

9.6.1.7 Checkpoint mechanism

This parameter specifies the mechanism for checkpointing in DTAM-PM, and the following mechanisms are defined:

1) Mechanism 1

The places where to insert the checkpoints are related to a maximum size (integral number of octets) indicated by the DTAM user. A checkpoint should be set at the end of each segment and a segment should be composed of the greatest number of integral IDE (Interchange-Data-Element) which is inferior or equal to the maximum size. If the document is smaller than the maximum size, then no checkpoint is required.

2) Mechanism 2

The places where to insert the checkpoints are related to a number of IDEs indicated by the DTAM user. A checkpoint should be set at the end of each segment and a segment should be composed of the number of integral IDE which is indicated by the user. Only the number of IDE of the last segment is equal or inferior to the indicated number.

Note - Some applications may not count IDEs of Document Profile and Document Root.

9.7 D-TYPED-DATA service

Typed data transmission is used independent of the data token and is issued from both DTAM users when required. The related service structure consists of two events, as illustrated in Figure 8/T.432.

FIGURE 8/T.432

D-TYPED-DATA service events

9.7.1 D-TYPED-DATA service parameters

The parameters of D-TYPED DATA are listed in Table 7/T.432.

TABLE 7/T.432

D-TYPED-DATA service parameters

Parameter	D-TYPED DATA request	D-TYPED DATA indication
Typed-data information	M	M(=)

9.7.1.1 Typed-data information

Typed-data information is chosen from the following strings:

- NumericString;
- PrintableString;
- TeletexString;
- VideotexString;
- VisibleString;
- OctetString;
- IA5String;
- GraphicString.

9.8 D-UNCONFIRMED-CREATE service

The document create operation procedure is used by the requestor of document manipulation to add the constituents of ODA and Operational Structure to a document without any confirmation of the create manipulation.

The related service structure consists of two events, as illustrated in Figure 9/T.432.

FIGURE 9/T.432

D-CREATE service events

9.8.1 D-UNCONFIRMED-CREATE service parameters

Table 8/T.432 lists the D-UNCONFIRMED-CREATE service parameters.

TABLE 8/T.432

D-UNCONFIRMED-CREATE service parameters

w

Parameter	D-CREATE request	D-CREATE indication
Create information	M	M(=)

9.8.1.1 Create information

This parameter consists of a sequence of sequences of Parent Object or Class Identifiers and Objects which are as defined in Recommendations T.412 and T.441.

9.9 D-UNCONFIRMED-DELETE service

The document delete operation procedure is used by the requestor of document manipulation to delete the constituents of ODA and Operational Structure of an existing document without any confirmation of the delete operation.

The related service structure consists of two events, as illustrated in Figure 10/T.432.

FIGURE 10/T.432

D-DELETE service events

9.9.1 D-UNCONFIRMED-DELETE service parameters

Table 9/T.432 lists the D-UNCONFIRMED-DELETE service parameters.

TABLE 9/T.432

D-UNCONFIRMED-DELETE service parameters

	Parameter	D-DELETE request	D-DELETE indication	
	Delete information	M	M(=)	

9.9.1.1 Delete information

This parameter consists of a sequence of Object or Class of Identifiers, Content Portion Identifiers and Operational Information Identifiers which are as defined in Recommendations T.412 and T.441.

9.10 D-UNCONFIRMED-MODIFY service

The document modify operation procedure is used by the requestor of document manipulation to modify the attributes of constituents of ODA and Operational Structure of an existing document without any confirmation of the modify operation.

The related service structure consists of two events, as illustrated in Figure 11/T.432.

FIGURE 11/T.432

D-MODIFY service events

9.10.1 D-UNCONFIRMED-MODIFY service parameters

Table 10/T.432 lists the D-UNCONFIRMED-MODIFY service parameters.

TABLE 10/T.432

D-UNCONFIRMED-MODIFY service parameters

w

Parameter	D-MODIFY request	D-MODIFY indication
Modify information	M	M(=)

9.10.1.1 Modify information

This parameter is a sequence of sequences of Current Object or Class Identifiers and Objects which are as defined in Recommendations T.412 and T.441.

9.11 D-UNCONFIRMED-CALL service

This procedure is used to address or to read an object of Operational Structure which contains a sequence of DTAM protocol data units (with some restrictions, i.e. that only D-CREATE, D-DELETE and D-MODIFY can appear in this sequence). These protocol data units are applicable to the existing document.

The related service structure consists of two events, as illustrated in Figure 12/T.432.

FIGURE 12/T.432

D-CALL service events

9.11.1 D-UNCONFIRMED-CALL service parameters

Table 11/T.432 lists the D-UNCONFIRMED-MODIFY service parameters.

TABLE 11/T.432

D-UNCONFIRMED-CALL service parameters

w

Parameter	D-CALL request	D-CALL indication
Call information	M	M(=)

9.11.1.1 Call information

This parameter is a sequence of choices of Current Object Identifier which are defined in Recommendation T.441.

9.12 D-UNCONFIRMED-REBUILD service

This procedure is used to delete an object of ODA and/or the Operational Structure (and all the subordinates of this object, if any) and create an object immediately after this particular object, updating the attributes of the object with the values carried by the D-REBUILD operation.

This service is for further study.

9.13 D-TOKEN-GIVE service

The token-give procedure is used by a sender (requestor) to give the data token to the receiver (responder), when the sender wants to give the right to manipulate documents.

The requestor becomes the receiver and the responder becomes the sender. The related service structure consists of two events, as illustrated in Figure 13/T.432.

FIGURE 13/T.432

D-TOKEN-GIVE service events

9.13.1 D-TOKEN-GIVE service parameters

D-TOKEN-GIVE service has no parameters.

9.14 D-CONTROL-GIVE service

The control-give procedure is used by a sender (requestor) to give all the tokens to the receiver (responder). This service can only be requested when the document bulk transfer functional unit has been selected and the requestor owns all the tokens.

The related service structure consists of two events, as illustrated in Figure 14/T.432.

FIGURE 14/T.432

D-CONTROL-GIVE service events

9.14.1 D-CONTROL-GIVE service parameters

D-CONTROL-GIVE service has no parameters.

9.15 D-TOKEN-PLEASE service

The token-please procedure is used by a receiver (requestor) to request the data token from the sender (responder), when the receiver wants to request the right to transfer or manipulate documents.

The related service structure consists of two events, as illustrated in Figure 15/T.432.

FIGURE 15/T.432

D-TOKEN-PLEASE service events

9.15.1 D-TOKEN-PLEASE service parameters

Table 12/T.432 lists the D-TOKEN-PLEASE service parameters.

TABLE 12/T.432

D-TOKEN-PLEASE service parameters

w

Parameter	D-TOKEN-PLEASE request	D-TOKEN-PLEASE indication
Tokens priority	U	C(=)

Note - In the case of using Session service as a lower layer service, this parameter may not be mapped into the session service in Recommendation X.215 applied.

9.15.1.1 Tokens priority

This parameter defines the priority of the action, governed by the data token, that the requestor of the D-TOKEN-PLEASE service wishes to carry out. This parameter has to be supplied by the requestor of the D-TOKEN-PLEASE service.

9.16 D-P-EXCEPTION-REPORT service

The provider-exception reporting service permits DTAM users to be notified of unanticipated situations not covered by other services. If a service cannot be completed due to DTAM-service provider protocol errors or malfunctions, the provider-exception reporting service is used to indicate this to both DTAM users.

If used with the document bulk transfer service, the provider-exception reporting service is only permitted while a D-TRANSFER service is in progress or waiting for the D-CAPABILITY confirm primitive.

Following a D-P-EXCEPTION-REPORT indication, and until the error condition is cleared:

- a) typed-data information (D-TYPED-DATA service), document informations (D-TRANSFER service) will be discarded by the DTAM-service-provider;
- b) synchronization point indications will not be given to the DTAM-service-provider.

On receipt of a D-P-EXCEPTION-REPORT indication, either DTAM user initiates one of the following services to clear the error:

- c) abort;
- d) retry of the transmission of the document information;
- e) give the data token.

DTAM users are not permitted to initiate any other services until the error is cleared.

The related service structure consists of two events, as illustrated in Figure 16/T.432.

FIGURE 16/T.432

D-P-EXCEPTION-REPORT service events

9.16.1 D-P-EXCEPTION-REPORT service

Table 13/T.432 lists the D-P-EXCEPTION-REPORT service.

TABLE 13/T.432

D-P-EXCEPTION-REPORT service parameters

w

Parameter	D-P-EXCEPTION-REPORT indication
Reason	M(=)

9.16.1.1 Reason

Reason is a parameter specifying the reason for the exception report. Its value is one of:

- a) protocol error;
- b) not sufficient storage capacity for transmission at the receiver;
- c) non-specific error.

In a Normal Mode, the storage capacity parameter is optionally used by each of two DTAM protocol machines to indicate its own capacity to the peer. After the negotiation, if the storage capacity of the receiving DTAM-PM is smaller than the largest segment of document information (see § 6.6) according to the checkpoint rule, the sending DTAM-PM shall not transfer the document and D-P-EXCEPTION indication should be issued to the sending DTAM user.

9.17 D-U-EXCEPTION-REPORT service

The user-exception reporting service permits a DTAM user to report an exception condition.

The detailed definition of this service is for further study.

9.18 Reliable transfer support service

Reliable transfer support service provides the communication secured as DTAM functionalities.

Two types of Reliable Transfer Mode are defined as follows:

1) Reliable transfer mode 1

In this mode, the DTAM-Service-provider performs the reliable transfer of a document but, in case of problem, it will interrupt the transfer and indicate to the user that the transfer has not been completed. The user will then have the responsibility to start a new transmission by using the D-TRANSFER request primitive with the appropriate parameters.

2) Reliable transfer mode 2

In this mode, the DTAM-Service-provider performs the complete reliable transfer of a document. If the transfer is interrupted, the recovery is under the responsibility of the DTAM-PM. If the document is not transferred within the transfer-time, this will be indicated to the user.