DOCUMENT INTERCHANGE ARCHITECTURE: DOCUMENT DISTRIBUTION SERVICES REFERENCE

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PREFACE

The Document Interchange Architecture (DIA) provides document interchange capabilities across a broad spectrum of IBM office systems.

The Document Interchange Architecture (DIA) is a program-to-program communication architecture. Specifically, DIA defines the protocols and data structures that enable programs to communicate processing intentions and interchange data. DIA logically divides into several parts: an information interchange base and various DIA application services.

This manual describes the basic concepts, protocols, and data structures to perform the DIA document distribution application service. The DIA Document Distribution Services encompasses the protocols and commands to distribute a document and messages to a set of one or more recipients in a network.

This manual is intended for data processing managers, system analysts, designers, system programmers, and application programmers, as well as systems engineers and product support representatives.

PREREQUISITE PUBLICATIONS

Document Interchange Architecture: Concepts and Structures, SC23-0759

RELATED PUBLICATIONS

- Office Information Architectures: Concepts, GC23-0765-0
- Document Interchange Architecture: Document Library Services Reference, SC23-0760
- Document Interchange Architecture: Application Processing Services Reference, SC23-0761
- Document Interchange Architecture: Interchange Document Profile Reference, SC23-0764
- Document Interchange Architecture: Transaction Programmer's Guide, SC23-0763
- Document Content Architecture: Revisable-Form-Text Reference, SC23-0758
- Document Content Architecture: Final-Form-Text Reference, SC23-0757
- SNA Concepts and Products, GC30-3072.

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CHAPTER 1. INTRODUCTION

Document Interchange Architecture (DIA) defines the protocols and data streams necessary to interchange information such as documents and messages in a consistent, predictable manner.

DIA provides these categories of services for the interconnection of office systems:

- Document Library Services
- Document Distribution Services
- Application Processing Services.

Document Library Services allow users to file documents in a document library, to retrieve them or delete them from the library, and to search the library for documents that meet user-specified criteria, such as the the name of the author. These criteria are compared with document descriptors that are stored with the document. The user can obtain all documents filed in the document library that meet those criteria.

Document Distribution Services deliver documents and related information from their source to one or more recipients anywhere in the network. These services can, for example, allow a user to enter a single request to distribute a document to multiple recipients, schedule distribution by document priority, confirm delivery, and report errors. Document Distribution Services are commonly referred to as electronic document distribution.

Application Processing Services allow users to modify document descriptors used in searching a library; to invoke a program to transform documents from one format to another, for example, revisable-form-text to final-form-text; and to execute user-supplied programs.

This reference manual contains detailed information about the Document Distribution Services of DIA. Document Distribution Services provide the DIA functions that enable users to distribute information to one or more recipients located in a distribution network. The types of information that may be distributed include documents, documents with appended messages, messages, or user-defined data with or without appended messages.

Document Distribution Services defines two modes of distributing information to recipients: direct delivery and delayed delivery. Each of these functions is provided by a set of document distribution services commands that are described in this manual.

The manual is organized as follows:

- Chapter 2 describes the basic concepts and facilities of Document Distribution Services. Also discussed are the various distribution options available to the users, including distributing personal documents,

distributing documents to predefined recipient lists, requesting confirmation of delivery notifications, viewing documents queued for delivery in the user's mail-box, obtaining documents queued for delivery, canceling delivery of a document queued for delivery, and the capability of a user to act as a surrogate for one or more other users, for example, a secretary acting on behalf of a manager.

- Chapter 3 describes in detail the various commands to perform the Document Distribution Services. Included in the command descriptions are the appropriate replying commands, the exception conditions unique to the command request/reply protocols, and general support considerations.

The reference manual concludes with an appendix which contains details about each operand used in Document Distribution Services; an appendix which describes the Document Interchange Unit, which is the major unit of interchange in DIA; and an appendix which gives a table of encodings for the DIA entities applicable to Document Distribution Services.

CHAPTER 2. FUNCTIONAL DESCRIPTION

Document Interchange Architecture defines a set of services. These services are performed by processes implemented in the uppermost layer of a communication architecture such as IBM's Systems Network Architecture (SNA). DIA specifies how these processes, located throughout a network, communicate with each other to perform required office system functions.

Each DIA service performs specified functions requested by end users. An end user represents the source or the recipient of information flowing through the office system network. Each end user of a DIA process is uniquely identified in the network by a logical address.

The information exchanged by DIA services comprises DIA commands and user information. Typical commands are: distribute a document from office system A to office systems B, C, and D; retrieve document XYZ from the document library; and search the document library for documents that satisfy search criteria J, K, and L.

Document Interchange Architecture is considered a part of SNA. (Only that part of SNA is introduced by this book; SNA as a whole is described in SNA Concepts and Products.) However, DIA is not dependent on the specific presentation and transport services of the network, and is not concerned with the content of the documents being interchanged among office systems.

LOGICAL COMPONENTS OF AN OFFICE SYSTEM NETWORK

A network of office systems based on Document Interchange Architecture contains a set of interrelated logical components which lie within the physical components of the network. The logical components are defined by the DIA and are implemented by IBM products as processes executing in physical components. These logical components are:

- A source node which acts on behalf of an end user to provide DIA services that initiate and control the interchange of documents and other information with end users called recipients.

- A recipient node which acts on behalf of an end user (recipient) to provide DIA services that control and receive documents and other information sent by a source node or an office system node.

- An office system node (OSN) which provides DIA services that receive, store, route, and deliver information for source and recipient nodes. An OSN contains storage capabilities providing the document library for attached source nodes. An office system node can also interact with an appropriately configured network to distribute information to other office system nodes.

Source nodes, recipient nodes, and office system nodes interchange documents and other information through an office system network using the transport services of the network. The nodes are uniquely identified in the network.

Specifically, a source node is identified by a source address, a recipient node is identified by a recipient address, and an office system node is identified by either an originating node address or a destination node address. An OSN is an originating node when it supports a source node and is a destination node when it supports a recipient node.

Originating node addresses and destination node addresses are unique within the network. Source and recipient addresses are unique within originating nodes and destination nodes, respectively.

An OSN process can act both as an originating node and destination node concurrently. In this case, the originating node address and the destination node address are identical. Similarly, a DIA process can act in the capacity of both a source node and recipient node. In this mode, the values of the source address and recipient address are identical.

DOCUMENT DISTRIBUTION SERVICES CONCEPTS

Document distribution services deliver documents from source nodes to recipient nodes within an office system network. Documents can be distributed between source and recipient nodes during a single DIA session or by routing them through office system nodes for subsequent delivery to recipient nodes.

When documents are delivered through an office system node, document distribution services in the source node do not establish a DIA session with document distribution services in the recipient node. Instead, the DIA session is established between the source node and the office system node. After the session is established, the document passes from the source node to the office system node. If the recipient node is located on a different office system node, the document is passed to that office system node.

When the recipient node establishes a DIA session with its office system node, it can obtain a summary list of documents to be delivered, it can take delivery on any or all documents, or it can cancel delivery of any or all documents.

The sender of a document can specify a distribution priority for the document relative to other documents. That is, senders can request that some documents reach their recipients faster than others.

The sender of a document can also request notification of delivery of a document to recipient nodes. The notification is called a confirmation-of-delivery message.

Document distribution services allow users to send a document to a distribution list defined in an office system node. The office system node will queue a copy of the document to each recipient defined on the distribution list. Each recipient can then request delivery of his individual copy.

DIA assigns each distribution request a distribution document name that uniquely identifies the request within the office system network. DIA uses this name to correlate confirmation-of-delivery messages and error messages with their corresponding distribution requests.

A document distribution services source node provides the following functions for end users:

- Requests distribution of documents and other information to one or more recipients located in the office system network.
- Prioritizes the distribution so that distributions of higher priority are delivered before distributions of lower priority.
- Requests that a confirmation-of-delivery message be returned to the sender of a document when one or more recipients accept delivery.
- Cancels an outstanding confirmation-of-delivery request. (This cancellation affects only the confirmation request; the request to distribute the document remains in effect.)
- Receives feedback messages relating to the distribution—for example, a notification that the intended recipient is invalid, possibly due to a misspelled recipient address. Feedback messages need not be sent during the same DIA session over which the distribution request flowed.
- Specifies that the distribution is classified as "personal." A distribution so classified requires that the intended recipient supply an additional authorization before receiving the distribution. For example, a manager might distribute personal and confidential information to a group of recipients authorized to receive such material and be assured that only those recipients could receive it.
- Requests distributions on behalf of other end users.

A document distribution services recipient node provides the following functions for end users:

- Exchanges information directly while in a DIA session with the source node.
- Determines which distributions are available at the office system node for delivery.
- Obtains distributions that are ready at the office system node for delivery (either all distributions or only the ones characterized by a particular class of service such as priority, non-priority, or personal).
- Cancels delivery of the recipient's distributions that are available at the office system node.
- Requests delivery of distributions on behalf of other end users.

Document distribution services in an office system node (OSN) asynchronously distribute documents to recipients located in the office system network. Distributing documents asynchronously means that a recipient node need not have an active DIA session with its office system node to receive documents from the source node. The documents remain in the destination office system node until the recipient node establishes a DIA session with the destination office system node; then they are delivered upon request.

The functions performed by document distribution services in an office system node are logically divided into two groups: originating OSN functions and destination OSN functions. Originating OSN functions are those required when a source node is in a DIA session with the office system node; destination OSN functions are those required when a recipient node is in a DIA session with the office system node. Since a node can be a source node and a recipient node within a single DIA session, the OSN can accommodate both attached source nodes and attached recipient nodes.

An originating OSN provides the following functions:

- Assigns and returns to source nodes a unique distribution-document-name for each distribution request received.
- Stores the distribution request and the document or other information to be distributed.
- Routes the distribution request and the associated documents to the office system nodes that serve the specified recipients. If the destination OSN is not the same as the originating OSN, the originating OSN distributes the distribution request and documents to the destination OSN that serves the specified recipients.
- Maintains a correlation table for confirmation-of-delivery messages that are currently outstanding. As confirmation-of-delivery messages are returned by destination OSNs, the originating OSN updates the correlation table. When queried by an attached source node, the originating OSN returns the current confirmation-of-delivery status and information about exception conditions such as recipients that could not be found, due perhaps to a misspelled recipient address.

A destination OSN provides the following functions:

- Places distribution requests and documents on a queue until they can be delivered to recipients. Multiple recipients can be defined to a destination OSN within a recipient distribution list—a list of one or more recipients served by the destination OSN. The OSN queues the distribution request and associated documents for each recipient listed.
- Delivers distribution requests and documents upon request by recipient nodes.
- Sends confirmation-of-delivery messages to the originating OSN from which the source node requested the confirmations.
- Lists the names of documents contained in OSN queues for delivery to recipient nodes.
- Cancels delivery of specified documents upon request.

DISTRIBUTION ADDRESSING

The document distribution addressing format is a two-level hierarchy of identifiers. The distribution address consists of fields denoting the recipient and the office system node (OSN). The recipient may be an individual, a department, a mailbox, a mailroom, or a predefined distribution list. The recipient address is known as the source address when it designates a sender rather than a receiver.

The form of the document distribution address is shown in Figure 1.

OSN	Source/Recipient
XXXXXXXX	XXXXXXXX

Figure 1. Distribution Address Format

Each office system node (OSN) is assigned a 1- to 8-byte code that is unique within the customer distribution system. These address tokens are used as the first part of the distribution address.

Each Source/Recipient is assigned a 1- to 8-byte address token called a Source Address (SA), Recipient Address (RA), or Sign-On-ID depending on the function the identifier is serving in a particular instance. These address tokens are unique to the OSN which services the entity represented by that address. This address serves as the distribution address as well as the user or operator identifier (ID) that is required for sign-on purposes.

DIA's addressing scheme identifies the OSN-ID (host) and the SA/RA (end-users, that is, source, recipient, processes, programs, and so on) as two levels of architected address. The binding of these relationships is left to the product design. The essential, common components of the products using DIA are defined by the host and end-user levels of the address. The implementation of the product may be that there is a one-to-one correspondence between the address levels and the hardware upon which each level is used. Or there may be other than a one-to-one correspondence, such as where a controller represents multiple users to the host. Or, in the case where the end user is a process on the host, both levels of address are on the same hardware. The mapping of the SA/RA to its physical representation must be designed and controlled internally to a product within the architected levels.

The following addressing operands are defined for use with all function sets within DIA.

Source/Recipient Addresses

- Source-Address (SA) Format 1 (1-8 bytes)
- Recipient-Address (RA) Format 1 (1-8 bytes)

- Source-Address (SA) Format 42 = (T1.T2 | T1.T2.T4 | T1.T3 | T1.T3.T4)

- Recipient-Address (RA) Format 42 = (T1.T2)

Combinations of the T tokens uniquely identify an end user within an OSN. Only those combinations shown are valid.

T1 = Domain (1-8 bytes)	Represents a subgrouping of source or recipients within an OSN.
T2 = Name (1-32 bytes)	A source or recipient identifier unique within the domain subgrouping.
T3 = Global Name (1-32 bytes)	Source or recipient identifier unique within the OSN without qualification by the domain identifier.
T4 = Authorization Value (1-32 bytes)	Utilized in conjunction with the other fields to give an added level of authorization checking.

OSN (Host) Addresses

- Originating Node Address (ONA) Format 1 1-8 bytes

- Destination Node Address (DNA) Format 1 1-8 bytes

Rules for Use of Addressing Forms

The DIA addressing forms are to be used for interchange according to the following rules:

- The ONA and DNA operands are used for OSN identification. The SA and RA operands are used for local (within an OSN) control and delivery.

- The Format 1 address forms (SA, RA, ONA, DNA) are the DIA base architecture.

- The Format 42 address forms (SA and RA) are an extension to the base.

- The T1.T2 form of Source Address (Format 42) is used only with returned status information.

- The format of all source and recipient addresses must be either Format 1 or Format 42 on any one DIA session.

- All DIA OSN products must support all Format 1 address operands (SA, RA, ONA, DNA) and may support the Format 42 forms (SA and RA).

- Connectivity to any OSN product is assured with ONA/DNA and SA/RA Format 1. Source or recipient node products must negotiate, via the SIGN-ON-ID Format 42, support of the SA or RA Format 42 operands. Format 42 SA or RA forms are used for input to tables for translation to Format 1.

DISTRIBUTION AFFINITY

Affinity permits a user to access DIA resources on behalf of another source or recipient. The user who is requesting the work is the signed-on user and the source or recipient whose DIA resources are to be accessed is specified by source address or recipient address, respectively. A source address or recipient address may be associated with one or more users through affinity. If more than one of these users are active, then contention resolution for the source address' or recipient address' resources is on a first-come-first-serve basis.

An affinity relationship is defined with two lists: an authorization list and an affinity list. The authorization list is associated with the source or recipient. This list specifies those users who have the authority to act for the source or recipient. The affinity list is associated with the signed-on user. This list contains the source address or recipient address for all sources or recipients that the signed-on user may act for. The affinity relationship exists when a source or recipient has a signed-on user in his authorization list, and that signed-on user has the source or recipient address in his affinity list. Each signed-on user may be on more than one authorization list, and each source or recipient may be on more than one affinity list.

The signed-on recipient can request distributions and status for the following recipients:

- Only for the signed-on recipient.
- Only for a recipient other than the signed-on recipient and the recipient has affinity with the signed-on recipient.
- Only for a recipient other than the signed-on recipient and the recipient does not have affinity with the signed-on recipient. Note that the recipient password for the target recipient must be supplied.
- For the signed-on recipient and recipients with affinity to the signed-on recipient.
- For a recipient other than the signed-on recipient and recipients with affinity to that recipient.

The signed-on recipient can cancel distributions for the following recipients:

- Only for the signed-on recipient.
- Only for a recipient other than the signed-on recipient and the recipient has affinity with the signed-on recipient.
- Only for a recipient other than the signed-on recipient and the recipient does not have affinity with the signed-on recipient. Note that the recipient password for the target recipient must be supplied.

The signed-on source can cancel status and issue Document Library Services and Application Processing Services commands for the following sources:

- Only for the signed-on source.
- Only for a source other than the signed-on source and the source has affinity with the signed-on source.
- Only for a source other than the signed-on source and the source does not have affinity with the signed-on source. Note that the recipient password for the target recipient must be supplied.

In general, when the signed-on recipient is issuing a command for a recipient that has affinity with the source, the recipient password of the recipient does not have to be specified. When the signed-on source is issuing the CANCEL command for a source that has affinity with the source, the source password of the source does not have to be specified. In all cases involving passwords, if the source or recipient on whose behalf the request is made does not have a password defined, the specification of a password is ignored.

The following tables describe the use of recipient address and recipient password, and source address and source password when issuing the commands.

LIST and OBTAIN commands	Affinity Default	Affinity Specified
No Recipient Address No Recipient Password	For signed-on recipient and recipients with affinity to the signed-on	For signed-on recipient and recipients with affinity to the signed-on
No Recipient Password Recipient Address		
= signed-on	For signed-on recipient	For signed-on recipient and recipients with affinity to the signed-on
¬= signed-on but has affinity with signed-on	For specified recipient	An exception
¬= signed-on and not affinity with signed-on	An exception	An exception
Recipient Password Recipient Address		
= signed-on	For signed-on recipient	For signed-on recipient and recipients with affinity to the signed-on
¬= signed-on but has affinity with signed-on	For specified recipient	For specified recipient and recipients with affinity to the specified recipient
¬= signed-on and no affinity with signed-on	For specified recipient	For specified recipient and recipients with affinity to the specified recipient
No Recipient Address Recipient Password	An exception	An exception

CANCEL command	Affinity Default
No Recipient Address No Recipient Password	For signed-on recipient
No Recipient Password Recipient Address	
= signed-on	For signed-on recipient
¬= signed-on but has affinity with signed-on	For specified recipient
¬= signed-on and not affinity with signed-on	An exception
Recipient Password Recipient Address	
= signed-on	For signed-on recipient
¬= signed-on but has affinity with signed-on	For specified recipient
¬= signed-on and no affinity with signed-on	For specified recipient
No Recipient Address Recipient Password	An exception

CANCEL command	Affinity Default
No Source Address No Source Password	For signed-on source
No Source Password Source Address = signed-on	For signed-on source
¬= signed-on but has affinity with signed-on	For specified source
¬= signed-on and not affinity with signed-on	An exception
Source Password Source Address = signed-on	For signed-on source
¬= signed-on but has affinity with signed-on	For specified source
¬= signed-on and no affinity with signed-on	For specified source
No Source Address Source Password	An exception

DISTRIBUTION CORRELATION

The DIA defines several facilities to provide positive identification of distributions. These facilities and a description of each follow:

Distribution Name

The distribution name is the name of the distribution as known by the source. This name may vary from 1 to 44 characters and is provided for in DIA Document Distribution Services. The commands used from the source node to the originating node have a field within the DISTRIBUTION-IDENTIFIER operand to contain the distribution name.

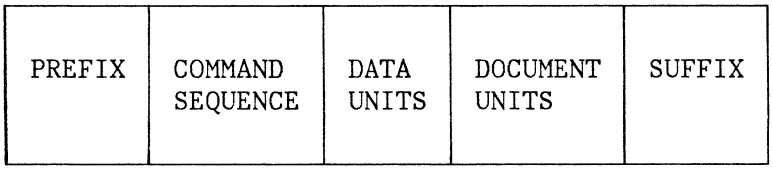
Distribution-Document-Name

The distribution document name is a 20-character name created by the originating node to provide positive document identification while the document is being

transported between nodes. It is composed of an 8-character originating node address, the 8-character identifier for the requestor of the distribution, and a 4-byte sequence number. This sequence number is a count field that is used only for the requestor identified by the first 16-characters of this name. The sequence number is incremented by one each time and rolls from 9999 to 0000.

DOCUMENT INTERCHANGE UNIT

The basic unit of interchange between DIA processes is the document interchange unit (DIU). A DIU is made up of the following data stream components:



- The prefix contains the information to introduce and identify the DIU.
- The command sequence contains the command that specifies the function to be performed and related processing information.
- The data unit contains information that may be referred to by the DIA command in the command sequence. This field is optional and is present when defined by the command.
- The document unit contains the document profile and may contain the document content. This field is optional and is present only when a document profile and content are sent from one DIA process to another.
- A suffix specifies the end of the DIU and indicates whether any abnormal conditions occurred while the DIU was being transmitted.

These data stream components may be composed of substructures called subcomponents. Examples of subcomponents are command operands and document profiles. All DIU components and their subcomponents begin with a structured field called an introducer. The introducer uniquely identifies each field and indicates its length. Consequently, all fields and components (and hence the entire data stream) are self-describing and may be variable in length.

COMMANDS AND CONTROL FLOW

Control flow between DIA processes is command driven. Commands are divided into classes, depending upon the protocol of the expected reply. The command class is identified by the encoding used in the class byte of the command. Commands that are used to reply to a previous command include a CORRELATION operand to correlate the reply to the previous command. Command classes and the correlation of replies to commands are described in the following two sections.

Command Classes

This section contains detailed information describing each command class defined for the architecture. The three classes of commands are as follows:

- No Reply Required Command Class (NRR)

  The NRR command class is used for any command that does not require a replying command from the receiver. No explicit synchronization or correlation is done for this type of command exchange. Only an ACKNOWLEDGE with an exception condition code is allowed to reply to and reference this class of command. The exception condition information can be used for statistics logging.

- Synchronous Reply Required Command Class (SRR)

  The SRR command class is used for any command that requires a replying command as the next command sent by the receiver. For normal nonpreemptive command flow, the SRR requesting command sender should not send any other commands until the replying command has been received. The replying command may be any command that has a CORRELATION operand correlating it with the SRR command.

- Asynchronous Reply Required Command Class (ARR)

  The ARR command class is used for any command that requires a replying command within the following conditions:

  - The reply need not be the next command sent by the receiver.
  - The reply need not be sent during the current DIA session.
  - Replies to ARR commands may be sent in any order.
  - Replies to ARR commands may not be received in the order sent by the ARR request processor.

  The ARR commands must be replied to with a command that has a CORRELATION operand correlating it with the ARR command.

  Normal termination of the DIA session while a reply to an ARR command is outstanding does not affect either the ARR command or the reply to that command.

An individual command may be used in any command class except where specifically excluded by its command definition.

When an exception condition is encountered in the processing of a command in any class, an ACKNOWLEDGE command with an exception condition code will be returned in the replying command class to the sender of the command exception.

Any command with a CORRELATION operand may be used as a replying command. The CORRELATION operand will contain the information which identifies the command to which this replying command is being sent. The correlation information is

constructed from the DIU identifier found in the prefix. This information is used by the command requestor to confirm and manage the conclusion and disposition of requested process results.

Request-Reply Protocols

The flow of DIUs between two DIA processes is command-driven and complies with the command or reply protocols specified for each command defined by DIA. The following general rules apply to the issuing of commands within the DIA Session:

- Only one partner in a particular DIA session can be sending command requests at any one time.
- The DIA partner which sends the SIGN-ON request is the partner which sends the first command in the DIA session.

The mapping of DIA flow control protocols to the use of verbs at the SNA LU 6.2 protocol boundary is described in Transaction Programmer's Guide. The mapping of DIA flow control to other communication subsystem implementations is described in the publications of the implementing products.

FUNCTION SETS

Because office systems vary in their capabilities, DIA commands are grouped into function sets that identify the scope of work for a DIA session. These function sets have been defined so that each set contains all the commands required for a well defined, usable, and complete set of functions for a given category of services.

Function Set Negotiation

DIA processes establish a logical connection, called a DIA session, through which they exchange information. The DIA session exists after the two DIA processes identify themselves and agree on the scope of work that is to be performed. This agreement is necessary because not all DIA implementations support the same range of functions. DIA defines a wide range of office system functions; most office systems require only a subset of these functions for their operation.

The negotiation includes the determination of the roles each process will play. The process that will be the command requestor is identified as Process B and the process which will be the command server is identified as Process A. In the case of symmetric interchange, for example, DIA processes capable of simultaneously acting as a requestor and a server of a DIA facility, the DIA process must assume the role of both Processes A and B.

Document Distribution Services Commands

Document distribution services deliver documents from source nodes to recipient nodes within an office system network. Documents can be distributed between

source and recipient nodes during a single DIA session or by routing them through office system nodes for subsequent delivery to a recipient node. A brief summary of each of the commands which comprise Document Distribution Services follows:

- The CANCEL-DISTRIBUTION command cancels distribution status information or cancels the delivery of distributed documents or messages.

- The DELIVER command transports documents and messages from an office system node (OSN) to a source or recipient node. The DELIVER command may also be used to transport documents and messages directly between a source node and a recipient node without an intervening OSN.

- The LIST command requests delivery of a list of documents and messages queued for delivery at an OSN for a recipient node or a list of the status of information about previously distributed distribution requests.

- The OBTAIN command requests delivery of one or more documents and/or messages scheduled for delivery to the requestor.

- The PROCESS-BIT-STRING command requests an OSN to interpret a bit-stream representation of a DIA function request and perform the requested operation.

- The REQUEST-DISTRIBUTION command transports documents and/or messages from a source node to an OSN for distribution to the specified recipient nodes. Documents to be distributed may be submitted with the command, located in the command servers document library, or located in a library accessible by the command server. Messages to be distributed can only be submitted with the command.

- The STATUS-LIST command notifies the recipient node that one or more documents or messages are available from the distribution system or that information about the progress of previous distribution requests is available.

The following figures (Figure 2 on page 18 through Figure 7 on page 20) show how these commands are grouped into the Document Distribution Services function sets.

Function Set 2 contains the DIA commands necessary to deliver information from an OSN destination node to a recipient node in a solicited environment; namely, the recipient node must specifically request the OSN to deliver the information.

COMMAND	COMMAND CLASS	PROCESS A (SERVER)	PROCESS B (REQUESTOR)
DELIVER	SRR	send	receive
OBTAIN	SRR	receive	send
LIST	SRR	receive	send
STATUS-LIST	NRR	send	receive
CANCEL-DISTRIBUTION	SRR	receive	send
ACKNOWLEDGE	NRR	send/rec	send/rec
SIGN-ON Request	SRR	receive	send
SIGN-ON Reply	NRR	send	receive
SIGN-OFF	NRR	send/rec	send/rec

Figure 2. Function Set 2

Function Set 3 contains the DIA commands used to deliver information from an OSN to a recipient node in an unsolicited environment; namely, the OSN delivers the information to the recipient node without being specifically requested.

COMMAND	COMMAND CLASS	PROCESS A (SERVER)	PROCESS B (REQUESTOR)
DELIVER	SRR	send	receive
ACKNOWLEDGE	NRR	send/rec	send/rec
SIGN-ON Request	SRR	receive	send
SIGN-ON Reply	NRR	send	receive

Figure 3. Function Set 3

Function Set 4 contains the DIA commands necessary to input documents and DIA function requests to an OSN from an image source node.

COMMAND	COMMAND CLASS	PROCESS A (SERVER)	PROCESS B (REQUESTOR)
PROCESS-BIT-STRING	SRR	receive	send
ACKNOWLEDGE	NRR	send/rec	send/rec
SIGN-ON Request	SRR	receive	send
SIGN-ON Reply	NRR	send	receive

Figure 4. Function Set 4

Function Set 5 contains the DIA commands necessary to initiate and control document distribution requests from a source node to an office system node.

COMMAND	COMMAND CLASS	PROCESS A (SERVER)	PROCESS B (REQUESTOR)
CANCEL-DISTRIBUTION	SRR	receive	send
REQUEST-DISTRIBUTION	SRR	receive	send
ACKNOWLEDGE	NRR	send/rec	send/rec
SIGN-ON Request	SRR	receive	send
SIGN-ON Reply	NRR	send	receive
SIGN-OFF	NRR	send/rec	send/rec

Figure 5. Function Set 5

Function Set 6 contains the DIA commands necessary to send documents between image source/recipient nodes without going through any intermediate office system nodes.

COMMAND	COMMAND CLASS	PROCESS A (SERVER)	PROCESS B (REQUESTOR)
DELIVER	SRR	send	receive
ACKNOWLEDGE	NRR	send/rec	send/rec
SIGN-ON Request	SRR	send/rec	send/rec
SIGN-ON Reply	NRR	send/rec	send/rec

Figure 6. Function Set 6

Function Set 7 contains the DIA commands necessary to distribute information between source and recipient nodes without going through any intermediate office system nodes.

COMMAND	COMMAND CLASS	PROCESS A (SERVER)	PROCESS B (REQUESTOR)
DELIVER	SRR	send	receive
ACKNOWLEDGE	NRR	send/rec	send/rec
SIGN-ON Request	SRR	send/rec	send/rec
SIGN-ON Reply	NRR	send/rec	send/rec
SIGN-OFF	NRR	send/rec	send/rec

Figure 7. Function Set 7

CHAPTER 3. COMMAND DESCRIPTIONS

This section contains the Document Distribution Services command descriptions. Each command description begins with the command name and a list of the command operands. Optional operands are denoted by brackets. Required operands are shown without brackets.

The function of the command is explained and then followed by a description of each operand. The detailed operand definitions are contained in "Appendix A. Operand Descriptions" on page 63. The command structured field IDF's are defined in "Appendix C. DIA Code Points" on page 93.

Each command description contains the request/reply protocol used between the command requestor and command server. Normal and exception condition scenarios are shown.

The command descriptions are concluded with a list of exception conditions which are specific to the command. The general exceptions that are common to all DIA commands are described in "DIU General Exception Conditions" in the Concepts and Structures manual.

The command descriptions for the ACKNOWLEDGE, SIGN-ON, and SIGN-OFF commands are contained in the Concepts and Structures manual.

REQUEST-DISTRIBUTION

Command	Operands
REQUEST-DISTRIBUTION	[IDENTIFIED-DATA] [,DESTINATION-NODE-ADDRESS] [,]ATTRIBUTE-LIST ,RECIPIENT-ADDRESS [,SOURCE-ADDRESS] [,SOURCE-PASSWORD] [,DISTRIBUTION-NAME] [,MESSAGE]

The REQUEST-DISTRIBUTION command is used to distribute information to one or more recipients in the office system network.

The types of information that can be distributed include: (1) a document with or without an appended message, or (2) a message only. The term document, used in this context, is defined to be any collection of data, for example, a revisable text document, a user's data processing payroll master file, a system-defined object—like a DIA unformatted status document, and so forth.

The document to be distributed may be submitted with the request (DIU) or may be distributed from the OSNs document library. Messages can only be distributed with the request (DIU).

Distribution requests are sent from a source node to an originating office system node (OSN). The functions performed by the OSN include:

- Validation of the request.
- Safe-store of the request and information to be distributed.
- Assignment of a network-wide unique token to the distribution request. The assigned token is called the distribution document name.
- Schedule an asynchronous process to fan-out the information to the specified recipients.

Output from the OSN includes returning the distribution document name to the requestor. The unique distribution document name is used to correlate subsequent status and error messages with the original distribution request.

Status and error messages generated after the REQUEST-DISTRIBUTION request has been accepted by the OSN can be obtained using the LIST and OBTAIN commands.

Operand Descriptions

IDENTIFIED-DATA

The IDENTIFIED-DATA operand, if present, specifies the location of the document to be distributed. The document to be distributed may be supplied with the request (DIU) using IDENTIFIED-DATA (Format 1) or referenced in the OSN Document Library using IDENTIFIED-DATA (Format 2, 3, or 42). If omitted, no document will be distributed.

DESTINATION-NODE-ADDRESS

The DESTINATION-NODE-ADDRESS operand, if present, specifies the 1- to 8-character group address token of the distribution recipient. If omitted, the group address token of the command sender is assumed.

The DESTINATION-NODE-ADDRESS operand must be followed by at least one RECIPIENT-ADDRESS operand. The DESTINATION-NODE-ADDRESS operand may appear several times in the command.

ATTRIBUTE-LIST

The ATTRIBUTE-LIST (Format 1) is used by the requestor to specify the distribution processing characteristics. Specifically, the requestor can

specify that (1) a confirmation of delivery message is to be returned when the Recipient Node accepts delivery of the distribution information, (2) the information is personal, requiring the recipient to specify a personal document password to receive the information, (3) the information is to be distributed as soon as possible (priority), and optionally (4) to specify a 1- to 256-character message to be distributed to all recipients.

RECIPIENT-ADDRESS

The RECIPIENT-ADDRESS operand is used to specify the address token of the recipient; either RECIPIENT-ADDRESS (Format 1) or RECIPIENT-ADDRESS (Format 42) may be specified.

The operand is repeatable and may be factored within the scope of a DESTINATION-NODE-ADDRESS operand. If the DESTINATION-NODE-ADDRESS operand (the recipients group address token) is not specified, the group address token of the command sender is assumed.

SOURCE-ADDRESS

The SOURCE-ADDRESS operand, if present, specifies the address token of the requestor which initiated this request; either SOURCE-ADDRESS (FORMAT 1 or 42) is valid. If omitted, the address token of the command sender is assumed.

SOURCE-PASSWORD

The SOURCE-PASSWORD (Format 1) operand specifies the 1- to 8-character access authorization key of the requestor which initiated this request. The SOURCE-PASSWORD (Format 1) operand is conditionally required if the SOURCE-ADDRESS (Format 1) is specified. The SOURCE-PASSWORD (Format 1) operand is required if:

- The SOURCE-ADDRESS (Format 1) operand specifies an 'element' address token different than the command sender.
- The specified requestor does not have affinity with the command sender.
- The specified requestor has a password.

Otherwise, the SOURCE-PASSWORD should be omitted.

DISTRIBUTION-NAME

The DISTRIBUTION-NAME operand, if present, specifies the 1- to 44-character name of the distribution as specified by the requestor. The DISTRIBUTION-NAME operand value may be used by the requestor as a user correlation value for the distribution request. The DISTRIBUTION-NAME operand value, if supplied, is returned with all asynchronous status and error messages.

MESSAGE

The MESSAGE operand, if present, is used to distribute a 1- to 256-character message to all recipients specified in the distribution request; either MESSAGE (Format 1 or 2) operand is valid.

Operand Parsing Rules

The following special parsing rules apply to the operands of the REQUEST-DISTRIBUTION command:

- The ATTRIBUTE-LIST operand and at least one RECIPIENT-ADDRESS operand must appear in the command.
- If the IDENTIFIED-DATA and MESSAGE operands do not appear in the command, the ATTRIBUTE-LIST operand must contain a message field.
- Once the DESTINATION-NODE-ADDRESS operand appears, the group address token value specified by it, applies to all succeeding RECIPIENT-ADDRESS operands until the next occurrence of the DESTINATION-NODE-ADDRESS operand or the end of the command. At least one RECIPIENT-ADDRESS operand must appear between each DESTINATION-NODE-ADDRESS operand and following the last DESTINATION-NODE-ADDRESS operand.

Request/Reply Protocol

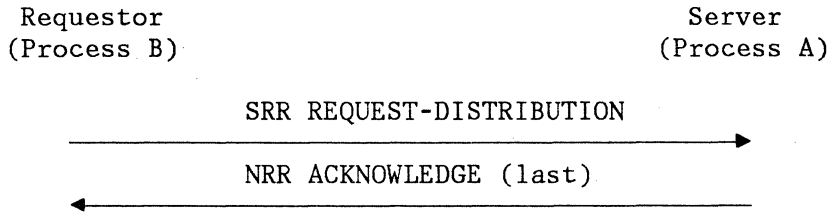
The following scenarios illustrate possible replies to the REQUEST-DISTRIBUTION command:

- Scenario 1 - Normal Completion

  The reply command to a REQUEST-DISTRIBUTION command is an ACKNOWLEDGE command that is sent to the requestor after the distribution request has been validated and safe-stored for further processing. The REPLY-DATA operand on the ACKNOWLEDGE command contains the distribution document name assigned to the distribution request.

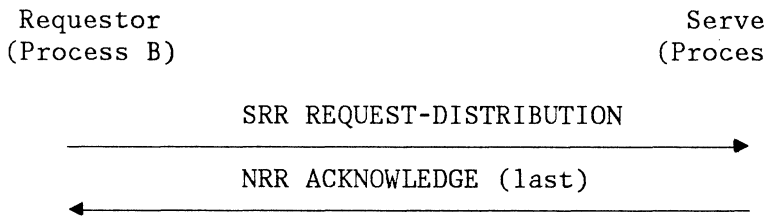
  Validation of the recipient address tokens may not have been performed.

  After the positive ACKNOWLEDGE command has been sent to the REQUEST-DISTRIBUTION command, any exception condition detected for a distribution, whether or not it is sent COD, is reported in the status document returned from the LIST or OBTAIN commands.



- Scenario 2 - Exception Conditions

  Exception conditions detected during the REQUEST-DISTRIBUTION COMMAND processing will be replied to with an ACKNOWLEDGE command that contains the exception condition in the EXCEPTION-CODE operand.



Exception Conditions

The general exception conditions that are common to all DIA commands are described in "DIU General Exception Conditions" in the Concepts and Structures manual. The REQUEST-DISTRIBUTION command will be rejected if any of the following conditions exist.

- The SOURCE-PASSWORD operand is present and the SOURCE-ADDRESS operand is not present.

  Exception = Catastrophic, Syntax, Data-Not-Found, Command-Operand
  Exception Code = X'C20708'
  Exception Data = LLIDF of SOURCE-ADDRESS operand

- The SOURCE-ADDRESS operand specifies a requestor different than the command sender and the specified requestor has a password and the SOURCE-PASSWORD operand is not specified.

  Exception = Catastrophic, Syntax, Data-Not-Found, Command-Operand
  Exception Code = X'C20708'
  Exception Data = LLIDF of SOURCE-PASSWORD operand

- A RECIPIENT-ADDRESS operand is not preceded by an ATTRIBUTE-LIST operand.

  Exception = Catastrophic, Syntax, Data-Not-Found, Command-Operand
  Exception Code = X'C20708'
  Exception Data = LLIDF of ATTRIBUTE-LIST operand

- An ATTRIBUTE-LIST operand is not followed by a RECIPIENT-ADDRESS operand.

  Exception = Catastrophic, Syntax, Data-Not-Found, Command-Operand
  Exception Code = X'C20708'
  Exception Data = LLIDF of RECIPIENT-ADDRESS operand

- A DESTINATION-NODE-ADDRESS operand is not followed by a RECIPIENT-ADDRESS operand.

Exception = Catastrophic, Syntax, Data-Not-Found, Command-Operand
Exception Code = X'C20708'
Exception Data = LLIDF of RECIPIENT-ADDRESS operand

- The IDENTIFIED-DATA operand is present and does not refer to either (1) a DIU document unit, (2) a valid document library name to which the requestor has access, or (3) a valid Search-Result-List-ID and entry number reference.

  Exception = Catastrophic, Semantic, Data-Not-Found, Operand-Value
  Exception Code = X'C30709'
  Exception Data = LLIDF and data of IDENTIFIED-DATA operand

- The IDENTIFIED-DATA and MESSAGE operands are both omitted and there is no message field in the ATTRIBUTE-LIST operand.

  Exception = Catastrophic, Semantic, Data-Not-Found, Operand-Value
  Exception Code = X'C30709'
  Exception Data = LLIDF and data of ATTRIBUTE-LIST operand

- The ATTRIBUTE-LIST operand contains invalid attribute values.

  Exception = Catastrophic, Semantic, Data-Not-Supported, Operand-Value
  Exception Code = X'C30209'
  Exception Data = LLIDF and data of ATTRIBUTE-LIST operand

- The SOURCE-ADDRESS operand contains an invalid address.

  Exception = Catastrophic, Semantic, Unauthorized-Access, Operand-Value
  Exception Code = X'C30309'
  Exception Data = LLIDF and data of SOURCE-ADDRESS operand

- All the specified recipient addresses are invalid.

  Exception = Catastrophic, Semantic, Execution-Terminated, Operand-Value
  Exception Code = X'C30609'
  Exception Data = LLIDF and data of last RECIPIENT-ADDRESS operand

- The SOURCE-PASSWORD operand contains an invalid authorization key.

  Exception = Catastrophic, Semantic, Password-Invalid, Operand-Value
  Exception Code = X'C30509'
  Exception Data = LLIDF and data of SOURCE-PASSWORD operand

- The RECIPIENT-ADDRESS operand contains an invalid address.

  Exception = Severe, Semantic, Data-Not-Supported, Operand-Value
  Exception Code = X'830209'
  Exception Data = LLIDF and data of RECIPIENT-ADDRESS operand

Support Considerations

When a document is to be distributed from the document library at which the user has issued a SEARCH command, the document may be referred to by the IDENTIFIED-DATA (Format 3) operand as immediate data. This form of the IDD

operand permits the document reference to identify the Search-Result-List-ID and the entry number of the document in the result list to be distributed.

When a REQUEST-DISTRIBUTION command is initiated, the status to be returned may be directed to the signed-on source or to someone else, in the following ways:

- If the SOURCE-ADDRESS operand is not specified, then the status will be returned to the signed-on source.
- If the SOURCE-ADDRESS operand is specified, then the status will be returned to the specified SOURCE-ADDRESS operand.

The MESSAGE operand may occur only once. The message is sent to all recipients.

OBTAIN

Command	Operands
OBTAIN	OBTAIN-OPTION [,DOCUMENT-PASSWORD] [,RECIPIENT-ADDRESS] [,RECIPIENT-PASSWORD]

The OBTAIN command is used to request the delivery of distribution information queued for delivery either to the requestor or to a specific recipient or recipients on whose behalf the requestor has the authority to act. See "Distribution Affinity" on page 9 for a discussion of a requestor acting on behalf of some other recipient.

The types of information distributed include:

- Personal and nonpersonal documents
- Personal and nonpersonal documents with appended messages
- Personal and nonpersonal messages only
- Status information about previous distribution requests.

The requestor may selectively retrieve queued information, using one of the following options. The term distribution is used here to mean personal or nonpersonal documents, documents with appended message, or messages only.

- All distributions (priority and nonpriority)
- All priority distributions only
- A specific distribution
- All messages only (priority and nonpriority)
- All priority messages only.

Note: To obtain personal documents or messages, the requestor must supply the appropriate recipient's personal document password.

Two additional OBTAIN command options are available, these are:

- Status information about previous distribution requests and all priority, nonpriority, personal, and nonpersonal messages only
- Status information about previous distribution requests and all priority, nonpriority, personal, and nonpersonal distributions.

Note: Personal document passwords are not required to retrieve personal distributions with these options. The recipient node is responsible for ensuring that personal document access authority validation is performed prior to delivery to the end user.

The reply to an OBTAIN command is zero or more DELIVER commands containing the information requested. The OBTAIN command is concluded by a replying ACKNOWLEDGE (last) command. All replying commands are correlated to the OBTAIN command.

Operand Descriptions

OBTAIN-OPTION

The OBTAIN-OPTION (Format 1) operand specifies the requested delivery option and associated parameters, for example, all priority distributions, specific distributions, personal distributions, and so forth.

DOCUMENT-PASSWORD

The DOCUMENT-PASSWORD (FORMAT 1) operand, if present, specifies a 1- to 8-byte personal document authorization key associated with the recipient. This operand is required if the requestor wants to obtain personal distributions. If the DOCUMENT-PASSWORD operand is omitted, no personal distributions will be delivered.

If the RECIPIENT-ADDRESS operand is not specified, the DOCUMENT-PASSWORD operand, if present, must be the signed-on requestor's personal document password. When the RECIPIENT-ADDRESS operand is specified, the DOCUMENT-PASSWORD operand, if present, must be the specified recipient's personal document password.

RECIPIENT-ADDRESS

The RECIPIENT-ADDRESS operand, if present, specifies the address token of the recipient; either RECIPIENT-ADDRESS (Format 1) or RECIPIENT-ADDRESS (Format 42) may be specified. The RECIPIENT-ADDRESS operand is required if the distribution information to be obtained is for:

- A recipient other than the signed-on requestor.
- Recipients with affinity to the specified recipient and the specified recipient has affinity to the requestor. See "Distribution Affinity" on page 9 for a discussion of a requestor acting on behalf of some other recipient.
- The signed-on requestor only.

If the RECIPIENT-ADDRESS operand is not specified, the information obtained is for the signed-on requestor and all recipients that have affinity with the requestor.

RECIPIENT-PASSWORD

The RECIPIENT-PASSWORD (Format 1) operand, if present, specifies a 1- to 8-character access authorization key that is associated with the specified recipient. The RECIPIENT-PASSWORD operand is not required if the specified recipient (RECIPIENT-ADDRESS operand) is either the signed-on requestor or a recipient that has affinity to the signed-on requestor.

The RECIPIENT-PASSWORD operand is required if the information to be obtained is for either:

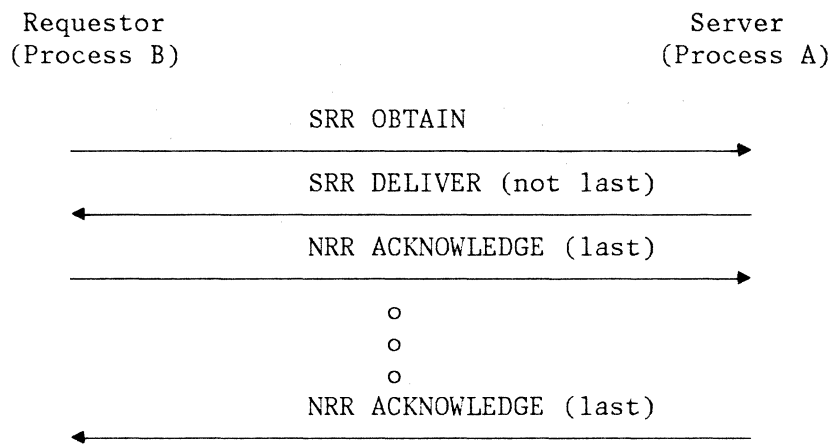
- A specific recipient other than the signed-on requestor and the specified recipient does not have affinity with the signed-on requestor and the specified recipient has a password
- Recipients with affinity to the recipient specified in the RECIPIENT-ADDRESS operand, and the specified recipient has affinity to the requestor. See "Distribution Affinity" on page 9 for a discussion of a requestor acting on behalf of some other recipient.

Request/Reply Protocol

The following scenarios illustrate possible replies to the OBTAIN command:

- Scenario 1 - Normal Completion with distributions returned

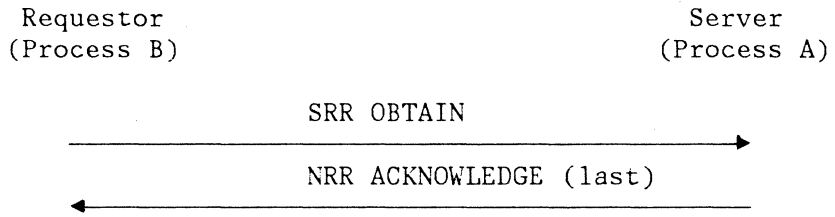
The normal reply to an OBTAIN command is zero or more DELIVER commands followed by an ACKNOWLEDGE command that is sent at the conclusion of processing. The number of replying DELIVER commands is determined by the number of distributions obtained.



The types of data returned for the OBTAIN command are scoped by the specific OBTAIN operand values and by the DOCUMENT-TYPE and GCID operands specified on the SIGN-ON command at DIA session establishment.

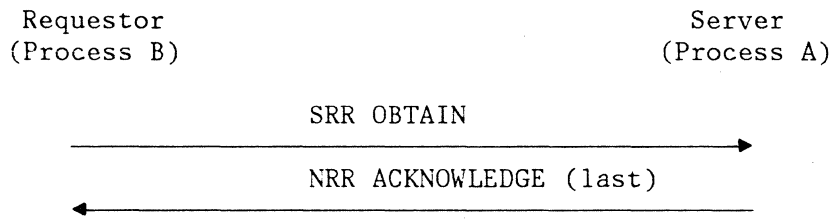
- Scenario 2 - Normal Completion with no distributions returned

  When there are no distributions queued for delivery, the OBTAIN command is concluded with an ACKNOWLEDGE command indicating normal completion.



- Scenario 3 - Exception Conditions.

  When exception conditions are detected during the processing of the OBTAIN command, the replying ACKNOWLEDGE command contains the exception condition in the EXCEPTION-CODE operand.



Exception Conditions

The general exception conditions that are common to all DIA commands are described in "DIU General Exception Conditions" in the Concepts and Structures manual. The OBTAIN command is rejected if any of the following specific OBTAIN exception conditions are detected:

- The RECIPIENT-PASSWORD operand is present and the RECIPIENT-ADDRESS operand is not present.

  Exception = Catastrophic, Syntax, Data-Not-Found, Command-Operand
  Exception Code = X'C20708'
  Exception Data = LLIDF of RECIPIENT-ADDRESS operand

- Distributions were requested for only the recipient specified in the RECIPIENT-ADDRESS operand and the RECIPIENT-ADDRESS operand specifies a recipient different than the requestor and the specified recipient does not have affinity with the requestor and the specified recipient has a password and the RECIPIENT-PASSWORD is not specified.

  Exception = Catastrophic, Syntax, Data-Not-Found, Command-Operand
  Exception Code = X'C20708'
  Exception Data = LLIDF of RECIPIENT-PASSWORD operand

- The OBTAIN-OPTION operand specifies 'Specific Distribution' and the Distribution-Document-Name is omitted.

  Exception = Catastrophic, Syntax, Data-Not-Found, Operand-Value
  Exception Code = X'C20709'
  Exception Data = LLIDF and data of OBTAIN-OPTION operand

- Distributions were requested for the recipient and recipients with affinity, and the RECIPIENT-ADDRESS operand specifies a recipient different than the requestor and the specified recipient has a password and the RECIPIENT-PASSWORD operand is not specified.

  Exception = Catastrophic, Syntax, Data-Not-Found, Command-Operand
  Exception Code = X'C20708'
  Exception Data = LLIDF of RECIPIENT-PASSWORD operand

- The RECIPIENT-ADDRESS operand contains an invalid name.

  Exception = Catastrophic, Semantic, Unauthorized-Access, Operand-Value
  Exception Code = X'C30309'
  Exception Data = LLIDF and data of RECIPIENT-ADDRESS operand

- The RECIPIENT-PASSWORD operand contains an invalid authorization key.

  Exception = Catastrophic, Semantic, Password-Invalid, Operand-Value
  Exception Code = X'C30509'
  Exception Data = LLIDF and data of RECIPIENT-PASSWORD operand

- The DOCUMENT-PASSWORD operand is omitted when a personal distribution is being obtained.

Exception = Catastrophic, Semantic, Unauthorized-Access, Command-Operand
Exception Code = X'C30308'
Exception Data = LLIDF of DOCUMENT-PASSWORD operand

- The DOCUMENT-PASSWORD operand contains an invalid authorization key.

  Exception = Catastrophic, Semantic, Password-Invalid, Operand-Value
  Exception Code = X'C30509'
  Exception Data = LLIDF and data of DOCUMENT-PASSWORD operand

- The OBTAIN-OPTION operand specifies a non-existent Distribution-Document-Name.

  Exception = Catastrophic, Semantic, Data-Not-Found, Operand-Value
  Exception Code = X'C30709'
  Exception Data = LLIDF and data of OBTAIN-OPTION operand

- The RECIPIENT-ADDRESS operand is omitted when the Recipient of the distribution is other than the signed-on recipient and does not have affinity with the signed-on recipient.

  Exception = Catastrophic, Semantic, Unauthorized-Access, Command-Operand
  Exception Code = X'C30308'
  Exception Data = LLIDF of RECIPIENT-ADDRESS operand

- The OBTAIN-OPTION operand contains an undefined option value.

  Exception = Catastrophic, Semantic, Data-Not-Supported, Operand-Value
  Exception Code = X'C30209'
  Exception Data = LLIDF and data of OBTAIN-OPTION operand

- Obtaining a specific document that does not match an allowable document type specified in the SIGN-ON command.

  Exception = Severe, Process, Data-Not-Supported, Document-Content-Control
  Exception Code = X'840211'
  Exception Data = none

- Obtaining a specific document that can not be validated or translated to meet GCID usage specified by the SIGN-ON command.

  Exception = Severe, Process, Data-Not-Supported, Document-Content-Data
  Exception Code = X'840212'
  Exception Data = none

- One or more documents requested by specifying the all distributions in the OBTAIN-OPTIONS operand does not match an allowable document type specified in the SIGN-ON command.

  Exception = Warning, Process, Data-Not-Supported, Document-Content-Control
  Exception Code = X'440211'
  Exception Data = none

- One or more documents requested by specifying the all distributions in the OBTAIN-OPTIONS operand can not be validated or translated to meet GCID usage specified by SIGN-ON.

  Exception = Warning, Process, Data-Not-Supported, Document-Content-Data
  Exception Code = X'440212'
  Exception Data = none

- The RECIPIENT-PASSWORD operand length exceeds the processing capacity of the receiver.

  Exception = Catastrophic, Process, Length-Invalid, Command-Operand
  Exception Code = X'C40F08'
  Exception Data = LLIDF and data of RECIPIENT-PASSWORD operand.

- The DOCUMENT-PASSWORD operand length exceeds the processing capacity of the receiver.

  Exception = Catastrophic, Process, Length-Invalid, Command-Operand
  Exception Code = X'C40F08'
  Exception Data = LLIDF and data of DOCUMENT-PASSWORD operand

LIST

Command	Operands
LIST	LIST-ACTION [,RECIPIENT-ADDRESS] [,RECIPIENT-PASSWORD]

The LIST command is used to request delivery of distribution status information. The types of status information that may be requested are:

- Summary status: indicators specify whether or not priority documents are queued for delivery to the recipient, personal documents are queued for delivery to the recipient, and so forth.

- Detailed status: a description of the documents queued for delivery to the recipient, the document distribution characteristics (for example, document type, personal, priority, and so forth), status feedback (for example, confirmation of delivery, and invalid recipient), and so forth.

Status information may be requested for either the requestor, a specific recipient or recipients on whose behalf the requestor has the authority to act. See "Distribution Affinity" on page 9 for a discussion of a requestor acting on behalf of some other recipient. The requestor may request that either a summary status list, detailed unformatted status list, or a detailed formatted status list be returned. All status is reported by recipient.

The summary status list information contains indicators which specify whether or not:

- Priority documents are queued for delivery to the recipient.
- Nonpriority documents are queued for delivery to the recipient.
- Personal documents are queued for delivery to the recipient.
- Feedback information about a previous distribution request is queued for delivery, for example, a confirmation of delivery message.

  Note: See Figure 8 on page 39 for a description of the returned summary status list.

The detailed status list information contains information about:

- Document queued for delivery, for example, the type of document distributed, the document distribution handling characteristics (for example, COD requested, personal, and priority), the originator of the distribution request, and so forth.
- Delivered documents, for example, the date and time the document was delivered to the distribution recipient, whether or not the document was successfully delivered, and, if not delivered, why it was not delivered (cancelled, invalid recipient, and so forth).
- Outstanding confirmation of delivery distribution requests, for example, which distribution recipients received the document, which distribution recipients have not taken delivery of the document at this time, which distribution recipients cancelled the document, and so forth.

Two types of detailed status list formats may be requested: unformatted and formatted. The unformatted status list document consists of self-defining (LLIDF) parameters. See Figure 9 on page 40 and Figure 10 on page 43 for a description of the returned unformatted status document. The formatted status list document contains the requested status information in a final-form text document. The format of the final-form text document is product specific and is not defined by DIA.

Operand Descriptions

LIST-ACTION

The LIST-ACTION operand specifies the type of status information to be returned; either summary status information or detailed status information may be specified. If the detailed status information is

requested, the requestor must specify either unformatted or formatted status information is to be returned. For detailed status information, the requestor must select one of the following types of status to be returned:

- Documents queued for delivery only
- Confirmation of delivery status information only
- Distribution delivery errors only (failure to delivery a document)
- All of the above.

RECIPIENT-ADDRESS

The RECIPIENT-ADDRESS operand, if present, specifies the address token of the recipient; either RECIPIENT-ADDRESS (Format 1) or RECIPIENT-ADDRESS (Format 42) may be specified. The RECIPIENT-ADDRESS operand is required if the distribution status information to be delivered is for:

- The signed-on requestor only
- A recipient other than the signed-on requestor
- Recipients with affinity to the specified recipient and the specified recipient has affinity to the requestor See "Distribution Affinity" on page 9 for a discussion of a requestor acting on behalf of some other recipient.

If the RECIPIENT-ADDRESS operand is not specified, the status information delivered is for the requestor and all recipients that have affinity with the requestor.

RECIPIENT-PASSWORD

The RECIPIENT-PASSWORD (Format 1) operand, if present, specifies a 1- to 8-character access authorization key that is associated with the specified recipient. The RECIPIENT-PASSWORD operand is not required if the specified recipient (RECIPIENT-ADDRESS operand) is either the signed-on requestor or a recipient that has affinity to the signed-on requestor.

The RECIPIENT-PASSWORD operand is required if the information to be retrieved is for:

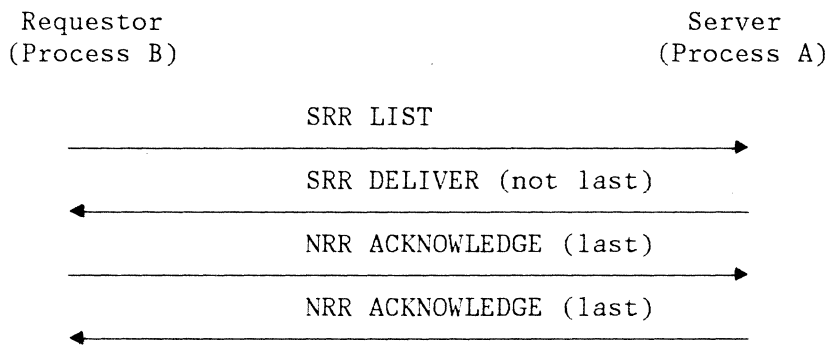
- A specific recipient other than the requestor and the specified recipient does not have affinity with the requestor and the specified recipient has a password
- Recipients with affinity to the specified recipient and the specified recipient has affinity with the requestor. See "Distribution Affinity" on page 9 for a discussion of a requestor acting on behalf of some other recipient.

Request/Reply Protocol

The following scenarios illustrate possible replies to the LIST command.

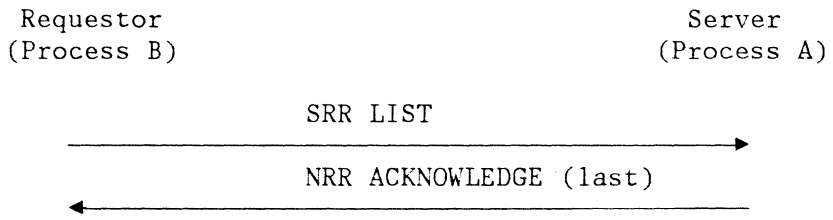
- Scenario 1 - Normal Completion with status information returned.

  The normal reply to an LIST command is a DELIVER command that contains the requested status list information. After delivery of the status list document, the list command is concluded by sending an ACKNOWLEDGE command.



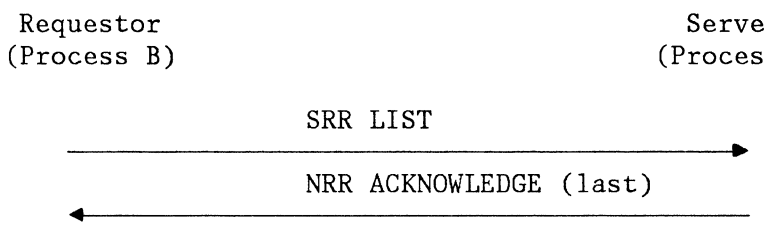
- Scenario 2 - Normal Completion with no status information returned.

  When there is no status information to be returned, the LIST command is concluded with an ACKNOWLEDGE command indicating normal completion.



- Scenario 3 - Exception Conditions.

  Exception conditions detected during the LIST command processing will be replied to with an ACKNOWLEDGE command that contains the exception condition in the EXCEPTION-CODE operand.



Exception Conditions

The general exception conditions that are common to all DIA commands are described in "DIU General Exception Conditions" in the Concepts and Structures manual. The LIST command will be rejected if any of the following conditions exist.

- The RECIPIENT-PASSWORD operand is present and the RECIPIENT-ADDRESS operand is not present.

  Exception = Catastrophic, Syntax, Data-Not-Found, Command-Operand
  Exception Code = X'C20708'
  Exception Data = LLIDF of RECIPIENT-ADDRESS operand

- Status was requested for only the recipient specified in the RECIPIENT-ADDRESS operand and the RECIPIENT-ADDRESS specifies a recipient different than the signed-on recipient and the recipient does not have affinity with the signed-on recipient and the specified recipient has a password and the RECIPIENT-PASSWORD is not specified.

  Exception = Catastrophic, Syntax, Data-Not-Found, Command-Operand
  Exception Code = X'C20708'
  Exception Data = LLIDF of RECIPIENT-PASSWORD operand

- Status was requested for the recipient and recipients with affinity, and the RECIPIENT-ADDRESS operand specifies a recipient different than the signed-on recipient and the specified recipient has a password and the RECIPIENT-PASSWORD operand is not specified.

  Exception = Catastrophic, Syntax, Data-Not-Found, Command-Operand
  Exception Code = X'C20708'
  Exception Data = LLIDF of RECIPIENT-PASSWORD operand

- The RECIPIENT-ADDRESS operand contains an invalid name.

  Exception = Catastrophic, Semantic, Unauthorized-Access, Operand-Value
  Exception Code = X'C30309'
  Exception Data = LLIDF and data of RECIPIENT-ADDRESS operand

- The RECIPIENT-PASSWORD operand contains an invalid authorization key.

  Exception = Catastrophic, Semantic, Password-Invalid, Operand-Value
  Exception Code = X'C30509'
  Exception Data = LLIDF and data of RECIPIENT-PASSWORD operand

- The LIST-ACTION operand contains an undefined type of status information.

  Exception = Catastrophic, Semantic, Data-Not-Supported, Operand-Value
  Exception Code = X'C30209'
  Exception Data = LLIDF and data of LIST-ACTION operand

- Formatted status can not be returned in an allowable document type specified in the SIGN-ON command for the DIA session.

  Exception = Catastrophic, Process, Data-Not-Supported,
  Document-Content-Control
  Exception Code = X'C40211'

- Formatted status can not be returned in any allowable GCID specified in the SIGN-ON command for the DIA session.

  Exception = Catastrophic, Process, Data-Not-Supported, Document-Content-Data
  Exception Code = X'C40212'

- The RECIPIENT-PASSWORD operand length exceeds the processing capacity of the receiver.

  Exception = Catastrophic, Process, Length-Invalid, Command-Operand
  Exception Code = X'C40F08'
  Exception Data = LLIDF and data of RECIPIENT-PASSWORD operand

Unformatted Summary Status

The following defines the format of the summary status list information document unit. The summary status list document unit is sent to the requestor using a replying DELIVER command.

The Summarized Status LLIDF reports all available summary status for the specified recipient.

Field	Length	Value
LLIDF DOCUMENT UNIT	5	X'nnnnC90301'
Document-Unit-ID	15	X'000A'CL13' '
LLIDF DOCUMENT CONTENT INTRODUCER	5	X'nnnnCB0101'
LLIDF Summarized Status	5	X'nnnnC90601'
LLIDF Status Information	5	X'nnnnC33D01'
STATUS	2	binary
Reserved		B'00000000 00000000'
Priority		B'00000000 0000xxx1'
Non-Classified		B'00000000 0000xx1x'
Personal		B'00000000 0000x1xx'
Source-Status		B'00000000 00001xxx'
Reserved		B'11111111 1111xxxx'
LLIDF	5	X'nnnnC30601'/X'nnnnC30642'
Recipient-Address	1-8	Characters

Figure 8. Unformatted Summary Status Document Unit

In the following field descriptions, the term distribution is defined to be a document, a document with an appended message, or a message only.

Field Descriptions

The Priority field indicates that there are priority distributions queued for delivery for the specified recipient.

The Non-Classified field indicates that there are distributions queued for delivery for the specified recipient that are not priority or personal.

The Personal field indicates that there are personal distributions queued for delivery for the specified recipient.

The Source-Status field indicates that there is status information available for previously distributed distribution requests.

The Recipient-Address field specifies the address of the recipient for which status is being reported.

Unformatted Recipient Status

The Unformatted Recipient Status document unit is used to return detailed status information to a recipient node. The information returned includes status for document or messages queued for delivery to the requestor.

Field	Length	Value
LLIDF DOCUMENT UNIT	5	X'nnnnC90301'
Document-Unit-ID	15	X'000A'CL13
LLIDF DOCUMENT CONTENT INTRODUCER	5	X'nnnnCB0101'
LLIDF Unformatted Recipient Status	5	X'nnnnC90501'
LLIDF Attribute-List	5	X'nnnnC30501'
COD	1	binary
No		X'00'
Yes		X'01'
Personal	1	binary
No		X'00'
Yes		X'01'
Priority	1	binary
No		X'00'
Yes - Highest Level		X'01'
'Retired'	1	binary
Reserved		X'01'
LLIDF Distribution ID	5	X'nnnnC34001'
Distribution-Document-Name	20	Characters
Date-Time Requested	6	binary
Distribution-Name	1-44	Characters
LLIDF	5	X'nnnnC70601'
Document-Type	2	binary
LLIDF	5	X'nnnnC70C01'
System Code	13	Characters
LLIDF	5	X'nnnnC31101'
Originating-Node Address	8	Characters
LLIDF	5	X'nnnnC32301'/X'nnnnC32342'
Source-Address	v	Characters/Mixed
LLIDF	5	X'nnnnC30601'/X'nnnnC30642'
Recipient-Address	v	Characters/Mixed

A

B

Figure 9. Unformatted Recipient Status Document Unit

The status in the section from A through B (Figure 9) relates to a distribution queued for delivery to one or more recipients. The section from A through B is delimited by an LLIDF and contains status for only one distribution. Section A through B can be repeated in order to relate status for more than one distribution. The information in this section is derived from operands that arrived at the OSN via the REQUEST-DISTRIBUTION command. The Distribution ID field with at least the Distribution-Document-Name, the Attribute-List field, and the Recipient-Address field must be sent when presenting status in section A through B. In general, the fields can appear in any order. The Recipient-Address field may be repeated several times following the information preceding it, as long as the same information is applicable.

FIELD DESCRIPTIONS

A——————————B

The COD field values that are allowed and their meaning are defined as follows:

X'00' - The distribution identified in the Distribution-ID field is not COD for the specified recipients.

X'01' - The distribution identified in the Distribution-ID field is COD for the specified recipients.

X'02' - X'FF' - Reserved.

The Personal field values that are allowed and their meaning are defined as follows:

X'00' - The distribution identified in the Distribution-ID field is not Personal for the specified recipients.

X'01' - The distribution identified in the Distribution-ID field is Personal for the specified recipients.

X'02' - X'FF' - Reserved

The Priority field values that are allowed and their meaning are defined as follows:

X'00' - Priority handling was not requested for the distribution identified in the Distribution-ID field, for the specified recipients.

X'01' - Priority handling was requested for the distribution identified in the Distribution-ID field, for the specified recipients.

X'02' - X'FF' - Reserved for future levels of Priority.

The 'Retired' field is a reserved field with a value of X'01'.

The Distribution-Document-Name is the name of the distribution that was assigned to the distribution by the originating OSN.

The Date-Time requested fields contain the date and time that the distribution was sent from the source node to the originating node. The Date-Time field syntax is defined as 6 bytes of discontinuous binary in the following format:

```
DATE-TIME ::= YYMDHM
where:  YY = 2-byte binary value of 4-digit decimal year
             (for example, 1980(10):  X'07BC')
         M = 1-byte binary value of 2-digit decimal month
             (for example, 1-12(10):  X'01' - X'0C')
         D = 1-byte binary value of 2-digit decimal day of
             month (for example, 1-31(10): X'01' - X'1F')
         H = 1-byte binary value of 2-digit decimal hours
             (for example, 0-23(10): X'00' - X'17')
         M = 1-byte binary value of 2-digit decimal minutes
             (for example, 0-59(10): X'00' - X'3B')
```

The Distribution-Name field contains the distribution name as known by the source.

The Document-Type field specifies the data stream classification that the document unit complies with. The document type encodings are listed in "Appendix D. DIA Document Types" on page 99. Refer to the Concepts and Structures manual for more detailed information.

The System Code field specifies the product that is designated as the creator of the document unit as described in the Concepts and Structures manual.

The Originating-Node-Address field identifies the OSN that processed the REQUEST-DISTRIBUTION command.

The Source-Address field specifies the source that identifies the user or process that originated the REQUEST-DISTRIBUTION command.

The Recipient-Address field specifies a recipient that identifies the user or process at the Destination-Node to which the distribution was directed.

Unformatted Source Status

The Unformatted Source Status document unit is used to return detailed status information to a source node. The information returned includes status from previously distributed documents or messages.

Field	Length	Value
LLIDF DOCUMENT UNIT	5	X'nnnnC90301'
Document-Unit-ID	15	X'000A'CL13
LLIDF DOCUMENT CONTENT INTRODUCER	5	X'nnnnCB0101'
LLIDF Unformatted Source Status	5	X'nnnnC90701'
LLIDF	5	X'nnnnC32301'/X'nnnnC32342' C
Source-Address	v	Characters/Mixed |
LLIDF Distribution Correlation	5	X'nnnnC31501' |
Date-Time Delivered	6	binary |
Date-Time Sent	6	binary |
Distribution-Document-Name	20	Characters |
Distribution-Name	1-44	Characters |
LLIDF Document Status	5	X'nnnnC31601' |
Notification-code	2	binary |
Reserved		X'0000' |
Confirmation-of-Delivery		|
Delivered		X'0101' |
Routing Error		X'0201' |
Invalid Recipient		X'0301' |
Missing Document		X'0401' |
Document Cancelled-All Recipients		X'0501' |
Maximum List Exceeded		X'0601' |
Distribution-List-Status		|
Some Delivered,Some Cancelled		X'0701' |
Some Delivered,Some Invalid		X'0702' |
Some Cancelled,Some Invalid		X'0703' |
Some Cancelled,Delivered,Invalid		X'0704' |
Exception-Condition		X'FFFF' |
Detecting-Node-ID	8	Characters |
LLIDF Destination-Node-Address	5	X'nnnnC32F01' |
DNID	8	Characters |
LLIDF Exception Code	5	X'nnnnC32201' |
Exception Condition	v	Characters |
LLIDF	5	X'nnnnC30601'/X'nnnnC30642' |
Recipient-Address	v	Characters/Mixed D

Figure 10. Unformatted Source Status Document Unit

The status in the section from C through D (Figure 10) relates to a distribution that was previously sent. The section from C through D is delimited by an LLIDF and contains status for only one distribution. Section C through D can be repeated in order to relate status for more than one distribution. The Document-Correlation field with at least the Distribution-Document-Name field, the Recipient-Address field, and the Document-Status field must be sent when presenting status in section C through D.

Field Descriptions

C——————————D

The Source-Address field specifies the source that identifies the user or process that originated the REQUEST-DISTRIBUTION command.

The Date-Time Delivered field contains the date and time that the distribution was delivered to the recipient or a routing or other error was detected. The Date-Time Delivered syntax is the same as described for Date-Time Requested.

The Date-Time Sent field contains the date and time that the distribution was sent from the source node to the originating node. The Date-Time Sent syntax is the same as described for Date-Time Requested.

The Distribution-Document-Name is the name of the distribution that was assigned to the distribution by the originating OSN. If a missing distribution is being reported, the field will be left blank.

The Distribution-Name field contains the distribution name as known by the source.

The Notification-Code-field specifies whether or not the document was delivered successfully.

Confirmation of Delivery

X'0101' - Delivered is specified if the document has been delivered to the recipient or to all recipients contained in a list specified by the Recipient-Address field.

X'0201' - Routing-Error is specified when the document is unable to reach its destination on the route it is on.

X'0301' - Invalid-Recipient is specified when the recipient or all of the recipients contained in a list specified by the Recipient-Address cannot be located at the specified destination.

X'0401' - Missing-Document is specified when a document has failed to arrive at the destination node.

X'0501' - All - is specified when the document has been cancelled by all of the recipients at a destination node.

X'0601' - Maximum-List-Exceeded - is specified when the specified recipient address is the name of a list(s) that develops into a combined recipient list that exceeds the processing capability of the destination node.

Distribution List Status

X'0701' - Some Delivered, Some Cancelled - is specified when the message or document has been delivered to some of the recipients specified by the recipient address and cancelled by all of the others.

X'0702' - Some Delivered, Some Invalid - is specified when the message or document has been delivered to some of the recipients specified by the recipient address and all of the others are invalid.

X'0703' - Some Cancelled, Some Invalid - is specified when the message or document has been cancelled by some of the recipients specified by the recipient address and all of the others are invalid.

X'0704' - Some Cancelled, Some Delivered, Some Invalid - is specified when the message or document has been delivered to some, cancelled by some and all of the others are invalid.

X'FFFF' - Exception-Code means that Exception Conditions are being reported, and the Exception-CODE operand must be present.

The Detecting-Node-ID field specifies the ID of the OSN that detected the error or is sending the COD notification.

The Destination-Node-Address field identifies the OSN that was the destination of the distribution. This field contains the Destination-Node-ID of 1 to 8 bytes.

The Exception-Code field specifies the exception conditions, if any, that were encountered at the indicated destination for the identified recipients.

The Recipient-Address field specifies a recipient that identifies the user or process at the destination node to which the distribution was directed.

In general, the fields can appear in any order. The Recipient-Address field may be repeated multiple times as long as the preceding information is applicable.

The status in section A through B may be present without the status in section C through D and also the status in section C through D may be present without the Status section A through B. Also, both sections A through B, and C through D may appear together in the same document unit.

Sections A through B and C through D contain fields that are not required. If the command from which the information is normally derived arrived with an operand, either not present or null, then the corresponding field including the introducer (LLIDF) in the Unformatted Status document unit must be omitted.

CANCEL-DISTRIBUTION

Command	Operands
CANCEL-DISTRIBUTION	CANCEL-ACTION [,DOCUMENT-PASSWORD] [,RECIPIENT-ADDRESS|SOURCE-ADDRESS] [,RECIPIENT-PASSWORD|SOURCE-PASSWORD]

The CANCEL-DISTRIBUTION command is used to cancel delivery of distribution information queued for delivery to either the requestor, a specific recipient, or recipients on whose behalf the requestor has the authority to act. See "Distribution Affinity" on page 9 for a discussion of a requestor acting on behalf of some other recipient.

The types of distribution information that may be cancelled include:

- Personal and nonpersonal documents
- Personal and nonpersonal documents with appended messages
- Personal and nonpersonal messages only
- Status information about previous distribution requests.

The CANCEL-DISTRIBUTION command is used by a recipient at a recipient node to cancel a distribution queued for delivery. The term distribution is used here to mean a document, a document with appended message, or message only. The signed-on recipient may cancel a distribution in any one of the following ways:

- By cancelling a distribution and not supplying a RECIPIENT-ADDRESS operand, only the distribution for the signed-on recipient is cancelled. If a personal distribution is being cancelled, the DOCUMENT-PASSWORD operand must be supplied.
- By cancelling a distribution and supplying the RECIPIENT-ADDRESS operand and not supplying the RECIPIENT-PASSWORD operand, only the distribution for the specified recipient is cancelled. If the specified recipient does not have affinity with the signed-on recipient, the command is rejected. The signed-on recipient's own recipient address may be the one that is supplied. If the RECIPIENT-PASSWORD operand is supplied, the specified password is verified. If a personal distribution is being cancelled, the DOCUMENT-PASSWORD operand must be supplied.

- By cancelling a distribution and supplying the RECIPIENT-ADDRESS and RECIPIENT-PASSWORD operands, the signed-on recipient may cancel a distribution for a recipient that is not defined as having affinity with the signed-on recipient. If a personal distribution is being cancelled, the DOCUMENT-PASSWORD operand must be supplied.

The CANCEL-DISTRIBUTION command is also used by a source at a source node to cancel status information queued for delivery. The signed-on source may cancel status information in any one of the following ways:

- By cancelling status information and not supplying a SOURCE-ADDRESS operand, only the status information for the signed-on source is cancelled.

- By cancelling status information and supplying the SOURCE-ADDRESS operand and not supplying the SOURCE-PASSWORD operand, only the status information for the specified source is cancelled. If the specified source does not have affinity with the signed-on source, the command is rejected. The signed-on source's own source address may be the one that is supplied. If the SOURCE-PASSWORD operand is supplied, the specified password is verified.

- By cancelling status information and supplying the SOURCE-ADDRESS and SOURCE-PASSWORD operands, the signed-on source may cancel status information for a source that is not defined as having affinity with the signed-on source.

Operand Descriptions

CANCEL-ACTION

The CANCEL-ACTION (Format 1) operand identifies the distribution and defines the action to be taken. The Action-Code field and the Distribution-Document-Name field must appear in the CANCEL-ACTION operand.

DOCUMENT-PASSWORD

The DOCUMENT-PASSWORD (FORMAT 1) operand, if present, specifies a 1- to 8-byte personal document authorization key associated with the recipients. This operand is required if the requestor wants to cancel personal documents. If the DOCUMENT-PASSWORD operand is omitted, no personal documents are cancelled. This operand is ignored if the COD option was specified in the CANCEL-ACTION operand.

The DOCUMENT-PASSWORD operand must be the signed-on recipient's document password, or when the RECIPIENT-ADDRESS operand is specified, the DOCUMENT-PASSWORD operand must be the specified recipient's document password.

RECIPIENT-ADDRESS

The RECIPIENT-ADDRESS operand, if present, specifies the address token of the recipient; either RECIPIENT-ADDRESS (Format 1) or RECIPIENT-ADDRESS (Format 42) may be specified.

The RECIPIENT-ADDRESS operand is only specified when the Deliver Action Code is specified in the CANCEL-ACTION operand.

RECIPIENT-PASSWORD

The RECIPIENT-PASSWORD (Format 1) operand, if present, provides a 1- to 8-character access authorization key that is associated with the intended recipient.

When the RECIPIENT-PASSWORD operand is specified the RECIPIENT-ADDRESS operand must be specified.

SOURCE-ADDRESS

The SOURCE-ADDRESS operand, if present, specifies the element address token of the requestor which initiated this request; either SOURCE-ADDRESS (Format 1 or 42) is valid.

The SOURCE-ADDRESS operand is conditionally required when the source wishes to cancel status information for a distribution previously sent COD and the source is different than the signed-on source.

The SOURCE-ADDRESS operand is only specified when the COD Action-Code is specified in the CANCEL-ACTION operand.

SOURCE-PASSWORD

The SOURCE-PASSWORD (Format 1) operand specifies the 1- to 8-character access authorization key of the requestor which initiated this request. The SOURCE-PASSWORD (Format 1) operand is conditionally required if the SOURCE-ADDRESS (Format 1) is specified. The SOURCE-PASSWORD (Format 1) operand is required if:

- The SOURCE-ADDRESS (Format 1) operand specifies an element address token different than the command sender.
- The specified requestor does not have affinity with the command sender.
- The specified requestor has a password.

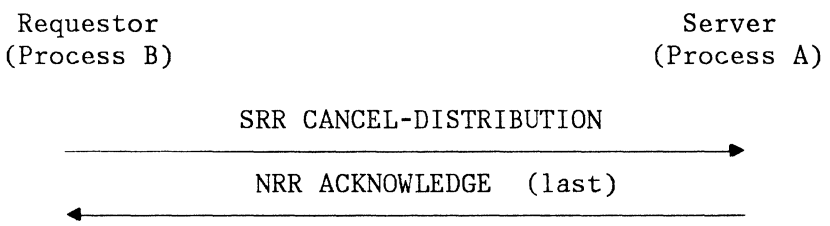
Otherwise, the SOURCE-PASSWORD should be omitted.

Request/Reply Protocol

The following scenarios illustrate possible replies to the CANCEL-DISTRIBUTION command:

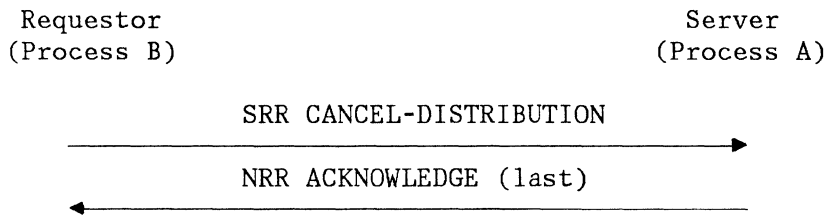
- Scenario 1 - Normal Completion

The normal reply to an OBTAIN command is an ACKNOWLEDGE command that is sent to the command requestor when the cancellation has been completed.



- Scenario 2 - Exception Conditions.

  Exception conditions detected during the CANCEL-DISTRIBUTION command processing will be replied to with an ACKNOWLEDGE command that contains the exception condition in the EXCEPTION-CODE operand.



Exception Conditions

The general exception conditions that are common to all DIA commands are described in "DIU General Exception Conditions" in the Concepts and Structures manual.

The following exception conditions are specific to the CANCEL-DISTRIBUTION command and are detected and reported in addition to the general exception conditions.

- The SOURCE-PASSWORD operand is present and the SOURCE-ADDRESS operand is not present.

  Exception = Catastrophic, Syntax, Data-Not-Found, Command-Operand
  Exception Code = X'C20708'
  Exception Data = LLIDF of SOURCE-ADDRESS operand

- The SOURCE-ADDRESS specifies a source different than the signed-on source and the specified source does not have affinity with the signed-on source and the specified source has a password and the SOURCE-PASSWORD operand is not specified.

  Exception = Catastrophic, Syntax, Data-Not-Found, Command-Operand
  Exception Code = X'C20708'
  Exception Data = LLIDF of SOURCE-PASSWORD operand

- The RECIPIENT-PASSWORD operand is present and the RECIPIENT-ADDRESS operand is not present.

  Exception = Catastrophic, Syntax, Data-Not-Found, Command-Operand
  Exception Code = X'C20708'
  Exception Data = LLIDF of RECIPIENT-ADDRESS operand

- The RECIPIENT-ADDRESS operand specifies a recipient different than the signed-on recipient and the specified recipient does not have affinity with the signed-on recipient and the specified recipient has a password and the RECIPIENT-PASSWORD operand is not specified.

  Exception = Catastrophic, Syntax, Data-Not-Found, Command-Operand
  Exception Code = X'C20708'
  Exception Data = LLIDF of RECIPIENT-PASSWORD operand

- The Distribution-Document-Name is omitted in the CANCEL-ACTION operand.

  Exception = Catastrophic, Syntax, Data-Not-Found, Operand-Value
  Exception Code = X'C20709'
  Exception Data = LLIDF and data of CANCEL-ACTION operand

- If the CANCEL-ACTION operand specifies the Deliver option and the SOURCE-ADDRESS operand is specified.

  Exception = Catastrophic, Syntax, Data-Not-Supported, Command-Operand
  Exception Code = X'C20208'
  Exception Data = LLIDF and data of SOURCE-ADDRESS operand

- If the CANCEL-ACTION operand specifies the COD option and the RECIPIENT-ADDRESS operand is specified.

  Exception = Catastrophic, Syntax, Data-Not-Supported, Command-Operand
  Exception Code = X'C20208'
  Exception Data = LLIDF and data of RECIPIENT-ADDRESS operand

- If the CANCEL-ACTION operand contains an undefined action value.

  Exception = Catastrophic, Semantic, Data-Not-Supported, Operand-Value
  Exception Code = X'C30209'
  Exception Data = LLIDF and data of CANCEL-ACTION operand

- If the CANCEL-ACTION operand specifies a non-existent Distribution-Document-Name, or the distribution has already been cancelled.

  Exception = Catastrophic, Semantic, Data-Not-Found, Operand-Value
  Exception Code = X'C30709'
  Exception Data = LLIDF and data of CANCEL-ACTION operand

- If the RECIPIENT-ADDRESS operand contains an invalid name.

  Exception = Catastrophic, Semantic, Unauthorized-Access, Operand-Value
  Exception Code = X'C30309'
  Exception Data = LLIDF and data of RECIPIENT-ADDRESS operand

- If the RECIPIENT-ADDRESS operand is omitted when the distribution recipient is different than the signed-on recipient.

  Exception = Catastrophic, Semantic, Unauthorized-Access, Command-Operand
  Exception Code = X'C30308'
  Exception Data = LLIDF of RECIPIENT-ADDRESS operand

- If the RECIPIENT-PASSWORD operand contains an invalid authorization key.

  Exception = Catastrophic, Semantic, Password-Invalid, Operand-Value
  Exception Code = X'C30509'
  Exception Data = LLIDF and data of RECIPIENT-PASSWORD operand

- If the DOCUMENT-PASSWORD operand is omitted when cancelling a personal document.

  Exception = Catastrophic, Semantic, Unauthorized-Access, Command-Operand
  Exception Code = X'C30308'
  Exception Data = LLIDF of DOCUMENT-PASSWORD operand

- If the DOCUMENT-PASSWORD operand contains an invalid authorization key.

  Exception = Catastrophic, Semantic, Password-Invalid, Operand-Value
  Exception Code = X'C30509'
  Exception Data = LLIDF and data of DOCUMENT-PASSWORD operand

- If the SOURCE-ADDRESS operand contains an invalid name.

  Exception = Catastrophic, Semantic, Unauthorized-Access, Operand-Value
  Exception Code = X'C30309'
  Exception Data = LLIDF and data of SOURCE-ADDRESS operand

- If the SOURCE-ADDRESS operand is omitted when the distribution source is different than the signed-on source.

  Exception = Catastrophic, Semantic, Unauthorized-Access, Command-Operand
  Exception Code = X'C30308'
  Exception Data = LLIDF of SOURCE-ADDRESS operand

- If the SOURCE-PASSWORD operand contains an invalid authorization key.

  Exception = Catastrophic, Semantic, Password-Invalid, Operand-Value
  Exception Code = X'C30509'
  Exception Data = LLIDF and data of SOURCE-PASSWORD operand

- If the RECIPIENT-PASSWORD operand length exceeds the processing capacity of the receiver.

  Exception = Catastrophic, Process, Length-Invalid, Command-Operand
  Exception Code = X'C40F08'
  Exception Data = LLIDF and data of RECIPIENT-PASSWORD operand

- If the DOCUMENT-PASSWORD operand length exceeds the processing capacity of the receiver.

Exception = Catastrophic, Process, Length-Invalid, Command-Operand
Exception Code = X'C40F08'
Exception Data = LLIDF and data of DOCUMENT-PASSWORD operand

- If the SOURCE-PASSWORD operand length exceeds the processing capacity of the receiver.

  Exception = Catastrophic, Process, Length-Invalid, Command-Operand
  Exception Code = X'C40F08'
  Exception Data = LLIDF and data of SOURCE-PASSWORD operand

DELIVER

Command	Operands
DELIVER	[IDENTIFIED-DATA] [,SOURCE-ADDRESS] [,ATTRIBUTE-LIST] [,RECIPIENT-ADDRESS] [,ORIGINATING-NODE-ADDRESS] [,MESSAGE] [,DISTRIBUTION-ID] [,CORRELATION]

The DELIVER command is used to transmit distribution information from a source node or office system node to a recipient node. For example, returning a document from an office system node to a recipient node in reply to an OBTAIN command.

The types of information that may be delivered are a document, a message, or a document with an appended message.

Operand Descriptions

IDENTIFIED-DATA

The IDENTIFIED-DATA (Format 1) operand specifies the that document to be delivered is located in the DIU Document Unit. This operand is required when the command is being used to deliver a document or a document with an appended message. The operand is omitted when only a message is to be delivered. In this case, the MESSAGE operand is required.

SOURCE-ADDRESS

The SOURCE-ADDRESS operand, if present, specifies the address token of the requestor which initiated this request; either SOURCE-ADDRESS (Format 1 or 42) is valid. If omitted, the address token of the command sender is assumed.

ATTRIBUTE-LIST

The ATTRIBUTE-LIST (Format 1) is used by the distribution originator (a source node) to specify the distribution processing characteristics. Specifically, the distribution originator can specify that (1) a confirmation of delivery message is to be returned when the Recipient Node accepts delivery of the distribution information, (2) the information is personal, requiring the recipient to specify a personal document password to receive the information, and (3) the information is to be distributed as soon as possible, for example, priority distribution.

RECIPIENT-ADDRESS

The RECIPIENT-ADDRESS operand is used to specify the address token of the recipient; either RECIPIENT-ADDRESS (Format 1) or RECIPIENT-ADDRESS (Format 42) may be specified.

The operand is required only when the DELIVER command is directed to a recipient other than the signed-on command receiver.

ORIGINATING-NODE-ADDRESS

The ORIGINATING-NODE-ADDRESS (Format 1) operand, if present, specifies the 1- to 8-character group address token of the requestor which initiated this request. If omitted, the group address token of the command sender is assumed.

The ORIGINATING-NODE-ADDRESS operand is required when the recipient of the DELIVER command is expected to route something back to the originator of the distribution request.

MESSAGE

The MESSAGE operand, if present, is used to distribute a 1- to 256-character message to all recipients specified in the distribution request; either MESSAGE (Format 1 or 2) operand is valid. The MESSAGE operand is required if a message only is to be delivered. If omitted, then the IDENTIFIED-DATA operand must be present. Both the IDENTIFIED-DATA and MESSAGE operands may be present.

DISTRIBUTION-ID

The DISTRIBUTION-ID (Format 1) operand, if present, uniquely identifies the distribution request; the unique identifier consists of the distribution document name and the date and time the distribution request was made.

CORRELATION

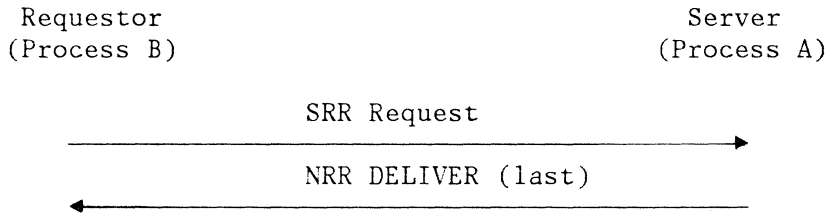
The CORRELATION (Format 1) operand is used to correlate a replying DELIVER command to a previously sent request, for example, an OBTAIN command. The CORRELATION (Format 1) operand uniquely identifies the request to which this command is replying and gives an indication of whether or not additional replying commands are to be expected, that is, a last or not-last indicator is returned. When the last replying command has been received, the request is considered complete.

Request/Reply Protocol

The following scenarios illustrate possible replies using the DELIVER command.

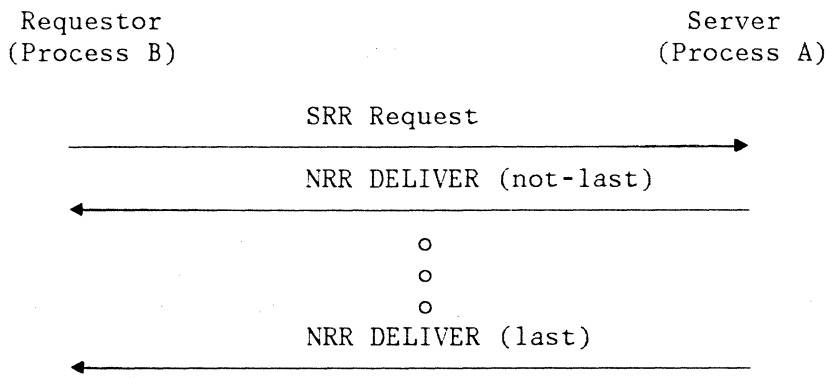
- Scenario 1 - Single Reply

  The following is a request and single reply scenario.



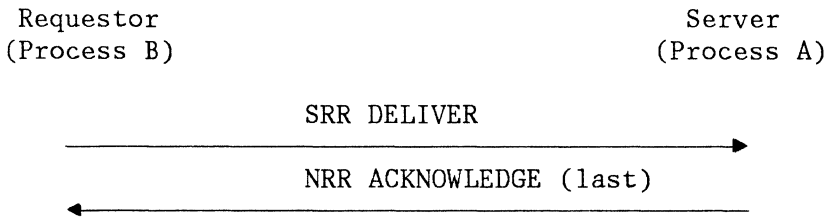
- Scenario 2 - Multiple Reply Commands

  The following is a request and multiple replying command scenario.



- Scenario 3 - Exception Conditions.

  Exception conditions detected during the DELIVER command processing will be replied to with an ACKNOWLEDGE command that contains the exception condition in the EXCEPTION-CODE operand.



Exception Conditions

The general exception conditions that are common to all DIA commands are described in "DIU General Exception Conditions" in the Concepts and Structures manual. The DELIVER command will be rejected by the receiver if any of the following exception conditions exist.

- The receiver is not in a state in which it can receive and output data.

  Exception = Catastrophic, Session, Intervention-Required, Unknown
  Exception Code = X'C11217'

- If the IDENTIFIED-DATA and MESSAGE operands are both omitted.

  Exception = Catastrophic, Syntax, Data-Not-Found, Command-Operand
  Exception Code = X'C20708'

- The CORRELATION operand is present and does not refer to a command previously sent by the receiver.

  Exception = Catastrophic, Semantic, Data-Not-Found, Operand-Value
  Exception Code = X'C30709'
  Exception Data = LLIDF and data of CORRELATION operand

- The IDENTIFIED-DATA operand references non-existent data.

  Exception = Catastrophic, Semantic, Data-Not-Found, Operand-Value
  Exception Code = X'C30709'
  Exception Data = LLIDF and data of IDENTIFIED-DATA operand

- The IDENTIFIED-DATA and MESSAGE operands are both omitted and there is no Message in the ATTRIBUTE-LIST operand.

  Exception = Catastrophic, Semantic, Data-Not-Found, Operand-Value
  Exception Code = X'C30709'
  Exception Data = LLIDF and data of ATTRIBUTE-LIST operand

- The Document Unit Type is not supported.

  Exception = Catastrophic, Semantic, Data-Not-Supported, Document-Unit
  Exception Code = X'C3020C'
  Exception Data = LLIDF of Document Unit Introducer

- The Document Content Introducer type is not supported.

  ```
  Exception = Catastrophic, Semantic, Data-Not-Supported,
              Document-Content-Introducer
  Exception Code = X'C30210'
  Exception Data = LLIDF of Document Content Introducer
  ```

- The Document Type in the Document Unit ID is not supported.

  ```
  Exception = Catastrophic, Semantic, Data-Not-Supported, Document-Unit ID
  Exception Code = X'C3020D'
  Exception Data = LLIDF and data of Document Unit ID
  ```

- The Document Type parameter in the Base Sub-profile is not supported.

  ```
  Exception = Catastrophic, Semantic, Data-Not-Supported,
              Document-Profile-Parameter
  Exception Code = X'C3020F'
  Exception Data = LLIDF and data of Document Type parameter
  ```

- The document profile is not supported.

  ```
  Exception = Catastrophic, Semantic, Data-Not-Supported, Document-Profile
  Exception Code = X'C3020E'
  Exception Data = LLIDF of Document Profile
  ```

- The MESSAGE operand format and the function sets supported are not compatible.

  ```
  Exception = Catastrophic, Semantic, Data-Not-Supported, Command-Operand
  Exception Code = X'C30208'
  Exception Data = LLIDF of the MESSAGE operand
  ```

- The receiving processes resources are unavailable.

  ```
  Exception = Catastrophic, Process, Resource-Not-Available, Document-Unit
  Exception Code = X'C4040C'
  ```

- The receiving process cancels the delivery of the data.

  ```
  Exception = Catastrophic, Process, Cancelled, Command
  Exception Code = X'C41407'
  ```

PROCESS-BIT-STRING

Command	Operands
PROCESS-BIT-STRING	IDENTIFIED-DATA, SCAN-DATA, BIT-STRING-REPRESENTATION

The PROCESS-BIT-STRING command is used by a facsimile device source node to invoke and pass information to a device dependent program in the OSN. The device dependent program interprets and processes the information as a single DIA function request, such as, distribute a document to one or more recipients.

The DIA function request is contained in facsimile control sheets. One or more facsimile control sheets are used to describe the DIA function to be performed.

The facsimile control sheet is presented in two forms—Scan-Data and Bit-String-Representation (BSR). The Bit-String-Representation form of the control sheet is required and contains the DIA function request information in binary coded format. The Scan-Data form of the control sheet is optional and contains the facsimile page image of the control sheet. The format of the control sheet is product dependant.

Control sheet information is transported with the PBS command in DIU data units—a Scan-Data data unit and a BSR data unit. If both the Scan-Data and the BSR forms of a control sheet are present, they are included in the DIU as two paired data units. If there are multiple control sheets associated with the request, multiple paired data units are present.

Output from the invoked DIA function request is returned to the requestor using the DELIVER and/or ACKNOWLEDGE commands.

Operand Descriptions

IDENTIFIED-DATA

The IDENTIFIED-DATA (Format 1) operand specifies the location of the document to be processed by this request. When a document is included in the DIU, the IDENTIFIED-DATA operand value will be a X'01'. When a document is not included in the DIU, the IDENTIFIED-DATA operand value must have a value of X'00' to indicate that there is no document unit in this DIU.

SCAN-DATA

The SCAN-DATA (FORMAT 1) operand references a data unit within the same DIU. The Scan-Data data unit does not have to be present. Because the SCAN-DATA operand is required, the reference byte of the operand must be zero (X'00') whenever the Scan-Data data unit will not be present. When the Scan-Data data unit is present, this operand will always reference the first data unit of the contiguous group of data units representing the control sheets.

BIT-STRING-REPRESENTATION

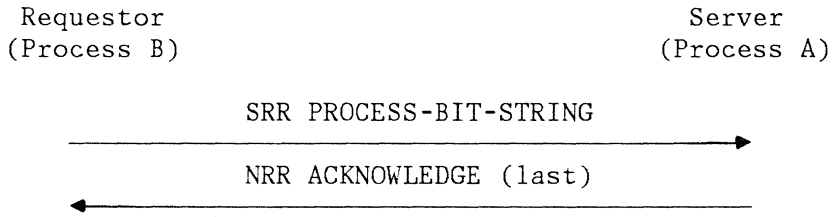
The Bit-String-Representation (FORMAT 1) operand references a data unit within the DIU. The BSR data unit must be present. The BSR operand always references the first BSR data unit of the contiguous group of data units that represent the control sheets. The BSR data unit always follows the Scan-Data data unit if it is present.

Request/Reply Protocol

The following scenarios illustrate possible replies to the PROCESS-BIT-STRING command:

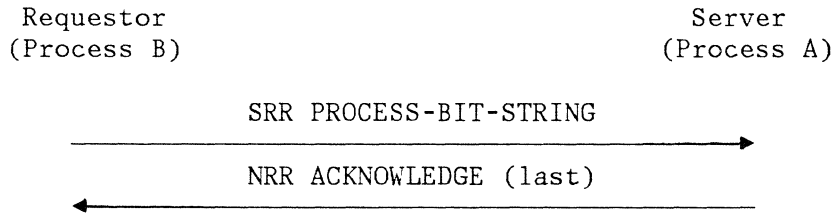
- Scenario 1 - Normal Conditions

  The reply to PBS is dependent on the DIA function performed. The reply is returned to the requestor using the DELIVER and/or ACKNOWLEDGE commands.



- Scenario 2 - Exception Condition.

  Exception conditions detected during the processing of a PBS command are reported with an ACKNOWLEDGE command with the specific exception condition specified in the EXCEPTION-CODE operand.



Exception Conditions

The general exception conditions that are common to all DIA commands are described in "DIU General Exception Conditions" in the Concepts and Structures manual.

The following exception conditions are specific to the PROCESS-BIT-STRING command and are detected and reported in addition to the general exception conditions.

- If at least one data unit does not follow the command

  Exception = Catastrophic, Syntax, Data-Not-Found, Data-Unit
  Exception Code = X'C2070A'
  Exception data = LLIDF of Scan-Data data unit

- If the BSR-data contains other than a DIA command.

  Exception = Catastrophic, Semantic, Data-Not-Supported, Data-Unit
  Exception Code = X'C3020A'
  Exception data = LLIDF of BSR data unit

Support Considerations

The name of the device dependent program invoked by the PBS command process is not defined in the DIA architecture. The device dependent program acts as a surrogate end user source node and uses DIA commands to modify DIA entities, such as a DIA distribution library. Replies from the DIA command processes are returned to the device dependent program which in turn sends the DIA replying commands to the requestor of the PBS command.

STATUS-LIST

Command	Operands
STATUS-LIST	STATUS-INFORMATION

The STATUS-LIST Command is used by an office system node to notify

- A recipient (node) that distribution information is available for delivery.
- A source (node) that status information about the progress of one or more outstanding distribution requests is available for delivery.

The recipient may use the OBTAIN or LIST command to obtain the distribution or status information. A source (node) may use the LIST command to retrieve outstanding status information.

Operand Descriptions

STATUS-INFORMATION

The STATUS-INFORMATION (Format 1) operand specifies the type of distribution information available to the signed-on source or recipient.

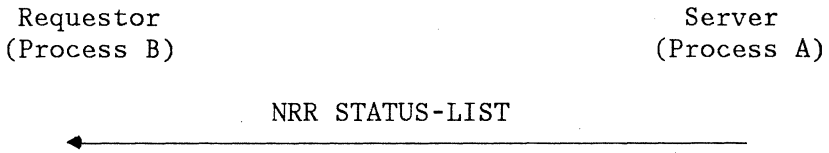
Request/Reply Protocol

The following scenarios illustrate possible replies to a STATUS-LIST command:

- Scenario 1 - Normal Completion

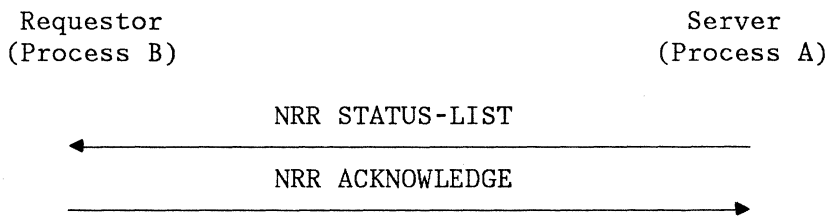
  The STATUS-LIST command is sent using the NRR command class, therefore, there is no replying command expected.

  The STATUS-LIST command may only be sent if the source or recipient node is in the quiet state, that is, a period of inactivity within the DIA session.



- Scenario 2 - Exception Condition.

  Exception conditions detected during the STATUS-LIST command processing will be replied to with an ACKNOWLEDGE command that contains the exception condition in the EXCEPTION-CODE operand.



Exception Conditions

The general exception conditions that are common to all DIA commands are described in "DIU General Exception Conditions" in the Concepts and Structures manual. The following exception condition is specific to the STATUS-LIST Command and is detected and reported in addition to the general exception conditions.

- The STATUS-INFORMATION operand contains an undefined type of status information.

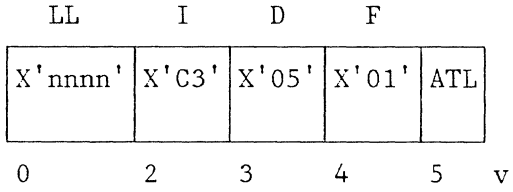
  Exception = Catastrophic, Semantic, Data-Not-Supported, Operand-Value
  Exception Code = X'C30209'
  Exception Data = LLIDF and data of STATUS-INFORMATION operand

APPENDIX A. OPERAND DESCRIPTIONS

This section contains a detailed discussion of each operand relevant to the DIA Document Distribution Services. Each discussion includes an illustration of the operand structure.

ATTRIBUTE-LIST (FORMAT 1)

The ATTRIBUTE-LIST (Format 1) operand specifies the delivery characteristics that will be in effect while the information is being distributed.



The ATL operand value has the following format:

FIELD	LENGTH	VALUE
COD	1	binary
No		X'00'
Yes		X'01'
Reserved		X'02' - X'FF'
Personal	1	binary
No		X'00'
Yes		X'01
Reserved		X'02' - X'FF'
Priority	1	binary
No		X'00'
Yes - Highest level		X'01'
Reserved - Future levels		X'02' - X'FF'
'Retired'	1	binary
Reserved		X'01'
Message LLIDF	5	binary
LL		X'xxxx'
Class		X'C3'
Type		X'25'
Format		X'01'
Message	v	character

Field Descriptions

The COD field must appear in the ATTRIBUTE-LIST operand. The COD field values that are allowed and their meanings are defined as follows:

- X'00' - COD is not requested when this information is delivered to the specified recipients.
- X'01' - COD is requested when this information is delivered to the specified recipients.
- X'02' - X'FF' - Reserved.

The Personal field must appear in the ATTRIBUTE-LIST operand. The Personal field values that are allowed and their meanings are defined as follows:

- X'00' - The information is not personal to the specified recipients.
- X'01' - The information is personal to the specified recipients.
- X'02' - X'FF' - Reserved

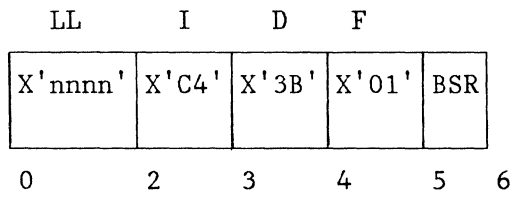
The Priority field must appear in the ATTRIBUTE-LIST operand. The Priority field values that are allowed and their meanings are defined as follows:

- X'00' - Priority handling is not required for this information, for the specified recipients.
- X'01' - Highest priority handling is required for this information, for the specified recipients.
- X'02' - X'FF' - Reserved for future levels of priority. Any future levels of priority that are assigned will be in descending order. The value X'01' represents the highest priority, X'02' the next highest priority, X'03' the next, and so on, with each succeeding value being the next lower priority.

The 'Retired' field is a reserved field with value X'01'.

BIT STRING-REPRESENTATION (FORMAT 1)

The Bit-String-Representation (Format 1) operand references a data unit within the same DIU. The BSR data unit must be present. The BSR operand always references the first BSR data unit of the contiguous group of data units that represent the control sheets. The BSR data unit will always follow the Scan-Data data unit if it is present. The BSR data unit is a self-describing entity and will be identified by an ID byte of X'C63B'.



The BSR operand value is a 1-byte reference to a data unit.

The BSR data unit is defined as follows:

BSR DATA UNIT (Bit String Representation Data Unit)

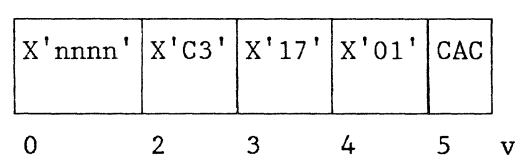
FIELD	LENGTH	VALUE
LLIDF	5	binary
LL		X'nnnn'
Class		X'C6'
Type		X'3B'
Format		X'x1'
Bit-String-Representation		control sheet information

Field Descriptions

The Bit-String-Representation field contains control sheet information in the form of a bit string to be interpreted by the receiving Office System Node (OSN) to determine the operation to be performed, and the associated operand values to be used.

CANCEL-ACTION (FORMAT 1)

The CANCEL-ACTION (Format 1) operand identifies the information and defines the action to be taken. The Action-Code field and the Distribution-Document-Name field must appear in the CANCEL-ACTION operand. The CANCEL-ACTION operand is defined as follows:



The CAC operand value has the following format:

FIELD	LENGTH	VALUE
Action-Code	1	binary
Reserved		X'00'
Delivery		X'01'
COD		X'02'
Reserved		X'03'- X'FF'
Distribution-Document-Name	LL-6	character

Field Descriptions

Action-Code

Specifying Delivery cancels the delivery of information scheduled to be delivered to this recipient.

Specifying COD deletes the system retention of the status of information sent COD by this source.

Distribution-Document-Name

This field will contain the Distribution-Document-Name. The Distribution-Document-Name comprises an 8-byte originating node address and the 8-byte identifier for the distribution requestor and a 4-byte sequence number that is incremented each time data is distributed for the requestor identified by the first sixteen bytes of this field. This is done to ensure uniqueness while the information is being transported from the source node to the recipient node.

CORRELATION (FORMAT 1)

The CORRELATION (Format 1) operand identifies the command to which this command is replying. It is used to correlate a replying command to a previously received request command. The operand is defined as follows:

LL	I	D	F	
X'nnnn'	X'C3'	X'28'	X'01'	COR
0	2	3	4	5 v

The COR operand value has the following format:

FIELD	LENGTH	VALUE
Reply-Indicator	1	binary
Last		X'00'
Not Last		X'01'
Reserved		X'02' - X'FF'
Command-Sequence-No.	1	binary
DIU-ID	LL-7	binary

Field Descriptions

The Reply-Indicator field specifies whether this reply is the last reply to the referenced request.

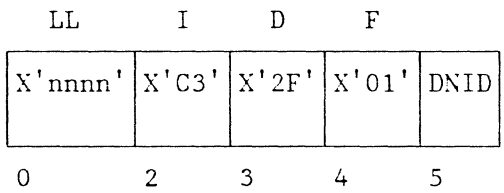
The Command-Sequence-Number field specifies a number which is equal to the position of the requesting command in the command sequence in the DIU in which the requesting command was received.

The DIU-ID field matches the DIU-ID field of the DIU Prefix in which the requesting command was received.

The combination of the DIU-ID and the Command-Sequence-Number parameters provide a unique identification by which the command can be correlated with the requesting command.

DESTINATION-NODE-ADDRESS (FORMAT 1)

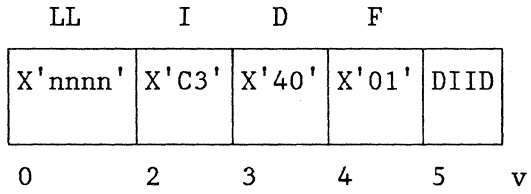
The DESTINATION-NODE-ADDRESS (Format 1) operand specifies the OSN within the office system distribution network to which this distribution request and its related data are directed.



The DNID operand value identifies the address of the OSN that is the destination of the distribution system function to be performed in support of the DIA command containing this operand. The DNID is a 1- to 8-byte character string.

DISTRIBUTION-IDENTIFIER (FORMAT 1)

The DISTRIBUTION-IDENTIFIER (Format 1) operand identifies the distribution request being acted upon.



The DIID operand value has the following format:

FIELD	LENGTH	VALUE
Distribution-Document-Name	20	Characters
Date-Requested (yymd)	4	binary
Time-Requested (hm)	2	binary
Distribution-Name	1-44	Characters

Field Descriptions

The Distribution-Document-Name is the name created by the originating node to provide unique identification for the information while it is the object of a given distribution request. The Distribution-Document-Name is constructed with the 8-byte originating node address and the 8-byte identifier for the requestor of the distribution request, followed by a 4-byte sequence number. The sequence number is the first available 4-byte number from the series of 0000 to 9999 assigned to this requestor. Each request for distribution is assigned the next higher number in the series, and when 9999 is reached, the series wraps back to zero (0000).

The Date-Requested is the date of the REQUEST-DISTRIBUTION command from the source Node. The Date-Requested syntax is defined as 4 bytes of discontinuous binary in the following format:

```
DATE-REQUESTED ::= yymd
where:  yy = 2 byte binary value of 4 digit decimal year
             (for example, 1980(10):  X'07BC')
        m = 1 byte binary value of 2 digit decimal month
             (for example, 1-12(10):  X'01' - X'0C')
        d = 1 byte binary value of 2 digit decimal day of
             month (for example, 1-31(10): X'01' - X'1F')
```

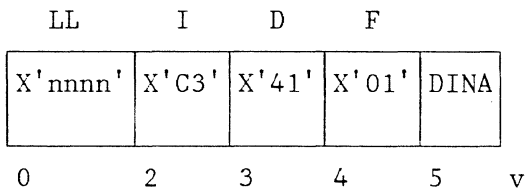
The Time-Requested is the time of the REQUEST-DISTRIBUTION command from the source Node. The Time-Requested syntax is defined as 2 bytes of discontinuous binary in the following format:

```
TIME-REQUESTED ::= hm
where:   h = 1 byte binary value of 2 digit decimal hours
             (for example, 0-23(10): X'00' - X'17')
         m = 1 byte binary value of 2 digit decimal minutes
             (for example, 0-59(10): X'00' - X'3B')
```

The Distribution-Name is the 1-44 byte name of the distribution request as known by the source. If this field is omitted, the LL will be set accordingly.

DISTRIBUTION-NAME (FORMAT 1)

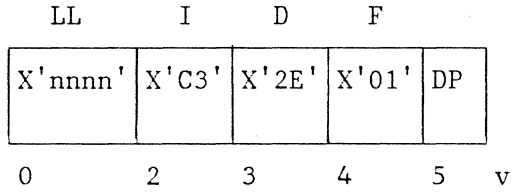
The DISTRIBUTION-NAME (Format 1) operand specifies the name of the distribution request as known by the source.



The DINA operand value is 1-44 characters from Character Set 337. The first and last character of the name may not be a X'40' (space in Code Page 256). The allowable character set for DINA are the characters defined by GCID Code Page 256 Character Set ID 337. (See Figure 15 on page 102).

DOCUMENT-PASSWORD (FORMAT 1)

The DOCUMENT-PASSWORD (Format 1) operand specifies the personal document authorization key associated with the recipients personal documents.

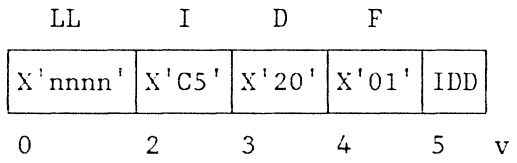


The DP operand value is a 1- to 8-byte character string.

IDENTIFIED-DATA (FORMAT 1)

The IDENTIFIED-DATA (Format 1) operand specifies the location of the data being referenced by the command.

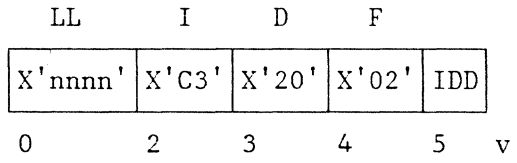
The operand is a reference to the DIU document unit. The operand value contains a 1-byte binary number designating the specific document unit from the first document unit in the DIU, that is, the nth document unit in the DIU.



IDENTIFIED-DATA (FORMAT 2)

The IDENTIFIED-DATA (Format 2) operand specifies the name of the data being referenced by the command.

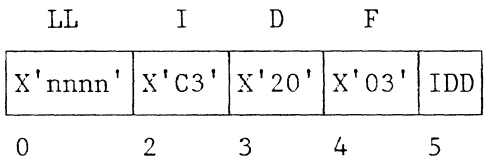
The name of the data will appear as immediate data. This format is not allowed to reference a document unit.



The IDD operand value is 1- to 44-characters. The IDENTIFIED-DATA (Format 2) operand is used when the document to be referenced is located in a private product library (as opposed to the DIA document library).

IDENTIFIED-DATA (FORMAT 3)

The IDENTIFIED-DATA (Format 3) operand references a document that is a member of a specified Search Result List. The operand values are specified as immediate data.



The IDD operand value consists of three required data fields. The first data field is the Search Result List entry number, the second data field is the type of document reference, and the third field is the Search Result List ID. These fields have the following format:

FIELD NAME	VALUE	LENGTH
SRL-ENTRY-NUMBER	X'0001' - X'7FFF' X'0000' & X'8000' - X'FFFF' Reserved	2 bytes
DOCUMENT-REFERENCE	X'01' Document & document profile X'02' Document content only X'03' Profile without document X'04' Document Descriptor Document X'05' Selected document descriptors and document content X'00' & X'06' - X'FF' Reserved	1 byte
SEARCH-RESULT-LIST-ID	1 to 8 characters	1 to 8 bytes

Field Descriptions

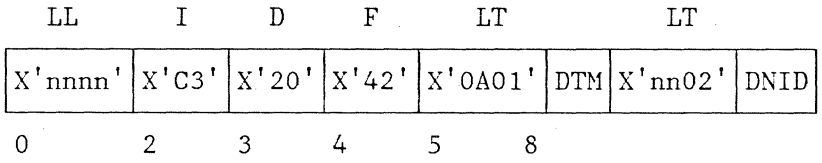
The SRL-Entry-Number field is a 2-byte binary value of 1 to 32,767 that specifies the number of the document result entry in the Search Result List. The list entry identifies the document that is processed by the command in which this operand is specified.

The Document-Reference field specifies the type of document object to be processed for the request. This allows reference to a library document with and without its profile, reference to only the profile, reference to a Document Descriptor Document created from search-selected profile parameters, or reference to search-selected profile parameters and the document content.

The Search-Result-List-ID (SRL-ID) field is the 1- to 8-byte search request name assigned by the requestor that is the output of the SEARCH command process. The contents of the SRL-ID named object are the document references or pointers to the documents that were selected by a SEARCH command process.

IDENTIFIED-DATA (FORMAT 42)

The IDENTIFIED-DATA (Format 42) operand specifies the Library Assigned Document Name (LADN) of the document being referenced by the command. The LADN of the document will appear as immediate data.



The IDD operand value consists of two fields that uniquely identify the data being referenced. The length may be determined from the LL bytes of the operand. Each field of the IDD operand is assigned a T value that designates the field that is used to qualify the named data. The L value preceding each of the fields specifies the length of the data, including the LT bytes.

Field Descriptions

The Library Assigned Document Name (LADN) consists of the document library node address of the document library concatenated with the date and time that the Document Library Services process completed filing and naming the document DTM.DNID. The fields that are used to generate the LADN are defined in the operand by the following field descriptions:

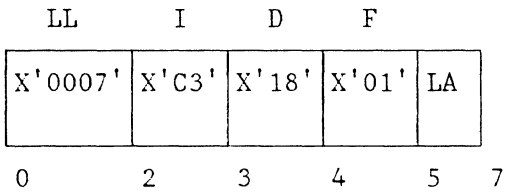
The DTM field of the operand specifies the date and time that the library process filed the document and created the LADN. The Date-Time field is assigned a T value of X'01'. The DTM syntax is defined as 8 bytes of discontinuous binary in the following format.

```
DATE-TIME ::= YYMDhmshs
where:  YY = 2-byte binary value of 4-digit decimal year
             (for example 1980(10):  X'07BC')
         M = 1-byte binary value of 2-digit decimal month
             (for example 1-12(10):  X'01' - X'0C')
         D = 1-byte binary value of 2-digit decimal day of
             month (for example 1-31(10): X'01' - X'1F')
         h = 1-byte binary value of 2-digit decimal hours
             (for example 0-23(10): X'00' - X'17')
         m = 1-byte binary value of 2-digit decimal minutes
             (for example 0-59(10): X'00' - X'3B')
         s = 1-byte binary value of 2-digit decimal seconds
             (for example 0-59(10): X'00' - X'3B')
        hs = 1-byte binary value of 2-digit decimal hundredths
             of a second (for example 0-99(10): X'00' - X'63')
```

The DNID field of the LADN is the node ID for the Document Library in which the named document resides. The DNID field is a 1- to 8-byte character string. The DNID field is assigned a T value of X'02'.

LIST-ACTION (FORMAT 1)

The LIST-ACTION (Format 1) operand specifies the type of status information required. The operand is defined as follows:



The LA operand value has the following format:

FIELD	LENGTH	VALUE
List-Type	1	binary
Reserved		X'00'
Delivery Information		X'01'
Queued information only		X'02'
COD status only		X'03'
Routing errors only		X'04'
Invalid recipient		X'05'
Delivery Information for the recipient and recipients with affinity		X'06'
Queued information for the recipient and recipients with affinity		X'07'
COD status only for the recipient and recipients with affinity		X'08'
Routing errors only for the recipient and recipients with affinity		X'09'
Invalid recipient for the recipient and recipients with affinity		X'0A'
Reserved		X'0B' - X'FF'
Reply-Type	1	binary
Reserved		X'00'
Unformatted document unit		X'01'
Formatted document unit		X'02'
Summarized Status		X'03'
Reserved		X'04' - X'FF'

Field Descriptions

The List-Type field specifies the type of list required.

Specifying Delivery Information creates a list of the status of information in categories X'02' through X'05' for the recipients.

Specifying Queued Information creates a list of all information queued for delivery for the recipients.

Specifying COD creates a list of all distribution requests for which confirmation of delivery has been requested.

Specifying Routing Errors creates a list of all distribution requests for which some routing error occurred.

Specifying Invalid Recipient creates a list of all distribution requests which have invalid recipients.

Specifying Delivery Information for the recipient and recipients with affinity to the recipient creates a list of the status of information in categories X'07' through X'0A'.

Specifying Queued Information for the recipient and recipients with affinity to the recipient creates a list of all information queued for delivery for the recipients.

Specifying COD for the recipient and recipients with affinity to the recipients creates a list of all distribution requests for which confirmation of delivery has been requested.

Specifying Routing Errors for the recipient and recipients with affinity to the recipient creates a list of all distribution requests for which some routing error occurred.

Specifying Invalid recipient for the recipient and recipients with affinity to the recipient creates a list of all distribution requests which have invalid recipients.

The Reply-Type specifies one of the following types of reply:

- An unformatted list in a document unit
- A formatted list in a document unit
- An unformatted summarized list in a document unit.

For the unformatted list see the definition of the Unformatted Status document unit following this operand.

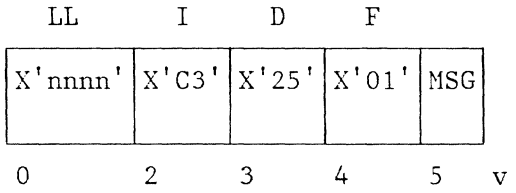
The format of the document unit for formatted list output is not specified by DIA. The document unit type, content, and format are determined by the 'sending' product.

Specifying Summarized Status requests the return of a document which includes the classification of all information and status that are available for delivery. The document will be returned in an Unformatted Summarized Status document unit with a DELIVER command. See the definition of the Unformatted Summarized Status document unit following the definition of the Unformatted Status document unit which follows this operand.

Formatted or unformatted may be specified in the Reply-Type field for any of the types of lists defined in the List-Type field of the LIST-Action operand.

MESSAGE (FORMAT 1)

The MESSAGE (Format 1) operand contains the message text as immediate data.

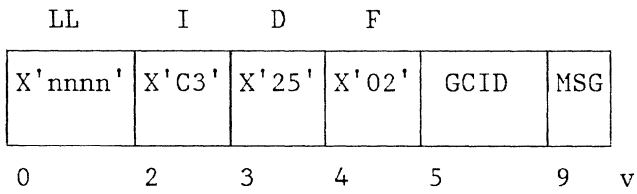


The MESSAGE operand value contains a 1- to 256-byte character string.

The Message operand value field may contain the graphic characters that are defined within Character Set 337 of Code Page 256 (see Figure 15 on page 102).

MESSAGE (FORMAT 2)

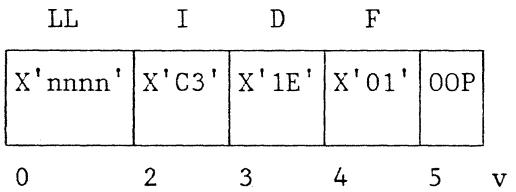
The MESSAGE (Format 2) operand specifies the character set and code page of the message as well as the message text as immediate data.



The MESSAGE operand value is the 4-byte Graphic Character Set Identifier (GCID) field followed by 1 to 256 characters of immediate data message text (MSG). The message text contains characters from the character set specified in the Graphic Character Set Identifier (GCID) field. The 4-byte Graphic Character Set Identifier (GCID) field specifies a 2-byte Character Set ID and a 2-byte Code Page ID.

OBTAIN-OPTION (FORMAT 1)

The OBTAIN-OPTION (Format 1) defines the delivery option to be taken. The operand has the following structure:



The OOP operand value has the following format:

FIELD	LENGTH	VALUE
Options	1	binary
All Information		X'00'
Specific Information		X'01'
Personal Information		X'02'
All Messages (Msg. Only)		X'03'
All Information for the recipient and recipients with affinity		X'04'
Specific Information for the recipient and recipients with affinity		X'05'
All Messages (Msgs. Only) for the recipient and recipients with affinity		X'06'
Reserved		X'07' - X'FD'
All Messages (Msgs. Only) and Status		X'FE'
All Information and Status		X'FF'
Priority-Distributions	1	binary
Reserved		X'00'
Priority		X'01'
Reserved		X'02' - X'FE'
All Distributions		X'FF'
'Retired'	1	X'01'
Distribution-Document-Name	20	Characters

Field Descriptions

The OPTIONS field specifies the information to be delivered; either a specifically named distribution request or all information queued for delivery may be specified. The OPTIONS field must appear in the OBTAIN-OPTION operand.

X'00' Specifies All Information except personal information. Personal information for the signed-on recipient or the specified recipient will also be obtained if the required DOCUMENT-PASSWORD operand is supplied.

X'01' Specifies Specific Information which requires that the Distribution-Document-Name for the document or message be supplied. The information is obtained for only the signed-on recipient or the specified recipient. If the information is personal, the required DOCUMENT-PASSWORD operand must be supplied.

X'02' Specifies Personal Information and only all personal documents or messages will be delivered. The DOCUMENT-PASSWORD operand must be supplied. The information is obtained for only the signed-on recipient or the specified recipient.

X'03' Specifies All Messages (Msgs. Only) for information that contains only a message, except information with personal messages. Personal messages for the signed-on recipient or the specified recipient will also be obtained if the required DOCUMENT-PASSWORD operand is supplied.

X'04' Specifies All Information for the recipient and recipients with affinity to the recipient except information with personal documents or messages. Personal information for the signed-on recipient or the specified recipient will also be obtained if the required DOCUMENT-PASSWORD operand is supplied.

X'05' Specifies Specific Information for the recipient and recipients with affinity to the recipient which requires that the Distribution-Document-Name for the document or message be supplied. If the information is personal, the information is obtained for only the signed-on recipient or the specified recipient and the required DOCUMENT-PASSWORD operand must be supplied.

X'06' Specifies All Messages (Msgs. Only) for the recipient and recipients with affinity to the recipient for information that contains only a message. Personal messages for the signed-on recipient or the specified recipient will also be obtained if the required DOCUMENT-PASSWORD operand is supplied.

X'07' - X'FD' - Reserved

X'FE' Specifies All Messages (Msgs. Only) for information that contains only a message and all status for previously distributed documents or messages for all recipients serviced by the requesting recipient. This status will be delivered in an unformatted document unit. This option does not differentiate between personal and non-personal information. It is the responsibility of the process issuing the OBTAIN command to do document password verification for personal information.

X'FF' Specifies all information and all status for previously distributed documents or messages for all recipients serviced by the requesting recipient. This status will be delivered in an unformatted document unit. This option does not differentiate between personal and non-personal information. It is the responsibility of the process issuing the OBTAIN command to do document password verification for personal information.

Priority Distributions - these categories qualify the Options field by specifying the priority level of the documents or messages to be delivered. The Priority Distributions field must appear in the OBTAIN-OPTION operand. When Specific Information is specified in the OPTION field, the Priority-Distributions field is not used to determine the information to be delivered.

X'01' Specifies that only the highest priority documents or messages will be delivered. If and when additional levels of priority are assigned, specifying a lower (than highest) level will cause that level and all higher levels of priority to be delivered.

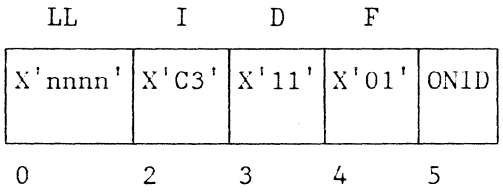
X'FF' Specifies that all documents or messages are to be delivered regardless of the priority level.

The 'Retired' field is reserved with value X'01'.

The Distribution-Document-Name field contains the name of a specific distribution request to be delivered to a recipient. When the All Information, Personal Information, All Messages, All Messages and Status, All Information and Status, All Information for the recipient and recipients with affinity, or All Messages for the recipient and recipients with affinity option is specified in the OPTIONS field, then the Distribution-Document-Name field is omitted. If the Distribution-Document-Name is specified, the option specified in the OPTIONS field takes precedence and the Distribution-Document-Name is ignored.

ORIGINATING-NODE-ADDRESS (FORMAT 1)

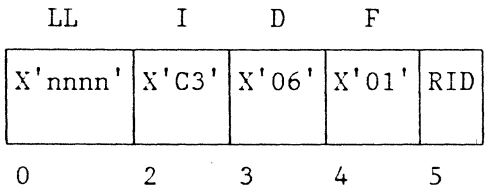
The ORIGINATING-NODE-ADDRESS (Format 1) operand identifies the group address token of the command requestor.



The group address token specified by the ONID operand value is the node address of the OSN that originated the function to be performed in support of the command containing this operand. ONID is a 1- to 8-byte character string.

RECIPIENT-ADDRESS (FORMAT 1)

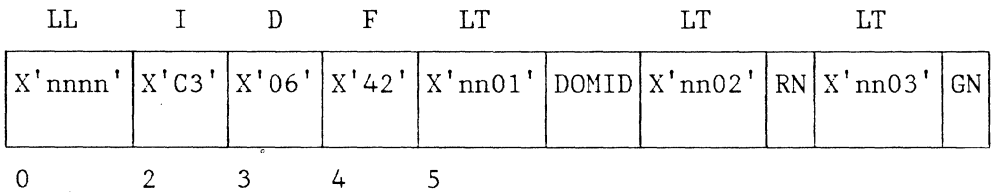
The RECIPIENT-ADDRESS (Format 1) operand specifies element address token of the recipient.



The element address token specified by the RID operand value is the recipient node address and is used at the application level to identify the user or process to which the DIA command and its related data are directed. It is a 1- to 8-byte character string.

RECIPIENT-ADDRESS (FORMAT 42)

The RECIPIENT-ADDRESS (Format 42) operand specifies the element address token of the recipient.



The DOMID operand value specifies the domain ID and is used at the application level to partially identify the user or process to which the DIA command and its related data are directed. It is unique within the DNID specified by the DESTINATION-NODE-ADDRESS operand that is associated with this recipient address. If there is no associated DESTINATION-NODE-ADDRESS operand, then it must be unique within the OSN where it is received. It is a 1- to 8-byte character string.

The RN operand value specifies the recipient name and is also used at the application level to further identify the user or process. It is unique within the domain specified by the domain ID field in this RECIPIENT-ADDRESS operand. It is a 1- to 32-byte character string.

The GN field of this operand specifies the global name that is associated with the recipient. It is a 1- to 32-byte character string.

The L byte for each of these operand parts specifies the length of each construct including the two LT bytes and the 1- to 8- or 1- to 32-byte character string.

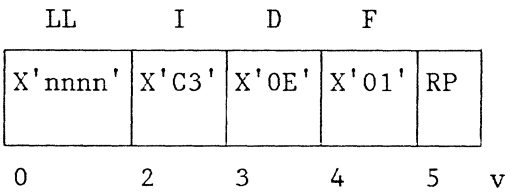
When Format 42 of the RECIPIENT-ADDRESS operand is used, it must contain one of the following combinations of the individual operand parts. All parts specified for a given combination must be present.

Domain-ID and Recipient-Name

Domain-ID and Global-Name

RECIPIENT-PASSWORD (FORMAT 1)

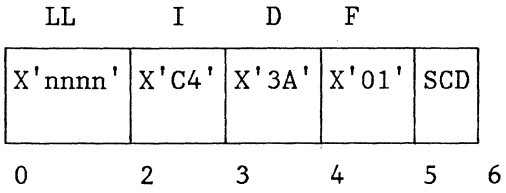
The RECIPIENT-PASSWORD (Format 1) operand is an access authorization key associated with a recipient.



The RP operand value is a 1- to 8-byte character string.

SCAN-DATA (FORMAT 1)

The SCAN-DATA (Format 1) operand references a data unit within the same DIU. The Scan-Data data unit does not have to be present. Because the SCAN-DATA operand is required, the reference byte of the operand must be zero whenever the Scan-Data data unit is not present. When the Scan-Data data unit is present, this operand always references the first data unit of the contiguous group of data units representing the control sheets. The Scan-Data data unit is a self-describing entity and will be identified by an ID of X'C63A'.



The SCD operand value is a 1-byte reference to a data unit.

The Scan-Data data unit is defined as follows:

SCAN-DATA DATA UNIT (Non-Coded Information data unit)

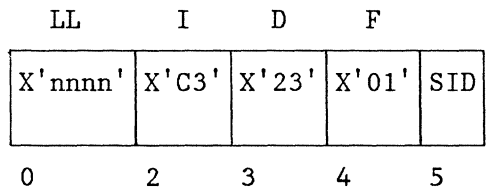
FIELD	LENGTH	VALUE
LLIDF	5	binary
LL		X'nnnn'
ID		X'C63A'
Format		X'x1'
Scan-Data		control-sheet data

Field Descriptions

The Scan-Data data field contains the control sheet data in an Image DCA compatible form which is insertable into a document unit so that the document unit remains a valid Image DCA document.

SOURCE-ADDRESS (FORMAT 1)

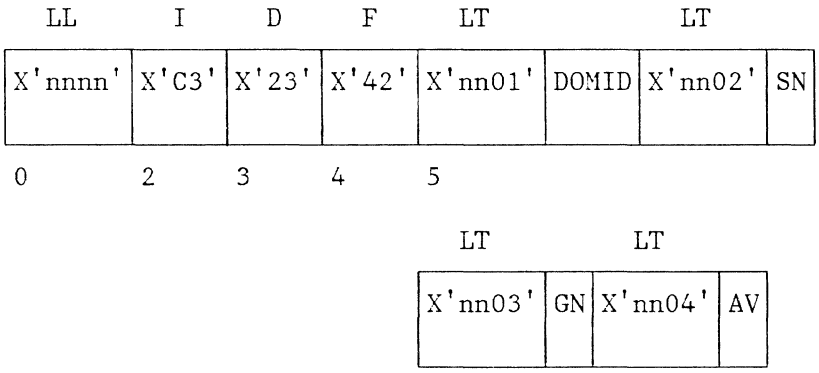
The SOURCE-ADDRESS (Format 1) operand specifies the element address token of the requestor source node.



The element address token specified by the SID operand value is the requestors source node address and is used at the application level to identify the user or process that is the source of the DIA command and its related data. SID is a 1- to 8-byte character string.

SOURCE-ADDRESS (FORMAT 42)

The SOURCE-ADDRESS (Format 42) operand specifies the element address token of the requestor source node.



The DOMID part of this operand specifies the domain ID and is used at the application level to partially identify the user or process that is the requestor of the DIA command and its related data. The domain ID is unique within the ONID specified by the ORIGINATING-NODE-ADDRESS operand that is associated with this SOURCE-ADDRESS operand. If there is no associated ORIGINATING-NODE-ADDRESS operand, then DOMID must be unique within the OSN where it is received. DOMID is a 1- to 8-byte character string.

The SN operand value specifies the source name and is also used at the application level to further identify the user or process. The source name is unique within the domain specified by the domain ID in this SOURCE-ADDRESS operand. SN is a 1- to 32-byte character string.

The GN part of this operand specifies the global name that is associated with the requestor. GN is a 1- to 32-byte character string.

The AV operand value is an authorization value that is associated with the user or process identified by either the SN or the GN value. The AV part of this operand may appear only when this operand is being used in a command from a source node to an originating office system node. AV is a 1- to 8-byte character string.

The L byte for each of these operand parts specifies the length of each construct including the two LT bytes and the 1- to 8- or 1- to 32-byte character string.

When Format 42 of the SOURCE-ADDRESS operand is used, it must contain one of the following combinations of the individual operand parts. All parts specified for a given combination must be present.

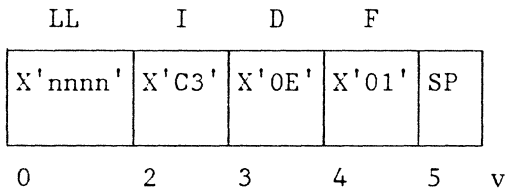
Domain ID, Source Name, and Authorization Value

Domain ID and Global Name

Domain ID, Global Name, and Authorization Value

SOURCE-PASSWORD (FORMAT 1)

The SOURCE-PASSWORD (Format 1) operand is an access authorization key associated with a requestor.

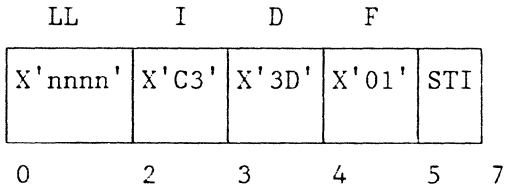


The SP operand value is a 1- to 8-byte character string.

STATUS-INFORMATION (FORMAT 1)

The STATUS-INFORMATION (Format 1) operand specifies the type of status information that is now available to the recipient.

The operand structure is as follows:



The STI operand value is a 2-byte encoded bit string.

The defined types of status and their bit encoding follows:

- Reserved 00000000 00000000
- Priority 00000000 00000001
- Non-priority 00000000 00000010
- Personal 00000000 00000100
- COD 00000000 00001000
- Route Error 00000000 00010000
- Invalid Recipient 00000000 00100000
- Reserved 01111111 11000000

Any one or any combination of codes may be used for notification of the status that is available.

Field Descriptions

Priority will be specified when the status pertains to documents or messages that were distributed with the priority distribution option. This applies both to documents and messages queued for delivery.

Non-Priority will be specified when the status pertains to documents or messages that were distributed without specifying priority, personal, or COD distribution options. This applies to both documents and messages that are queued for delivery.

Personal will be specified when the status pertains to documents or messages that were distributed with the personal document distribution option. This applies to both documents and messages that are queued for delivery.

COD will be specified when the status pertains to documents or messages that were distributed requesting confirmation of delivery. This applies to both documents and messages that were previously distributed.

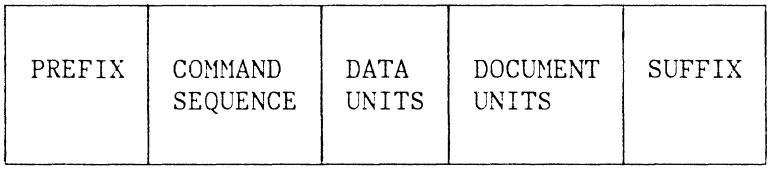
Route Error will be specified when the status pertains to documents or messages that could not be delivered due to a routing error. This applies to both documents and messages that were previously distributed.

Invalid Recipient will be specified when the recipient is unknown at the destination OSN.

Status is given for the signed-on recipient only.

APPENDIX B. DOCUMENT INTERCHANGE UNIT (DIU)

The basic unit of interchange exchanged between DIA processes is the document interchange unit (DIU). A DIU is made up of the following data stream components:



- The prefix contains the information to introduce and identify the DIU.
- The command sequence contains the command that specifies the function to be performed and related processing information.
- The data unit contains information that may be referred to by the DIA command in the command sequence. This field is optional and is present when defined by the command.
- The document unit contains the document profile and optionally the document content. This field is optional and is present only when a document profile and content are sent from one DIA process to another.
- A suffix specifies the end of the DIU and indicates whether any abnormal conditions occurred while the DIU was being transmitted.

These data stream components may be composed of substructures called subcomponents. Examples of subcomponents are command operands and document profiles. All DIU components and their subcomponents begin with a structured field called an introducer. The introducer uniquely identifies each field and indicates its length. Consequently all fields and components (and hence, the entire data stream) are self describing and may be variable in length.

DIU STRUCTURED FIELD

The DIU structured field consists of four parts; the total length (LL) of the structured field, the structured field identifier (IDF), an optional structured field identifier extension (ISS), and an optional data variable.

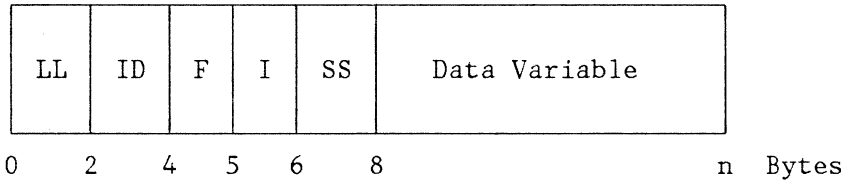


Figure 11. DIU Structured Field

DIU Introducer

The LLIDF part of the DIU structured field is called the DIU Introducer (INTRO). All DIU data stream components and subcomponents contain an INTRO (LLIDF).

The optional ISS part of the structured field is called the DIU Introducer Extension. Introducer extensions (ISS) are permitted on major DIU data stream components only: prefix, commands, data units, document units, and suffix.

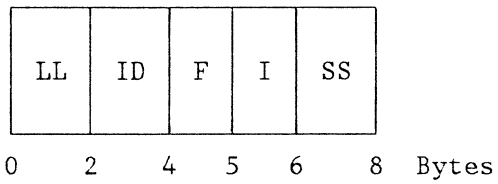


Figure 12. DIU Introducer (INTRO)

LL = Structured field length

The length LL may vary from 5 to 32,767 bytes; including the LLIDF(ISS) and structured field data variable.

ID = Structured field identifier.

The ID consists of two parts; a class byte and type byte where:

I = Construct class (for example, Prefix, Command, Operand)
D = Construct type (for example, Type of command)

F = Format byte

The Format byte defines the format of the data variable and indicates whether the optional ISS is present. The F byte is defined as follows:

Bit 0 - Introducer Extension Indicator
1 = ISS is present and follows the LLIDF
0 = No ISS is present
Bit 1 - Imbedded Structure Indicator

1 = Data variable format is in LT format
0 = Data variable is defined by Bits 4-7

Bits 2 - 3 Reserved

Bits 4 - 7 Data Variable Format Indicator
A 4-bit binary number specifying the format and syntax of the data variable.

DIU Introducer Extension (ISS)

The ISS portion of the structured field is defined as follows:

I = Indicator byte

The Indicator byte identifies the structure of the construct.

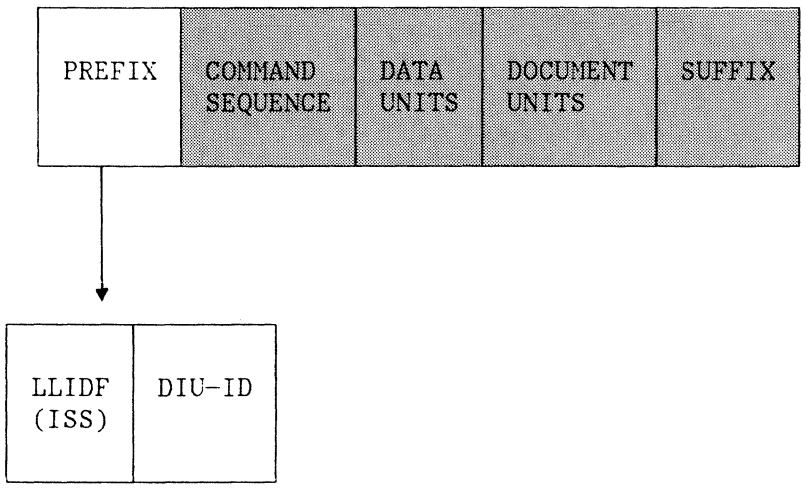
Bits 0 - 1 Reserved

Bit 2 - Segmentation Indicator
1 = Not last, a structured field segment follows
0 = Last or only structured field segment

Bits 3 - 7 Reserved

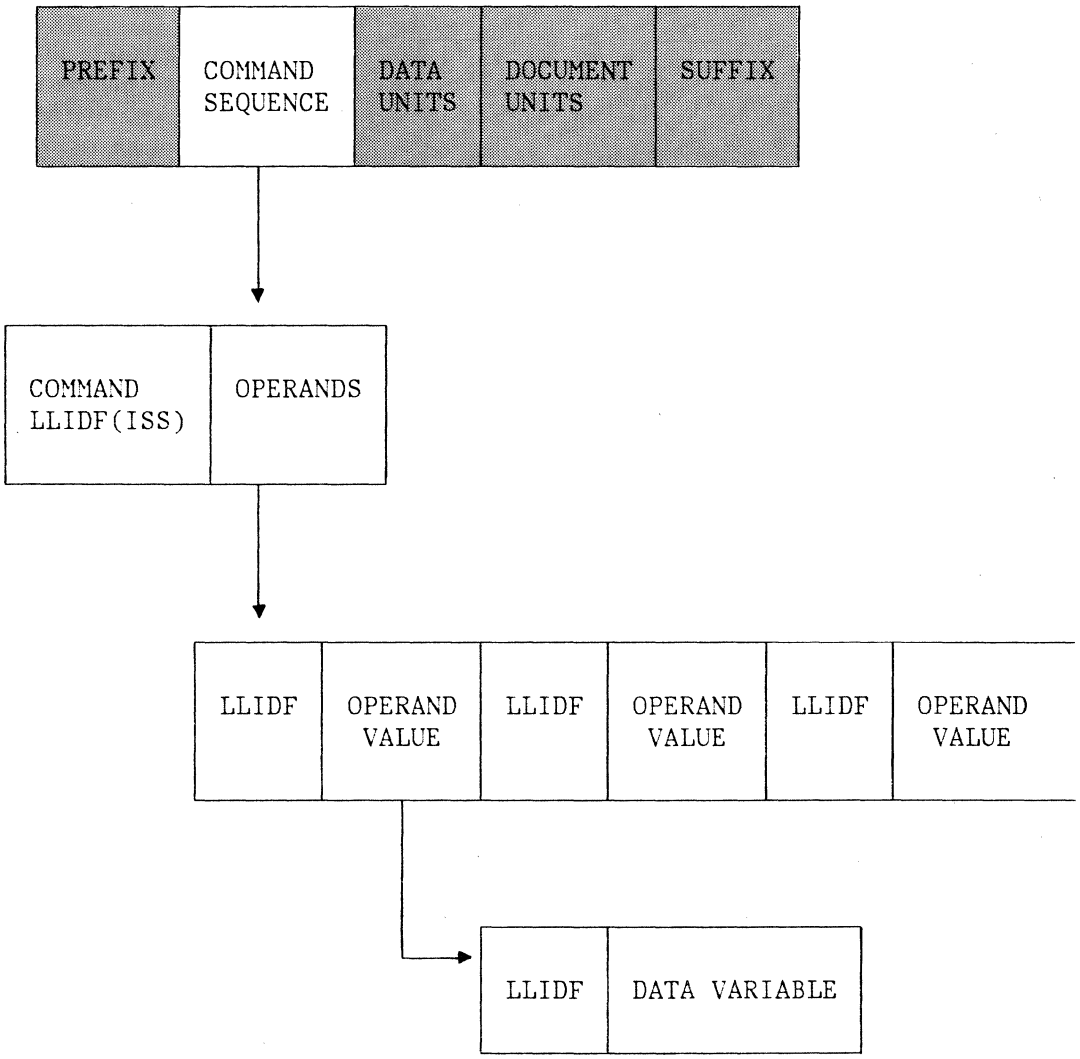
SS = Sequence number - X'0000'

DIU PREFIX



The DIU prefix contains a 0- to 16-byte value called a DIU-ID. This DIU identifier, specified by the DIU sender, is used to correlate a command reply with the command request.

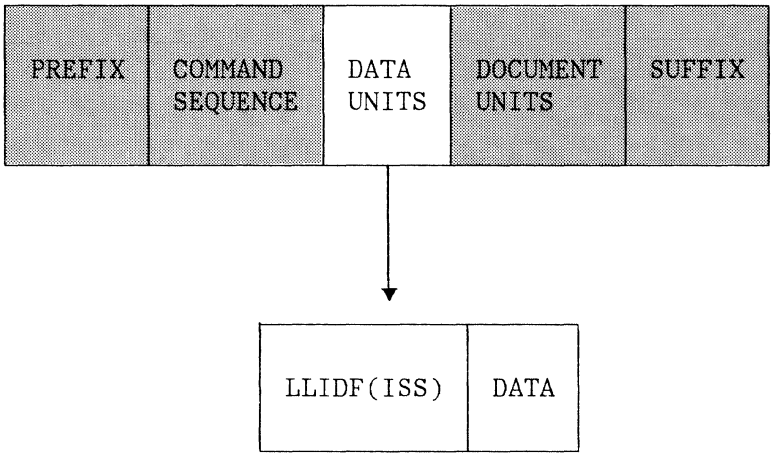
COMMAND SEQUENCE



The COMMAND LLIDF(ISS) identifies the command that specifies the function to be performed. The command introducer contains a length field which spans the command introducer and all subordinate operands.

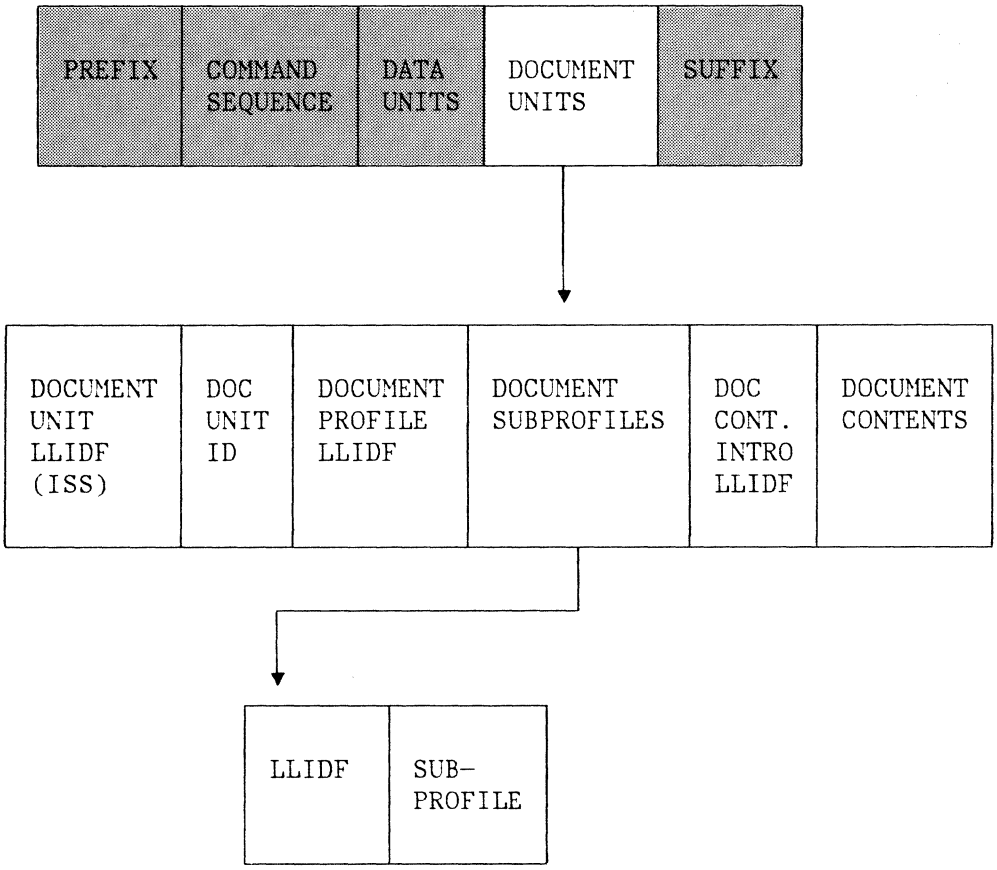
OPERANDS define input parameters to the command. Operand introducers may not contain introducer extensions. The length field of the operand introducer spans both the introducer and data variable.

DATA UNITS



The data field contains either data that can be referenced by commands or information passed to the requestor of a command.

DOCUMENT UNITS



The DOCUMENT UNIT INTRODUCER identifies the document unit type. The length field of the document unit introducer spans the document unit introducer, document profiles, document content introducer, and document content.

The DOC UNIT ID is a 15-byte document identifier which specifies the document type (2-byte binary number). The document types are listed in "Appendix D. DIA Document Types" on page 99.

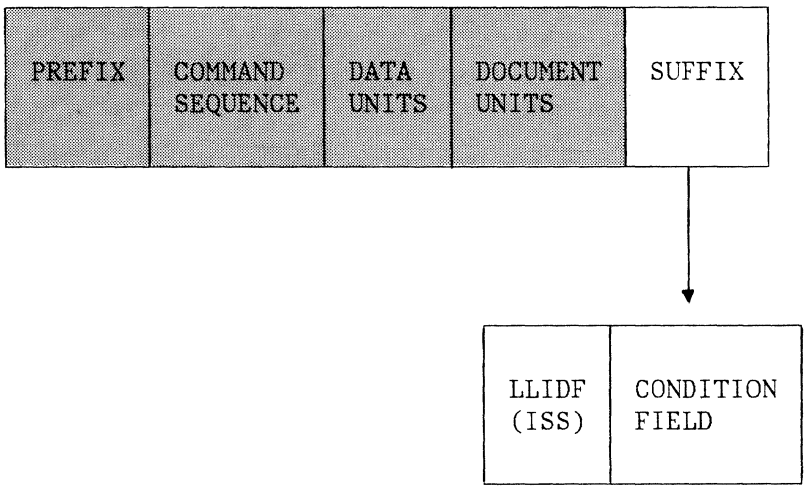
The document profile contains information relating to or describing a document, such as author or document name. The length field of an unsegmented DOCUMENT PROFILE LLIDF spans the introducers and any subordinate document subprofiles.

The introducer for each subprofile, LLIDF, contains a length field and subprofile identifier. The length field spans the introducer and subprofile information. The identifier specifies the subprofile (such as base subprofile or application subprofile) that is to follow.

The DOC CONT. INTRO identifies the beginning of the document content.

The DOCUMENT CONTENTS contain the text of the information. The document content may be defined externally from DIA or it may be a DIA-defined document.

DIU SUFFIX



There are two types of DIU suffixes:

Type 1 Suffix - Normal termination of a DIU
Type 2 Suffix - Abnormal termination of a DIU

If the DIU has terminated abnormally, the CONDITION FIELD will contain an exception code describing the error which caused the termination.

If the DIU terminates normally, the CONDITION FIELD is null.

APPENDIX C. DIA CODE POINTS

This appendix consists of tables which lists the code points defined for the DIA constructs relevant to Document Distribution Services. Each table gives the description of the construct and the code point which corresponds to the structured field identifier, that is, the IDF. The I corresponds to the construct class and the D corresponds to the construct type. Any code point not listed in one of the tables is reserved.

The code point tables are grouped by construct class (such as Prefix, SRR Command, or Immediate Data Operand) according to the following list:

CLASS	CODE POINT CLASS	TABLE
DIU PREFIX	X'C0'	1
COMMAND - NO REPLY REQUIRED	X'C1'	2
OPERAND - IMMEDIATE	X'C3'	4
OPERAND - DATA UNIT REFERENCE	X'C4'	5
OPERAND - DOCUMENT UNIT REFERENCE	X'C5'	6
DOCUMENT UNIT	X'C9'	7
DOCUMENT PROFILE	X'CA'	8
DOCUMENT CONTENT INTRODUCER	X'CB'	9
COMMAND - SYNC REPLY REQUIRED	X'CD'	3
DIU SUFFIX	X'CF'	10

NOTES FOR DIA CODE POINT ASSIGNMENT TABLES

All TYPE CODES of X'00' are RESERVED.

A lower case x is used to indicate the value for bits 0 - 3 of the format byte. The actual setting of these bits must be in accordance with the rules for the specific construct in which the bits appear. The LT form of the data field is only valid in operands and document profile parameters.

Format is always X'x0' when there is no value field, that is, LL = X'05' or X'08'.

TABLE 1. DIU PREFIX ENCODINGS

CODE POINT DESCRIPTION	GDS ID	F
DIU PREFIX	C0	
DIU PREFIX, INTERCHANGE FORM	C001	x2

TABLE 2. NO REPLY REQUIRED COMMAND ENCODINGS

CODE POINT DESCRIPTION	GDS ID	F
DIU COMMAND - NO-REPLY-REQUIRED (NRR)	C1	
NRR - ACKNOWLEDGE	C101	x1
NRR - SIGN-ON	C10C	x1
NRR - SIGN-OFF	C10D	x1
NRR - DELIVER	C119	x1
NRR - STATUS-LIST	C11E	x1

TABLE 3. SYNCHRONOUS REPLY REQUIRED COMMAND ENCODINGS

CODE POINT DESCRIPTION	GDS ID	F
DIU COMMAND - SYNCHRONOUS REPLY RQRD (SRR)	CD	
SRR - SIGN-ON	CD0C	x1
SRR - CANCEL-DISTRIBUTION	CD10	x1
SRR - LIST	CD13	x1
SRR - OBTAIN	CD17	x1
SRR - DELIVER	CD19	x1
SRR - REQUEST-DISTRIBUTION	CD1C	x1
SRR - PROCESS-BIT-STRING	CD1D	x1
SRR - STATUS-LIST	CD1E	x1

TABLE 4. IMMEDIATE DATA OPERAND ENCODINGS

CODE POINT DESCRIPTION	GDS ID	F
IMMEDIATE DATA OPERAND (IMMED DATA OPND)	C3	
IMMED DATA OPND ATTRIBUTE-LIST	C305	01
IMMED DATA OPND RECIPIENT-ADDRESS	C306	01
IMMED DATA OPND RECIPIENT-ADDRESS	C306	42
IMMED DATA OPND SIGN-ON-ID	C30D	01
IMMED DATA OPND SIGN-ON-ID	C30D	42
IMMED DATA OPND SOURCE/RECIPIENT-PASSWORD	C30E	01
IMMED DATA OPND CHARGE-CODE	C30F	01
IMMED DATA OPND ORIGINATING-NODE-ADDRESS	C311	01
IMMED DATA OPND FUNCTION-SET	C312	01
IMMED DATA OPND CANCEL-ACTION	C317	01
IMMED DATA OPND LIST-ACTION	C318	01
IMMED DATA OPND OBTAIN-OPTION	C31E	01
IMMED DATA OPND IDENTIFIED-DATA	C320	02
IMMED DATA OPND IDENTIFIED-DATA	C320	03
IMMED DATA OPND IDENTIFIED-DATA	C320	42
IMMED DATA OPND EXCEPTION-CODE	C322	01
IMMED DATA OPND SOURCE-ADDRESS	C323	01
IMMED DATA OPND SOURCE-ADDRESS	C323	42
IMMED DATA OPND MESSAGE	C325	01
IMMED DATA OPND MESSAGE	C325	02
IMMED DATA OPND RECOVERY-ACTION	C327	01
IMMED DATA OPND CORRELATION	C328	01
IMMED DATA OPND DOCUMENT-TYPE	C329	01
IMMED DATA OPND GRAPHIC-CHARACTER-SET-ID	C32A	01
IMMED DATA OPND DOCUMENT-PASSWORD	C32E	01
IMMED DATA OPND DESTINATION-NODE-ADDRESS	C32F	01
IMMED DATA OPND SIGN-ON-PASSWORD	C338	01
IMMED DATA OPND STATUS-INFORMATION	C33D	01
IMMED DATA OPND COUNT	C33E	01
IMMED DATA OPND DISTRIBUTION-IDENTIFIER	C340	01
IMMED DATA OPND DISTRIBUTION-NAME	C341	01
IMMED DATA OPND REPLY-DATA	C345	01

TABLE 5. DATA UNIT REFERENCE OPERAND ENCODINGS

The assignment of a code point to an operand that is a Data Unit reference should correspond to the code point that is assigned to the Data Unit being referenced, that is, an operand whose GDS ID is X'C43A' refers to a Data Unit whose GDC ID is X'C63A'.

CODE POINT DESCRIPTION	GDS ID	F
DATA UNIT REFERENCE OPND (DATA U REF OPND)	C4	
DATA U REF OPND SCAN-DATA	C43A	01
DATA U REF OPND BIT-STRING-REPRESENTATION	C43B	01

TABLE 6. DOCUMENT UNIT REFERENCE OPERAND ENCODINGS

CODE POINT DESCRIPTION	GDS ID	F
DOCUMENT UNIT REF OPND (DOC U REF OPND)	C5	
DOC U REF OPND IDENTIFIED-DATA	C520	01

TABLE 7. DOCUMENT UNIT ENCODINGS

CODE POINT DESCRIPTION	GDS ID	F
DIU DOCUMENT UNIT	C9	
DOCUMENT UNIT, INTERCHANGE	C903	x1
DOCUMENT UNIT, DOCUMENT-DESCRIPTOR-PARMS	C904	01
DOCUMENT UNIT, UNFORMATTED-RECIP'NT STATUS	C905	01
DOCUMENT UNIT, UNFORMATTED-SUMMARY STATUS	C906	01
DOCUMENT UNIT, UNFORMATTED-SOURCE STATUS	C907	01
NOTE: DOCUMENT UNIT CODES X'C980'-X'C9FF' USER ASSIGNED		

TABLE 8. DOCUMENT PROFILE ENCODINGS

CODE POINT DESCRIPTION	GDS ID	T
DIU DOCUMENT PROFILE	CA	
DOCUMENT PROFILE, PRIVATE, 3730	CA01	01
DOCUMENT PROFILE, PRIVATE, DISOSS	CA01	02
DOCUMENT PROFILE, PRIVATE (5520)	CA02	01
DOCUMENT PROFILE, INTERCHANGE (IDPA)	CA03	01
BASE SUBPROFILE (IDPA)	CA04	01
ARCHITECTED APPLICATION SUBPROFILE (DIA)	CA05	01
IBM 3730 SUBPROFILE - 3730	CA70	01
DISOSS SUBPROFILE - DISOSS	CA71	01
IBM 5520 SUBPROFILE - 5520	CA72	01
NOTE: DOCUMENT PROFILE CODES X'CA80'-X'CAFF' USER ASSIGNED		

TABLE 9. DOCUMENT CONTENT INTRODUCER ENCODINGS

CODE POINT DESCRIPTION	GDS ID	F
DIU DOCUMENT CONTENT INTRODUCER	CB	
DOCUMENT CONTENT INTRODUCER, W/DOCUMENT	CB01	01
DOCUMENT CONTENT INTRODUCER, WO/DOCUMENT	CB02	01

TABLE 10. DIU SUFFIX ENCODINGS

CODE POINT DESCRIPTION	GDS ID	F
DIU SUFFIX	CF	
DIU SUFFIX, NORMAL TERMINATION	CF01	x0
DIU SUFFIX, ABNORMAL TERMINATION	CF02	x1

APPENDIX D. DIA DOCUMENT TYPES

The following table lists the document types registered by Document Interchange Architecture.

Interchange Data Stream Type	Identifier Code
Reserved	X'0001'
Final-Form-Text Document	X'0002'
5520 Revisable-Form-Text Document	X'0003'
Word-Processing EBCDIC	X'0004'
Word-Processing-Information-File (WPIF)	X'0005'
Image-Data-Subset Document	X'0006'
3730 Text Data Stream	X'0007'
DIA Document Library Document Descriptor Document	X'0008'
3732 Display Document Data stream	X'0009'
DIA Defined Document Unit Content	X'000A'
Revisable-Form-Text Document	X'000B'
1403 Printer Compatible Data Stream with Variable Length, Unblocked Records.	X'000C'

Figure 13. Document Type Code Assignments

APPENDIX E. IDP DEFAULT GRAPHIC CHARACTER SETS

Column		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Row	→ Bit Pattern ↓	00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11
0	0000					SP01	& SM03	– SP10						{ SM11	} SM14	\ SM07	0 ND10
1	0001							/ SP12		a LA01	j LJ01	~ SD19		A LA02	J LJ02		1 ND01
2	0010									b LB01	k LK01	s LS01		B LB02	K LK02	S LS02	2 ND02
3	0011									c LC01	l LL01	t LT01		C LC02	L LL02	T LT02	3 ND03
4	0100									d LD01	m LM01	u LU01		D LD02	M LM02	U LU02	4 ND04
5	0101									e LE01	n LN01	v LV01		E LE02	N LN02	V LV02	5 ND05
6	0110									f LF01	o LO01	w LW01		F LF02	O LO02	W LW02	6 ND06
7	0111									g LG01	p LP01	x LX01		G LG02	P LP02	X LX02	7 ND07
8	1000									h LH01	q LQ01	y LY01		H LH02	Q LQ02	Y LY02	8 ND08
9	1001								\ SD13	i LI01	r LR01	z LZ01		I LI02	R LR02	Z LZ02	9 ND09
A	1010					[SM06	] SM08	| SM65	: SP13								
B	1011					. SP11	$ SC03	, SP08	# SM01								
C	1100					< SA03	* SM04	% SM02	@ SM05								
D	1101					(SP06	) SP07	— SP09	' SP05								
E	1110					+ SA01	; SP14	> SA05	= SA04								
F	1111					! SP02	^ SD15	? SP15	" SP04								

Figure 14. Character Set 103 of Code Page 256

Column		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Row	→ Bit Pattern ↓	00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11
0	0000					SP01	& SM03	– SP10	ø LO61	Ø LO62	° SM19	µ SM17	¢ SC04	{ SM11	} SM14	\ SM07	0 ND10
1	0001					SP30	é LE11	/ SP12	È LE12	a LA01	j LJ01	~ SD19	£ SC02	A LA02	J LJ02	SP31	1 ND01
2	0010					â LA15	ê LE15	Â LA16	Ê LE16	b LB01	k LK01	s LS01	¥ SC05	B LB02	K LK02	S LS02	2 ND02
3	0011					ä LA17	ë LE17	Ä LA18	Ë LE18	c LC01	l LL01	t LT01	Pts SC06	C LC02	L LL02	T LT02	3 ND03
4	0100					à LA13	è LE13	À LA14	È LE14	d LD01	m LM01	u LU01	ƒ SC07	D LD02	M LM02	U LU02	4 ND04
5	0101					á LA11	í LI11	Á LA12	Í LI12	e LE01	n LN01	v LV01	§ SM24	E LE02	N LN02	V LV02	5 ND05
6	0110					ã LA19	î LI15	Ã LA20	Î LI16	f LF01	o LO01	w LW01	¶ SM25	F LF02	O LO02	W LW02	6 ND06
7	0111					å LA27	ï LI17	Å LA28	Ï LI18	g LG01	p LP01	x LX01	¼ NF04	G LG02	P LP02	X LX02	7 ND07
8	1000					ç LC41	ì LI13	Ç LC42	Ì LI14	h LH01	q LQ01	y LY01	½ NF01	H LH02	Q LQ02	Y LY02	8 ND08
9	1001					ñ LN19	ß LS61	Ñ LN20	\ SD13	i LI01	r LR01	z LZ01	¾ NF05	I LI02	R LR02	Z LZ02	9 ND09
A	1010					[SM06	] SM08	¦ SM65	: SP13	« SP17	a SM21	¡ SP03	¬ SM66	– SP32	1 LI61	² NS02	³ NS03
B	1011					• SP11	$ SC03	, SP08	# SM01	» SP18	o SM20	¿ SP16	| SM13	ô LO15	û LU15	Ô LO16	Û LU16
C	1100					< SA03	* SM04	% SM02	@ SM05	Ǒ LD63	æ LA51	Đ LD62	- SM15	ö LO17	ü LU17	Ö LO18	Ü LU18
D	1101					(SP06	) SP07	— SP09	' SP05	ý LY11	‣ SD41	Ý LY12	¨ SD17	ò LO13	ù LU13	Ò LO14	Ù LU14
E	1110					+ SA01	; SP14	> SA05	= SA04	þ LT63	Æ LA52	Þ LT64	´ SD11	ó LO11	ú LU11	Ó LO12	Ú LU12
F	1111					! SP02	^ SD15	? SP15	" SP04	± SA02	¤ SC01	® SM53	¯ SM10	õ LO19	ý LY17	Õ LO20	SS99

Figure 15. Character Set 337 of Code Page 256

ID	Graphic	Description
LA01	a	a Small
LA02	A	A Capital
LA11	á	a Acute Small
LA12	Á	A Acute Capital
LA13	à	a Grave Small
LA14	À	A Grave Capital
LA15	â	A Circumflex Small
LA16	Â	A Circumflex Capital
LA17	ä	a Diaeresis Small
LA18	Ä	A Diaeresis Capital
LA19	ã	a Tilde Small
LA20	Ã	A Tilde Capital
LA27	å	a Overcircle Small
LA28	Å	A Overcircle Capital
LA51	æ	ae Diphthong Small
LA52	Æ	AE Diphthong Capital
LB01	b	b Small
LB02	B	B Capital
LC01	c	c Small
LC02	C	C Capital
LC41	ç	c Cedilla Small
LC42	Ç	C Cedilla Capital
LD01	d	d Small
LD02	D	D Capital
LD62	Ð	Eth Icelandic Capital
LD63	ð	eth Icelandic Small
LE01	e	e Small
LE02	E	E Capital,
LE11	é	e Acute Small
LE12	É	E Acute Capital
LE13	è	e Grave Small
LE14	È	E Grave Capital
LE15	ê	e Circumflex Small
LE16	Ê	E Circumflex Capital
LE17	ë	e Diaeresis Small

ID	Graphic	Description
LE18	Ë	E Diaeresis Capital
LF01	f	f Small
LF02	F	F Capital
LG01	g	g Small
LG02	G	G Capital
LH01	h	h Small
LH02	H	H Capital
LI01	i	i Small
LI02	I	I Capital
LI11	í	i Acute Small
LI12	Í	I Acute Capital
LI13	ì	i Grave Small
LI14	Ì	I Grave Capital
LI15	î	i Circumflex Small
LI16	Î	I Circumflex Capital
LI17	ï	i Diaeresis Small
LI18	Ï	I Diaeresis Capital
LI61	ı	i Dotless Small
LJ01	j	j Small
LJ02	J	J Capital
LK01	k	k Small
LK02	K	K Capital
LL01	l	l Small
LL02	L	L Capital
LM01	m	m Small
LM02	M	M Capital
LN01	n	n Small
LN02	N	N Capital
LN19	ñ	n Tilde Small
LN20	Ñ	N Tilde Capital
LO01	o	o Small

Figure 16 (Part 1 of 3). Description of Code Page 256 Graphics.

ID	Graphic	Description
LO02	O	O Capital
LO11	ó	o Acute Small
LO12	Ó	O Acute Capital
LO13	ò	o Grave Small
LO14	Ò	O Grave Capital
LO15	ô	o Circumflex Small
LO16	Ô	O Circumflex Capital
LO17	ö	o Diaeresis Small
LO18	Ö	O Diaeresis Capital
LO19	õ	o Tilde Small
LO20	Õ	O Tilde Capital
LO61	ø	o Slash Small
LO62	Ø	O Slash Capital
LP01	p	p Small
LP02	P	P Capital
LQ01	q	q Small
LQ02	Q	Q Capital
LR01	r	r Small
LR02	R	R Capital
LS01	s	s Small
LS02	S	S Capital
LS61	ß	Sharp s Small
LT01	t	t Small
LT02	T	T Capital
LT63	þ	Thorn Icelandic Small
LT64	Þ	Thorn Icelandic Capital
LU01	u	u Small
LU02	U	U Capital
LU11	ú	u Acute Small

ID	Graphic	Description
LU12	Ú	U Acute Capital
LU13	ù	u Grave Small
LU14	Ù	U Grave Capital
LU15	û	u Circumflex Small
LU16	Û	U Circumflex Capital
LU17	ü	u Diaeresis Small
LU18	Ü	U Diaeresis Capital
LV01	v	v Small
LV02	V	V Capital
LW01	w	w Small
LW02	W	W Capital
LX01	x	x Small
LX02	X	X Capital
LY01	y	y Small
LY02	Y	Y Capital
LY11	ý	y Acute Small
LY12	Ý	Y Acute Capital
LY17	ÿ	y Diaeresis Small
LZ01	z	z Small
LZ02	Z	Z Capital
ND01	1	One
ND02	2	Two
ND03	3	Three
ND04	4	Four
ND05	5	Five
ND06	6	Six
ND07	7	Seven
ND08	8	Eight
ND09	9	Nine
ND10	0	Zero

Figure 16 (Part 2 of 3). Description of Code Page 256 Graphics.

ID	Graphic	Description
NF01	½	One Half
NF04	¼	One Quarter
NF05	¾	Three Quarters
NS02	²	Two Superscript
NS03	³	Three Superscript
SA01	+	Plus Sign
SA02	±	Plus or Minus Sign
SA03	<	Less Than Sign
SA04	=	Equal Sign
SA05	>	Greater Than Sign
SC01	¤	International Currency Symbol
SC02	£	Pound Sign
SC03	$	Dollar Sign
SC04	¢	Cent Sign
SC05	¥	Yen Sign
SC06	Pts	Peseta Sign
SC07	ƒ	Florin Sign, Guilder Sign
SD11	´	Acute Accent
SD13	`	Grave Accent
SD15	^	Circumflex Accent
SD17	¨	Diaeresis or Umlaut Accent,
SD19	~	Tilde Accent
SD41	¸	Cedilla or Sedila Accent
SM01	#	Number Sign
SM02	%	Percent Sign
SM03	&	Ampersand
SM04	*	Asterisk
SM05	@	At Sign
SM06	[	Left Bracket
SM07	\	Backslash
SM08	]	Right Bracket
SM10	_	Double Underscore
SM11	{	Left Brace

ID	Graphic	Description
SM13	|	Vertical Line Unbroken, Vertical Bar,
SM14	}	Right Brace
SM15	‾	Overline
SM17	µ	Micro Symbol
SM19	°	Degree Symbol
SM20	º	Ordinal Indicator, Masculine
SM21	ª	Ordinal Indicator, Feminine
SM24	§	Section Symbor (USA), Paragraph Symbol (Europe)
SM25	¶	Paragraph Symbol (USA)
SM53	®	Registered Trademark Symbol
SM65	¦	Vertical Line Broken
SM66	¬	Logical NOT, "End of Line" Symbol
SP01		Space
SP02	!	Exclamation Point
SP03	¡	Exclamation Point Inverted
SP04	"	Quotation Marks
SP05	'	Apostrophe
SP06	(	Left Parenthesis
SP07	)	Right Parenthesis
SP08	,	Comma
SP09	–	Underline, Continuous Underscore
SP10	-	Hyphen, Minus Sign
SP11	.	Period, Full Stop
SP12	/	Slash
SP13	:	Colon
SP14	;	Semicolon
SP15	?	Question Mark
SP16	¿	Question Mark Inverted
SP17	«	Left Angle Quotes
SP18	»	Right Angle Quotes
SP30		Required Space
SP31		Numeric Space
SP32		Syllable Hyphen
SS99		Eight Ones

Figure 16 (Part 3 of 3). Description of Code Page 256 Graphics.

GLOSSARY

access code. A 4-byte decimal value, assigned to a document by the primary owner, that determines the set of users allowed to access the document.

address. (1) A character or group of characters that identifies a register, a particular part of storage, or some other data source or destination. (2) In DIA, a 1- to 8-byte character string that identifies the logical components of an office system network. These logical components are: source nodes, recipient nodes, and office system nodes.

affinity. A defined relationship that permits the DIA resources of a source or recipient to be accessed on his behalf by another user.

application processing services. The set of services that provide DIA functions enabling users to access processing capabilities of a remote node.

ARR. Asynchronous reply required.

asynchronous reply required (ARR). A command class that requests asynchronous processing and reply of a DIA function.

COD. Confirmation-of-delivery.

command. The function to be performed by the receiving DIA process.

command sequence. A DIU data stream component containing a set of one or more commands.

condition code. Defines the specific exception condition detected by the receiver of a DIU.

confirmation-of-delivery (COD). An asynchronous message returned to the source node of a distribution request that indicates the information distributed has been delivered to the recipient node.

control variable. A DIA entity maintained by a DIA process for the purpose of verification and authorization.

correlation value. Information used to uniquely identify and correlate the request to the reply.

data unit. A DIU data stream component that contains information referenced by operands of a command in the DIU.

data variable. A variable length collection of information contained in a structured field.

destination node. The office system node that provides services for attached source and recipient nodes.

DIA. Document interchange architecture.

DIA session. A logical connection between two DIA processes that is used to exchange information.

distribution. In general, the function provided by DIA of transporting information from a

source node to one or more recipient nodes.

distribution document name. A unique identifier assigned to each distribution request.

distribution library. The collection of distribution queues and data storage provided by an office system node for the purpose of document distribution.

distribution queue. A queue of distribution and status information to be delivered to source or recipient nodes.

distribution system. The collection of office system nodes, source nodes, and recipient nodes that are interconnected to form an office system network.

DIU. Document interchange unit.

DIU component. A self-defining, variable length structured field. The DIU components are: prefix, command sequence, data unit, document unit, and suffix.

DIU subcomponent. A self-defining, variable length structured field contained within a DIU component.

document. (1) (ISO) A data medium and the data recorded on it, that generally has permanence and that can be read by man or machine. (2) A unified collection of information pertaining to a specific subject or related subjects.

document content introducer. The DIU data stream subcomponent that identifies the beginning of the document content.

document descriptor. A set of profile parameters describing a document that satisfied a document library search request.

document descriptor document. A collection of one or more document descriptors.

document distribution services. The set of services that provide DIA functions enabling users to distribute information in a distribution system.

Document Interchange Architecture (DIA). The specification of rules and data streams necessary to interchange information in a consistent, predictable manner.

document interchange unit (DIU). The basic unit of information exchanged between DIA processes.

document library. A repository on which documents and document related information is stored.

document library services. The set of services that provide DIA functions enabling users to manage the contents of a document library.

document type. A classification that identifies the structure and format of a document.

document unit. A DIU data stream component that contains the document and related document information.

document unit identifier. The DIU data stream subcomponent that contains the document type and system code identifier of the document.

end user. (1) The ultimate source or destination of information flowing through a

system. (2) In DIA, a program, device, person, or system that uses DIA for the purpose of information interchange.

exception condition class. The type of exception condition detected by the receiver of a DIU. The exception classes are: session, syntax, semantic, process, and sender.

exception condition data. A field containing the DIU data stream component or subcomponent that caused the exception condition.

exception condition object. An identifier of the DIU component or subcomponent that caused the exception condition.

format byte. That part of the structure field introducer that defines the format and content of the structured field data variable.

function set. The set of commands that identify the scope of work. Function sets have been defined so that each set contains all commands required for a well-defined, usable, and complete set of functions for a given category of services.

GCID. Graphic character set ID.

graphic character set ID (GCID). The registry for graphic character sets and code pages.

ID. That part of the structured field introducer that defines the class and type of the structured field.

IDP. Interchange document profile.

Interchange Document Profile (IDP). A set of descriptors that identify and describe a document.

introducer. A 5-byte structured field identifier. The introducer contains a 2-byte length field, a 2-byte ID, and a format byte.

introducer extension. An optional extension to the structured field introducer used for segmentation of the structured field.

ISS. Introducer extension.

LADN. Library assigned document name.

library assigned document name (LADN). A unique name assigned to documents filed in the document library.

message. A collection of information transmitted from one point to another.

No reply required (NRR). A command class used when the function requested does not require a reply.

NRR. No reply required.

office system node. The DIA process that provides the services for attached source or recipient nodes.

operand. (1) (ISO) An entity to which an operation is applied. (2) A data stream subcomponent that controls the execution of the command.

originating node. The office system node that provides services for attached source nodes.

OSN. Office system node.

owner-delegate. A user that is designated as secondary owner by the primary owner of the document in the document library.

password. A character string used for validation and authorization to gain access to a resource.

personal. A distribution class of service that requires the recipient to supply a password to receive the distributed information.

prefix. The DIU data stream component that introduces and identifies the DIU.

primary owner. The user who files the document in the document library.

priority. A distribution class of service that prioritizes the distributions so information of higher priority is delivered before information of lower priority.

process. (1) A systematic sequence of operations to produce a specified result. (2) In DIA, a program that uses the DIA rules and data structures to interchange information.

profile parameter. A field of a subprofile that identifies and describes the document.

recipient. An end user that receives information in an office system network.

recipient node. A DIA logical component that provides services on behalf of recipients.

recovery action. The procedure recommended by the process that detected an exception condition.

reply. A command that is used to respond to a previously received request.

request. A command that specifies a function to be performed.

search argument. A search selection criterion that contains the profile parameter identifier, the search data value, and the search comparison operator.

search data parameter set. A collection of one or more search data parameters and the logical operators used to relate them.

search result list. A user named object that contains references to documents selected by the SEARCH command process.

segmentation. The division of a DIU data stream component into two or more segments.

source. An end user that requests services in an office system network.

source node. A DIA logical component that provides services on behalf of sources.

SRR. Synchronous reply required.

structured field. A self-defining, variable length field comprised of an introducer, an optional introducer extension, and a data variable.

subprofile. A set of profile parameters that describe the characteristics and attributes of a document.

suffix. The DIU data stream component that terminates the DIU.

synchronous reply required (SRR). A command class that requests synchronous processing and reply of a DIA function.

system code. An identifier associated with the originator of the document that is contained in a DIU document unit.

user. See end user.

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