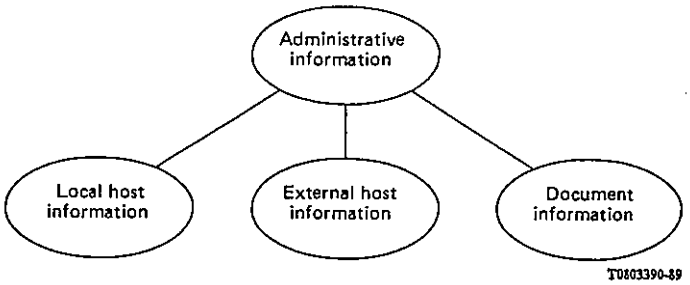

FIGURE 8/T.564

10.3.2 *ADMINISTRATIVE-INFORMATION-SE*

This SE contains information pertinent throughout the whole association.

This SE makes use of the following application defined attributes:

10.3.2.1 *External host Id*

This attribute identifies the external host to be connected to.

10.3.2.2 *Local host Id*

This attribute identifies the originating host.

10.3.2.3 *Bilateral management parameter*

This attribute is reserved for information which is exchanged between the two gateways and can be based on bilateral agreement.

10.3.3 *LOCAL-HOST-INFORMATION-SE*

This element is used to transfer information from the local host to the external host.

This element makes use of the following application defined attribute:

10.3.3.1 *Error report to external host*

This attribute is used to indicate to the external host the reason why the local host could not handle the previously received reply.

10.3.4 *EXTERNAL-HOST-INFORMATION-SE*

This element is used to transfer information from the external host to the local host.

This element makes use of the following application defined attributes:

10.3.4.1 *Error report to local host*

This attribute is used to indicate to the local host the reason why the external host could not handle the previously received reply.

10.3.4.2 *Asynchronous message*

This attribute is used to transfer a warning message to the local host.

10.3.5 *DOCUMENT-INFORMATION-SE*

This element contains attributes that supply additional charging information associated with the document and to be used by the local host.

This element contains the following application defined attributes:

10.3.5.1 *Application time based charging period*

This attribute defines the length of the time base in seconds.

10.3.5.2 *Application price: frame based*

This attribute indicates the frame based price of the application in the currency of the external host.

10.3.5.3 *Application price: transaction based*

This attribute indicates the transaction based price of the application in the currency of the external host.

10.3.5.4 *Application time based charging price*

This attribute defines the price per unit in the currency of the external host.

10.3.5.5 *Communication cost: time based charging period*

The service cost corresponds to the additional cost in the currency of the external host for using a videotex service. This cost is time dependent. This attribute indicates the value of the period for the service cost. It may depend on the day and the time (for further study).

10.3.5.6 *Communication cost: time based charging price*

The service cost corresponds to the additional cost in the currency of the external host for using a videotex service. This cost is time dependent. This attribute indicates the value of the price for the service cost per time unit. It may depend on the day and the time (for further study).

10.3.6 *Items for further study concerning the administrative structure*

a) Depending on the decisions of CCITT Study Group III on the interpretation of the item-over-limit facility, the introduction of an accounting-information-SE might be necessary so that the local host can provide the external host with limits on the:

– item cost;
– time-based charging;
– session cost;

and the currently translation. This is for further study.

b) The exchange of total session cost at the end of the session, which might be achieved by introducing a charge-info and a charge-info-request attribute to the LOCAL-HOST-SE and to the EXTERNAL-HOST-SE, is for further study.

c) Introducing value added taxes is for further study.

d) Using a result parameter is for further study.

e) In addition to a time-based charging for the communication cost, other methods could be taken into account (i.e. volume oriented). This is for further study.

10.4 *Special terminal facilities structure*

This special terminal facilities structure is concerned with information which enables the external host to reconfigure the videotex terminal. The following categories of such information are identified:

– screen format;
– dynamically redefinable character sets (DRCS);
– redefinable colours.

Note – If the local host do not support these categories the structure is not used.

The special terminal facilities structure consists of:

– one SPECIAL-TERMINAL-FACILITIES-SE;
– zero, one or more REDEFINITION-ENTRY-SEs subordinate to the SPECIAL-TERMINAL-FACILITIES-SE.

Terminal redefinition data shall be downloaded by the local host to the videotex terminal, before any blocks or fields are displayed.

Figure 9/T.564 describes the hierarchy of the special terminal facilities structure.

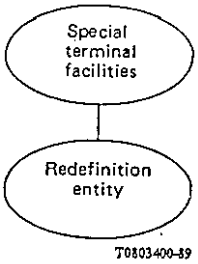

FIGURE 9/T.564

10.4.1 *SPECIAL-TERMINAL-FACILITIES-SE*

This element contains the following application defined attributes:

10.4.1.1 *Measurement unit*

This attribute specifies the unit used to express the dimensions attribute of the PAGE-SE. The following value is identified:

– character box.

10.4.1.2 *Dimensions*

This attribute consists of a pair of coordinates that specify the dimensions of the DDA of the videotex terminal. These dimensions are expressed in accordance with the measurement-unit attribute.

10.4.2 *REDEFINITION-ENTITY-SE*

This SE contains the following application defined attribute:

10.4.2.1 *Redefinition coding*

This attribute is subdivided in two parts: it specifies the type and it specifies the syntax used to encode the redefinition content. The following redefinition types have been identified:

– DRCS;

– colour redefinition.

The following redefinition syntax have been identified:

– interworking data syntax;

– data syntax I;

– data syntax II;

– data syntax III.

10.4.2.2 *Redefinition content*

This attribute contains the actual redefinition data to be downloaded to the userw's terminal. This data will redefine a terminal facility as identified by the redefinition coding type. It consists of a sequel of bytes coded in accordance to the value of the redefinition coding attribute.

ANNEX A

(to Recommendation T.564)

This Annex is an integral part of this Recommendation.

This Annex specifies the constituents of the layout structure and of the operational structure which are implicitly created at connection time.

Profiles:

– document profile;

– operational profile (for further study).

Layout structure:

– specific layout root;

Operational structure:

– data-entry-SE;

– result-SE;

– result-content portion;

– application-control-memory-SE;

– administrative-information-SE;

– local-host-information-SE;

– external-host-information-SE;

– document-information-SE;

– special-terminal-facilities-SE.

Some attributes of these objects are updated at connection time with values carried by parameters of the D-INITIATE service element (to be detailed).

ANNEX B

(to Recommendation T.564)

This Annex is a provisional part of this Recommendation.

This Annex describes the minimum size of the data structures which must be supported by the local host.

Size of the display and the data entry structures: 2 K bytes;

Size of application control memory structure: FFS;

Number of characters that may be input in the fields: 500;

Number of data entry subprograms: 24;

Number of fields: 24;

Number of rules: 24;

Number of prompts: 24

Number of records: FFS

ITU-T RECOMMENDATIONS SERIES

Series A	Organization of the work of the ITU-T
Series B	Means of expression: definitions, symbols, classification
Series C	General telecommunication statistics
Series D	General tariff principles
Series E	Overall network operation, telephone service, service operation and human factors
Series F	Non-telephone telecommunication services
Series G	Transmission systems and media, digital systems and networks
Series H	Audiovisual and multimedia systems
Series I	Integrated services digital network
Series J	Transmission of television, sound programme and other multimedia signals
Series K	Protection against interference
Series L	Construction, installation and protection of cables and other elements of outside plant
Series M	TMN and network maintenance: international transmission systems, telephone circuits, telegraphy, facsimile and leased circuits
Series N	Maintenance: international sound programme and television transmission circuits
Series O	Specifications of measuring equipment
Series P	Telephone transmission quality, telephone installations, local line networks
Series Q	Switching and signalling
Series R	Telegraph transmission
Series S	Telegraph services terminal equipment
Series T	**Terminals for telematic services**
Series U	Telegraph switching
Series V	Data communication over the telephone network
Series X	Data networks and open system communications
Series Y	Global information infrastructure and Internet protocol aspects
Series Z	Languages and general software aspects for telecommunication systems

Printed in Switzerland

Geneva, 2010