



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

T.564

(03/93)

TELEMATIC SERVICES

**TERMINAL EQUIPMENTS AND PROTOCOLS
FOR TELEMATIC SERVICES**

**GATEWAY CHARACTERISTICS
FOR VIDEOTEX INTERWORKING**

ITU-T Recommendation T.564

(Previously "CCITT Recommendation")

FOREWORD

The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the International Telecommunication Union. The ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Conference (WTSC), which meets every four years, established the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

ITU-T Recommendation T.564 was revised by the ITU-T Study Group VIII (1988-1993) and was approved by the WTSC (Helsinki, March 1-12, 1993).

NOTES

1 As a consequence of a reform process within the International Telecommunication Union (ITU), the CCITT ceased to exist as of 28 February 1993. In its place, the ITU Telecommunication Standardization Sector (ITU-T) was created as of 1 March 1993. Similarly, in this reform process, the CCIR and the IFRB have been replaced by the Radiocommunication Sector.

In order not to delay publication of this Recommendation, no change has been made in the text to references containing the acronyms "CCITT, CCIR or IFRB" or their associated entities such as Plenary Assembly, Secretariat, etc. Future editions of this Recommendation will contain the proper terminology related to the new ITU structure.

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

© ITU 1994

All rights reserved. No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the ITU.

CONTENTS

		<i>Page</i>
1	Introduction	1
2	Scope and field of application	1
2.1	National videotex services	1
2.2	Videotex interworking definition	1
2.3	Relation to other Recommendations	1
3	References	1
4	Definitions	2
5	Abbreviations	3
6	Model of the communication between local and external host	3
6.1	International videotex interworking between gateways	3
6.2	Position of videotex interworking relative to OSI	4
6.3	Organization of the videotex interworking	4
7	Relation between videotex and DTAM service	5
8	Use of lower layer services	6
9	General structure of the VIA	6
9.1	General data structure	6
9.2	Attributes	7
9.3	General VIA operation	8
10	Videotex structure	8
10.1	Display structure	9
10.2	Data entry structure	10
10.3	Administrative structure	26
10.4	Special terminal facilities structure	28
	Annex A – Layout structure and operational structure	30
	Annex B – Minimum size of data structures	30

Recommendation T.564

GATEWAY CHARACTERISTICS FOR VIDEOTEX INTERWORKING

(Melbourne, 1988; amended at Helsinki, 1993)

1 Introduction

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

This Recommendation 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 (see Recommendation X.200). This Recommendation 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 (see Recommendation T.400).

2 Scope and field of application

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

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 or an external computer.

2.3 Relation to other Recommendations

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

Videotex interworking conforms 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

- Recommendation F.300 *Videotex service*.
- Recommendation X.200 (1988) *Reference model of open systems interconnection for CCITT applications*.
- Recommendation X.213 (1992) *Information technology – Network service definition for open systems interconnection*.
- Recommendation X.214 (1988) *Transport service definition for open systems interconnection for CCITT applications*.

- Recommendation X.224 (1988) *Transport protocol specification for open systems interconnection for CCITT applications.*
- Recommendation X.215 (1988) *Session service definition for open systems interconnection for CCITT applications.*
- Recommendation X.225 (1988) *Session protocol specification for open systems interconnection for CCITT applications.*
- Recommendation X.216 (1988) *Presentation service definition for open systems interconnection for CCITT applications.*
- Recommendation X.226 (1988) *Presentation protocol specification for open systems interconnection for CCITT applications.*
- Recommendation X.217 (1992) *Service definition for the Association Control Service Element.*
- Recommendation X.227 (1992) *Connection-oriented protocol specification for the Association Control Service Element.*
- Recommendation T.101 *International interworking for videotex services.*
- Recommendation T.400 (1988) *Introduction to document architecture, transfer and manipulation.*
- Recommendation T.411 (1988) *Open document architecture (ODA) and interchange format – Introduction and general principles.*
- Recommendation T.412 (1988) *Open document architecture (ODA) and interchange format – Document structures.*
- Recommendation T.414 (1988) *Open document architecture (ODA) and interchange format – Document profile.*
- Recommendation T.415 (1988) *Open document architecture (ODA) and interchange format – Open document interchange format (ODIF).*
- Recommendation T.431 (1988) *Document transfer and manipulation (DTAM) – Services and protocols – Introduction and general principles.*
- Recommendation T.432 (1988) *Document transfer and manipulation (DTAM) – Services and protocols – Service definition.*
- Recommendation T.433 (1988) *Document transfer and manipulation (DTAM) – Services and protocols – Protocol specification.*
- Recommendation T.441 (1988) *Document transfer and manipulation (DTAM) – Operational structure.*
- Recommendation T.504 *Document application profile for videotex interworking.*
- Recommendation T.523 *Communication application profile DM-1 for videotex interworking.*
- Recommendation 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

For the purpose of this Recommendation, the following abbreviations are used:

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.

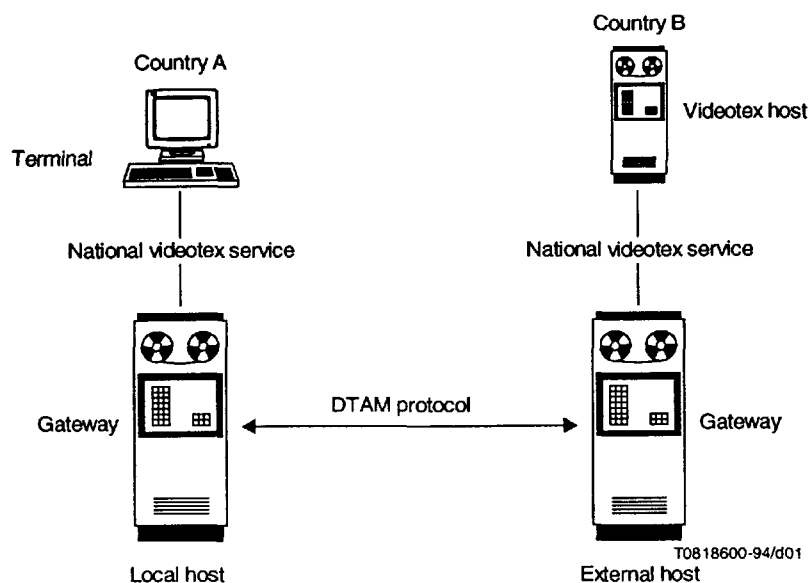


FIGURE 1/T.564

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 Recommendation, 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 handles a specific architecture called Videotex Interworking Architecture (VIA), conforming to DTAM document structures (see the T.410-Series Recommendations) and DTAM operational structure (see the T.440-Series Recommendations), and makes use of services and protocol provided by DTAM (see the T.430-Series 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 depicts this situation:

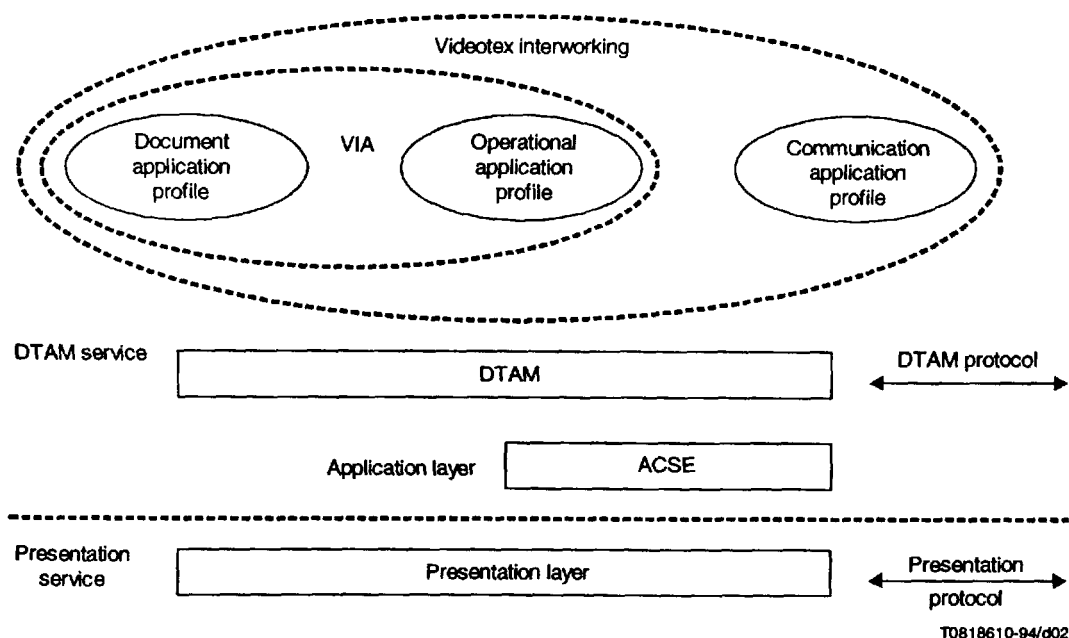


FIGURE 2/T.564

6.3 Organization of the videotex interworking

The videotex interworking application process consists of two parts which are in charge 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 applications processes.

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.

- 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. These 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 the external host. It then 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.

NOTE – Figure 3 is for information on the videotex interworking organization only.

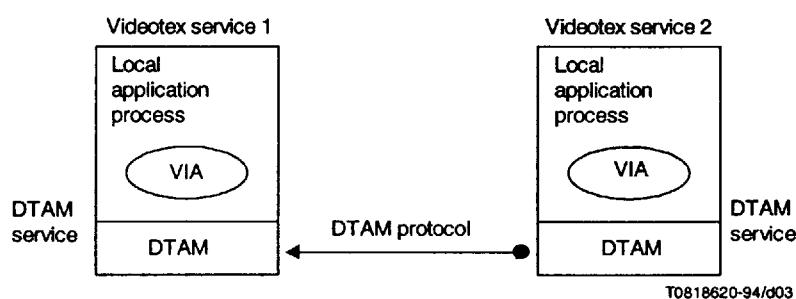


FIGURE 3/T.564

7 Relation between videotex and DTAM service (see Figure 4)

This clause 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 communication 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.

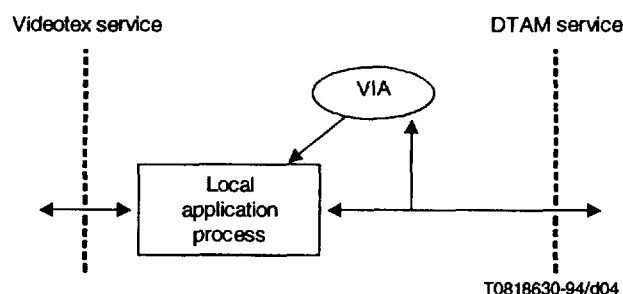


FIGURE 4/T.564

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 independently 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 (see also Annex A/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 nonequivalent attributes within the T.400-Series 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 depend 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 ITU-T 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 (see also Annex A/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 (see also Annex A/T.541). The use of the reference attribute is specified in this Recommendation.