



Open Position Protocol

Issue 15.0 - Preliminary

DMS TOP15

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Chapter 1: Protocol Description

1.1 Introduction

This document provides the functional description and interface specification for the interworking between the DMS and a position supporting a human operator.

The objective of this protocol is to act as a mechanism for identifying calls to operators, to allow the operator to request specific actions and to inform the operator of changing call characteristics. The protocol is also designed to inform the operator of certain non-call related changes that occur in the DMS.

Note: All numbers that are not prefixed in this document are decimal. Those preceded by ‘#’ are hexadecimal.

1.1.1 Document Structure

The Open Position Protocol (OPP) document is divided into 12 chapters. The following is a list of the chapters and a brief description of each one’s content.

- OPP Description - This section gives an overall view of the protocol.
- OPP Data Format - This section illustrates the data conventions used in the protocol.
- OPP Message Format - This section gives a detailed description of the message header and body of the protocol.
- OPP Action Identifiers - This section describes in detail the Action Identifiers of the protocol.
- OPP Call Data Identifiers - This section describes all of the call related Data Identifiers in the protocol.
- OPP Non-Call Data Identifiers - This section describes all of the non-call related Data Identifiers in the protocol.
- OPP Field Definitions - This section describes each of the fields used in all of the different Identifiers.
- OPP TMS Description - This section describes the interactions of the protocol with the TOPS Message Switch (TMS). Hardware configurations and maintenance are discussed.
- IP Position Description - This section describes considerations specific to positions that have IP voice and data connectivity to the DMS.
- OPP Assumptions - This section describes the development that needs to be done by the operator position to support this protocol.
- OPP TOPS Description - This section describes the implementation of this protocol by the TOPS application.
- OPP Revisions - This section describes the changes made to the document from one issue to the next.

1.2 System Configuration

This document does not attempt to fully describe the system configuration which uses this protocol. The only requirement is a voice link and a data path to the position. The configuration differs based upon the application using the protocol. Refer to specific application documentation for more detailed information.

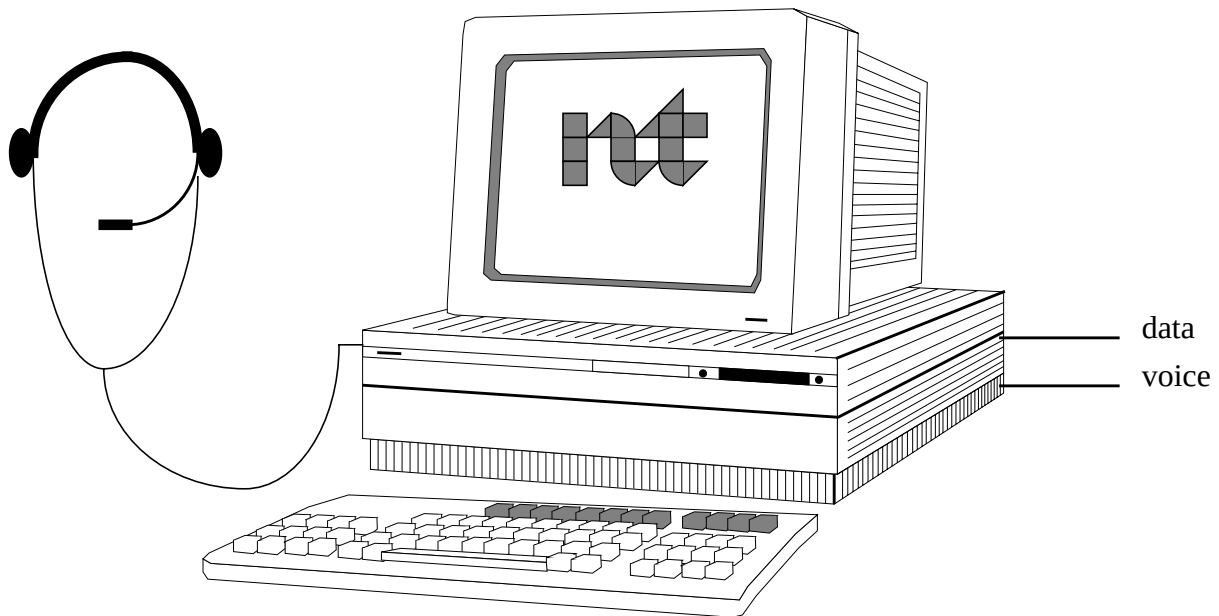


Figure 1: OPP Position Configuration

1.3 Protocol Objectives

The primary objective of this protocol is to provide a logical interface between the DMS and the position. This requires the protocol to:

1. Allow the position operators to log on and off.
2. Identify calls to the position.
3. Provide the position with a call description which is updated, on a real time basis, as call characteristics change.
4. Allow the position to request function execution.
5. Provide non-call information updates on a real time basis.
6. Provide an audit capability.

In accomplishing these objectives the protocol exhibits the following traits:

- Generality

The protocol uses the intelligence of the position to communicate in a manner which is separated from the specifics of operator key strokes and position screen updates. The position is informed of call characteristics and events which are relevant to the call, but the responsibility for the dissemination of this information is totally at the discretion of the position. Conversely, the DMS is informed of actions that the position would like executed, but not the actual operator keystrokes which induced the action request.

- Flexibility

As new functionality arrives, the protocol can be easily modified to incorporate changes. The protocol is backwards compatible. Refer to “Backward Compatibility” on page 32 for more information.

1.4 Protocol Description

OPP is defined as a set of messages. This message set can be subdivided into messages which are exchanged during call processing and messages which are used for non-call processing.

- Call Processing
 - Call Begin
 - Action Request
 - Call Update
 - Call Suspend
 - Call Resume
 - Call End
- Non-Call Processing
 - Action Request
 - Non-Call Update

1.4.1 Message Format

The message is composed of two parts: the message header and the message body. The message has the following format:

Message Header
Message Body

1.4.1.1 Message Header

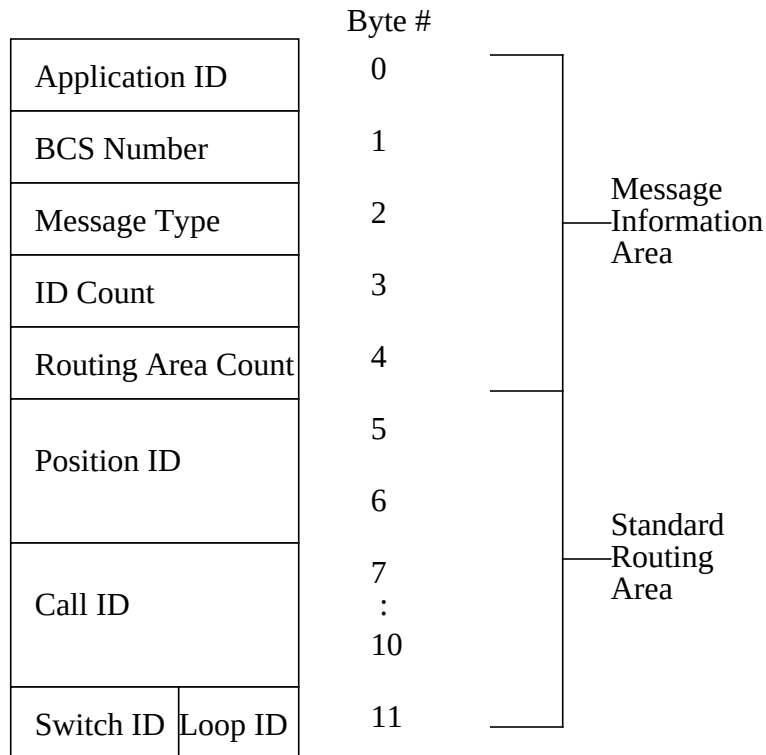
The header is used for all applications and message types, both incoming to the DMS and outgoing from the DMS. The message header is itself divided into two sections: a message information area and a routing area.

1. The message information section is fixed format. It is 5 bytes in length. It contains an application identifier, a Batch Change Supplement (BCS) number, the message type, the number of identifiers in the message body and a routing area count. This routing area count indicates the number of bytes contained in the routing area of the message header.
2. The routing area in itself is also fixed format. But the format and length can change based upon the application using the protocol. A standard routing area is defined here. Applications can use the standard routing area or define their own. Refer to each application's documentation for information on the routing area of the header.

The standard routing area contains the position identifier, the call identifier, the switch identi-

fier where the call is being handled and the position loop identifier.

Here is a diagram of the standard message header:



1.4.1.1.1 Message Types

This protocol supports seven message types. The following message types are used for messages going from the DMS to the position:

- Call Begin
- Call Update
- Call Suspend
- Call Resume
- Call End
- Non-Call Update

The Action Request message type is used for messages going from the position to the DMS.

1.4.1.2 Message Body

The message body is composed of identifiers. Each identifier begins with an ID value which designates its purpose and the fixed format grouping of information fields associated with it. Identifiers are grouped into the following types:

- Data Identifiers (DIDs)

DIDs are used to describe call and position characteristics to the position. The DID updates attributes and provides new characteristics.

- Action Identifiers (ActIDs)

ActIDs are used to request the DMS to perform specified functions. The ActID informs the DMS which action is being requested. The associated fields qualify the request and provide information necessary to accomplish the requested function.

1.4.1.3 Message Size

Overall message size is a function of the hardware and software used in the particular system configuration. This size affects which identifiers, and/or how many identifiers, can fit into a single message. The size of the routing area in the message header also impacts the size of the message body.

1.4.1.4 Message Body Encryption

Positions with IP voice and data connectivity to the DMS may optionally indicate to the DMS that they are capable of encrypting OPP message bodies. If the position supports encryption, the DMS encrypts the message body in every OPP message it sends to the position, and it assumes the message body in every OPP message it receives from the position is encrypted. The encryption and decryption algorithms are not published in this document; vendors of OPP-compliant positions that have IP voice and data connectivity to the DMS may obtain them from TOPS Marketing.

1.4.2 Call Processing Message Description

The call processing messages exchange information between the DMS and the operator position. Conveying this information presents the following challenges:

- Many data attributes can be associated with a call and different types of calls may possess different attributes.
- These data attributes change readily during the call.
- There is no restriction on the sequence of actions which may be requested by an operator.

Each of the messages provides a variable sized area which acts as a package for transmitting information. The components which may be placed within these areas are fixed format groupings of information known as **Identifiers**.

This message organization provides for flexible transmission of data by including various identifiers within the same message. These identifiers are fixed format but they can be of variable length.

1.4.3 Call Processing Messages

This section gives a detailed description of the function, contents, format and processing associated with each of the call processing message types.¹

1.4.3.1 Call Begin

Sender: DMS

Function: The Call Begin message is sent to present a call to a position. It provides unique call origination information and any call attributes that are known. It can also serve to indicate the end of the previous call at this position; see the description of implication rules for details.

DMS Processing: The DMS selects a position, connects its associated voice link to the call and transmits a Call Begin. The position should not rely upon the order of these events. An initial set of call attributes is transmitted within the message body. If necessary, additional messages are sent to complete the call description.

Position Processing: The position records the Call ID, Loop ID and Switch ID for subsequent communication with the DMS. If the position discovers that the specified call ID is still in use by a previous call, then it should conclude that the previous call no longer exists. Also, if the position already has a call on the same loop with a different call ID, then it should conclude that the previous call is complete and proceed with the new call. Call End messages may or may not be sent to indicate the end of a call.

Position Processing: The position extracts the data describing the call from the message body and conveys the information to the operator.

Lost Message - DMS: If the Call Begin message is lost, then the DMS assumes the position has the call. Call recovery schemes are implemented on an application basis. Refer to application documentation for more information.

Lost Message - Position: The position is not informed of the new call arrival through OPP messages. However, the voice path may be connected, indicating to the operator that a new call has arrived.

1. To uniquely identify a call where the general term 'call ID' is used, the Call ID and Switch ID fields must be considered together.

1.4.3.2 Action Request

Sender: Position

Function: The Action Request message provides a mechanism for the position to request that the DMS perform a specified action.

DMS Processing: The DMS performs the action specified by the identifier. If the action results in a call attribute change, then a Call Update message is returned to the position.

Position Processing: When the position determines that an action is required as a result of an operator keying sequence or other logic in the position, then an Action Request message is transmitted to the DMS. The message includes an ActID which describes the action to be performed and any qualifying information necessary for the DMS to perform the function.

Lost Message - DMS: If the Action Request message is lost, then the DMS does not perform the requested action.

Lost Message - Position: The position does not receive a response to the action request. The operator can repeat the action request when the expected response is not received.

1.4.3.3 Call Update

Sender: DMS

Function: The Call Update message is sent to inform the position of the call attributes. This message can be sent at any time, but is usually returned in response to an Action Request message.

DMS Processing: The DMS sends Call Update messages to the position to inform the position of changing call characteristics. These messages are usually returned in response to an Action Request message. However, Call Update messages may be sent without an Action Request.

If the amount of information to be reported at the position exceeds the size of the message body, then a subsequent Call Update message is transmitted.

Position Processing: The position extracts the data describing the call and determines how it should be used. It may be immediately acted upon by the position, displayed to the position screen, maintained for later processing or ignored.

Lost Message - DMS: No effect on DMS.

Lost Message - Position: The position is not aware of a change in the call characteristics. If the operator was expecting a response to an Action Request, then the request can be repeated.

1.4.3.4 Call Suspend

Sender: DMS

Function: The Call Suspend message is sent to inform the position that the current call has been placed in a state where the operator's voice path has been disconnected from the call. This frees the position to handle other calls. In general, the DMS will not process ActIDs containing the call ID of a suspended call. One exception is messages that contain the Call Cleared ActID. This is discussed below under Position Processing. The position that is attached to a suspended call may receive Call Update or Call Resume messages with the call ID of the suspended call in the header.

This message can be sent only when a call is present at the position. It is usually returned in response to a particular sequence of Action Request messages indicating the operator wishes to leave the current call temporarily. When a call at a position is suspended, it is possible for the DMS to present a new call on another loop at the same position.

DMS Processing: The DMS sends the Call Suspend message to inform the position that the call is being suspended. This messages are usually returned in response to a particular sequence of Action Request messages.

If the amount of information to be reported at the position exceeds the size of the message body, then a subsequent Call Update message is transmitted. The header for the Call Update message will contain the call ID, switch ID, and loop ID information for the newly suspended call.

Position Processing: The position extracts the data describing the call and determines how it should be used. It may be immediately acted upon by the position, displayed to the position screen, maintained for later processing or ignored.

If the position has at least one suspended call and no normal (non-suspended) calls, then all ActIDs sent to the DMS should contain nil call ID, switch ID, and loop ID header values. If the position has at least one normal (non-suspended) call, then the header on each ActID should contain the call id, switch ID, and loop ID of the non-suspended call.

Upon receiving a Call Suspend message, positions with IP voice and data connectivity to the DMS must send an Action Request message including the Call Cleared ActID to indicate successful processing of a Call Suspend message. Successful processing includes closing the IP voice connection (if it is not already closed) as well as placing the OPP call in a Call Suspended state. The message that contains the Call Cleared ActID should include the call ID, switch ID, and loop ID of the call that has just been suspended.

Lost Message - DMS: No effect on DMS.

Lost Message - Position: The position is not aware of the change in the call characteristics. Any ActIDs sent to the DMS will contain non-nil header values. The DMS will attempt to process the ActIDs, but it does not expect non-nil values in the header, so logs may be generated. If necessary, the appropriate application recovery scheme can be employed to correct the unexpected situation.

For positions with IP connectivity to the DMS, loss of a Call Suspend message also means the position will not send a Call Cleared ActID to the DMS, so the DMS will not immediately present a

new call to the position. If the DMS times out waiting for the Call Cleared ActID, it may take recovery action or it may simply present a new call to the position.

1.4.3.5 Call Resume

Sender: DMS

Function: The Call Resume message is sent to inform the position that a call which was possibly suspended has been reattached to the position. The operator's voice path is reconnected to the call.

DMS Processing: The DMS sends the Call Resume message to inform the position that the call is being reactivated. This message can be sent in response to the operator's request to reaccess a call.

If the amount of information to be reported at the position exceeds the size of the message body, then a subsequent Call Update message is transmitted. The header for the Call Update message will contain the call ID, switch ID, and loop ID information for the resumed call.

The Call Resume and subsequent Call Update messages provide the position the information necessary to refresh the operator's screen for further call processing on the reattached call.

Position Processing: The position extracts the data describing the call and determines how it should be used. It may be immediately acted upon by the position, displayed to the position screen, maintained for later processing or ignored. The header on each subsequent ActID should contain the call ID, switch ID, and loop ID of resumed call.

Lost Message - DMS: No effect on DMS.

Lost Message - Position: The position is not aware of the change in the call characteristics. If the call was previously suspended, the position will continue to send ActIDs with nil header values. The DMS will attempt to process the ActIDs, but it does not expect the nil values in the header, so logs may be generated. If necessary, the appropriate application recovery scheme can be employed to correct the unexpected situation.

1.4.3.6 Call End

Sender: DMS

Function: The Call End message indicates the conclusion of a call at the position.

DMS Processing: The DMS sends Call End to release the call from the operator position.

Position Processing: The position, upon receiving this message, discards all information relating to this call. If the position has IP voice and data connectivity to the DMS, before discarding the call information it should first close the IP voice connection (if it has not already been closed) and send an Action Request message including the Call Cleared ActID to indicate successful processing of the message. The message containing the Call Cleared ActID should include the call ID, switch ID, and loop ID of the call that has just ended.

Lost Message - DMS: No effect on DMS.

Lost Message - Position: The position has no knowledge that the call has ended. Any call related resources are not immediately freed (possibly affecting any position-collected statistical data). These resources will be recovered by the position when the next Call Begin message is received with the same loop identifier. When the position receives a Call Begin for the same loop as an existing call, the position should infer that the existing call is finished. The position should begin processing the new call.

For positions with IP voice and data connectivity to the DMS, loss of a Call End message also means the position will not send a Call Cleared ActID to the DMS, so the DMS will not immediately present a new call to the position. If the DMS times out waiting for the Call Cleared ActID, it may take recovery action or it may simply present a new call to the position.

1.4.4 Call Processing Information

Processing of a call can be divided into three sequential messaging stages (refer to “Call Processing Message Scenario” on page 16 and “Example Call Processing Messages” on page 17):

- Initiating the Call

When a call requiring operator services originates, the DMS checks for a free position which is capable of servicing the call. If no position is available, then the call is placed into queue. Once a position is obtained, a Call Begin message is transmitted to the position to initiate the call at the position. If the position has IP voice connectivity to the DMS, the DMS also initiates a VoIP connection for the call, normally before the OPP Call Begin message. The VoIP connection is initiated with a VoIP protocol, not with the OPP protocol.

If the amount of data required to describe the call’s attributes to the position exceeds the size of the Call Begin message body, then a subsequent Call Update message containing the additional information is sent.

- Servicing the Call

Once the call is at position, the operator determines which functions are required to service the call. The position sends Action Request messages containing ActIDs corresponding to the requested functions. The DMS attempts to execute the requested action.

The Action Request messages may or may not result in call attribute changes. If an attribute change occurs, or the request was a query for data, then a Call Update message is returned to the position upon completion of the Action Request processing. If the update information exceeds the size of the Call Update message body, then additional messages are transmitted.

It is also possible for Call Update messages to be transmitted to the position indicating call attribute changes which have occurred independent of any Action Request. For example, the calling party going onhook.

- Terminating the Call

When the operator requests an action to release the call from the position, or when the DMS determines for other reasons that the call should be released, the DMS sends a Call End message. If the position has IP voice connectivity to the DMS, separate messaging using a VoIP protocol will normally terminate the voice connection for the call. However, if the IP voice connection is still up when the position receives the Call End message, it should close the voice connection. It then responds with the Call Cleared ActID, indicating that it is ready for the next call. The Call Cleared ActID should not be sent unless the position has IP connectivity to the DMS.

If there are calls waiting in queue, a Call Begin message is transmitted to present a new call.

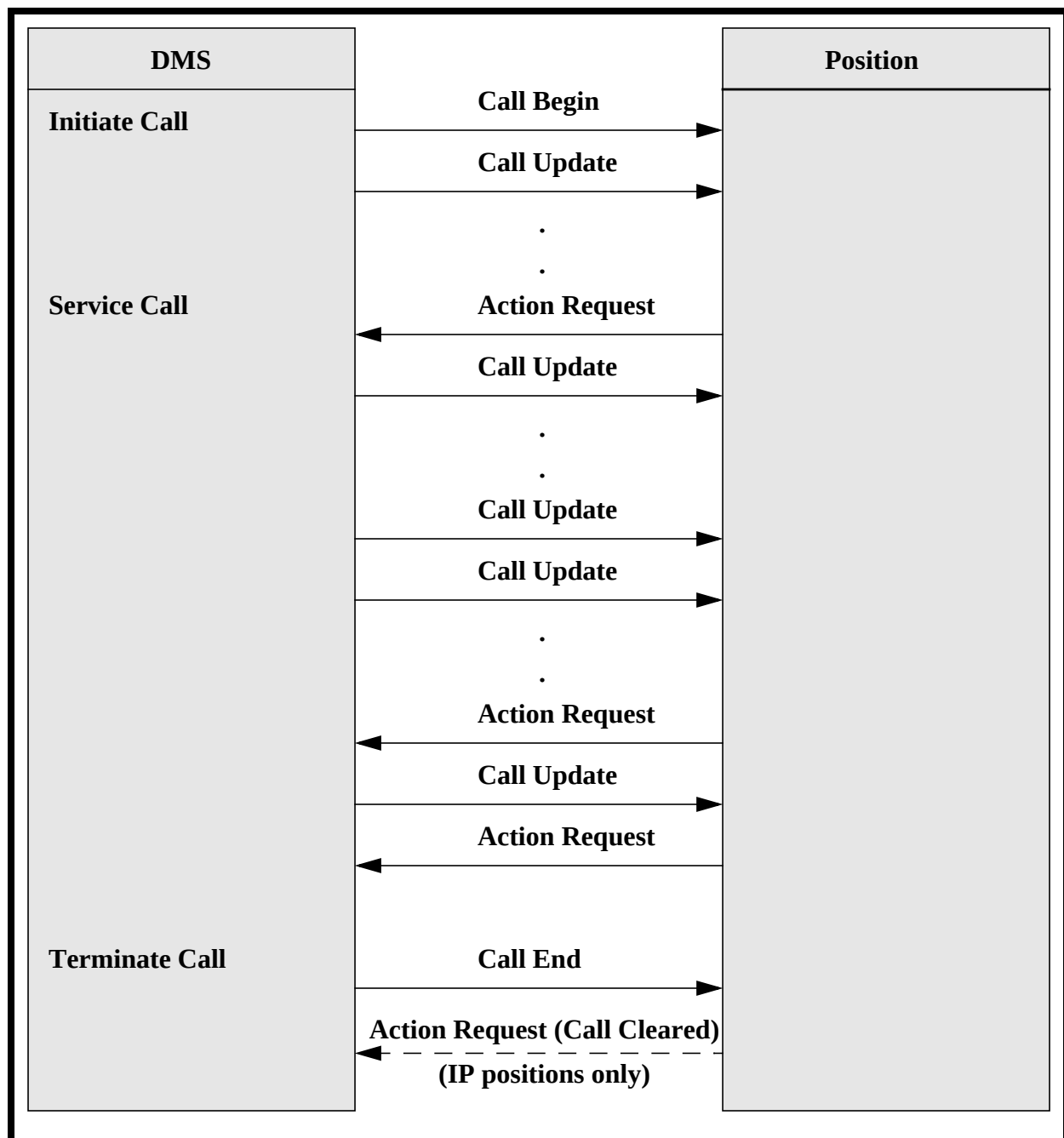


Figure 2: Call Processing Message Scenario

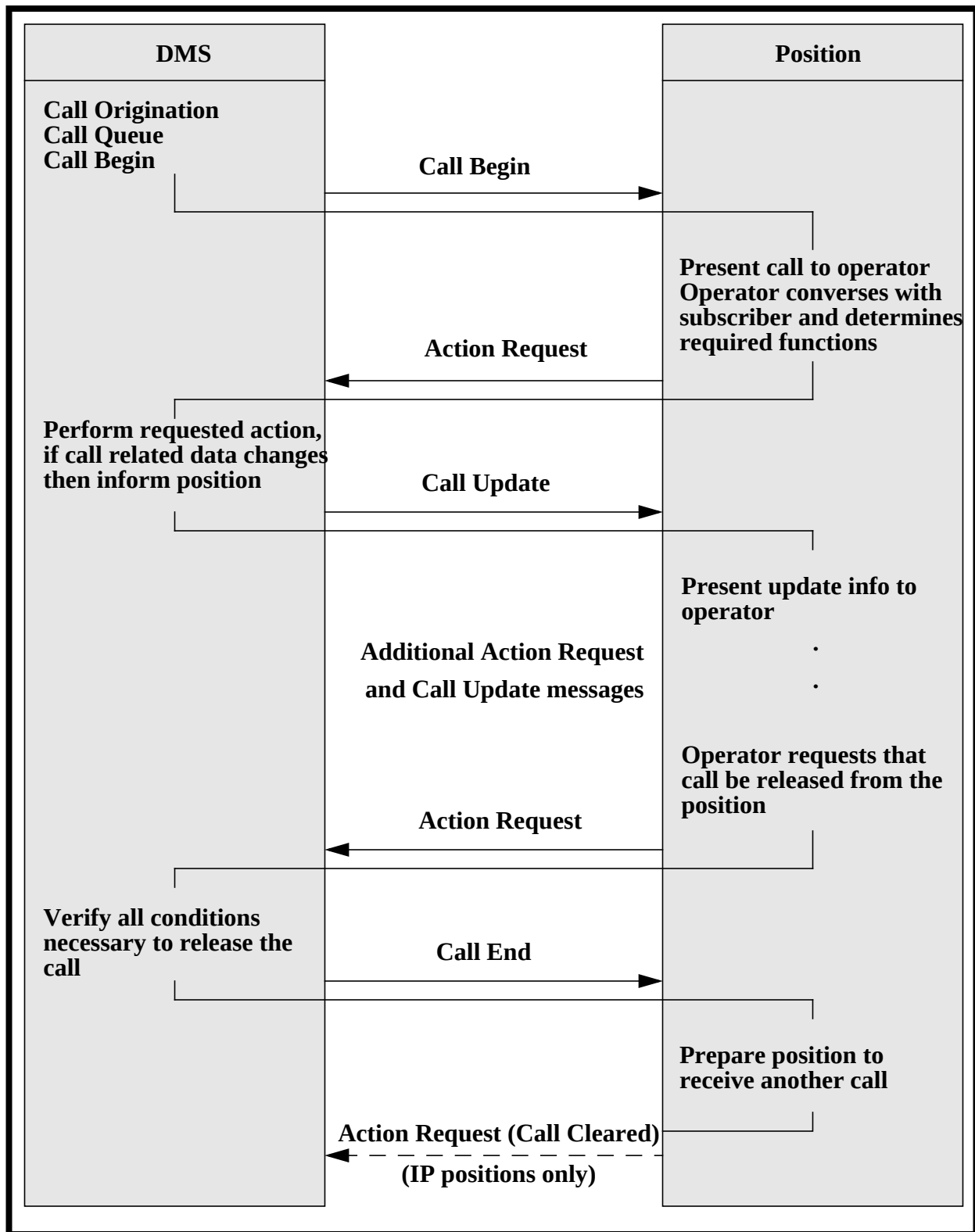


Figure 3: Example Call Processing Messages

1.4.4.1 Call Suspension and Resumption

The operator has the ability to request the suspension of a call. This ability is useful on positions which can process more than a single call at any given time. When a call is present at the position, operator action and screen displays are related to this call, which is identified by its loop number at the specific position. With more than one loop per position, the operator can request the current call be suspended so as to make the position available for new calls to be attached to other loops. After processing other calls, the operator can then be reconnected to the original call again, which is known as **resuming** the suspended call.

The following definitions describe the three states of each loop on a position:

- Call Not Present (CNP): There is not a call on the loop.
- Call Present (CP): The loop has a call which is currently being processed by the operator. The screen reflects the details of the call. The position may have only one loop in a Call Present state at any given time.
- Call Suspended (CS): The loop has a call but the operator voice path has been disconnected. Only a small subset of operator actions will affect the call. Changes in call attributes are still presented to the position via Call Updates, and the position may decide which information to display. New calls may be presented to the position on other loops.

1.4.4.2 Loop State Transitions

Four of the message types are responsible for transitioning loop states: Call Begin, Call End, Call Suspend, and Call Resume. The following diagram shows all possible loop state transitions for a single loop. The OPP message types which cause these transitions are indicated in boldface, and the three states are represented by the ovals. Note that a loop will not transition from Call Not Present to Call Suspended.

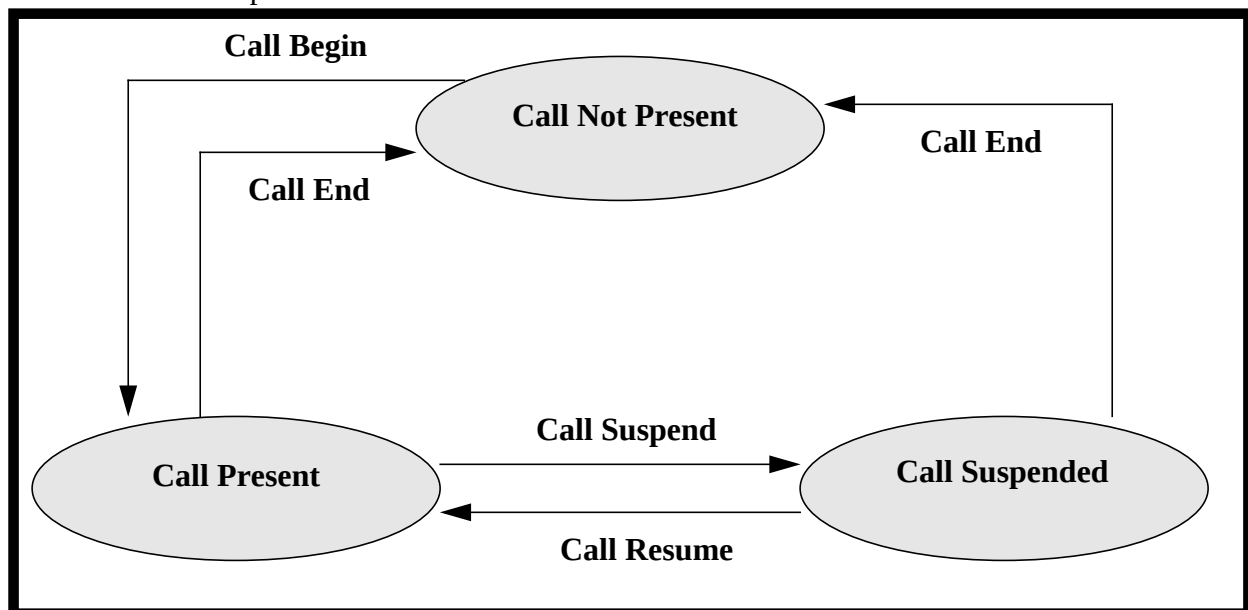


Figure 4: Valid Loop State Transitions

1.4.4.3 Loop State Transition Implications

Certain operator actions can lead to a loop state change for more than one loop at the same position. For example, if an operator has a call on one loop in the state Call Present, and a call on another loop in the state Call Suspended, a single action request can result in the first loop moving to Call Suspended and the second loop moving to Call Present. This transaction would require two messages from the DMS.

The DMS would prefer not to send two messages in this situation. Therefore, a Call Begin or Call Resume message implies a Call Suspend message for any other loop which is in a Call Present state. The loop which received the Call Begin or Call Resume will now have the operator's voice path connected. Any operator keying actions will result in action requests being sent to this loop. All other calls at the position should be moved to a Call Suspended state.

This paragraph applies only to positions with IP voice and data connectivity to the DMS. If the DMS does send only a Call Begin or Call Resume message with the implication that the currently active call should be moved to the Call Suspended state, the position is not expected to take all of the actions it takes when it receives an explicit Call Suspend message. That is, it should move the call to a Call Suspended state, but it should not initiate closing of the VoIP connection, and it should not send an Action Request message with a Call Cleared ActID acknowledging that the active call has been successfully suspended. These latter two actions should be taken only when the position receives a Call Suspend (or Call End) message.

1.4.4.4 Action Request Header Field Contents

The standard OPP header contains such fields as Call ID, Switch ID, and Loop ID. In some occasions, these fields should contain non-nil values when the position sends an Action Request message to the DMS. In other cases, these fields should contain nil values. Assuming a position with a single loop, the ActID header fields should be filled as described based on the state of the loop:

- Call Not Present (CNP): The three header fields should contain nil values.
- Call Present (CP): The three header fields should contain non-nil values.
- Call Suspended (CS): The three header fields should contain nil values.

For positions with IP voice and data connectivity to the DMS, it is assumed that when a loop transitions from the CP state to the CNP or CS state, the position will send the Action Request message with the Call Cleared ActID before it actually changes the loop state. Alternatively, the position may remember the call ID, switch ID, and loop ID values for inclusion in the message that contains the Call Cleared ActID

1.4.4.5 Multiple Loop Considerations

The following table shows the expected ActID header field values for the call ID, switch ID, and loop ID for a position with two loops.

The remarks in the previous section about Action Request messages with the Call Cleared ActID apply to this section as well.

Loop 1 State	Loop 2 State	ActID Header Contents
CNP	CNP	Nil values.
CP	CNP	Values associated with call on loop 1.
CS	CNP	Nil values.
CNP	CP	Values associated with call on loop 2
CP	CP	Not possible for two loops to be CP at the same time.
CS	CP	Values associated with call on loop 2.
CNP	CS	Nil values.
CP	CS	Values associated with call on loop 1.
CS	CS	Nil values

Table 1: ActID Header Contents

1.4.5 Non-Call Processing Message Description

The non-call processing messages exchange non-call related information between the DMS and the position. Conveying this information presents the following challenges:

- This information can be updated both while a call is at a position and when a position is idle.
- The information can result from an Action Request by the position or from a change within the DMS.

1.4.5.1 Identifiers

Each identifier begins with an ID value which designates its purpose and the fixed format grouping of information fields associated with it. Non-call processing identifiers are grouped into the following types:

- Non-Call Data Identifiers (DIDs): Non-call processing DIDs are used to describe non-call related information to the position. Note that non-call related characteristics can be updated while a call is at the position. When this occurs, a Non-Call DID is sent in a Call Update message.
- Action Identifiers (ActIDs): ActIDs are used to request that the DMS perform specified functions. The ActID informs the DMS which action is being requested. The associated fields qualify the request and provide the information necessary to accomplish the requested function.

1.4.6 Non-Call Processing Messages

This section gives a detailed description of the function, contents, format and processing associated with each of the non-call processing message types.

1.4.6.1 Non-Call Update

Sender: DMS

Function: The Non-Call Update message is sent to inform the position of changes in non-call related information. This message can be sent at any time.

DMS Processing: The DMS sends Non-Call Update messages to the position to inform the position of non-call related data changes. These messages can be returned in response to an Action Request message. However, Non-Call Update messages may be sent without an Action Request.

If the amount of information to be reported at the position exceeds the size of the message body, a subsequent Non-Call Update message is transmitted.

Position Processing: The position extracts the data and determines how it should be used. It may be immediately reacted upon by the position, displayed to the position screen, maintained for later processing or ignored.

Lost Message - DMS: No effect on DMS.

Lost Message - Position: The position is not aware of a change in non-call data. If the operator was expecting a response to an Action Request, then the request can be repeated.

1.4.6.2 Action Request

Sender: Position

Function: The Action Request message provides a mechanism for the position to request that the DMS perform a specified action.

DMS Processing: The DMS performs the action specified by the identifier.

Position Processing: When the position determines that an action is required, as a result of an operator keying sequence or an application process decision, then a Action Request message is transmitted to the DMS. The message includes an ActID which includes the action to be performed and any qualifying information necessary for the DMS to perform the function.

Lost Message - DMS: If the Action Request message is lost, then the DMS does not perform the requested action.

Lost Message - Position: The position does not receive a response to the action request. The operator can repeat the action request when the expected response is not received.

1.4.7 Non-Call Processing Information

The following figure shows an example of an Action Request which results in Non-Call Updates being sent by the DMS. In this scenario, the operator has queried the DMS for a list of positions in a particular state. This list is transmitted to the position in a series of Non-Call Update messages.

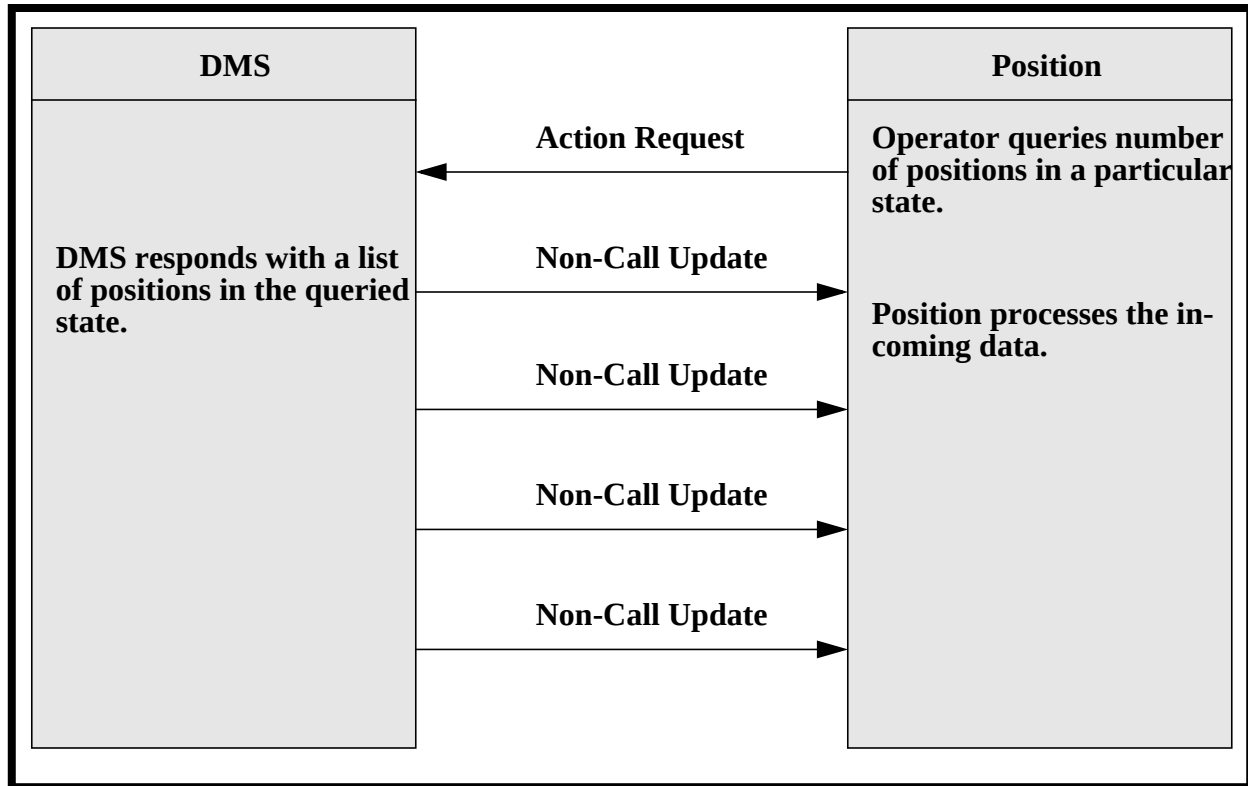


Figure 5: Example Non-Call Processing Messages

1.5 Login/Logout

This section outlines the login and logout procedures. Message flows for each are described.

1.5.1 Login

Successful login involves verifying the position and operator numbers, and determining the service profile for this session. It also involves a progression through a series of position states, and more information on position states may be found in the description of the Position State DID or ActID, and in the description of the Position State Field.

The message flow for the login scenario is shown in “Example Login Message Scenario” on page 26. The login process begins when the position becomes occupied and informs the switch. The switch acknowledges this by indicating a change of position state. In all matters of position state, the switch is the master and the position is the slave. If the position requests a state change that cannot be accomplished, the switch indicates this by sending down a state other than the one requested; this is usually the existing state or a pending state.

The next step occurs when the position sends up the operator number that is to be logged in. If a password is required for login, the switch requests it at this point, and the position responds with the password.

The switch then sends the services that the operator and position are set up to provide. The position must attempt to log in to these services and provide the switch the success or failure of these attempts. Services that do not need specific login, such as toll and assistance, should be marked by the position as logged in successfully.

The switch may also trim down the service set; for instance, there may be link problems between the switch and service nodes. The resulting set of successfully established services is then sent to the position. This set is the maximum service set that the operator is allowed to provide for this session.

At this point, login is complete. Yet the position is not ready to accept calls. The switch places the position in a busy state when service login is complete. The position must then ask to accept calls, whereupon the switch indicates the new state to the position and begins to present calls.

The following figure shows an example of a login scenario.

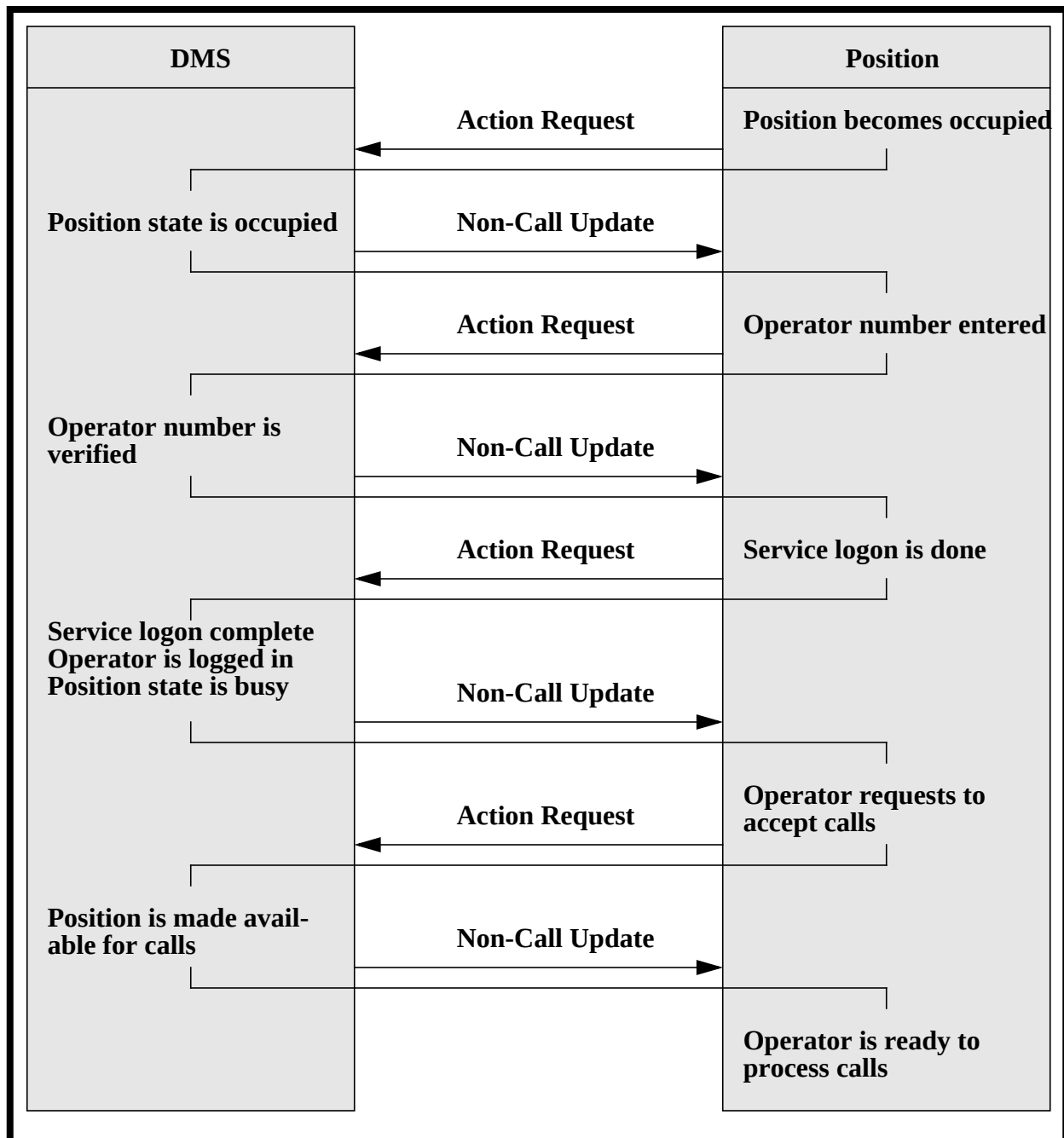


Figure 6: Example Login Message Scenario

1.5.2 Logout

Logout is instigated by the position requesting a state of unoccupied. If there is no call at the position, the switch logs out the position and acknowledges the unoccupied state of the position. If there is a call at the position, the switch will put the position into a pending state until the call has been released by the position. When that call is released, the switch will log out the position and acknowledge the unoccupied state.

The position must not log out of any services until the switch acknowledges the unoccupied state.

1.6 Failure Strategies

Lost messages are handled differently depending upon the application using OPP. Refer to the specific application section of the document for more details on failure strategies.

1.7 Position Maintenance

The use of this protocol requires the position to perform basic maintenance. The means of communicating maintenance information between the position and the switch is not within the realm of OPP. Additionally, maintenance is a function of the system configuration, examples of which appear in the TMS Description and IP Position Description sections of this document. The position is responsible for the following maintenance:

- **Diagnostics**

When the DMS requests diagnostics to be run, the position should perform internal tests of its hardware and software. The results of the tests are communicated to the DMS as pass or fail.

- **Busy**

When the DMS takes a position out of service, it sends a maintenance request of busy. The position should take steps to refrain from sending Action Requests to the DMS.

- **Return to Service**

For positions with traditional TMS connectivity to the DMS, the DMS initiates bringing the position into service. When the DMS puts a position into service, it sends a maintenance request of return to service. The position should only reply 'OK' if it is functioning well enough to handle calls. Otherwise, it should reply 'failed'.

For positions with IP connectivity to the DMS, the position initiates the request to come into service. The position should request to come into service only if it is functioning well enough to handle calls.

- **Unsolicited Messages**

When the position detects a problem in its hardware or software, it should inform the DMS by sending a maintenance message indicating a problem. This type of message is called unsolicited because the DMS has not requested the position to perform a maintenance action. Additionally, the position may request a Return to Service action of the DMS. For positions with traditional TMS connectivity to the DMS, this would occur when the position knows that a previous problem has been resolved. For positions with IP connectivity to the DMS, an unsolicited maintenance message is the normal way in which the in-service sequence is initiated.

1.8 Auditing

OPP provides a means for the DMS to audit the position. The purpose of the audit is to verify the sanity of the position. The OPP audits described in this section are used only when the position has traditional TMS connectivity to the DMS. For positions with IP connectivity, auditing is done with maintenance messages that are not part of OPP. This is discussed further in the IP Position Description section.

The audit is always initiated by the DMS. It is sent when the position is returned to service through maintenance. The Audit DID may be sent along with other DID's (i.e. Position State DID) in a Non-Call Update Message. The audit is also performed while the position is in service.

The DMS expects a response from the position in the form of an Action Request containing the Audit ActID. This response should be sent immediately following the receipt of the Audit DID.

The DMS expects the audit response to be received during a certain time interval. If the reply is not received, then the position is taken out of service by the DMS. A maintenance message is sent causing the position to go into a busy state. Diagnostics are then run on the position. If the diagnostics pass, then the position is returned to service.

The Audit DID contains the BCS number of the DMS software (hence the version of the OPP). The BCS number is used to flag upgrades to the protocol. The receipt of the Audit ActID with a compatible BCS number is sufficient to prove position sanity (see the next section on "Backward Compatibility"). The position should respond using its own BCS or software release level.

The following figure shows an example of an audit scenario.

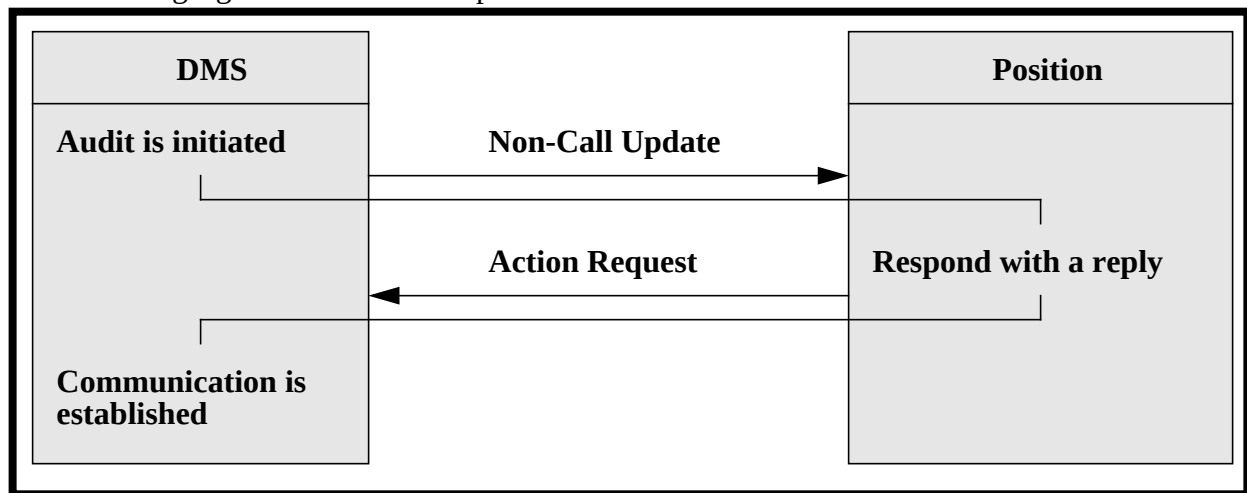


Figure 7: Example Audit Messages

The OPP version is also directly related to the DMS software release, as the following table illustrates

OPP Version	DMS Software Release
50	TOPS15
49	TOPS14
48	TOPS13
47	TOPS12
46	TOPS11
45	TOPS10
44	TOPS09
43	TOPS08 and TOPS81
42	TOPS07
41	TOPS06 and TOPS61
40	TOPS05 and TOPS51
39	TOPS04
38	TOPS03
37	TOPS02
36	BCS36
35	BCS35

Table 2: OPP Version to DMS Software Release Relationships

1.9 Backward Compatibility

OPP is designed to allow for expansion of the protocol. Several mechanisms are in place to provide backward compatibility when changes are introduced.

1.9.1 Byte Count Fields

The byte count fields used in DIDs, ActIDs, and the message header itself allow for the future addition of fields. Any new fields must be added **after existing fields** so that offsets into the identifiers or header are not altered. Both the DMS and the position must use the appropriate byte count field to find the next element in the message; thus the device using the older vintage of the protocol skips any new fields being sent by the device with the newer vintage. Fields may not be deleted from identifiers or headers, nor may existing values within a field be redefined; these kinds of changes would destroy backward compatibility.

1.9.2 BCS Number

The OPP version is determined by the DMS software Batch Change Supplement (BCS) number. Each time a new BCS (i.e. software load) is installed into the switch, the BCS number changes.

In order to ensure compatibility, each device (DMS and positions) must be able to communicate with another which is running a load that is within 3 BCS numbers either way. For example, a position which is running OPP software designed for BCS 48 must be able to exchange messages with any DMS switch running a BCS load numbered from 45 to 51. An exception occurs for positions with IP voice and data connectivity to the DMS. These require BCS50 or higher in both the position and the DMS.

It is understood the devices running different BCS loads may not be able to use the entire functionality of OPP. However there should not be any ‘fatal’ errors as long as the above rule is observed.

This philosophy allows either end to be upgraded first when new loads are released. While mismatches can exist with limited degradation in functionality for extended periods, it is recommended that new loads be introduced to all devices at relatively the same time.

1.9.3 Audits

The OPP audit procedure, which is used only with positions that have traditional TMS-based connectivity to the DMS, consists of a single message exchange between the DMS and the position (see the previous section on “Auditing”). Initially the DMS sends an Audit DID which contains the BCS number in the switch. The position responds with the Audit ActID containing the BCS number in the position. Should there be a difference of more than three, the DMS takes the position out of service.

For positions with IP voice and data connectivity to the DMS, auditing occurs as part of the maintenance messaging rather than as part of OPP. However, the DMS still removes the position from service if it detects a difference of more than three BCS levels.

Chapter 2: Data Format

2.1 Data Format

Each message is composed of two distinct portions, the message header which contains identification information and the message body which contains the message data. Note that some messages may contain no message body data.

Numeric values in the descriptions that follow, are specified as decimal values and/or hex values. Hex values are preceded by a pound ('#') sign.

In general, all bytes in a message should be filled with #FF (all bits equal to 1) before data is placed in the fields within the message. Thus if any field (except Set fields) received in a message has all bits set to 1, then it may be concluded that the field is not applicable. Ranges of values in each field are restricted so that no legitimate value ever results in an all bits set condition (again, the exception is Set fields). At the field level, #FF should not be considered an error. It means the field is not applicable for this instance of the Identifier.

When bits are referred to in a byte, bit 0 is the least significant (i.e., rightmost) bit, while bit 7 is the most significant (leftmost) bit.

Fields are of one of the following types:

- Binary Fields
- Set Fields
- ASCII Fields
- Binary Coded Decimal (BCD) Fields

2.1.1 Binary Fields

A binary field allows a single value out of a range of values to be specified for a particular parameter. It may be interpreted as a numeric value, or mapped into an enumerated type where each value corresponds to a particular condition or action.

In binary fields which span more than one byte, the first byte in the field contains the least significant portion of the value. The second byte contains the next most significant portion, and so on.

2.1.2 Set Fields

A set field allows multiple values to be simultaneously specified for a particular parameter. Each bit in the field corresponds to an element in a set of conditions or actions. If a bit is set to 1, then the set element (i.e., condition or action) associated with that bit is present in the field.

2.1.3 ASCII Fields

An ASCII field allows textual information to be passed between the DMS and the position. Each ASCII character requires one byte in a message.

If the number of ASCII characters in an ASCII field varies, then a character count field is included

in the message. Nil byte values (#FF) may appear in the ASCII character stream and will be included in the count.

The following table illustrates the ASCII character set.

Bits 0 - 3	Bits 4 - 6							
	#0	#1	#2	#3	#4	#5	#6	#7
#0	null	datalink escape	space	0	@	P	'	p
#1	start of heading	device control 1	!	1	A	Q	a	q
#2	start of text	device control 2	”	2	B	R	b	r
#3	end of text	device control 3	#	3	C	S	c	s
#4	end of transmission	device control 4	\$	4	D	T	d	t
#5	enquiry	negative ack	%	5	E	U	e	u
#6	acknowledgment	synchronous/idle	&	6	F	V	f	v
#7	bell or attention signal	end of transmitted block	'	7	G	W	g	w
#8	back space	cancel (error in data)	(	8	H	X	h	x
#9	horizontal tabulation	end of medium	)	9	I	Y	i	y
#A	line feed	start of special sequence	*	:	J	Z	j	z
#B	vertical tabulation	escape	+	;	K	[	k	{
#C	form feed	file separator	,	<	L	\	l	
#D	carriage return	group separator	-	=	M	]	m	}
#E	shift out	record separator	.	>	N	^	n	~
#F	shift in	unit separator	/	?	O	_	o	delete

Table 3: ASCII Character Set

2.1.4 Binary Coded Decimal (BCD) Fields

A BCD digit field allows data comprised of digits (such as directory numbers) to be transmitted without conversion. Each BCD digit requires a nibble (half a byte) of store. Thus, each byte in a BCD digit field can hold two digits.

BCD digits appear in least significant nibble (bits 0 to 3), most significant nibble (bits 4 to 7) order

within each byte. Thus, the digit string '1234' would be placed in two bytes, with the first byte containing #21, and the second #43.

If a field contains an odd number of BCD digits, then the byte containing the last digit should be padded with a nil nibble value (#F) in the most significant nibble, i.e., '12345' would result in a byte stream #21, #43, #F5.

If the BCD field varies in number of digits, then a digit count field is included in the message. Nil nibble values (#F) may appear in the BCD digit stream and will be included in the count.

Chapter 3: Message Format

3.1 Message Format

The message is composed of two parts: the message header and the message body. The composite length of the message is determined by the path to the position. For example, if the TMS is used to connect the DMS and the position, then the message length cannot exceed 44 bytes of OPP. The message has the following format:

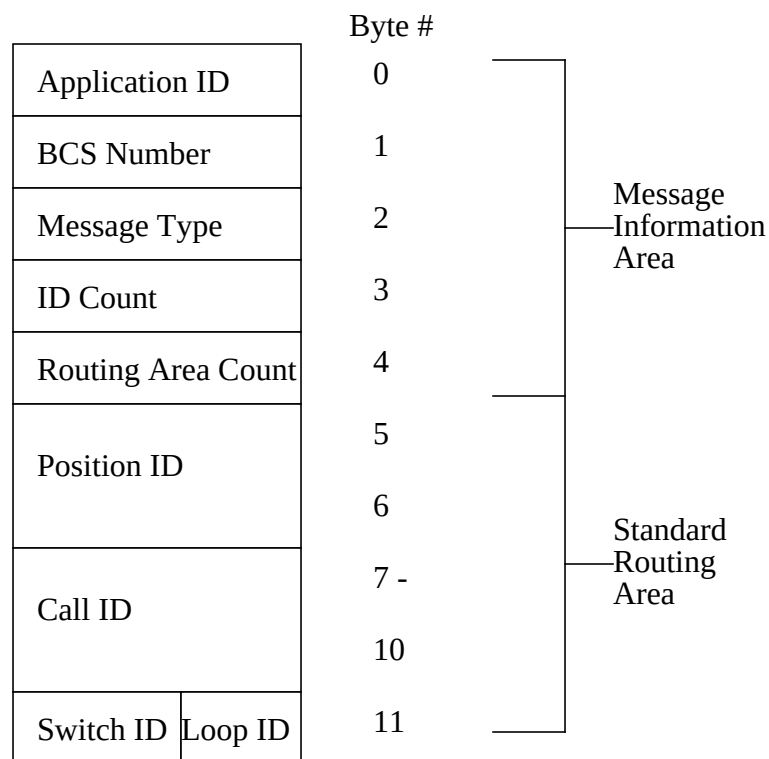
Message Header
Message Body

3.2 Message Header

The header is used for all applications and message types, both incoming to the DMS and outgoing from the DMS. The message header is itself divided into two sections: a message information area and a routing area.

1. The message information section is fixed format. It is 5 bytes in length. It contains an application identifier, a Batch Change Supplement (BCS) number, the message type, the number of identifiers in the message body and a routing area count. This routing area count indicates the number of bytes contained in the routing area of the message header.
2. The routing area in itself is fixed format. But the format and length can change based upon the application using the protocol. A standard routing area is defined here. Applications can use the standard routing area or define their own. Refer to each application section of this document for information on the routing area of the header. The standard routing area contains the position identifier, the call identifier, the switch identifier where the call is being handled and the position loop identifier.

Here is a diagram of the standard message header:



3.2.1 Message Header Fields

Following is a description of each of the fields that appear in the header for the OPP message.

3.2.1.1 Application Identifier

Description: The application identifier specifies which application is communicating with the DMS using OPP. On the DMS side, the application ID can aid interpretation of the message. On the application side, the application ID can be used to verify message integrity.

Messages: Applicable to all message types.

Length: 1 byte

Format: binary

Range: 0 = Traffic Operator Position System (TOPS)

Example: TOPS application

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

3.2.1.2 BCS Number

Description: The Batch Change Supplement (BCS) number specifies the level at which the DMS and the position are communicating. The BCS number acts as a version identifier for the appropriate release of OPP.

Messages: Applicable to all message types.

Length: 1 byte

Format: binary

Range: 0 to 254

Example: BCS Number is 35

7	6	5	4	3	2	1	0
0	0	1	0	0	0	1	1

3.2.1.3 Call ID

Description: Indicates what call the message pertains to. The first byte provides the low order bits of the Call ID, the fourth byte provides the high order bits.

Messages: Applicable to the following message types:

- Call Begin
- Call Update
- Call Suspend
- Call Resume
- Call End
- Action Request¹

Length: 4 bytes

Format: binary

Range: 0 to 4294967294

Example: Call ID is 16938 (#0000 422A)

7	6	5	4	3	2	1	0	Byte #
0	0	1	0	1	0	1	0	1 (least significant)
0	1	0	0	0	0	1	0	2
0	0	0	0	0	0	0	0	3
0	0	0	0	0	0	0	0	4 (most significant)

1. Only applicable to call-related Action Requests. The Call ID field contains nil values in non-call Action Requests. The Call ID field also contains nil values in Non-Call Update messages.

3.2.1.4 ID Count

Description: For Call Begin, Call Update, Call Suspend, Call Resume, and Non-Call Update messages, this field represents the number of DIDs in the message body. For Action Request messages, this field represents the number of ActIDs in the message body.

Messages: Applicable to all message types.

Length: 1 byte

Format: binary

Range: 0 to 254

Example: ID count is 1

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

3.2.1.5 Message Type

Description: The message type is required to identify the message and its contents to the application or to the DMS.

This protocol supports 7 message types. Six of the message types are used for messages going from the DMS to the position. They are Call Begin, Call Update, Call Suspend, Call Resume, Call End, and Non-Call Update. One message type is used for messages going from the position to the DMS. It is an Action Request.

Messages: Applicable to all message types.

Length: 1 byte

Format: binary

Range: 0 = call begin
1 = call update
2 = call end
3 = action request
4 = non-call update
5 = call suspend
6 = call resume

Example: Call Begin message

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

3.2.1.6 Position ID

Description: Identifies the position that the call is being serviced by. The first byte provides the low order bits of the Position ID, and the second byte provides the high order bits.

Messages: Applicable to all message types.

Length: 2 bytes

Format: binary

Range: 0 to 65534

Example: Position ID is 825 (#339)

7	6	5	4	3	2	1	0	Byte #
0	0	1	1	1	0	0	1	1 (least significant)
0	0	0	0	0	0	1	1	2 (most significant)

3.2.1.7 Routing Area Count

Description: The routing area count is required to specify the length of the routing area to the application or to the DMS.

Messages: Applicable to all message types.

Length: 1 byte

Format: binary

Range: 0 to 254

Example: A message header routing area of length 7.

7	6	5	4	3	2	1	0
0	0	0	0	0	1	1	1

3.2.1.8 Switch/Loop Id

Description: The switch/loop ID is used with the position ID to specify an operator call's location. The location is determined as follows:

- The switch ID tells in which switch in a network of switches the call is located.
- The loop ID tells which loop on a position the call is located.

Messages: Applicable to the following message types:

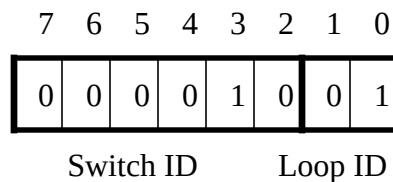
- Call Begin
- Call Update
- Call Suspend
- Call Resume
- Call End
- Action Request²

Length: 1 byte

Format: binary

Range: The loop ID occupies bits 0-1 and is in the range 0 to 2. The switch ID occupies bits 2-7 and is in the range 0 to 62.

Example: Switch ID = 2, Loop ID = 1



2. Only applicable to call-related Action Requests. The Switch ID/Loop ID field contains nil values in non-call Action Requests. The Switch ID/Loop ID field also contains nil values in Non-Call Update messages.

3.3 Message Body

The message body is composed of identifiers. Each identifier begins with an ID value which designates its purpose and the fixed format grouping of information fields associated with it. Identifiers are grouped into the following types:

- **Data Identifiers (DIDs):** DIDs are used to describe call and position characteristics to the position. The DID updates attributes and provides new characteristics.
- **Action Identifiers (ActIDs):** ActIDs are used to request the DMS to perform specified actions. The ActID informs the DMS which action is being requested. The associated fields qualify the request and provide information necessary to accomplish the requested action.

The message body may be of any length. The size of some DIDs will be governed by the specific application message size, and these limitations are discussed in the appropriate application documentation. For positions with IP voice and data connectivity to the DMS, the message body may be encrypted according to optionality in the position. For more information, refer to the IP Position Description section.

All message types have variable length message bodies. Action Request messages contain only ActIDs, while the other message types contain call and non-call DIDs. To sum up:

- **Action Request:** Variable length message body; contains ActIDs.
- **Call Begin:** Variable length message body; can contain call and non-call DIDs.
- **Call Update:** Variable length message body; can contain call and non-call DIDs.
- **Call Suspend:** Variable length message body; can contain call and non-call DIDs.
- **Call Resume:** Variable length message body; can contain call and non-call DIDs.
- **Call End:** Variable length message body; can contain call and non-call DIDs.
- **Non-Call Update:** Variable length message body. In general, contains only non-call DIDs. Occasionally a call DID may be sent in a Non-Call Update message. An example is the No Action DID, which can be sent in both Call Update and Non-Call Update messages. It is a call DID because it is most often sent during call processing.

Chapter 4: Action Identifier Description

4.1 Alternate Date ActID

Identifier: #0229

Description: This ActID is sent to the DMS to associate an alternate date with the call.

Size: 5 bytes

Data Fields:

ActID Byte Count:
0 to 254

Alternate Month:
1 to 12

Alternate Day:
1 to 31

Byte #	Meaning
0	ID = #0229
1	
2	ActID Byte Count
3	Alternate Month
4	Alternate Day

4.2 Alternate Time ActID

Identifier: #022A

Description: This ActID is sent to the DMS to associate an alternate time with the call.

Size: 5 bytes

Data Fields:

ActID Byte Count:
0 to 254

Alternate Hour:
0 to 23

Alternate Minute:
0 to 59

Byte #	Meaning
0	ID = #022A
1	
2	ActID Byte Count
3	Alternate Hour
4	Alternate Minute

4.3 AMA Status ActID

Identifier: #0200

Description: This ActID is sent to the DMS when the operator requests a change in the AMA status of the call.

Size: 5 bytes

Data Fields:

ActID Byte Count:
0 to 254

AMA Status:

- 0 = unspecified
- 1 = start timing
- 2 = cancel timing
- 3 = cancel call
- 4 = calling card billing verification
- 5 = collect billing verification
- 6 = third party billing verification
- 7 = handoff to automated system
- 8 = rating verification

Automated System ID:

- 0 = automated alternate billing service

Byte #	Meaning
0	ID = #0200
1	
2	ActID Byte Count
3	AMA Status
4	Automated System ID

4.4 Attached Operator ActID

Identifier: #0226

Description: This ActID is sent to the DMS when the operator requests to add another operator or position to the call, to release a second operator from a call, or to cancel a request for another operator or position.

The value of the Assistance Request Type field determines whether the Position/Operator Number field is to be interpreted as a position number or an operator number.

Size: 6 bytes

Data Fields:

ActID Byte Count:
0 to 254

Assistance Request Type:
0 = release operator
1 = general assistance
2 = general transfer
3 = directed assistance by position
4 = paged assistance
5 = directed assistance by operator

Position/Operator Number:
0 to 65534

Byte #	Meaning
0	ID = #0226
1	
2	ActID Byte Count
3	Assistance Request Type
4	Position/Operator Number
5	

4.5 Audit ActID

Identifier: #0201

Description: This ActID is sent to the DMS when the position replies to an audit. The receipt of this ActID verifies communication between the DMS and the position. This ActID should be returned immediately upon the receipt of the Audit DID from the DMS. The BCS number (i.e. software release) should be that of the position; not necessarily that of the DMS sent in the Audit DID.

Size: 4 bytes

Data Fields:

ActID Byte Count:
0 to 254

BCS Number:
0 to 254

Byte #	Meaning
0	ID = #0201
1	
2	Actid Byte Count
3	BCS Number

4.6 Automated Services ActID

Identifier: #022E

Description: This ActID is sent to change the behaviour of automated services associated with the call.

Size: 4 bytes

Data Fields:

ActID Byte Count:
0 to 254

Automation Status:
0 = automation denied
1 = automation allowed

Byte #	Meaning
0	ID = #022E
1	
2	ActID Byte Count
3	Automation Status

4.7 Booked Call Database ActID

Identifier: #0220

Description: This ActID is sent to request interaction between the current call at the position and the Booked Call Database.

Size: Variable

Data Fields:

ActID Byte Count:
0 to 254

Booked Call Database Action Request:
0 = database class
1 = store database call
2 = retrieve database call using calling number
3 = retrieve database call using serial number
4 = next database call
5 = delete database call
6 = clear database call

Booked Call Database Action Number Count:
0 to 254

Booked Call Database Action Number:
BCD digits, each ranging from 0 to 9

Byte #	Meaning
0	ID = #0220
1	
2	Actid Byte Count
3	Booked Call Database Action Request
4	Booked Call Database Action Number Count
5	Booked Call Database Action Number
...	
n	

4.8 Call Cleared ActID

Identifier: #0231

Description: This ActID is sent to acknowledge that a call has been cleared (ended or suspended) at the position, and the position is able to handle another call.

Size: 3 bytes

Data Fields:

ActID Byte Count:
0 to 254.

Byte #	Meaning
0	ID = #0231
1	
2	Actid Byte Count

4.9 Call Type For Queueing ActID

Identifier: #0230

Description: This ActID is sent to the DMS to update the call type for queueing.

Size: 5 bytes

Data Fields:

ActID Byte Count:
0 to 254

Call Type For Queueing:
0 to 2046

Byte #	Meaning
0	ID = #0230
1	
2	Actid Byte Count
3	Call Type For Queueing
4	

4.10 Caller ID Blocking ActID

Identifier: #021F

Description: This ActID is sent to request a change in the caller ID blocking status of the call. When the caller ID has been blocked, the called party does not receive the calling digits.

Size: 4 bytes

Data Fields:

ActID Byte Count:
0 to 254

Caller ID Blocking Status:
0 = caller ID not blocked
1 = caller ID blocked

Byte #	Meaning
0	ID = #021F
1	
2	ActID Byte Count
3	Caller ID Blocking Status

4.11 Calling Card ActID

Identifier: #0202

Description: This ActID is sent to request a calling card number be associated with the call.

Size: Variable

Data Fields:

ActID Byte Count:
0 to 254

Calling Card Number Count:
0 to 254

Calling Card Number:
BCD digits each ranging from 0 to 9

Calling Card Validation:
0 = validate
1 = do not validate

Personal Identification Number Size:
0 to 254

Byte #	Meaning
0	ID = #0202
1	
2	ActID Byte Count
3	Calling Card Number Count
4	Calling Card Number
...	
n	
n+1	Calling Card Validation
n+2	Personal Identification Number Size

4.12 Carrier Number ActID

Identifier: #0203

Description: This ActID is sent to request a carrier be associated with the call.

Size: Variable

Data Fields:

ActID Byte Count:
0 to 254

Carrier Number Count:
0 to 254

Carrier Number:
BCD digits each ranging from 0 to 9

Byte #	Meaning
0	ID = #0203
1	
2	ActID Byte Count
3	Carrier Number Count
4	Carrier Number
...	
n	

4.13 Charge Adjust ActID

Identifier: #0204

Description: This ActID is sent to request a charge adjustment be made to the call. The operator can credit a subscriber, record insufficient money collected and charge part of the call to some means of alternate billing.

The Charge Adjust Type field represents the reason for charge adjustment.

The time fields are provided so the operator can record the time the problem occurred. The subscriber could be calling to request credit for a previous wrong number dialed.

The indicator records how the adjustment should be performed. Credit can be given in terms of minutes or amount. The 'number of occurrences' value allows the operator to give 1 minute of credit for x amount of calls. An example is a subscriber requesting credit for 3 wrong number dialed calls.

Size: 9 bytes

Data Fields:

ActID Byte Count:
0 to 254

Charge Adjust Type:
0 to 254

Charge Adjust Time Hours:
0 to 23

Charge Adjust Time Minutes:
0 to 59

Charge Adjust Indicator:
0 = none
1 = minutes
2 = monetary amount
3 = number of occurrences

Charge Adjust Amount:
0 to 65534

Byte #	Meaning
0	ID = #0204
1	
2	ActID Byte Count
3	Charge Adjust Type
4	Charge Adjust Time Hours
5	Charge Adjust Time Minutes
6	Charge Adjust Indicator
7	Charge Adjust Amount
8	

4.14 Charge Status ActID

Identifier: #0205

Description: This ActID is sent to request a change in the charge status of the call. The charge status refers to whether or not money is collected for the service rendered on the call. The DMS can determine the charge status and assumes the call is chargeable unless datafill specifies otherwise.

Size: 4 bytes

Data Fields:

ActID Byte Count:
0 to 254

Charge Status:

Each bit corresponds to a charge status for the call. A '1' indicates the call is not chargeable. A '0' indicates the call is chargeable. The bits map to statuses in the following manner:

bit 0 = charge status due to terminating screening

bit 1 = charge status due to originating screening

bit 2 = charge status due to manual action by the operator

Byte #	Meaning
0	ID = #0205
1	
2	ActID Byte Count
3	Charge Status

4.15 Class Charge ActID

Identifier: #0206

Description: This ActID is sent to request a class charge be applied to the call. A class charge is divided into two parts: handling and billing. Handling refers to how the operator handles the call. Person to person is an example. Billing refers to the party from which the charges should be collected. All chargeable calls require a class charge for rendering a requested service.

Size: 5 bytes

Data Fields:

ActID Byte Count:
0 to 254

Handling Data:
0 = station
1 = person
2 = auto

Billing Data:
0 = paid
1 = collect
2 = special calling
3 = special called

Byte #	Meaning
0	ID = #0206
1	
2	ActID Byte Count
3	Handling Data
4	Billing Data

4.16 Data ActID

Identifier: #0224

Description: This ActID is sent to the DMS to provide additional call information.

The Data Type field is used for interpretation and application of the data. The DMS may process the data based on the Data Type field value specified, or the DMS may pass the data onto another function provider (service node or operator) without processing.

The Data Reason field values 0 and 1 indicate that data is included in the ActID and show whether this ActID contains the final data. The Data Reason field values 2 and 3 indicate that no data is included in the ActID and serve as positive and negative acknowledgements of data receipt.

Size: Variable

Data Fields:

DID Byte Count:
0 to 254

Data Type:
0 = OSSAIN context block
1 = OSSAIN text
2 = custom AMA

Data Reason:
0 = data included- not final
1 = data included- final
2 = data accepted
3 = data not accepted

Data Start Position:
0 to 200

Data Count:
0 to 200

Data:
bytes of data

Byte #	Meaning
0	ID = #0224
1	
2	DID Byte Count
3	Data Type
4	Data Reason
5	Data Start Position
6	Data Count
7	Data
...	
n	

4.17 Dial Rate ActID

Identifier: #0207

Description: This ActID is sent to request a change in the dial rate status of the call. Dial rate marks the call for billing as if it had been dialed directly rather than billing at operator assisted rates.

Size: 4 bytes

Data Fields:

ActID Byte Count:
0 to 254

Dial Rate Status:
0 = no dial rate
1 = dial rate

Byte #	Meaning
0	ID = #0207
1	
2	ActID Byte Count
3	Dial Rate Status

4.18 Directory Number ActID

Identifier: #0208

Description: This ActID is sent to input a directory number for the call and to indicate whether or not a connection should be made to that directory number.

Size: Variable

Data Fields:

ActID Byte Count:
0 to 254

Directory Number Class:
0 = calling
1 = called
2 = third
3 = requested

Directory Number Type:
0 = foreign
1 = domestic
2 = toll break in
3 = busy line verification
4 = service

Connect Type:
0 = do not connect to directory number
1 = connect to directory number

Directory Number Count:
0 to 254

Directory Number:
BCD digits each ranging from 0 to 9

Byte #	Meaning
0	ID = #0208
1	
2	ActID Byte Count
3	Directory Number Class
4	Directory Number Type
5	Connect Type
6	Directory Number Count
7	Directory Number
...	
n	

4.19 Estimate Duration ActID

Identifier: #022B

Description: This ActID is sent to the DMS to associate an estimate duration with the call.

Size: 5 bytes

Data Fields:

ActID Byte Count:
0 to 254

Estimate Duration:
0 to 65534

Byte #	Meaning
0	ID = #022B
1	
2	ActID Byte Count
3	Estimate Duration
4	

4.20 Fixed Duration ActID

Identifier: #0221

Description: This ActID is sent to request a fixed duration status for a call.

Size: 4 bytes

Data Fields:

ActID Byte Count:
0 to 254

Fixed Duration Status:
0 = no fixed duration
1 = fixed duration

Byte #	Meaning
0	ID = #0221
1	
2	ActID Byte Count
3	Fixed Duration Status

4.21 Foreign Assistance ActID

Identifier: #0222

Description: This ActID is sent to associate a foreign assistance number with a call.

Size: Variable

Data Fields:

ActID Byte Count:
0 to 254

Foreign Assistance Type:
0 = directory assistance
1 = inward assistance

Foreign Assistance Number Count:
0 to 254

Foreign Assistance Number:
BCD digits, each ranging from 0 to 9

Byte #	Meaning
0	ID = #0222
1	
2	ActID Byte Count
3	Foreign Assistance Type
4	Foreign Assistance Number Count
5	Foreign Assistance Number
...	
n	

4.22 Foreign Calling Card ActID

Identifier: #0209

Description: This ActID is sent to request a foreign calling card number be associated with the call.

Size: Variable

Data Fields:

ActID Byte Count:
0 to 254

Foreign Calling Card Number Count:
0 to 200

Foreign Calling Card Number:
alphanumeric ASCII characters

Byte #	Meaning
0	ID = #0209
1	
2	ActID Byte Count
3	Foreign Calling Card Number Count
4	Foreign Calling Card Number
...	
n	

4.23 LNP Request ActID

Identifier: #0228

Description: This ActID is sent to request LNP information for a specified party. LNP information only includes LRN information at this time.

Size: 4 bytes

Data Fields:

ActID Byte Count:
0 to 254

LNP Party:
0 = calling
1 = called
2 = special

Byte #	Meaning
0	ID = #0228
1	
2	ActID Byte Count
3	LNP Party

4.24 Loop Action ActID

Identifier: #020A

Description: This ActID is sent to request a change in the status of a loop. When an operator wishes to access a loop, then a loop action of 'access' is requested. When the operator wishes to place a call on hold, then a loop action of 'hold' is requested. To release a call from the position, a loop action of 'release' is requested. To release a call from the position to another operator, a loop action of 'release to operator' is requested.

Size: 5 bytes

Data Fields:

ActID Byte Count:
0 to 254

Loop Number:
0 to 2

Loop Action:
0 = release
1 = access
2 = hold
3 = request a CAMA call
4 = release to operator

Byte #	Meaning
0	ID = #020A
1	
2	ActID Byte Count
3	Loop Number
4	Loop Action

4.25 Miscellaneous ActID

Identifier: #020B

Description: This ActID is sent to request one of the miscellaneous actions listed below. These actions do not require any additional data and are unique in their function.

Size: 4 bytes

Data Fields:

ActID Byte Count:
0 to 254

Miscellaneous Action Request:

- 0 = transfer to interLATA carrier
- 1 = zip tone repeat
- 2 = call details
- 3 = current time
- 4 = stop bell
- 5 = special verify
- 6 = barge in
- 7 = mark for transfer to operator
- 8 = no transfer to interLATA carrier
- 9 = mark for recall to operator
- 10 = alternate international route
- 11 = estimate charges
- 12 = no release link trunking

Byte #	Meaning
0	ID = #020B
1	
2	ActID Byte Count
3	Miscellaneous Action Request

4.26 Network Action ActID

Identifier: #020D

Description: This ActID is sent to request an action to be performed on the network for a call. Network actions consist of signals sent out over the network to other switches. The switch then performs the action.

Size: 5 bytes

Data Fields:

ActID Byte Count:
0 to 254

Port:
0 = calling
1 = called
2 = operator

Network Action:
0 = release party
1 = ring party
2 = collect coins
3 = return coins
4 = trunk offering start (TOS)
5 = trunk offering end (TOE)

Byte #	Meaning
0	ID = #020D
1	
2	ActID Byte Count
3	Port
4	Network Action

4.27 Notify ActID

Identifier: #020E

Description: This ActID is sent to request a notify be applied to the call. A notify means the call will recall to an operator after x minutes have elapsed. The x refers to the value contained in the Notify Minutes field.

Size: 4 bytes

Data Fields:

ActID Byte Count:
0 to 254

Notify Minutes:
0 to 254

Notify Connection:
0 = two-way
1 = one-way

Byte #	Meaning
0	ID = #020E
1	
2	ActID Byte Count
3	Notify Minutes
4	Notify Connection

4.28 Operator Feedback ActID

Identifier: #020F

Description: This ActID is sent to request that an individual operator's statistics be made available to the operator. These statistics include the operator's position seizures (the number of calls handled), the operator's average work time (the average amount of time spent handling a call) and optionally the system average work time (the average amount of time spent by all operators handling a call).

The operator can request to see the statistics displayed on the screen. The alternative is to have the statistics printed on a device.

Size: 4 bytes

Data Fields:

ActID Byte Count:
0 to 254

Operator Feedback Type:
0 = none
1 = display statistics
2 = print statistics
3 = reset statistics

Byte #	Meaning
0	ID = #020F
1	
2	ActID Byte Count
3	Operator Feedback Type

4.29 Operator Number ActID

Identifier: #0210

Description: This ActID is sent to request an action associated with an operator number. Such actions include logon, page initiation and termination, and monitor initiation and termination.

If the position is requesting to monitor, the Monitor Type field specifies the type requested. If the position is not requesting to monitor, the Monitor Type field should contain the value 'monitor not requested.'

Size: 7 bytes

Data Fields:

ActID Byte Count:
0 to 254

Operator Number Type:
0 = request logon
1 = request page
2 = request monitor
3 = end page
4 = end monitor

Operator Number:
0 to 65534

Monitor Type:
0 = monitor not requested
1 = DMS broadcast
2 = position broadcast

Byte #	Meaning
0	ID = #0210
1	
2	ActID Byte Count
3	Operator Number Type
4	Operator Number
5	
6	Monitor Type

4.30 OSSAIN Information ActID

Identifier: #0230

Description: This ActID is sent to the DMS to provide OSSAIN information about the call.

Size: 7 bytes

Data Fields:

DID Byte Count:
0 to 254

OSSAIN Function ID:
0 to 65534

OSSAIN Control List ID:
0 to 65534

Byte #	Meaning
0	ID = #0230
1	
2	DID Byte Count
3	OSSAIN Function ID
4	
5	OSSAIN Control List ID
6	

4.31 OSSAIN Trigger ActID

Identifier: #0225

Description: This ActID is sent to the DMS to provide OSSAIN trigger information about the call.

Size: 11 bytes

Data Fields:

DID Byte Count:
0 to 254

OSSAIN Trigger Profile Index:
0 to 65534

OSSAIN No Answer Timer:
0 to 254

OSSAIN Notification Timer:
0 to 4294967294

OSSAIN Notification Timer Type:
0 = relative time
1 = conversation time

Byte #	Meaning
0	ID = #0225
1	
2	DID Byte Count
3	OSSAIN Trigger Profile Index
4	
5	OSSAIN No Answer Timer
6	OSSAIN Notification Timer
7	
8	
9	
10	OSSAIN Notification Timer Type

4.32 Outtrunk ActID

Identifier: #0211

Description: This ActID is sent to request an outtrunk event be performed for the call. The operator selects the outtrunk event, and the number representing the event is sent in this ActID.

The DMS uses this number to index a table that contains all the information needed to perform the action requested. The data field that follows the index is used to supply any event-specific data that cannot be recorded in the DMS table.

Size: 7 bytes

Data Fields:

ActID Byte Count:
0 to 254

Outtrunk Index:
0 to 65534

Outtrunk Data:
0 to 65534

Byte #	Meaning
0	ID = #0211
1	
2	ActID Byte Count
3	Outtrunk Index
4	
5	Outtrunk Data
6	

4.33 Over Collect ActID

Identifier: #0212

Description: This ActID is sent to request an over collect be associated with the call. Over collect applies only to coin sent paid calls. An over collect means the subscriber has deposited more money than is needed to pay for the rating period. The over collect amount applies toward the next rating period.

Size: 5 bytes

Data Fields:

ActID Byte Count:
0 to 254

Over Collect Amount:
0 to 65534

Byte #	Meaning
0	ID = #0212
1	
2	ActID Byte Count
3	Over Collect Amount
4	

4.34 Pass Through ActID

Identifier: #022C

Description: This ActID is sent to the DMS to pass through unformatted data to another node connected to the call.

Size: Variable

Data Fields:

ActID Byte Count:
0 to 254

Pass Through Data Count:
0 to 25

Pass Through Data:
0 to 25 bytes

Data Reason:
0 = data included - not final
1 = data included - final
2 = data accepted
3 = data not accepted

Data Start Position:
0 to 75

Byte #	Meaning
0	ID = #022C
1	
2	ActID Byte Count
3	Pass Through Data Count
4	Pass Through Data
...	
n	
n+1	Data Reason
n+2	Data Start Position

4.35 Person Call Back ActID

Identifier: #0213

Description: This ActID is sent to request the call be marked as person call back. Person call back allows the call to be billed as if the called party originated a person-to-person call to the calling party.

Size: 4 bytes

Data Fields:

ActID Byte Count:
0 to 254

Person Call Back Status:
0 = no person call back
1 = person call back
2 = person call back invalid

Byte #	Meaning
0	ID = #0213
1	
2	ActID Byte Count
3	Person Call Back Status

4.36 Port Function ActID

Identifier: #0214

Description: This ActID is sent to request a function be performed on a specific port. All functions that are not network actions are requested using this ActID.

Size: 5 bytes

Data Fields:

ActID Byte Count:
0 to 254

Port:
0 = calling
1 = called
2 = operator

Port Function:
0 = mark as coin
1 = mark as hotel
2 = split voice to port
3 = join voice to port
4 = initiate outpulsing
5 = mark as station

Byte #	Meaning
0	ID = #0214
1	
2	ActID Byte Count
3	Port
4	Port Function

4.37 Position Number ActID

Identifier: #0215

Description: This ActID is sent to request an action associated with a position number. Such actions include page and monitor initiation and termination.

If the position is requesting to monitor, the Monitor Type field specifies the type requested. If the position is not requesting to monitor, the Monitor Type field should contain the value 'monitor not requested.'

Size: 7 bytes

Data Fields:

ActID Byte Count:
0 to 254

Position Number Type:
0 = request page
1 = request monitor
2 = end page
3 = end monitor

Position Number:
0 to 65534

Monitor Type:
0 = monitor not requested
1 = DMS broadcast
2 = position broadcast

Byte #	Meaning
0	ID = #0215
1	
2	ActID Byte Count
3	Position Number Type
4	Position Number
5	
6	Monitor Type

4.38 Position State ActID

Identifier: #0216

Description: This ActID is sent to request a change be made in the state of the position.

Size: 4 bytes

Data Fields:

ActID Byte Count:
0 to 254

Position State:

- 0 = position occupied
- 1 = position unoccupied
- 2 = position unoccupied pending
- 3 = position busy
- 4 = position busy pending
- 5 = calls withheld
- 6 = calls withheld pending
- 7 = accept all calls
- 8 = accept limited calls only
- 9 = training mode
- 10 = administrative mode
- 11 = forced maintenance
- 12 = forced maintenance pending

Byte #	Meaning
0	ID = #0216
1	
2	ActID Byte Count
3	Position State

4.39 Query ActID

Identifier: #0217

Description: This ActID is sent by an operator to query data concerning operators or positions in the team of the operator making the request. The request specifies the type of query, and the DMS responds with a list of data such as operator numbers or position numbers.

Size: 4 bytes

Data Fields:

ActID Byte Count:
0 to 254

Query List Type:
0 = none
1 = assistants
2 = positions in a made busy state
3 = positions in an out of service state
4 = positions in an unoccupied state with a call in progress
5 = positions in an unoccupied state with a call terminated
6 = positions with a loop accessed with no call in progress
7 = operators with controlled traffic
8 = operators with study registers assigned

Byte #	Meaning
0	ID = #0217
1	
2	ActID Byte Count
3	Query List Type

4.40 Query Queue Status by Queue ActID

Identifier: #0227

Description: This ActID is sent by an operator to query which queues are affected by a queue status condition.

Size: 4 bytes

Data Fields:

ActID Byte Count:
0 to 254

Queueing Condition Type:
0 = calls waiting
1 = calls deflecting
2 = calls queued with no serving agent
3 = calls alerting
4 = calls overflowing

Byte #	Meaning
0	ID = #0227
1	
2	ActID Byte Count
3	Queueing Condition Type

4.41 Rate Step ActID

Identifier: #0218

Description: This ActID is sent to request a rate step be associated with the call.

Size: 5 bytes

Data Fields:

ActID Byte Count:
0 to 254

Rate Step:
0 to 65534

Byte #	Meaning
0	ID = #0218
1	
2	ActID Byte Count
3	Rate Step
4	

4.42 Service ActID

Identifier: #0219

Description: This ActID is sent to initiate a service for the call. When the operator initiates the service, a billing record can be produced for the previous service.

Size: 4 bytes

Data Fields:

ActID Byte Count:
0 to 254

Service Type:
0 to 62

Byte #	Meaning
0	ID = #0219
1	
2	ActID Byte Count
3	Service Type

4.43 Service Logon ActID

Identifier: #021A

Description: This ActID is sent to inform the DMS which services have been successfully logged into by the position. During the logon process, the DMS sends a DID containing the services that the operator will be rendering. The position should logon to all those services that require an initiation. If a service does not require a logon, then it should be marked as successful in the ActID. Those services that fail logon should be marked as such. The DMS will then respond with the final service profile in the Logon Success DID.

Size: 11 bytes

Data Fields:

ActID Byte Count:
0 to 254

Service Logon Complete:

Each bit corresponds to a service. A '1' indicates that the position logged on to the corresponding service. A '0' indicates that the position either failed or did not attempt to log on to the corresponding service. The bits map to the services in the following way:

bit 0 = service 0

bit 1 = service 1

...

bit 61 = service 61

bit 62 = service 62

Byte #	Meaning
0	ID = #021A
1	
2	ActID Byte Count
3	Service Logon Complete
4	
5	
6	
7	
8	
9	
10	

4.44 Service Node Handoff ActID

Identifier: #022F

Description: This ActID is sent to provide operator to service node handoff information for the call.

Size: 4 bytes

Data Fields:

ActID Byte Count:
0 to 254

Service Node Handoff Count:
0 to 254

Byte #	Meaning
0	ID = #022F
1	
2	ActID Byte Count
3	Service Node Handoff Count

4.45 Service Number ActID

Identifier: #021E

Description: This ActID is sent to the DMS in order to access a service number, such as the fire or police department, as the called number. The service number code and reference code fields are used to determine what service (i.e. civic agency) and what directory number to that service should be accessed. This would mainly be used as a shorthand way of connecting to a frequently dialed or emergency number.

Size: 5 bytes

Data Fields:

ActID Byte Count:
0 to 254

Service Number Code:
0 to 254

Reference Code:
0 to 254

Byte #	Meaning
0	ID = #021E
1	
2	ActID Byte Count
3	Service Number Code
4	Reference Code

4.46 Service Provider ActID

Identifier: #022D

Description: This ActID is used to associate Service Provider information with the call.

Size: 11 bytes

Data Fields:

ActID Byte Count:
0 to 254

Service Provider Class:
0 = calling
1 = called
2 = special

Service Provider Type:
0 = account owner
1 = billing service provider

Service Provider Identifier:
6 alphanumeric characters or spaces in ASCII format

Byte #	Meaning
0	ID = #022D
1	
2	ActID Byte Count
3	Service Provider Class
4	Service Provider Type
5	Service Provider Identifier
6	
7	
8	
9	
10	

4.47 Special Number ActID

Identifier: #021D

Description: This ActID is sent to request a special number be associated with the call. Special numbers are used for alternate billing. Alternate billing means the call is billed to a number other than the calling or called number.

Size: Variable

Data Fields:

ActID Byte Count:
0 to 254

Special Number Count:
0 to 254

Special Number:
BCD digits each ranging from 0 to 9

Byte #	Meaning
0	ID = #021D
1	
2	ActID Byte Count
3	Special Number Count
4	Special Number
...	
n	

4.48 Text ActID

Identifier: #020C

Description: This ActID is sent to request a text string be associated with the call. Using the Text Action and Text Start Position fields, the position may build large text strings with multiple Text ActIDs and perform edit-like functions on text strings already residing in the DMS.

Size: Variable

Data Fields:

ActID Byte Count:
0 to 254

Text Type:
0 = hotel guest name
1 = calling name
2 = called name
3 = hotel room
4 = password
5 = memo
6 = authorization number

Text Action:
Each bit corresponds to an action concerning the text. A '1' indicates the action applies. A '0' indicates the action does not apply. The bits map to the actions in the following manner:

bit 0 = clear to end of field
bit 1 = confirm text
bit 2 = confirm all

Text Start Position:
0 to 200

Text Count:
0 to 200

Text:
ASCII characters

Byte #	Meaning
0	ID = #020C
1	
2	ActID Byte Count
3	Text Type
4	Text Action
5	Text Start Position
6	Text Count
7	Text
...	
n	

4.49 Ticket Number ActID

Identifier: #0223

Description: This ActID is sent to request activities related to a ticket number associated with a call. The ticket number may be cleared, sent in from the position or automatically generated by the DMS.

Size: 11 bytes

Data Fields:

ActID Byte Count:
0 to 254

Ticket Number Action:
0 = clear ticket number
1 = enter ticket number
2 = generate ticket number

Transit Code:
3 ASCII characters

Day:
1 to 31

Ticket Number Digits:
6 BCD digits each ranging from 0 to 9

Byte #	Meaning
0	ID = #0223
1	
2	ActID Byte Count
3	Ticket Number Action
4	Transit Code
5	
6	
7	Day
8	Ticket Number
9	
10	

4.50 Time and Charges ActID

Identifier: #021B

Description: This ActID is sent to request one of two actions. The first marks a call as requiring time and charges quotation. The second occurs when the call has recalled for the time and charges quotation. If the operator is unable to give the information to the subscriber, then a record can be printed at a device. The 'print time and charges' value causes this to occur.

Size: 4 bytes

Data Fields:

ActID Byte Count:
0 to 254

Time and Charges Status:
0 = no time and charges
1 = time and charges
2 = do not print time and charges to device
3 = print time and charges to device

Byte #	Meaning
0	ID = #021B
1	
2	ActID Byte Count
3	Time and Charges Status

4.51 Trouble Code ActID

Identifier: #021C

Description: This ActID is sent to request a trouble code be associated with the call. A trouble code is a means of marking the call for further investigation by a maintenance craftsperson.

Size: 5 bytes

Data Fields:

ActID Byte Count:
0 to 254

Trouble Code:
0 to 65534

Byte #	Meaning
0	ID = #021C
1	
2	ActID Byte Count
3	Trouble Code
4	

Chapter 5: Call Data Identifier Description

5.1 Alternate Date DID

Identifier: #0137

Description: This DID is sent to the position to specify an alternate date associated with the call.

Size: 6 bytes

Data Fields:

DID Byte Count:
0 to 254

Alternate Date Status:
0 = none
1 = valid
2 = invalid
3 = required but missing

Alternate Month:
1 to 12

Alternate Day:
1 to 31

Byte #	Meaning
0	ID = #0137
1	
2	DID Byte Count
3	Alternate Date Status
4	Alternate Month
5	Alternate Day

5.2 Alternate Route DID

Identifier: #012C

Description: This DID informs the operator of an alternate route for an overseas number.

Size: 5 bytes

Data Fields:

DID Byte Count:
0 to 254

Alternate Route Status:
0 = none
1 = valid
2 = invalid

Alternate Route Number:
0 to 254

Byte #	Meaning
0	ID = #012C
1	
2	DID Byte Count
3	Alternate Route Status
4	Alternate Route Number

5.3 Alternate Time DID

Identifier: #0138

Description: This DID is sent to the position to specify an alternate time associated with the call.

Size: 6 bytes

Data Fields:

DID Byte Count:
0 to 254

Alternate Time Status:
0 = none
1 = valid
2 = invalid
3 = required but missing

Alternate Hour:
0 to 23

Alternate Minute:
0 to 59

Byte #	Meaning
0	ID = #0138
1	
2	DID Byte Count
3	Alternate Time Status
4	Alternate Hour
5	Alternate Minute

5.4 AMA Status DID

Identifier: #0100

Description: This DID informs the operator of the status of timing for billing purposes. A call begins with an unspecified AMA status. From that point, the AMA status can change based upon the actions requested by the operator.

Size: 5 bytes

Data Fields:

DID Byte Count:
0 to 254

AMA Status:

- 0 = unspecified
- 1 = start timing
- 2 = cancel timing
- 3 = cancel call
- 4 = calling card billing verification
- 5 = collect billing verification
- 6 = third party billing verification
- 7 = handoff to automated system
- 8 = database verification

Automated System ID:

- 0 = automated alternate billing service

Byte #	Meaning
0	ID = #0100
1	
2	DID Byte Count
3	AMA Status
4	Automated System ID

5.5 Automated Services DID

Identifier: #0102

Description: Several services exist which collect or provide information before presenting the call to an operator position. This DID informs the position if a call has received one of the indicated automated services. It also specifies whether automation has been allowed or denied for the call

Size: 6 bytes

Data Fields:

DID Byte Count:
0 to 254

Branding Status:
0 = call has not been branded
1 = call has been branded

ADAS Status:
0 = automated directory assistance service not provided
1 = automated directory assistance service provided

Automation Status:
0 = automation denied
1 = automation allowed

Byte #	Meaning
0	ID = #0102
1	
2	DID Byte Count
3	Branding Status
4	ADAS Status
5	Automation Status

5.6 Automatic Coin Toll Service DID

Identifier: #0101

Description: This DID indicates the presence or absence of a Coin Detection Circuit (CDC) on a coin originated call that is paid for by the calling subscriber. A CDC counts the coins deposited by the subscriber and reports the amount to the DMS.

Size: 4 bytes

Data Fields:

DID Byte Count:
0 to 254

Coin Detection Circuit Status:
0 = coin detection circuit not attached
1 = coin detection circuit attached
2 = coin detection circuit not attached when expected

Byte #	Meaning
0	ID = #0101
1	
2	DID Byte Count
3	CDC Status

5.7 Booked Call Database Action DID

Identifier: #0128

Description: This DID reflects a Booked Call Database action on the current call.

Size: 5 bytes

Data Fields:

DID Byte Count:
0 to 254

Booked Call Database Action Type:
0 = store
1 = retrieve
2 = delete

Booked Call Database Action Status:
0 = valid
1 = invalid

Byte #	Meaning
0	ID = #0128
1	
2	DID Byte Count
3	Booked Call Database Action Type
4	Booked Call Database Action Status

5.8 Booked Call Database Class DID

Identifier: #012A

Description: This DID reflects a Booked Call Database class.

Size: 5 bytes

Data Fields:

DID Byte Count:
0 to 254

Booked Call Database Class Status:
0 = none
1 = valid
2 = invalid
3 = required but missing

Booked Call Database Class Number:
0 to 254

Byte #	Meaning
0	ID = #012A
1	
2	DID Byte Count
3	Booked Call Database Class Status
4	Booked Call Database Class Number

5.9 Booked Call Database Number DID

Identifier: #0129

Description: This DID indicates a Booked Call Database number. The formatting of the number is determined by the position.

Size: Variable

Data Fields:

DID Byte Count:
0 to 254

Booked Call Database Number Type:
0 = calling
1 = serial

Booked Call Database Number Status:
0 = none
1 = valid
2 = invalid

Booked Call Database Number Count:
0 to 254

Booked Call Database Number:
BCD digits, ranging from 0 to 9

Byte #	Meaning
0	ID = #0129
1	
2	DID Byte Count
3	Booked Call Database Number Type
4	Booked Call Database Number Status
5	Booked Call Database Number Count
6	Booked Call Database Number
...	
n	

5.10 Call Arrival Tone DID

Identifier: #0140

Description: This DID provides call type and switch datafill information that the position can use to determine what call arrival tone(s) to generate.

Size: 5 bytes

Data Fields:

DID Byte Count:
0 to 254

Call Arrival Tone Info:
0 = default tone
1 = TA tone
2 = DA tone
3 = intercept tone
4 = ONI tone
5 = ADAS LowHigh tone
6 = ADAS HighLow tone
7 = PARS activation tone

PARS Tone Duration:
0 to 254

Byte #	Meaning
0	ID = #0140
1	
2	DID Byte Count
3	Call Arrival Tone Info
4	PARS Tone Duration

5.11 Call Origination DID

Identifier: #0103

Description: This DID is sent at call presentation to the operator. This DID can also be sent to refresh the details of an existing call. The DID contains information to identify the call to the operator. This information consists of the following:

- Service Type - This field indicates the initial service to be rendered on the call.
- Screen Type - This field indicates the type of screen appropriate for the call.
- ANI Status - Automatic Number Identification is a feature of the incoming signaling that allows the DMS to know the number of the calling party. If the calling party's number is not known, it is because the end office could not pass the information or a failure occurred. The screen should indicate that the operator needs to collect this information.
- Reason for Operator - This information tells the operator position why the call requires an operator.
- Call Origination Status - Indicates whether or not all information about the call is valid.
- Call Origination - The call origination field indicates how the call was dialled to reach the operator. This information also helps the operator determine what information needs to be collected for the call.
- Call Type For Queuing - If the Queue Management System (QMS) is in use, the Call Type for Queuing field provides additional call type information.
- Call Arrival Status - The call arrival status indicates if a call has previously been to or is currently involved in an automated service.
- Trunk Group Display - This is supplementary information about the incoming trunk group for the call.
- Notify Minutes - This information may be present when the operator is attached for notification purposes.
- Trunk Group ID - Specifies the trunk group identifier for the originating trunk group.

Size: 16 bytes

Data Fields:

DID Byte Count:
0 to 254

Service Type:
0 to 62

Screen Type:

- 0 = billing screen
- 1 = service screen

ANI Status:

- 0 = not applicable
- 1 = ANI success
- 2 = operator number identification (ONI)
- 3 = ANI office failure
- 4 = ANI failure detected

Reason For Operator:

- 0 = call setup
- 1 = normal disconnect
- 2 = coin flash recall
- 3 = notify
- 4 = coin overtime notify
- 5 = recall
- 6 = time and charges
- 7 = accessing loop
- 8 = pending

Call Origination Status:

- 0 = credible
- 1 = dubious

Call Origination:

- 0 to 254

Call Type For Queueing:

- 0 to 2046

Call Arrival Status:

- 0 = standard
- 1 = automatic directory assistance call completion
- 2 = manual billing number verification
- 3 = automated alternate billing service collect
- 4 = automated alternate billing service third number
- 5 = automated alternate billing service collect with party attached
- 6 = automated alternate billing service third number with party attached
- 7 = intercept special
- 8 = intercept cut through
- 9 = automatic coin toll service cut through
- 10 = mechanized calling card service cut through
- 11 = message delivery service called party busy
- 12 = message delivery service network busy
- 13 = message delivery service ring no answer
- 14 = message delivery service unknown status

Trunk Group Display:
0 to 254

Notify Minutes:
0 to 254

Trunk Group ID:
0 to 65534

Byte #	Meaning
0	ID = #0103
1	
2	DID Byte Count
3	Service Type
4	Screen Type
5	ANI Status
6	Reason for Operator
7	Call Origination Status
8	Call Origination
9	Call Type for Queueing
10	
11	Call Arrival Status
12	Trunk Group Display
13	Notify Minutes
14	Trunk Group ID
15	

5.12 Call Queue DID

Identifier: #0104

Description: This DID indicates the queue mark of the call. The queue is initially set based upon various call attributes such as the digits dialled. During the call, the operator can request a change in queue mark if desired. This change may be requested if the operator cannot provide the service associated with the queue, or if the operator wishes to set the correct mark for subsequent recalls to position.

Size: 5 bytes

Data Fields:

DID Byte Count:
0 to 254

Queue Status:
0 = valid
1 = invalid

Queue Mark:
0 to 254

Byte #	Meaning
0	ID = #0104
1	
2	DID Byte Count
3	Queue Status
4	Queue Mark

5.13 Call Service DID

Identifier: #0105

Description: This DID indicates the service mark of the call. The service is initially set based upon call characteristics. During the call, the service can be changed by the operator.

This DID also contains the type of screen to be presented to the operator when a new service is indicated. The type of screen helps to inform the operator as to what information is required.

Size: 6 bytes

Data Fields:

DID Byte Count:
0 to 254

Service Status:
0 = valid
1 = invalid

Service Type:
0 to 62

Screen Type:
0 = billing screen
1 = service screen

Byte #	Meaning
0	ID = #0105
1	
2	DID Byte Count
3	Service Status
4	Service Type
5	Screen Type

5.14 Call Type For Queueing DID

Identifier: #0127

Description: When the Queue Management System (QMS) is in use, this DID is employed to send the call type for queueing to the position.

Size: 5 bytes

Data Fields:

DID Byte Count:
0 to 254

Call Type For Queueing:
0 to 2046

Byte #	Meaning
0	ID = #0127
1	
2	DID Byte Count
3	Call Type For Queueing
4	

5.15 Calling Card DID

Identifier: #0106

Description: This DID is sent when the operator requests that a call be billed to a calling card. It is also sent when a calling card validation response is received from the validation database.

Size: Variable

Data Fields:

DID Byte Count:
0 to 254

Calling Card Type:
0 = domestic
1 = CCITT
2 = unknown
3 = RAO

Calling Card Status:
0 = none
1 = valid
2 = hot listed
3 = verification required
4 = invalid
5 = screening restrictions
6 = required but missing
7 = automation unused by subscriber
8 = query failure
9 = carrier restricted
10 = no mutual honoring agreement

Issuer ID Size:
0 to 7

Account ID Size:
0 to 15

Personal Identification Number Size:
0 to 254

Calling Card Personal Identification Number Status:
Each bit corresponds to a Personal Identification Number attribute of a calling card. A '1' indicates the attribute applies. A '0' indicates the attribute does not apply. The bits map to attributes in the following manner:

bit 0 = calling card pin mask

bit 1 = calling card restricted pin

Calling Card Regional Accounting Office Code:
0 to 65534

Calling Card Number Count:
0 to 254

Calling Card Number:
BCD digits each ranging from 0 to 9

Calling Card Service Denial Indicator:
0 = calling card service denial
1 = PIN threshold exceeded
2 = PIN non-payment
3 = PIN service restriction

Calling Card Determination
0 = billing is not determined by table ACCSERR
1 = billing is determined by table ACCSERR

Byte #	Meaning
0	ID = #0106
1	
2	DID Byte Count
3	Calling Card Type
4	Calling Card Status
5	Issuer ID Size
6	Account ID Size
7	PIN Size
8	Calling Card PIN Status
9	Calling Card RAO
10	
11	Calling Card Number Count
12	Calling Card Number
...	
n	
n+1	Calling Card Service Denial Indicator
n+2	Calling Card Determination

5.16 Charge Adjust DID

Identifier: #0107

Description: This DID is sent to indicate a charge adjustment. A charge adjustment is used to refund or give credit to a subscriber for either the current call or a previous call.

The charge adjustment can be made in terms of money, minutes or number of occurrences.

Size: 10 bytes

Data Fields:

DID Byte Count:
0 to 254

Charge Adjust Status:
0 = none
1 = valid
2 = invalid

Charge Adjust Type:
0 to 254

Charge Adjust Time Hours:
0 to 23

Charge Adjust Time Minutes:
0 to 59

Charge Adjust Indicator:
0 = none
1 = minutes
2 = monetary amount
3 = number of occurrences

Charge Adjust Amount:
0 to 65534

Byte #	Meaning
0	ID = #0107
1	
2	DID Byte Count
3	Charge Adjust Status
4	Charge Adjust Type
5	Charge Adjust Time Hours
6	Charge Adjust Time Minutes
7	Charge Adjust Indicator
8	Charge Adjust Amount
9	

5.17 Charge Status DID

Identifier: #0108

Description: This DID describes the chargeable status of the call in terms of AMA. When this information is recorded on the AMA records, the telco can determine whether or not it needs to collect money for the call.

Size: 4 bytes

Data Fields:

DID Byte Count:
0 to 254

Charge Status:

Each bit corresponds to a charge status for the call. A '1' indicates the call is not chargeable. A '0' indicates the call is chargeable. The bits map to statuses in the following manner:

bit 0 = charge status due to terminating screening

bit 1 = charge status due to originating screening

bit 2 = charge status due to manual action by the operator

Byte #	Meaning
0	ID = #0108
1	
2	DID Byte Count
3	Charge Status

5.18 Charges DID

Identifier: #0109

Description: This DID provides a monetary amount associated with a call to the operator.

Size: 9 bytes

Data Fields:

DID Byte Count:
0 to 254

Charges Type:
0 = amount due
1 = total amount
2 = over collect amount
3 = estimate amount

Charges Status:
0 = none
1 = valid
2 = invalid

Charges Amount:
0 to 4294967294

Byte #	Meaning
0	ID = #0109
1	
2	DID Byte Count
3	Charges Type
4	Charges Status
5	Charges Amount
6	
7	
8	

5.19 Class Charge DID

Identifier: #010A

Description: This DID relates the class charge of the call. The class charge is recorded on the AMA record and is used to bill the subscriber. This DID is sent in response to an action request by the operator to update the class charge. This DID can also be sent to indicate a change in the class charge as a result of other actions such as entry of a called number or a database validation response received.

The class charge itself is divided into two parts: handling and billing. Handling refers to how the operator handles the call. Person-to-person is an example. Billing refers to the party from which the charges should be collected.

Size: 6 bytes

Data Fields:

DID Byte Count:
0 to 254

Billing Status:
0 = none
1 = valid
2 = invalid
3 = required but missing

Handling Data:
0 = station
1 = person
2 = auto

Billing Data:
0 = paid
1 = collect
2 = special calling
3 = special called

Byte #	Meaning
0	ID = #010A
1	
2	DID Byte Count
3	Billing Status
4	Handling Data
5	Billing Data

5.20 Country Name DID

Identifier: #0131

Description: This DID is sent to indicate the name of the country of origin for the call.

Size: 5 bytes

Data Fields:

DID Byte Count:
0 to 254

Country Name Index:
0 to 65534

Byte #	Meaning
0	ID = #0131
1	
2	DID Byte Count
3	Country Name Index
4	

5.21 Data DID

Identifier: #0133

Description: This DID is sent to the position to provide additional call information.

The Data Type field is used for interpretation and application of the data. The position may process the data based on the Data Type field value specified or may pass the data onto another function provider (service node or operator) without processing.

The Data Reason field values 0 and 1 indicate that data is included in the DID and show whether this DID contains the final data. The Data Reason field values 2 and 3 indicate that no data is included in the DID and serve as positive and negative acknowledgements of data receipt.

Size: Variable

Data Fields:

DID Byte Count:
0 to 254

Data Type:
0 = OSSAIN context block
1 = OSSAIN text
2 = custom AMA

Data Reason:
0 = data included- not final
1 = data included- final
2 = data accepted
3 = data not accepted

Data Start Position:
0 to 200

Data Count:
0 to 200

Data:
bytes of data

Byte #	Meaning
0	ID = #0133
1	
2	DID Byte Count
3	Data Type
4	Data Reason
5	Data Start Position
6	Data Count
7	Data
...	
n	

5.22 Database Query DID

Identifier: #0130

Description: This DID is sent to inform the operator of the status of the external database query.

Size: 5 bytes

Data Fields:

DID Byte Count:
0 to 254

Database Query Type:
0 = real time rating system
1 = originating line number screening
2 = local number portability

Database Query Status:
0 = query not in progress
1 = query in progress
2 = query successful
3 = query failed
4 = query not attempted due to ACG

Byte #	Meaning
0	ID = #0130
1	
2	DID Byte Count
3	Database Query Type
4	Database Query Status

5.23 Dial Rate DID

Identifier: #010B

Description: This DID is sent in response to an action request of either dial rate or no dial rate generated by the operator. Dial rate is a means of charging the call as if it were dialled directly (1+) rather than requesting an operator (0+ or 0-). This type of treatment is usually given to calls that a subscriber cannot dial directly from the originating phone.

Size: 4 bytes

Data Fields:

DID Byte Count:
0 to 254

Dial Rate Status:
0 = no dial rate
1 = dial rate

Byte #	Meaning
0	ID = #010B
1	
2	DID Byte Count
3	Dial Rate Status

5.24 Directory Number DID

Identifier: #010C

Description: This DID is sent when a directory number is updated.

Size: Variable

Data Fields:

DID Byte Count:
0 to 254

Directory Number Class:
0 = calling
1 = called
2 = third
3 = requested
4 = calling line identifier

Directory Number Status:
0 = none
1 = valid
2 = invalid
3 = hot
4 = required but missing
5 = screening restrictions, enforced
6 = manual interaction required
7 = connected, alternate exists
8 = not connected, alternate exists
9 = query failure
10 = blocked
11 = screening restrictions, unenforced

Directory Number Type:
0 = foreign
1 = domestic
2 = toll break in (unused)
3 = busy line verification
4 = service

Directory Number Flags:
Each bit defines an optional characteristic of the directory number. A '1' indicates the attribute applies. A '0' indicates the attribute does not apply. The bits map to the attributes in the following manner:

bit 0 = local indicator
bit 1 = carrier indicator

bit 2 = vacant code indicator
bit 3 = unauthorized CAMA code indicator
bit 4 = service provider processing

Country Code Count:
0 to 254

Directory Number Count:
0 to 254

Directory Number:
BCD digits each ranging from 0 to 9

Byte #	Meaning
0	ID = #010C
1	
2	DID Byte Count
3	Directory Number Class
4	Directory Number Status
5	Directory Number Type
6	Directory Number Flags
7	Country Code Count
8	Directory Number Count
9	Directory Number
...	
n	

5.25 Elapsed Time DID

Identifier: #010D

Description: This DID indicates the elapsed time for a call that has returned to the operator for one of various reasons. One example would be a coin call where the subscriber needs to pay for previous conversation time. This billable time is accumulated following called party answer.

Size: 8 bytes

Data Fields:

DID Byte Count:

0 to 254

Elapsed Time Type:

0 = call time

1 = notify time

2 = booked database stored time

3 = booked database remaining time

Elapsed Time Status:

0 = none

1 = valid

2 = invalid

Elapsed Time Minutes:

0 to 9999

Elapsed Time Seconds:

0 to 59

Byte #	Meaning
0	ID = #010D
1	
2	DID Byte Count
3	Elapsed Time Type
4	Elapsed Time Status
5	Elapsed Time Minutes
6	
7	Elapsed Time Seconds

5.26 Estimate Charges DID

Identifier: #013A

Description: This DID is used to convey estimated call charges per-period information to the position.

Size: 15 bytes

Data Fields:

DID Byte Count:
0 to 254

Initial Period Duration:
0 to 65534

Initial Period Amount:
0 to 4294967294

Subsequent Period Duration:
0 to 65534

Subsequent Period Amount:
0 to 4294967294

Byte #	Meaning
0	ID = #013A
1	
2	DID Byte Count
3	Initial Period Duration
4	
5	Initial Period Amount
6	
7	
8	
9	Subsequent Period Duration
10	
11	Subsequent Period Amount
12	
13	
14	

5.27 Estimate Duration DID

Identifier: #0139

Description: This DID is sent to the position to specify an estimate duration associated with the call.

Size: 6 bytes

Data Fields:

DID Byte Count:
0 to 254

Estimate Duration Status:
0 = none
1 = valid
2 = invalid
3 = required but missing

Estimate Duration:
0 to 65534

Byte #	Meaning
0	ID = #0139
1	
2	DID Byte Count
3	Estimate Duration Status
4	Estimate Duration
5	

5.28 Fixed Duration DID

Identifier: #012B

Description: This DID indicates the fixed duration status of a call.

Size: 4 bytes

Data Fields:

DID Byte Count:
0 to 254

Fixed Duration Status:
0 = no fixed duration
1 = fixed duration

Byte #	Meaning
0	ID = #012B
1	
2	DID Byte Count
3	Fixed Duration Status

5.29 Foreign Assistance DID

Identifier: #012D

Description: This DID indicates a foreign assistance number. The formatting of the number is determined by the position.

Size: Variable

Data Fields:

DID Byte Count:
0 to 254

Foreign Assistance Type:
0 = directory assistance
1 = inward assistance

Foreign Assistance Status:
0 = none
1 = valid
2 = invalid
3 = city code required

Country Code Count:
0 to 254

Foreign Assistance Number Count:
0 to 254

Foreign Assistance Number:
BCD digits, ranging from 0 to 9

Byte #	Meaning
0	ID = #012D
1	
2	DID Byte Count
3	Foreign Assistance Type
4	Foreign Assistance Status
5	Country Code Count
6	Foreign Assistance Number Count
7	Foreign Assistance Number
...	
n	

5.30 Foreign Calling Card DID

Identifier: #010E

Description: This DID is sent when the operator requests that a call be billed to a foreign calling card. Foreign calling card numbers can contain alpha characters; therefore, the number is sent as ASCII rather than BCD.

Size: Variable

Data Fields:

DID Byte Count:
0 to 254

Calling Card Status:
0 = none
1 = valid
2 = hot listed
3 = verification required
4 = invalid
5 = screening restrictions
6 = required but missing
7 = automation unused by subscriber
8 = query failure

Foreign Calling Card Number Count:
0 to 200

Foreign Calling Card Number:
alphanumeric ASCII characters

Byte #	Meaning
0	ID = #010E
1	
2	DID Byte Count
3	Calling Card Status
4	Foreign Calling Card Number Count
5	Foreign Calling Card Number
...	
n	

5.31 Generic Digits DID

Identifier: #013F

Description: This DID delivers the digits received by the DMS switch in the Generic Digits Parameter of the ISUP IAM message.

Size: variable

Data Fields:

DID Byte Count:
0 to 254

Generic Digits Type:
0 = location identification number

Generic Digits Count:
0 to 254

Generic Digits:
BCD digits, ranging from 0 to 9

Byte #	Meaning
0	ID = #013F
1	
2	DID Byte Count
3	Generic Digits Type
4	Generic Digits Count
5	Generic Digits
...	
n	

5.32 Handoff DID

Identifier: #010F

Description: This DID is sent to provide information concerning the status of handoff for the call. Handoff is a feature that allows the operator to hand the call off to an automated billing service for billing validation acceptance. The operator collects the billing information, then hands off to the automated system to obtain billing acceptance.

Size: 5 bytes

Data Fields:

DID Byte Count:
0 to 254

Handoff Status:
0 = resource failure
1 = handoff checks failed
2 = subsequent handoff allowed
3 = subsequent handoff not allowed

Automated System ID:
0 = automated alternate billing service

Byte #	Meaning
0	ID = #010F
1	
2	DID Byte Count
3	Handoff Status
4	Automated System ID

5.33 Intelligent Network DID

Identifier: #013E

Description: Indicates the connectivity of the Intelligent Network environment.

Size: 4 bytes

Data Fields:

DID Byte Count:
0 to 254

Intelligent Network Status:
0 = connected
1 = released

Byte #	Meaning
0	ID = #013E
1	
2	DID Byte Count
3	Intelligent Network Status

5.34 InterLATA Carrier Alternate Billing DID

Identifier: #0110

Description: This DID is sent when the operator is handling a carrier call. The carrier may require validation other than database validation for calling card, collect and third number billed calls. This DID provides an indication to the operator that the carrier has requested further verification of the billing. The operator should perform the verification as dictated by the carrier.

Size: 4 bytes

Data Fields:

DID Byte Count:
0 to 254

Manual Validation Status:
0 = no manual validation required
1 = manual validation required

Byte #	Meaning
0	ID = #0110
1	
2	DID Byte Count
3	Manual Validation Status

5.35 InterLATA Carrier Information DID

Identifier: #0111

Description: This DID identifies the carrier number and name associated with the call. It identifies the type of service being provided on behalf of the carrier. It also provides information as to the status of the carrier and its ability to handle the call.

Size: Variable

Data Fields:

DID Byte Count:
0 to 254

Type of Service Provided:
0 = transfer only
1 = complete operator services

Carrier Service Status:
0 = valid
1 = invalid

Carrier Number Status:
0 = none
1 = valid
2 = invalid
3 = invalid for this call only

Carrier Name:
8 alphanumeric characters or spaces in ASCII format

Carrier Number Count:
0 to 254

Carrier Number:
BCD digits each ranging from 0 to 9

Byte #	Meaning
0	ID = #0111
1	
2	DID Byte Count
3	Type of Service Provided
4	Carrier Service Status
5	Carrier Number Status
6	Carrier Name
7	
8	
9	
10	
11	
12	
13	
14	Carrier Number Count
15	Carrier Number
...	
n	

5.36 InterLATA Carrier Rating DID

Identifier: #0112

Description: This DID provides the status of the switch's ability to perform real time rating on behalf of a carrier.

Size: 5 bytes

Data Fields:

DID Byte Count:
0 to 254

Call Rating Status:
0 = downstream
1 = real time

Real Time Rating Status:
0 = ratable
1 = not ratable

Byte #	Meaning
0	ID = #0112
1	
2	DID Byte Count
3	Call Rating Status
4	Real Time Rating Status

5.37 Language DID

Identifier: #0125

Description: This DID informs the operator the language of a specific port. A multilingual operator uses this information to know in what language to speak to the party.

Size: 6 bytes

Data Fields:

DID Byte Count:
0 to 254

Port:
0 = calling
1 = called
2 = operator

Language Status:
0 = none
1 = valid
2 = invalid

Language:
0 to 254

Byte #	Meaning
0	ID = #0125
1	
2	DID Byte Count
3	Port
4	Language Status
5	Language

5.38 LATA Restriction DID

Identifier: #0114

Description: This DID informs the operator of any restrictions associated with the calling subscriber and Equal Access. Equal Access provides the ability to have a presubscribed carrier. It also allows subscribers to override their presubscribed carrier by dialling 10XXX. An end office that offers Equal Access is known as a conforming or equal access end office. An end office that does not offer Equal Access is known as a nonconforming end office.

Size: 4 bytes

Data Fields:

DID Byte Count:
0 to 254

LATA Restriction:
0 = no restrictions
1 = non-conforming end office
2 = all interLATA is restricted

Byte #	Meaning
0	ID = #0114
1	
2	DID Byte Count
3	LATA Restriction

5.39 LIDB Response DID

Identifier: #0115

Description: This DID is sent when a collect or third number database validation response is received from a LIDB database. Both collect and third numbers are usually verified by the operator prior to releasing the call. The LIDB has the ability to indicate that the collect or third number will always accept the charges. When this happens, the operator does not need to verify the billing. Otherwise, the operator should contact the billed party and obtain acceptance for the call (subject to local operator practice).

Size: 4 bytes

Data Fields:

DID Byte Count:
0 to 254

LIDB Response:
0 = not automatically accepted
1 = automatically accepted

Byte #	Meaning
0	ID = #0115
1	
2	DID Byte Count
3	LIDB Response

5.40 Loop State DID

Identifier: #0116

Description: This DID is sent to inform the operator of the state of a particular loop. Some of the actions for which this DID is sent are: call presentation, call details request, call placed on hold, and loop access.

Size: 6 bytes

Data Fields:

DID Byte Count:
0 to 254

Loop Number:
0 to 2

Loop Status:
0 = idle
1 = active
2 = temporary hold
3 = permanent hold

Notify Pending Status:
0 = no notify pending
1 = notify pending

Byte #	Meaning
0	ID = #0116
1	
2	DID Byte Count
3	Loop Number
4	Loop Status
5	Notify Pending Status

5.41 LRN Information DID

Identifier: #0136

Description: This DID is sent to provide the LRN for a specified party.

Size: Variable

Data Fields:

DID Byte Count:
0 to 254

LNP Party:
0 = calling
1 = called
2 = special

LRN Status:
0 = directory number not ported
1 = directory number ported
2 = unknown

LRN Count:
0 to 254

LRN:
BCD digits each ranging from 0 to 9

Byte #	Meaning
0	ID = #0136
1	
2	DID Byte Count
3	LNP Party
4	LRN Status
5	LRN Count
6	LRN
...	
n	

5.42 Network Action DID

Identifier: #0118

Description: This DID is sent as confirmation or denial of the network action requested by the operator or performed by the DMS.

Size: 6 bytes

Data Fields:

DID Byte Count:
0 to 254

Port:
0 = calling
1 = called
2 = operator

Network Action Status:
0 = none
1 = valid
2 = invalid

Network Action:
0 = release party
1 = ring party
2 = collect coins
3 = return coins
4 = trunk offering start (TOS)
5 = trunk offering end (TOE)

Byte #	Meaning
0	ID = #0118
1	
2	DID Byte Count
3	Port
4	Network Action Status
5	Network Action

5.43 No Action DID

Identifier: #0113

Description: This DID is sent to a position in response to an action request which results in no action by the DMS. The No Action Reason field indicates the reason why the DMS took no action on the request.

Size: 5 bytes

Data Fields:

DID Byte Count:
0 to 254

No Action Reason:
0 to 65534

Byte #	Meaning
0	ID = #0113
1	
2	DID Byte Count
3	No Action Reason
4	

5.44 Notify DID

Identifier: #0119

Description: This DID is sent in response to a notify time requested by the operator.
This DID echoes the validity of the notify time keyed.

Size: 5 bytes

Data Fields:

DID Byte Count:
0 to 254

Notify Status:
0 = none
1 = valid
2 = invalid

Notify Minutes:
0 to 254

Notify Connection:
0 = two-way
1 = one-way

Notify Recall Count:
0 to 65534

Byte #	Meaning
0	ID = #0119
1	
2	DID Byte Count
3	Notify Status
4	Notify Minutes
5	Notify Connection
6	Notify Recall Count
7	

5.45 OLNS Information DID

Identifier: #0135

Description: This DID is sent to inform the position of OLNS (originating line number screening) information.

Size: 5 bytes

Data Fields:

DID Byte Count:
0 to 254

OLNS Restriction Display Index:
0 to 254

OLNS Equipment Display Index:
0 to 254

Byte #	Meaning
0	ID = #0135
1	
2	DID Byte Count
3	OLNS Restriction Display Index
4	OLNS Equipment Display Index

5.46 Open Information Access DID

Identifier: #011A

Description: This DID is sent so that the position may automatically access an operator information database. The information type is based on characteristics such as type of service, call origination type, OIA database vendor, etc. The position should use the OIA Information Type to request appropriate information from the database.

Size: 4 bytes

Data Fields:

DID Byte Count:
0 to 254

OIA Information Type:
0 to 100

Byte #	Meaning
0	ID = #011A
1	
2	DID Byte Count
3	OIA Information Type

5.47 OSSAIN Information DID

Identifier: #0132

Description: This DID is sent to the position to provide OSSAIN information about the call.

Size: 12 bytes

Data Fields:

DID Byte Count:
0 to 254

OSSAIN Function ID:
0 to 65534

OSSAIN Control List ID:
0 to 65534

OSSAIN Failed Function ID:
0 to 65534

OSSAIN Switch ID:
0 to 65534

Service Node Handoff Count:
0 to 254

Byte #	Meaning
0	ID = #0132
1	
2	DID Byte Count
3	OSSAIN Function ID
4	
5	OSSAIN Control List ID
6	
7	OSSAIN Failed Function ID
8	
9	OSSAIN Switch ID
10	
11	Service Node Handoff Count

5.48 OSSAIN Trigger DID

Identifier: #0134

Description: This DID is sent to the position to provide OSSAIN trigger information about the call.

Size: 12 bytes

Data Fields:

DID Byte Count:
0 to 254

OSSAIN Trigger Profile Status:
0 = valid
1 = invalid

OSSAIN Trigger Profile Index:
0 to 65534

OSSAIN No Answer Timer:
0 to 254

OSSAIN Notification Timer:
0 to 4294967294

OSSAIN Notification Timer Type:
0 = relative time
1 = conversation time

Byte #	Meaning
0	ID = #0134
1	
2	DID Byte Count
3	OSSAIN Trigger Profile Status
4	OSSAIN Trigger Profile Index
5	
6	
7	OSSAIN No Answer Timer
8	OSSAIN Notification Timer
9	
10	
11	
	OSSAIN Notification Timer Type

5.49 Pass Through DID

Identifier: #013B

Description: This DID is sent to the position to pass through unformatted data from another node attached to the call.

Size: Variable

Data Fields:

DID Byte Count:
0 to 254

Pass Through Data Count:
0 to 25

Pass Through Data:
0 to 25 bytes

Data Reason:
0 = data included - not final
1 = data included - final
2 = data accepted
3 = data not accepted

Data Start Position:
0 to 75

Byte #	Meaning
0	ID = #013B
1	
2	DID Byte Count
3	Pass Through Data Count
4	Pass Through Data
...	
n	
n+1	Data Reason
n+2	Data Start Position

5.50 Person Call Back DID

Identifier: #011B

Description: This DID specifies the interaction of a person call back with the call. Subscriber A originates a person-to-person call to subscriber B, but subscriber B is not available. Later, subscriber B calls the operator to return subscriber A's call. Person call back is applied so the call is charged as if subscriber A originated the person-to-person call.

Size: 4 bytes

Data Fields:

DID Byte Count:
0 to 254

Person Call Back Status:
0 = no person call back
1 = person call back
2 = person call back invalid

Byte #	Meaning
0	ID = #011B
1	
2	DID Byte Count
3	Person Call Back Status

5.51 Port Status DID

Identifier: #011C

Description: This DID is sent to inform the operator of the status of the port available to the operator.

Size: 7 bytes

Data Fields:

DID Byte Count:
0 to 254

Loop Number:
0 to 2

Port:
0 = calling
1 = called
2 = operator

Port Status:
0 = on-hook
1 = off-hook
2 = requesting operator
3 = not connected
4 = busy
5 = congested

Port Voice Status:
0 = connected
1 = split

Byte #	Meaning
0	ID = #011C
1	
2	DID Byte Count
3	Loop Number
4	Port
5	Port Status
6	Port Voice Status

5.52 Position Information DID

Identifier: #012E

Description: This DID informs the position of events or conditions which may not correspond to a specific screen update or action. The position can use the information to decide what call or non-call data to display or update.

Size: 4 bytes

Data Fields:

DID Byte Count:
0 to 254

Position Information:
0 = end of call details

Byte #	Meaning
0	ID = #012E
1	
2	DID Byte Count
3	Position Information

5.53 Rate Step DID

Identifier: #011D

Description: This DID describes the interactions of the call with the real time rating system. The real time rating system provides the amount of charge to the operator for the current call. The real time rating system is accessed only for those calls that require the amount of charge at the time the call is made. These calls include coin paid, hotel paid and those calls where the billed party requests the time and charges.

The rate step is a piece of information needed by the real time rating system to calculate the amount of charge for the call. A rate step refers to a specific amount of charge from which discounts and surcharges are applied. The rate step is either manually entered by the operator or automatically calculated by real time rating.

Size: 7 bytes

Data Fields:

DID Byte Count:
0 to 254

Rate Step Status:
0 = none
1 = valid
2 = invalid
3 = required but missing

Rate Step Origin:
0 = manually entered by the operator
1 = automatically calculated by real time rating

Rate Step:
0 to 65534

Byte #	Meaning
0	ID = #011D
1	
2	DID Byte Count
3	Rate Step Status
4	Rate Step Origin
5	Rate Step
6	

5.54 Service Billing DID

Identifier: #011E

Description: This DID provides a response to an operator keying action that attempts to generate an AMA record at the DMS.

Size: 4 bytes

Data Fields:

DID Byte Count:
0 to 254

Service Billing Status:
0 = billing complete
1 = billing incomplete

Byte #	Meaning
0	ID = #011E
1	
2	DID Byte Count
3	Service Billing Status

5.55 Service Call ID DID

Identifier: #011F

Description: This DID is sent to the operator position during initial call presentation of a call requiring a service such as directory assistance (DA) or intercept. The service call ID may be communicated to the position from the service node as well. In this case the position can use the service call ID to verify that the call presented by the DMS and the information presented by the service node is for the same call.

The service call ID differs from the DMS call ID. The DMS call ID has a much larger range, while the service call ID corresponds more closely to the quantity of resources available for service node call processing. Such resources include voice links, data links, terminal identifiers, and announcements.

Size: 7 bytes

Data Fields:

DID Byte Count:
0 to 254

Service Type:
0 to 62

Service Switch ID:
0 to 99

Service Call ID:
0 to 3070

Byte #	Meaning
0	ID = #011F
1	
2	DID Byte Count
3	Service Type
4	Service Switch ID
5	Service Call ID
6	

5.56 Service Options DID

Identifier: #0120

Description: This DID informs the operator of the options for a service when the call arrives at the operator's position. This DID indicates to the operator whether or not multiple requests may be given to the subscriber and whether or not call completion may be offered to the subscriber.

Size: 4 bytes

Data Fields:

DID Byte Count:
0 to 254

Service Options Set:

Each bit corresponds to a service option associated with the service of the call. A '1' indicates the option applies. A '0' indicates the option does not apply. The bits map to options in the following manner:

bit 0 = multiple service requests

bit 1 = call completion

Byte #	Meaning
0	ID = #0120
1	
2	DID Byte Count
3	Service Options Set

5.57 Service Provider DID

Identifier: #013C

Description: This DID is sent to the position to provide information about a service provider.

Size: 20 bytes

Data Fields:

DID Byte Count:
0 to 254

Service Provider Class:
0 = calling
1 = called
2 = special

Service Provider Type:
0 = account owner
1 = billing service provider

Service Provider Identifier:
6 alphanumeric characters or spaces in ASCII format

Service Provider Display:
8 alphanumeric characters or spaces in ASCII format

Service Provider Status:
0 = none
1 = valid
2 = invalid

Byte #	Meaning
0	ID = #013C
1	
2	DID Byte Count
3	Service Provider Class
4	Service Provider Type
5	Service Provider Identifier
6	
7	
8	
9	
10	
11	Service Provider Display
12	
13	
14	
15	
16	
17	
18	
19	Service Provider Status

5.58 Service Voice Response DID

Identifier: #0121

Description: This DID informs the operator of the automated status of a service call. This DID indicates that the operator must perform additional functions to complete processing of the call.

Size: 4 bytes

Data Fields:

DID Byte Count:
0 to 254

Voice Response Status:
0 = voice quote imposed
1 = operator handling imposed

Byte #	Meaning
0	ID = #0121
1	
2	DID Byte Count
3	Voice Response Status

5.59 Station Class DID

Identifier: #0122

Description: This DID indicates the class of service of the calling or called subscriber. It also indicates any billing restrictions that may apply to that subscriber.

Size: 9 bytes

Data Fields:

DID Byte Count:
0 to 254

Port:
0 = calling
1 = called
2 = operator

Station Class:
0 = undetermined
1 = station
2 = prepay coin CDF
3 = postpay coin
4 = hotel/motel
5 = attended pay station
6 = marine
7 = mobile
8 = institution
9 = prepay coin CCF
10 = hotel/motel no-charge

Restriction Status:
0 = not applicable
1 = billing restrictions apply
2 = no billing restrictions apply

Restriction Number:
0 to 99

Overtime Type:
0 = postpay overtime
1 = prepay overtime

Restricted Billing Code:
0 to 99

Byte #	Meaning
0	ID = #0122
1	
2	DID Byte Count
3	Port
4	Station Class
5	Restriction Status
6	Restriction Number
7	Overtime Type
8	Restricted Billing Code

5.60 System Status DID

Identifier: #013D

Description: This DID informs the operator of the system status. For example, the system is busy while an external database query is in progress.

Size: 4 bytes

Data Fields:

DID Byte Count:
0 to 254

System Status:
0 = system not busy
1 = system busy

Byte #	Meaning
0	ID = #013D
1	
2	DID Byte Count
3	System Status

5.61 Text DID

Identifier: #0117

Description: This DID is sent to indicate a text string which is associated with the call. The Text Type field gives the meaning of the text string. Using the Text Action and Text Start Position fields, the DMS may send large text strings with multiple Text DIDs and perform edit-like functions on text strings already residing in the position.

Size: Variable

Data Fields:

DID Byte Count:
0 to 254

Text Type:
0 = hotel guest name
1 = calling name
2 = called name
3 = hotel room
4 = password
5 = memo
6 = authorization number
7 = OLNS alphanumeric string

Text Status:
0 = none
1 = valid
2 = invalid
3 = required but missing

Text Action:
Each bit corresponds to an action concerning the text. A '1' indicates the action applies. A '0' indicates the action does not apply. The bits map to the actions in the following manner:

bit 0 = clear to end of field
bit 1 = confirm text
bit 2 = confirm all

Text Start Position:
0 to 200

Text Count:
0 to 200

Text:

ASCII characters

Byte #	Meaning
0	ID = #0117
1	
2	DID Byte Count
3	Text Type
4	Text Status
5	Text Action
6	Text Start Position
7	Text Count
8	Text
...	
n	

5.62 Ticket Number DID

Identifier: #012F

Description: This DID is sent to give information about the ticket number associated with the call.

Size: 11 bytes

Data Fields:

DID Byte Count:
0 to 254

Ticket Number Status:
0 = none
1 = valid
2 = invalid

Transit Code:
3 ASCII characters

Day:
1 to 31

Ticket Number Digits:
6 BCD digits each ranging from 0 to 9

Byte #	Meaning
0	ID = #012F
1	
2	DID Byte Count
3	Ticket Number Status
4	Transit Code
5	
6	
7	Day
8	Ticket Number
9	
10	

5.63 Time and Charges DID

Identifier: #0123

Description: This DID is sent to indicate time and charges for the call. Time and charges allows the billed party for the call to receive the elapsed time of the call and the charges when the call disconnects.

Size: 4 bytes

Data Fields:

DID Byte Count:
0 to 254

Time and Charges Status:
0 = no time and charges
1 = time and charges
2 = do not print time and charges to device
3 = print time and charges to device

Byte #	Meaning
0	ID = #0123
1	
2	DID Byte Count
3	Time and Charges Status

5.64 Transfer to Operator DID

Identifier: #0126

Description: This DID informs the operator of the status of transferring the call to another operator.

Size: 4 bytes

Data Fields:

DID Byte Count:
0 to 254

Transfer to Operator Status:
0 = no transfer
1 = transfer

Byte #	Meaning
0	ID = #0126
1	
2	DID Byte Count
3	Transfer to Operator Status

5.65 Trouble Code DID

Identifier: #0124

Description: This DID is sent in response to the operator's requesting a trouble report for the call. The trouble code is used to indicate the type of problem encountered on the call.

Size: 6 bytes

Data Fields:

DID Byte Count:
0 to 254

Trouble Code Status:
0 = none
1 = valid
2 = invalid

Trouble Code:
0 to 65534

Byte #	Meaning
0	ID = #0124
1	
2	DID Byte Count
3	Trouble Code Status
4	Trouble Code
5	

Chapter 6: Non-Call Data Identifier Description

6.1 Active Queue DID

Identifier: #0318

Description: This DID informs the supervisor operator of which call queues are active in an office. The Active Queue DID allows the position to display the appropriate active queue statistics.

This DID may be sent several times depending on the application's DID size limitations. The Sequence Number and Final Status fields enable orderly processing of several of these DIDs. The First Queue Number field contains the queue number of the first queue whose activation status is represented in this DID.

The Active Queues field contains information for 128 queues. Using the First Queue Number field, it is possible to determine which 128 queues are represented. The Active Queues field contains no gaps, so if the First Queue Number contains 0, then the activation status for queues 0 through 127 is present in the DID.

Size: 22 bytes

Data Fields:

DID Byte Count:
0 to 254

Sequence Number:
0 to 254

Final Status:
0 = not final
1 = final

First Queue Number:
0 to 254

Active Queues:
Each bit corresponds to a queue. A '1' indicates that the corresponding queue is active. A '0' indicates that the queue is inactive. The queue number is derived by adding the bit number to the value of the First Queue Number field used with this field in the following way:

bit 0 = queue (0 + <First Queue Number>)
bit 1 = queue (1 + <First Queue Number>)
.
.
bit 126 = queue (126 + <First Queue Number>)
bit 127 = queue (127 + <First Queue Number>)

Byte #	Meaning
0	ID = #318
1	
2	DID Byte Count
3	Sequence Number
4	Final Status
5	First Queue Number
6	Active Queues
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	

6.2 Ancillary Operator Information DID

Identifier: #0300

Description: This DID is sent to provide the position or operator with an office or telco defined piece of extra information. This number could be used as alternate position identification (such as unit number within a token ring of positions).

Size: Variable

Data Fields:

DID Byte Count:
0 to 254

Ancillary Operator Information Type:
0 = complex/unit number

Ancillary Operator Information Count:
0 to 200

Ancillary Operator Information:
0 to 254

.
.
.

Ancillary Operator Information:
0 to 254

Byte #	Meaning
0	ID = #0300
1	
2	DID Byte Count
3	Ancillary Operator Information Type
4	Ancillary Operator Information Count
5	Ancillary Operator Information
...	
n	

6.3 Attached Operator DID

Identifier: #0301

Description: This DID is sent to the position to provide information about a currently (or previously) attached operator or service node.

Size: 13 bytes

Data Fields:

DID Byte Count:
0 to 254

Loop Number:
0 to 2

Attached Operator Status:
0 = none
1 = directed
2 = general
3 = released
4 = queued

Position Number:
0 to 65534

Operator Number:
0 to 65534

Service Node Number:
0 to 65534

Session Pool Number:
0 to 65534

Byte #	Meaning
0	ID = #0301
1	
2	DID Byte Count
3	Loop Number
4	Attached Operator Status
5	Position Number
6	
7	Operator Number
8	
9	Service Node Number
10	
11	Session Pool Number
12	

6.4 Audible Tone DID

Identifier: #0302

Description: This DID is sent to update the status of the audible tone at the position. A position with an audible tone may choose to turn it on when various traffic or office conditions arise which require the attention of the operator.

Size: 4 bytes

Data Fields:

DID Byte Count:
0 to 254

Audible Tone:
0 = begin tone
1 = end tone

Byte #	Meaning
0	ID = #0302
1	
2	DID Byte Count
3	Audible Tone

6.5 Audit DID

Identifier: #0303

Description: This DID is sent to audit the operator position. The purpose of the audit is to establish communication between the DMS and the position. This DID initiates the audit. It contains the BCS (Batch Change Supplement) number of the DMS. The BCS number identifies the release level of the software and hardware in the DMS. By knowing the BCS number of the DMS, the position can interpret data in the correct manner.

A reply to the audit is expected prior to the next audit cycle. Failure to receive a reply means the position is taken out of service.

Size: 4 bytes

Data Fields:

DID Byte Count:
0 to 254

BCS Number:
0 to 254

Byte #	Meaning
0	ID = #0303
1	
2	DID Byte Count
3	BCS Number

6.6 Broadcast Message DID

Identifier: #0304

Description: This DID is sent when a broadcast message is input by the Force Manager. A broadcast message is an instructional message that can be sent to all operators or to a specific team of operators. The message should remain visible to the operator until it is no longer in effect. The message is not sent in relation to call arrivals.

This DID allows the broadcast message to be sent in several segments, if desired. When the final DID for a broadcast message is sent, the Final Status field will be set to "Final."

Size: Variable

Data Fields:

DID Byte Count:
0 to 254

Sequence Number:
0 to 254

Final Status:
0 = not final
1 = final

Broadcast Message Count:
0 to 200

Broadcast Message:
ASCII Characters

Byte #	Meaning
0	ID = #0304
1	
2	DID Byte Count
3	Sequence Number
4	Final Status
5	Broadcast Message Count
6	Broadcast Message
...	
n	

6.7 Calls Deflected by Queue DID

Identifier: #0315

Description: A call which is waiting for an operator is placed in a specific queue depending on the characteristics of the call. When a queue is full (as determined by office defined thresholds), calls will no longer be placed in that queue. Instead, the calls are deflected which means the subscriber hears an announcement saying, for example, "All circuits are busy...".

When calls are being deflected in an office, the supervisor operators are informed using this DID. The Status by Queue field shows in which queue deflection is occurring, and the supervisor positions can update their calls deflected displays using the contents of this field. The supervisor(s) can take appropriate action to handle the increased call traffic.

When the calls deflected condition subsides for a queue, the Calls Deflected by Queue DID is sent again to update the calls deflected screen displays.

This DID may be sent several times depending on the application's DID size limitations. The Sequence Number and Final Status fields enable orderly processing of several of these DIDs. The First Queue Number field contains the queue number of the first queue whose call deflected status is represented in this DID.

The Status by Queue field contains information for 128 queues. Using the First Queue Number field, it is possible to determine which 128 queues are represented. The Status by Queue field contains no gaps, so if the First Queue Number contains 0, then the status for queues 0 through 127 is present in the DID.

Size: 22 bytes

Data Fields:

DID Byte Count:
0 to 254

Sequence Number:
0 to 254

Final Status:
0 = not final
1 = final

First Queue Number:
0 to 254

Status by Queue:

Each bit corresponds to a queue. A '1' indicates that the corresponding queue has calls being deflected from it. A '0' indicates that the queue does not have calls being deflected in it. The queue number is derived by adding the bit number to the value of the First Queue Number field used with this field in the following way:

bit 0 = queue (0 + <First Queue Number>)

bit 1 = queue (1 + <First Queue Number>)

.

.

.

bit 126 = queue (126 + <First Queue Number>)

bit 127 = queue (127 + <First Queue Number>)

Byte #	Meaning
0	ID = #0315
1	
2	DID Byte Count
3	Sequence Number
4	Final Status
5	First Queue
6	Status by Queue
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	

6.8 Calls Waiting DID

Identifier: #0305

Description: This DID is sent to indicate when there are calls waiting in any of the queues that the operator is serving. This DID is also sent to indicate there are no calls waiting in any of the queues that the operator is serving.

Size: 4 bytes

Data Fields:

DID Byte Count:
0 to 254

Calls Waiting Status:
0 = no calls waiting
1 = calls waiting

Byte #	Meaning
0	ID = #0305
1	
2	DID Byte Count
3	Calls Waiting Status

6.9 Calls Waiting by Queue DID

Identifier: #0316

Description: A call which is waiting for an operator is placed in a specific queue depending on the characteristics of the call. When a call is in queue for an operator, the subscriber hears ringing.

This DID is sent to the supervisor positions when calls are waiting. The Status by Queue field shows in which queue calls are waiting, and the supervisor positions can update their calls waiting displays using the contents of this field.

When the calls waiting condition subsides for a queue, the Calls Waiting DID is sent again to update the calls waiting screen displays.

This DID may be sent several times depending on the application's DID size limitations. The Sequence Number and Final Status fields enable orderly processing of several of these DIDs. The First Queue Number field contains the queue number of the first queue whose call deflected status is represented in this DID.

The Status by Queue field contains information for 128 queues. Using the First Queue Number field, it is possible to determine which 128 queues are represented. The Status by Queue field contains no gaps, so if the First Queue Number contains 0, then the status for queues 0 through 127 is present in the DID.

Size: 22 bytes

Data Fields:

DID Byte Count:
0 to 254

Sequence Number:
0 to 254

Final Status:
0 = not final
1 = final

First Queue Number:
0 to 254

Status by Queue:
Each bit corresponds to a queue. A '1' indicates that the corresponding queue has calls waiting in it. A '0' indicates that the queue does not have calls waiting in it. The queue number is derived by adding the bit number to the value of the First Queue Number field used with this field in the fol-

following way:

bit 0 = queue (0 + <First Queue Number>)

bit 1 = queue (1 + <First Queue Number>)

.

.

.

bit 126 = queue (126 + <First Queue Number>)

bit 127 = queue (127 + <First Queue Number>)

Byte #	Meaning
0	ID = #0316
1	
2	DID Byte Count
3	Sequence Number
4	Final Status
5	First Queue Number
6	Status by Queue
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	

6.10 Controlled Traffic DID

Identifier: #0306

Description: Using controlled traffic, supervisor operators can monitor the performance of operators in their team serving selected call types. Controlled traffic is often used to train new operators. By serving only a few different call types at a time, the new operators can become accustomed to the subscriber prompts and keying actions necessary to handle specific types of calls.

The number of operators assigned to controlled traffic is monitored by the DMS. If this number exceeds a threshold value for a particular team, then the team's supervisor operator will be notified using this DID.

Size: 5 bytes

Data Fields:

DID Byte Count:
0 to 254

Controlled Traffic Status:
0 = threshold percentage not exceeded
1 = threshold percentage exceeded

Threshold Value:
0 to 100

Byte #	Meaning
0	ID = #0306
1	
2	DID Byte Count
3	Controlled Traffic Status
4	Threshold Value

6.11 Logon Denied DID

Identifier: #0307

Description: This DID is sent in response to an operator logon attempt when logon is denied. The reason for denial is included in the DID. An indication should be given to the operator as to what caused the logon error so that the operator may take the appropriate action.

Size: 6 bytes

Data Fields:

DID Byte Count:
0 to 254

Logon Denial Reason:
0 = incompatible service profile
1 = incompatible queue profile
2 = position is unoccupied
3 = invalid operator number
4 = operator already logged on
5 = invalid password

Operator Number:
0 to 65534

Byte #	Meaning
0	ID = #0307
1	
2	DID Byte Count
3	Logon Denial Reason
4	Operator Number
5	

6.12 Logon Success DID

Identifier: #0308

Description: This DID is sent in response to an operator logon attempt when logon is successful. A successful logon indicates that the operator number was successfully validated, the password if required was successfully validated, and any service logons (e.g. directory assistance service or intercept service) to vendors were attempted. This DID indicates the available services for this operator session.

Size: 13 bytes

Data Fields:

DID Byte Count:
0 to 254

Operator Number:
0 to 65534

Service Profile:

Each bit corresponds to a service. A '1' indicates that the corresponding service is being provided by the operator. A '0' indicates that the corresponding service is not being provided by the operator. The bits map to the services in the following way:

bit 0 = service 0
bit 1 = service 1
.
.
.
bit 61 = service 61
bit 62 = service 62

Byte #	Meaning
0	ID = #0308
1	
2	DID Byte Count
3	Operator Number
4	
5	Service Profile
6	
7	
8	
9	
10	
11	
12	

6.13 Monitor DID

Identifier: #0309

Description: Certain operators can monitor other operator positions to observe the quality of service other operators are providing. During a monitoring session, a one-way voice connection is established so the monitoring operator can hear the conversation between the monitored operator and the subscribers. Also, the monitoring operator receives all of the DIDs that the monitored operator receives.

This DID is sent to the monitoring position at monitor initiation and termination.

Size: 12 bytes

Data Fields:

DID Byte Count:
0 to 254

Monitor Status:
0 = monitor begin
1 = monitor end

Monitored Operator's Service Profile:

Each bit corresponds to a service. A '1' indicates that the corresponding service is being provided by the operator. A '0' indicates that the corresponding service is not being provided by the operator. The bits map to the services in the following way:

bit 0 = service 0
bit 1 = service 1
.
.
.
bit 61 = service 61
bit 62 = service 62

Operator Number:
0 to 65534

Position Number:
0 to 65534

Byte #	Meaning
0	ID = #0309
1	
2	DID Byte Count
3	Monitor Status
4	Monitored Operator's Service Profile
5	
6	
7	
8	
9	
10	
11	
12	Operator Number
13	
14	Position Number
15	

6.14 Office Condition DID

Identifier: #031A

Description: This DID is sent to selected operators to inform them of conditions that affect work force management or operations.

Size: 5 bytes

Data Fields:

DID Byte Count:
0 to 254

Office Condition Type:
0 = operator services suspended
1 = no time and charges devices

Condition Status:
0 = condition begin
1 = condition end
2 = condition update

Byte #	Meaning
0	ID = #031A
1	
2	DID Byte Count
3	Office Condition Type
4	Condition Status

6.15 Operator Administration DID

Identifier: #030A

Description: This DID is sent to specify any special force management administration to which an operator is assigned. There are two types of administration: controlled traffic and study data.

Controlled traffic is used to selectively present calls to an operator. The force manager assigns a subset of call types for an operator to provide service. This is used to train operators and familiarize them with new services and call handling.

Study data collects data for an individual operator. That data consists of the number of position seizures and the average operator work time on a call class basis. A call class consists of a group of call types that are defined by the force manager. This data is used to monitor individual operator's performance.

Size: 4 bytes

Data Fields:

DID Byte Count:
0 to 254

Administration Set:

Each bit corresponds to a type of operator administration. A '1' indicates the administration is assigned. A '0' indicates the administration is not assigned. The bits map to administrations in the following manner:

bit 0 = controlled traffic
bit 1 = study data system

Byte #	Meaning
0	ID = #030A
1	
2	DID Byte Count
3	Administration Set

6.16 Operator Feedback DID

Identifier: #030B

Description: An operator can monitor their total number of position seizures and average operator work time. The system average operator work time can be included.

Size: 12 bytes

Data Fields:

DID Byte Count:
0 to 254

Operator Position Seizures Status:
0 = position seizures not present
1 = position seizures present

Operator Position Seizures:
0 to 65534

Operator Average Work Time Status:
0 = average work time not present
1 = average work time present

Operator Average Work Time (in seconds):
0 to 65534

System Average Work Time Status:
0 = system average work time not present
1 = system average work time present

System Average Work Time (in seconds):
0 to 65534

Byte #	Meaning
0	ID = #030B
1	
2	DID Byte Count
3	Operator Position Seizures Status
4	Operator Position Seizures
5	
6	Operator Average Work Time Status
7	Operator Average Work Time
8	
9	System Average Work Time Status
10	System Average Work Time
11	

6.17 Operator Management DID

Identifier: #030C

Description: This DID informs a paged or monitored operator of the status of the page or the monitoring session.

A page is a means by which one operator can request a response from another. The paged operator can respond with a paged assistance request or a directed assistance request (refer to the Attached Operator ActID). This DID is sent to the paged operator when a page begins or is cleared.

Monitoring is a means by which certain operators can listen to conversations between other operators and subscribers, and can receive the same DIDs that are sent to the monitored position. This DID may be sent to an operator when he or she is being monitored or is no longer being monitored.

The position number in this DID is that of the paging or monitoring operator.

Size: 6 bytes

Data Fields:

DID Byte Count:
0 to 254

Management Status:
0 = no page
1 = page
2 = no monitor
3 = monitor

Position Number:
0 to 65534

Byte #	Meaning
0	ID = #030C
1	
2	DID Byte Count
3	Management Status
4	Position Number
5	

6.18 Operator Queue Profile DID

Identifier: #0319

Description: This DID indicates which call queues the operator serves during an operator session.

This DID may be sent several times depending on the application's DID size limitations. The Sequence Number and Final Status fields enable orderly processing of several of these DIDs. The First Queue Number field contains the queue number of the first queue whose activation status is represented in this DID.

The Queue Profile field contains information for 128 queues. Using the First Queue Number field, it is possible to determine which 128 queues are represented. The Queue Profile field contains no gaps, so the First Queue Number contains 0, then the activation status for queues 0 through 127 is present in the DID.

Size: 22 bytes

Data Fields:

DID Byte Count:
0 to 254

Sequence Number:
0 to 254

Final Status:
0 = not final
1 = final

First Queue Number:
0 to 254

Queue Profile:
Each bit corresponds to a queue. A '1' indicates that the corresponding queue is active. A '0' indicates that the queue is inactive. The queue number is derived by adding the bit number to the value of the First Queue Number field used with this field in the following way:

bit 0 = queue (0 + <First Queue Number>)
bit 1 = queue (1 + <First Queue Number>)
.
.
.
bit 126 = queue (126 + <First Queue Number>)
bit 127 = queue (127 + <First Queue Number>)

Byte #	Meaning
0	ID = #0319
1	
2	DID Byte Count
3	Sequence Number
4	Final Status
5	First Queue number
6	Queue Profile
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	

6.19 Operator Services Suspension DID

Identifier: #030D

Description: If it is necessary to evacuate the office (due to, for example, a tornado warning or a fire), a craftsperson will put the switch into an operator services suspended mode. In this mode, all calls requiring operator assistance will be routed to the appropriate treatment.

This DID is sent when the switch enters or leaves the operator services suspended mode.

Size: 4 bytes

Data Fields:

DID Byte Count:
0 to 254

Services Suspension Status:
0 = services are not suspended
1 = services are suspended

Byte #	Meaning
0	ID = #030D
1	
2	DID Byte Count
3	Services Suspension Status

6.20 Paging DID

Identifier: #030E

Description: This DID is sent to an operator who has initiated a page, to indicate the status of the page. A page is a means by which one operator can request a response from another. For example, a supervisory operator might page an operator to correct improper service behavior, or an operator might page a supervisory operator to request a break.

A page can be issued by either operator number or position number. The Paging Type field indicates whether the Paged Party field should be interpreted as an operator or a position.

Size: 7 bytes

Data Fields:

DID Byte Count:
0 to 254

Paging Status:
0 = none
1 = valid
2 = invalid

Paging Type:
0 = position
1 = operator

Paged Party:
0 to 65534

Byte #	Meaning
0	ID = #030E
1	
2	DID Byte Count
3	Paging Status
4	Paging Type
5	Paged Party
6	

6.21 Password DID

Identifier: #030F

Description: This DID is sent in response to an operator logon attempt when a password is required, or to an operator who is attempting to change their password.

Size: 4 bytes

Data Fields:

DID Byte Count:
0 to 254

Password Status:
0 = password required
1 = invalid attempt at changing the password
2 = valid password change

Byte #	Meaning
0	ID = #030F
1	
2	DID Byte Count
3	Password Status

6.22 Position Data DID

Identifier: #0310

Description: Certain operators are given information concerning the operators in their team. This information is a peg count of the number of operators or positions in various situations. The Position Data DID contains these counts.

Size: 8 bytes

Data Fields:

DID Byte Count:
0 to 254

Class of Data:
0 = system
1 = by queue

Queue Mark:
0 to 254

Type of Data:
0 = data for occupied positions
1 = data for positions in a made busy state
2 = data for positions in an out of service state
3 = data for positions with controlled traffic operators
4 = data for positions in an unoccupied state with a call in progress
5 = data for positions in an unoccupied state with a call terminated
6 = data for positions with a loop accessed but no call in progress

Number of Positions:
0 to 65534

Byte #	Meaning
0	ID = #0310
1	
2	DID Byte Count
3	Class of Data
4	Queue Mark
5	Type of Data
6	Number of Positions
7	

6.23 Position State DID

Identifier: #0311

Description: This DID is sent whenever the state of the position changes. The position state field identifies the current state.

Size: 4 bytes

Data Fields:

DID Byte Count:
0 to 254

Position State:
0 = position occupied
1 = position unoccupied
2 = position unoccupied pending
3 = position busy
4 = position busy pending
5 = calls withheld
6 = calls withheld pending
7 = accept all calls
8 = accept limited calls only
9 = training mode
10 = administrative mode
11 = forced maintenance
12 = forced maintenance pending

Byte #	Meaning
0	ID = #0311
1	
2	DID Byte Count
3	Position State

6.24 Query DID

Identifier: #0312

Description: The DID is sent to inform the operator of the status of a number of positions or operators. The Query List Type field indicates what type of information is being sent and whether the (repeated) Position/Operator Number fields contain position numbers or operator numbers.

The Sequence Number field allows the list of positions or operators to be transmitted in more than one DID. If the Final Status is not final, this DID will be sent again with the sequence number incremented, a new list of position or operator numbers, and every other field left the same. The final DID that completes the list will have its Final Status field set to "Final."

The two fields pertaining to operators with assistant capabilities will be set to nil for query list types that do not apply.

Size: Variable

Data Fields:

DID Byte Count:
0 to 254

Sequence Number:
0 to 254

Final Status:
0 = not final
1 = final

Query List Type:
0 = none
1 = assistants
2 = positions in a made busy state
3 = positions in an out of service state
4 = positions in an unoccupied state with a call in progress
5 = positions in an unoccupied state with a call terminated
6 = positions with a loop accessed with no call in progress
7 = operators with controlled traffic
8 = operators with study registers assigned

Number of Available Assistants:
0 to 254

Number of Assistants Connected to Operators:
0 to 254

Position/Operator Count:

0 to 100

Position/Operator Number:

0 to 65534

.

.

.

Position/Operator Number:

0 to 65534

Byte #	Meaning
0	ID = #0312
1	
2	DID Byte Count
3	Sequence Number
4	Final Status
5	Query List Type
6	Available Assistants
7	Assistants with Calls
8	Position/Operator Count
9	Position/Operator Number
...	
n	

6.25 Queue Status DID

Identifier: #031C

Description: This DID is sent to certain operators to inform them when specified queue status conditions begin, end, or change in some way.

Size: 6 bytes

Data Fields:

DID Byte Count:
0 to 254

Queueing Condition Type:
0 = calls waiting
1 = calls deflecting
2 = calls queued with no serving agent
3 = calls alerting
4 = calls overflowing

Condition Status:
0 = condition begin
1 = condition end
2 = condition update

Queue Number:
0 to 254

Byte #	Meaning
0	ID = #031C
1	
2	DID Byte Count
3	Queueing Condition Type
4	Condition Status
5	Queue Number

6.26 Queue Status by Queue DID

Identifier: #031B

Description: This DID is sent to certain operators to inform them of the queues to which a call queue condition applies. Refer to the description of the Queueing Condition Type field for information about the meanings of the conditions.

Each time this DID is sent, it can report on 128 consecutively-numbered queues. It may be sent more than once if there is a need to report on more queues than can be represented in a single DID. The Sequence Number and Final Status fields enable orderly processing of several of these DIDs. The Status by Queue field, together with the First Queue Number field, specifies which queues are affected by the condition specified in the Queueing Condition Type field.

Size: 23 bytes

Data Fields:

DID Byte Count:
0 to 254

Sequence Number:
0 to 254

Final Status:
0 = not final
1 = final

Queueing Condition Type:
0 = calls waiting
1 = calls deflecting
2 = calls queued with no serving agent
3 = calls alerting
4 = calls overflowing

First Queue Number:
0 to 254

Status by Queue:
Each bit corresponds to a queue. A '1' indicates that the condition specified in the Queueing Condition Type field applies to the corresponding queue. A '0' indicates that it does not apply to the corresponding queue. A queue number is derived by adding the bit number to the value of the First Queue Number field used with this field:

bit 0 = queue (0 + <First Queue Number>)
bit 1 = queue (1 + <First Queue Number>)

.
 .
 .
 bit 126 = queue (126 + <First Queue Number>)
 bit 127 = queue (127 + <First Queue Number>)

Byte #	Meaning
0	ID = #0315
1	
2	DID Byte Count
3	Sequence Number
4	Final Status
5	Queueing Condition Type
6	First Queue
7	Status by Queue
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	

6.27 Service Logon DID

Identifier: #0313

Description: This DID is sent in response to an operator logon request. It is sent following successful validation of the operator number and password, if required.

In response to this DID the position must attempt a service logon to any appropriate service vendor(s), then send a service logon response ActID informing the DMS of the success/failure of the service logon attempt(s).

Size: 16 bytes

Data Fields:

DID Byte Count:
0 to 254

Service Profile:

Each bit corresponds to a service. A '1' indicates that the corresponding service is being provided by the operator. A '0' indicates that the corresponding service is not being provided by the operator. The bits map to the services in the following way:

bit 0 = service 0
bit 1 = service 1
.
.
.
bit 61 = service 61
bit 62 = service 62

Operator Capabilities:

Each bit corresponds to a capability of an operator. A '1' indicates the capability applies. A '0' indicates the capability does not apply. The bits map to capabilities in the following manner:

bit 0 = general call handling
bit 1 = page
bit 2 = monitor
bit 3 = statistics and query
bit 4 = assistance
bit 5 = transfer to queue already served
bit 6 = queue status and query

Operator Number:
0 to 65534

Call Queueing System:
0 to 254

Byte #	Meaning
0	ID = #0313
1	
2	DID Byte Count
3	Service Profile
4	
5	
6	
7	
8	
9	
10	
11	Operator Capabilities
12	
13	Operator Number
14	
15	Call Queueing System

6.28 System Time DID

Identifier: #0314

Description: This DID is sent to indicate the system time.

Size: 8 bytes

Data Fields:

DID Byte Count:
0 to 254

Year:
0 to 99

Month:
1 to 12

Day:
1 to 31

Hour:
0 to 23

Minutes:
0 to 59

Seconds:
0 to 59

Byte #	Meaning
0	ID = #0314
1	
2	DID Byte Count
3	Year
4	Month
5	Day
6	Hour
7	Minutes
8	Seconds

6.29 Team Status DID

Identifier: #0317

Description: A supervisor operator is in charge of a group of operators known as a team. Certain conditions which arise in the team during operator call processing merit the attention of the supervisor operator. This DID is sent to the supervisor operator to update team information which is displayed on the supervisor's screen. Information displayed includes:

- Team Monitor Status: Whether or not an operator is monitoring another operator in the supervisor's team.
- Team Study Register Status: Whether or not any study registers are available in the team.
- Team Time and Charge Device Status: Whether or not the team's time and charge device is available.
- Team Assistant Position Status: Whether or not assistant positions are available in the team. To be considered available, an operator with assistance capabilities must be in a state where they can accept or are handling general assistance requests.
- Team Assistance Queue Status: Whether or not general assistance requests are in queue for assistant operators. If the team's queue is full, this will be indicated. Additionally, the number of requests in queue will be sent in this DID.
- Team Serving Agent Queueing Status: Whether or not there are calls in a queue for which no serving agents (for example operator positions) are defined.

Size: 10 bytes

Data Fields:

DID Byte Count:
0 to 254

Team Monitor Status:
0 = assistant in team is not monitoring
1 = assistant in team is monitoring

Team Study Register Status:
0 = study registers are available
1 = study registers are unavailable

Team Time and Charge Device Status:
0 = time and charge device is available
1 = time and charge device is unavailable

Team Assistant Position Status:
0 = assistant positions available

1 = no assistant positions available

Team Assistance Queue Status:

0 = no assistance requests in queue

1 = assistance requests in queue

2 = assistance request queue full

Number of Requests in Queue:

0 to 254

Team Serving Agent Queueing Status:

0 = no calls in unserved queue

1 = calls in unserved queue

Byte #	Meaning
0	ID = #0317
1	
2	DID Byte Count
3	Team Monitor Status
4	Team Study Register Status
5	Team Time and Charge Device Status
6	Team Assistant Position Status
7	Team Assistance Queue Status
8	Number of Requests in Queue
9	Team Serving Agent Queueing Status

Chapter 7: Field Definitions

7.1 Account ID Size

Description: Specifies the size of the account number for a CCITT calling card.

Length: 1 byte

Format: binary

Range: 0 to 15

Definition: This value is used to format a CCITT calling card number. A CCITT calling card number is composed of 3 parts:

- issuer identification number
- account identification number
- personal identification number

A dash ('-') should follow each part of the number. For example, if the digits received in the CCITT calling card field are 891222919991780504321, issuer ID size is 6, account ID size is 11 and PIN size is 4, then the number should be formatted as follows: 891222-91999178050-4321.

Example: Account identifier size is 11.

7	6	5	4	3	2	1	0
0	0	0	0	1	0	1	1

7.2 ActID Byte Count

Description: Specifies the number of bytes in an Action Identifier.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: This field indicates the number of bytes contained in an ActID. The count does not include the Action Identifier (2 bytes) and the ActID Byte Count field itself. It indicates the number of bytes following this field.

Example: ActID byte count is 5.

7	6	5	4	3	2	1	0
0	0	0	0	0	1	0	1

7.3 Active Queues

Description: Specifies the activation status of call queues.

Length: 16 bytes

Format: set

Range: Each bit corresponds to a queue. A '1' indicates that the corresponding queue is active. A '0' indicates that the queue is inactive. The queue number is derived by adding the bit number to the value of the First Queue Number field used with this field in the following way:

bit n = queue ($n + \text{<First Queue Number>}$)

Definition: This field tells which queues are active in an office.

Example: Queues 0-15 and 32-47 are active (assumes First Queue Number field is 0).

7	6	5	4	3	2	1	0	Byte #
1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	2
0	0	0	0	0	0	0	0	3
0	0	0	0	0	0	0	0	4
1	1	1	1	1	1	1	1	5
1	1	1	1	1	1	1	1	6
0	0	0	0	0	0	0	0	7
0	0	0	0	0	0	0	0	8
0	0	0	0	0	0	0	0	9
0	0	0	0	0	0	0	0	10
0	0	0	0	0	0	0	0	11
0	0	0	0	0	0	0	0	12
0	0	0	0	0	0	0	0	13
0	0	0	0	0	0	0	0	14
0	0	0	0	0	0	0	0	15
0	0	0	0	0	0	0	0	16

7.4 ADAS Status

Description: Specifies whether the call received the Automated Directory Assistance Service (ADAS).

The Automated Directory Assistance Service (ADAS) collects details related to a directory assistance (DA) call. These details may include desired city and listing names. When the call arrives at the DA operator, the names are played back to the operator for further processing.

Length: 1 byte

Format: binary

Range: 0 = automated directory assistance service not provided
1 = automated directory assistance service provided

Definition: Value 0: automated directory assistance service not provided, indicates the calling subscriber did not receive ADAS services. The operator should provide the standard DA call challenge (i.e. "What city, please?").

Value 1: automated directory assistance service provided. ADAS collects details related to a DA call. These details may include desired city and listing names. When the call arrives at the DA operator, the names are played back to the operator for further processing. As a result the DA operator does not have to use the standard DA challenge.

Example: Automated directory assistance service was provided.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.5 Administration Set

Description: Specifies the operator administration assigned to the operator.

Length: 1 byte

Format: set

Range: Each bit corresponds to a type of operator administration. A '1' indicates the administration is assigned. A '0' indicates the administration is not assigned. The bits map to administrations in the following manner:

bit 0 = controlled traffic

bit 1 = study data system

Definition: This field contains a set of administrations assigned to an operator. Each bit represents a different administration.

Example: The operator is assigned only to the study data system.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	0

7.6 Alternate Date Status

Description: Specifies the status of the alternate date.

Length: 1 byte

Format: binary

Range: 0 = none
1 = valid
2 = invalid
3 = required but missing

Definition: Value 0: none, indicates there is not an alternate date associated with the call.

Value 1: valid, indicates the alternate date associated with the call is valid.

Value 2: invalid, indicates the alternate date is not valid and therefore not associated with the call.

Value 3: required but missing, indicates the alternate date is required for estimation purposes but has not yet been entered.

Example: Alternate date is valid.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.7 Alternate Day

Description: Indicates the alternate day.

Length: 1 byte

Format: binary

Range: 1 to 31

Definition: This field represents the day of the month for the alternate date.

Example: Alternate day is 18.

7	6	5	4	3	2	1	0
0	0	0	1	0	0	1	0

7.8 Alternate Hour

Description: Indicates the alternate hour.

Length: 1 byte

Format: binary

Range: 0 to 23

Definition: This field represents the hour of the day for the alternate time.

Example: Hour is 12.

7	6	5	4	3	2	1	0
0	0	0	0	1	1	0	0

7.9 Alternate Minute

Description: Indicates the alternate minute.

Length: 1 byte

Format: binary

Range: 0 to 59

Definition: This field represents the minute of the hour for the alternate time.

Example: Minute is 36.

7	6	5	4	3	2	1	0
0	0	1	0	0	1	0	0

7.10 Alternate Month

Description: Indicates the alternate month.

Length: 1 byte

Format: binary

Range: 1 to 12

Definition: This field represents the month of the year for the alternate date.

Example: Month is 5.

7	6	5	4	3	2	1	0
0	0	0	0	0	1	0	1

7.11 Alternate Route Number

Description: Indicates the number of the alternate route.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: This field indicates the alternate route number.

Example: Alternate Route Number is 3.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	1

7.12 Alternate Route Status

Description: Indicates the status of the alternate route.

Length: 1 byte

Format: binary

Range: 0 = none
1 = valid
2 = invalid

Definition: Value 0: none, indicates that there is no number in the Alternate Route Number field.

Value 1: valid, indicates that the number in the Alternate Route Number field is valid.

Value 2: invalid, indicates that the called directory number type is not Foreign. The requested function is only allowed for Foreign destinations.

Example: Alternate Route Status is valid.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.13 Alternate Time Status

Description: Specifies the status of the alternate time.

Length: 1 byte

Format: binary

Range: 0 = none
1 = valid
2 = invalid
3 = required but missing

Definition: Value 0: none, indicates there is not an alternate time associated with the call.

Value 1: valid, indicates the alternate time associated with the call is valid.

Value 2: invalid, indicates the alternate time is not valid and therefore not associated with the call.

Value 3: required but missing, indicates the alternate time is required for estimation purposes but has not yet been entered.

Example: Alternate time is valid.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.14 AMA Status

Description: Specifies the charge status of the call.

Length: 1 byte

Format: binary

Range: 0 = unspecified
1 = start timing
2 = cancel timing
3 = cancel call
4 = calling card billing verification
5 = collect billing verification
6 = third party billing verification
7 = handoff to automated system
8 = database verification

Definition: Value 0: unspecified, is the AMA status of a call when it is first presented to the operator position.

Value 1: start timing, indicates the time used for billing purposes has begun. When an action request of start timing or manual position release is received, the AMA status is set to start timing if all the necessary billing information has been obtained.

Value 2: cancel timing, indicates the time used for billing purposes has been stopped and reset. This is a transitory state. The call cannot be released from the operator position until the state is changed. This state occurs when the operator requests a cancel timing function.

Value 3: cancel call, indicates the call was made in error and it should not be billed to the subscriber. This state occurs when the operator requests a cancel call action.

Values 4, 5 and 6 represent different types of billing verification to an external billing database, and these are transitory states. On calls that are billed to a calling card, collect or third number, a database query can be made for billing validation. This query is launched automatically by the DMS when all the necessary information is present. When a query is launched, the AMA status is set to billing verification. At this time, a DMS sanity timer is also set. When the response is received from the database or the sanity timer expires, the AMA status is reset to unspecified. While this query is outstanding, most of the operator action requests are ignored by the DMS in order to preserve the call information. As the AMA status changes, the operator position is informed.

Value 7: handoff to automated billing system, indicates the hand over of the call to an automated system to complete the handling of the call. This frees

the operator to serve more calls.

Value 8 represents verification to an external database and is a transitory state. On calls that require additional information, a database query can be made. Two examples of external databases are the real time rating and originating line number screening databases. Note that queries for alternate billing use AMA Status values 4, 5, and 6. These queries are launched automatically by the DMS when all the necessary information is present. When a query is launched, the AMA status is set to database verification. At this time, a DMS sanity timer is also set. When the response is received from the database or the sanity timer expires, the AMA status is reset to unspecified. While this query is outstanding, most of the operator action requests are ignored by the DMS in order to preserve the call information. As the AMA status changes, the operator position is informed.

Example: AMA status is start timing.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.15 Ancillary Operator Information Count

Description: This is a count of the number of Ancillary Operator Information bytes contained in the Ancillary Operator Information DID. There may be up to 200 such bytes.

Length: 1 byte

Format: binary

Range: 0 to 200

Definition: The position interprets and uses this field in a telco defined manner. One example of the use of ancillary operator information is for login. As part of login, the position sends the ancillary operator information to the service database.

Example: Ancillary Operator Information Count is 2.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	0

7.16 Ancillary Operator Information

Description: This is a telco-defined number that can be used in any manner by the position. One such usage is as an alternate position or operator identifier required for logon to a service database.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: The position interprets and uses this field in a telco-defined manner.

Example: Ancillary Operator Information is 25.

7	6	5	4	3	2	1	0
0	0	0	1	1	0	0	1

7.17 Ancillary Operator Information Type

Description: Defines the type of ancillary operator information.

Length: 1 byte

Format: binary

Range: 0 = complex/unit number

Definition: Value 0: complex/unit number, indicates the ancillary operator information contains a complex/unit number.

Example: Ancillary Operator Information Type is complex/unit.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.18 ANI Status

Description: Specifies the Automatic Number Identification (ANI) status of the calling number for the call.

Length: 1 byte

Format: binary

Range: 0 = not applicable
1 = ANI success
2 = operator number identification (ONI)
3 = ANI office failure
4 = ANI failure detected

Definition: Value 0: not applicable, indicates the existence of the calling number is not applicable to the call.

Value 1: ANI success, indicates the calling number was successfully received by the DMS through the signaling.

Value 2: operator number identification (ONI), indicates the calling number was not received by the DMS through the signaling. ONI means the end office does not normally send the calling number for this calling party. An example is a party line where the end office is unable to detect which party has gone off-hook.

Value 3: ANI office failure, indicates the calling number was not received by the DMS through signaling. ANI office failure means the end office normally sends the calling number for this calling party, but was unable to send it for this particular call. ANI office failure usually indicates equipment problems in the end office.

Value 4: ANI failure detected, indicates the calling number was not received by the DMS through signaling. The end office attempted to send the calling number but the DMS did not receive it in the proper format.

Example: ANI status is ANI success.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.19 Assistance Request Type

Description: Indicates the type of assistance request.

Length: 1 byte

Format: binary

Range: 0 = release operator
1 = general assistance
2 = general transfer
3 = directed assistance by position
4 = paged assistance
5 = directed assistance by operator

Definition: Value 0: release operator, indicates that (a) the operator is queued for connection with an additional operator, and wants to cancel the request, or (b) the call already has two operators, and one operator wants to release the other.

Value 1: general assistance, indicates the operator is requesting assistance from any operator who can provide it.

Value 2: general transfer, indicates the operator is requesting to transfer the call.

Value 3: directed assistance by position, indicates the operator is requesting a connection with a specified position.

Value 4: paged assistance, indicates the operator is requesting a connection with another operator who has a page outstanding to this one.

Value 5: directed assistance by operator, indicates the operator is requesting a connection with a specified operator.

Example: Assistance Request Type is general assistance.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.20 Attached Operator Status

Description: Indicates the status of a connection with another operator for assistance.

Length: 1 byte

Format: binary

Range: 0 = none
1 = directed
2 = general
3 = released
4 = queued

Definition: Value 0: none, indicates that any attached operator information has been cleared.

Value 1: directed, indicates that another operator is attached as a result of a directed assistance request.

Value 2: general, indicates that another operator is attached as a result of a general assistance request.

Value 3: released, indicates the other operator has been released from the call.

Value 4: queued, indicates that the operator's request for an attached operator has been queued.

Example: Attached Operator Status is general.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	0

7.21 Audible Tone

Description: Suggests the status of an audible tone for the position.

Length: 1 byte

Format: binary

Range: 0 = begin tone
1 = end tone

Definition: Value 0: begin tone, indicates a condition has occurred in the DMS that requires immediate attention. The position may wish to sound an audible tone in conjunction with any screen display indicating the condition.

Value 1: end tone, indicates there are no conditions that require immediate attention by the operator.

Example: No condition now requires immediate attention from the operator.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.22 Automated System ID

Description: Indicates which automated system is being used.

Length: 1 byte

Format: binary

Range: 0 = automated alternate billing service (AABS)

Definition: This field identifies the automated system in use. An example is handoff, in which the operator collects some call data, then hands the call off to an automated system for completion.

Example: Automated system is AABS.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.23 Automation Status

Description: Specifies whether automation has been allowed or denied for this call.

Length: 1 byte

Format: binary

Range: 0 = automation denied
1 = automation allowed

Definition: Value 0: Automation provided by any of the automated systems is denied for the call

Value 1: Automation provided by any of the automated systems is allowed for the call.

Example: Automation is allowed for the call.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.24 BCS Number

Description: Indicates the Batch Change Supplement (BCS) number of either the DMS or the position.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: This field contains the BCS number of the software load in either the DMS or the position. The BCS number can be used to audit the positions.

Example: BCS number is 35.

7	6	5	4	3	2	1	0
0	0	1	0	0	0	1	1

7.25 Billing Data

Description: Specifies the class charge billing data for the call.

Length: 1 byte

Format: binary

Range: 0 = paid
1 = collect
2 = special calling
3 = special called

Definition: Value 0: paid, indicates the calling party is paying for the call.

Value 1: collect, indicates the called party is paying for the call.

Value 2: special calling, indicates the calling party requests an alternate billing number be used to pay for the call. The alternate billing number can be either a third number or a calling card.

Value 3: special called, indicates the called party requests an alternate billing number be used to pay for the call. The alternate billing number can be either a third number or a calling card.

Example: Class charge billing is collect.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.26 Billing Status

Description: Specifies the class charge billing data validity for the call.

Length: 1 byte

Format: binary

Range: 0 = none
1 = valid
2 = invalid
3 = required but missing

Definition: Value 0: none, indicates there is no class charge for the call.

Value 1: valid, indicates the class charge is valid for the call.

Value 2: invalid, indicates the class charge is not valid for the call. Some type of billing restriction applies.

Value 3: required but missing, indicates the class charge is required for billing purposes but has not yet been entered.

Example: Billing status is valid.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.27 Booked Call Database Action Number

Description: Specified the number associated with the Booked Call Database action.

Length: variable

Format: BCD

Range: BCD digits, each ranging from 0 to 9

Definition: The meaning of this field depends on the following values of the Booked Call Database Action Request field.

For the database class action, the number indicates the database class value.

For the store database call action, the number indicates the amount of time the call is to stored in the database.

For the retrieve database call using the calling number action, the number indicates the calling number that is to be used to retrieve the call. This number may be different than the calling number of the current call at the position.

For the retrieve database call using the serial number action, the number indicates the serial number that is to used to retrieve the call.

Example: Booked Call Database Action Number is 013345.

7	4	3	0	Byte #
1	0			1
3	3			2
5	4			3

7.28 Booked Call Database Action Number Count

Description: Specifies the number of digits on the Booked Call Database Action Number.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: This field indicates the number of digits in the Booked Call Database Action Number Field.

Example: Number of digits is 4.

7	6	5	4	3	2	1	0
0	0	0	0	0	1	0	0

7.29 Booked Call Database Action Request

Description: Indicates the request of one of the Booked Call Database actions.

Length: 1 byte

Format: binary

Range: 0 = database class
1 = store database call
2 = retrieve database call using calling number
3 = retrieve database call using serial number
4 = next database call
5 = delete database call
6 = clear database call

Definition: Value 0: database class, indicates that the operator wishes to assign a database class to the call.

Value 1: store database call, indicates that the operator wishes to store the call in the Booked Call Database.

Value 2: retrieve database call using the calling number, indicates that the operator wishes to retrieve a call from the Booked Call Database with the indicated calling number.

Value 3: retrieve database call using the serial number, indicates that the operator wishes to retrieve a call from the Booked Call Database with the indicated serial number.

Value 4: next database call, indicates that the operator wishes to retrieve the next database call with the same calling number as the previously retrieved database call (by the retrieve database call using calling number action).

Value 5: delete database call, indicates that the operator wishes to delete the Booked Call Database call that is at the position.

Value 6: clear database call, indicates that the operator wishes to clear the currently accessed database call from the position.

Example: Booked Call Database Action Request is delete database call.

7	6	5	4	3	2	1	0
0	0	0	0	0	1	0	1

7.30 Booked Call Database Action Status

Description: Indicates the status of a Booked Call Database action.

Length: 1 byte

Format: binary

Range: 0 = valid
1 = invalid

Definition: Value 0: valid, indicates the Booked Call Database action is valid.
Value 1: invalid, indicates the Booked Call Database action is invalid.

Example: Booked Call Database Action Status is invalid.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.31 Booked Call Database Action Type

Description: Indicates the response to a Booked Call Database action.

Length: 1 byte

Format: binary

Range: 0 = store
1 = retrieve
2 = delete

Definition: Value 0: store, indicates the response to the Booked Call Database store action.

Value 1: retrieve, indicates the response to the Booked Call Database retrieve using the calling number of retrieve using the serial number action.

Value 2: delete, indicates the response to the Booked Call Database delete action.

Example: Booked Call Database Action Type is delete.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	0

7.32 Booked Call Database Class Number

Description: Indicates the number of the Booked Call Database class.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: This field indicates the number of the Booked Call Database class.

Example: Booked Call Database Class Number is 8.

7	6	5	4	3	2	1	0
0	0	0	0	1	0	0	0

7.33 Booked Call Database Class Status

Description: Indicates the status of the Booked Call Database class.

Length: 1 byte

Format: binary

Range: 0 = none
1 = valid
2 = invalid
3 = required but missing

Definition: Value 0: valid, indicates that there is not a database class associated with the database call.

Value 1: invalid, indicates that the database class is valid.

Value 2: invalid, indicates that the digits in the Booked Call Database Class Number field are invalid.

Value 3: required but missing, indicates that there is not a database class associated with the database call but one is required.

Example: Booked Call Database Class Status is valid.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.34 Booked Call Database Number

Description: Indicates the number associated with a call in the Booked Call Database.

Length: Variable

Format: BCD

Range: BCD digits, ranging from 0 to 9

Definition: This field contains the digits that comprise the Booked Call Database Number. The size of this field is determined by the value in the Booked Call Database Number Count field, and the number's type is determined by the value in the Booked Call Database Number Type field.

Example: Booked Call Database Number is 013345.

7	4	3	0	Byte #
1	0			1
3	3			2
5	4			3

7.35 Booked Call Database Number Count

Description: Indicates the number of digits in the Booked Call Database number.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: This field indicates the number of digits in the Booked Call Database Number field.

Example: Booked Call Database Number Count is 6.

7	6	5	4	3	2	1	0
0	0	0	0	0	1	1	0

7.36 Booked Call Database Number Status

Description: Indicates the status of the number associated with the Booked Call Database call.

Length: 1 byte

Format: binary

Range: 0 = none
1 = valid
2 = invalid

Definition: Value 0: none, indicates that there are no digits in the Booked Call Database Number field.

Value 1: valid, indicates that the digits in the Booked Call Database Number field are valid.

Value 2: invalid, indicates that the digits in the Booked Call Database Number field are invalid.

Example: Booked Call Database Number Status is valid.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.37 Booked Call Database Number Type

Description: Indicates the type of number associates with the Booked Call Database call.

Length: 1 byte

Format: binary

Range: 0 = calling
1 = serial

Definition: Value 0: calling, indicates that the type of database number is a calling number.

Value 1: serial, indicates that the types of database number is a serial number.

Example: Booked Call Database Number Type is serial.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.38 Branding Status

Description: Specifies the status of branding for the call.

Call branding is a means of playing an announcement to the calling party prior to attachment of an operator position. The announcement varies with call characteristics. The announcement relieves the operator from saying the same phrase such as '<carrier xxx> may I help you?'. The branding information is sent during call presentation. The information alerts the operator as to whether the subscriber has heard a branding announcement. The operator can then tailor the conversation appropriately.

Length: 1 byte

Format: binary

Range: 0 = call has not been branded
1 = call has been branded

Definition: Value 0: call has not been branded, indicates the calling subscriber has not heard a mechanized announcement prior to call arrival at the operator's position. The operator should say the appropriate subscriber challenge.

Value 1: call has been branded, indicates the calling subscriber has heard a mechanized announcement prior to call arrival at the operator's position. The operator does not need to repeat the phrase.

Example: Call has been branded.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.39 Broadcast Message

Description: Specifies the broadcast message for the office.

Length: variable

Format: ASCII

Range: ASCII Characters

Description: This field contains the characters that compose a broadcast message. The number of characters found in the field is designated by the Broadcast Message Count field.

Example: Broadcast message is 'TIME FOR LUNCH'

	Byte #
54	1
49	2
4D	3
45	4
20	5
46	6
4F	7
52	8
20	9
4C	10
55	11
4E	12
43	13
48	14

7.40 Broadcast Message Count

Description: Indicates the number of characters in the Broadcast Message field.

Length: 1 byte

Format: binary

Range: 0 to 200

Definition: This field indicates the number of characters contained in the Broadcast Message field of the Broadcast Message DID.

Example: Number of characters is 14.

7	6	5	4	3	2	1	0
0	0	0	0	1	1	1	0

7.41 Call Arrival Status

Description: Specifies the arrival status of the call

Length: 1 byte

Format: binary

Range: 0 = standard
1 = automatic directory assistance call completion
2 = manual billing number verification
3 = automated alternate billing service collect
4 = automated alternate billing service third number
5 = automated alternate billing service collect with party attached
6 = automated alternate billing service third number with party attached
7 = intercept special
8 = intercept cut through
9 = automatic coin toll service cut through
10 = mechanized calling card service cut through
11 = message delivery service ring no answer
12 = message delivery service network busy
13 = message delivery service called party busy
14 = message delivery service unknown status

Definition: This field is used to give the operator specialized knowledge of what happened to the call prior to arrival at the position.

Value 0: standard, indicates that there is nothing special associated with the arrival of this call.

Value 1: automatic directory assistance call completion, indicates the call originated as a directory assistance call. The call was handled at an operator position and released to an audio response unit for quotation of the requested number. The subscriber then chose to complete the call to the requested number. During the attempt to complete the call the DMS determined that an operator is needed.

Value 2: manual billing number verification, indicates the call was receiving an automated alternate billing service such as AABS or MCCA. The billing number entered requires a manual verification by the operator.

Value 3: AABS collect, indicates the call originally went to the automated alternate billing service (AABS). The call was class charged as collect. The validation of the collect billing could not be done by AABS. The call is arriving at the operator with the billed party not attached.

Value 4: AABS third number, indicates the call originally went to AABS. The call was class charged to a third number. The validation of the third number billing could not be done by AABS. The call is arriving at the oper-

ator with the billed party not attached.

Value 5: AABS collect with party attached, indicates the call originally went to AABS. The call was class charged as collect. The validation of the collect billing could not be done by AABS. The call is arriving at the operator with the billed party attached.

Value 6: AABS third number with party attached, indicates the call originally went to AABS. The call was class charged to a third number. The validation of the third number billing could not be done by AABS. The call is arriving at the operator with the billed party attached.

Value 7: intercept special, indicates a call receiving intercept service that begins as auto intercept. Auto intercept calls are fully automated; no operator is involved. However, the intercept search produced a listing that could not be quoted by the audio response unit (ARU). The call appears at the operator with the listing information present.

Value 8: intercept cut through, indicates a call receiving intercept service that begins as auto intercept. The listing is quoted to the subscriber by an audio response unit. Following the announcement, the subscriber remains on the line to connect to an operator.

Value 9: ACTS cut through, indicates a call that had been receiving ACTS service. Either ACTS detected a problem and brought the call to an operator, or the subscriber explicitly requested an operator.

Value 10: MCCS cut through, indicates a call that had been receiving MCCS service. Either MCCS detected a problem and brought the call to an operator, or the subscriber explicitly requested an operator.

Value 11: MDS called party busy, indicates that a call had been receiving the MDS service and busy had been detected on the called party's line. The MDS call was routed to a MDS OPP-compatible position on subscriber request in order to leave a message for the called party to be delivered by the MDS position.

Value 12: MDS network busy, indicates that a call had been receiving the MDS service and a network busy condition had been detected. The MDS call was routed to a MDS OPP-compatible position on subscriber request in order to leave a message for the called party to be delivered by the MDS position.

Value 13: MDS ring no answer, indicates that a call had been receiving the MDS service and a ring no answer condition had been detected on the called party's line. The MDS call was routed to a MDS OPP-compatible position on subscriber request in order to leave a message for the called party to be delivered by the MDS position.

Value 14: MDS unknown status, indicates that a call had been receiving the MDS service and the status of the network and the called party's line is unknown. The MDS call was routed to a MDS OPP-compatible position on subscriber request in order to leave a message for the called party to be delivered by the MDS position.

Example: Call arrival status is standard call arrival.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.42 Call Arrival Tone Info

Description: Indicates the type of call arrival tone(s) to be generated.

Length: 1 byte

Format: binary

Range: 0 = default tone
1 = TA tone
2 = DA tone
3 = intercept tone
4 = ONI tone
5 = ADAS LowHigh tone
6 = ADAS HighLow tone
7 = PARS activation tone

Definition: Value 0: A single default tone is played.

Value 1: Tone(s) indicating TA service.

Value 2: Tone(s) indicating DA service.

Value 3: Tone(s) indicating Intercept call origination.

Value 4: Tone(s) indicating ONI call.

Value 5: Tone(s) indicating caller joined to ADAS call.

Value 6: Tone(s) indicating caller joined to ADAS call.

Value 7: DTMF “D” digit to activate certain PARS functionality.

The TOPS section includes more specific information about these tones.

Example: Call Arrival Tone Info is 3.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	1

7.43 Call Origination

Description: Specifies the call origination type for the call.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: The call origination type gives the operator information on how the call was dialed by the subscriber. It can also help the operator know what information needs to be collected for the call.

Example: Call origination is 2.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	0

7.44 Call Origination Status

Description: Specifies the call origination status for the call.

Length: 1 byte

Format: binary

Range: 0 = credible
1 = dubious

Definition: Value 0: credible, indicates all of the information in the Call Origination DID is valid. The operator position can display the information as it is given. The operator processes the call normally.

Value 1: dubious, indicates the call is unusual. The operator will occasionally receive dubious calls as part of normal call processing, and should be trained to handle the exceptions that can occur. Examples of unusual call conditions include erroneous signaling from the end office, presentation of unexpected call origination types, and late notifications. Late notifications occur when subscribers request a notify, but when the notify period expires, no operators are available to perform the notify. The operator who is finally attached must be aware that the subscribers have been talking for additional time while awaiting the notify.

Example: Call origination is credible.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.45 Call Queueing System

Description: Indicates how calls are queued for this position.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: This field indicates what call queueing system is in use for this position.

Example: Call queueing system 1 in use.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.46 Call Rating Status

Description: Indicates when the call is being rated.

Length: 1 byte

Format: binary

Range: 0 = downstream
1 = real time

Definition: Value 0: downstream, indicates the call is being rated during the downstream processing of the AMA record. The call is not rated while at the operator position.

Value 1: real time, indicates the call is being rated while it is at the operator position.

Example: Call is being rated downstream.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.47 Call Type For Queueing

Description: Specifies the call type for queueing for the call.

Length: 2 bytes

Format: binary

Range: 0 to 2046

Definition: This field is populated when the Queue Management System (QMS) is in use. The Call Type For Queueing (CT4Q) provides more details about the call.

Example: Call Type For Queueing is 401.

7	6	5	4	3	2	1	0	Byte #
1	0	0	1	0	0	0	1	1
0	0	0	0	0	0	0	1	2

7.48 Caller ID Blocking Status

Description: Specifies the caller ID blocking status.

Length: 1 byte

Format: binary

Range: 0 = caller ID not blocked
1 = caller ID blocked

Definition: Value 0: caller ID not blocked, indicates the called party may use ANI collecting equipment to obtain the directory number of the calling party.

Value 1: caller ID blocked, indicates the calling party's directory number will not be made available to the called party

Example: Caller ID is blocked.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.49 Calling Card Determination

Description: If a query to a LIDB Database fails, table ACCSERR is accessed to determine billing.

Length: 1 byte

Format: binary

Range: 0 = Not determined by table ACCSERR
1 = Determined by table ACCSERR

Definition: Value 0: Billing Not Determined. Table ACCSERR was not accessed to determine billing.

Value 1: Billing Determined. Table ACCSERR was accessed to determine billing.

Example: Billing is determined

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.50 Calling Card Number

Description: Specifies the calling card number.

Length: Variable

Format: BCD

Range: BCD digits each ranging from 0 to 9

Definition: This field contains the calling card number. It is variable in length. The Calling Card Number Count field specifies the number of digits contained in the field.

Example: Calling card number is 21255536842000

7	4	3	0	Byte #
1	2			1
5	2			2
5	5			3
6	3			4
4	8			5
0	2			6
0	0			7

7.51 Calling Card Number Count

Description: Specifies the number of digits in the calling card.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: This field indicates the number of digits in the Calling Card Number field.

Example: Number of digits is 14.

7	6	5	4	3	2	1	0
0	0	0	0	1	1	1	0

7.52 Calling Card Personal Identification Number Status

Description: Specifies the status of the calling card PIN.

Length: 1 byte

Format: set

Range: Each bit corresponds to a Personal Identification Number (PIN) attribute of a calling card. A '1' indicates the attribute applies. A '0' indicates the attribute does not apply. The bits map to attributes in the following manner:

bit 0 = calling card PIN mask

bit 1 = calling card restricted PIN

Definition: This field contains information about the calling card PIN. This information is set based upon the billing validation query.

Example: Calling card PIN status is unrestricted and should be masked.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.53 Calling Card Regional Accounting Office Code

Description: Specifies the Regional Accounting Office (RAO) code associated with the calling card.

Length: 2 bytes

Format: binary

Range: 0 to 65534

Definition: This field indicates the regional accounting office code associated with a calling card. Receipt of an RAO indicates that a database validation was performed on the calling card.

Example: RAO code is 334.

7	6	5	4	3	2	1	0	Byte #
0	1	0	0	1	1	1	0	1
0	0	0	0	0	0	0	1	2

7.54 Calling Card Service Denial Indicator

Description: Specifies the reason why a calling card was rejected by the calling card database.

Length: 1 byte

Format: binary

Range: 0 = calling card service denial
1 = PIN threshold exceeded
2 = PIN non-payment
3 = PIN service restriction

Definition: Value 0: calling card service denial, indicates that the whole calling card account number is turned off or deactivated.

Value 1: PIN threshold exceeded, indicates that a case of fraud or potential fraud is identified.

Value 2: PIN non-payment, indicates that the account associated with the PIN has not been paid.

Value 3: PIN service restriction, indicates that it is not possible for the user of this PIN to make this call due to geographic, time, or other restrictions.

Example: Calling card service denial indicator is PIN threshold exceeded.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.55 Calling Card Status

Description: Specifies the validity of the calling card.

Length: 1 byte

Format: binary

Range: 0 = none
1 = valid
2 = hot listed
3 = verification required
4 = invalid
5 = screening restrictions
6 = required but missing
7 = automation unused by subscriber
8 = query failure
9 = carrier restricted
10 = no mutual honoring agreement

Definition: Value 0: none, indicates there is no calling card.

Value 1: valid, indicates the calling card number is valid. It is possible for the calling card to be valid when entered by the operator but then change status following the database query.

Value 2: hot listed, indicates the calling card was found to be possibly fraudulent. The operator should take any actions deemed necessary by management.

Value 3: verification required, indicates that a query to the database could not be performed. The operator should perform a manual validation.

Value 4: invalid, indicates that either the format of the number is incorrect or the database response indicates the calling card should not be used to bill this call.

Value 5: screening restrictions, indicates terminating code screening was done and the calling card is restricted. The operator should take any actions deemed necessary by management.

Value 6: required but missing, indicates that the operator needs to input a calling card number.

Value 7: automation unused by subscriber, indicates the subscriber could have used an automated system (such as MCCS) for entering their calling card number. Instead, the subscriber manually requested operator assistance and was subsequently connected to an operator.

Value 8: query failure, indicates the database query failed, and DMS data-

fill specified that the call be routed to an operator. The operator takes action consistent with telephone company operating procedure.

Value 9: carrier restricted, indicates the calling card number has been denied because of calling card-carrier restrictions. DMS datafill specified that this card was restricted. The operator takes action consistent with telephone company operating procedure.

Value 10: no mutual honoring agreement, indicates the calling card is denied because the service provider for the calling number does not have a business agreement with the issuer of the calling card.

Example: Calling card is valid.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.56 Calling Card Type

Description: Specifies the type of calling card.

Length: 1 byte

Format: binary

Range: 0 = domestic
1 = CCITT
2 = unknown
3 = RAO

Definition: Value 0: domestic, indicates the calling card is issued for use within the telco's country.

Value 1: CCITT, indicates the calling card is CCITT format.

Value 2: unknown, indicates the calling card type is unknown.

Value 3: RAO, indicates the calling card is Regional Accounting Office format.

Example: Calling card is domestic.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.57 Calling Card Validation

Description: Specifies whether calling card validation is required.

Length: 1 byte

Format: binary

Range: 0 = validate
1 = do not validate

Definition: Value 0: validate, indicates that validation of the calling card is required.

Value 1: do not validate, indicates that validation of the calling card is not required.

Example: Calling Card Validation is validate.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.58 Calls Waiting Status

Description: Specifies the status of calls waiting in queue to an operator handling subscriber call traffic.

Length: 1 byte

Format: binary

Range: 0 = no calls waiting
1 = calls waiting

Definition: Value 0: no calls waiting, indicates that no calls are waiting in any queue served by this operator.

Value 1: calls waiting, indicates that calls are waiting in at least one queue served by this operator.

Example: Calls are waiting in queue.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.59 Carrier Name

Description: Specifies the InterLATA Carrier name for the call.

Length: 8 bytes

Format: ASCII

Range: 8 alphanumeric characters or spaces in ASCII format

Definition: This field contains the carrier name associated with the carrier digits found in the Carrier Number field.

Example: Carrier name is CARR1.

Byte #	
43	1
41	2
52	3
52	4
31	5
20	6
20	7
20	8

7.60 Carrier Number

Description: Specifies the InterLATA Carrier number for the call.

Length: variable

Format: BCD

Range: BCD digits each ranging from 0 to 9

Definition: This field contains the carrier number for the call. This represents the carrier associated with the call.

Example: Carrier number is 123.

7	4	3	0	Byte #
2	1			1
F	3			2

7.61 Carrier Number Count

Description: Specifies the number of digits in the carrier number.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: This field specifies the number of digits contained in the Carrier Number field.

Example: Carrier number count is 3.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	1

7.62 Carrier Number Status

Description: Specifies the validity of the InterLATA Carrier number of the call.

Length: 1 byte

Format: binary

Range: 0 = none
1 = valid
2 = invalid
3 = invalid for this call only

Definition: Value 0: none, indicates there is no carrier associated with the call.

Value 1: valid, indicates the carrier number found in the Carrier Number field is valid and can be used for the call.

Value 2: invalid, indicates the carrier number found in the Carrier Number field is not valid.

Value 3: invalid for this call only, indicates the carrier is a valid carrier in the office but it is not allowed to complete this call.

Example: Carrier number is valid.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.63 Carrier Service Status

Description: Specifies the validity of an operator action with regard to the type of service provided for a carrier.

Length: 1 byte

Format: binary

Range: 0 = valid
1 = invalid

Definition: Value 0: valid, indicates the action complies with the type of service being provided by the telco on behalf of the carrier.

Value 1: invalid, indicates the action does not comply with the type of service being provided by the telco on behalf of the carrier.

Example: Carrier service status is valid.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.64 Charge Adjust Amount

Description: Specifies the amount to adjust the charges for the call.

Length: 2 bytes

Format: binary

Range: 0 to 65534

Definition: This field indicates the amount of the charge adjust. The units of this field are determined by the value of the Charge Adjust Indicator field.

When the value represented here is a monetary amount, the unit of money is determined in the position.

Example: Charge adjust amount is 295.

7	6	5	4	3	2	1	0	Byte #
0	0	1	0	0	1	1	1	1
0	0	0	0	0	0	0	1	2

7.65 Charge Adjust Indicator

Description: Specifies the means for adjusting the charges.

Range: 1 byte

Format: binary

Range: 0 = none
1 = minutes
2 = monetary amount
3 = number of occurrences

Definition: Value 0: none, indicates there is no charge adjust indicator and implies there is no data in the Charge Adjust Amount field.

Value 1: minutes, indicates that the adjustment for the call should be made in terms of time. The value in Charge Adjust Amount should be interpreted as minutes.

Value 2: monetary amount, indicates that the adjustment for the call should be made in terms of money. The value in Charge Adjust Amount should be interpreted as units of local currency.

Value 3: number of occurrences, is a special indicator. This allows the operator to give credit for more than one call. The value in Charge Adjust Amount should be interpreted as the number of calls credited. A default of 1 minute credit is given for each call.

Example: Adjust the charges in terms of minutes.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.66 Charge Adjust Status

Description: Specifies the validity of the charge adjust.

Length: 1 byte

Format: binary

Range: 0 = none
1 = valid
2 = invalid

Definition: Value 0: none, indicates that there is no charge adjust associated with the call.

Value 1: valid, indicates the charge adjust information is valid. The charge adjust type is appropriate for the call.

Value 2: invalid, indicates the charge adjust information is not valid. The charge adjust type is not appropriate for the call. For example, a coin credit cannot be done unless the call is originated from a coin phone and the calling party is paying for the call.

Example: Charge adjust is valid.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.67 Charge Adjust Time Hours

Description: Specifies the time in hours associated with the charge adjust.

Length: 1 byte

Format: binary

Range: 0 to 23

Definition: This field along with Charge Adjust Time Minutes indicates the time associated with the charge adjust. This time is obtained in one of two ways. The first is by the operator. The operator can optionally include the time in the action request. This time represents the time of a previous call receiving credit. The second means of obtaining the time is in the DMS. If the operator does not specify a time, then the DMS uses the time when the action request is processed.

Example: Charge adjust hours is 10.

7	6	5	4	3	2	1	0
0	0	0	0	1	0	1	0

7.68 Charge Adjust Time Minutes

Description: Specifies the time in minutes that the charge adjust was entered.

Length: 1 byte

Format: binary

Range: 0 to 59

Definition: This field along with Charge Adjust Time Hours indicates the time associated with the charge adjust. This time is obtained in one of two ways. The first is by the operator. The operator can optionally include the time in the action request. This time represents the time of a previous call receiving credit. The second means of obtaining the time is in the DMS. If the operator does not specify a time, then the DMS uses the time when the action request is processed.

Example: Charge adjust minutes is 25.

7	6	5	4	3	2	1	0
0	0	0	1	1	0	0	1

7.69 Charge Adjust Type

Description: Specifies the type of charge adjust.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: This field indicates the charge adjust type or the reason for the charge adjust. The value corresponds to datafill in the DMS.

Example: Charge adjust type is 3.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	1

7.70 Charge Status

Description: Specifies the chargeable status of the call.

Length: 1 byte

Format: binary

Range: Each bit corresponds to a charge status for the call. A '1' indicates the call is not chargeable. A '0' indicates the call is chargeable. The bits map to statuses in the following manner:

bit 0 = charge status due to terminating screening

bit 1 = charge status due to originating screening

bit 2 = charge status due to manual action by the operator

Definition: If all three bits are '0', then the call is billable. The operator should obtain the necessary billing information prior to rendering the service requested.

Otherwise the call is not chargeable. There may be more than one reason for this determination. If bit 0 is '1', then the called party has attributes that cause the call to not be chargeable. Some of those attributes include the route taken through the network and the specific digits dialed (i. e. the telco's business office).

If bit 1 is '1', then the calling party has attributes that cause the call to not be chargeable. One of those attributes is the type of call (i. e. directory assistance 411).

If bit 2 is '1', then the operator has determined through conversation with either the calling or called parties that the call should not be chargeable. An example is an emergency call to a hospital.

Example: Call is chargeable.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.71 Charges Amount

Description: Specifies the charges amount.

Length: 4 bytes

Format: binary

Range: 0 to 4294967294

Definition: This amount reflects a monetary amount associated with this call. The position is responsible for interpreting and formatting the amount in units of local currency. The meaning of the amount (i.e. amount due, amount over collected, etc.) can be determined from the identifier in which this field is found.

Example: Charges amount is 75.

7	6	5	4	3	2	1	0	Byte #
0	1	0	0	1	0	1	1	1
0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	3
0	0	0	0	0	0	0	0	4

7.72 Charges Status

Description: Specifies the presence of a monetary value associated with the call.

Length: 1 byte

Format: binary

Range: 0 = none
1 = valid
2 = invalid

Definition: Value 0: none, indicates that there is not an associated monetary value contained in the Charges Amount field.

Value 1: valid, indicates that the associated monetary value contained in the Charges Amount field is valid.

Value 2: invalid, indicates that the associated monetary value contained in the Charges Amount field is not valid.

Example: Charges are valid.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.73 Charges Type

Description: Specifies the type of a monetary value associated with the call.

Length: 1 byte

Format: binary

Range: 0 = amount due
1 = total amount
2 = over collect amount
3 = estimate amount

Definition: Value 0: amount due, indicates the monetary value is the amount left to be deposited by the subscriber.

Value 1: total amount, indicates the monetary amount is the total amount owed for the period.

Value 2: over collect amount, indicates the monetary amount is the amount over and above the amount owed for the period.

Value 3: estimate amount, indicates the monetary amount is the estimated amount owed for the period.

Example: Charges type is over collect amount.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	0

7.74 Class of Data

Description: Specifies the class of data presented to a supervisor operator.

Length: 1 byte

Format: binary

Range: 0 = system
1 = by queue

Definition: Value 0: system, indicates the data is collected for all positions in the operator's group.

Value 1: by queue, indicates the data is collected for only those operators that are serving a particular queue within the operator's group.

Example: Class of data is by queue.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.75 Coin Detection Circuit Status

Description: Specifies the use of CDC for a coin call

Length: 1 byte

Format: binary

Range: 0 = coin detection circuit not attached
1 = coin detection circuit attached
2 = coin detection circuit not attached when expected

Definition: Value 0: coin detection circuit not attached, indicates that a Coin Detection Circuit (CDC) is not attached to the call. The operator needs to manually count the coins deposited.

Value 1: coin detection circuit attached, indicates that a CDC is attached to the call. The operator does not need to manually count the coins deposited.

Value 2: coin detection circuit not attached when expected, indicates that this is a situation where the operator normally expects a CDC to be attached. However, due to resource difficulties the CDC is not present. As a result, the operator must manually count the coins deposited.

Example: A CDC is attached.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.76 Condition Status

Description: Specifies the status of a condition which may be indicated in another field of an identifier that includes this one.

Length: 1 byte

Format: binary

Range: 0 = condition begin
1 = condition end
2 = condition update

Definition: Value 0: condition begin, means the condition has begun.

Value 1: condition end, means the condition has ended.

Value 2: condition update, means that some other field in the identifier contains additional information about the condition.

Example: Another field in the identifier contains additional information about the condition.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	0

7.77 Connect Type

Description: Specifies whether or not to connect to the directory number input by the operator.

Length: 1 byte

Format: binary

Range: 0 = do not connect to directory number
1 = connect to directory number

Definition: Value 0: do not connect to directory number, indicates the DMS should not make a connection between the operator and the directory number at this time.

Value 1: connect to directory number, indicates the DMS should make a connection between the directory number and the operator at this time.

Example: Connect to the directory number.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.78 Controlled Traffic Status

Description: Specifies the status of controlled traffic to the supervisor position for the office. The DMS keeps internal counts of how many operators in each team are receiving controlled traffic. Assigning operators to controlled traffic consumes additional real time, because incoming calls must be sorted by call type to determine if they should be routed to a controlled traffic operator or a more experienced operator. The ratio of controlled traffic operators to normal operators is maintained by the switch. When this ratio exceeds a threshold value, the switch real time can be negatively impacted.

Length: 1 byte

Format: binary

Range: 0 = threshold percentage not exceeded
1 = threshold percentage exceeded

Definition: Value 0: threshold percentage not exceeded, indicates less than the threshold percentage of the operator team is handling controlled traffic. Controlled traffic is a means to limit the types of calls that an operator serves. The threshold percentage is sent in the Threshold Value field.

Value 1: threshold percentage exceeded, indicates more than the threshold percentage of the operator team is handling controlled traffic.

Example: Controlled traffic is less than threshold.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.79 Country Code Count

Description: Specifies the number of digits that comprise the country code in a overseas number.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: This field contains the length of the country code. The country code is part of the called number for an overseas called number. When formatting the called number for display, a '-' should be placed following the country code.

Example: Country code count is 3.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	1

7.80 Country Name Index

Description: Indicates the index for the name of the country of origin for the call.

Length: 2 bytes

Format: binary

Range: 0 to 65534

Definition: This field contains an integer which indicates the name of the country of origin for the call.

Example: Country Name Index is 3.

7	6	5	4	3	2	1	0	Byte #
0	0	0	0	0	0	1	1	1
0	0	0	0	0	0	0	0	2

7.81 Data

Description: Specifies the data associated with a call.

Length: Variable

Format: binary

Range: 0 to #FF

Definition: This field contains data raw for the position or the DMS. The raw data can be interpreted based on the Data Type field information. Additionally, the data may not be interpreted by either the position or the DMS, but may be passed through to another node or recorded on AMA.

Example: Data is #53 #01 #0C #11 #FF.

	Byte #
53	1
01	2
0C	3
11	4
FF	5

7.82 Data Count

Description: Specifies the size of the data for the identifier.

Length: 1 byte

Format: binary

Range: 0 to 200

Definition: This field indicates the number of bytes found in the Data field.

Example: Data is 5 bytes.

7	6	5	4	3	2	1	0
0	0	0	0	0	1	0	1

7.83 Data Reason

Description: Specifies the reason that data is sent to the position or the DMS.

Length: 1 byte

Format: binary

Range: 0 = data included- not final
1 = data included- final
2 = data accepted
3 = data not accepted

Definition: Value 0: data included- not final, indicates that data is included in the DID and that this is not the final DID to be sent.

Value 1: data included- final, indicates that data is included in the DID and that this is the final DID to be sent.

Value 2: data accepted, serves as an acknowledgement that the data has been accepted. Note that data accepted does not imply a validation attempt or validation success.

Value 3: data not accepted, serves as a negative acknowledgement and indicates that the data has not been accepted. Note that data not accepted may occur as a result of either a validation failure or as a result of unsupported DID or ActID field values.

Example: Data Reason is data included- final.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.84 Data Start Position

Description: Specifies the start position within the data block.

Length: 1 byte

Format: binary

Range: 0 to 200

Definition: This field indicates the start position of a series of bytes within a data block.

Example: Data Start Position is 25.

7	6	5	4	3	2	1	0
0	0	0	1	1	0	0	1

7.85 Data Type

Description: Specifies the type of data for the call.

Length: 1 byte

Format: binary

Range: 0 = OSSAIN context block
1 = OSSAIN text
2 = custom AMA

Definition: Value 0: OSSAIN context block, is data which provides additional information about the OSSAIN call.

Value 1: OSSAIN text, is data that corresponds to text which provides additional information about the OSSAIN call.

Value 2: Custom AMA, is data which provides billing information about the call.

Example: Data Type is OSSAIN context block.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.86 Database Query Status

Description: Specifies the database query status of the call.

Length: 1 byte

Format: binary

Range: 0 = query not in progress
1 = query in progress
2 = query successful
3 = query failed
4 = query not attempted due to ACG

Definition: Value 0: query not in progress, indicates that there is no database query associated with the call.

Value 1: query in progress, indicates that a query to an external database is in progress.

Value 2: query successful, indicates that a successful response has been received from an external database.

Value 3: query failed, indicates that a response was not received from the external database within the specified timeout period. Network or routing difficulties or errors at the database are possible reasons for rating query failure.

Value 4: query not attempted due to ACG, indicates that a query was not launched for a call for the reason of automatic code gapping. ACG is used in instances of network overload.

Example: Database query status is database query in progress.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.87 Database Query Type

Description: Specifies the external database to which a query is launched for the call.

Length: 1 byte

Format: binary

Range: 0 = real time rating system
1 = originating line number screening
2 = local number portability

Definition: Value 0: real time rating system, indicates that a query is being placed to an RTRS database.

Value 1: originating line number screening, indicates that a query is being placed to an OLNS database.

Value 2: local number portability, indicates that a query is being placed to an LNP database.

Example: Database query type is real time rating system.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.88 Day

Description: Indicates the current day.

Length: 1 byte

Format: binary

Range: 1 to 31

Definition: This field represents the day of the month.

Example: Day is 18.

7	6	5	4	3	2	1	0
0	0	0	1	0	0	1	0

7.89 Dial Rate Status

Description: Specifies the status of dial rate for the call.

Length: 1 byte

Format: binary

Range: 0 = no dial rate
1 = dial rate

Definition: Value 0: no dial rate, indicates the call should be billed using the operator assisted rates.

Value 1: dial rate, indicates the call should be charged using direct dial rate rather than operator assisted rates. The subscriber was not able to dial the call directly.

Example: Dial rate is applicable to the call.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.90 DID Byte Count

Description: Specifies the number of bytes in a Data Identifier.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: This field indicates the number of bytes contained in a DID. The count does not include the Data Identifier (2 bytes) and the DID Byte Count field itself. It indicates the number of bytes following this field.

Example: DID byte count is 8.

7	6	5	4	3	2	1	0
0	0	0	0	1	0	0	0

7.91 Directory Number

Description: Specifies the directory number input.

Length: Variable

Format: BCD

Range: BCD digits each ranging from 0 to 9

Definition: This field contains the digits that comprise the directory number. The size of the field is determined by the value contained in the Directory Number Count field.

Example: Directory number is 6135553684

7	4	3	0	Byte #
1	6			1
5	3			2
5	5			3
6	3			4
4	8			5

7.92 Directory Number Class

Description: Specifies the class of the directory number.

Length: 1 byte

Format: binary

Range: 0 = calling
1 = called
2 = third
3 = requested
4 = calling line identifier

Definition: Value 0: calling, indicates that the directory number is a calling number.

Value 1: called, indicates that the directory number is a called number.

Value 2: third, indicates that the directory number is a third number.

Value 3: requested, indicates that the directory number is a directory assistance requested number.

Value 4: calling line identifier (CLI), indicates that the directory number is the actual directory number of the calling party. In some cases, the CLI and the calling number are different. One example of this would be a call from a PBX, where the CLI is the number associated with the line from which the call is made and the calling number is the number associated with the PBX. However, in most cases, the CLI and the calling number are the same. If only the calling number (value 0) is provided, the billing number and the actual calling number for the call are the same. The CLI is typically only received in a SS7 network environment.

Example: Directory number class is called.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.93 Directory Number Count

Description: Specifies the number of digits in the directory number.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: This field indicates the number of digits found in the Directory Number field.

Example: Directory number is 10 digits.

7	6	5	4	3	2	1	0
0	0	0	0	1	0	1	0

7.94 Directory Number Flags

Description: Specifies optional characteristics of the directory number.

Length: 1 byte

Format: set

Range: Each bit defines an optional characteristic of the directory number. A '1' indicates the attribute applies. A '0' indicates the attribute does not apply. The bits map to attributes in the following manner:

bit 0 = local indicator

bit 1 = carrier indicator

bit 2 = vacant code indicator

bit 3 = unauthorized CAMA code indicator

bit 4 = service provider processing

Definition: This field contains a set of directory number attributes . Each bit represents a different attribute.

Example: The local indicator is present.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.95 Directory Number Status

Description: Specifies the status of the directory number.

Length: 1 byte

Format: binary

Range: 0 = none
1 = valid
2 = invalid
3 = hot
4 = required but missing
5 = screening restrictions, enforced
6 = manual interaction required
7 = connected, alternate exists
8 = not connected, alternate exists
9 = query failure
10 = blocked
11 = screening restrictions, unenforced

Definition: Value 0: none, indicates there is no directory number present.

Value 1: valid, indicates the directory number is valid.

Value 2: invalid, indicates the directory is not valid.

Value 3: hot, indicates the directory number is possibly fraudulent. The operator should take any actions deemed necessary by management.

Value 4: required but missing, indicates the directory number is required for billing purposes but is missing. It needs to be input prior to completion of the service.

Value 5: screening restrictions, enforced, indicates screening was done and directory number billing is restricted. This restriction is enforced by the DMS.

Value 6: manual interaction required, indicates inadequate service number keying has occurred so far or that there is inadequate service number data-fill in the DMS.

Value 7: connected, alternate exists, indicates the directory number is outpulsed and an alternate service number exists.

Value 8: not connected, alternate exists, indicates the directory number is not outpulsed and an alternate service number exists.

Value 9: query failure, indicates the database query failed, and datafill in the DMS specified that the call be routed to an operator. The operator takes

action consistent with telco operating procedure.

Value 10: blocked, indicates the calling party's directory number will not be made available to the called party.

Value 11: screening restrictions, unenforced, indicates screening was done and directory number billing is restricted. This restriction is not enforced by the DMS.

Example: Directory number status is hot.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	1

7.96 Directory Number Type

Description: Specifies the type of directory number input by the operator.

Length: 1 byte

Format: binary

Range: 0 = foreign
1 = domestic
2 = toll break in
3 = busy line verification
4 = service

Definition: Value 0: foreign, indicates the digits found in the Directory Number field comprise a foreign directory number.

Value 1: domestic, indicates the digits found in the Directory Number field comprise a domestic directory number.

Value 2: toll break in, indicates the digits found in the Directory Number field comprise a number destined for toll break in. Toll break in allows operators to connect to an existing local call to announce that another subscriber wishes to connect a toll call to one of the parties.

Value 3: busy line verification, indicates the digits found in the Directory Number field comprise a number destined for busy line verification. Busy line verification allows the operator to verify if a line is busy or out of service. Barge in is an extension of this service which allows the operator to connect to an existing line which is in use. Barge in is often used in emergency situations.

Value 4: service, indicates the digits found in the Directory Number field comprise an service number.

Example: Directory number is a domestic number.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.97 Elapsed Time Minutes

Description: Specifies the elapsed time minutes accumulated for the call.

Length: 2 bytes

Format: binary

Range: 0 to 9999

Definition: This field contains the number of minutes that have elapsed during the call. If the call is a coin paid call or a call where Time and Charges is requested, the elapsed time is known as a charging period. It begins upon called party answer. If the subscriber requested a notify then this field plus the elapsed time seconds field represents a notify period.

This field along with the Elapsed Time Seconds field completely define the elapsed period.

Example: Elapsed time minutes is 3.

7	6	5	4	3	2	1	0	Byte #
0	0	0	0	0	0	1	1	1
0	0	0	0	0	0	0	0	2

7.98 Elapsed Time Seconds

Description: Specifies the elapsed time seconds accumulated for the call.

Length: 1 byte

Format: binary

Range: 0 to 59

Definition: This field contains the number of seconds that have elapsed during the call. This along with the Elapsed Time Minutes field completely define the elapsed period.

Example: Elapsed time seconds is 0.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.99 Elapsed Time Status

Description: Specifies the status of the elapsed time.

Length: 1 byte

Format: binary

Range: 0 = none
1 = valid
2 = invalid

Definition: Value 0: none, indicates there is not an elapsed time associated with the call.

Value 1: valid, indicates the elapsed time associated with the call is valid.

Value 2: invalid, indicates the elapsed time is not valid and therefore not associated with the call.

Example: Elapsed time is valid.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.100 Elapsed Time Type

Description: Specifies what the elapsed time represents.

Length: 1 byte

Format: binary

Range: 0 = call time
1 = notify time
2 = booked database stored time
3 = booked database remaining time

Definition: Value 0: call time, indicates if the elapsed time is a charging period. A charging period is the time that elapsed on a coin paid call or a call in which the subscriber requested Time and Charges.

Value 1: notify time, is associated with nonstandard notifies. A **nonstandard** notify is a recall to the operator for a time quote on a non-coin call. If the subscriber requested a nonstandard notify then the elapsed time is the notify period. This is the actual time that has elapsed since the notify period began.

Value 2: booked database stored time, indicates the amount of time that the call is to be stored in the Booked Call Database.

Value 3: booked database remaining time, indicates the amount of stored time that remains for the call in the Booked Call Database.

Example: Elapsed time type is call time.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.101 Estimate Duration

Description: Specifies the duration for purposes of estimation.

Length: 2 bytes

Format: binary

Range: 0 to 65534

Definition: This is the duration time in minutes which should be associated with a call for charge estimates.

Example: Estimate duration is 23.

7	6	5	4	3	2	1	0	Byte #
0	0	0	1	0	1	1	1	1
0	0	0	0	0	0	0	0	2

7.102 Estimate Duration Status

Description: Specifies the status of the estimate duration.

Length: 1 byte

Format: binary

Range: 0 = none
1 = valid
2 = invalid
3 = required but missing

Definition: Value 0: none, indicates there is not an estimate duration associated with the call.

Value 1: valid, indicates the estimate duration associated with the call is valid.

Value 2: invalid, indicates the estimate duration is not valid and therefore not associated with the call.

Value 3: required but missing, indicates the estimate duration is required for estimation purposes but has not yet been entered.

Example: Estimate duration is valid.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.103 Final Status

Description: This field is used in identifiers which can be sent in sequence to communicate more information than can be sent in a single identifier. The identifiers in the sequence have the same identifier number. This field specifies whether this identifier is the final identifier in a sequence of identifiers. If there is only one identifier in the sequence, this field will be set to “Final.”

Length: 1 byte

Format: binary

Range: 0 = not final
1 = final

Definition: Value 0: not final, indicates the identifier is not the final identifier in a group of identifiers. There will be more identifiers that follow.

Value 1: final, indicates the identifier is the last in the group of identifiers. This value is used when there is only one identifier in the sequence.

Example: The identifier is final.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.104 First Queue Number

Description: Specifies the queue number of the first queue indicated in the Status by Queue field.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: An identifier that includes this field will also have a Status by Queue field, which is a set field in which each bit represents a queue. The First Queue Number is used as a baseline, to indicate which queue is represented by the first bit in the set field. Refer to the Queueing Condition, Calls Waiting by Queue, and Calls Deflected by Queue DIDs for more information.

Example: The first queue number is 128.

7	6	5	4	3	2	1	0
1	0	0	0	0	0	0	0

7.105 Fixed Duration Status

Description: Indicates if the call is a fixed duration call.

Length: 1 byte

Format: binary

Range: 0 = no fixed duration
1 = fixed duration

Definition: Value 0: no fixed duration, indicates that the call is not a fixed duration call.

Value 1: fixed duration, indicates that the call is a fixed duration call.

Example: Fixed Duration Status is fixed duration.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.106 Foreign Assistance Number

Description: Specifies the digits in the foreign assistance number.

Length: 1 byte

Format: BCD

Range: BCD digits, ranging from 0 to 9

Definition: This field contains the digits that comprise the country code or country and city codes that are used to determine the foreign assistance number or the digits that comprise the called number for which assistance is sought. The size of the field is determined by the value of the Foreign Assistance Number Count field.

Example: Foreign Assistance Number is 4413.

7	4	3	0	Byte #
4	4			1
3	1			2

7.107 Foreign Assistance Number Count

Description: Specifies the number of digits that comprise the Foreign Assistance number.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: This field contains the number of digits in the Foreign Assistance number field.

Example: Foreign Assistance Number count is 4.

7	6	5	4	3	2	1	0
0	0	0	0	0	1	0	0

7.108 Foreign Assistance Status

Description: Indicates that status of the foreign assistance number.

Length: 1 byte

Format: binary

Range: 0 = none
1 = valid
2 = invalid
3 = city code required

Definition: Value 0: none, indicates there is no foreign assistance number associated with the call.

Value 1: valid, indicates that the foreign assistance number (country code or country and city codes) is valid for the foreign assistance type specified.

Value 2: invalid, indicates that the foreign assistance number (country code or country and city codes) is invalid for the foreign assistance type specified.

Value 3: city code required, indicates that the foreign assistance number contains a valid country code but that a city code is also required for the foreign assistance type specified.

Example: Foreign Assistance Type is valid.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.109 Foreign Assistance Type

Description: Indicates the type of foreign assistance number.

Length: 1 byte

Format: binary

Range: 0 = directory assistance
1 = inward assistance

Definition: Value 0: directory assistance, indicates that the number is associates with the foreign directory assistance for the specified country code or country and city codes.

Value 1: inward assistance, indicates that the number is associates with the foreign inward assistance for the specified country code or country and city codes.

Example: Foreign Assistance Type is inward assistance.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.110 Foreign Calling Card Number

Description: Specifies the foreign calling card number.

Length: Variable

Format: ASCII

Range: alphanumeric ASCII characters

Definition: This field contains the foreign calling card number. It is variable in length. The Foreign Calling Card Number Count field specifies the number of digits contained in this field.

Example: Foreign calling card number is 33M123456789.

	Byte #
33	1
33	2
4D	3
31	4
32	5
33	6
34	7
35	8
36	9
37	10
38	11
39	12

7.111 Foreign Calling Card Number Count

Description: Specifies the number of digits in the foreign calling card number.

Length: 1 byte

Format: binary

Range: 0 to 200

Definition: This field indicates the number of alphanumeric ASCII characters in the Foreign Calling Card Number field.

Example: Number of alphanumeric ASCII characters is 12.

7	6	5	4	3	2	1	0
0	0	0	0	1	1	0	0

7.112 Generic Digits

Description: Specifies digits from the Generic Digits Parameter of an ISUP IAM message.

Length: Variable

Format: BCD

Range: BCD digits each ranging from 0 to 9

Definition: This field contains generic digits. The size of the field is determined by the value contained in the Generic Digits Count field.

Example: Generic digits is 2012201234

7	4	3	0	Byte #
0	2			1
2	1			2
0	2			3
2	1			4
4	3			5

7.113 Generic Digits Count

Description: Specifies the number of digits in the Generic Digits field.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: This field contains the number of digits in the Generic Digits field.

Example: Number of generic digits is 10.

7	6	5	4	3	2	1	0
0	0	0	0	1	0	1	0

7.114 Generic Digits Type

Description: Indicates the type of number in the Generic Digits field.

Length: 1 byte

Format: binary

Range: 0 = location identification number

Definition: Value 0: location identification number, indicates that the number in the Generic Digits field specifies the location of a cellular caller.

Example: Generic Digits Type is location identification number.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.115 Handling Data

Description: Specifies the class charge handling type for the call.

Length: 1 byte

Format: binary

Range: 0 = station
1 = person
2 = auto

Definition: Value 0: station, indicates a station-to-station call. The calling subscriber is not requesting a specific person to answer the forward number.

Value 1: person, indicates a person-to-person call. The calling subscriber requests to talk to a specific person. The operator connects the forward party and remains on the line until he the person answers the call.

Value 2: auto, indicates the call can be charged to the appropriate party without first contacting the party for verification. This is a special type of handling. An example of its use is 800 toll-free calls which are always paid for by the 800 number.

Example: Class charge handling is person.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.116 Handoff Status

Description: Specifies the status of handoff for the call.

Length: 1 byte

Format: binary

Range: 0 = resource failure
1 = handoff checks failed
2 = subsequent handoff allowed
3 = subsequent handoff not allowed

Definition: Value 0: resource failure, indicates a handoff was attempted. The automated billing service could not allocate all of the resources that it needed. No further handoffs are allowed for this call.

Value 1: handoff checks failed, indicates a handoff was attempted. The DMS determined that the call was not suitable for handoff.

Value 2: subsequent handoff allowed, indicates a future handoff can be attempted by the operator.

Value 3: subsequent handoff not allowed, indicates a future handoff is not allowed for the call.

Example: Subsequent handoffs are allowed.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	0

7.117 Hour

Description: Indicates the current hour.

Length: 1 byte

Format: binary

Range: 0 to 23

Definition: This field represents the hour of the day.

Example: Hour is 12.

7	6	5	4	3	2	1	0
0	0	0	0	1	1	0	0

7.118 Initial Period Amount

Description: Specifies the amount of charges for the initial period.

Length: 4 bytes

Format: binary

Range: 0 to 4294967294

Definition: This is the monetary amount associated with the initial period.

Example: Initial period amount is 75.

7	6	5	4	3	2	1	0	Byte #
0	1	0	0	1	0	1	1	1
0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	3
0	0	0	0	0	0	0	0	4

7.119 Initial Period Duration

Description: Specifies the duration in seconds of the initial period.

Length: 2 bytes

Format: binary

Range: 0 to 65534

Definition: This is the time duration associated with the initial period.

Example: Initial period duration is 3.

7	6	5	4	3	2	1	0	Byte #
0	0	0	0	0	0	1	1	1
0	0	0	0	0	0	0	0	2

7.120 Intelligent Network Status

Description: Indicates whether the Intelligent Network environment is connected or released.

Length: 1 byte

Format: binary

Range: 0 = connected
1 = released

Definition: Value 0: connected, indicates the Intelligent Network environment is connected and in control of the call.

Value 1: released, indicates the connection to the Intelligent Network environment has been released.

Example: The Intelligent Network environment is connected.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.121 Issuer ID Size

Description: Specifies the size of the issuer number for a CCITT calling card.

Length: 1 byte

Format: binary

Range: 0 to 7

Definition: This value is used to format a CCITT calling card number. A CCITT calling card number is composed of 3 parts:

- issuer identification number
- account identification number
- personal identification number

A dash ('-') should follow each part of the number. For example, if the digits received in the CCITT calling card field are 891222919991780504321, issuer ID size is 6, account ID size is 11 and PIN size is 4, then the number should be formatted as follows: 891222-91999178050-4321.

Example: Issuer identifier size is 6.

7	6	5	4	3	2	1	0
0	0	0	0	0	1	1	0

7.122 Language

Description: Indicates the language for a party on the call.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: This field indicates which language applies to either the calling or called party. The Port field indicates to which party the language applies.

Example: Language is 3.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	1

7.123 Language Status

Description: Indicates the status of the language for a party on the call.

Length: 1 byte

Format: binary

Range: 0 = none
1 = valid
2 = invalid

Definition: Value 0: none, indicates there is a default language associated with the party.

Value 1: valid, indicates the language associated with the party is valid.

Value 2: invalid, indicates the language associated with the party is invalid.

Example: Language status is valid.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.124 LATA Restriction

Description: Indicates the InterLATA restrictions for the call.

Length: 1 byte

Format: binary

Range: 0 = no restrictions
1 = nonconforming end office
2 = all interlata is restricted

Definition: Value 0: no restrictions, indicates the call originated from an equal access end office. No restrictions are applied to equal access processing by the operator.

Value 1: nonconforming end office, indicates the call originated from a nonconforming end office. The end office does not provide Equal Access; therefore, the operator should provide selected processing.

Value 2: all interLATA is restricted, indicates no equal access processing should be offered on this call. The call did originate from an equal access end office, but datafill in the end office prevented the calling party from obtaining equal access processing. Therefore when the call is presented to an operator in the central office, the calling party still should not be able to obtain equal access processing.

Example: No restrictions apply.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.125 LIDB Response

Description: Indicates the automatic acceptance status of the billing number as obtained from the Line Information Database (LIDB).

Length: 1 byte

Format: binary

Range: 0 = not automatically accepted
1 = automatically accepted

Definition: Value 0: not automatically accepted, indicates the collect or third number billing may not be accepted. The operator should verify the charges with the billed party.

Value 1: automatically accepted, indicates the collect or third number party will always accept the billing. The operator does not need to verify the charges with the billed party.

Example: Billing number is automatically accepted.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.126 LNP Party

Description: Specifies the party for LNP information.

Length: 1 byte

Format: binary

Range: 0 = calling
1 = called
2 = special

Definition: Value 0: calling, indicates that LNP information is for the calling party.

Value 1: called, indicates that LNP information is for the called party.

Value 2: special, indicates that LNP information is for the special party.

Example: LNP party is called.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.127 Logon Denial Reason

Description: Indicates the reason that operator logon was denied.

Length: 1 byte

Format: binary

Range: 0 = incompatible service profile
1 = incompatible queue profile
2 = position is unoccupied
3 = invalid operator number
4 = operator already logged on
5 = invalid password

Definition: Value 0: incompatible service profile, indicates that the combined service profile is nil. The operator cannot logon with a nil service profile. The operator must have at least one service to successfully logon.

Value 1: incompatible queue profile, indicates that the combined queue profile is nil. The operator cannot logon with a nil queue profile. The operator must be able to accept calls from at least one queue to successfully logon.

Value 2: position is unoccupied, indicates the position state is 'position unoccupied'. The operator must first request a position state of 'position occupied' before proceeding with logon.

Value 3: invalid operator number, indicates the operator number is not data-filled in the DMS, or the operator number is not valid for this position type. The operator must key in a valid operator number.

Value 4: operator already logged on, indicates the operator number entered is already in use at another position or another operator number is already in use at this position.

Value 5: invalid password, indicates the password entered is incorrect. The operator must key in a valid password to successfully logon.

Example: Logon denied because of an invalid operator number.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	1

7.128 Loop Action

Description: Specifies an action to be performed on a loop.

Length: 1 byte

Format: binary

Range: 0 = release
1 = access
2 = hold
3 = request a CAMA call
4 = release to operator

Definition: Value 0: release, indicates the operator has completed processing on a call. The operator requests that the call be released and the loop be idled.

Value 1: access, indicates the operator wishes to activate a loop. If there is no call on this loop, then the operator is initiating a call on this loop. If there is a call on this loop, then that call becomes the active call. If another loop is active when this request is received, then the call on that loop is put on hold automatically and the loop in the request becomes active.

Value 2: hold, indicates the operator wishes to place the call on hold. The loop will remain active.

Value 3: request a CAMA call, indicates the operator wishes to receive a CAMA call. CAMA calls are 1+ calls that only require the calling party's number to be entered by the operator. The operator requests these calls while waiting for an event to occur on another call. When a CAMA call arrives, the active loop is automatically put on hold. When the operator finishes handling the CAMA call, the original call is automatically accessed.

Value 4: release to operator, indicates the operator no longer wishes to be involved with completion of a call. The operator requests that the call be released and the loop be idled, so long as another operator has been attached (or is being attached) to complete the call.

Example: Loop action is hold.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	0

7.129 Loop Number

Description: Indicates the operator position loop number for the call.

Length: 1 byte

Format: binary

Range: 0 to 2

Definition: **Loop** is the term used to designate an instance of a call at a position. If a position can handle two calls at once, then the position has two loops. The loops are identified by their loop number. The position with two loops would therefore have loop 1 and loop 2.

Only one loop can be active at any given time. However, it is possible to receive information for any loop, active or inactive. This information should be displayed to the operator even when the loop is not active.

Example: Loop number is 1.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.130 Loop Status

Description: Indicates the status of an operator loop. These are the states that the operator sees. These states differ from the internal states maintained by the position. These internal states were described in Chapter 1: “OPP Description.”

Length: 1 byte

Format: binary

Range: 0 = idle
1 = active
2 = temporary hold
3 = permanent hold

Definition: Value 0: idle, indicates that the applicable loop number has no call attached to it.

Value 1: active, the call on the indicated loop is active. The operator is currently processing the call on this loop.

Value 2: temporary hold, the call on the indicated loop is on temporary hold. The only time a new call may be presented to an operator position with a loop in this state is when the operator requests a CAMA call. When this happens, the current (active) loop is placed on temporary hold while a CAMA call is presented on another loop. After the CAMA call is processed, the original loop is reaccessed.

Value 3: permanent hold, the call on the indicated loop is on permanent hold. New calls may be presented to the operator on other loops while in this state.

Example: Loop status is active.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.131 LRN

Description: Specifies the LRN.

Length: Variable

Format: BCD

Range: BCD digits each ranging from 0 to 9

Definition: This field contains the digits that comprise the LRN. The size of the field is determined by the value contained in the LRN Count field.

Example: LRN is 6135553684

7	4	3	0	Byte #
1	6			1
5	3			2
5	5			3
6	3			4
4	8			5

7.132 LRN Count

Description: Specifies the number of digits in the LRN.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: This field indicates the number of digits found in the LRN field.

Example: LRN is 10 digits.

7	6	5	4	3	2	1	0
0	0	0	0	1	0	1	0

7.133 LRN Status

Description: Specifies the status of the LRN.

Length: 1 byte

Format: binary

Range: 0 = directory number not ported
1 = directory number ported
2 = unknown

Definition: Value 0: directory number not ported, indicates that the specified party's directory number is not ported.

Value 1: directory number ported, indicates that the specified party's directory number is ported.

Value 2: unknown, indicates that the portability of the specified party is not known.

Example: LRN status is directory number ported.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.134 Management Status

Description: Specifies the paging or monitoring status.

Length: 1 byte

Format: binary

Range: 0 = no page
1 = page
2 = no monitor
3 = monitor

Definition: Value 0: no page, indicates the operator is not being paged.

Value 1: page, indicates the operator is being paged.

Value 2: no monitor, indicates the operator is not being monitored.

Value 3: monitor, indicates the operator is being monitored.

Example: The operator is being monitored.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	1

7.135 Manual Validation Status

Description: Indicates the means of validating alternate billing for a call being handled by an InterLATA Carrier.

Length: 1 byte

Format: binary

Range: 0 = no manual validation required
1 = manual validation required

Definition: Value 0: no manual validation required, indicates no special verification is required by the carrier.

Value 1: manual validation required, indicates the operator needs to perform further billing verification for the calling card, third number or collect billing. This method of verification is dependent upon the carrier associated with the call.

Example: No manual validation is required.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.136 Minutes

Description: Indicates the current minute.

Length: 1 byte

Format: binary

Range: 0 to 59

Definition: This field represents the minutes of the hour.

Example: Minute is 36.

7	6	5	4	3	2	1	0
0	0	1	0	0	1	0	0

7.137 Miscellaneous Action Request

Description: Specifies the action request when no other data is required.

Length: 1 byte

Format: binary

Range: 0 = transfer to interLATA carrier
1 = zip tone repeat
2 = call details
3 = current time
4 = stop bell
5 = special verify
6 = barge in
7 = mark for transfer to operator
8 = no transfer to interLATA carrier
9 = mark for recall to operator
10 = alternate international route
11 = estimate charges
12 = no release link trunking

Definition: Value 0: transfer to interLATA carrier, indicates the operator is requesting the call be sent to the carrier's operator services. The telco is not providing operator services on behalf of the carrier.

Value 1: zip tone repeat, indicates the operator requests to hear a zip tone again on a call. Some end offices do not have the ability to identify phones as coin through signaling. Instead, the end office generates a tone after the operator services office is connected. If the call is placed in queue for an operator, the tone may have already been generated before the call arrives at an operator. The zip tone repeat action causes the end office to repeat the tone thus indicating the line is a coin line.

Value 2: call details, indicates the operator requests to see all the information associated with the call.

Value 3: current time, indicates the operator has requested to know the time.

Value 4: stop bell, is requested by a supervisor to stop the audible tone. The audible tone is sounded to alert the supervisor operators when certain conditions exist.

Value 5: special verify, indicates the operator wishes to outpulse to the special number for billing verification purposes.

Value 6: barge in, indicates the operator wishes to connect to the called party who is already engaged in another call.

Value 7: mark for transfer to operator, indicates the operator wishes to transfer the call to another operator.

Value 8: no transfer to interLATA carrier, indicates the operator is requesting the call not be transferred to a carrier's operator services.

Value 9: mark for recall to operator, indicates the operator wishes to mark the queue for recall purposes only and not transfer the call to another operator.

Value 10: alternate international route, indicates the operator wishes to select an alternate international route in order to reach the forward party.

Value 11: estimate charges, indicates the operator wishes to estimate the charges for the current call.

Value 12: no release link trunking, indicates the position is requesting the call not to be released by RLT.

Example: Miscellaneous request is call details.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	0

7.138 Monitor Status

Description: Indicates the status of monitoring to the monitoring position.

Length: 1 byte

Format: binary

Range: 0 = monitor begin
1 = monitor end

Definition: Value 0: monitor begin, indicates the supervisor has initiated a monitor.

Value 1: monitor end, indicates the monitor has been terminated.

Example: The monitor has been terminated.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.139 Monitor Type

Description: Indicates the method of monitoring requested by the position.

Length: 1 byte

Format: binary

Range: 0 = monitor not requested
1 = DMS broadcast
2 = position broadcast

Definition: Value 0: monitor not requested, indicates the position is not requesting to monitor.

Value 1: DMS broadcast, indicates that the position requests the DMS to send all of the DIDs for the monitored position to the monitoring position as well.

Value 2: position broadcast, indicates that the monitored OPP position will broadcast its screen updates to the monitoring position. The DMS is not responsible for sending the monitored position's DIDs to the monitoring position.

Example: Position has requested position broadcast monitor.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	0

7.140 Monitored Operator's Service Profile

Description: Indicates the service profile of the operator that is being monitored to the monitoring position.

Length: 8 bytes

Format: set

Range: Each bit corresponds to a service. A '1' indicates that the corresponding service is being provided by the operator. A '0' indicates that the corresponding service is not being provided by the operator. The bits map to the services in the following way:

bit n = service n (where n is from 0 to 62)

Definition: The service profile contained in this field reflects the services that the general operator is capable of providing. This information is sent to the monitoring operator.

Example: Monitored operator can provide service 2 only.

7	6	5	4	3	2	1	0	Byte #
0	0	0	0	0	0	1	0	1
0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	3
0	0	0	0	0	0	0	0	4
0	0	0	0	0	0	0	0	5
0	0	0	0	0	0	0	0	6
0	0	0	0	0	0	0	0	7
0	0	0	0	0	0	0	0	8

7.141 Month

Description: Indicates the current month.

Length: 1 byte

Format: binary

Range: 1 to 12

Definition: This field represents the month of the year.

Example: Month is 5.

7	6	5	4	3	2	1	0
0	0	0	0	0	1	0	1

7.142 Network Action

Description: Indicates the type of network action being performed for the call.

Length: 1 byte

Format: binary

Range: 0 = release party
1 = ring party
2 = collect coins
3 = return coins
4 = trunk offering start (TOS)
5 = trunk offering end (TOE)

Definition: Value 0: release party, the party is released and dropped from the call.

Value 1: ring party, apply ringing to the party.

Value 2: collect coins, collect the coins at the coin phone.

Value 3: return coins, return coins at the coin phone.

Value 4: trunk offering start, break-in on R2 trunks.

Value 5: trunk offering end, break-out on R2 trunks.

Example: Network action is collect coins.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	0

7.143 Network Action Status

Description: Indicates the validity of the network action being performed for the call.

Length: 1 byte

Format: binary

Range: 0 = none
1 = valid
2 = invalid

Definition: Value 0: none, indicates there is no network action.

Value 1: valid, indicates the requested network action is valid and was performed.

Value 2: invalid, indicates the requested network action is not valid and cannot be performed.

Example: Network action status is valid.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.144 No Action Reason

Description: Indicates the reason that no action was taken by the DMS on an Action Request.

Length: 2 bytes

Format: binary

Range: 0 to 65534

Definition: This field contains an integer which indicates the reason why the DMS took no action on an Action Request from a position. The integer's meaning varies by the application which is using OPP.

Example: No Action Reason is 3.

7	6	5	4	3	2	1	0	Byte #
0	0	0	0	0	0	1	1	1
0	0	0	0	0	0	0	0	2

7.145 Notify Connection

Description: Indicates the type of connection that is established between the switch and the operator position when the notify time expires and the call recalls.

Length: 1 byte

Format: binary

Range: 0 = two-way
1 = one-way

Definition: Value 0: two-way, indicates that the notify recall is set up with a regular two-way voice connection to the operator port.

Value 1: one-way, indicates that the notify recall is set up with a muted one-way voice connection, meaning the operator may hear the other parties on the call but may not speak to them.

Example: Notify connection is one-way.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.146 Notify Minutes

Description: Indicates the number of minutes until the current call recalls for a non-standard notify. A nonstandard notify is a recall to the operator for quotation of elapsed call time. Nonstandard notifies only occur on calls which are not coin sent paid.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: The subscriber can request to be notified when a specified number of minutes have elapsed. This field contains the digits that represent the specified number of minutes. The call is then released from the position. When the time has elapsed, the call returns to the operator for notification that the initial period has ended.

Example: Notify minutes is 3.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	1

7.147 Notify Pending Status

Description: Indicates if a notify is pending for a loop.

Length: 1 byte

Format: binary

Range: 0 = no notify pending
1 = notify pending

Definition: Value 0: no notify pending, indicates the call on the associated loop has not had a notify expire.

Value 1: notify pending, indicates the call on the associated loop has had a notify expire. The operator should access the loop and report the notify to the subscribers.

Example: There is a notify pending.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.148 Notify Recall Count

Description: Indicates the number of times that a call has recalled to a position due to the notify functionality.

Length: 1 byte

Format: binary

Range: 0 to 65534

Definition: The operator is informed of how many times that this call has recalled to a position due to the notify functionality.

Example: Notify recall count is 23.

7	6	5	4	3	2	1	0	Byte #
0	0	0	1	0	1	1	1	1
0	0	0	0	0	0	0	0	2

7.149 Notify Status

Description: Indicates the validity of the notify period for the call.

Length: 1 byte

Format: binary

Range: 0 = none
1 = valid
2 = invalid

Definition: Value 0: none, a notification time was not keyed.

Value 1: valid, the notification request keyed by the operator is valid.

Value 2: invalid, the notification request keyed by the operator is not valid.

Example: Notify status is valid.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.150 Number of Assistants Connected to Operators

Description: Specifies the number of assistant positions that are connected to operators in the supervisor's team.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: When an action request of query assistant positions is launched by the supervisor operator, one piece of information that is returned is the number of assistants that are processing calls from general operators. This field contains a count of the number of call processing busy assistant operators in the requested team.

Example: Number of assistant positions is 3.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	1

7.151 Number of Available Assistants

Description: Specifies the number of assistant positions that are available in a supervisor's team.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: When an action request of query assistant positions is launched by the supervisor operator, one piece of information that is returned is the number of assistant positions that are available to answer calls. This field contains a count of the number of available assistant positions in the requested team.

Example: Number of assistant positions is 4.

7	6	5	4	3	2	1	0
0	0	0	0	0	1	0	0

7.152 Number of Positions

Description: Specifies the number of operator positions.

Length: 2 bytes

Format: binary

Range: 0 to 65534

Definition: The supervisor operator has access to certain statistics for the supervisor's team. Among these statistics is a count of the number of positions in various states (i.e. occupied) for each queue. This field records the number of positions.

Example: Number of positions is 159.

7	6	5	4	3	2	1	0	Byte #
1	0	0	1	1	1	1	1	1
0	0	0	0	0	0	0	0	2

7.153 Number of Requests in Queue

Description: Indicates the number of requests in queue for assistance in the supervisor's team.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: The number of positions in queue for assistance is displayed on the supervisor's screen using the contents of this field.

Example: The number of requests in queue is 7.

7	6	5	4	3	2	1	0
0	0	0	0	0	1	1	1

7.154 Office Condition Type

Description: Specifies an office condition that may affect work force management or operations.

Length: 1 byte

Format: binary

Range: 0 = operator services suspended
1 = no time and charges devices

Definition: Value 0: operator services suspended, occurs when operator services have been shut down for the entire office; calls are not being routed to operators.

Value 1: no time and charges devices, occurs when all of the datafilled devices for reporting time and charges quotations are out of services.

Example: The Office Condition Type is no time and charges devices.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.155 OIA Information Type

Description: Specifies the type of Open Information Access (OIA) information to initially associate with a call.

Length: 1 byte

Format: binary

Range: 0 to 100

Definition: The OIA information is sent at call arrival so the position may automatically access an operator information database.

Example: OIA Information Type is 14.

7	6	5	4	3	2	1	0
0	0	0	0	1	1	1	0

7.156 OIA Information Type

Description: Specifies the type of Open Information Access (OIA) information to initially associate with a call.

Length: 1 byte

Format: binary

Range: 0 to 100

Definition: The OIA information is sent at call arrival so the position may automatically access an operator information database.

Example: OIA Information Type is 14.

7	6	5	4	3	2	1	0
0	0	0	0	1	1	1	0

7.157 OLNS Equipment Display Index

Description: Specifies the index associated with the Service/Equipment parameter. The Service/Equipment parameter is one parameter in the OLNS (Originating Line Number Screening) response message, which is sent from the OLNS database to the DMS.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: This field contains the OLNS equipment display index.

Example: The OLNS Equipment Display Index is 24.

7	6	5	4	3	2	1	0
0	0	0	1	1	0	0	0

7.158 OLNS Restriction Display Index

Description: Specifies the index associated with the TA or DA Billing Indicators. The TA and DA Billing Indicators are parameters in the OLNS (Originating Line Number Screening) response message, which is sent from the OLNS database to the DMS.

Description: 1 byte

Format: binary

Range: 0 to 254

Definition: This field contains the OLNS Restriction Display index.

Example: The OLNS Restriction Display Index is 21.

7	6	5	4	3	2	1	0
0	0	0	1	0	1	0	1

7.159 Operator Average Work Time Status

Description: Indicates the presence of average work time for an operator since logon.

Length: 1 byte

Format: binary

Range: 0 = average work time not present
1 = average work time present

Definition: Value 0: average work time not present, indicates the operator average work time is not contained in the Operator Average Work Time field.

Value 1: average work time present, indicates the operator average work time is contained in the Operator Average Work Time field.

Example: The average work time is present.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.160 Operator Capabilities

Description: Indicates the capabilities of the operator for the session.

Length: 2 bytes

Format: set

Range: Each bit corresponds to a capability of an operator. A '1' indicates the capability applies. A '0' indicates the capability does not apply. The bits map to capabilities in the following manner:

bit 0 = general call handling

bit 1 = page

bit 2 = monitor

bit 3 = statistics and query

bit 4 = assistance

bit 5 = transfer to queue already served

bit 6 = queue status and query

Definition: This field contains the capabilities of an operator. The set gives a broad list of functions that can be performed by the operator during the logon session.

Example: Operator has general call handling only.

7	6	5	4	3	2	1	0	Byte #
0	0	0	0	0	0	0	1	1
0	0	0	0	0	0	0	0	2

7.161 Operator Feedback Type

Description: Specifies what should be done with the operator's individual statistics.

Length: 1 byte

Format: binary

Range: 0 = none
1 = display statistics
2 = print statistics
3 = reset statistics

Definition: Value 0: none, indicates the operator wishes to clear any operator statistics from the screen.

Value 1: display statistics, indicates the operator wishes to see the statistics.

Value 2: print statistics, indicates the operator wishes to have the statistics printed on the TADS device in the operator's traffic office.

Value 3: reset statistics, indicates the operator wishes to zero the individual statistics.

Example: Print the statistics.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	0

7.162 Operator Number

Description: Indicates the operator number.

Length: 2 bytes

Format: binary

Range: 0 to 65534

Definition: This field contains the operator number of the operator that is logged into a position. This number should be datafilled in the DMS.

Example: Operator number is 100.

7	6	5	4	3	2	1	0	Byte #
0	1	1	0	0	1	0	0	1
0	0	0	0	0	0	0	0	2

7.163 Operator Number Type

Description: Specifies the type of request being made with the operator number.

Length: 1 byte

Format: binary

Range: 0 = request logon
1 = request page
2 = request monitor
3 = end page
4 = end monitor

Definition: Value 0: request logon, indicates the operator is requesting to log onto the position.

Value 1: request page, indicates the operator is requesting a response from another operator.

Value 2: request monitor, indicates the operator is requesting to monitor another operator.

Value 3: end page, indicates the operator is requesting to stop paging another operator.

Value 4: end monitor, indicates the operator is requesting to stop monitoring another operator.

Example: Operator number type is request logon.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.164 Operator Position Seizures

Description: Indicates the number of position seizures that the operator has received since logon.

Length: 2 bytes

Format: binary

Range: 0 to 65534

Definition: This field contains the number of position seizures that this operator has handled since logon.

Example: Number of operator position seizures is 57.

7	6	5	4	3	2	1	0	Byte #
0	0	1	1	1	0	0	1	1
0	0	0	0	0	0	0	0	2

7.165 Operator Position Seizures Status

Description: Indicates the presence of position seizures that the operator has received since logon.

Length: 1 byte

Format: binary

Range: 0 = position seizures not present
1 = position seizures present

Definition: Value 0: position seizures not present, indicates that there is not a value present in the Operator Position Seizures field.

Value 1: position seizures present, indicates that there is a value present in the Operator Position Seizures field.

Example: Position seizures are present in the Operator Position Seizures field.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.166 OSSAIN Control List ID

Description: The OSSAIN Control List ID is a numeric index to a list which contains a sequence of functions, where functions are a named function which is provided by a service node, TOPS operator, or automated system.

Length: 2 bytes

Format: binary

Range: 0 to 65,534

Definition: Each value is a numeric index for a list of OSSAIN functions. The control list and the functions are specified through DMS datafill.

Example: The OSSAIN Control List ID is 2.

7	6	5	4	3	2	1	0	Byte #
0	0	0	0	0	0	1	0	1
0	0	0	0	0	0	0	0	2

7.167 OSSAIN Failed Function ID

Description: The OSSAIN Failed Function ID is a numeric index for a named function provided by a service node.

Length: 2 bytes

Format: binary

Range: 0 to 65,534

Definition: This value specifies the OSSAIN Failed Function provider that the DMS was unsuccessful in connecting to due to queue deflection, overflow, function blocking, or a failure condition.

Example: The OSSAIN Failed Function ID is 34.

7	6	5	4	3	2	1	0	Byte #
0	0	1	0	0	0	1	0	1
0	0	0	0	0	0	0	0	2

7.168 OSSAIN Function ID

Description: The OSSAIN Function ID is a numeric index for a named function which is provided by a service node, TOPS operator, or automated system.

Length: 2 bytes

Format: binary

Range: 0 to 65,534

Definition: Each value is a numeric index for an OSSAIN function. OSSAIN functions are specified through DMS datafill.

Example: The OSSAIN Function ID is 3.

7	6	5	4	3	2	1	0	Byte #
0	0	0	0	0	0	1	1	1
0	0	0	0	0	0	0	0	2

7.169 OSSAIN No Answer Timer

Description: Specifies the OSSAIN No Answer Timer in seconds.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: This field specifies the amount of time, in seconds, before reporting the no answer trigger.

Example: The OSSAIN No Answer Timer is 5.

7	6	5	4	3	2	1	0	Byte #
0	0	0	0	0	1	0	1	1

7.170 OSSAIN Notification Timer

Description: Specifies the OSSAIN Notification Timer in seconds.

Length: 4 bytes

Format: binary

Range: 0 to 4294967294

Definition: This field specifies the amount of talk time, in seconds, that expires prior to initiation of a notify trigger event.

This amount of talk time is measured from the release of the call (relative time) or from the start of the call (conversation time), as indicated by the OSSAIN Notification Timer Type.

Example: The OSSAIN Notification Timer is 25.

7	6	5	4	3	2	1	0	Byte #
0	0	0	1	1	0	0	1	1
0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	3
0	0	0	0	0	0	0	0	4

7.171 OSSAIN Notification Timer Type

Description: Specifies the type of the OSSAIN Notification Timer.

Length: 1 byte

Format: binary

Range: 0 = relative time
1 = conversation time

Definition: Value 0: relative time, indicates that the OSSAIN Notification Timer field is based on relative time.

Value 1: conversation time, indicates that the OSSAIN Notification Timer field is based on conversation time.

Example: The OSSAIN Notification Timer Type is conversation time.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.172 OSSAIN Switch ID

Description: The OSSAIN Switch ID is a numeric identifier associated with the OSSAIN TOPS switch in an OSSAIN Centralization network (OSAC) which is in control of the call.

Length: 2 bytes

Format: binary

Range: 0 to 65,534

Definition: This value specifies the ID of the OSSAIN TOPS switch in the OSAC network which is in control of the call.

Example: The OSSAIN Switch ID is 3.

7	6	5	4	3	2	1	0	Byte #
0	0	0	0	0	0	1	1	1
0	0	0	0	0	0	0	0	2

7.173 OSSAIN Trigger Profile Index

Description: The OSSAIN Trigger Profile Index is numeric index for a set of triggers, where triggers are events that cause a call to be redirected to a service node or operator.

Length: 2 bytes

Format: binary

Range: 0 to 65,534

Definition: Each value is a numeric index for an OSSAIN Trigger Profile. OSSAIN triggers are specified through DMS datafill.

Example: The OSSAIN Trigger Profile Index is 1.

7	6	5	4	3	2	1	0	Byte #
0	0	0	0	0	0	0	1	1
0	0	0	0	0	0	0	0	2

7.174 OSSAIN Trigger Profile Status

Description: Specifies the validity of the OSSAIN Trigger Profile Index.

Length: 1 byte

Format: binary

Range: 0 = valid
1 = invalid

Definition: Value 0: valid, indicates the trigger profile index is valid.

Value 1: invalid, indicates the trigger profile index is invalid.

Example: The OSSAIN Trigger Profile Status is invalid.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.175 Outtrunk Data

Description: Specifies any call specific data needed for the outtrunk event selected.

Length: 2 bytes

Format: binary

Range: 0 to 65534

Example: This field contains any call specific data needed to execute the outtrunk event in the DMS. This data is not always needed. It depends upon the outtrunk event selected.

Example: Outtrunk data is NIL.

7	6	5	4	3	2	1	0	Byte #
1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	2

7.176 Outtrunk Index

Description: Specifies the outtrunk event to access for the call.

Length: 2 bytes

Format: binary

Range: 0 to 65534

Definition: This field contains the index to a DMS table containing outtrunk information. This table contains the functions requested by the operator. The operator accesses any of these functions by selecting the associated outtrunk index.

Example: Outtrunk index is 59.

7	6	5	4	3	2	1	0	Byte #
0	0	1	1	1	0	1	1	1
0	0	0	0	0	0	0	0	2

7.177 Over Collect Amount

Description: Specifies the over collect amount.

Length: 2 bytes

Format: binary

Range: 0 to 65534

Definition: This amount reflects the over collect amount associated with this call. The position is responsible for interpreting and formatting the amount with respect to local currency.

Example: Over collect amount is 75.

7	6	5	4	3	2	1	0	Byte #
0	1	0	0	1	0	1	1	1
0	0	0	0	0	0	0	0	2

7.178 Overtime Type

Description: Specifies whether overtime charges are to be collected before or after the overtime period.

Length: 1 byte

Format: binary

Range: 0 = postpay overtime
1 = prepay overtime

Definition: Value 0: postpay overtime, indicates that charges for the overtime period are to be collected after the overtime period.

Value 1: prepay overtime, indicated that charges for the overtime period are to be collected before the overtime period.

Example: Overtime type is prepay overtime.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.179 Paged Party

Description: Specifies the position number or the operator number that is being paged.

Length: 2 bytes

Format: binary

Range: 0 to 65534

Definition: This field contains either a position number or an operator number of the operator that is being paged. Operators can page either a specific position or a specific operator. The type of number contained here is determined by the Paging Type field.

Example: The operator is paging operator 420.

7	6	5	4	3	2	1	0	Byte #
1	0	1	0	0	1	0	0	1
0	0	0	0	0	0	0	1	2

7.180 Paging Status

Description: Specifies the validity of a page by the paging operator.

Length: 1 byte

Format: binary

Range: 0 = none
1 = valid
2 = invalid

Definition: Value 0: none, indicates there is no page outstanding. The page has either been answered or canceled.

Value 1: valid, indicates the position or operator that is being paged is valid.

Value 2: invalid, indicates the position or operator that is being paged is not valid.

Example: Page is valid.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.181 Paging Type

Description: Specifies the type of page requested by the paging operator.

Length: 1 byte

Format: binary

Range: 0 = position
1 = operator

Definition: Value 0: position, indicates the paging operator needs to reach whoever is logged into a certain position.

Value 1: operator, indicates the paging operator needs to reach a particular operator.

Example: Paging by position number.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.182 PARS Tone Duration

Description: Duration of PARS activation tone.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: Specifies the duration, in 10-msec units, of the PARS activation tone (DTMF “D”) that should be generated at call arrival to activate certain 3rd-party vendor PARS functionality. Refer to the related Call Arrival Tone Info field.

Example: The PARS Tone Duration is 4, so the PARS activation tone should be played for 40 msec.

7	6	5	4	3	2	1	0
0	0	0	0	0	1	0	0

7.183 Pass Through Data

Description: Specifies the data passed through from an attached service node.

Length: Variable

Format: binary

Range: 0 to #FF

Definition: This field contains raw pass through data for the position or the attached service node. The DMS will not attempt to interpret this data.

Example: Data is #53 #01 #0C #11 #FF.

	Byte #
53	1
01	2
0C	3
11	4
FF	5

7.184 Pass Through Data Count

Description: Specifies the size of the pass through data.

Length: 1 byte

Format: binary

Range: 0 to 25

Definition: This field indicates the number of bytes found in the pass through data field.

Example: Pass through data is 5 bytes.

7	6	5	4	3	2	1	0
0	0	0	0	0	1	0	1

7.185 Password Status

Description: Specifies the validity or necessity of the operator password.

Length: 1 byte

Format: binary

Range: 0 = password required
1 = invalid attempt at changing the password
2 = valid password change

Definition: Value 0: password required, indicates the operator password is needed in order to complete operator logon.

Value 1: invalid attempt at changing the password, indicates the operator attempted to change the password but was unsuccessful.

Value 2: valid password change, indicates the operator successfully altered the password.

Example: Password change is valid.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	0

7.186 Person Call Back Status

Description: Indicates the status of person call back service for the call.

Length: 1 byte

Format: binary

Range: 0 = no person call back
1 = person call back
2 = person call back invalid

Definition: Value 0: no person call back, indicates normal rating and charging should apply to the call.

Value 1: person call back, indicates call should be rated as if the called party had originated a person-to-person call.

Value 2: person call back invalid, indicates person call back is not valid given other attributes of the call.

Example: Person call back is invalid.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	0

7.187 Personal Identification Number Size

Description: Specifies the size of the personal identification number for a CCITT or an unknown type of calling card.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: This value specifies the size of the PIN within the CCITT or unknown calling card number. The PIN is at the end of the card number.

A CCITT calling card number is composed of 3 parts:

- issuer identification number
- account identification number
- personal identification number

A dash ('-') should follow each part of the number. For example, if the digits received in the CCITT calling card field are 891222919991780504321, issuer ID size is 6, account ID size is 11 and PIN size is 4, then the number should be formatted as follows: 891222-91999178050-4321.

Example: Personal identification number size is 4.

7	6	5	4	3	2	1	0
0	0	0	0	0	1	0	0

7.188 Port

Description: Specifies the port for which the operator requested a function be performed.

Length: 1 byte

Format: binary

Range: 0 = calling
1 = called
2 = operator

Definition: Value 0: calling, indicates the function should be performed on the calling or back port.

Value 1: called, indicates the function should be performed on the called or forward port.

Value 2: operator, indicates the function should be performed on the operator port.

Example: Request a function to be performed on the called port.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.189 Port Function

Description: Specifies the function to be performed on a port.

Length: 1 byte

Format: binary

Range: 0 = mark as coin
1 = mark as hotel
2 = split voice to port
3 = join voice to port
4 = initiate outpulsing
5 = mark as station

Definition: Value 0: mark as coin, indicates the operator wishes to mark the port as a coin phone.

Value 1: mark as hotel, indicates the operator wishes to mark the port as a hotel/motel phone.

Value 2: split voice to port, indicates the operator wishes to block voice from reaching the port.

Value 3: join voice to port, indicates the operator wishes to rejoin voice to the port. The DMS reconnects the two-way connection.

Value 4: initiate outpulsing, indicates the operator wishes to make a connection to the port.

Value 5: mark as station, indicates the operator wishes to mark the port as a station phone.

Example: Mark the port as hotel.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.190 Port Status

Description: Specifies the supervision or hook status of the port or party.

Length: 1 byte

Format: binary

Range: 0 = on-hook
1 = off-hook
2 = requesting operator
3 = not connected
4 = busy
5 = congested

Definition: Value 0: on-hook, the party is on-hook for the call.

Value 1: off-hook, the party is off-hook or connected to the call.

Value 2: requesting operator, the party has flashed while on hold to get the operator's attention.

Value 3: not connected, no party is connected to the call, or the previous party has been disconnected.

Value 4: busy, busy signal is detected on the party's line.

Value 5: congestion, network congestion is detected on attempting to connect or ring a party.

Example: Party is onhook.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.191 Port Voice Status

Description: Specifies the status of the voice connection for the port or party.

Length: 1 byte

Format: binary

Range: 0 = connected
1 = split

Definition: Value 0: connected, indicates the voice path is connected.

Value 1: split, indicates the party cannot hear the operator or other parties.

Example: Voice is connected.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.192 Position Information

Description: Informs the position of events or conditions which may not result in a specific screen update or action. This information may allow the position to act on call or non-call data which has already been transmitted.

Length: 1 byte

Format: binary

Range: 0 = end of call details

Definition: Value 0: end of call details. This value indicates all of the relevant call DIDs have been transmitted to the position following a Call Begin message, a Call Resume message, or an operator request for call details. The Position Information DID will be sent with this value whenever the Call Origination DID is sent. The Call Origination DID will be first, several other call-related DIDs may follow, and the Position Information DID will be sent last.

Example: Position information is end of call details.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.193 Position Number

Description: Indicates the position number.

Length: 2 bytes

Format: binary

Range: 0 to 65534

Definition: This field contains the position number of the operator position. This number should be datafilled in the DMS.

Example: Position number is 312.

7	6	5	4	3	2	1	0	Byte #
0	0	1	1	1	0	0	0	1
0	0	0	0	0	0	0	1	2

7.194 Position Number Type

Description: Specifies the type of request to perform on a position number.

Length: 1 byte

Format: binary

Range: 0 = request page
1 = request monitor
2 = end page
3 = end monitor

Definition: Value 0: request page, indicates the operator is requesting to page the operator who is logged onto the specified position.

Value 1: request monitor, indicates the operator is requesting to monitor the specified position.

Value 2: end page, indicates the operator is requesting to stop paging the operator who is logged onto the specified position.

Value 3: end monitor, indicates the operator is requesting to stop monitoring the specified position.

Example: Position number type is request page.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.195 Position State

Description: Indicates the position state.

Length: 1 byte

Format: binary

Range:

- 0 = position occupied
- 1 = position unoccupied
- 2 = position unoccupied pending
- 3 = position busy
- 4 = position busy pending
- 5 = calls withheld
- 6 = calls withheld pending
- 7 = accept all calls
- 8 = accept limited calls only
- 9 = training mode
- 10 = administrative mode
- 11 = forced maintenance
- 12 = forced maintenance pending

Definition: Value 0: position occupied, if there is no call at the position then the operator is ready to log on.

Value 1: position unoccupied, an operator is not logged on.

Value 2: position unoccupied pending, this state is entered when the operator attempts to logout while a call is at the position. The logout process continues after the call is released from the position.

Value 3: position busy, this state is entered following successful logon. The operator does not receive calls while in this state. This state is also entered when the operator requests position busy and no calls are at the position.

Value 4: position busy pending, this state is entered when the operator requests position busy while a call is at the position. The position enters the position busy state after the call is released from the position.

Value 5: calls withheld, this state is entered when the operator requests calls withheld and no calls are at the position. The operator does not receive calls while in this state.

Value 6: calls withheld pending, this state is entered when the operator requests calls withheld while a call is at the position. The position enters the calls withheld state after the call is released from the position.

Value 7: accept all calls, this state allows the operator to receive all calls from the DMS for the queues that the operator is serving.

Value 8: accept limited calls only, this state allows the operator to receive a limited set of calls from the DMS.

Value 9: training mode, this state indicates the operator is in a training mode.

Value 10: administrative mode, the operator enters this mode to perform database searches or other administrative activities without having a live call at the position.

Value 11: forced maintenance, the position is put in this state when maintenance is performed on the position.

Value 12: forced maintenance pending, the position is put in this state when maintenance is performed on the position while a call is present.

Example: Position state is occupied.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.196 Position/Operator Count

Description: Indicates the number of positions or operators included in the identifier.

Length: 1 byte

Format: binary

Range: 0 to 100

Definition: Certain operators have the ability to query the positions or operators in various states. The response to the query identifies the position or operator numbers of the positions or operators in the specified state. This field indicates the number of Position/Operator Number fields that follow in the DID.

Example: Position or operator count is 5.

7	6	5	4	3	2	1	0
0	0	0	0	0	1	0	1

7.197 Position/Operator Number

Length: 2 bytes

Format: binary

Range: 0 to 65534

Definition: This field contains either a position number or an operator number, depending on context specified by the value of another field in the identifier that uses this field.

Example: Depending on context, this represents either operator 312 or position 312.

7	6	5	4	3	2	1	0	Byte #
0	0	1	1	1	0	0	0	1
0	0	0	0	0	0	0	1	2

7.198 Queueing Condition Type

Description: Specifies a condition that may apply to a call queue.

Length: 1 byte

Format: binary

Range: 0 = calls waiting
1 = calls deflecting
2 = calls queued with no serving agent
3 = calls alerting
4 = calls overflowing

Definition: Value 0: calls waiting, is a condition in which the DMS predicts that a call placed in the queue would have to wait longer than a threshold length of time, datafilled in the DMS, before being served.

Value 1: calls deflecting, is a condition in which calls have been deflected from the queue. Calls are deflected when a queue is full.

Value 2: calls queued with no serving agent, is a condition in which calls are queued for service, but no agent (operator) who can provide the service is logged onto the DMS.

Value 3: calls alerting, is a condition in which the number of calls in an alerting queue changes from not having calls queued to having calls queued and vice versa.

Value 4: calls overflowing, is a condition in which the number of calls in an alerting queue reach a datafilled threshold.

Example: The Queueing Condition Type is calls waiting.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.199 Query List Type

Description: Indicates the type of position or operator data being sent to the position.

Length: 1 byte

Format: binary

Range: 0 = none
1 = assistants
2 = positions in a made busy state
3 = positions in an out of service state
4 = positions in an unoccupied state with a call in progress
5 = positions in an unoccupied state with a call terminated
6 = positions with a loop accessed with no call in progress
7 = operators with controlled traffic
8 = operators with study registers assigned

Definition: Value 0: none, means the operator has not requested any query information.

Value 1: assistants, means the operator has requested assistance position information.

Value 2: position in a made busy state, means the operator requested to know all positions where the operators are logged in but have not made available to handle calls.

Value 3: positions in an out of service state, means the operator requested to know all positions that are out of service. A position may be out of service because a craftsperson is performing maintenance.

Value 4: positions in an unoccupied state with a call in progress, means the operator requested to know all positions where the operators have initiated DMS logoff with a call at position. The calling party is still off-hook.

Value 5: positions in an unoccupied state with a call terminated, means the operator requested to know all positions where the operators have initiated DMS logoff with a call at position. The calling party has gone onhook.

Value 6: position with a loop accessed with no call in progress, means the operator requested to know all positions where the operators have accessed a loop without a call at their position.

Value 7: operators with controlled traffic, means the operator requested to know all operators that are handling controlled traffic.

Value 8: operators with study registers assigned, means the operator requested to know all operators that have study registers assigned.

Example: Data is operators with study registers assigned.

7	6	5	4	3	2	1	0
0	0	0	0	1	0	0	0

Query List Type values 2, 3, 4, and 5 are position state related and correspond to actual position states in the following manner:

Query List Type	Position State(s)
Value 2: positions in a made busy state	Position Busy, Calls Withheld, and Occupied
Value 3: positions in an out of service state	Forced Maintenance
Value 4: positions in an unoccupied state with a call in progress	Unoccupied Pending
Value 5: positions in an unoccupied state with a call terminated	Unoccupied Pending

For example, a supervisor's query of all positions in a made busy state will return a list of positions in the supervisor's team. These positions will have internal states of Position Busy, Calls Withheld, or Occupied.

7.200 Queue Mark

Description: Specifies the queue mark for the call.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: This field contains an integer value that represents a queue.

Example: Queue mark is 1.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.201 Queue Number

Description: Specifies the QMS call queue number.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: This field contains the QMS call queue number.

Example: Call queue number is 9.

7	6	5	4	3	2	1	0
0	0	0	0	1	0	0	1

7.202 Queue Profile

Description: Specifies the queues served by an operator.

Length: 16 bytes

Format: set

Range: Each bit corresponds to a queue. A '1' indicates that the corresponding queue is served by the operator. A '0' indicates that the queue is not served by the operator. The queue number is derived by adding the bit number to the value of the First Queue Number field used with this field in the following way:

bit n = queue (n + <First Queue Number>)

Definition: This field indicates which queues are served by an operator.

Example: Queues 0 and 2 are served. (Assumes First Queue Number field is 0).

7	6	5	4	3	2	1	0	Byte #
0	0	0	0	0	1	0	1	1
0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	3
0	0	0	0	0	0	0	0	4
0	0	0	0	0	0	0	0	5
0	0	0	0	0	0	0	0	6
0	0	0	0	0	0	0	0	7
0	0	0	0	0	0	0	0	8
0	0	0	0	0	0	0	0	9
0	0	0	0	0	0	0	0	10
0	0	0	0	0	0	0	0	11
0	0	0	0	0	0	0	0	12
0	0	0	0	0	0	0	0	13
0	0	0	0	0	0	0	0	14
0	0	0	0	0	0	0	0	15
0	0	0	0	0	0	0	0	16

7.203 Queue Status

Description: Specifies if the indicated queue in the Queue Mark field is valid for this call.

Length: 1 byte

Format: binary

Range: 0 = valid
1 = invalid

Definition: Value 0: valid, indicates that the queue mark for the call is valid.
Value 1: invalid, indicates that the queue mark for the call is not valid.

Example: Queue status is valid.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.204 Rate Step

Description: Indicates the rate step for the call.

Length: 2 bytes

Format: binary

Range: 0 to 65534

Definition: The rate step is a piece of information needed by the real time rating system to calculate the amount of charge for the call.

Example: Rate step is 42.

7	6	5	4	3	2	1	0	Byte #
0	0	1	0	1	0	1	0	1
0	0	0	0	0	0	0	0	2

7.205 Rate Step Origin

Description: Indicates the method used to obtain the rate step for the call.

Length: 1 byte

Format: binary

Range: 0 = manually entered by the operator
1 = automatically calculated by real time rating

Definition: Value 0: manually entered by the operator, indicates that the rate step was input by the operator.

Value 1: automatically calculated by real time rating, indicates that the rate step was calculated by the real time rating system.

Example: Rate step was automatically calculated.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.206 Rate Step Status

Description: Indicates the validity of the rate step for the call.

Length: 1 byte

Format: binary

Range: 0 = none
1 = valid
2 = invalid
3 = required but missing

Definition: Value 0: not present, indicates that there is no rate step associated with the call.

Value 1: valid, indicates that the rate step was either correctly input by the operator or correctly calculated by the real time rating system.

Value 2: invalid, indicates that the rate step was either incorrectly input by the operator or it could not be calculated by the real time rating system.

Value 3: required but missing, indicates that the rate step could not be calculated by the real time rating system, but is required to be input by the operator.

Example: Rate step is valid.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.207 Real Time Rating Status

Description: Indicates the real time rating capability of a call being handled by an Inter-LATA Carrier.

Length: 1 byte

Format: binary

Range: 0 = ratable
1 = not ratable

Definition: Value 0: ratable, indicates real time rating is available for this carrier call.

Value 1: not ratable, indicates this carrier call is eligible for real time rating, but the switch is unable to rate it (possibly due to missing rate information).

Example: Carrier call is ratable.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.208 Reason For Operator

Description: Indicates the reason for requiring an operator position for the call.

Length: 1 byte

Format: binary

Range: 0 = call setup
1 = normal disconnect
2 = coin flash recall
3 = notify
4 = coin overtime notify
5 = recall
6 = time and charges
7 = accessing loop
8 = pending

Definition: Value 0: call setup, indicates the call is being presented to the operator prior to the completion of a service. This includes initial call presentation and queue transfers.

Value 1: normal disconnect, usually applies to coin sent paid calls. The called party has disconnected and the call is recalling to an operator for collection of charges owed for the previous partial period. Other calls include calls that are on permanent hold that recall to the operator after the parties go on-hook.

Value 2: coin flash recall, applies to coin sent paid calls only. The calling subscriber has the ability to hook-flash during the initial period to connect to an operator. The calling party may do this, for example, to report problems hearing the called party.

Value 3: notify, indicates a nonstandard notify time has expired and it is time to notify the call. A nonstandard notify can occur on any call that is not coin sent paid. The billed party may only wish to pay for a specified number of minutes. The billed party requests to be notified when this time has expired. When the time expires and the call recalls to an operator, the billed party may decide to continue or release the call.

Value 4: coin overtime notify, applies to coin sent paid calls only. The calling party pays for the initial period. At the end of the initial period, the call recalls to an operator who informs the calling party that the period has ended. Any further conversation will result in money being owed by the calling party. This further conversation takes place in what is known as the overtime period. At the end of the overtime period, the call recalls to an operator again. The operator collects the charges for the last period and the call continues if desired.

Value 5: recall, this value will be seen when a call which is not coin sent paid recalls to the operator.

Value 6: time and charges, indicates a call that requested time and charge information during call setup has ended. The call recalls to an operator for quotation of the time and charge information.

Value 7: accessing loop, indicates the operator originated a call. There is no calling or called party associated with this call. These types of calls are referred to as delay or appointment calls.

Value 8: pending, indicates the timing has been started for this call, but the call has not been released from the position. The reason for operator is transitioning from initial call setup to the next reason for operator such as recall or time and charges.

Example: Reason for operator is call setup.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.209 Reference Code

Description: Specifies the reference code used by the DMS to determine the directory number for a service.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: The reference code, along with the service number code, is used by the DMS as a shorthand way of determining a frequently dialed or emergency number, such as the fire or police department.

Example: Reference Code is 36.

7	6	5	4	3	2	1	0
0	0	1	0	0	1	0	0

7.210 Restricted Billing Code

Description: Specifies the value of the AMA restricted billing code associated with the call.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: This value identifies a class of restricted originators, e.g. calls originated from prison, if desired. The value for this field is based on the originating trunk or the A-party's directory number.

Example: Restriction billing code is 10.

7	6	5	4	3	2	1	0
0	0	0	0	1	0	1	0

7.211 Restriction Number

Description: Specifies the number that corresponds to a text string indicating the billing restrictions.

Length: 1 byte

Format: binary

Range: 0 to 99

Definition: This field indicates a number corresponding to a set of billing restrictions associated with the calling party. These restrictions are dependent upon the service of the call. For example, restriction 32 for toll and assist service may be different than for directory assistance service.

Example: Restriction number is 10.

7	6	5	4	3	2	1	0
0	0	0	0	1	0	1	0

7.212 Restriction Status

Description: Indicates the status of any restrictions on the calling party.

Length: 1 byte

Format: binary

Range: 0 = not applicable
1 = billing restrictions apply
2 = no billing restrictions apply

Definition: Value 0: not applicable, indicates that billing restrictions are not relevant in this particular message (i.e. restriction information is not included here).

Value 1: billing restrictions apply, indicates the calling party has some type of billing restrictions associated with it. An example is the calling party may only make calls that are billed collect. The type of restrictions is found in the Restriction Number field.

Value 2: no billing restrictions apply, indicates the calling party has no billing restrictions associated with it.

Example: Billing restrictions apply to the calling party.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.213 Screen Type

Description: Indicates the type of screen to be used for the service specified.

Length: 1 byte

Format: binary

Range: 0 = billing screen
1 = service screen

Definition: Value 0: billing screen, indicates the billing screen should be presented to the operator. Some type of billing information is required to perform the service requested.

Value 1: service screen, indicates the service screen should be presented to the operator. The screen specific to the service type is used.

Example: Screen type is the billing screen.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.214 Seconds

Description: Indicates the current second.

Length: 1 byte

Format: binary

Range: 0 to 59

Definition: This field represents the seconds of the minute.

Example: Second is 25.

7	6	5	4	3	2	1	0
0	0	0	1	1	0	0	1

7.215 Sequence Number

Description: Specifies the sequence number of the identifier in a group of identifiers. The identifiers in the group have the same identifier number.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: This field indicates the sequence number of the identifier in a group of identifiers.

Example: Sequence number is 12.

7	6	5	4	3	2	1	0
0	0	0	0	1	1	0	0

7.216 Service Billing Status

Description: Specifies the billing completion status for a service call.

Length: 1 byte

Format: binary

Range: 0 = billing complete
1 = billing incomplete

Definition: Value 0: billing complete, this indicates that the requested action to bill the call was completed successfully.

Value 1: billing incomplete, this indicates that required information to successfully bill the call is missing (e.g. the requested number or calling number is missing). The operator must enter the information to properly bill the call.

Example: Service billing is complete.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.217 Service Call ID

Description: Specifies the call ID used for communicating between the DMS and the service node (for example, the DAS).

Length: 2 bytes

Format: binary

Range: 0 to 3070

Definition: The service call ID may be used to ensure the DMS and the service node are processing the same call at a loop on a position.

Example: Service call ID is 429 (#1AD).

7	6	5	4	3	2	1	0	Byte #
1	0	1	0	1	1	0	1	1
0	0	0	0	0	0	0	1	2

7.218 Service Logon Complete

Description: Indicates the services that the operator position has logged onto.

Length: 8 bytes

Format: set

Range: Each bit corresponds to a service. A '1' indicates that the corresponding service has been logged onto by the position. A '0' indicates that the corresponding service has failed logon by the position, or that a logon to that service was not attempted. The bits map to the services in the following way:

bit n = service n (where n is 0 to 62)

Definition: During the logon process, the position is sent a service profile. The position attempts to logon on to those services in the profile that require logon. The position replies with an action request informing the DMS of the services that it successfully logged onto.

Example: The position successfully logged on to services 0, 1, 2, and 5.

7	6	5	4	3	2	1	0	Byte #
0	0	1	0	0	1	1	1	1
0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	3
0	0	0	0	0	0	0	0	4
0	0	0	0	0	0	0	0	5
0	0	0	0	0	0	0	0	6
0	0	0	0	0	0	0	0	7
0	0	0	0	0	0	0	0	8

7.219 Service Node Handoff Count

Description: Indicates the number of operator to service node handoffs.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: This field contains the number of operator to service node handoffs.

Example: Service node handoff count is 5.

7	6	5	4	3	2	1	0
0	0	0	0	0	1	0	1

7.220 Service Node Number

Description: Indicates the number for a service node.

Length: 2 bytes

Format: binary

Range: 0 to 65534

Definition: This field contains the service node number of the service node.

Example: Service node number is 100.

7	6	5	4	3	2	1	0	Byte #
0	1	1	0	0	1	0	0	1
0	0	0	0	0	0	0	0	2

7.221 Service Number Code

Description: Specifies the service number code used by the DMS to determine the directory number for a service.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: The service number code is used by the DMS as a shorthand way of determining a frequently dialed or emergency number, such as the fire or police department.

Example: Service Number Code is 5.

7	6	5	4	3	2	1	0
0	0	0	0	0	1	0	1

7.222 Service Options Set

Description: Indicates the options available for the service associated with the call.

Length: 1 byte

Format: set

Range: Each bit corresponds to a service option associated with the service of the call. A '1' indicates the option applies. A '0' indicates the option does not apply. The bits map to options in the following manner:

bit 0 = multiple service requests

bit 1 = call completion

Definition: Certain options may be associated with a service. These options may vary on each call. This field informs the operator which options may be provided to the subscriber in conjunction with the service.

Example: Multiple requests are allowed, call completion is not allowed.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.223 Service Profile

Description: Indicates the types of services that the operator can provide.

Length: 8 bytes

Format: set

Range: Each bit corresponds to a service. A '1' indicates that the corresponding service is being provided by the operator. A '0' indicates that the corresponding service is not being provided by the operator. The bits map to the services in the following way:

bit n = service n (where n is 0 to 62)

Definition: A service profile is a set of services that the operator can provide. The set of services associated with the profile number is datafilled in the position. This datafill should match the DMS datafill.

Example: Services 0,1,2 and 5 are provided.

7	6	5	4	3	2	1	0	Byte #
0	0	1	0	0	1	1	1	1
0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	3
0	0	0	0	0	0	0	0	4
0	0	0	0	0	0	0	0	5
0	0	0	0	0	0	0	0	6
0	0	0	0	0	0	0	0	7
0	0	0	0	0	0	0	0	8

7.224 Service Provider Class

Description: Specifies the class of the service provider.

Length: 1 byte

Format: binary

Range: 0 = calling
1 = called
2 = special

Definition: Value 0: calling, indicates that the service provider class is calling.

Value 1: called, indicates that the service provider class is called.

Value 2: special, indicates that the service provider call is special.

Example: Service provider class is calling.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.225 Service Provider Display

Description: Specifies the display for the service provider.

Length: 8 bytes

Format: ASCII

Range: 8 alphanumeric characters or spaces in ASCII format

Definition: This field contains the characters that comprise the service provider display.

Example: Service provider display is XYZTEL.

	Byte #
58	1
59	2
5A	3
54	4
45	5
4c	6
20	7
20	8

7.226 Service Provider Identifier

Description: Specifies the identifier of the service provider.

Length: 6 bytes

Format: ASCII

Range: 6 alphanumeric characters or spaces in ASCII format

Definition: This field contains the characters that comprise the service provider identifier.

Example: Service provider identifier is 1234.

Byte #	
31	1
32	2
33	3
34	4
20	5
20	6

7.227 Service Provider Status

Description: Specifies the validity of the Service Provider.

Length: 1 byte

Format: binary

Range: 0 = none
1 = valid
2 = invalid

Definition: Value 0: none, indicates a service provider status of none.

Value 1: valid, indicates a service provider status of valid.

Value 2: invalid, indicates a service provider status of invalid.

Example: Service provider status is valid.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.228 Service Provider Type

Description: Specifies the type of the service provider.

Length: 1 byte

Format: binary

Range: 0 = account owner
1 = billing service provider

Definition: Value 0: account owner, indicates that the service provider type is account owner.

Value 1: billing service provider, indicates that the service provider type is the billing service provider.

Example: Service provider type is account owner.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.229 Service Status

Description: Specifies the validity of the service.

Length: 1 byte

Format: binary

Range: 0 = valid
1 = invalid

Definition: Value 0: valid, indicates the service can be performed by the operator. The service is contained in the operator's profile.

Value 1: invalid, indicates the operator is not able to perform the service. The service is not contained in the operator's profile.

Example: Service being specified is valid.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.230 Service Switch ID

Description: Specifies the particular switch in a network of switches.

Length: 1 byte

Format: binary

Range: 0 to 99

Definition: The Service Switch ID is used when several switches are connected to a service node such as DAS. The Service Switch ID enables communication between the service node and the switches.

Example: The Service Switch ID is 2.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	0

7.231 Service Type

Description: Specifies the service for the call.

Length: 1 byte

Format: binary

Range: 0 to 62

Definition: This field contains an integer value that represents a service. The service could be customer datafillable. Datafill in the DMS and the operator position should be coordinated appropriately.

Example: Service type is service 1.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.232 Services Suspension Status

Description: Specifies the status of operator services suspension for the office.

Length: 1 byte

Format: binary

Range: 0 = services are not suspended
1 = services are suspended

Definition: Value 0: services are not suspended, indicates the office is in its normal operating mode. An operator force is present to handle calls.

Value 1: services are suspended, indicates the office is in a situation where there are no operators. This is a case of extreme emergency and there is no operator force to handle calls. If the call can be handled by an automated system, then it will be completed. However, if an operator is required, then the call may be sent to a treatment.

Example: Services are not suspended.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.233 Session Pool Number

Description: Indicates the number for a session pool.

Length: 2 bytes

Format: binary

Range: 0 to 65534

Definition: This field contains the session pool number for the service node.

Example: Session pool number is 36.

7	6	5	4	3	2	1	0	Byte #
0	0	1	0	0	1	0	0	1
0	0	0	0	0	0	0	0	2

7.234 Special Number

Description: Specifies the special number.

Length: Variable

Format: BCD

Range: BCD digits each ranging from 0 to 9

Definition: This field contains the special number. It is variable in length. The Special Number Count field specifies the number of digits contained in the field.

Example: Special number is 21255536842000.

7	4	3	0	Byte #
1	2			1
5	2			2
5	5			3
6	3			4
4	8			5
0	2			6
0	0			7

7.235 Special Number Count

Description: Specifies the number of digits in the special number.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: This field indicates the number of digits in the Special Number field.

Example: Number of digits is 14.

7	6	5	4	3	2	1	0
0	0	0	0	1	1	1	0

7.236 Station Class

Description: Specifies the class of service of a party.

Length: 1 byte

Format: binary

Range: 0 = undetermined
1 = station
2 = prepay coin CDF
3 = postpay coin
4 = hotel/motel
5 = attended pay station
6 = marine
7 = mobile
8 = institution
9 = prepay coin CCF
10 = hotel/motel no-charge

Definition: Value 0: undetermined, indicates the class of service is not known for the party.

Value 1: station, indicates the party is at a normal station phone, sometimes known as a plain old telephone station (POTS) line.

Value 2: prepay coin CDF, indicates the party is at a dial-tone first coin line. The coin line requires the subscriber to deposit money prior to reaching the operator. The operator upon call arrival, knows that there is money in the hopper that might need returning to the subscriber.

Value 3: postpay coin, indicates the party is at a coin line. The coin line requires the subscriber to deposit money prior to reaching the operator. This value indicates to the operator that there is no money in the hopper.

Value 4: hotel/motel, indicates the party is at a hotel or motel line. The operator knows that a room number might be required for the call.

Value 5: attended pay station, indicates the party is at an attended pay station where payment is made to an attendant.

Value 6: marine, indicates the party is at a marine unit.

Value 7: mobile, indicates the party is at a mobile unit.

Value 8: institution, indicates the party is at an institution.

Value 9: prepay coin CCF, indicates the party is at a coin-first coin line. The coin line requires the subscriber to deposit money prior to reaching the operator. The operator upon call arrival, knows that there is money in the

hopper that might need returning to the subscriber.

Value 10: hotel/motel no-charge, indicates the call is from a hotel or motel phone. Regardless of how the call is billed, the room number is required since the hotel/motel may charge the occupant of the room for phone access.

Example: Party station class is hotel.

7	6	5	4	3	2	1	0
0	0	0	0	0	1	0	0

7.237 Status by Queue

Description: Used to specify a set of 128 consecutively-numbered call queues. Using the First Queue Number field, it is possible to determine which 128 queues are represented.

Length: 16 bytes

Format: set

Range: Each bit corresponds to a queue. A '1' indicates that some condition is true for the corresponding queue. A '0' indicates that the condition is false.

An identifier that uses this field will also have a First Queue Number field, which is used to derive the queue numbers specified in the Status by Queue field as follows:

bit n = queue (n + <First Queue Number>)

Example: If the First Queue Number field has the value 2, this example specifies queues 3, 25, and 91.

7	6	5	4	3	2	1	0	Byte #
0	0	0	0	0	0	1	0	1
0	0	0	0	0	0	0	0	2
1	0	0	0	0	0	0	0	3
0	0	0	0	0	0	0	0	4
0	0	0	0	0	0	0	0	5
0	0	0	0	0	0	0	0	6
0	0	0	0	0	0	0	0	7
0	0	0	0	0	0	0	0	8
0	0	0	0	0	0	0	0	9
0	0	0	0	0	0	0	0	10
0	0	0	0	0	0	0	0	11
0	0	0	0	0	0	1	0	12
0	0	0	0	0	0	0	0	13
0	0	0	0	0	0	0	0	14
0	0	0	0	0	0	0	0	15
0	0	0	0	0	0	0	0	16

7.238 Subsequent Period Amount

Description: Specifies the amount of charges for a subsequent period.

Length: 4 bytes

Format: binary

Range: 0 to 4294967294

Definition: This is the monetary amount associated with a subsequent period.

Example: Subsequent period amount is 75.

7	6	5	4	3	2	1	0	Byte #
0	1	0	0	1	0	1	1	1
0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	3
0	0	0	0	0	0	0	0	4

7.239 Subsequent Period Duration

Description: Specifies the duration in seconds of a subsequent period.

Length: 2 bytes

Format: binary

Range: 0 to 65534

Definition: This is the time duration associated with a subsequent period.

Example: Subsequent period duration is 3.

7	6	5	4	3	2	1	0	Byte #
0	0	0	0	0	0	1	1	1
0	0	0	0	0	0	0	0	2

7.240 System Average Work Time

Description: Indicates the average work time for the office to the operator position in units of seconds.

Length: 2 bytes

Format: binary

Range: 0 to 65534

Definition: This field contains the system average work time. The system average work time is the average number of seconds that all operators spend handling each call.

Example: System AWT is 23.

7	6	5	4	3	2	1	0	Byte #
0	0	0	1	0	1	1	1	1
0	0	0	0	0	0	0	0	2

7.241 System Average Work Time Status

Description: Indicates the availability of system average work time to the operator.

Length: 1 byte

Format: binary

Range: 0 = system average work time not present
1 = system average work time present

Definition: Value 0: system average work time not present, indicates the system average work time is not contained in the System Average Work Time field.

Value 1: system average work time present, indicates the system average work time is contained in the System Average Work Time field.

Example: System AWT is present.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.242 System Status

Description: Indicates the status of the system with respect to external database queries in progress.

Length: 1 byte

Format: binary

Range: 0 = system not busy
1 = system busy

Definition: Value 0: system not busy, indicates that the system is not currently waiting for the completion of an external database query.

Value 1: system busy, indicates that the system is currently waiting for the completion of an external database query.

Example: System status is system busy.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.243 Team Assistant Position Status

Description: Specifies the availability of assistant positions for a team of operators.

Length: 1 byte

Format: binary

Range: 0 = assistant positions available
1 = no assistant positions available

Example: Assistant positions are available.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.244 Team Assistance Queue Status

Description: Specifies the status of the assistant position queue to the supervisor position.

Length: 1 byte

Format: binary

Range: 0 = no assistance requests in queue
1 = assistance requests in queue
2 = assistance request queue full

Definition: Value 0: no assistance requests in queue, indicates the queue for this supervisor's team is empty.

Value 1: assistance requests in queue, indicates operators have placed assistance requests which are waiting in queue. The number of requests in queue is contained in the Number of Requests in Queue field.

Value 2: assistance requests queue full, indicates any further assistance requests will not be queued, and the requesting operator will hear busy tone.

Example: Operator position(s) are in queue for assistance.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.245 Team Monitor Status

Description: Specifies the monitoring status of all assistants in a team to the supervisor position.

Length: 1 byte

Format: binary

Range: 0 = assistant in team is not monitoring
1 = assistant in team is monitoring

Definition: Value 0: assistant in team is not monitoring, indicates no operators in this supervisor's team are monitoring.

Value 1: assistant in team is monitoring, indicates at least one operator in this supervisor's team is monitoring.

Example: Assistant is monitoring.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.246 Team Serving Agent Queueing Status

Description: Indicates if there are calls in a queue which has no defined serving agents.

Length: 1 byte

Format: binary

Range: 0 = no calls in unserved queue
1 = calls in unserved queue

Definition: Value 0: no calls in unserved queue, indicates there are no calls in queues for which no serving agents are defined.

Value 1: calls in unserved queue, indicates there are calls in at least one queue for which no serving agents are defined. This may occur if an office is using an expanded queueing system such as the Queue Management System, and no serving agents (for example, operator positions) are defined in a call queue which has calls. The calls will go unanswered until agents are made available.

Example: Calls are present in an unserved queue.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.247 Team Study Register Status

Description: Specifies the availability of study registers to the supervisor position.

Length: 1 byte

Format: binary

Range: 0 = study registers are available
1 = study registers are not available

Definition: Value 0: study registers are available, indicates study registers are available for the assignment of operators. Individual statistics can be gathered by call type.

Value 1: study registers are not available, indicates there are no study registers available for the assignment of operators. Individual statistics cannot be gathered by call type.

Example: Study registers are available.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.248 Team Time and Charge Device Status

Description: Specifies the availability of the Time and Charge device to the supervisor position.

Length: 1 byte

Format: binary

Range: 0 = time and charge device is available
1 = time and charge device is not available

Definition: Value 0: time and charge device is available, indicates the device for printing time and charge quotations is available. This device is used when the billed party cannot be reached at the end of a call marked for time and charges. The device records the time and charges and the billed number. Later an attendant can call the billed number to record time and charges.

Value 1: time and charge device is not available, indicates the device for printing time and charge quotations is not available. The supervisor operator should inform the call handling operators so they do not try to use the device.

Example: Time and charge device is available.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.249 Text

Description: Specifies the text associated with a call.

Length: Variable

Format: ASCII

Range: ASCII characters

Definition: This field contains the characters that compose the text. This text corresponds to the characters identified in the Text Type field. This text is optionally recorded on the AMA billing record. The number of characters is determined by the Text Count field.

Example: Text is SMITH.

	Byte #
53	1
4D	2
49	3
54	4
48	5

7.250 Text Action

Description: Indicates actions to be performed relating to text.

Length: 1 byte

Format: set

Range: Each bit corresponds to an action concerning the text. A '1' indicates the action applies. A '0' indicates the action does not apply. The bits map to actions in the following manner:

bit 0 = clear to end of field

bit 1 = confirm text

bit 2 = confirm all

Definition: Bit 0: clear to end of field, if set then any text beyond the end of the substring described in the identifier is to be cleared.

Bit 1: confirm text, if set then the text is to be echoed back.

Bit 2: confirm all, if set then the echoed text is to be the entire text string, otherwise the echoed text is to be a single substring. This bit only applies if the 'confirm text' bit is set.

Example: Echo the substring described in the identifier.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	0

7.251 Text Count

Description: Specifies the size of the text for the identifier.

Length: 1 byte

Format: binary

Range: 0 to 200

Definition: This field indicates the number of characters found in the Text field.

Example: Text is 5 characters.

7	6	5	4	3	2	1	0
0	0	0	0	0	1	0	1

7.252 Text Start Position

Description: Specifies the start position within a text string.

Length: 1 byte

Format: binary

Range: 0 to 200

Definition: This field indicates the start position of a substring described in a Text ActID or Text DID within a text string in the DMS or in the position.

Example: Text Start Position is 21.

7	6	5	4	3	2	1	0
0	0	0	1	0	1	0	1

7.253 Text Status

Description: Specifies the validity of the text for the call.

Length: 1 byte

Format: binary

Range: 0 = none
1 = valid
2 = invalid
3 = required but missing

Definition: Value 0: none, indicates there are no characters in the Text field.

Value 1: valid, indicates the characters found in the Text field are of correct range and length.

Value 2: invalid, indicates the characters found in the Text field are of incorrect range and/or length.

Value 3: required but missing, indicates the text is required for billing purposes but is missing. The operator must collect the information prior to rendering the service.

Example: Text is valid.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.254 Text Type

Description: Specifies the type of text for the call.

Length: 1 byte

Format: binary

Range:

- 0 = hotel guest name
- 1 = calling name
- 2 = called name
- 3 = hotel room
- 4 = password
- 5 = memo
- 6 = authorization number
- 7 = OLNS alphanumeric string

Definition: Value 0: hotel guest name, indicates the text is the name of the hotel guest that is paying for the call.

Value 1: calling name, indicates the text is the name of the calling party.

Value 2: called name, indicates the text is the name of the called party.

Value 3: hotel room, indicates the characters in the Text field are a hotel room number.

Value 4: password, indicates the text is that of the operator's password.

Value 5: memo, indicates the text is memo information.

Value 6: authorization number, indicates the text is an authorization number.

Value 7: OLNS alphanumeric string, indicates the text is returned by the OLNS database.

Example: Text is a hotel guest name.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.255 Threshold Value

Description: A percentage beyond which some sort of notification should occur.

Length: 1 byte

Format: binary

Range: 0 to 100

Definition: An example of this field's use would be the controlled traffic display on the supervisor position. After a certain threshold percentage of operators are assigned to controlled traffic in a team, a display is activated at the supervisor position.

Example: The threshold value is 25 percent.

7	6	5	4	3	2	1	0
0	0	0	1	1	0	0	1

7.256 Ticket Number Action

Description: Specifies the action to take upon a ticket number associated with a call.

Length: 1 byte

Format: binary

Range: 0 = clear ticket number
1 = enter ticket number
2 = generate ticket number

Definition: Value 0: clear ticket number, indicates the ticket number should be cleared.

Value 1: enter ticket number, indicates the ticket number as found in the other fields of the ActID should be assigned to the call.

Value 2: generate ticket number, indicates the DMS should automatically generate a ticket number and assign it to the call.

Example: Ticket number action is enter ticket number.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.257 Ticket Number Digits

Description: Specifies the ticket number digits associated with a call. The day of the month and an optional transit code are also part of the overall ticket number.

Length: 3 bytes

Format: BCD

Range: BCD digits each ranging from 0 to 9

Definition: These ticket number digits, along with the day of the month and an optional transit code, make up the ticket number associated with a call.

Example: Ticket number digits are 664813.

7	4	3	0	Byte #
6	6			1
8	4			2
3	1			3

7.258 Ticket Number Status

Description: Specifies the status of the ticket number associated with a call.

Length: 1 byte

Format: binary

Range: 0 = none
1 = valid
2 = invalid

Definition: Value 0: none, indicates there is no ticket number associated with the call.

Value 1: valid, indicates the ticket number is valid.

Value 2: invalid, indicates the ticket number is invalid.

Example: Ticket number status is valid.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.259 Time and Charges Status

Description: Specifies the presence of a time and charges request for the call.

Length: 1 byte

Format: binary

Range: 0 = no time and charges
1 = time and charges
2 = do not print time and charges to device
3 = print time and charges to device

Definition: Value 0: no time and charges, indicates the billed party has not requested time and charges for the call.

Value 1: time and charges, indicates the billed party has requested the elapsed time and total charges for the call.

Value 2: do not print time and charges to voice quote, indicates the time and charge recall has occurred and the operator was able to relay the information to the billed party.

Value 3: print time and charges to voice quote, indicates the time and charge recall has occurred and the billed party is not available for charge quotation. The operator has requested that the information be printed at a voice quote device so the billed party can be informed at a later time.

Example: Time and charges is requested.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.260 Transfer to Operator Status

Description: Specifies the status of call transfer to another operator.

Length: 1 byte

Format: binary

Range: 0 = no transfer
1 = transfer

Definition: Value 0: no transfer, indicates the call will not be transferred to another operator upon release from the position.

Value 1: transfer, indicates the call will be transferred to another operator upon release from the position.

Example: Status is transfer to another operator.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.261 Transit Code

Description: Specifies the transit code associated with a ticket number.

Length: 3 bytes

Format: ASCII

Range: ASCII characters

Definition: This field contains the characters that compose the transit code associated with a ticket number.

Example: Transit Code is FRA.

Byte #	
46	1
52	2
41	3

7.262 Trouble Code

Description: Specifies the trouble code for the call.

Length: 2 bytes

Format: binary

Range: 0 to 65534

Definition: This field contains the trouble code associated with a trouble report made on a call.

Example: Trouble code is 10.

7	6	5	4	3	2	1	0	Byte #
0	0	0	0	1	0	1	0	1
0	0	0	0	0	0	0	0	2

7.263 Trouble Code Status

Description: Specifies the validity of a trouble code for the call.

Length: 1 byte

Format: binary

Range: 0 = none
1 = valid
2 = invalid

Definition: Value 0: none, indicates there are no digits found in the Trouble Code field.

Value 1: valid, indicates the digits found in the Trouble Code field are valid.

Value 2: invalid, indicates the digits found in the Trouble Code field are not valid.

Example: Trouble code is valid.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.264 Trunk Group Display

Description: Specifies a call arrival display associated with the originating trunk group.

Length: 1 byte

Format: binary

Range: 0 to 254

Definition: This field gives the operator information concerning the originating trunk group for the call.

Example: Trunk group display is 10.

7	6	5	4	3	2	1	0
0	0	0	0	1	0	1	0

7.265 Trunk Group ID

Description: Specifies the trunk group identifier for the originating trunk group.

Length: 2 bytes

Format: binary

Range: 0 to 65534

Definition: The originating trunk group for the call. The trunk group is obtained from switch table CLLI, field ADNUM.

Example: Trunk group ID is 11.

7	6	5	4	3	2	1	0	Byte #
0	0	0	0	1	0	1	1	1
0	0	0	0	0	0	0	0	2

7.266 Type of Data

Description: Specifies what kind of data is being sent in the Position Data DID. The data applies to positions in the team of the operator who receives the DID.

Length: 1 byte

Format: binary

Range:

- 0 = data for occupied positions
- 1 = data for positions in a made busy state
- 2 = data for positions in an out of service state
- 3 = data for positions with controlled traffic operators
- 4 = data for positions in an unoccupied state with a call in progress
- 5 = data for positions in an unoccupied state with a call terminated
- 6 = data for positions with a loop accessed but no call in progress

Definition: Value 0: data for occupied positions, indicates the number of positions in an occupied state.

Value 1: data for positions in a made busy state, indicates the number of positions in a position busy state.

Value 2: data for positions in an out of service state, indicates the number of positions that are out of service.

Value 3: data for positions with controlled traffic operators, indicates the number of positions with operators using controlled traffic.

Value 4: data for positions in an unoccupied state with a call in progress, indicates the number of positions with an active call where the operator has logged off.

Value 5: data for positions in an unoccupied state with a call terminated, indicates the number of positions with an active call and all parties onhook where the operator has logged off.

Value 6: data for positions with a loop accessed but no call in progress, indicates the number of positions where the operator has a loop accessed but there is no other offhook party.

Example: Data is for positions in an out of service state.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	0

The position state related statistics for the data type listed in the left-hand column below will include any position that is in one of the internal position states listed in the right-hand column. The type of data in this field corresponds to the internal position states in the following manner:

Type Of Data	Position State(s)
Value 0: data for occupied positions	Occupied, Position Busy, Position Busy Pending, Calls Withheld, Calls Withheld Pending, Accept All Calls, Accept Limited Calls Only, Training Mode, Administrative Mode, and Forced Maintenance Pending
Value 1: data for positions in a made busy state	Occupied, Position Busy, and Calls Withheld
Value 2: data for positions in an out of service state	Forced Maintenance
Value 4: data for positions in an unoccupied state with a call in progress	Unoccupied Pending
Value 5: data for positions in an unoccupied state with a call terminated	Unoccupied Pending

Note that a position in an internal state of Occupied, Position Busy, or Calls Withheld will show up in the statistics for both “data for occupied positions” and “data for positions in a made busy state.” This is because a position can be in more than one state from the operator’s standpoint. If the position state is anything other than ‘position unoccupied’ or ‘position unoccupied pending’, but has not been made available to receive calls, their position will show up in the data counts for both occupied and made busy positions. This provides information about how many operators are logged in but not currently processing calls.

7.267 Type of Service Provided

Description: Specifies the type of service provided on behalf of an InterLATA Carrier.

Length: 1 byte

Format: binary

Range: 0 = transfer only
1 = complete operator services

Definition: Value 0: transfer only, indicates the operator must transfer this call to the carrier's operator.

Value 1: complete operator services, indicates the telco has contracted with the carrier to provide full operator service on the carrier's behalf.

Example: Complete operator services are provided.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

7.268 Voice Response Status

Description: Indicates the status of the audio response units (ARUs) and the datalinks from the DMS to the service database.

Length: 1 byte

Format: binary

Range: 0 = voice quote imposed
1 = operator handling imposed

Definition: Value 0: voice quote imposed, this indicates that the audio response units are either all busy or not functional. Therefore, the operator must voice quote the requested information to the subscriber, but may transfer billing information from the service database.

Value 1: operator handling imposed, this indicates that the datalinks from the DMS to the database are down. Therefore, the messaging to support billing and the audio response units is not available. The operator must verbally quote the requested information to the subscriber as well as enter any billing information required prior to releasing the call. Such information may include the requested number.

Example: Voice quote is imposed.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0

7.269 Year

Description: Indicates the current year.

Length: 1 byte

Format: binary

Range: 0 to 99

Definition: This field represents the last two digits of the current year.

Example: Year is 93.

7	6	5	4	3	2	1	0
0	1	0	1	1	1	0	1

Chapter 8: TMS Description

8.1 System Configuration

The TOPS Message Switch (TMS) provides a conduit for both data and voice. It provides connections from the DMS to TOPS positions as well as connections from service nodes to TOPS positions. For more information on TMS refer to documentation associated with NT package NTXA83AA.

Voice channels to TOPS positions cannot be concentrated. There is a voice channel for each position subtending the position gateway. Data channels, on the other hand, can be concentrated using Permanent Virtual Circuits (PVCs).

The Open Position Protocol is used for messages sent between the DMS and the TOPS position. The messages go through the TMS, the channel bank, and the position gateway before being received at the TOPS positions.

OPP itself does not contain any maintenance messages. The maintenance messages are dependent upon the peripheral connecting the positions to the network. Currently that peripheral is the TMS. This document contains a detailed description of the TMS maintenance messages. These messages are not a part of the OPP protocol and do not use the same format.

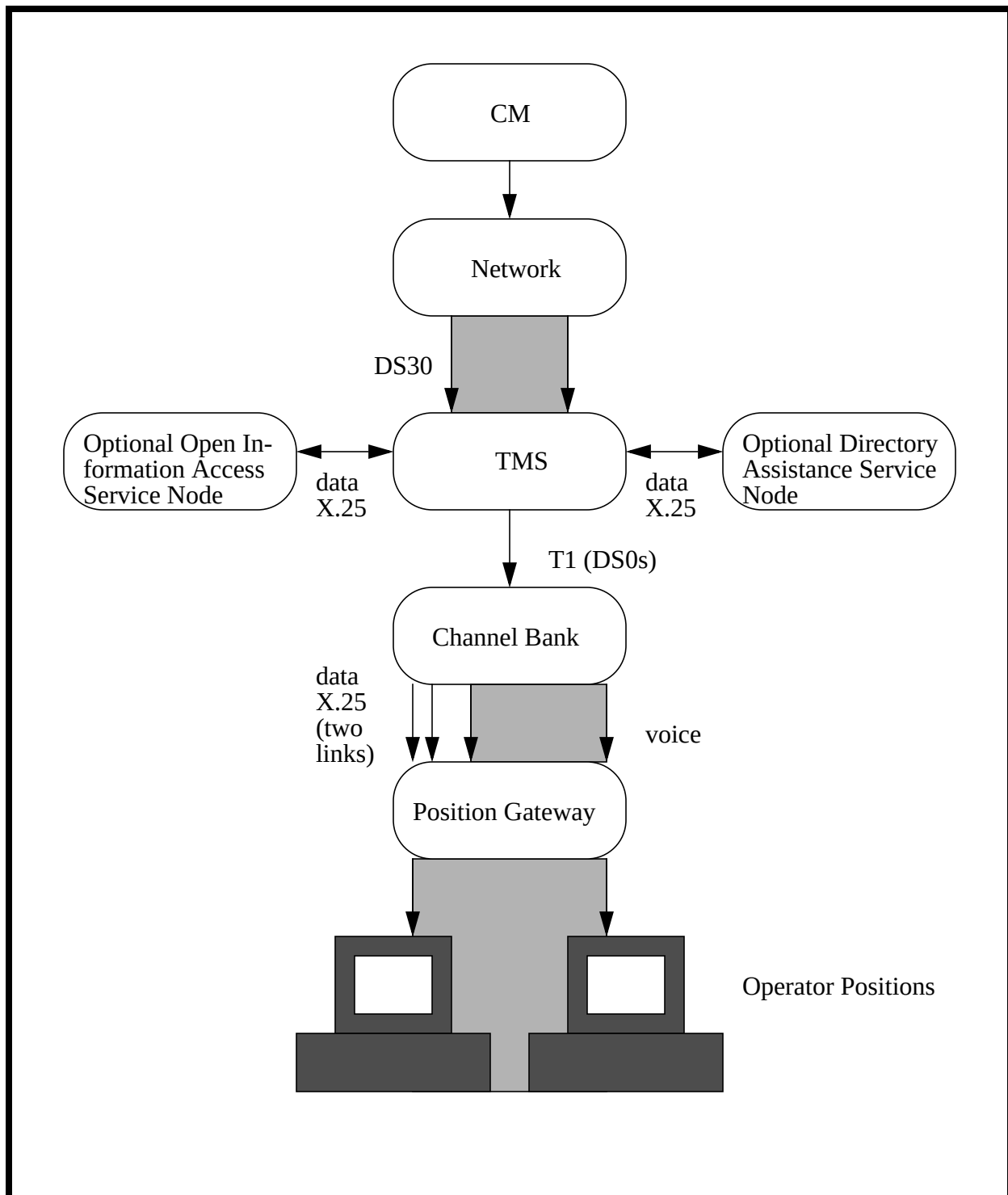


Figure 8: TOPS Position Configuration with TMS

8.2 TMS Background

The TOPS Message Switch (TMS) is a data communications, link concentration and switching subsystem for TOPS operator positions and operator databases. The TMS is based upon the eXtended Peripheral Module (XPM) Line Trunk Controller-ISDN (LTCi).

The TMS consolidates physical datalinks. In the system architecture, the TMS interfaces to the DMS Computing Module (CM), to position gateways and to service nodes. An example of a position gateway is a TOPS position controller (TPC) or a virtual position controller (VPC). An example of a service node is a Directory Assistance (DA) database or an Open Information Access (OIA) compliant database.

The TMS provides the following functionality:

- Network Coordination

The TMS connects permanent virtual circuits (PVCs), which are logically multiplexed on DS0 channels, and routes messages between connected PVCs (for example, between a position and a DA database or between a position and the CM). It also allows voice connections¹ to be made between the DMS network and subtending nodes, such as TOPS positions.

In this context, the term 'network coordination' refers to the TMS implementation of X.25 Data Circuit-Terminating Equipment functions in handling link and PVC start-ups and resets. That is, for two nodes connected through the TMS, the TMS notifies a node when a DS0 or PVC to the other node goes up or down. The TMS functions as a Data Circuit Equipment (DCE). All nodes connected through the TMS function as Data Terminating Equipment (DTE).

- CM Messaging/X.25 Protocol Conversion

The TMS converts between the XPM-CM messaging protocol used over DS-30 links through the DMS network and X.25 used over DS0 (56 kilobits per second) datalinks to the position gateway.

One or two DS0 datalinks between the TMS and each position gateway are used. It is **strongly** recommended that OPP positions employ redundant gateways and load-sharing datalinks. Please refer to the discussion of redundant datalink utilization for more information.

- X.25 Implementation

The X.25 protocol per the CCITT 1984 specification is used for communications between the TMS and all nodes subtending the TMS (which includes the position gateways and the service nodes). The TMS X.25 implementation employs PVCs only.

The TMS provides three sets of X.25 protocol parameters. A set of parameters is user-assignable on a per-link basis. The three parameter sets are called Low, Medium and High based on expected link noise levels. The following table details these parameter sets - parameters not

1. Voice connections are 64 kilobits per second - A/B supervision bits are not used in these connections.

shown take on default values as specified in the X.25 protocol definition.

Parameter	Low Value	Medium Value	High Value
Level 2 - Window Size	7	7	7
Level 2 - Modulo	8	8	8
Level 2 - Term Type	1 (DCE)	1 (DCE)	1 (DCE)
Level 2 - N2	2	4	8
Level 2 - T1	2 seconds	4 seconds	8 seconds
Level 2 - T2	1.5 seconds	3 seconds	6 seconds
Level 2 - T3	2.5 seconds	5 seconds	10 seconds
Level 2 - T4	10 seconds	20 seconds	40 seconds
Level 3 - Window Size	2	2	2
Level 3 - Modulo	8	8	8
Level 3 - Packet Size	8 (256 bytes)	8 (256 bytes)	8 (256 bytes)
Level 3 - Throughput	8	8	8
Level 3 - Number of PVCs	0 to 128	0 to 128	0 to 128
Level 3 - T20	72 seconds	38 seconds	18 seconds
Level 3 - R20	4	2	1
Level 3 - T21	80 seconds	40 seconds	20 seconds
Level 3 - T22	72 seconds	36 seconds	18 seconds
Level 3 - R22	4	2	1
Level 3 - T23	72 seconds	36 seconds	18 seconds
Level 3 - R23	4	2	1
Level 3 - T25	7 seconds	7 seconds	7 seconds
Level 3 - R25	0	0	0
Level 3 - T26	72 seconds	36 seconds	18 seconds
Level 3 - L3 ACK	-1 (not used)	-1 (not used)	-1 (not used)
Level 3 - L3 D Bit	0	0	0

Table 4: TMS X.25 Parameter Sets

8.3 Position Gateway Information

The position gateway is used as an interface to the TOPS positions. A variable number of positions can be configured off a position gateway. The gateway is used to concentrate data channels and handle some position maintenance activities. Data and maintenance messages destined for positions that subtend a position gateway are sent on a single datalink, or either one of two redundant datalinks. Maintenance messages for the position gateway itself are also sent on this datalink(s).

The position gateway is responsible for the following functions:

- Data message routing

The gateway is responsible for routing data messages to the appropriate TOPS positions. Each position is assigned a PVC for communication over the datalink(s). PVC assignments must be the same on each of the redundant datalinks.

- Redundant datalink utilization

It is **strongly** recommended that two datalinks be used to balance the datalink traffic to the position gateway. This allows for higher message throughput, as well as redundancy in the event that one datalink goes out of service.

The TMS treats one datalink as primary and the other as secondary on a per-PVC basis. Initially, the first datalink that is brought into service is marked as primary for all PVCs - this includes the maintenance PVC as well as all position data PVCs. From then on, the next datalink that is brought into service is marked as primary for all PVCs, and the first is marked as secondary for all PVCs. When the TMS receives a message on a PVC from the position gateway, it then marks the link it received the message on as primary for that PVC. In this way, the position gateway controls which link is primary for each PVC (including the maintenance PVC).

The redundant datalinks should share the traffic equally. An example method for ensuring load balance would be to have odd numbered positions use one datalink, and even numbered positions use the other. Typically, an OPP audit message would be the first message sent to the DMS over a data PVC after a position is brought into service, and the gateway would pick the appropriate datalink at this time.

IMPORTANT: Failure to use redundant, load-sharing datalinks can result in a significant decrease in the number of positions that can be supported on a TMS. Additionally, the load must be balanced across the messaging facilities of the TMS through prudent use of datafill in the switch and datalink load-balancing strategies in the position gateway (e.g. the even/odd method mentioned above).

A configuration utilizing two redundant datalinks may include the use of two redundant position gateways, each connected to one of the datalinks. In this scenario, the two gateway instances must coordinate with each other in performing the responsibilities listed in this section. Each gateway instantiation could be viewed as 'primary' for the PVCs and positions that consider its datalink as primary. Should one datalink go out of service, the corresponding gateway instantiation must transfer its functions to its mate (note that the remaining datalink now becomes primary for all PVCs). Conversely, when an out of service datalink comes back in service, the

two instantiations may resume sharing position gateway functionality. Gateway instantiations may be implemented as two separate boxes each connected to a datalink, two software tasks each servicing a single datalink, or some other type of configuration.

- Position gateway maintenance activities

When the DMS takes a position gateway out of service, it sends a maintenance request of busy to the gateway. The gateway is responsible for taking itself out of service. A reply is sent by the position gateway to the DMS to indicate that the gateway is now out of service - this is referred to a solicited message. The gateway is also responsible for taking all the positions that subtend it out of service. The DMS will not send busy maintenance messages to each position when the gateway is busied, and the gateway does not send any messages to the DMS relating to the positions.

When the DMS brings a position gateway into service, it sends a maintenance request of return-to-service to the gateway. The gateway should verify that it is functioning and reply with a pass or fail - again, this is a solicited message. The gateway is not responsible for returning all subtending positions to service. The DMS will send individual return to service requests to the positions.

Furthermore, should a position that is in service go down, the gateway must ensure that an unsolicited maintenance message is sent to the DMS indicating the position is busy. Similarly, should a position that is out of service come in service after a “position reboot”, the gateway must ensure that a maintenance message of unsolicited return-to-service is sent to the DMS. Unsolicited messages should not be sent when the DMS is expecting a solicited reply to a previous maintenance request. The gateway itself must be in service to perform these functions.

- Position maintenance activities

When the DMS sends a busy or return-to-service request for a position, a solicited reply is expected indicating success or failure.¹ The DMS also accepts unsolicited maintenance messages from the positions (or gateway) indicating that a position needs to be busied (perhaps because of a fault) or is ready to be brought into service. In this case, the DMS then sends the appropriate maintenance request and expects the usual solicited reply. An unsolicited return-to-service message should only be sent after a position “system reboot”, and an unsolicited busy message should only be sent when a position that is in service goes down or otherwise fails.

The DMS sends a test request to a position when recovering the position from a system-busy condition. The position should verify that it is functioning and reply with a pass or fail. The DMS does not allow any other maintenance activity to be initiated on a position while a test request on it is outstanding.

Position maintenance responsibilities depend on the configuration of the positions and position gateway. The gateway could interpret each position maintenance message from the DMS, act on them using whatever method is in place in the configuration, then form and send replies to the DMS. Or the gateway could pass position maintenance messages through to the appropriate positions, allowing the positions to act and construct replies that simply pass through the gate-

1. When a position is busied, it should ignore any OPP messages sent to it until it is returned to service.

way to the DMS. In the latter situation, the gateway must be able to send replies in the event a position is unable to do so. In any configuration the gateway is responsible for making sure that maintenance messages are sent over the maintenance PVC.

8.4 TMS Engineering

Engineering of a TMS that supports OPP positions is dependent upon several factors. Among these are the number of positions per TMS (controlled by DMS datafill), average work time (AWT) per call, and messages per call. The number of messages per call is affected by both position design and operator practice.

An example of a typical recommended configuration assumes the following variables:

- average operator occupancy¹ of 0.92
- average messages per call of 11
- AWT of 22 seconds
- 96 positions per TMS

This data translates to a message rate through the TMS of about 44 messages per second. If aspects of a particular position design significantly affect TMS throughput (i.e. if the messages per call is predicted to be higher), engineering results would be different. Changes in other variables mentioned above also affect engineering results.

1. Average operator occupancy refers to the percentage of time that operators are handling calls (not idle).

8.5 TMS PVC Assignments

The routing of messages to and from operator positions is accomplished using PVCs. The TMS requires PVCs to be dedicated to a specified function. The position gateway must associate messages incoming over a specific PVC with that PVC's predefined destination. The position gateway must also place messages from a particular entity (a position or the gateway itself) over that entity's dedicated PVC for processing by the DMS.

PVC assignment remains constant while the position is in service. The PVC assignment should be configurable in the position gateway. Since the number of positions subtending a position gateway may vary, PVCs must be assignable. Since the link configuration will vary, each position gateway should provide a means to datafill the PVC assignments. This datafill should parallel the datafill in the DMS for that position gateway. It is recommended that the NTXR52 package be used in the DMS and that its datafill recommendations be followed when OPP is in use. Alternatively, feature documentation AF2395 also contains datafill recommendations for when NTXR52 is not in use.

Enumeration of PVCs begins with PVC 1. When NTXR52 is included, the following rules apply for assigning PVCs.

- PVC 1 is reserved for the DMS CM maintenance channel.
- The next n PVCs are reserved for CM data communication, where n is the number of positions subtending the position gateway. If the position gateway serves 16 positions, then 16 PVCs are reserved for CM datalinks. (The number of PVCs reserved for CM data communication can be 4, 16 or 20. If a different number of actual positions subtend the position gateway, the next highest number of PVCs from the choices mentioned previously are reserved.)

After the reserved PVCs have been defined, the remaining PVCs are customer assignable. Note that if the following service nodes are not in use or their links are not routed through the TMS, the corresponding PVC assignments are not necessary. If links through the TMS are used, the same grouping of PVCs (4, 16 or 20) is used regardless of the number of actual positions.

- For OIA database links routed through the TMS, at least one PVC is required for the maintenance link to the OIA vendor. Additionally, one PVC is needed for each position to communicate with the database.
- For DA links routed through the TMS, one PVC is needed for each position to communicate with the DA system (DAS).

If redundant datalinks for CM communication are in use, the PVC assignments must be the same on both the datalinks. The following table illustrates a possible PVC assignment for a position gateway with 14 subtending positions. Since this number of positions does not match one of the values for reserved PVCs (4, 16 or 20), the next highest option, namely 16, must be used. Consequently in this example, note that PVC numbers 16, 17, 33, 34, 49 and 50 are reserved but not used.

PVC	Destination	Use
1	Maintenance	CM Messaging: mapped through TMS to CM link (DS30).
2	Position 0	
3	Position 1	
4	Position 2	
5	Position 3	
6	Position 4	
7	Position 5	
8	Position 6	
9	Position 7	
10	Position 8	
11	Position 9	
12	Position 10	
13	Position 11	
14	Position 12	
15	Position 13	
16	(reserved)	
17	(reserved)	

Table 5: Example Position Gateway PVC Assignments

PVC	Destination	Use
18	Maintenance	OIA Messaging: mapped through TMS to OIA link.
19	Position 0	
20	Position 1	
21	Position 2	
22	Position 3	
23	Position 4	
24	Position 5	
25	Position 6	
26	Position 7	
27	Position 8	
28	Position 9	
29	Position 10	
30	Position 11	
31	Position 12	
32	Position 13	
33	(reserved)	
34	(reserved)	

Table 5: Example Position Gateway PVC Assignments

PVC	Destination	Use
35	Position 0	DA Messaging: mapped through TMS to DA link.
36	Position 1	
37	Position 2	
38	Position 3	
39	Position 4	
40	Position 5	
41	Position 6	
42	Position 7	
43	Position 8	
44	Position 9	
45	Position 10	
46	Position 11	
47	Position 12	
48	Position 13	
49	(reserved)	
50	(reserved)	

Table 5: Example Position Gateway PVC Assignments

8.6 Position-CM Datalink Messaging

This section addresses OPP messaging only. It does not address maintenance messaging.

Incoming OPP messages to the DMS from the operator position must be prefaced by a TMS message header which is used to route the message to the proper destination. Outgoing OPP messages from the DMS to the operator position do not contain a TMS message header. Messages in both directions are encapsulated in X.25 packets.

8.6.1 Incoming Message

The TMS message header is composed of two fields: a message type and a count. The message type is a constant value (#279). The two bytes of the message type field are in least significant - most significant order. The count field indicates the number of bytes (excluding the count field itself) remaining in the message.

The maximum size of the message incoming from the position gateway to the DMS is 47 bytes. The TMS header (composed of the message type and the byte count) requires 3 bytes. The remaining 44 bytes are used for OPP.

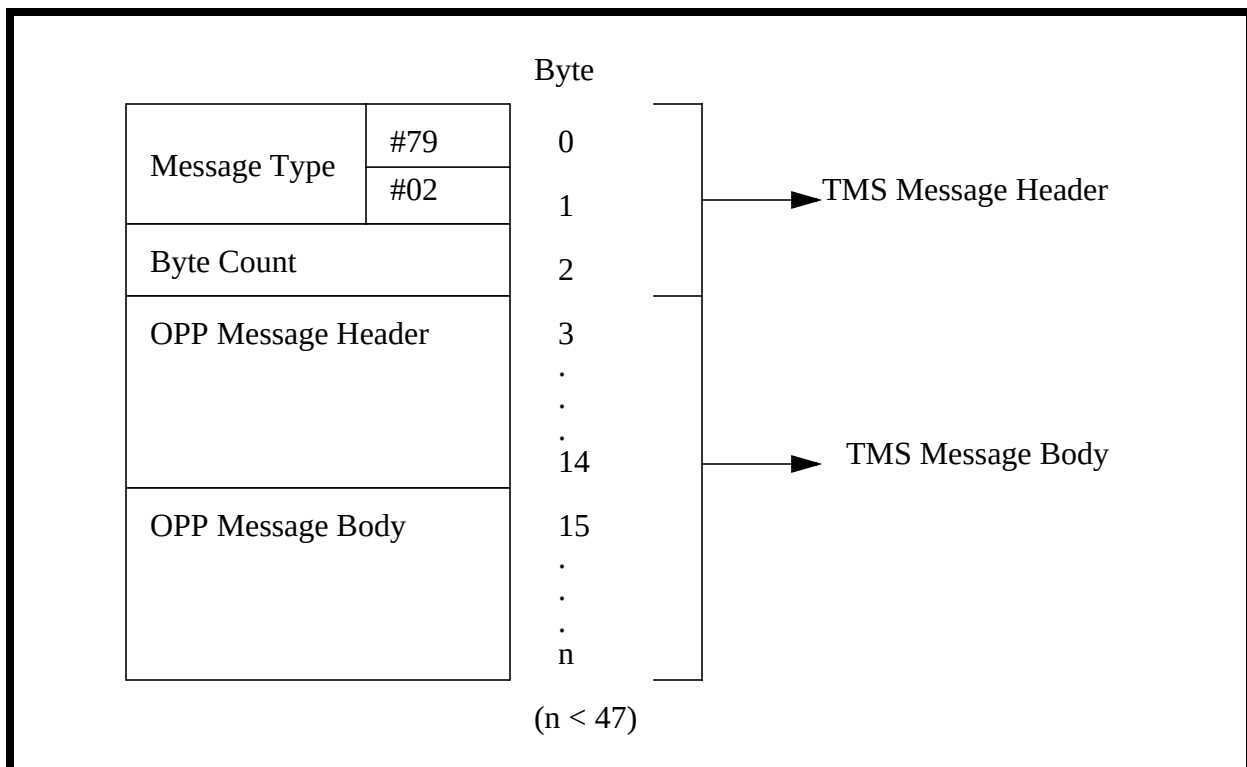


Figure 9: Format for a Message Incoming to the DMS from the Gateway

8.6.2 Outgoing Message

The maximum size of the message outgoing from the DMS to the position gateway is 45 bytes. There is no TMS header in this message. All 45 bytes are used by OPP.

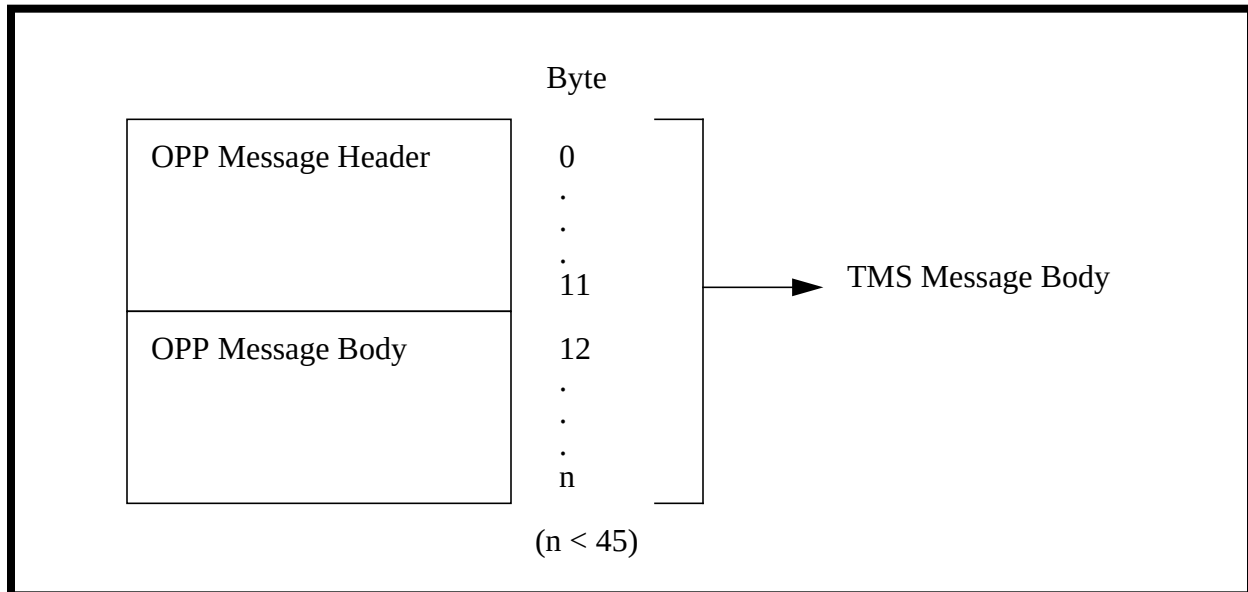


Figure 10: Format for a Message Outgoing from the DMS to the Gateway

8.7 Maintenance Messaging

This section describes the maintenance message formats between the DMS Computing Module (CM) and the gateway. Outgoing messages are sent from the DMS to the position gateway. Incoming messages are sent from the position gateway to the DMS.

The outgoing message format is based on the standard DMS XPM maintenance message format. In this format, bytes 0 through 4 have the same definition for all XPMs. The remaining bytes are defined based on the node type of the XPM. The TMS requires three additional bytes of data to determine the maintenance action.

Some of the values in the outgoing maintenance message should be saved by the position gateway and returned to the DMS in the incoming (solicited) message. Please refer to the descriptions of the individual fields for more details.

An incoming message can be either solicited or unsolicited. A solicited message is a reply sent by the gateway in response to a message from the CM. For example, the CM sends a return-to-service (RTS) message to the gateway and the gateway sends a message back to tell the CM if the RTS was successful. An unsolicited message is a message that the gateway sends to the CM which is not in reply to a CM message. For example, if an operator position goes out of service at the gateway, the gateway sends an unsolicited message to inform the CM.

All CM maintenance messages are transmitted over the maintenance PVC. Please refer to Table 5, “Example Position Gateway PVC Assignments,” on page 519 for more information.

8.7.1 Outgoing Maintenance Message Format

The outgoing maintenance message is a fixed format message containing the following fields:

	Byte #
Maintenance Fiat ID	0
Maintenance Request Type	1
Maintenance Request Type Response	2
Node Type	3
Solicitor Number	4
Request Class	5
Request Type	6
Position ID	7

8.7.1.1 Maintenance Fiat Identifier

Description: The maintenance fiat identifier is a constant value.

Length: 1 byte

Format: binary

Range: 1

Example: Maintenance fiat identifier is always 1.

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

8.7.1.2 Maintenance Request Type

Description: The maintenance request type is a constant value.

Length: 1 byte

Format: binary

Range: 16 (#10)

Example: Maintenance request type is always 16 (#10).

7	6	5	4	3	2	1	0
0	0	0	1	0	0	0	0

8.7.1.3 Maintenance Request Type Response

Description: The maintenance request type response is a constant value.

Length: 1 byte

Format: binary

Range: 50 (#32)

Example: Maintenance request type response is always 50 (#32).

7	6	5	4	3	2	1	0
0	0	1	1	0	0	1	0

8.7.1.4 Node Type

Description: The node type for the gateway is a constant value.

Length: 1 byte

Format: binary

Range: 56 (#38)

Example: Node type is always 56 (#38).

7	6	5	4	3	2	1	0
0	0	1	1	1	0	0	0

8.7.1.5 Solicitor Number

Description: The solicitor number is used in the DMS to determine the destination of any subsequent reply. This number should be saved and returned to the DMS in the maintenance reply message.

Length: 1 byte

Format: binary

Range: 0 - 255 (0 - #FF)

Example: Solicitor number is 6.

7	6	5	4	3	2	1	0
0	0	0	0	0	1	1	0

8.7.1.6 Request Class

Description: The request class is used to determine the maintenance action to be performed.

Length: 1 byte

Format: binary

Range: 1 = maintenance on the position gateway
2 = maintenance on an operator position
3 = diagnostics on an operator position

Example: Request class is maintenance on an operator position

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	0

8.7.1.7 Request Type

Description: The request type is used to further refine the Request Class field. The meaning is dependent upon the Request Class value.

Length: 1 byte

Format: binary

Range: If Request Class = 1, the following values apply:

1 = busy

2 = return to service

If Request Class = 2, the following values apply:

1 = busy

2 = return to service

3 = busy due to voice link failure

If Request Class = 3, the following values apply:

1 = test data and voice link

2 = test data link

3 = test voice link

4 = full system test

5 = short system test

Example: Request Type is 'busy' or 'test data and voice link', depending on value of Request Class field (above).

7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	1

8.7.1.8 Position Identifier

Description: The position identifier is used to specify on which operator position to perform a maintenance action. This field is optional based upon the value of the Request Class field. The value corresponds to the position numbers referenced in Table 5, "Example Position Gateway PVC Assignments," on page 519 and the position numbers in DMS datafill.

Length: 1 byte

Format: binary

Range: If Request Class = 1, this field is not included.
If Request Class = 2 or Request Class = 3, the position identifier can range from 0 - 19 (0 - #13).

Example: Request Class is 2 (maintenance on an operator position) and Position Identifier is 12 (#0C).

7	6	5	4	3	2	1	0
0	0	0	0	1	1	0	0

8.7.2 Incoming (Solicited) Maintenance Message Format

A solicited message is sent in reply to a DMS request for maintenance activity. The incoming maintenance message is a fixed format message containing the following fields:

		Byte #
Maintenance Request Type Response		0
Node Type		1
Solicitor Number		2
Maintenance Request Type	Response	3
Result		4
		5
		6
Additional Value		...
		9

8.7.2.1 Maintenance Request Type Response

Description: The maintenance request type response is a constant value.

Length: 1 byte

Format: binary

Range: 50 (#32)

Example: Maintenance request type response is always 50 (#32).

7	6	5	4	3	2	1	0
0	0	1	1	0	0	1	0

8.7.2.2 Node Type

Description: The node type for the gateway is a constant value.

Length: 1 byte

Format: binary

Range: 56 (#38)

Example: Node type is always 56 (#38).

7	6	5	4	3	2	1	0
0	0	1	1	1	0	0	0

8.7.2.3 Solicitor Number

Description: The solicitor number is used by the DMS to match a reply with a request. The gateway should fill in the value that came in the corresponding request message.

Length: 1 byte

Format: binary

Range: 0 - 255 (0 - #FF)

Example: Solicitor number is 6.

7	6	5	4	3	2	1	0
0	0	0	0	0	1	1	0

8.7.2.4 Response

Description: The response indicates the success or failure of the maintenance action performed.

Length: 3 bits

Format: binary

Range: 0 = okay
1 = failure

Example: Response is okay.

2	1	0
0	0	0

8.7.2.5 Maintenance Request Type

Description: The maintenance request type is a constant value.

Length: 5 bits
 Format: binary
 Range: 16 (#10)
 Example: Maintenance request type is always 16 (#10).

7	6	5	4	3
1	0	0	0	0

8.7.2.6 Result

Description: The result field is checked only when the Response field is 1 (failure). The valid range of error codes defined in these two bytes is 0 - 511 (0 - #1FF), where byte 4 is the least significant byte and byte 5 is the most significant byte. Refer to “Maintenance Result Value Definitions” on page 535 for information on how the DMS interprets the Result field.

Length: 2 bytes
 Format: binary
 Range: Byte 4 can be 0 - 255 (0 - #FF)
 Byte 5 can be 0 or 1

Example: Result is 500.

7	6	5	4	3	2	1	0	
1	1	1	1	0	1	0	0	byte 4 (LSB)
7	6	5	4	3	2	1	0	
0	0	0	0	0	0	0	1	byte 5 (MSB)

8.7.2.7 Additional Value

Description: The additional value field is not used.
 Length: 4 bytes
 Format: binary
 Range: 255 (#FF) for each byte

Example: Additional value is always 255 (#FF) for each byte.

7	6	5	4	3	2	1	0
1	1	1	1	1	1	1	1

7	6	5	4	3	2	1	0
1	1	1	1	1	1	1	1

7	6	5	4	3	2	1	0
1	1	1	1	1	1	1	1

7	6	5	4	3	2	1	0
1	1	1	1	1	1	1	1

8.7.3 Incoming (Unsolicited) Maintenance Message Format

These messages are sent to either inform the DMS that an operator position has gone out of service (BSY), or to request that an operator position be brought into service (RTS). The incoming unsolicited maintenance message is a fixed format message containing the following fields:

	Byte #
Maintenance Request	0
Node Type	1
Position ID	2
Filler	3
Result	4
	5

8.7.3.1 Maintenance Request

Description: The maintenance request has two possible values and tells the DMS it is receiving an unsolicited message from the node.

Length: 1 byte

Format: binary

Range: 160 (#A0) for RTS
85 (#55) for BSY

Example: Maintenance request is 85 (#55), which is a request to BSY.

7	6	5	4	3	2	1	0
0	1	0	1	0	1	0	1

8.7.3.2 Node Type

Description: The node type for the gateway is a constant value.

Length: 1 byte

Format: binary

Range: 56 (#38)

Example: Node type is always 56 (#38).

7	6	5	4	3	2	1	0
0	0	1	1	1	0	0	0

8.7.3.3 Position Identifier

Description: The position identifier is used to specify on which operator position to perform a maintenance action. The value corresponds to the position numbers referenced in Table 5, "Example Position Gateway PVC Assignments," on page 519 and the position numbers in DMS datafill.

Length: 1 byte

Format: binary

Range: 0 - 19 (0 - #13)

Example: Position identifier is 12 (#0C).

7	6	5	4	3	2	1	0
0	0	0	0	1	1	0	0

8.7.3.4 Filler

Description: This field is not used.

Length: 1 byte

Format: binary

Range: 255 (#FF)

Example: Filler is always 255 (#FF).

7	6	5	4	3	2	1	0
1	1	1	1	1	1	1	1

8.7.3.5 Result

Description: This field is used for BSY requests to provide an error code that defines what happened to the position that caused it to go out of service. Although

this is a two byte field, only the first byte (byte 4 of the entire maintenance message) is used in defining the error condition. This field is not used for RTS requests. Refer to “Maintenance Result Value Definitions” on page 535 for information on how the DMS interprets the Result field.

Length: 2 bytes

Format: binary

Range: Byte 4 can be 0 - 255 (0 - #FF) when the Maintenance Request field has a value of 85 (#55) which means BSY.
 Byte 4 is always 255 (#FF) when the Maintenance Request field has a value of 160 (#A0) which means RTS.
 Byte 5 is always 255 (#FF).

Example: Result is 125.

7	6	5	4	3	2	1	0
0	1	1	1	1	1	0	1

7	6	5	4	3	2	1	0
1	1	1	1	1	1	1	1

8.7.4 Maintenance Result Value Definitions

Incoming maintenance messages contain a Result field which can be used to tell the DMS why a particular maintenance action occurred. For solicited incoming messages, the DMS checks the Result field only when the Response field contains the value 1 (failure). For unsolicited incoming messages, the DMS checks the Result field only when the Maintenance Request field contains value 85 (#55), meaning BSY.

The position vendor can define their own result values which will appear in the Result field. For solicited messages, the range of the Result field is 0 to 511. For unsolicited messages, values 0 to 255 are allowed in the least significant byte of the Result field (byte 4 of the maintenance message), and the most significant byte (byte 5) is always set to 255. Hence the position has 256 values to choose from in unsolicited messages.

The DMS can map character strings against Result values and output a log containing the appropriate character string. There are two mappings, one for unsolicited busy messages and one for solicited messages indicating failure.

8.7.5 Maintenance Message Procedures

Outgoing messages are requests that a position or position gateway perform some type of maintenance activity. The DMS expects a reply in the form of a solicited incoming message whenever an outgoing message is sent.

When the DMS sends a maintenance request, the solicited reply must be received within a certain time period. The time period varies depending on the action being performed. See the table below for the timeout values.

Unsolicited messages are sent by a position or position gateway autonomously - not in response to a message from the DMS. The DMS interprets the unsolicited message and sends out the corresponding maintenance request, which must be replied to by a solicited message.

An unsolicited message which is sent to the DMS while it is waiting for a solicited reply is ignored, except in one case. That case is when the DMS has sent a request to RTS a position and instead of a solicited reply, an unsolicited BSY is received. The DMS then sends the appropriate request to busy the position.

Maintenance Request	Timeout for Reply	Unexpected Messages
BSY position gateway	40 seconds	Ignored
RTS position gateway	40 seconds	Ignored
BSY position	20 seconds	Ignored
RTS position	Datafillable in DMS	Ignored except for unsolicited BSY
Diagnostics on a position	10 minutes	Ignored

Table 6: Maintenance Message Timeouts

8.7.6 Maintenance Message Flow Examples

8.7.6.1 RTS of a Position Gateway

This scenario typically occurs after DMS system restarts, because of DMS craftperson activity or because of recover from a system busy condition.

DMS sends RTS message to position gateway:

Field Name	Field Value
Maintenance Fiat ID	#01
Maintenance Request Type	#10
Maintenance Request Type Response	#32
Node Type	#38
Solicitor Number	#33
Request Class	#01
Request Type	#02

If position gateway is OK, it replies with an indication of success:

Field Name	Field Value
Maintenance Request Type Response	#32
Node Type	#38
Solicitor Number	#33
Maintenance Request Type / Response	#80
Result	#FF #FF
Additional Value (not used)	#FF #FF #FF #FF

Alternatively, the reply may indicate failure with a result value:

Field Name	Field Value
Maintenance Request Type Response	#32
Node Type	#38
Solicitor Number	#33
Maintenance Request Type / Response	#81
Result	#C9 #01
Additional Value (not used)	#FF #FF #FF #FF

8.7.6.2 RTS of a Position

This scenario typically occurs after DMS system restarts or because of DMS craftperson activity. However, it should be noted that a position can be RTS'ed at any time, not just during a restart.

DMS sends RTS message to position gateway:

Field Name	Field Value
Maintenance Fiat ID	#01
Maintenance Request Type	#10
Maintenance Request Type Response	#32
Node Type	#38
Solicitor Number	#34
Request Class	#02
Request Type	#02
Position ID	#01

If position is OK, position gateway replies with an indication of success:

Field Name	Field Value
Maintenance Request Type Response	#32
Node Type	#38
Solicitor Number	#34
Maintenance Request Type / Response	#80
Result	#FF #FF
Additional Value (not used)	#FF #FF #FF #FF

Alternatively, the reply may indicate failure with a result value:

Field Name	Field Value
Maintenance Request Type Response	#32
Node Type	#38
Solicitor Number	#34
Maintenance Request Type / Response	#81
Result	#3A #01
Additional Value (not used)	#FF #FF #FF #FF

8.7.6.3 Recovery of a Position from System Busy Condition

This scenario typically occurs as a result of recovery from a system busy condition.

DMS sends test message to position gateway:

Field Name	Field Value
Maintenance Fiat ID	#01
Maintenance Request Type	#10
Maintenance Request Type Response	#32
Node Type	#38
Solicitor Number	#35
Request Class	#03
Request Type	#05
Position ID	#04

If position is OK, position gateway replies with an indication of success:

Field Name	Field Value
Maintenance Request Type Response	#32
Node Type	#38
Solicitor Number	#35
Maintenance Request Type / Response	#80
Result	#FF #FF
Additional Value (not used)	#FF #FF #FF #FF

Alternatively, the reply may indicate failure with a result value:

Field Name	Field Value
Maintenance Request Type Response	#32
Node Type	#38
Solicitor Number	#35
Maintenance Request Type / Response	#81
Result	#9A #01
Additional Value (not used)	#FF #FF #FF #FF

If the test passes, the DMS then attempts to RTS position - see RTS of a Position message flow.

8.7.6.4 Busy of a Gateway

This scenario typically occurs because of DMS craftperson activity.

DMS sends Busy message to position gateway:

Field Name	Field Value
Maintenance Fiat ID	#01
Maintenance Request Type	#10
Maintenance Request Type Response	#32
Node Type	#38
Solicitor Number	#36
Request Class	#01
Request Type	#01

Position gateway takes all subtending positions out of service and replies with an indication of success:

Field Name	Field Value
Maintenance Request Type Response	#32
Node Type	#38
Solicitor Number	#36
Maintenance Request Type / Response	#80
Result	#FF #FF
Additional Value (not used)	#FF #FF #FF #FF

Alternatively, the reply may indicate failure with a result value:

Field Name	Field Value
Maintenance Request Type Response	#32
Node Type	#38
Solicitor Number	#36
Maintenance Request Type / Response	#81
Result	#21 #00
Additional Value (not used)	#FF #FF #FF #FF

8.7.6.5 Busy of a Position

This scenario typically occurs because of DMS craftperson activity.

DMS sends Busy message to position gateway:

Field Name	Field Value
Maintenance Fiat ID	#01
Maintenance Request Type	#10
Maintenance Request Type Response	#32
Node Type	#38
Solicitor Number	#37
Request Class	#02
Request Type	#01
Position ID	#07

Position is taken out of service and position gateway replies with indication of success:

Field Name	Field Value
Maintenance Request Type Response	#32
Node Type	#38
Solicitor Number	#37
Maintenance Request Type / Response	#80
Result	#FF #FF
Additional Value (not used)	#FF #FF #FF #FF

Alternatively, the reply may indicate failure with a result value:

Field Name	Field Value
Maintenance Request Type Response	#32
Node Type	#38
Solicitor Number	#37
Maintenance Request Type / Response	#81
Result	#C2 #00
Additional Value (not used)	#FF #FF #FF #FF

8.7.6.6 Unsolicited Busy of a Position

This scenario typically occurs because a position has gone out of service or otherwise fails.

Position gateway sends Unsolicited Busy message to the DMS with a result value:

Field Name	Field Value
Maintenance Request	#55
Node Type	#38
Position ID	#0B
Filler (not used)	#FF
Result	#94 #FF

DMS then sends a Busy message to position gateway:

Field Name	Field Value
Maintenance Fiat ID	#01
Maintenance Request Type	#10
Maintenance Request Type Response	#32
Node Type	#38
Solicitor Number	#38
Request Class	#02
Request Type	#01
Position ID	#0B

Position is taken out of service and position gateway replies with indication of success:

Field Name	Field Value
Maintenance Request Type Response	#32
Node Type	#38
Solicitor Number	#38
Maintenance Request Type / Response	#80
Result	#FF #FF
Additional Value (not used)	#FF #FF #FF #FF

8.7.6.7 Unsolicited RTS of a Position

This scenario typically occurs because a position has just performed a “position reboot”.

Position gateway sends Unsolicited RTS message to the DMS:

Field Name	Field Value
Maintenance Request	#A0
Node Type	#38
Position ID	#12
Filler (not used)	#FF
Result	#FF #FF

DMS then sends a RTS message to position gateway:

Field Name	Field Value
Maintenance Fiat ID	#01
Maintenance Request Type	#10
Maintenance Request Type Response	#32
Node Type	#38
Solicitor Number	#39
Request Class	#02
Request Type	#02
Position ID	#12

If position is OK, position gateway replies with indication of success:

Field Name	Field Value
Maintenance Request Type Response	#32
Node Type	#38
Solicitor Number	#39
Maintenance Request Type / Response	#80
Result	#FF #FF
Additional Value (not used)	#FF #FF #FF #FF

Chapter 9: IP Position Description

This section is still to be written.

Chapter 10: Protocol Assumptions

10.1 Introduction

This section contains a description of some assumptions made by the DMS. The DMS assumes that certain tasks be performed by the operator position and/or the position gateway when using the Open Position Protocol. This section describes those tasks without being specific concerning man-machine interface (MMI).

The following is a list of assumptions:

- parallel data
- call processing

10.2 Parallel Data

Data needs to exist in the operator position to interpret integers received from the DMS and convert them into text to display on the screen. This data needs to be accessible to the telco for possible alteration in a real time manner.

10.2.1 Service Name

A table is needed to equate an integer from 0 to 62 with a text string indicating a service name. The integer value is associated with any identifier containing the Service Type field.

Some services require a database access. Alternatively, several services may access the same database. This table could be used to associate a service with a database.

A call made from a particular subscriber may have different billing restrictions based upon the type of service requested. This table could be used to associate a billing restriction table with the service. Currently there are two billing restriction tables.

The table provides a text string that will be displayed when the service is displayed on the screen. The number of characters supported in the text string is dependent upon the position vendor's MMI. The following is an example of the table implementation:

Integer	Service	Text	Database	Billing Restrictions
0	toll and assistance	TASERV	0	1
1	directory assistance	DASERV	1	2
2	intercept	INTCSERV	1	0

Table 7: Example Service Name Table

10.2.2 Queue Name

A table is needed to equate an integer from 0 to 254 with a text string indicating a queue name. The integer value is associated with any identifier containing the Queue Mark field.

The table provides a text string that will be displayed when the queue is displayed on the screen. The number of characters supported in the text string is dependent upon the position vendor's MMI. The following is an example of the table implementation:

Integer	Queue	Text
0	general	GEN
1	transfer 1	XFR1

Table 8: Example Queue Name Table

Integer	Queue	Text
2	transfer 2	XFR2
3	directory assistance	DA

Table 8: Example Queue Name Table

10.2.3 Call Origination

A table is needed to equate an integer from 0 to 254 with a text string indicating a call origination type. When the Call Arrival Status in the Call Origination DID is set to standard, then this table should be indexed by the integer found in the Call Origination field. The text associated with the integer should be displayed to the operator.

This table should correspond to the DMS table TOPS. Table TOPS allows the telco to customize the call origination display. Any call origination type that is customized in Table TOPS should also be customized in the Call Origination Table.

This table also contains an attribute field. This field refers to a list of attributes. These attributes can be used to set up soft key assignments and default cursor position based upon the call origination type.

The table provides a text string that will be displayed when the call origination type is displayed on the screen. The number of characters supported in the text string is dependent upon the position vendor's MMI. The following is an example of the table implementation:

Integer	Call Origination Type	Text	Attributes
0	unspecified	0	0
1	zero minus	0	0
2	zero plus	0+	1
3	one plus	1+	2
4	CAMA	CAMA	3
5	remote CAMA	RCAMA	4
6	delay	DELAY	5
7	121	INW	6
8	131	131	7
9	141	0	0
10	151	0	0

Table 9: Example Call Origination Table

Integer	Call Origination Type	Text	Attributes
11	161	0	0
12	171	0	0
13	181	181	8
14	191	0	0
15	555	555	9
16	1150	50	10
17	1151	0	0
18	1152	0	0
19	1154	0	0
20	1155	55	11
21	1156	56	12
22	1157	0	0
23	1158	58	13
24	1159	59	14
25	1160	0	0
26	1161	0	0
27	1162	0	0
28	toll station	TS	15
29	toll subscriber	TSUB	16
30	attendant pay station	0	0
31	alarm	ALM	17
32	intercept	INTC	18
33	211	0	0
34	311	0	0
35	411	0	0
36	511	0	0
37	611	0	0

Table 9: Example Call Origination Table

Integer	Call Origination Type	Text	Attributes
38	711	0	0
39	811	0	0
40	911	0	0
41	mobile	0	0
42	999	0	0
43	home 555	HOM555	19
44	foreign 555	FOR555	20

Table 9: Example Call Origination Table

10.2.4 Call Type For Queueing Name

A table is needed to equate the values in the Call Type For Queueing (CT4Q) field with a text string. This text string is displayed at call arrival when the Queue Management System (QMS) is in use. QMS provides mechanisms for further refining call types and queues. The CT4Q name provides the operator with additional information concerning the call type. The CT4Q name is also sent to the position when the operator requests a new CT4Q be associated with the call. There can be up to 2046 different CT4Qs.

The table provides a text string that will be displayed when the CT4Q is sent to the position. The number of characters supported in the text string is dependent upon the position vendor's MMI. The following is an example of the table implementation:

Call Type For Queueing	Text
0	FRENCH
1	ACME_HTL
2	CNA
23	SPANISH
74	BUS_OFC
312	HOSPITAL
508	MONTREAL

Table 10: Example CT4Q Name Table

10.2.5 Call Arrival Status

A table is needed to equate the values in the Call Arrival Status field with a text string. This text

string is displayed in addition to the string found in the Call Origination Table. The number of characters supported in the text string is dependent upon the position vendor's MMI. Call Arrival Status values 1-6 require an entry in this table.

The following is an example of the table implementation:

Call Arrival Status	Text
automatic directory assistance call completion	DACC
manual billing number verification	MANVAL
automated alternate billing service collect	COL
automated alternate billing service third number	3RD
automated alternate billing service collect with party attached	COLCON
automated alternate billing service third number with party attached	3RDCON

Table 11: Example Call Arrival Status Table

10.2.6 Restricted Billing

A table is needed to equate an integer from 0 to 99 with a text string indicating restricted billing for the calling party. The integer is associated with the Restriction Number field. The number of characters supported in the text string is dependent upon the position vendor's MMI. The following is an example of the table implementation:

Restriction Number	Text
0	RPD
1	RCOL
4	R3RD
23	RCC
74	PRISON
99	RALL

Table 12: Example Restricted Billing Table

10.2.7 DA Restricted Billing

A table is needed to equate an integer from 0 to 99 with a text string indicating directory assistance restricted billing for the calling party. The number of characters supported in the text string is dependent upon the position vendor's MMI. The following is an example of the table implementa-

tion:

Restriction Number	Text
0	DARPD
1	DARCOL
4	DAR3RD
23	DARCC
74	DAPRISON
99	DARALL

Table 13: Example DA Restricted Billing Table

10.2.8 Outtrunk Keys

An outtrunk key is a means of abbreviating the key sequence required to invoke a function. A table is needed to equate an integer from 0 to 65534 with a text string indicating an outtrunk function. The number of characters supported in the text string is dependent upon the position vendor's MMI. The number of integers supported is dependent upon the application.

The operator position needs to provide a text string associated with each integer that will assist the operator in choosing the correct function. The following is an example of the table implementation:

OGT Number	Text
0	SPANISH
1	XFR1
2	XFR2
3	DA
4	SERVICE
10	BUSOFF

Table 14: Example Outgoing Trunk (OGT) Key Table

10.2.9 Language Name

A table is needed to equate an integer from 0 to 254 with a text string indicating a language. The integer value is associated with any DID containing the Language field.

The table provides a text string that will be displayed when the language is displayed on the screen. The number of characters supported in the text string is dependent upon the position vendor's

MMI. The following is an example of the table implementation:

Integer	Language	Text
0	English	ENG
1	French	FRE
2	Spanish	SPAN
3	German	GER

Table 15: Example Language Name Table

10.2.10 Trunk Group Display

A table is needed to equate the values in the Trunk Group Display field with a text string. This text string is displayed as part of the call origination information. The number of characters supported in the text string is dependent upon the position vendor's MMI. The following is an example of the table implementation:

Trunk Group Display	Text
0	CHICAGO
1	BOISE
9	ILLNDA
13	IDAHO DA
31	NOANI

Table 16: Example Trunk Group Display Table

10.2.11 Booked Call Database Class

A table is needed to equate the values in the Booked Call Database Class Number field with a text string. The number of characters supported in the text string is dependent upon the position vendor's MMI. The following is an example of the table implementation:

Booked Call Database Class Number	Text
5	MESSANGER
14	DELAY
82	ROUTEQ

Table 17: Example Booked Call Database Class Number Table

10.2.12 Alternate Route

A table is needed to equate the values in the Alternate Route Number field with a text string. The number of characters supported in the text string is dependent upon the position vendor's MMI. The following is an example of the table implementation:

Alternate Route Number	Text
3	RT2
18	VIAICELAND
77	THRUSUNSET
122	USINGRTP

Table 18: Example Alternate Route Number Table

10.2.13 Country Name

A position may wish to display the name of a country whenever the Country Code Count field indicates a country code is included in a directory number or foreign assistance number. The number of characters supported in the text string is dependent upon the position vendor's MMI. The following is an example of the table implementation:

Country Code	Text
33	FRANCE
49	GERMANY
81	JAPAN

Table 19: Example Country Name Table

10.2.14 OLNS Restricted Billing

A table is needed to equate the values in the OLNS Restriction Display Index field with a text string. The number of characters supported in the text string is dependent upon the position vendor's MMI. The following is an example of the table implementation.

OLNS Restriction Display Index	Text
0	NOSTPD
10	NOCOLCT
49	ALTBIL

Table 20: Example OLNS Restricted Billing Table

10.2.15 OLNS Equipment Display

A table is need to equate the values in the OLNS Equipment Display Index field with a text string. The number of characters supported in the text string is dependent upon the position vendor's MMI. The following is an example of the table implementation.

OLNS Equipment Display Index	Text
14	PRISON
30	IPPSTD
49	DORM

Table 21: Example OLNS Equipment Display Table

10.2.16 No Action Reason

A table is needed to equate the values in the No Action Reason field with a text string. This table would vary on a per application basis, therefore no example is shown here.

10.3 Call Processing

10.3.1 Login/Logout

This protocol assumes that the operator position will perform all logins and logouts to databases to which it is configured. The Service Logon DID contains a profile of the services being provided by the operator who is logging in. The operator position must know which database to log into in order to provide the specified services. All of the information required for the position to login to the database is contained in the Service Logon DID.

10.3.2 Key Buffering

The keying sequence associated with the certain action requests involves several keystrokes by the operator. The operator position must have the ability to buffer the keystrokes until the operator keys a terminator (such as “Start” or “Return”). When the terminator is keyed, the position should construct the ActID and send it to the DMS.

If the operator initiates a new key sequence before terminating the previous key sequence, then the key buffer should be reinitialized. In other words, all previous keys that have not been sent to the DMS should be cleared from the buffer.

10.3.3 Monetary Amount Interpretation

The position is responsible for interpreting monetary amounts sent from the DMS. This includes multiplying the amount if necessary (e.g. for lira or pesos), placement of decimal points, and displaying the proper local denominational units. There is a parameter in the DMS TOPSPARM table called CHG_DISPLAY_DECIMAL which the switch uses for decimal point placement in non-OPP environments. OPP positions should consider using the same value.

10.3.4 Message Throttling

Due to restrictions introduced by operator centralization, the DMS cannot handle a burst of action request messages. The position should not buffer entire action requests and then send messages simultaneously. Having a human operator provides a natural throttling mechanism. The position should send the action request when the operator requests it. This natural delay provides the DMS enough time to handle the message throughput in the DMS.

10.3.5 Assumptions Regarding Positions with IP Connectivity to DMS

<This is a placeholder for stuff to be written.>

Chapter 11: Examples

11.1 Example Messaging

This section contains example messaging scenarios. These examples are obtained from output of the DMS tool PMIST which collects messages between peripherals and the DMS and formats these messages appropriately. The output of the tool contains both the raw message dump and the formatted OPP messages obtained from the raw dump. The OPP header is always the first segment in each formatted dump. The end of each message is signified by the line of equal signs ('=').

11.1.1 0+ Calling Card Call

In this example, the subscriber dials a 0+ call and is connected to the operator. The position receives a Call Begin message plus subsequent messages indicating call details. The operator requests a class charge of station special calling. Next, the operator enters the calling card number. The switch performs a LIDB query and informs the position that the query is in progress. The LIDB result indicates a valid calling card number, so the switch informs the position that the calling card number is valid and automatically initiates outpulsing. The called party answers and the operator requests to release the call. The call is floated and the position receives a Call End message.

```
OUTGOING 15:00:35.16  NODE TYPE= TPC_NODE
DS512: ENCAP MS_CARD= 22 MS_PORT= 1  NODE= 1753
NN= 0088  TN= 0005  MSGTAG= 00  ROUTE= 06D9  ERROR= 00  LENGTH= 2E
AGENT= CKT TOPSPOS 557
00 26 00 03 07 2D 02 C0 00 19 00 01 03 01 0B 00 00 01 00 00 02 FF
  FF 00 FF FF 14 01 01 00 22 01 05 00 01 02 FF FF
```

```
-----
APPLICATION ID      = TOPS
BCS NUMBER         = 38
MESSAGE TYPE       = CALL BEGIN
ID COUNT           = 3
ROUTING AREA COUNT = 7
POSITION ID        = 557
CALL ID            = 1638592
SWITCH ID          = 0
LOOP ID            = 1
```

```
-----
DID                = CALL ORIGINATION
DID BYTE COUNT     = 11
SERVICE TYPE      = 0
SCREEN TYPE        = BILLING SCREEN
ANI STATUS         = ANI SUCCESS
REASON FOR OPERATOR = CALL SETUP
CALL ORIGINATION STATUS = CREDIBLE
CALL ORIGINATION   = 2
CALL TYPE FOR QUEUEING = 65535
CALL ARRIVAL STATUS = STANDARD
TRUNK GROUP DISPLAY = 255
NOTIFY MINUTES     = 255
```

```
-----
DID                = LATA RESTRICTION
```

```

DID BYTE COUNT    = 1
LATA RESTRICTION  = NO RESTRICTIONS
-----
DID                = STATION CLASS
DID BYTE COUNT    = 5
PORT              = CALLING
STATION CLASS     = STATION
RESTRICTION STATUS = NO BILLING RESTRICTIONS APPLY
RESTRICTION NUMBER = 255
OVERTIME TYPE     = NIL
=====

```

```

OUTGOING 15:00:35.18  NODE TYPE= TPC_NODE
DS512: ENCAP MS_CARD= 22 MS_PORT= 1  NODE= 1753
NN= 0088  TN= 0005  MSGTAG= 00  ROUTE= 06D9  ERROR= 00  LENGTH= 30
AGENT= CKT TOPSP0S 557
00 26 01 02 07 2D 02 C0 00 19 00 01 0C 01 0C 00 01 01 00 FF 0C 16
  F9 23 F0 21 43 06 01 0A 00 00 FF FF FF 00 FF FF 00 FF
-----

```

```

APPLICATION ID    = TOPS
BCS NUMBER       = 38
MESSAGE TYPE     = CALL UPDATE
ID COUNT         = 2
ROUTING AREA COUNT = 7
POSITION ID      = 557
-----

```

```

DID                = DIRECTORY NUMBER
DID BYTE COUNT     = 12
DIRECTORY NUMBER CLASS = CALLING
DIRECTORY NUMBER STATUS = VALID
DIRECTORY NUMBER TYPE = DOMESTIC
ROUTING INDICATOR  = NONE
COUNTRY CODE COUNT = 255
DIRECTORY NUMBER COUNT = 12
DIRECTORY NUMBER    = 619*320*1234
-----

```

```

DID                = CALLING CARD
DID BYTE COUNT     = 10
CALLING CARD TYPE  = DOMESTIC
CALLING CARD STATUS = NONE
ISSUER ID SIZE     = 255
ACCOUNT ID SIZE    = 255
PIN SIZE           = 255
CALLING CARD PIN STATUS = NONE
CALLING CARD RAO   = 65535
CALLING CARD NUMBER COUNT = 0
CALLING CARD NUMBER = NONE
SERVICE DENIAL INDICATOR = NIL
=====

```

```

OUTGOING 15:00:35.19  NODE TYPE= TPC_NODE
DS512: ENCAP MS_CARD= 22 MS_PORT= 1  NODE= 1753

```

NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 06D9 ERROR= 00 LENGTH= 2C
AGENT= CKT TOPSPOS 557
00 26 01 04 07 2D 02 C0 00 19 00 01 1C 01 04 01 00 01 00 1C 01 04
01 01 03 FF 16 01 03 01 01 FF 2E 01 01 00

APPLICATION ID = TOPS
BCS NUMBER = 38
MESSAGE TYPE = CALL UPDATE
ID COUNT = 4
ROUTING AREA COUNT = 7
POSITION ID = 557
CALL ID = 1638592
SWITCH ID = 0
LOOP ID = 1

DID = PORT STATUS
DID BYTE COUNT = 4
LOOP NUMBER = 1
PORT = CALLING
PORT STATUS = OFF-HOOK
PORT VOICE STATUS = CONNECTED

DID = PORT STATUS
DID BYTE COUNT = 4
LOOP NUMBER = 1
PORT = CALLED
PORT STATUS = NOT CONNECTED
PORT VOICE STATUS = NIL

DID = LOOP STATE
DID BYTE COUNT = 3
LOOP NUMBER = 1
LOOP STATUS = ACTIVE
NOTIFY PENDING STATUS = NIL

DID = POSITION INFORMATION
DID BYTE COUNT = 1
POSITION INFORMATION = END OF CALL DETAILS
=====

INCOMING 15:00:40.95 NODE TYPE= TPC_NODE TPC_REPORT_MSG
NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 0000 ERROR= 00 LENGTH= 1D
AGENT= CKT TOPSPOS 557
79 02 11 00 26 03 01 07 2D 02 C0 00 19 00 01 06 02 02 00 02 00

APPLICATION ID = TOPS
BCS NUMBER = 38
MESSAGE TYPE = ACTION REQUEST
ID COUNT = 1
ROUTING AREA COUNT = 7
POSITION ID = 557
CALL ID = 1638592
SWITCH ID = 0

LOOP ID = 1

ACTID = CLASS CHARGE
ACTID BYTE COUNT = 2
HANDLING DATA = STATION
BILLING DATA = SPECIAL CALLING
=====

OUTGOING 15:00:40.99 NODE TYPE= TPC_NODE
DS512: ENCAP MS_CARD= 22 MS_PORT= 1 NODE= 1753
NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 06D9 ERROR= 00 LENGTH= 23
AGENT= CKT TOPSPOS 557
00 26 01 03 07 2D 02 C0 00 19 00 01 0A 01 03 01 00 02 00 01 02 00
FF 08 01 01 00

APPLICATION ID = TOPS
BCS NUMBER = 38
MESSAGE TYPE = CALL UPDATE
ID COUNT = 3
ROUTING AREA COUNT = 7
POSITION ID = 557
CALL ID = 1638592
SWITCH ID = 0
LOOP ID = 1

DID = CLASS CHARGE
DID BYTE COUNT = 3
BILLING STATUS = VALID
HANDLING DATA = STATION
BILLING DATA = SPECIAL CALLING

DID = AMA STATUS
DID BYTE COUNT = 2
AMA STATUS = UNSPECIFIED
AUTOMATED SYSTEM ID = NIL

DID = CHARGE STATUS
DID BYTE COUNT = 1
CHARGE STATUS = CALL CHARGEABLE
=====

INCOMING 15:00:59.06 NODE TYPE= TPC_NODE TPC_REPORT_MSG
NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 0000 ERROR= 00 LENGTH= 23
AGENT= CKT TOPSPOS 557
79 02 17 00 26 03 01 07 2D 02 C0 00 19 00 01 1D 02 08 0E 02 21 02
00 00 02 00 00

APPLICATION ID = TOPS
BCS NUMBER = 38
MESSAGE TYPE = ACTION REQUEST
ID COUNT = 1
ROUTING AREA COUNT = 7

POSITION ID = 557
 CALL ID = 1638592
 SWITCH ID = 0
 LOOP ID = 1

 ACTID = SPECIAL NUMBER
 ACTID BYTE COUNT = 8
 SPECIAL NUMBER COUNT = 14
 SPECIAL NUMBER = 20122000002000
 =====

OUTGOING 15:00:59.06 NODE TYPE= TPC_NODE
 DS512: ENCAP MS_CARD= 22 MS_PORT= 1 NODE= 1753
 NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 06D9 ERROR= 00 LENGTH= 33
 AGENT= CKT TOPSP0S 557
 00 26 01 03 07 2D 02 C0 00 19 00 01 00 01 02 04 FF 06 01 13 00 01
 FF FF FF 01FF FF 11 02 F1 22 F0 00 00 2F 00 F0 FF 08 01 01 00

 APPLICATION ID = TOPS
 BCS NUMBER = 38
 MESSAGE TYPE = CALL UPDATE
 ID COUNT = 3
 ROUTING AREA COUNT = 7
 POSITION ID = 557
 CALL ID = 1638592
 SWITCH ID = 0
 LOOP ID = 1

 DID = AMA STATUS
 DID BYTE COUNT = 2
 AMA STATUS = CALLING CARD BILLING VERIFICATION
 AUTOMATED SYSTEM ID = NIL

 DID = CALLING CARD
 DID BYTE COUNT = 19
 CALLING CARD TYPE = DOMESTIC
 CALLING CARD STATUS = VALID
 ISSUER ID SIZE = 255
 ACCOUNT ID SIZE = 255
 PIN SIZE = 255
 CALLING CARD PIN STATUS = CALLING CARD PIN MASK
 CALLING CARD RAO = 65535
 CALLING CARD NUMBER COUNT = 17
 CALLING CARD NUMBER = 201*220*0000*2000
 SERVICE DENIAL INDICATOR = NIL

 DID = CHARGE STATUS
 DID BYTE COUNT = 1
 CHARGE STATUS = CALL CHARGEABLE
 =====

OUTGOING 15:01:00.08 NODE TYPE= TPC_NODE

DS512: ENCAP MS_CARD= 22 MS_PORT= 1 NODE= 1753
 NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 06D9 ERROR= 00 LENGTH= 2F
 AGENT= CKT TOPSPOS 557
 00 26 01 02 07 2D 02 C0 00 19 00 01 00 01 02 00 FF 06 01 13 00 01
 FF FF FF 01 EA 00 11 02 F1 22 F0 00 00 2F 00 F0 FF

 APPLICATION ID = TOPS
 BCS NUMBER = 38
 MESSAGE TYPE = CALL UPDATE
 ID COUNT = 2
 ROUTING AREA COUNT = 7
 POSITION ID = 557
 CALL ID = 1638592
 SWITCH ID = 0
 LOOP ID = 1

DID = AMA STATUS
 DID BYTE COUNT = 2
 AMA STATUS = UNSPECIFIED
 AUTOMATED SYSTEM ID = NIL

DID = CALLING CARD
 DID BYTE COUNT = 19
 CALLING CARD TYPE = DOMESTIC
 CALLING CARD STATUS = VALID
 ISSUER ID SIZE = 255
 ACCOUNT ID SIZE = 255
 PIN SIZE = 255
 CALLING CARD PIN STATUS = CALLING CARD PIN MASK
 CALLING CARD RAO = 234
 CALLING CARD NUMBER COUNT = 17
 CALLING CARD NUMBER = 201*220*0000*2000
 SERVICE DENIAL INDICATOR = NIL
 =====

OUTGOING 15:01:00.09 NODE TYPE= TPC_NODE
 S512: ENCAP MS_CARD= 22 MS_PORT= 1 NODE= 1753
 NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 06D9 ERROR= 00 LENGTH= 26
 AGENT= CKT TOPSPOS 557
 00 26 01 03 07 2D 02 C0 00 19 00 01 1C 01 04 01 00 01 00 1C 01 04
 01 01 00 FF 08 01 01 00

 APPLICATION ID = TOPS
 BCS NUMBER = 38
 MESSAGE TYPE = CALL UPDATE
 ID COUNT = 3
 ROUTING AREA COUNT = 7
 POSITION ID = 557
 CALL ID = 1638592
 SWITCH ID = 0
 LOOP ID = 1

DID = PORT STATUS

```
DID BYTE COUNT      = 4
LOOP NUMBER         = 1
PORT                = CALLING
PORT STATUS         = OFF-HOOK
PORT VOICE STATUS   = CONNECTED
-----
DID                 = PORT STATUS
DID BYTE COUNT      = 4
LOOP NUMBER         = 1
PORT                = CALLED
PORT STATUS         = ON-HOOK
PORT VOICE STATUS   = NIL
-----
DID                 = CHARGE STATUS
DID BYTE COUNT      = 1
CHARGE STATUS       = CALL CHARGEABLE
=====
```

```
OUTGOING 15:01:05.52  NODE TYPE= TPC_NODE
DS512: ENCAP MS_CARD= 22 MS_PORT= 1  NODE= 1753
N= 0088  TN= 0005  MSGTAG= 00  ROUTE= 06D9  ERROR= 00  LENGTH= 22
AGENT= CKT TOPSP0S 557
00 26 01 02 07 2D 02 C0 00 19 00 01 1C 01 04 01 00 01 00 1C 01 04
01 01 01 00
-----
```

```
APPLICATION ID      = TOPS
BCS NUMBER          = 38
MESSAGE TYPE        = CALL UPDATE
ID COUNT            = 2
ROUTING AREA COUNT = 7
POSITION ID         = 557
CALL ID             = 1638592
SWITCH ID           = 0
LOOP ID             = 1
-----
DID                 = PORT STATUS
DID BYTE COUNT      = 4
LOOP NUMBER         = 1
PORT                = CALLING
PORT STATUS         = OFF-HOOK
PORT VOICE STATUS   = CONNECTED
-----
DID                 = PORT STATUS
DID BYTE COUNT      = 4
LOOP NUMBER         = 1
PORT                = CALLED
PORT STATUS         = OFF-HOOK
PORT VOICE STATUS   = CONNECTED
=====
```

```
INCOMING 15:01:11.00  NODE TYPE= TPC_NODE  TPC_REPORT_MSG
NN= 0088  TN= 0005  MSGTAG= 00  ROUTE= 0000  ERROR= 00  LENGTH= 1D
```

```

AGENT= CKT TOPSPOS 557
79 02 11 00 26 03 01 07 2D 02 C0 00 19 00 01 0A 02 02 01 00 00
-----
APPLICATION ID      = TOPS
BCS NUMBER         = 38
MESSAGE TYPE       = ACTION REQUEST
ID COUNT           = 1
ROUTING AREA COUNT = 7
POSITION ID        = 557
CALL ID            = 1638592
SWITCH ID          = 0
LOOP ID            = 1
-----
ACTID               = LOOP ACTION
ACTID BYTE COUNT    = 2
LOOP NUMBER         = 1
LOOP ACTION         = RELEASE
=====
OUTGOING 15:01:11.01 NODE TYPE= TPC_NODE
DS512: ENCAP MS_CARD= 22 MS_PORT= 1  NODE= 1753
NN= 0088  TN= 0005  MSGTAG= 00  ROUTE= 06D9  ERROR= 00  LENGTH= 1A
AGENT= CKT TOPSPOS 557
00 26 02 01 07 2D 02 C0 00 19 00 01 16 01 03 01 00 FF
-----
APPLICATION ID      = TOPS
BCS NUMBER         = 38
MESSAGE TYPE       = CALL END
ID COUNT           = 1
ROUTING AREA COUNT = 7
POSITION ID        = 557
CALL ID            = 1638592
SWITCH ID          = 0
LOOP ID            = 1
-----
DID                = LOOP STATE
DID BYTE COUNT     = 3
LOOP NUMBER        = 1
LOOP STATUS        = IDLE
NOTIFY PENDING STATUS = NIL
=====

```

11.1.2 Logon

In this example, the operator is logging on to the position. The operator initiates logon by pressing the logon key. The DMS informs the position that the position is occupied. Next the operator requests logon by entering his or her operator number. No password is required for this example. The DMS responds by indicating which services the position should log on to. The position performs service logon, and then informs the DMS which services were successfully logged on. The DMS then tells the position which queues it will serve while processing calls. The operator then requests to become available for traffic, and the DMS responds by making the position available.

INCOMING 15:27:08.95 NODE TYPE= TPC_NODE TPC_REPORT_MSG
NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 0000 ERROR= 00 LENGTH= 1C
AGENT= CKT TOPSPOS 557
79 02 10 00 26 03 01 07 2D 02 FF FF FF FF FF 16 02 01 00 00

APPLICATION ID = TOPS
BCS NUMBER = 38
MESSAGE TYPE = ACTION REQUEST
ID COUNT = 1
ROUTING AREA COUNT = 7
POSITION ID = 557
CALL ID = 4294967295
SWITCH ID = 31
LOOP ID = 7

ACTID = POSITION STATE
ACTID BYTE COUNT = 1
POSITION STATE = POSITION OCCUPIED
=====

OUTGOING 15:27:08.97 NODE TYPE= TPC_NODE
DS512: ENCAP MS_CARD= 22 MS_PORT= 1 NODE= 1753
NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 06D9 ERROR= 00 LENGTH= 24
AGENT= CKT TOPSPOS 557
00 26 04 03 07 2D 02 FF FF FF FF FF 11 03 01 00 0C 03 03 02 FF FF
04 03 03 00 01 00

APPLICATION ID = TOPS
BCS NUMBER = 38
MESSAGE TYPE = NON-CALL UPDATE
ID COUNT = 3
ROUTING AREA COUNT = 7
POSITION ID = 557
CALL ID = 4294967295
SWITCH ID = 31
LOOP ID = 7

DID = POSITION STATE
DID BYTE COUNT = 1
POSITION STATE = POSITION OCCUPIED

DID = OPERATOR MANAGEMENT
DID BYTE COUNT = 3
MANAGEMENT STATUS = NO MONITOR
POSITION NUMBER = 65535

DID = BROADCAST MESSAGE
DID BYTE COUNT = 3
SEQUENCE NUMBER = 0
FINAL STATUS = FINAL

BROADCAST MESSAGE COUNT = 0
BROADCAST MESSAGE = NONE

=====

INCOMING 15:27:09.11 NODE TYPE= TPC_NODE TPC_REPORT_MSG
NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 0000 ERROR= 00 LENGTH= 1C
AGENT= CKT TOPSPOS 557
79 02 10 00 26 03 01 07 2D 02 FF FF FF FF FF 0B 02 01 03 00

APPLICATION ID = TOPS
BCS NUMBER = 38
MESSAGE TYPE = ACTION REQUEST
ID COUNT = 1
ROUTING AREA COUNT = 7
POSITION ID = 557
CALL ID = 4294967295
SWITCH ID = 31
LOOP ID = 7

ACTID = MISCELLANEOUS
ACTID BYTE COUNT = 1
MISCELLANEOUS ACTION REQUEST = CURRENT TIME

=====

OUTGOING 15:27:09.13 NODE TYPE= TPC_NODE
DS512: ENCAP MS_CARD= 22 MS_PORT= 1 NODE= 1753
NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 06D9 ERROR= 00 LENGTH= 1D
AGENT= CKT TOPSPOS 557
00 26 04 01 07 2D 02 FF FF FF FF FF 14 03 06 5E 07 15 0F 1B 09

APPLICATION ID = TOPS
BCS NUMBER = 38
MESSAGE TYPE = NON-CALL UPDATE
ID COUNT = 1
ROUTING AREA COUNT = 7
POSITION ID = 557
CALL ID = 4294967295
SWITCH ID = 31
LOOP ID = 7

DID = SYSTEM TIME
DID BYTE COUNT = 6
YEAR = 94
MONTH = 7
DAY = 21
HOUR = 15
MINUTES = 27
SECONDS = 9

=====

INCOMING 15:27:12.42 NODE TYPE= TPC_NODE TPC_REPORT_MSG

NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 0000 ERROR= 00 LENGTH= 1F
AGENT= CKT TOPSPOS 557
79 02 13 00 26 03 01 07 2D 02 FF FF FF FF FF 10 02 04 00 1E 02 00
00

APPLICATION ID = TOPS
BCS NUMBER = 38
MESSAGE TYPE = ACTION REQUEST
ID COUNT = 1
ROUTING AREA COUNT = 7
POSITION ID = 557
CALL ID = 4294967295
SWITCH ID = 31
LOOP ID = 7

ACTID = OPERATOR NUMBER
ACTID BYTE COUNT = 4
OPERATOR NUMBER TYPE = REQUEST LOGON
OPERATOR NUMBER = 542
MONITOR TYPE = MONITOR NOT REQUESTED
=====

OUTGOING 15:27:12.43 NODE TYPE= TPC_NODE
DS512: ENCAP MS_CARD= 22 MS_PORT= 1 NODE= 1753
NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 06D9 ERROR= 00 LENGTH= 24
AGENT= CKT TOPSPOS 557
00 26 04 01 07 2D 02 FF FF FF FF FF 13 03 0D 01 00 00 00 00 00 00
00 01 00 1E 02 00

APPLICATION ID = TOPS
BCS NUMBER = 38
MESSAGE TYPE = NON-CALL UPDATE
ID COUNT = 1
ROUTING AREA COUNT = 7
POSITION ID = 557
CALL ID = 4294967295
SWITCH ID = 31
LOOP ID = 7

DID = SERVICE LOGON
DID BYTE COUNT = 13
SERVICE PROFILE = 0
OPERATOR CAPABILITIES = GENERAL CALL HANDLING
OPERATOR NUMBER = 542
CALL QUEUEING SYSTEM = 0
=====

INCOMING 15:27:13.79 NODE TYPE= TPC_NODE TPC_REPORT_MSG
NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 0000 ERROR= 00 LENGTH= 2
3
AGENT= CKT TOPSPOS 557
79 02 17 00 26 03 01 07 2D 02 FF FF FF FF FF 1A 02 08 01 00 00 00
00

00 00 00 00 00

```
-----
APPLICATION ID      = TOPS
BCS NUMBER         = 38
MESSAGE TYPE       = ACTION REQUEST
ID COUNT           = 1
ROUTING AREA COUNT = 7
POSITION ID        = 557
CALL ID            = 4294967295
SWITCH ID          = 31
LOOP ID            = 7
-----
```

```
-----
ACTID              = SERVICE LOGON
ACTID BYTE COUNT   = 8
SERVICE LOGON COMPLETE = 0
=====
```

```
OUTGOING 15:27:13.81 NODE TYPE= TPC_NODE
DS512: ENCAP MS_CARD= 22 MS_PORT= 1 NODE= 1753
NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 06D9 ERROR= 00 LENGTH= 29
AGENT= CKT TOPSP0S 557
00 26 04 03 07 2D 02 FF FF FF FF FF 08 03 0A 1E 02 01 00 00 00 00
00 00 00 11 03 01 03 0A 03 01 00
-----
```

```
-----
APPLICATION ID      = TOPS
BCS NUMBER         = 38
MESSAGE TYPE       = NON-CALL UPDATE
ID COUNT           = 3
ROUTING AREA COUNT = 7
POSITION ID        = 557
CALL ID            = 4294967295
SWITCH ID          = 31
LOOP ID            = 7
-----
```

```
-----
DID                = LOGON SUCCESS
DID BYTE COUNT     = 10
OPERATOR NUMBER    = 542
SERVICE PROFILE   = 0
-----
```

```
-----
DID                = POSITION STATE
DID BYTE COUNT     = 1
POSITION STATE     = POSITION BUSY
-----
```

```
-----
DID                = OPERATOR ADMINISTRATION
DID BYTE COUNT     = 1
ADMINISTRATION SET = NONE
=====
```

```
OUTGOING 15:27:13.81 NODE TYPE= TPC_NODE
DS512: ENCAP MS_CARD= 22 MS_PORT= 1 NODE= 1753
NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 06D9 ERROR= 00 LENGTH= 2A
AGENT= CKT TOPSP0S 557
```

```
00 26 04 01 07 2D 02 FF FF FF FF FF 19 03 13 00 01 00 07 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
```

```
-----
APPLICATION ID      = TOPS
BCS NUMBER         = 38
MESSAGE TYPE       = NON-CALL UPDATE
ID COUNT           = 1
ROUTING AREA COUNT = 7
POSITION ID        = 557
CALL ID            = 4294967295
SWITCH ID          = 31
LOOP ID            = 7
-----
```

```
-----
DID                = OPERATOR QUEUE PROFILE
DID BYTE COUNT     = 19
SEQUENCE NUMBER    = 0
FINAL STATUS       = FINAL
FIRST QUEUE NUMBER = 0
QUEUE PROFILE      = 0 1 2
=====
```

11.1.3 0- Collect Toll and Assist Call

In this example, a 0- call is made requiring Toll and Assist Service. The call arrives at the operator position. The operator enters the called number. The number is outpulsed, and the called party answers. Next, the operator keys a class charge of station collect, and the DMS performs a database query to the LIDB. A valid response is received indicating that the operator needs to verify the billing. Billing acceptance is obtained and the call is floated from the operator position.

```
OUTGOING 15:08:26.68 NODE TYPE= TPC_NODE
DS512: ENCAP MS_CARD= 23 MS_PORT= 1 NODE= 1629
NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 065D ERROR= 00 LENGTH= 2E
AGENT= CKT TOPSPOS 557
00 26 00 03 07 2D 02 50 00 19 00 01 03 01 0B 00 00 01 00 00 01 FF FF 00 FF FF
14 01 01 00 22 01 05 00 01 02 FF FF
```

```
-----
APPLICATION ID      = TOPS
BCS NUMBER         = 38
MESSAGE TYPE       = CALL BEGIN
ID COUNT           = 3
ROUTING AREA COUNT = 7
POSITION ID        = 557
CALL ID            = 1638480
SWITCH ID          = 0
LOOP ID            = 1
-----
```

```
-----
DID                = CALL ORIGINATION
DID BYTE COUNT     = 11
SERVICE TYPE      = 0
SCREEN TYPE        = BILLING SCREEN
ANI STATUS         = ANI SUCCESS
-----
```


REASON FOR OPERATOR = CALL SETUP
 CALL ORIGINATION STATUS = CREDIBLE
 CALL ORIGINATION = 1
 CALL TYPE FOR QUEUEING = 65535
 CALL ARRIVAL STATUS = STANDARD
 TRUNK GROUP DISPLAY = 255
 NOTIFY MINUTES = 255

 DID = LATA RESTRICTION
 DID BYTE COUNT = 1
 LATA RESTRICTION = NO RESTRICTIONS

 DID = STATION CLASS
 DID BYTE COUNT = 5
 PORT = CALLING
 STATION CLASS = STATION
 RESTRICTION STATUS = NO BILLING RESTRICTIONS APPLY
 RESTRICTION NUMBER = 255
 OVERTIME TYPE = NIL

=====
 OUTGOING 15:08:26.70 NODE TYPE= TPC_NODE
 DS512: ENCAP MS_CARD= 22 MS_PORT= 1 NODE= 1753
 NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 06D9 ERROR= 00 LENGTH= 31
 AGENT= CKT TOPSPOS 557
 00 26 01 03 07 2D 02 50 00 19 00 01 0C 01 0C 00 01 01 00 FF 0C 16
 F9 23 F0 2143 1C 01 04 01 00 01 00 1C 01 04 01 01 03 FF

 APPLICATION ID = TOPS
 BCS NUMBER = 38
 MESSAGE TYPE = CALL UPDATE
 ID COUNT = 3
 ROUTING AREA COUNT = 7
 POSITION ID = 557
 CALL ID = 1638480
 SWITCH ID = 0
 LOOP ID = 1

 DID = DIRECTORY NUMBER
 DID BYTE COUNT = 12
 DIRECTORY NUMBER CLASS = CALLING
 DIRECTORY NUMBER STATUS = VALID
 DIRECTORY NUMBER TYPE = DOMESTIC
 ROUTING INDICATOR = NONE
 COUNTRY CODE COUNT = 255
 DIRECTORY NUMBER COUNT = 12
 DIRECTORY NUMBER = 619*320*1234

 DID = PORT STATUS
 DID BYTE COUNT = 4
 LOOP NUMBER = 1
 PORT = CALLING
 PORT STATUS = OFF-HOOK

PORT VOICE STATUS = CONNECTED

DID = PORT STATUS
DID BYTE COUNT = 4
LOOP NUMBER = 1
PORT = CALLED
PORT STATUS = NOT CONNECTED
PORT VOICE STATUS = NIL
=====

OUTGOING 15:08:26.71 NODE TYPE= TPC_NODE
DS512: ENCAP MS_CARD= 22 MS_PORT= 1 NODE= 1753
NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 06D9 ERROR= 00 LENGTH= 1E
AGENT= CKT TOPSPOS 557
00 26 01 02 07 2D 02 50 00 19 00 01 16 01 03 01 01 FF 2E 01 01 00

APPLICATION ID = TOPS
BCS NUMBER = 38
MESSAGE TYPE = CALL UPDATE
ID COUNT = 2
ROUTING AREA COUNT = 7
POSITION ID = 557
CALL ID = 1638480
SWITCH ID = 0
LOOP ID = 1

DID = LOOP STATE
DID BYTE COUNT = 3
LOOP NUMBER = 1
LOOP STATUS = ACTIVE
NOTIFY PENDING STATUS = NIL

DID = POSITION INFORMATION
DID BYTE COUNT = 1
POSITION INFORMATION = END OF CALL DETAILS
=====

INCOMING 15:08:36.50 NODE TYPE= TPC_NODE TPC_REPORT_MSG
NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 0000 ERROR= 00 LENGTH= 24
AGENT= CKT TOPSPOS 557
79 02 18 00 26 03 01 07 2D 02 50 00 19 00 01 08 02 09 01 01 01 0A
02 21 02 00 00 00

APPLICATION ID = TOPS
BCS NUMBER = 38
MESSAGE TYPE = ACTION REQUEST
ID COUNT = 1
ROUTING AREA COUNT = 7
POSITION ID = 557
CALL ID = 1638480
SWITCH ID = 0

LOOP ID = 1

```
-----
ACTID = DIRECTORY NUMBER
ACTID BYTE COUNT = 9
DIRECTORY NUMBER CLASS = CALLED
DIRECTORY NUMBER TYPE = DOMESTIC
CONNECT TYPE = CONNECT TO DIRECTORY NUMBER
DIRECTORY NUMBER COUNT = 10
DIRECTORY NUMBER = 2012200000
=====
```

```
OUTGOING 15:08:36.51 NODE TYPE= TPC_NODE
DS512: ENCAP MS_CARD= 22 MS_PORT= 1 NODE= 1753
NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 06D9 ERROR= 00 LENGTH= 31
AGENT= CKT TOPSPOS 557
00 26 01 03 07 2D 02 50 00 19 00 01 0C 01 0C 01 01 01 00 FF 0C
02 F1 22 F0 00 00 1C 01 04 01 00 01 00 1C 01 04 01 01 00 FF
```

```
-----
APPLICATION ID = TOPS
BCS NUMBER = 38
MESSAGE TYPE = CALL UPDATE
ID COUNT = 3
ROUTING AREA COUNT = 7
POSITION ID = 557
CALL ID = 1638480
SWITCH ID = 0
LOOP ID = 1
```

```
-----
DID = DIRECTORY NUMBER
DID BYTE COUNT = 12
DIRECTORY NUMBER CLASS = CALLED
DIRECTORY NUMBER STATUS = VALID
DIRECTORY NUMBER TYPE = DOMESTIC
ROUTING INDICATOR = NONE
COUNTRY CODE COUNT = 255
DIRECTORY NUMBER COUNT = 12
DIRECTORY NUMBER = 201*220*0000
```

```
-----
DID = PORT STATUS
DID BYTE COUNT = 4
LOOP NUMBER = 1
PORT = CALLING
PORT STATUS = OFF-HOOK
PORT VOICE STATUS = CONNECTED
```

```
-----
DID = PORT STATUS
DID BYTE COUNT = 4
LOOP NUMBER = 1
PORT = CALLED
PORT STATUS = ON-HOOK
PORT VOICE STATUS = NIL
=====
```

OUTGOING 15:08:43.24 NODE TYPE= TPC_NODE
DS512: ENCAP MS_CARD= 22 MS_PORT= 1 NODE= 1753
NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 06D9 ERROR= 00 LENGTH= 22
AGENT= CKT TOPSPOS 557
00 26 01 02 07 2D 02 50 00 19 00 01 1C 01 04 01 00 01 00 1C 01 04
01 01 01 00

APPLICATION ID = TOPS
BCS NUMBER = 38
MESSAGE TYPE = CALL UPDATE
ID COUNT = 2
ROUTING AREA COUNT = 7
POSITION ID = 557
CALL ID = 1638480
SWITCH ID = 0
LOOP ID = 1

DID = PORT STATUS
DID BYTE COUNT = 4
LOOP NUMBER = 1
PORT = CALLING
PORT STATUS = OFF-HOOK
PORT VOICE STATUS = CONNECTED

DID = PORT STATUS
DID BYTE COUNT = 4
LOOP NUMBER = 1
PORT = CALLED
PORT STATUS = OFF-HOOK
PORT VOICE STATUS = CONNECTED
=====

INCOMING 15:09:03.59 NODE TYPE= TPC_NODE TPC_REPORT_MSG
NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 0000 ERROR= 00 LENGTH= 1D
AGENT= CKT TOPSPOS 557
79 02 11 00 26 03 01 07 2D 02 50 00 19 00 01 06 02 02 00 01 00

APPLICATION ID = TOPS
BCS NUMBER = 38
MESSAGE TYPE = ACTION REQUEST
ID COUNT = 1
ROUTING AREA COUNT = 7
POSITION ID = 557
CALL ID = 1638480
SWITCH ID = 0
LOOP ID = 1

ACTID = CLASS CHARGE
ACTID BYTE COUNT = 2
HANDLING DATA = STATION
BILLING DATA = COLLECT
=====

```

OUTGOING 15:09:03.60  NODE TYPE= TPC_NODE
DS512: ENCAP MS_CARD= 22 MS_PORT= 1  NODE= 1753
NN= 0088  TN= 0005  MSGTAG= 00  ROUTE= 06D9  ERROR= 00  LENGTH= 32
AGENT= CKT TOPSPOS  557
00 26 01 04 07 2D 02 50 00 19 00 01 0A 01 03 01 00 01 00 01 02 05
  FF 0C 01 0C 01 01 01 00 FF 0C 02 F1 22 F0 00 00 08 01 01 00

```

```

-----
APPLICATION ID      = TOPS
BCS NUMBER         = 38
MESSAGE TYPE       = CALL UPDATE
ID COUNT           = 4
ROUTING AREA COUNT = 7
POSITION ID        = 557
CALL ID            = 1638480
SWITCH ID          = 0
LOOP ID            = 1

```

```

-----
DID                = CLASS CHARGE
DID BYTE COUNT     = 3
BILLING STATUS     = VALID
HANDLING DATA     = STATION
BILLING DATA      = COLLECT

```

```

-----
DID                = AMA STATUS
DID BYTE COUNT     = 2
AMA STATUS          = COLLECT BILLING VERIFICATION
AUTOMATED SYSTEM ID = NIL

```

```

-----
DID                = DIRECTORY NUMBER
DID BYTE COUNT     = 12
DIRECTORY NUMBER CLASS = CALLED
DIRECTORY NUMBER STATUS = VALID
DIRECTORY NUMBER TYPE  = DOMESTIC
ROUTING INDICATOR     = NONE
COUNTRY CODE COUNT    = 255
DIRECTORY NUMBER COUNT = 12
DIRECTORY NUMBER      = 201*220*0000

```

```

-----
DID                = CHARGE STATUS
DID BYTE COUNT     = 1
CHARGE STATUS      = CALL CHARGEABLE
=====

```

```

OUTGOING 15:09:04.61  NODE TYPE= TPC_NODE
DS512: ENCAP MS_CARD= 22 MS_PORT= 1  NODE= 1753
NN= 0088  TN= 0005  MSGTAG= 00  ROUTE= 06D9  ERROR= 00  LENGTH= 21
AGENT= CKT TOPSPOS  557
00 26 01 03 07 2D 02 50 00 19 00 01 00 01 02 00 FF 15 01 01 01 08
  01 01 00

```

```

-----
APPLICATION ID      = TOPS

```

BCS NUMBER = 38
MESSAGE TYPE = CALL UPDATE
ID COUNT = 3
ROUTING AREA COUNT = 7
POSITION ID = 557
CALL ID = 1638480
SWITCH ID = 0
LOOP ID = 1

DID = AMA STATUS
DID BYTE COUNT = 2
AMA STATUS = UNSPECIFIED
AUTOMATED SYSTEM ID = NIL

DID = LIDB RESPONSE
DID BYTE COUNT = 1
LIDB RESPONSE = AUTOMATICALLY ACCEPTED

DID = CHARGE STATUS
DID BYTE COUNT = 1
CHARGE STATUS = CALL CHARGEABLE
=====

INCOMING 15:09:09.03 NODE TYPE= TPC_NODE TPC_REPORT_MSG
NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 0000 ERROR= 00 LENGTH= 1D
AGENT= CKT TOPSPOS 557
79 02 11 00 26 03 01 07 2D 02 50 00 19 00 01 0A 02 02 01 00 00

APPLICATION ID = TOPS
BCS NUMBER = 38
MESSAGE TYPE = ACTION REQUEST
ID COUNT = 1
ROUTING AREA COUNT = 7
POSITION ID = 557
CALL ID = 1638480
SWITCH ID = 0
LOOP ID = 1

ACTID = LOOP ACTION
ACTID BYTE COUNT = 2
LOOP NUMBER = 1
LOOP ACTION = RELEASE
=====

OUTGOING 15:09:09.05 NODE TYPE= TPC_NODE
DS512: ENCAP MS_CARD= 22 MS_PORT= 1 NODE= 1753
NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 06D9 ERROR= 00 LENGTH= 1A
AGENT= CKT TOPSPOS 557
00 26 02 01 07 2D 02 50 00 19 00 01 16 01 03 01 00 FF

APPLICATION ID = TOPS
BCS NUMBER = 38

```

MESSAGE TYPE      = CALL END
ID COUNT          = 1
ROUTING AREA COUNT = 7
POSITION ID       = 557
CALL ID           = 1638480
SWITCH ID         = 0
LOOP ID           = 1
-----
DID               = LOOP STATE
DID BYTE COUNT    = 3
LOOP NUMBER       = 1
LOOP STATUS       = IDLE
NOTIFY PENDING STATUS = NIL
=====

```

11.1.4 Delay Call with Assistance Request

This example illustrates the messages sent when an operator accesses a loop and places an assistance request. When the operator requests a loop access, the DMS responds with a Call Begin message. The operator requests general assistance. No supervisor is immediately available, so the called onhook information is sent down. Later, a supervisor operator logs in and the assistance request is connected to the supervisor's position. The supervisor has not answered the request yet, but the original operator's port information is refreshed. Next the supervisor answers the request. The original operator receives the offhook indication. When the two operators are finished talking, the supervisor releases the call. The original operator's call details are refreshed. Finally the original operator requests to release the call, and receives a Call End message.

Note: only the original operator's messaging is included in the following example.

```

INCOMING 14:32:52.77  NODE TYPE= TPC_NODE  TPC_REPORT_MSG
NN= 0088  TN= 0005  MSGTAG= 00  ROUTE= 0000  ERROR= 00  LENGTH= 1D
AGENT= CKT TOPSPOS 557
79 02 11 00 26 03 01 07 2D 02 FF FF FF FF FF 0A 02 02 01 01 00
-----
APPLICATION ID    = TOPS
BCS NUMBER       = 38
MESSAGE TYPE      = ACTION REQUEST
ID COUNT         = 1
ROUTING AREA COUNT = 7
POSITION ID       = 557
CALL ID           = 4294967295
SWITCH ID         = 31
LOOP ID           = 7
-----
ACTID            = LOOP ACTION
ACTID BYTE COUNT = 2
LOOP NUMBER       = 1
LOOP ACTION       = ACCESS
=====

```

```
OUTGOING 14:32:52.81 NODE TYPE= TPC_NODE
DS512: ENCAP MS_CARD= 23 MS_PORT= 3 NODE= 1631
NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 065F ERROR= 00 LENGTH= 31
AGENT= CKT TOPSPOS 557
00 26 00 03 07 2D 02 73 00 1F 00 01 03 01 0B 00 00 00 07 00 06 FF FF 00 FF FF
22 01 05 00 01 02 FF FF 1C 01 04 01 00 03 FF
```

```
-----
APPLICATION ID      = TOPS
BCS NUMBER          = 38
MESSAGE TYPE        = CALL BEGIN
ID COUNT            = 3
ROUTING AREA COUNT = 7
POSITION ID         = 557
CALL ID             = 2031731
SWITCH ID           = 0
LOOP ID             = 1
-----
```

```
-----
DID                  = CALL ORIGINATION
DID BYTE COUNT       = 11
SERVICE TYPE        = 0
SCREEN TYPE          = BILLING SCREEN
ANI STATUS           = NOT APPLICABLE
REASON FOR OPERATOR  = ACCESSING LOOP
CALL ORIGINATION STATUS = CREDIBLE
CALL ORIGINATION     = 6
CALL TYPE FOR QUEUEING = 65535
CALL ARRIVAL STATUS  = STANDARD
TRUNK GROUP DISPLAY  = 255
NOTIFY MINUTES       = 255
-----
```

```
-----
DID                  = STATION CLASS
DID BYTE COUNT       = 5
PORT                 = CALLING
STATION CLASS        = STATION
RESTRICTION STATUS   = NO BILLING RESTRICTIONS APPLY
RESTRICTION NUMBER   = 255
OVERTIME TYPE        = NIL
-----
```

```
-----
DID                  = PORT STATUS
DID BYTE COUNT       = 4
LOOP NUMBER          = 1
PORT                 = CALLING
PORT STATUS          = NOT CONNECTED
PORT VOICE STATUS    = NIL
=====
```

```
OUTGOING 14:32:52.82 NODE TYPE= TPC_NODE
DS512: ENCAP MS_CARD= 22 MS_PORT= 3 NODE= 1755
NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 06DB ERROR= 00 LENGTH= 25
AGENT= CKT TOPSPOS 557
00 26 01 03 07 2D 02 73 00 1F 00 01 1C 01 04 01 01 03 FF 16 01 03 01 01 FF 2E
01 01 00
```



```

-----
APPLICATION ID      = TOPS
BCS NUMBER         = 38
MESSAGE TYPE       = CALL UPDATE
ID COUNT           = 3
ROUTING AREA COUNT = 7
POSITION ID        = 557
CALL ID            = 2031731
SWITCH ID          = 0
LOOP ID            = 1
-----

```

```

-----
DID                = PORT STATUS
DID BYTE COUNT     = 4
LOOP NUMBER        = 1
PORT               = CALLED
PORT STATUS        = NOT CONNECTED
PORT VOICE STATUS  = NIL
-----

```

```

-----
DID                = LOOP STATE
DID BYTE COUNT     = 3
LOOP NUMBER        = 1
LOOP STATUS        = ACTIVE
NOTIFY PENDING STATUS = NIL
-----

```

```

-----
DID                = POSITION INFORMATION
DID BYTE COUNT     = 1
POSITION INFORMATION = END OF CALL DETAILS
=====

```

```

INCOMING  14:32:57.64  NODE TYPE= TPC_NODE   TPC_REPORT_MSG
NN= 0088  TN= 0005  MSGTAG= 00  ROUTE= 0000  ERROR= 00  LENGTH= 1F
AGENT= CKT TOPSP0S  557
79 02 13 00 26 03 01 07 2D 02 73 00 1F 00 01 11 02 04 00 00 FF FF 00
-----

```

```

-----
APPLICATION ID      = TOPS
BCS NUMBER         = 38
MESSAGE TYPE       = ACTION REQUEST
ID COUNT           = 1
ROUTING AREA COUNT = 7
POSITION ID        = 557
CALL ID            = 2031731
SWITCH ID          = 0
LOOP ID            = 1
-----

```

```

-----
ACTID              = OUTTRUNK
ACTID BYTE COUNT   = 4
OUTTRUNK INDEX     = 0
OUTTRUNK DATA     = 65535
=====

```

```

OUTGOING  14:32:57.65  NODE TYPE= TPC_NODE
DS512: ENCAP MS_CARD= 22 MS_PORT= 3  NODE= 1755

```

NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 06DB ERROR= 00 LENGTH= 2B
AGENT= CKT TOPSPOS 557
00 26 01 04 07 2D 02 73 00 1F 00 01 00 01 02 00 FF 1C 01 04 01 00 03 FF 1C 01
04 01 01 00 FF 08 01 01 01

APPLICATION ID = TOPS
BCS NUMBER = 38
MESSAGE TYPE = CALL UPDATE
ID COUNT = 4
ROUTING AREA COUNT = 7
POSITION ID = 557
CALL ID = 2031731
SWITCH ID = 0
LOOP ID = 1

DID = AMA STATUS
DID BYTE COUNT = 2
AMA STATUS = UNSPECIFIED
AUTOMATED SYSTEM ID = NIL

DID = PORT STATUS
DID BYTE COUNT = 4
LOOP NUMBER = 1
PORT = CALLING
PORT STATUS = NOT CONNECTED
PORT VOICE STATUS = NIL

DID = PORT STATUS
DID BYTE COUNT = 4
LOOP NUMBER = 1
PORT = CALLED
PORT STATUS = ON-HOOK
PORT VOICE STATUS = NIL

DID = CHARGE STATUS
DID BYTE COUNT = 1
CHARGE STATUS = CALL NOT CHARGEABLE DUE TO TERMINATING SCREENING
=====

OUTGOING 14:33:15.95 NODE TYPE= TPC_NODE
DS512: ENCAP MS_CARD= 23 MS_PORT= 3 NODE= 1631
NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 065F ERROR= 00 LENGTH= 22
AGENT= CKT TOPSPOS 557
00 26 01 02 07 2D 02 73 00 1F 00 01 1C 01 04 01 00 03 FF 1C 01 04 01 01 00 FF

APPLICATION ID = TOPS
BCS NUMBER = 38
MESSAGE TYPE = CALL UPDATE
ID COUNT = 2
ROUTING AREA COUNT = 7
POSITION ID = 557
CALL ID = 2031731
SWITCH ID = 0

```

LOOP ID          = 1
-----
DID              = PORT STATUS
DID BYTE COUNT  = 4
LOOP NUMBER     = 1
PORT            = CALLING
PORT STATUS     = NOT CONNECTED
PORT VOICE STATUS = NIL
-----
DID              = PORT STATUS
DID BYTE COUNT  = 4
LOOP NUMBER     = 1
PORT            = CALLED
PORT STATUS     = ON-HOOK
PORT VOICE STATUS = NIL
=====

```

```

OUTGOING 14:33:35.68  NODE TYPE= TPC_NODE
DS512: ENCAP MS_CARD= 23 MS_PORT= 3  NODE= 1631
NN= 0088  TN= 0005  MSGTAG= 00  ROUTE= 065F  ERROR= 00  LENGTH= 22
AGENT= CKT TOPSPOS  557
00 26 01 02 07 2D 02 73 00 1F 00 01 1C 01 04 01 00 03 FF 1C 01 04 01 01 01 00
-----

```

```

APPLICATION ID   = TOPS
BCS NUMBER      = 38
MESSAGE TYPE     = CALL UPDATE
ID COUNT        = 2
ROUTING AREA COUNT = 7
POSITION ID     = 557
CALL ID         = 2031731
SWITCH ID       = 0
LOOP ID         = 1
-----
DID              = PORT STATUS
DID BYTE COUNT  = 4
LOOP NUMBER     = 1
PORT            = CALLING
PORT STATUS     = NOT CONNECTED
PORT VOICE STATUS = NIL
-----
DID              = PORT STATUS
DID BYTE COUNT  = 4
LOOP NUMBER     = 1
PORT            = CALLED
PORT STATUS     = OFF-HOOK
PORT VOICE STATUS = CONNECTED
=====

```

```

OUTGOING 14:33:51.14  NODE TYPE= TPC_NODE
DS512: ENCAP MS_CARD= 23 MS_PORT= 3  NODE= 1631
NN= 0088  TN= 0005  MSGTAG= 00  ROUTE= 065F  ERROR= 00  LENGTH= 2F

```

```
AGENT= CKT TOPSPOS 557
00 26 01 03 07 2D 02 73 00 1F 00 01 03 01 0B 00 00 00 07 00 06 FF FF 00 FF FF
22 01 05 00 01 02 FF FF 00 01 02 00 FF
```

```
-----
APPLICATION ID      = TOPS
BCS NUMBER          = 38
MESSAGE TYPE        = CALL UPDATE
ID COUNT            = 3
ROUTING AREA COUNT = 7
POSITION ID         = 557
CALL ID             = 2031731
SWITCH ID           = 0
LOOP ID             = 1
-----
```

```
-----
DID                  = CALL ORIGINATION
DID BYTE COUNT       = 11
SERVICE TYPE        = 0
SCREEN TYPE          = BILLING SCREEN
ANI STATUS           = NOT APPLICABLE
REASON FOR OPERATOR  = ACCESSING LOOP
CALL ORIGINATION STATUS = CREDIBLE
CALL ORIGINATION     = 6
CALL TYPE FOR QUEUEING = 65535
CALL ARRIVAL STATUS  = STANDARD
TRUNK GROUP DISPLAY  = 255
NOTIFY MINUTES       = 255
-----
```

```
-----
DID                  = STATION CLASS
DID BYTE COUNT       = 5
PORT                 = CALLING
STATION CLASS        = STATION
RESTRICTION STATUS   = NO BILLING RESTRICTIONS APPLY
RESTRICTION NUMBER   = 255
OVERTIME TYPE        = NIL
-----
```

```
-----
DID                  = AMA STATUS
DID BYTE COUNT       = 2
AMA STATUS           = UNSPECIFIED
AUTOMATED SYSTEM ID = NIL
=====
```

```
OUTGOING 14:33:51.15 NODE TYPE= TPC_NODE
DS512: ENCAP MS_CARD= 23 MS_PORT= 3 NODE= 1631
NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 065F ERROR= 00 LENGTH= 30
AGENT= CKT TOPSPOS 557
00 26 01 05 07 2D 02 73 00 1F 00 01 1C 01 04 01 00 03 FF 1C 01 04 01 01 03 FF
16 01 03 01 01 FF 08 01 01 00 2E 01 01 00
```

```
-----
APPLICATION ID      = TOPS
BCS NUMBER          = 38
MESSAGE TYPE        = CALL UPDATE
ID COUNT            = 5
ROUTING AREA COUNT = 7
-----
```

POSITION ID = 557
 CALL ID = 2031731
 SWITCH ID = 0
 LOOP ID = 1

 DID = PORT STATUS
 DID BYTE COUNT = 4
 LOOP NUMBER = 1
 PORT = CALLING
 PORT STATUS = NOT CONNECTED
 PORT VOICE STATUS = NIL

 DID = PORT STATUS
 DID BYTE COUNT = 4
 LOOP NUMBER = 1
 PORT = CALLED
 PORT STATUS = NOT CONNECTED
 PORT VOICE STATUS = NIL

 DID = LOOP STATE
 DID BYTE COUNT = 3
 LOOP NUMBER = 1
 LOOP STATUS = ACTIVE
 NOTIFY PENDING STATUS = NIL

 DID = CHARGE STATUS
 DID BYTE COUNT = 1
 CHARGE STATUS = CALL CHARGEABLE

 DID = POSITION INFORMATION
 DID BYTE COUNT = 1
 POSITION INFORMATION = END OF CALL DETAILS
 =====

INCOMING 14:34:06.22 NODE TYPE= TPC_NODE TPC_REPORT_MSG
 NN= 0088 TN= 0005 MSGTAG= 00 ROUTE= 0000 ERROR= 00 LENGTH= 1D
 AGENT= CKT TOPSP0S 557
 79 02 11 00 26 03 01 07 2D 02 73 00 1F 00 01 0A 02 02 01 00 00

 APPLICATION ID = TOPS
 BCS NUMBER = 38
 MESSAGE TYPE = ACTION REQUEST
 ID COUNT = 1
 ROUTING AREA COUNT = 7
 POSITION ID = 557
 CALL ID = 2031731
 SWITCH ID = 0
 LOOP ID = 1

 ACTID = LOOP ACTION
 ACTID BYTE COUNT = 2
 LOOP NUMBER = 1
 LOOP ACTION = RELEASE

```
=====
OUTGOING  14:34:06.22  NODE TYPE= TPC_NODE
DS512: ENCAP MS_CARD= 22 MS_PORT= 3  NODE= 1755
NN= 0088  TN= 0005  MSGTAG= 00  ROUTE= 06DB  ERROR= 00  LENGTH= 1A
AGENT= CKT TOPSPOS  557
00 26 02 01 07 2D 02 73 00 1F 00 01 16 01 03 01 00 FF
-----
APPLICATION ID      = TOPS
BCS NUMBER          = 38
MESSAGE TYPE        = CALL END
ID COUNT            = 1
ROUTING AREA COUNT  = 7
POSITION ID         = 557
CALL ID             = 2031731
SWITCH ID           = 0
LOOP ID             = 1
-----
DID                 = LOOP STATE
DID BYTE COUNT      = 3
LOOP NUMBER         = 1
LOOP STATUS         = IDLE
NOTIFY PENDING STATUS = NIL
=====
```

Chapter 12: TOPS Description

12.1 Introduction

This section describes the Traffic Operator Position System (TOPS) application's use of the Open Position Protocol (OPP). It gives a detailed description of each identifier as it relates to TOPS. This section does not reference Human Machine Interface (HMI) specifics because HMI may vary with the position vendor.

12.2 Application Information

12.2.1 System Configuration

This document does not attempt to fully describe the system configuration required by this protocol. However, as an introduction, a brief overview of the links between the DMS and the position is given below. TOPS supports two approaches to provisioning the links between the DMS and the positions.

12.2.1.1 Configuration Using TMS

The position gateway is used as an interface to the positions. A variable number of positions can be configured off a position gateway. The gateway is used to concentrate data channels. Data messages destined for all positions that subtend a position gateway are sent on a single data channel. (For robustness, a second data channel can be configured). The gateway is responsible for routing the data message to the appropriate position. Using X.25, each position has a permanent virtual circuit for communication over the datalink.

Voice channels cannot be concentrated. There is a voice channel for each position hanging off the position gateway.

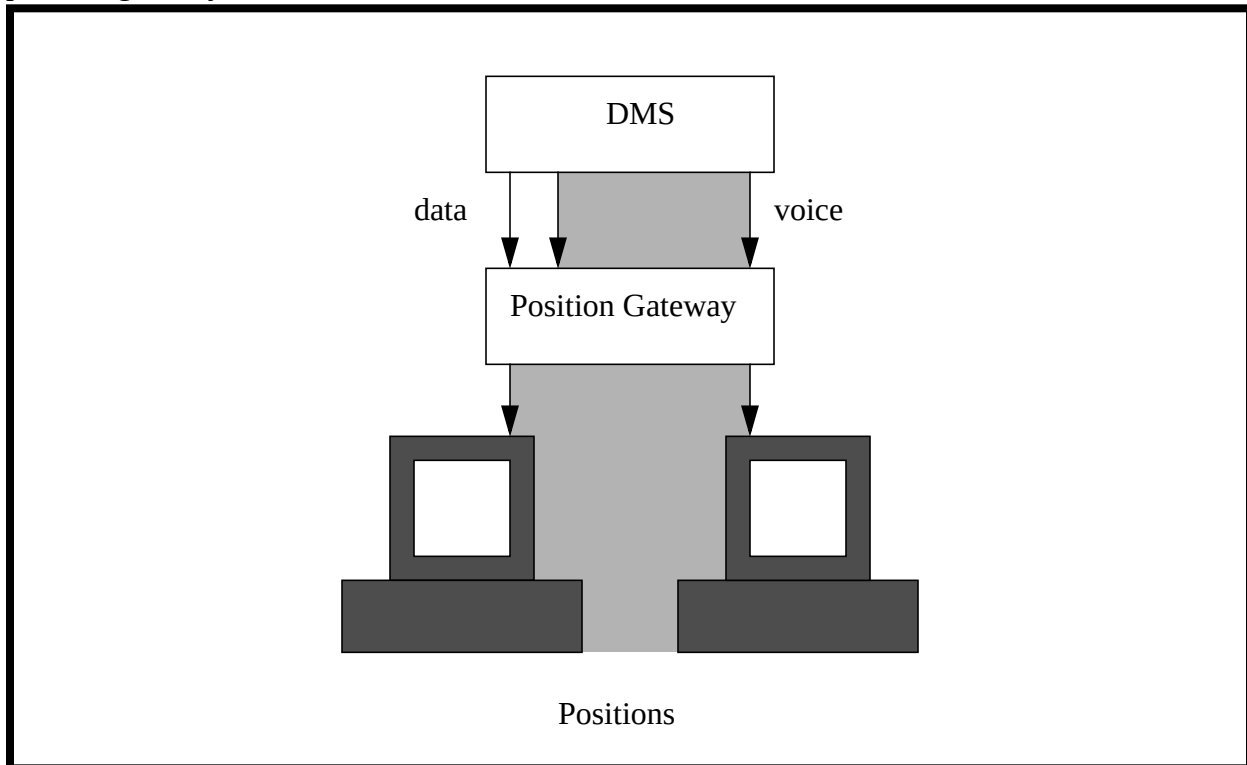


Figure 11: TMS-Based OPP Position Configuration

12.2.2 Configuration Using IP

Position gateways are not used in the IP configuration. Each position has direct Ethernet connectivity to a local area network (LAN) which has an Ethernet switch that forwards traffic between the

LAN and a wide area network (WAN). Voice and data to and from the position are packetized. The WAN and LAN must be managed to ensure that they can provide the required grade of service.

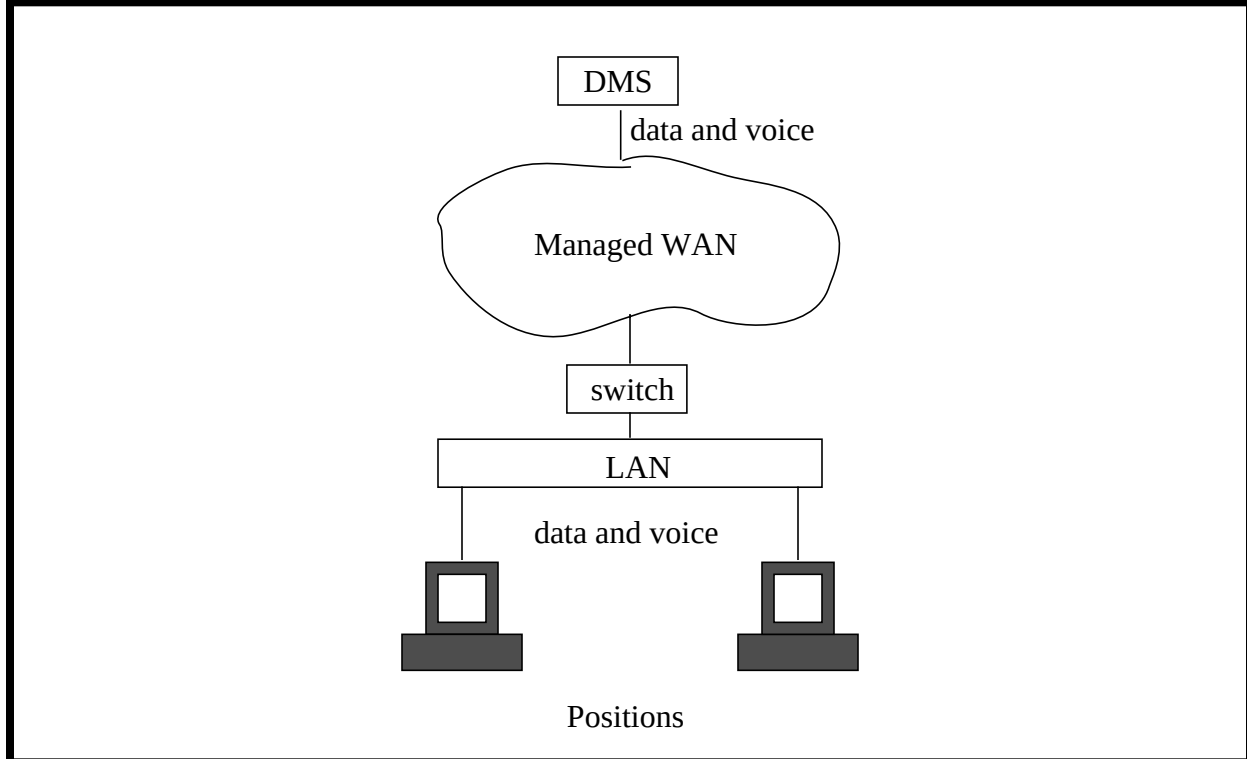


Figure 12: IP-Based OPP Position Configuration

12.2.2.1 Maintenance Messaging

OPP itself does not contain any maintenance messages. The maintenance messages are dependent upon the connectivity of the positions to the network. The Open Position Protocol TMS Description contains a detailed description of the TMS maintenance messages, and the IP Position Description describes the IP position maintenance messages. These messages are not a part of this protocol and do not use the same format.

12.2.3 OPP Header

TOPS uses the standard message header described in the OPP Message Format Section. The following list illustrates the range of values supported.

Applica- tion ID	BCS Number	Message Type	ID Count	Routing Area Count	Position ID	Call ID	Switch ID	Loop ID
TOPS	35 to 254	call begin	1 to n (# of DIDs)	7	0 to 9999	0 to 42949- 67294	0 to 31	1 to 2
TOPS	35 to 254	call update	1 to n (# of DIDs)	7	0 to 9999	0 to 42949- 67294	0 to 31	1 to 2

Table 22: OPP Header Supported Values

Applica- tion ID	BCS Number	Message Type	ID Count	Routing Area Count	Position ID	Call ID	Switch ID	Loop ID
TOPS	35 to 254	call sus- pend	1 to n (# of DIDs)	7	0 to 9999	0 to 42949- 67294	0 to 31	1 to 2
TOPS	35 to 254	call resume	1 to n (# of DIDs)	7	0 to 9999	0 to 42949- 67294	0 to 31	1 to 2
TOPS	35 to 254	call end	1 to n (# of DIDs)	7	0 to 9999	0 to 42949- 67294	0 to 31	1 to 2
TOPS	35 to 254	action request	1	7	0 to 9999	0 to 42949- 67294 or nil	0 to 31 or nil	1 to 2 or nil
TOPS	35 to 254	non-call update	1 to n (# of DIDs)	7	0 to 9999	nil	nil	nil

Table 22: OPP Header Supported Values

When the DMS composes an OPP message, it populates each header field in the following manner:

1. Application ID: Filled in by the OPP application dependent software invoked during call processing.
2. BCS Number: Obtained from the field BCS_NUMBER in Table OFCSTD.
3. Message Type: Call context dependent.
4. ID Count: Depends on the number of identifiers present in the specific message.
5. Routing Area Count: Application and release level dependent.
6. Position ID: The position chosen by the DMS to handle the call.
7. Call ID: The DMS call ID currently associated with the call.
8. Switch ID: For a standalone call update, call begin, call suspend, call resume, or call end message, the switch ID will be the nil office number (0) or the value in Table OCPARMS if it is datafilled. For a standalone non-call update message the switch ID will be nil.

In an OC environment the switch ID will be obtained from Table OCOFC in the host for a call begin, call update, call suspend, call resume, or call end message. Table OCOFC assigns unique numerical values to all switches in an OC network. For a non-call message in an OC environment, the switch ID will be nil.

9. Loop ID: The position loop chosen by the DMS to handle the call.

12.2.4 OPP Body

The TOPS message body formats vary on a per DID or ActID basis. The supported TOPS range of each field value is described in this chapter. Note also that the nil value for a field (e.g. #FF for a byte field) should never be considered a data error. It means that the field is not applicable for this instance of the Identifier.

12.2.5 Call Begin Inhibit Period

When a call is presented to an OPP position using the Call Begin message type, the DMS does not process most incoming Action Requests for approximately one second. This period when Action Requests are inhibited is designed to prevent premature releasing of calls from position. Historically, operators have been known to repeatedly key to release a call, causing the release of the current call at position as well as the next call to be presented. Inhibiting the processing of Action Requests for a short period, during which time verbal communication is usually taking place, prevents this problem.

A small set of actions are processed during this period. These include the Position State ActID with any supported position state value and the Miscellaneous ActID with a miscellaneous action request of 'current time'. All other requests during this period are ignored.

The one second period measures from the last message associated with the initial presentation of the call. This message contains the Position Information DID indicating 'end of call details'.

12.2.6 Failure Strategies

12.2.6.1 Messaging Failures

During operator call processing, it is possible that OPP messages can be lost. The effects of the loss of each message type was discussed in Chapter 1: "OPP Description." If occasional Action Request or Call Details messages are lost, the operator can usually reestablish the necessary call details by requesting the same action again, or requesting the Call Details action. More involved recovery techniques apply when a Call Begin message is lost. There is also a sanity timer which recovers calls when the position datalinks have been completely lost and no further ActIDs or DIDs can be sent. This section explains these failure strategies in more detail.

In some situations when there is heavy traffic on the datalink or problems with the positions, it is possible for occasional Action Request or Call Update message to be lost. A symptom would be that the operator receives no response following an action request. If this is a sporadic datalink problem, the operator can request the same action again, thereby sending a new message. If the messaging is successful the second time, the operator will receive the anticipated response.

A special case is made for the loss of a Call Begin message. The loss of the Call Begin message means the position is not aware of the call ID for the call. Therefore, any Action Requests will contain a nil call ID. Receiving an Action Request with a nil or invalid call ID is usually logged as a protocol error. An exception is made for the 'call details' action request. Operators should be instructed to request 'call details' when they receive a voice connection but no associated screens. This is a symptom of the loss of the Call Begin message.

The sanity timer was created because of operator hold. Operator hold is the mechanism by which the DMS retains control of the call. Once the DMS has presented the call to the position, the operator has control of the call. The call will remain at the position, in spite of any actions taken by the calling or called party, until it is released by the operator. This state is referred to as being under operator hold. Operator hold applies to most call types, but recent developments have given the telco the option of cancelling operator hold for directory assistance calls. When this option is in

effect, a subscriber onhook can take down the call.

If operator hold is in effect, and the datalinks to a position are lost, the operator will not be able to request the call be released from the position. Therefore the call will remain attached to the position. A sanity timer was introduced to take down calls which are in this state. The sanity timer starts when all attached subscribers go onhook. The subscribers must remain onhook for the duration of the timer. Once the timer expires the call will be taken down, thereby freeing up the trunks, conference ports, and other telephone company resources.

The sanity timer is assisted by the following modification to operator behavior. If the operator experiences trouble handling the call and the voice connection is still intact, the operator can tell the subscribers to hang up and wait for the timer to expire. Once the call is taken down the subscriber can attempt their call again. If the voice connections are no longer functioning, the subscriber(s) will eventually hang up, after hearing nothing from the operator.

When the all parties go onhook, the timer begins. If the DMS receives a message from the position prior to the expiration of the timer, then the timer is stopped and restarted. If one of the subscribers goes back offhook prior to the expiration of the timer, then the timer is cancelled and the call proceeds. If the timer expires, the call is automatically aborted, freeing up all resources.

The DMS will allow the 'call details' action request to always reset the sanity timer. Therefore if the Call Begin message is lost and a problem with the voice connection caused the subscribers to go onhook, the operator can key Call Details before the timer expires and receive a new Call Begin message, allowing the position to reestablish the details of the call. The timer will be stopped and restarted at this point. If the subscriber(s) go back offhook the operator can resume processing the call normally.

The value of the sanity timer is datafillable in the DMS. The value should be of sufficient length to allow adequate time for the operator to respond appropriately to a subscriber onhook.

12.2.6.2 Position Failures

If the position becomes inoperative during a call, then a maintenance message should be sent to inform the DMS that the position has gone out of service. At this point the call is taken down in the DMS, and the position is marked as system busy.

12.2.6.3 Audit Failures

When an OPP position is returned to service, an audit sequence is initiated to ensure protocol level compatibility. For positions with traditional TMS-based connectivity to the DMS, the Audit DID is sent by the DMS containing the BCS level of the DMS software, and thus the OPP level. The position responds with an Audit ActID containing the BCS or software release level of the position. If the difference between the two release levels is greater than three, the position is marked as system busy. The functionality is similar for positions with IP connectivity, but the audit messages are part of the maintenance messaging rather than part of OPP.

12.2.7 Operator Centralization (OC)

Operator Centralization (OC) is a configuration of host and remotes that allows the operator force

to login at one DMS and process calls from other switches. The operators are logged into the host. The calls are originated in remotes or in the host.

The links between the host and its remotes consist of voice links and data links. The positions and call queues reside in the host.

When a call originates in the remote, the remote determines if the call requires an operator, and sends a message over the data link requesting an operator position. When an operator position becomes available, the host informs the remote which position it has allocated to the call. The remote formats the data used to display the call information to the operator. This data is sent to the host imbedded in a data link message. The host forwards the call data information on to the position. (This explanation does not describe how the voice connection is set up, as that varies depending on whether the position voice link, the OC voice link, or both are traditional circuit-switched or packet-based connections.)

Operator action requests are filtered in the host. Most action requests are forwarded to the remote for processing since all of the call related data is in the remote. The remote responds with data sent to the host in a datalink message.

The remote releases the operator and the voice link when the operator position is no longer needed. It sends a datalink message to the host informing the host to release the position.

The following diagram illustrates operator centralization. For positions with IP connectivity to the host DMS, if the OC voice link uses VoIP, then the VoIP connection is directly between the remote and the position. In all other configurations, the voice connection passes through the DMS network in the host.

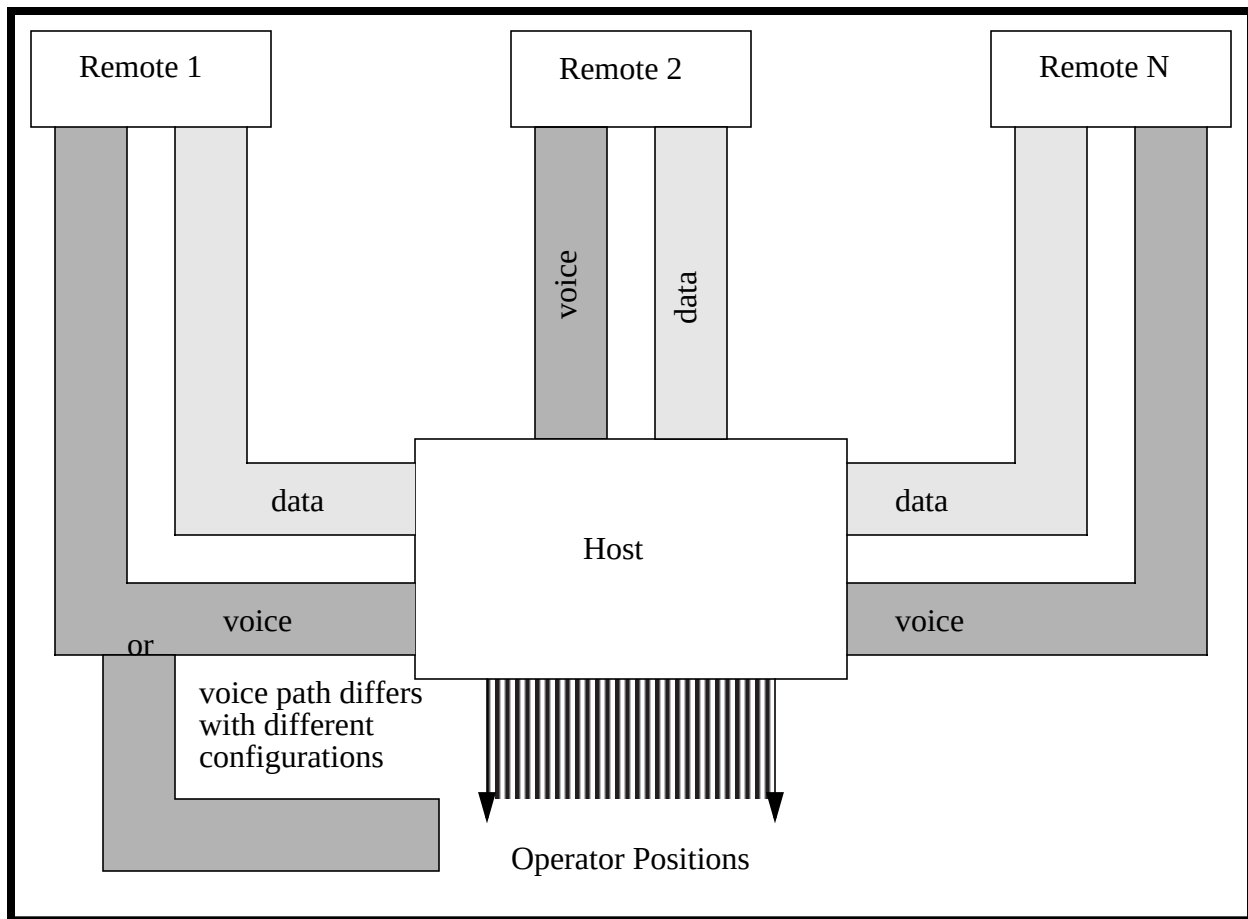


Figure 13: Operator Centralization Configuration

The Open Position Protocol is transported in the Screen Update and Key Function messages. Refer to the following figure for an example call flow.

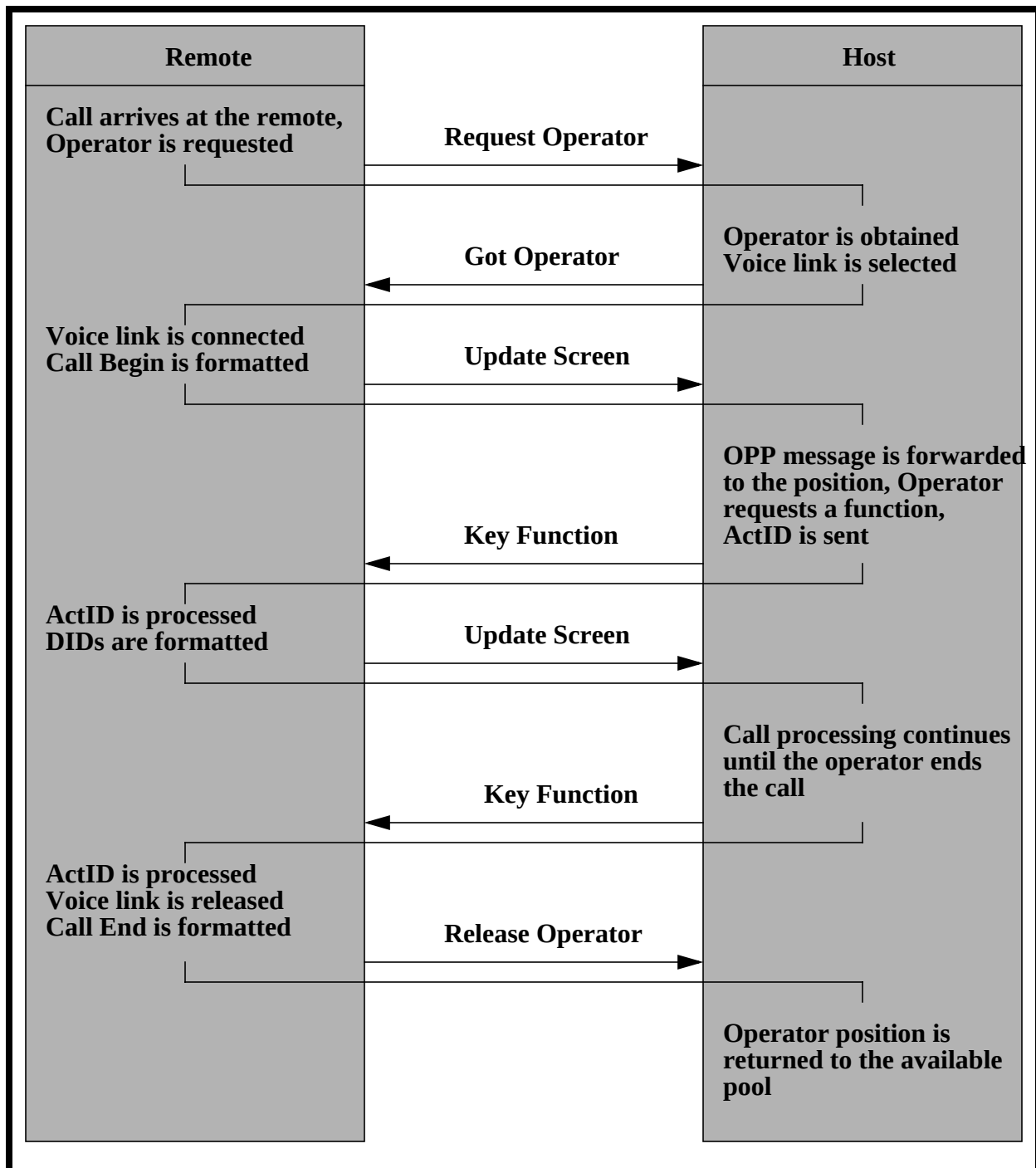


Figure 14: Example Operator Centralization Messaging

12.2.7.1 Backward Compatibility in OC

Since more than one DMS is involved in an OC environment, the question of software release levels and backward compatibility needs re-examination. Also, the description in the previous section assumes that each DMS is either a host or a remote, but not both. In fact, each DMS can function

as a host on some calls and a remote on others.

In an OC environment, the upgrade rule is refined as follows: at all times, the BCS levels of all switches and all positions in the OC network must be within three. This prevents a position from getting ahead of or behind a host or remote by more than three BCSs. For example, if a remote is at BCS 35, its host is at BCS 37, and a position is allowed to upgrade to BCS 39, the remote and the position would be mismatched by 4 BCSs.

With the expanded number of switches allowed in an OC network in TOP04 (BCS39), an additional compatibility rule is introduced. Prior to TOP04, a maximum to 15 switches were allowed in an OC network. However, with TOP04, up to 31 switches are allowed. For an OC network with greater than 15 switches to communicate effectively, all the switches and the OPP-compatible positions must be upgraded to communicate at BCS39 or later.

It is recognized that DMS upgrades may occur in which OPP does not change. In this circumstance, purchase of new position software is not necessary, but a BCS mismatch is introduced, possibly at a level greater than three BCSs. Therefore it is encouraged that positions be designed such that the BCS level can be advanced without actually loading new software. This should be done with great caution so that the position does not mislead the DMS about its actual OPP capabilities.

12.3 Action Identifiers

12.3.1 ActID Supported Values

This section describes each ActID as it applies to the TOPS application. TOPS limits the number of ActIDs in an Action Request message to 1. Sending more than 1 ActID will result in an error.

The DMS ignores bits in set fields which have no defined meaning. For example, the Charge Status field has defined meanings for 3 bits, meaning the DMS ignores the values of the other 5 bits as set by the position. The tables in the following sections will only address supported settings for bits in set fields that have defined meanings.

12.3.1.1 Alternate Date ActID

Identifier: #0229

Alternate Month	Alternate Day
nil	nil
1 to 12	1 to 31

Table 23: Alternate Date ActID Supported Values

This ActID is sent when the alternate date should be added, changed, or deleted. The alternate date can be used by any DMS application which needs to allow an operator-specified date. The only DMS application currently using the alternate date is estimate of charges. A nil alternate month along with a nil alternate day indicates that the alternate date should be deleted.

12.3.1.2 Alternate Time ActID

Identifier: #022A

Alternate Hour	Alternate Minute
nil	nil
0 to 23	0 to 59

Table 24: Alternate Time ActID Supported Values

This ActID is sent when the alternate time should be added, changed, or deleted. The alternate time can be used by any DMS application which needs to allow an operator-specified time. The only DMS application currently using the alternate time is estimate of charges. A nil alternate hour along with a nil alternate minute indicates that the alternate time should be deleted.

12.3.1.3 AMA Status ActID

Identifier: #0200

AMA Status	Automated System ID
unspecified	nil
start timing	nil
cancel timing	nil
cancel call	nil
handoff to automated system	automated alternate billing system

Table 25: AMA Status ActID Supported Values

In most cases, billing is a function of the elapsed time spent providing a service. A typical service is call completion. The billable time begins at operator release and continues until subscriber disconnect.

The operator can manually control the timing by requesting the ‘start timing’ and ‘cancel timing’ actions. The call can be concluded without any charges incurred if the operator requests ‘cancel call’.

Timing generally begins automatically when the operator floats the call from the position. An automatic ‘start timing’ function is executed by the DMS. However, if the operator is releasing the call to an automated system but does not want to begin timing, a ‘handoff’ is requested. The automated system completes operator functions which free the operator to handle other calls. Timing will not start until the automated system has completed its functions.

‘Cancel call’ is used to cause a call to be taken down upon release from the position (in other words, the call will not ‘float’) and to allow the release from position to occur regardless of any missing or invalid data associated with the call.

‘Unspecified’ is only used to reset the AMA status of a call from cancelled to unspecified. An AMA Status ActID with ‘unspecified’ that is sent when a call has an AMA status of anything other than ‘cancel call’ has no effect.

12.3.1.4 Attached Operator ActID

Identifier: #0226

Assistance Request Type	Position/Operator Number
release operator	nil
general assistance	nil

Table 26: Attached Operator ActID Supported Values

Assistance Request Type	Position/Operator Number
directed assistance by position	0 to 9999
paged assistance	nil
directed assistance by operator	0 to 9997

Table 26: Attached Operator ActID Supported Values

Refer to “Assistance Request Type” on page 246 for the meanings of the various Assistance Request Types. TOPS does not support the “request general transfer” request type. The directed assistance request types do not necessarily mean the operator is asking for assistance. For example, TOPS supports requests by general operators who have supervisory responsibilities for directed connections with other non-supervisory general operators.

Interpretation of a non-nil Position/Operator Number as a position number or an operator number depends on whether the Assistance Request Type is “directed assistance by position” or “directed assistance by operator.”

The functionality to attach an operator for assistance, or to attach a specified position or operator, is no longer provided through the Outtrunk ActID. The Attached Operator ActID must be used instead.

12.3.1.5 Audit ActID

Identifier: #0201

BCS Number
35 to 254

Table 27: Audit ActID Supported Values

This ActID is not expected from positions that have IP voice and data connectivity to the DMS, because auditing is done through maintenance messaging for these positions.

12.3.1.6 Automated Services ActID

Identifier: #022E

Automation Status
automation denied automation allowed

Table 28: Automated Services ActID Supported Values

12.3.1.7 Booked Call Database ActID

Identifier: #0220

Booked Call Database Action Request	Booked Call Database Action Number Count
database class	0 to 2
store database call	0 to 4
retrieve database call using calling number	1 to 18
retrieve database call using serial number	6
next database call	0
delete database call	0
clear database call	0

Table 29: Booked Call Database ActID Supported Values

If a database class is sent to the DMS, the Booked Call Database Action Number must correspond to an entry in DMS table IDBCLASS, or it is considered to be invalid. If the Booked Call Database Action Number Count is 0, the current class associated with the call is cleared.

The store database call action interprets the Booked Call Database Action Number as an indication of time. The maximum allowable time is 19 hours 59 minutes. If two or less digits are included in this field, they are interpreted as minutes. If more than two digits are included, the last two digits are interpreted as minutes and the rest as hours.

12.3.1.8 Call Cleared ActID

Identifier: #0231

Note: The ActID should be sent only by positions that have IP voice and data connectivity to the DMS. It is not expected from positions that have traditional TMS-based connectivity to the DMS.

A position with IP connectivity must send the Call Cleared ActID whenever it has received a Call End or Call Suspend message and has successfully ended or suspended the call. Successfully ending or suspending a call means not only that the loop has transitioned to the Call Not Present state (ending) or the Call Suspended state (suspending), but also that the position is ready to receive a new VoIP connection. The position should not send the Call Cleared ActID if it moves a loop to the Call Not Present or Call Suspended state for some reason other than receipt of a Call End or Call Suspend message.

This ActID has no data fields except the byte count, which should always be zero. The call ID, switch ID, and loop ID in the header field of the Action Request message that includes the Call Cleared ActID should be those of the call that has been cleared.

12.3.1.9 Call Type For Queueing ActID

Identifier: #0230

Call Type For Queueing
0 to 2046

Table 30: Call Type For Queueing ActID Supported Values

12.3.1.10 Caller ID Blocking ActID

Identifier: #021F

Caller ID Blocking Status
caller ID not blocked
caller ID blocked

Table 31: Caller ID Blocking ActID Supported Values

12.3.1.11 Calling Card ActID

Identifier: #0202

Calling Card Number Count	Calling Card Validation	Personal Identification Number Size
0 to 23	validate	nil
0 to 23	do not validate	0 to 23

Table 32: Calling Card ActID Supported Values

It is generally necessary for calling card validation to be performed by a billing validation database which is accessed from the DMS. However, calling card numbers may not require validation at the DMS if calling card verification has already been provided by another node.

The Personal Identification Number Size field only applies to calling cards where the calling card number does not require validation in the DMS. Calling card numbers not validated by the DMS are considered to be custom calling cards. These cards have a variable PIN size, hence the need to specify the PIN size. The DMS uses the PIN size to remove the PIN from the end of the calling card prior to recording it on the AMA record. TOPS will only support PIN lengths from 0 to 23.

12.3.1.12 Carrier Number ActID

Identifier: #0203

Carrier Number Count
0 to 4

Table 33: Carrier Number ActID Supported Values

Usually if the call should be completed by the carrier, the DMS automatically associates a carrier number. The operator has the ability to override the carrier as needed. Also, if the DMS does not automatically provide a carrier number for a carrier call, the operator is required to input one prior to releasing the call.

12.3.1.13 Charge Adjust ActID

Identifier: #0204

Charge Adjust Type	Charge Adjust Time Hours	Charge Adjust Time Minutes	Charge Adjust Indicator	Charge Adjust Amount
nil	nil	nil	nil	nil
0 to 9	nil	nil	nil	nil
0 to 9	nil	nil	time	0 to 99
0 to 9	nil	nil	monetary amount	0 to 9999
0 to 9	nil	nil	number of occurrences	nil
0 to 9	nil	nil	number of occurrences	0 to 99
0 to 9	0 to 23	0 to 59	time	0 to 99
0 to 9	0 to 23	0 to 59	monetary amount	0 to 9999

Table 34: Charge Adjust ActID Supported Values

Charge Adjust Type	Charge Adjust Time Hours	Charge Adjust Time Minutes	Charge Adjust Indicator	Charge Adjust Amount
0 to 9	0 to 23	0 to 59	number of occurrences	nil
0 to 9	0 to 23	0 to 59	number of occurrences	0 to 99

Table 34: Charge Adjust ActID Supported Values

Not all of the fields in this ActID are required to be populated. The Charge Adjust Type is the only field that is mandatory. It maps to a reason for charge adjustment. If this is the only field populated, then the DMS defaults the time to the current time, the indicator to 'time', and the amount to one minute.

12.3.1.14 Charge Status ActID

Identifier: #0205

Charge Status
none
charge status due to manual action by the operator

Table 35: Charge Status ActID Supported Values

The DMS assumes the call is chargeable unless datafill specifies otherwise.

The operator can always request a call become nonchargeable (by setting the third bit in the Charge Status field as above). To be able to request a call become chargeable (by setting no bits in the Charge Status field), the call must have been previously marked as nonchargeable by the operator. If the DMS marks the call as nonchargeable, the operator cannot override it.

The Charge Status field is a set field with 3 bits having defined meanings. The other five bits are ignored by the DMS, regardless of how the position sets them.

12.3.1.15 Class Charge ActID

Identifier: #0206

Handling Data	Billing Data
station	paid
station	collect
station	special calling

Table 36: Class Charge ActID Supported Values

Handling Data	Billing Data
station	special called
person	paid
person	collect
person	special calling
person	special called
auto	collect

Table 36: Class Charge ActID Supported Values**12.3.1.16 Data ActID**

Identifier: #0224

Data Type	Data Reason	Data Start Position	Data Count
OSSAIN context block	data included-not final data included-final	0 or 25	0 to 25
OSSAIN Custom AMA	data included-not final data included-final	0,25 or 50	0 to 25

Table 37: Data Actid Supported Values

This ActID is sent to the DMS to provide additional call information. OSSAIN Context Blocks of up to 50 bytes and OSSAIN custom AMA of up to 70 bytes are supported. The DMS stores this data when it is received.

12.3.1.17 Dial Rate ActID

Identifier: #0207

Dial Rate Status
no dial rate
dial rate

Table 38: Dial Rate ActID Supported Values

The class charge must be set to 'station' handling and 'paid' billing for dial rate to apply.

12.3.1.18 Directory Number ActID

Identifier: #0208

Directory Number Class	Directory Number Type	Connect Type
calling	domestic	connect to DN
calling	domestic	do not connect to DN
called	foreign	connect to DN
called	foreign	do not connect to DN
called	domestic	connect to DN
called	domestic	do not connect to DN
called	busy line verification	nil
third	foreign	nil
third	domestic	nil
requested	domestic	nil

Table 39: Directory Number ActID Supported Values

The Directory Number Class of third can also be input using the Calling Card Number ActID. The DMS can determine the type of number internally. Therefore, HMIs that support unique keying for third number input should use this ActID. HMIs that have a combined keying strategy for all alternate billing number input should use the Special Number ActID.

The Directory Number Count field should contain a value ranging from 0 to 23.

12.3.1.19 Estimate Duration ActID

Identifier: #022B

Estimate Duration
nil
0 to 65534

Table 40: Estimate Duration ActID Supported Values

This ActID is sent when the estimate duration should be added, changed, or deleted. The estimate duration is the number of minutes to be used when estimating charges. A nil estimate duration indicates that the estimate duration should be deleted.

12.3.1.20 Fixed Duration ActID

Identifier: #0221

Fixed Duration Status
no fixed duration
fixed duration

Table 41: Fixed Duration ActID Supported Values

The duration length is determined by the notify time associated with the call.

12.3.1.21 Foreign Assistance ActID

Identifier: #0222

Foreign Assistance Type	Foreign Assistance Number Count
directory assistance	0 to 8
inward assistance	0 to 8

Table 42: Foreign Assistance ActID Supported Values**12.3.1.22 Foreign Calling Card ActID**

Identifier: #0209

Foreign Calling Card Number Count
0 to 17

Table 43: Foreign Calling Card ActID Supported Values

The position should use this ActID when a non-digit character is present in a calling card number. There can be at most one non-digit character in a calling card number, and the non-digit character must be an uppercase letter.

12.3.1.23 Loop Action ActID

Identifier: #020A

Loop Number	Loop Action
1 to 2	release
1 to 2	access
1 to 2	hold

Table 44: Loop Action ActID Supported Values

Loop Number	Loop Action
1 to 2	request a CAMA call
1 to 2	release to operator

Table 44: Loop Action ActID Supported Values

For the release, release to operator, hold, and request a CAMA call Loop Actions, the Loop Number field must contain the loop number of the currently active call.

‘Requesting a CAMA call’ is a specialized loop action. When an operator is processing a call that involves waiting, the operator can request presentation of any CAMA call which may be in queue. A CAMA call is a 1+ ONI/ANIF call that requires the operator to collect the calling party’s directory number. When the number is collected, the call automatically releases from the position. A CAMA call usually requires a few seconds to process and can be handled while the operator is waiting for an event to occur on another loop.

12.3.1.24 LNP Request ActID

Identifier: #0228

LNP Party
calling
called
special

Table 45: LNP Request ActID Supported Values

An LNP request will be rejected if the directory number for the specified party was not previously specified.

12.3.1.25 Miscellaneous ActID

Identifier: #020B

Miscellaneous Action Request
transfer to interLATA carrier
zip tone repeat
call details
current time
stop bell

Table 46: Miscellaneous ActID Supported Values

Miscellaneous Action Request
special verify
barge in
mark for transfer to operator
no transfer to interLATA carrier
mark for recall to operator
alternate international route
estimate charge
deny release link trunking

Table 46: Miscellaneous ActID Supported Values

12.3.1.26 Network Action ActID

Identifier: #020D

Port	Network Action
calling	release party
calling	ring party
calling	collect coins
calling	return coins
calling	trunk offering start
calling	trunk offering end
called	release party
called	ring party
called	trunk offering start
called	trunk offering end

Table 47: Network Action ActID Supported Values

Network actions consist of signals sent out over the network to other switches. The signals are transmitted using coin signaling. However, the party upon which the action is performed is not required to be a coin phone. For example, 'release back party' can be performed on any calling party.

12.3.1.27 Notify ActID

Identifier: #020E

Notify Minutes	Notify Connection
nil	nil
0 to 59	two-way
0 to 59	one-way

Table 48: Notify ActID Supported Values

This ActID is used to request a **nonstandard** notify be associated with the call. A **standard** notify is done on a coin call, because coin calls are usually charged by the minute, and when a subscriber's initial period has elapsed, the coin call must recall to an operator or automated system to collect prepayment for the next conversation period. A **nonstandard** notify means the calling or called subscriber has agreed to pay for the entire call before beginning conversation. No recalls for further payment are necessary. However the subscriber has requested a notify in order to track their conversation time, or the operator has requested a notify for other reasons.

12.3.1.28 Operator Feedback ActID

Identifier: #020F

Operator Feedback Type
none
display statistics
print statistics
reset statistics

Table 49: Operator Feedback ActID Supported Values

When the operator requests the statistics be printed, they are printed on their team's TADS (Traffic office Administration Device) or SADS (Single office Administration Device).

12.3.1.29 Operator Number ActID

Identifier: #0210

Operator Number Type	Operator Number	Monitor Type
request logon	0 to 9997	monitor not requested
request page	0 to 9997	monitor not requested

Table 50: Operator Number ActID Supported Values

Operator Number Type	Operator Number	Monitor Type
request monitor	0 to 9997	DMS broadcast or position broadcast
end page	nil	monitor not requested
end monitor	nil	monitor not requested

Table 50: Operator Number ActID Supported Values

When requesting ‘end page’ or ‘end monitor’, the operator number must be nil.

At any given time, a position may have at most one outgoing page and one incoming page. A position that is monitoring cannot have an outgoing or incoming page.

12.3.1.30 OSSAIN Information ActID

Identifier: #0227

This ActID is not supported by TOPS.

12.3.1.31 OSSAIN Trigger ActID

Identifier: #0225

OSSAIN Trigger Profile Index	OSSAIN No Answer Timer	OSSAIN Notification Timer	OSSAIN Notification Timer Type
0 to 2046	1 to 120 or nil	1 to 5999999	relative time
0 to 2046	1 to 120 or nil	1 to 5999999	conversation time
0 to 2046	1 to 120 or nil	nil	nil
2047	nil	nil	nil

Table 51: OSSAIN Trigger ActID Supported Values

The OSSAIN Trigger ActID provides OSSAIN trigger information for the call, where triggers are events that cause a call to be redirected to a service node or an operator. The OSSAIN Trigger Profile Index is numeric index for a set of triggers. Trigger Profile Index 2047 has special meaning for the TOPS application in that it maps to the nil trigger list, a trigger list which contains no triggers.

12.3.1.32 Outtrunk ActID

Identifier: #0211

Outtrunk Index	Outtrunk Data
0 to 99	nil

Table 52: Outtrunk ActID Supported Values

The supported values for the Outtrunk Index field vary based on DMS datafill. For operators who use the Queue Management System (QMS), outtrunk datafill is in table TQOGTKEY; for operators who use the TOPS ACD queueing system, it is in table OGTMPKEY. These tables allow several types of outtrunk events—for example, transferring to another call queue, speed dialing, selecting languages for AABS handoff, and changing the call's call type for queueing (CT4Q).

Although these tables may support outtrunk events for requesting assistance, this is only for backward compatibility with older versions of this protocol. In the current protocol version, the Attached Operator ActID must be used for requesting assistance.

The operator has access to 100 outtrunk keys. A label for each key is provided to aid the operator in selecting the appropriate outtrunk key. The label is part of parallel datafill in the position. The position datafill should be equivalent to the label found in the DMS table TQOGTKEY or OGTMPKEY.

If the Outtrunk Data field is populated, its contents will be ignored.

12.3.1.33 Over Collect ActID

Identifier: #0212

Over Collect Amount
nil
0 to 99

Table 53: Over Collect ActID Supported Values

12.3.1.34 Pass Through ActID

Identifier: #022C

Data Reason	Data Start Position	Data Count
data included-not final data included-final	0, 25, 50, or 75	0 to 25

Table 54: Pass Through ActID Supported Values

The pass through data in this ActID is sent to an attached service node via an OAP Pass Through

Inform. Up to 100 bytes of pass through data may be sent using multiple Pass Through ActIDs.

12.3.1.35 Person Call Back ActID

Identifier: #0213

Person Call Back Status
no person call back
person call back

Table 55: Person Call Back ActID Supported Values

12.3.1.36 Port Function ActID

Identifier: #0214

Port	Port Function
calling	mark as coin
calling	mark as hotel
calling	split voice to port
calling	join voice to port
calling	initiate outpulsing
calling	mark as station
called	mark as hotel
called	split voice to port
called	join voice to port
called	initiate outpulsing
called	mark as station
operator	split voice to port
operator	join voice to port

Table 56: Port Function ActID Supported Values

A ‘split’ operator port is a special case where the operator voice connection is one-way. The operator may hear the other parties on the call but may not speak to them - effectively the operator is muted. Other split ports are disconnected totally and can neither speak to nor hear other parties on the call.

12.3.1.37 Position Number ActID

Identifier: #0215

Position Number Type	Position Number	Monitor Type
request page	0 to 9999	monitor not requested
request monitor	0 to 9999	DMS broadcast or position broadcast
end page	nil	monitor not requested
end monitor	nil	monitor not requested

Table 57: Position Number ActID Supported Values

When requesting ‘end page’ or ‘end monitor’, the position number must be nil.

At any given time, a position may have at most one outgoing page and one incoming page. A position that is monitoring cannot have an outgoing or incoming page.

12.3.1.38 Position State ActID

Identifier: #0216

Position State
position occupied
position unoccupied
position busy
calls withheld
accept all calls
accept limited calls only

Table 58: Position State ActID Supported Values

Prior to operator logon to the DMS, a position state of occupied is requested. To initiate operator logoff from the DMS, a position state of unoccupied is requested (pending refers to pending the release of the current call). Position busy and calls withheld are interpreted by the DMS in the same manner. The position will not receive any new calls. Currently, training and administrative modes are not implemented in TOPS; the position state is not changed if either of these is requested.

The ‘accept limited calls only’ value is used by the in-charge operator to request a position state where only directed assistance requests will be attached to the in-charge position. When the in-charge operator requests the ‘accept all calls’ state, both directed and general assistance requests will be presented to the in-charge position.

12.3.1.39 Query ActID

Identifier: #0217

Query List Type
none
assistants
positions in a make busy state
positions in an out of service state
positions in an unoccupied state with a call in progress
positions in an unoccupied state with a call terminated
positions with a loop accessed with no call in progress
operators with controlled traffic
operators with study registers assigned

Table 59: Query ActID Supported Values

The Query ActID is used by either an IC operator or by a general operator who has the statistics and query capability (see Service Logon DID). TOPS supports all of the Query List Types when the ActID is received from an IC operator. When the ActID is received from a general operator with statistics and query capability, TOPS supports all Query List Types *except* “assistants” and “operators with study registers assigned”.

An example of query function use would be to find out if any positions are in an unoccupied state with a call in progress. In this state, the calling trunk facility is hung until the call is released. If the query shows positions in this state, someone can go to the affected positions and release the call.

12.3.1.40 Query Queue Status by Queue ActID

Identifier: #0227

Queueing Condition Type
calls waiting
calls deflecting
calls queued with no serving agent
calls alerting

Table 60: Query Queue Status by Queue ActID Supported Values

TOPS expects to receive this ActID only from general operators who have the queue status and query capability, as indicated by the Service Logon DID.

A common sequence of related identifiers might be:

- First TOPS detects a queue status condition and sends an operator the Queue Status DID.
- The operator, wanting to know what queues are affected, sends a Query Queue Status by Queue ActID.
- TOPS responds with a Queue Status by Queue DID.

12.3.1.41 Rate Step ActID

Identifier: #0218

Rate Step
nil
0 to 999

Table 61: Rate Step ActID Supported Values

The rate step is usually calculated by the real time rating system. If the real time rating system is unable to calculate the rate step and it is required for the call, then the operator must input the correct rate step from a separate database, from a Rate and Route operator or from personal memory. The Rate Step ActID is sent to associate the rate step with the call.

12.3.1.42 Service ActID

Identifier: #0219

Service Type
0 to 62

Table 62: Service ActID Supported Values

This ActID is sent to request a change in the service associated with the call. When the operator requests a change in the service, a billing record is produced and the service is changed (provided all billing requirements have been met). When the operator requests the same service, a billing record is produced. This is a generate AMA function.

TOPS depends on the position to request only valid service changes. The position has been informed during login of the profile of services that can be provided. The DMS does not check that the requested service is in the service profile, so it will grant any request perhaps causing unanticipated messages to be sent to the position.

12.3.1.43 Service Logon ActID

Identifier: #021A

Service Logon Complete
none to 63 bits

Table 63: Service Logon ActID Supported Values

The range of services supported by TOPS depends on the Call Queueing System in use by the position. A position using TOPS ACD can support up to 3 services. In this case, the Service Logon Complete field's first 3 bits are the only ones examined by the DMS, and the rest are ignored.

A position which is using QMS may support up to 63 services. In this case the DMS examines the values of all 63 bits in the field. The last bit is filler and is ignored.

The Call Queueing System is communicated to the position in the Service Logon DID.

12.3.1.44 Service Node Handoff ActID

Identifier: #022F

Service Node Handoff Count
0 to 10

Table 64: Service Node Handoff ActID Supported Values

This ActID is used to provide operator to service node handoff information for the call. The Service Node Handoff Count field specifies the number of operator to service node handoffs allowed for the current call.

12.3.1.45 Service Number ActID

Identifier: #021E

Service Number Code	Reference Code
0 to 9	0 to 99
0 to 9	nil
nil	0 to 99
nil	nil

Table 65: Service Number ActID Supported Values

12.3.1.46 Service Provider ActID

Identifier: #022D

Service Provider Class	Service Provider Type
calling	account owner
calling	billing service provider
called	account owner
called	billing service provider
special	account owner
special	billing service provider

Table 66: Service Provider ActID Supported Values

Service provider identifiers and displays will be right-padded with spaces if necessary to fill their entire fixed-length fields.

12.3.1.47 Special Number ActID

Identifier: #021D

Special Number Count
0 to 23

Table 67: Special Number ActID Supported Values

Position HMIs that have a combined keying strategy for all alternate billing number input (i.e. calling card and third) should use the Special Number ActID. The DMS will decide if the entered number is a third number or a calling card number.

12.3.1.48 Text ActID

Identifier: #020C

Text Type	Text Action	Text Start Position	Text Count
hotel guest name	clear to end of field, confirm text and confirm all	0	0 to 4
calling name	confirm text and confirm all, optional clear to end	0 to 31	0 to 25
called name	confirm text and confirm all, optional clear to end	0 to 31	0 to 25
hotel room	clear to end of field, confirm text and confirm all	0	0 to 6
password	clear to end of field	0	4 to 7
memo	confirm text and confirm all, optional clear to end	0 to 63	0 to 25
authorization number	clear to end of field, confirm text and confirm all	0	0 to 6

Table 68: Text ActID Supported Values

TOPS supports the following text characters in the Text field:

a b c d e f g h i j k l m n o p q r s t u v w x y z

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

0 1 2 3 4 5 6 7 8 9

<space> ! " # \$ % & ' () * + , - . / : ; < = > ? @ [\] ^ _ `

However the Text Type of hotel guest name only supports uppercase alpha characters, and hotel room and password only support uppercase alphas and/or numerics.

With Text Types of memo, calling name or called name, the Text Action bits may be set in any combination. If the 'confirm text' bit is not set, then the value of the 'confirm all' bit is ignored. Combinations which attempt to create a text strings which are too long (more than 64 for memo, more than 32 for calling name and called name) are considered to be errors. If an ActID is received that adds text at a position after the end of existing text, any characters between the end of the existing text and the beginning of the new substring are filled with spaces.

The text strings for hotel guest name, calling and called names, hotel room and memo may be optionally recorded in AMA, depending on the AMA system in use and the successful entry of the text by the operator.

When the Text Type is hotel room or authorization number, up to six characters can be supplied. Numerics are treated as one character each, and the upper case alphas are treated as two characters each. For example, (123456, W1212, WW12, WWW) are acceptable combinations (in any order or combination desired), however (WWWW, WWW1, WW123) are unacceptable combinations since they exceed the six character limitation.

12.3.1.48.1 Text Echoing

TOPS in the DMS supports a text echoing mechanism. A position (or position simulator) may send a Text ActID and have a Text DID echoed back with the same contents in the Text field. This can be done with or without a call at the position, and does not affect any call which may be at the position.

A possible use of this tool is to load system components (LANs, positions, etc.) with high message rates to test capacity. Its purpose is not to exercise any OPP protocol or TOPS call processing capabilities, but merely to provide a method to get an innocuous echo of a message from the switch.

The tool works by scanning for a nil value in the Text Type field. If this is the case, the other fields in the ActID are ignored, except of course for the Text Count and Text fields. Additionally, the bytes in the Text field do not have to conform to the usual Text ActID range checking - they may be any value in the 0 to 255 range. If the Text Count field is greater than 25, it is reset to 25 and only 25 characters are echoed. Since this is a tool and not a part of usual OPP position operation, these field value ranges are not shown in the Text ActID Supported Values table above.

The Text ActID **must** be at the BCS level of the DMS. Backward compatibility is not supported for the Text Actid when text echoing is attempted. However, if the position and DMS are at differ-

ent BCS levels, but the Text ActID format is the same at those two levels, then text echoing works.

When test echoing is being performed, the OPP header fields are checked to see that the values are in defined OPP ranges, but they are not checked against the more restrictive TOPS ranges. Nor are they checked for correctness - mismatches are not detected.

Values that are returned in the Text DID are documented later with the Text DID discussion.

12.3.1.49 Ticket Number ActID

Identifier: #0223

Ticket Number Action	Transit Code	Day	Ticket Number Digits
clear ticket number	nil	nil	nil
enter ticket number	nil	1 to 31	000001 to 999999
enter ticket number	3 characters	1 to 31	000001 to 999999
generate ticket number	nil	nil	nil

Table 69: Ticket Number ActID Supported Values

Transit code characters must be uppercase letters. If any of the three transit code characters are invalid, the entire transit code is ignored.

12.3.1.50 Time and Charges ActID

Identifier: #021B

Time and Charges Status
no time and charges
time and charges
do not print time and charges to device
print time and charges to device

Table 70: Time and Charges ActID Supported Values

12.3.1.51 Trouble Code ActID

Identifier: #021C

Trouble Code
nil

Table 71: Trouble Code ActID Supported Values

Trouble Code
0 to 99

Table 71: Trouble Code ActID Supported Values

The codes map to a DMS table that indicates either a Switch Network Analysis Center (SNAC) log or a Not In Service (NOTIS) report be generated. The craftsperson can use the trouble code in the log to determine what maintenance is appropriate.

12.3.2 ActID Information

This section gives a mapping showing which ActIDs can be sent from which types of operators (i.e., general operators, assistants or in-charge operators). The shaded blocks indicate the ActID can be sent from that type of operator. The operator type is communicated to the position in the Service Logon DID.

ActID	Oper	Asst	IC
AMA Status (#0200)			
Attached Operator (#0226)			
Audit (#0201)			
Automated Services (#022E)			
Booked Call Database (#0220)			
Call Cleared (#0231)			
Call Type For Queueing (#0230)			
Caller ID Blocking (#021F)			
Calling Card (#0202)			
Carrier Number (#0203)			
Charge Adjust (#0204)			
Charge Status (#0205)			
Class Charge (#0206)			
Data (#0224)			
Dial Rate (#0207)			
Directory Number (#0208)			

Table 72: ActID to Operator Type Mapping

ActID	Oper	Asst	IC
Fixed Duration (#0221)			
Foreign Assistance (#0222)			
Foreign Calling Card (#0209)			
Loop Action (#020A)			
Miscellaneous (#020B)			
Network Action (#020D)			
Notify (#020E)			
Operator Feedback (#020F)			
Operator Number (#0210)			
OSSAIN Trigger (#0225)			
Outtrunk (#0211)			
Over Collect (#0212)			
Person Call Back (#0213)			
Port Function (#0214)			
Position Number (#0215)			
Position State (#0216)			
Query (#0217)			
Query Queue Status by Queue ActID (#0227)			
Rate Step (#0218)			
Service (#0219)			
Service Logon (#021A)			
Service Node Handoff (#022F)			
Service Number (#021E)			
Service Provider(#022D)			
Special Number (#021D)			
Text (#020C)			
Ticket Number (#0223)			

Table 72: ActID to Operator Type Mapping

ActID	Oper	Asst	IC
Time and Charges (#021B)			
Trouble Code (#021C)			

Table 72: ActID to Operator Type Mapping

12.4 Call Data Identifiers

12.4.1 Call DID Supported Values

This section describes the Call DIDs as they apply to the TOPS application. Generally there is no specified order to the Call DIDs with one exception: the Call Begin message. For a general operator, the Call Begin message will always contain the Call Origination DID as the first DID in the message. For a service assistant or in-charge operator, the Call Begin message will contain the Call Service DID as the first DID in the message. The only exception to these rules occurs during a state transition. If a position moves from an unavailable state to a state in which calls can be handled, and a call is attached as a result of this state transition, the Position State DID will be the first DID in the Call Begin message, and the Call Origination or Call Service DID will follow.

12.4.1.1 Alternate Date DID

Identifier: #0137

Alternate Date Status	Alternate Month	Alternate Day
none	nil	nil
valid	1 to 12	1 to 31
invalid	1 to 12	1 to 31

Table 73: Alternate Date DID Supported Values

This DID is sent when the alternate date has been added, changed, or deleted. The alternate date can be used by any DMS application which needs to allow an operator-specified date. The only DMS application currently using the alternate date is estimate of charges.

12.4.1.2 Alternate Route DID

Identifier: #012C

Alternate Route Status	Alternate Route Number
none	nil
valid	0 to 128
invalid	nil

Table 74: Alternate Route DID Supported Values

An Alternate Route Number of 0 indicates that the end of the alternate route list has been reached.

12.4.1.3 Alternate Time DID

Identifier: #0138

Alternate Time Status	Alternate Hour	Alternate Minute
none	nil	nil
valid	0 to 23	0 to 59
invalid	0 to 23	0 to 59

Table 75: Alternate Time DID Supported Values

This DID is sent when the alternate time has been added, changed, or deleted. The alternate time can be used by any DMS application which needs to allow an operator-specified time. The only DMS application currently using the alternate time is estimate of charges.

12.4.1.4 AMA Status DID

Identifier: #0100

AMA Status	Automated System ID
unspecified	nil
start timing	nil
cancel timing	nil
cancel call	nil
calling card billing verification	nil
collect billing verification	nil
third number billing verification	nil
handoff to automated system	automated alternate billing service
database verification	nil

Table 76: AMA Status DID Supported Values

If an external database query for billing verification or rating information is launched as a result of calling card, collect or third number billing or as a result of real time rating requirements for coin or hotel calls, then this DID is sent to inform the operator that billing or rating verification is in progress. When the response from the database is received, the DID is sent again and the AMA status is reset to unspecified.

Note: While the database query is outstanding, the DMS does not process any call related actions requested by the operator.

If the operator discovers that the call was in error and the subscriber should not be billed, then the call may be cancelled. This DID is sent in response to an action request of cancel call.

To begin timing for the call, the operator should request a start timing when all billing information is present. This is achieved either explicitly with the start timing action or implicitly with the manual release position action. This DID is sent in response to the action request.

If the subscriber encounters a problem with a call and recalls back to an operator position, the operator can cancel the timing up to that point by requesting the cancel timing action. This is a transitory state of the AMA status. The operator must start the timing again or cancel the call before the call can be released from the position. This DID is sent in response to the cancel timing action request.

If the operator is handling a collect or third number billed call and needs acceptance from the billed party, then the call can be handed off to an automated system for acceptance of the charges. The automated system contacts the billed party, obtains billing acceptance and completes the call. This reduces the operator involvement in the call.

The initial AMA status for calls is generally unspecified. Usually the AMA status must be changed from 'unspecified' to one of the other values before the call may be floated. An exception is a call that is being transferred to a carrier. These calls may be released even though the AMA status has not been specified.

12.4.1.5 Automated Services DID

Identifier: #0102

Branding Status	ADAS Status	Automation Status
nil	ADAS not provided	automation denied
nil	ADAS not provided	automation allowed
nil	ADAS provided	automation allowed
call has not been branded	nil	automation denied
call has not been branded	nil	automation allowed
call has not been branded	ADAS not provided	automation denied
call has not been branded	ADAS not provided	automation allowed
call has not been branded	ADAS provided	automation allowed
call has been branded	nil	automation denied
call has been branded	nil	automation allowed
call has been branded	ADAS not provided	automation denied
call has been branded	ADAS not provided	automation allowed
call has been branded	ADAS provided	automation allowed

Table 77: Automated Services DID Supported Values

ADAS is an acronym for the Automated Directory Assistance Service.

12.4.1.6 Automatic Coin Toll Service DID

Identifier: #0101

CDC Status
CDC not attached
CDC attached
CDC not attached when expected

Table 78: Automatic Coin Toll Service DID Supported Values

This DID indicates the presence or absence of a Coin Detection Circuit (CDC) on a coin originated call that is paid for by the calling subscriber. Automated Coin Toll Service (ACTS) is an automated service that prompts the calling subscriber to deposit coins for a 1+ dialed call. ACTS then counts the coins and when the amount due for the initial period of conversation is collected, it completes the call to its proper destination. ACTS uses a CDC to count the coins.

The calling subscriber can flash the switchhook during the ACTS announcements and reach an operator position. The CDC remains attached to the call to aid the operator in counting the coins deposited. If a CDC were not attached, the operator would have to count the coins by listening for tones as each coin is deposited. The operator would then have to sum the total and compare it to the requested amount. This DID indicates if a CDC is attached and therefore, whether or not the operator will have to manually count coins that are deposited.

A value of “CDC not attached when expected” indicates a resource failure has occurred, and the operator must manually count coins during a call in which the operator would normally expect a CDC to be attached.

12.4.1.7 Booked Call Database Action DID

Identifier: #0128

Booked Call Database Action Type	Booked Call Database Action Status
store	valid
store	invalid
retrieve	valid
retrieve	invalid

Table 79: Booked Call Database Action DID Supported Values

Booked Call Database Action Type	Booked Call Database Action Status
delete	valid

Table 79: Booked Call Database Action DID Supported Values**12.4.1.8 Booked Call Database Class DID**

Identifier: #012A

Booked Call Database Class Status	Booked Call Database Class Number
none	nil
valid	0 to 99
invalid	nil
required but missing	nil

Table 80: Booked Call Database Class DID Supported Values**12.4.1.9 Booked Call Database Number DID**

Identifier: #0129

Booked Call Database Number Type	Booked Call Database Number Status	Booked Call Database Number Count
calling	none	0
calling	valid	1 to 18
calling	invalid	0 to 18
serial	none	0
serial	valid	6
serial	invalid	0
serial	invalid	6

Table 81: Booked Call Database Number DID Supported Values

When the position displays the calling number, formatting rules should be applied. A discussion of formatting rules can be found in this section with the Directory Number DID Supported Values.

The serial number is always formatted as nn-nnnn. The first two digits represent the day of the month and the last four digits are an assigned sequential number.

12.4.1.10 Call Arrival Tone DID

Identifier: #0140

Note: This DID is sent only to positions that have IP voice and data connectivity to the DMS.

Call Arrival Tone Info	PARS Tone Duration
default tone	nil
TA tone	nil
DA tone	nil
intercept tone	nil
ONI tone	nil
ADAS LowHigh tone	nil
ADAS HighLow tone	nil
PARS activation tone	0 to 254

Table 82: Call Arrival Tone DID Supported Values

If DMS datafill indicates that the IP position should play tones to signal the operator of call arrival, then the DMS includes a Call Arrival Tone DID in the call presentation DID sequence (some time before the Position Information DID). The Call Arrival Tone DID may also be sent, again depending on DMS datafill, when the caller is joined to an ADAS call. Refer to the Assumptions and IP Position Description sections for other information related to call arrival tones and IP positions.

The remainder of this section provides information for IP position vendors who want to preserve the same operator interface that exists for positions connected to the DMS by a TMS.

The PARS activation tone is a DTMF “D” digit (941 + 1633 Hz). It is used to trigger a pre-recorded announcement from a 3rd-party vendor’s PARS box on non-ADAS DA calls, and it is played for the specified duration in 10-msec units.

The other call arrival tones are for the operator, and they vary from country to country.

Telephony tone sets are defined by standards bodies for different countries. These tone sets include what are sometimes referred to as a HIGH TONE (tone 9 to DMS XPM toneset cards) and a LOW TONE (tone 5 to DMS XPM toneset cards). When the XPM generates call arrival tones, as it does for positions that do not have IP connectivity to the DMS, all of the tone patterns except the PARS activation tone are composed of these HIGH and LOW tones. The characteristics of the HIGH and LOW tones are specific to the tone set. In North America, for example, the DMS XPM uses the following values:

Tone Name	Frequency (Hz)	Level per Frequency (dBm0)
HIGH TONE	480	-17
LOW TONE	480 + 620	-24

Table 83: Characteristics of HIGH and LOW Tones in North American Tone Sets

These tones are generated in different patterns depending on the value of the Call Arrival Tone Info field. The following table shows the patterns for all the call arrival tones other than the PARS activation tone.

Call Arrival Tone Info	Pattern
default tone	100-msec HIGH TONE
TA tone	100-msec HIGH TONE
DA tone	100-msec HIGH TONE, 3 repetitions, each separated by 100 msec silence
intercept tone	100-msec HIGH TONE, 2 repetitions separated by 100 msec silence
ONI tone	100-msec HIGH TONE, 2 repetitions separated by 100 msec silence
ADAS LowHigh tone	100 msec LOW TONE followed by 100 msec HIGH TONE, no silence in between
ADAS HighLow tone	100 msec HIGH TONE followed by 100 msec LOW TONE, no silence in between

Table 84: HIGH and LOW Tone Patterns for Call Arrival Tone Info Values

12.4.1.11 Call Origination DID

Identifier: #0103

Service Type	Screen Type	ANI Status	Reason For Operator	Call Origination Status	Call Origination	Call Type For Queueing	Call Arrival Status	Trunk Group Display	Notify Minutes	Trunk Group ID
0 to 62	billing screen or service screen	ANI success	call setup	credible or dubious	0 to 254	nil or 0 to 2046	standard	nil or 1 to 254	nil	nil or 0 to 8191
0 to 62	billing screen	ANI success	call setup	credible or dubious	0 to 254	nil or 0 to 2046	ADACC	nil or 1 to 254	nil	nil or 0 to 8191
0 to 62	billing screen	ANI success	call setup	credible or dubious	0 to 254	nil or 0 to 2046	manual billing number verification	nil or 1 to 254	nil	nil or 0 to 8191
0 to 62	billing screen	ANI success	call setup	credible or dubious	0 to 254	nil or 0 to 2046	AABS collect	nil or 1 to 254	nil	nil or 0 to 8191
0 to 62	billing screen	ANI success	call setup	credible or dubious	0 to 254	nil or 0 to 2046	AABS 3rd number	nil or 1 to 254	nil	nil or 0 to 8191
0 to 62	billing screen	ANI success	call setup	credible or dubious	0 to 254	nil or 0 to 2046	AABS collect with party attached	nil or 1 to 254	nil	nil or 0 to 8191
0 to 62	billing screen	ANI success	call setup	credible or dubious	0 to 254	nil or 0 to 2046	AABS 3rd number with party attached	nil or 1 to 254	nil	nil or 0 to 8191
0 to 62	billing screen or service screen	ANI success	call setup	credible or dubious	0 to 254	nil or 0 to 2046	intercept special	nil or 1 to 254	nil	nil or 0 to 8191
0 to 62	billing screen or service screen	ANI success	call setup	credible or dubious	0 to 254	nil or 0 to 2046	intercept cut through	nil or 1 to 254	nil	nil or 0 to 8191
0 to 62	billing screen or service screen	ANI success	call setup	credible or dubious	0 to 254	nil or 0 to 2046	message delivery service ring no answer	nil or 1 to 254	nil	nil or 0 to 8191

Table 85: Call Origination DID Supported Values

Service Type	Screen Type	ANI Status	Reason For Operator	Call Origination Status	Call Origination	Call Type For Queueing	Call Arrival Status	Trunk Group Display	Notify Minutes	Trunk Group ID
0 to 62	billing screen or service screen	ANI success	call setup	credible or dubious	0 to 254	nil or 0 to 2046	message delivery service network busy	nil or 1 to 254	nil	nil or 0 to 8191
0 to 62	billing screen or service screen	ANI success	call setup	credible or dubious	0 to 254	nil or 0 to 2046	message delivery service called party busy	nil or 1 to 254	nil	nil or 0 to 8191
0 to 62	billing screen or service screen	ANI success	call setup	credible or dubious	0 to 254	nil or 0 to 2046	message delivery service unknown	nil or 1 to 254	nil	nil or 0 to 8191
0 to 62	billing screen	ONI or ANI office failure or ANI failure detected	call setup	credible or dubious	0 to 254	nil or 0 to 2046	standard	nil or 1 to 254	nil	nil or 0 to 8191
0 to 62	billing screen		call setup	credible or dubious	0 to 254	nil or 0 to 2046	standard	nil or 1 to 254	nil	nil or 0 to 8191
0 to 62	billing screen		call setup	credible or dubious	0 to 254	nil or 0 to 2046	standard	nil or 1 to 254	nil	nil or 0 to 8191
0 to 62	billing screen	ANI success	normal disconnect	credible or dubious	0 to 254	nil or 0 to 2046	standard	nil or 1 to 254	nil	nil or 0 to 8191
0 to 62	billing screen	or ONI or	coin flash recall	credible or dubious	0 to 254	nil or 0 to 2046	standard	nil or 1 to 254	nil	nil or 0 to 8191
0 to 62	billing screen		notify	credible or dubious	0 to 254	nil or 0 to 2046	standard	nil or 1 to 254	0 to 59	nil or 0 to 8191
0 to 62	billing screen		coin over-time notify	credible or dubious	0 to 254	nil or 0 to 2046	standard	nil or 1 to 254	nil or 0 to 59	nil or 0 to 8191
0 to 62	billing screen or service screen	or ANI failure detected	recall	credible or dubious	0 to 254	nil or 0 to 2046	standard	nil or 1 to 254	nil	nil or 0 to 8191
0 to 62	billing screen		time and charges	credible or dubious	0 to 254	nil or 0 to 2046	standard	nil or 1 to 254	nil	nil or 0 to 8191
0 to 62	billing screen	not applicable	accessing loop	credible or dubious	6	nil or 0 to 2046	standard	nil or 1 to 254	nil	nil or 0 to 8191

Table 85: Call Origination DID Supported Values

Service Type	Screen Type	ANI Status	Reason For Operator	Call Origination Status	Call Origination	Call Type For Queueing	Call Arrival Status	Trunk Group Display	Notify Minutes	Trunk Group ID
0 to 62	billing screen	ANI success or ONI or ANI office failure or ANI failure detected	pending	credible or dubious	0 to 254	nil or 0 to 2046	standard	nil or 1 to 254	nil	nil or 0 to 8191

Table 85: Call Origination DID Supported Values

At this time, the operator position should equate the following integers with predefined call origination types:

- 0 = unspecified
- 1 = zero minus
- 2 = zero plus
- 3 = one plus
- 4 = CAMA
- 5 = Remote CAMA
- 6 = delay
- 7 = 121
- 8 = 131
- 9 = 141
- 10 = 151
- 11 = 161
- 12 = 171
- 13 = 181
- 14 = 191
- 15 = 555
- 16 = 1150
- 19 = 1153
- 17 = 1151
- 18 = 1152
- 20 = 1154
- 21 = 1155
- 22 = 1156
- 23 = 1157
- 24 = 1158
- 25 = 1159
- 26 = 1160

- 27 = 1161
- 28 = 1162
- 29 = toll station
- 30 = toll subscriber
- 31 = attendant pay station
- 32 = alarm
- 33 = intercept
- 34 = 211
- 35 = 311
- 36 = 411
- 37 = 511
- 38 = 611
- 39 = 711
- 40 = 811
- 41 = 911
- 42 = mobile
- 43 = 999
- 44 = home 555
- 45 = foreign 555
- 46 = spare 1
- 47 = spare 2
- 48 = spare 3
- 49 = spare 4
- 50 = spare 5
- 51 = overseas operator center 141
- 52 = overseas operator center 151
- 53 = overseas operator center ovs
- 54 = overseas operator center manual
- 55 = overseas operator center 801
- 56 = overseas operator center delay
- 57 = overseas operator center database
- 58 = INTS
- 59 = coin test
- 60 = booked call origination
- 61 = booked call database recall
- 62 = country direct
- 63 = in networking
- 64 = special lrn

In several cases, the Call Arrival Status field uses parallel datafill in the position to provide text displays. The following list shows the DMS tables that each string should parallel:

- The string associated with value 1: automatic directory assistance call completion, does not have a direct association with a DMS table. The DMS table ADACCOPT provides a display based upon call origination type, class of service and restricted billing index. This granularity will not be supported with OPP. Only one text string is available for all automatic DA call completion calls.

- The string associated with value 2: manual billing number verification, should be equal to the string datafilled in the tuple TOPS_MAN_DATABASE_ORIG_DISPLAY found in the DMS table OFCVAR.
- The string associated with value 3:AABS collect, should be equal to the string datafilled in the tuple OPR_0PLUS_COL_DISPLAY found in the DMS table VSNOPT.
- The string associated with value 4:AABS third number, should be equal to the string datafilled in the tuple OPR_0PLUS_3RD_DISPLAY found in the DMS table VSNOPT.
- The string associated with value 5:AABS collect with party attached, should be equal to the string datafilled in the tuple OPR_0PLUS_CLDCON_DISPLAY found in the DMS table VSNOPT.
- The string associated with value 6:AABS third number with party attached, should be equal to the string datafilled in the tuple OPR_0PLUS_3RDCON_DISPLAY found in the DMS table VSNOPT.

The Trunk Group Display field uses parallel datafill in the position to provide the text displays. The datafill should match the data in the DMS table TOPSDISP. A 'nil' value indicates there is no display.

The Call Type for Queueing field uses parallel datafill in the position to provide text displays. The datafill should match the data in the DMS table CT4QNAMS. If the appropriate tuple's CT4QDISP field is set to 'Y' with an accompanying text string, the Call Type for Queueing field in this DID contains a non-nil value; if the call is not QMS or the CT4QDISP field is set to 'N', this field is contains a 'nil' value indicating no display.

For general operators, the Call Origination DID indicates the beginning of call details. Additional DIDs may be sent which inform the position of additional call details. However, for general operators, the Position Information DID will always be sent at the end of the DID stream to indicate all relevant call details have been transmitted.

Note that calls with a MDS call arrival status (values 11-14) should not be sent to an operator. These calls should be routed to a MDS position for the message delivery service.

12.4.1.12 Call Queue DID

Identifier: #0104

Queue Status	Queue Mark
valid	0 to 3
invalid	0 to 3

Table 86: Call Queue DID Supported Values

This DID is only sent when the TOPS ACD Call Queueing System is in use by the position. A position utilizing TOPS ACD can support up to 4 queues and should equate the following integers

with predefined queues:

- 0 = general
- 1 = transfer 1
- 2 = transfer 2
- 3 = directory assistance

12.4.1.13 Call Service DID

Identifier: #0105

Service Status	Service Type	Screen Type
valid	0 to 62	billing screen
valid	0 to 62	service screen
invalid	nil	nil

Table 87: Call Service DID Supported Values

When a general operator requests assistance, this DID will be sent to the assistant operator to indicate the service of the general operator's call.

The final combination is sent to the general operator when an invalid service change is attempted. A valid service change will result in the Call Origination DID being sent. The Call Origination DID contains all necessary service information.

12.4.1.14 Call Type For Queueing DID

Identifier: #0127

Call Type For Queueing
0 to 2046, or nil

Table 88: Call Type For Queueing DID Supported Values

This DID is sent when a new QMS call type for queueing (CT4Q) is assigned by the operator. The operator uses the Outtrunk or Call Type For Queueing ActID to request the new CT4Q. The position looks up the CT4Q name in one of its local tables and displays the name on the screen.

12.4.1.15 Calling Card DID

Identifier: #0106

CC Type	CC Status	Issuer ID Size	Account ID Size	PIN Size	PIN Status	RAO	CC Service Denial Indicator	Determination
domestic	none	nil	nil	nil	none	nil	nil	0
domestic	valid	nil	nil	nil	none	nil	nil	0
domestic	valid	nil	nil	nil	masked	0 to 999	nil	0
domestic	valid	nil	nil	nil	masked	nil	nil	0
domestic	valid	nil	nil	nil	masked and restricted	0 to 999	nil	0
domestic	hot	nil	nil	nil	masked	nil	nil	0
domestic	verification required	nil	nil	nil	none	nil	nil	0
domestic	invalid	nil	nil	nil	none	nil	nil	0
domestic	invalid	nil	nil	nil	none	nil	calling card service denial	0
domestic	invalid	nil	nil	nil	none	nil	PIN threshold exceeded	0
domestic	invalid	nil	nil	nil	none	nil	PIN non-payment	0
domestic	invalid	nil	nil	nil	none	nil	PIN service restriction	0
domestic	invalid	nil	nil	nil	restricted	0 to 999	nil	0
domestic	screening restrictions	nil	nil	nil	masked	0 to 999	nil	0
domestic	screening restrictions	nil	nil	nil	masked	nil	nil	0
domestic	screening restrictions	nil	nil	nil	masked and restricted	0 to 999	nil	0
domestic	required but missing	nil	nil	nil	none	nil	nil	0
domestic	automation unused by subscriber	nil	nil	nil	none	nil	nil	0
domestic	query failure	nil	nil	nil	masked	nil	nil	1
domestic	carrier restricted	nil	nil	nil	none	nil	nil	0
domestic	no mutual honoring agreement	nil	nil	nil	none	nil	nil	0
RAO	none	nil	nil	nil	none	nil	nil	0
RAO	valid	nil	nil	nil	none	nil	nil	0
RAO	valid	nil	nil	nil	masked	0 to 999	nil	0

Table 89: Calling Card DID Supported Values

CC Type	CC Status	Issuer ID Size	Account ID Size	PIN Size	PIN Status	RAO	CC Service Denial Indicator	Determination
RAO	valid	nil	nil	nil	masked	nil	nil	0
RAO	valid	nil	nil	nil	masked and restricted	0 to 999	nil	0
RAO	hot	nil	nil	nil	masked	nil	nil	0
RAO	verification required	nil	nil	nil	none	nil	nil	0
RAO	invalid	nil	nil	nil	none	nil	nil	0
RAO	invalid	nil	nil	nil	none	nil	calling card service denial	0
RAO	invalid	nil	nil	nil	none	nil	PIN threshold exceeded	0
RAO	invalid	nil	nil	nil	none	nil	PIN non-payment	0
RAO	invalid	nil	nil	nil	none	nil	PIN service restriction	0
RAO	invalid	nil	nil	nil	restricted	0 to 999	nil	0
RAO	screening restrictions	nil	nil	nil	masked	0 to 999	nil	0
RAO	screening restrictions	nil	nil	nil	masked	nil	nil	0
RAO	screening restrictions	nil	nil	nil	masked and restricted	0 to 999	nil	0
RAO	query failure	nil	nil	nil	masked	nil	nil	1
RAO	carrier restricted	nil	nil	nil	none	nil	nil	0
RAO	no mutual honoring agreement	nil	nil	nil	none	nil	nil	0
CCITT	valid	0 to 7	0 to 15	0 to 4	masked	0 to 999	nil	0
CCITT	valid	0 to 7	0 to 15	0 to 4	masked	nil	nil	0
CCITT	valid	0 to 7	0 to 15	0 to 4	masked and restricted	0 to 999	nil	0
CCITT	hot	0 to 7	0 to 15	0 to 4	masked	nil	nil	0
CCITT	verification required	0 to 7	0 to 15	0 to 4	none	nil	nil	0
CCITT	invalid	0 to 7	0 to 15	0 to 4	none	nil	nil	0
CCITT	invalid	0 to 7	0 to 15	0 to 4	none	nil	calling card service denial	0
CCITT	invalid	0 to 7	0 to 15	0 to 4	none	nil	PIN threshold exceeded	0

Table 89: Calling Card DID Supported Values

CC Type	CC Status	Issuer ID Size	Account ID Size	PIN Size	PIN Status	RAO	CC Service Denial Indicator	Determination
CCITT	invalid	0 to 7	0 to 15	0 to 4	none	nil	PIN non-payment	0
CCITT	invalid	0 to 7	0 to 15	0 to 4	none	nil	PIN service restriction	0
CCITT	invalid	0 to 7	0 to 15	0 to 4	restricted	0 to 999	nil	0
CCITT	screening restrictions	0 to 7	0 to 15	0 to 4	masked	0 to 999	nil	0
CCITT	screening restrictions	0 to 7	0 to 15	0 to 4	masked	nil	nil	0
CCITT	screening restrictions	0 to 7	0 to 15	0 to 4	masked and restricted	0 to 999	nil	0
CCITT	query failure	0 to 7	0 to 15	0 to 4	masked	nil	nil	1
CCITT	carrier restricted	0 to 7	0 to 15	0 to 4	none	nil	nil	0
CCITT	no mutual honoring agreement	nil	nil	nil	none	nil	nil	0
unknown	nil	nil	nil	0-23	none	nil	nil	nil

Table 89: Calling Card DID Supported Values

This DID is sent when the operator requests that a call be billed to a calling card. It is also sent when a calling card validation response is received from the validation database. The DID contains the entire calling card number (including the personal identification number or PIN). The PIN is displayed only when the operator must perform a manual verification of the calling card; otherwise, the PIN is masked (not shown to the operator). The Regional Accounting Office (RAO) code is obtained from the calling card validation response.

The status of the calling card is determined by a series of steps done in the DMS.

- **Format Checks:** The DMS checks the format of the number. If the calling card is 14 digit domestic, then the number must be in NPANXX format. If the calling card is 18 digit foreign, then the number must be valid for the present year. If the calling card is CCITT, then the number must fit the issuer's format.
- **Screening:** The DMS optionally checks several customer datafillable tables for the ability of this calling card to be used to bill this call. These checks are based upon the calling and called numbers.
- **Hot List:** The DMS checks a customer datafillable table called HOTLIST. This table stores up to 64 fraudulent billing numbers.
- **Database:** The DMS determines if a database query to validate the calling card is performed. This database responds with a validity indicator and any restrictions for the billing of the call.

Formatting rules: The position uses the following rules to determine where to place the separator

characters (such as dashes) in a calling card number. The rules differ based on the Calling Card Type field.

Domestic/RAO calling card number fields contain formatting information in the digit stream. A nil BCD digit (#F) is included in the stream wherever a separator character should be. The calling card count includes these separators in addition to the actual digits.

A note about the Calling Card PIN Status field: if the PIN Mask bit = '0', then the PIN digits should be displayed to the operator; if the PIN Mask bit = '1', then the PIN digits should be masked (e. g. 'XXXX'). The PIN portion of a domestic calling card number is the last set of digits after the final separator (#F) in the digit stream. If there are no separators, the entire calling card number field is considered to be the PIN.

CCITT calling cards make use of the Issuer ID Size, Account ID Size and PIN Size fields for formatting. The separator should appear following the last digit of the Issuer ID and the Account ID. The PIN is always the last set of digits of the calling card. For example, if Issuer ID Size = 6, Account ID Size = 11 and PIN Size = 4, then the calling card would be formatted ‘nnnnnnnnnnnnnnnnnn-nnnn’ or ‘nnnnnnnnnnnnnnnnnn-XXXX’. The same PIN masking rules apply as stated with domestic calling cards.

If the length of the CCITT calling card does not match the Issuer ID Size + Account ID Size + PIN Size, then the position should start at the beginning of the calling card and place the Issuer ID separator, followed by the Account ID separator (if possible) and disregard the PIN Size.

The Calling Card Count field will contain a value ranging from 0 to 27. There may be up to 23 digits and up to 4 separators.

Unknown calling cards are of a type which unknown to the DMS, so formatting by the DMS is not possible. The digit stream of calling card digits does not include any separator characters.

12.4.1.16 Charge Adjust DID

Identifier: #0107

Charge Adjust Status	Charge Adjust Type	Charge Adjust Time Hours	Charge Adjust Time Minutes	Charge Adjust Indicator	Charge Adjust Amount
none	nil	nil	nil	nil	nil
valid	0 to 9	0 to 23	0 to 59	none	nil
valid	0 to 9	0 to 23	0 to 59	minutes	0 to 99
valid	0 to 9	0 to 23	0 to 59	monetary amount	0 to 9999
valid	0 to 9	0 to 23	0 to 59	number of occurrences	nil
valid	0 to 9	0 to 23	0 to 59	number of occurrences	0 to 99
invalid	0 to 9	0 to 23	0 to 59	none	nil
invalid	0 to 9	0 to 23	0 to 59	minutes	0 to 99
invalid	0 to 9	0 to 23	0 to 59	monetary amount	0 to 9999
invalid	0 to 9	0 to 23	0 to 59	number of occurrences	nil

Table 90: Charge Adjust DID Supported Values

Charge Adjust Status	Charge Adjust Type	Charge Adjust Time Hours	Charge Adjust Time Minutes	Charge Adjust Indicator	Charge Adjust Amount
invalid	0 to 9	0 to 23	0 to 59	number of occurrences	0 to 9999

Table 90: Charge Adjust DID Supported Values

The charge adjust types are datafilled in the DMS table CHGADJKY. The available charge adjust types are standard, part charge, walkaway, and coin credit.

A standard charge adjust is used for giving credit such as wrong number dialed or poor transmission.

A part charge applies only to coin sent paid calls. A part charge is only applicable for the call after the initial period. The calling subscriber deposits coins for the first portion of the call and then bills the remainder of the call in a different way (collect, third number or collect).

A walkaway applies only to coin sent paid calls. If the call disconnects during an overtime period, the amount due for that period needs to be collected. If the money owed cannot be collected, then the call is considered a walkaway (the calling party has ‘walked away’ without paying). The operator enters the amount lost on the call.

A coin credit applies only to coin sent paid calls. If the calling subscriber loses coins in the phone, the operator can give ‘instant credit’ on the call. By entering a coin credit, the DMS thinks that the coins have actually been deposited.

12.4.1.17 Charge Status DID

Identifier: #0108

Charge Status
none
charge status due to terminating screening
charge status due to originating screening
charge status due to manual action by the operator

Table 91: Charge Status DID Supported Values

This DID can be sent in several scenarios. At call arrival or when the calling number is entered, the charge status can change based upon the attributes of the calling number. Also at call arrival or when the called number is entered, the charge status can change based upon the attributes of the called number. The operator can also change the charge status of the call; however, the operator can only change the status if both the calling and called numbers indicate a chargeable call. When the call is not chargeable, for any reason, the operator takes different actions than when the call is chargeable. For example, when a call is not chargeable, the operator does not need to obtain a class charge.

The Charge Status field is a set. If no bits are set, the call is chargeable. If any bit 0-2 is set, then the call is not chargeable. The corresponding bit positions indicate the reason the call is not chargeable. Currently only one bit is set at a time. However more than one bit may be set in future releases.

12.4.1.18 Charges DID

Identifier: #0109

Charges Type	Charges Status	Charges Amount
amount due	none	nil
amount due	valid	0 to 655,340,000
amount due	invalid	nil
total amount	none	nil
total amount	valid	0 to 655,340,000
total amount	invalid	nil
over collect amount	none	nil
over collect amount	valid	0 to 99
over collect amount	invalid	4095
estimate amount	none	nil
estimate amount	valid	0 to 655,340,000
estimate amount	invalid	nil

Table 92: Charges DID Supported Values

The final over collect amount combination indicates the operator attempted to enter an overcollect value larger than allowed by the DMS.

12.4.1.19 Class Charge DID

Identifier: #010A

Billing Status	Handling Data	Billing Data
none	nil	nil
valid	station	paid
valid	station	collect

Table 93: Class Charge DID Supported Values

Billing Status	Handling Data	Billing Data
valid	station	special calling
valid	station	special called
valid	person	paid
valid	person	collect
valid	person	special calling
valid	person	special called
valid	auto	collect
valid	person	nil
invalid	station	paid
invalid	station	collect
invalid	station	special calling
invalid	station	special called
invalid	person	paid
invalid	person	collect
invalid	person	special calling
invalid	person	special called
invalid	auto	collect
required but missing	nil	nil

Table 93: Class Charge DID Supported Values**12.4.1.20 Country Name DID**

Identifier: #0131

Country Name Index
0 to 999

Table 94: Country Name DID Supported Values

The Country Name DID is sent to indicate an index which is associated with the country of origin of the call. The country of origin designates the location of the subscriber who dials an operator in another country via a Country Direct access code for assistance with billing or call completion.

12.4.1.21 Data DID

Identifier: #0133

Data Type	Data Reason	Data Start Position	Data Count
OSSAIN context block	data included-not final data included-final	0 or 25	0 to 25
OSSAIN context block	data not accepted	nil	0
OSSAIN text	data included-not final data included-final	0	0 to 20
Custom AMA	data accepted data not accepted	nil	0

Table 95: Data DID Supported Values

This DID is sent to the position to provide additional call information. OSSAIN Context Blocks of up to 50 bytes and OSSAIN Text of up to 20 bytes are supported. The position may process the data in the Data field based on the specified Data Type or may pass the data onto another node. If the Data Reason is data included- not final or data included- final, data is included in the Data DID. If the Data Reason is data accepted or data not accepted, the DID is sent as an acknowledgement and no data is included. Note that data acknowledgement does not imply data validation or attempted validation.

12.4.1.22 Database Query DID

Identifier: #0130

Database Query Type	Database Query Status
real time rating system	query successful
real time rating system	query failed
real time rating system	query not attempted due to ACG

Table 96: Database Query DID Supported Values

The Database Query DID is used for calls at an operator position which require a query to an external database, but only when detailed information about the query's outcome is needed by the position. (For all external database queries, a System Status DID is sent when the query is launched and when it is completed.) This DID is sent when a response is received or when a messaging failure or timeout occurs. Also, this DID is sent when the DMS does not launch a query as a result of automatic code gapping.

12.4.1.23 Dial Rate DID

Identifier: #010B

Dial Rate Status
no dial rate
dial rate

Table 97: Dial Rate DID Supported Values

If this DID is not sent, the initial dial rate status of a call is no dial rate.

12.4.1.24 Directory Number DID

Identifier: #010C

DN Class	DN Status	DN Type	DN Flags	Country Code Count
calling	valid	domestic	none	nil
calling	invalid	domestic	none	nil
calling	blocked	domestic	none	nil
calling	required but missing	domestic	none	nil
calling	required but missing	nil	none	nil
calling	none	nil	none	nil
calling	valid	domestic	spid processing	nil
calling	invalid	domestic	spid processing	nil
calling	blocked	domestic	spid processing	nil
calling	required but missing	domestic	spid processing	nil
calling	required but missing	nil	spid processing	nil
calling	none	nil	spid processing	nil
called	none	nil	none	nil
called	valid	foreign	none	1 to 3
called	valid	foreign	carrier	1 to 3
called	valid	domestic	none	nil
called	valid	domestic	local	nil
called	valid	domestic	local and carrier	nil
called	valid	domestic	carrier	nil
called	valid	domestic	vacant code	nil
called	valid	domestic	vacant and carrier	nil
called	valid	domestic	unauthorized CAMA code	nil

Table 98: Directory Number DID Supported Values

DN Class	DN Status	DN Type	DN Flags	Country Code Count
called	valid	domestic	unauthorized CAMA code and carrier	nil
called	valid	busy line verification	none	nil
called	valid	service	none	nil
called	valid	service	carrier	nil
called	invalid	nil	none	nil
called	invalid	nil	carrier	nil
called	invalid	busy line verification	none	nil
called	invalid	domestic	vacant code	nil
called	invalid	domestic	unauthorized CAMA code	nil
called	required but missing	nil	none	nil
called	screening restrictions, enforced	domestic	none	nil
called	screening restrictions, enforced	domestic	carrier	nil
called	screening restrictions, enforced	foreign	none	nil
called	query failure	domestic	none	nil
called	query failure	domestic	local	nil
called	query failure	domestic	local and carrier	nil
called	query failure	domestic	carrier	nil
called	manual interaction reqd.	nil	none	nil
called	connected, alt. exists	domestic	none	nil
called	connected, alt. exists	domestic	local	nil
called	connected, alt. exists	domestic	local and carrier	nil
called	connected, alt. exists	domestic	carrier	nil
called	connected, alt. exists	domestic	vacant code	nil
called	not conn., alt. exists	domestic	none	nil
called	not conn., alt. exists	domestic	local	nil
called	not conn., alt. exists	domestic	local and carrier	nil
called	not conn., alt. exists	domestic	carrier	nil
called	screening restrictions, unenforced	domestic	none	nil
called	screening restrictions, unenforced	domestic	local	nil
called	screening restrictions, unenforced	domestic	local and caarrier	nil

Table 98: Directory Number DID Supported Values

DN Class	DN Status	DN Type	DN Flags	Country Code Count
called	screening restrictions, unenforced	domestic	carrier	nil
third	valid	foreign	none	1 to 3
third	valid	domestic	none	nil
third	invalid	foreign	none	1 to 3
third	invalid	domestic	none	nil
third	hot	domestic	none	nil
third	screening restrictions, enforced	domestic	none	nil
third	query failure	domestic	none	nil
requested	valid	domestic	none	nil
requested	invalid	domestic	none	nil
requested	required but missing	nil	none	nil
calling line identifier	valid	domestic	none	nil

Table 98: Directory Number DID Supported Values

Directory number fields contain formatting information in the digit stream for non-foreign directory numbers. A nil BCD digit (#F) is included in the stream wherever a separator character should be. The directory number count includes these separators in addition to the actual digits. Foreign directory numbers do not contain separators - formatting is determined using the country code count.

The Directory Number Count field will contain a value ranging from 0 to 27. There may be up to 23 digits and up to 4 separators.

The service provider processing bit is used to inform the position that service provider processing is available. If the position does not receive this value, it should assume that service provider processing is disabled and should not send any service provider related information.

12.4.1.25 Elapsed Time DID

Identifier: #010D

Elapsed Time Type	Elapsed Time Status	Elapsed Time Minutes	Elapsed Time Seconds
call time	none	nil	nil
call time	valid	0 to 9999	0 to 59
notify time	none	nil	nil
notify time	valid	0 to 9999	0 to 59

Table 99: Elapsed Time DID Supported Values

Elapsed Time Type	Elapsed Time Status	Elapsed Time Minutes	Elapsed Time Seconds
notify time	invalid	nil	nil
booked database stored time	none	nil	nil
booked database stored time	valid	0 to 9999	0
booked database stored time	invalid	nil	nil
booked database stored time	invalid	0 to 9999	0
booked database remaining time	none	nil	nil
booked database remaining time	valid	0 to 1199	0
booked database remaining time	invalid	nil	nil

Table 99: Elapsed Time DID Supported Values

When the DID is sent to indicate elapsed time requiring further payment by the subscriber, the time contained in the DID is known as the call time. This DID indicates the time accumulated on a coin paid call, a call held on loop with Time and Charges requested, or a hotel call held on loop.

Additionally, this DID is sent to indicate the completion of a nonstandard notify time period. A nonstandard notify is requested by the subscriber on a non-coin call. The notify time (in minutes) is the time into a call when the operator notifies the parties that the time period has ended.

When an operator attempts to store a database call and the time entered is invalid, this DID is sent with an indication of invalid booked database store time and a nil value in the minutes field. If the time entered was valid, but the call could not be stored for other reasons (such as a full database), then the indication of invalid booked database store time is accompanied by a non-nil value in the minutes field.

Booked calls may be stored awaiting outgoing trunk availability. These calls do not have a store time associated with them. When a call of this type is presented to an operator position, this DID is sent with a valid booked database store time. The actual time that the call was stored may have exceeded 9999 minutes (almost 7 days), in which case 9999 is sent in the minutes field.

12.4.1.26 Estimate Charges DID

Identifier: #013A

Initial Period Duration	Initial Period Amount	Subsequent Period Duration	Subsequent Period Amount
nil	nil	nil	nil
0 to 65534	0 to 4294967294	0 to 65534	0 to 4294967294

Table 100: Estimate Charges DID Supported Values

This DID is sent in response to an estimate charges request when an estimate duration has not been specified. A Charges DID with an estimate amount is sent when an estimate duration has been specified. The Estimate Charges fields will all be nil if per-period charge estimate information does not exist or could not be obtained.

12.4.1.27 Estimate Duration DID

Identifier: #0139

Estimate Duration Status	Estimate Duration
none	nil
valid	0 to 65534
invalid	0 to 65534
required but missing	nil

Table 101: Estimate Duration DID Supported Values

This DID is sent when the estimate duration has been added, changed, or deleted. The estimate duration is used to estimate charges.

12.4.1.28 Fixed Duration DID

Identifier: #012B

Fixed Duration Status
no fixed duration
fixed duration

Table 102: Fixed Duration DID Supported Values

If this DID is not sent, the initial fixed duration status of a call is no fixed duration.

12.4.1.29 Foreign Assistance DID

Identifier: #012D

Foreign Assistance Type	Foreign Assistance Status	Country Code Count	Foreign Assistance Number Count
directory assistance	none	0	0
directory assistance	valid	1 to 3	1 to 27
directory assistance	invalid	0 to 3	0 to 27
directory assistance	city code required	1 to 3	0
inward assistance	none	0	0
inward assistance	valid	1 to 3	1 to 27
inward assistance	invalid	0 to 3	0 to 27
inward assistance	city code required	1 to 3	0

Table 103: Foreign Assistance DID Supported Values

The Country Code Count field indicates what portion of the Foreign Assistance Number is the country code. Therefore the Country Code Count value is never larger than the Foreign Assistance Number Count value. Formatting of a Foreign Assistance number is determined using the country code count - no separators are included in this DID.

12.4.1.30 Foreign Calling Card DID

Identifier: #010E

Calling Card Status	Foreign Calling Card Number Count
valid	0 to 17
invalid	0 to 17

Table 104: Foreign Calling Card DID Supported Values

This DID is sent when the operator requests that a call be billed to a foreign calling card. This type of billing is only valid on calls to a foreign number. The country code of the called number must match the country code in the foreign calling card number.

Only digits and uppercase letters are sent in the Foreign Calling Card Number field.

Formatting rules: Separators are not commonly used when displaying foreign calling card numbers and are not sent in this DID. However it is of interest to note that the format of a foreign calling card begins with a country code, followed by a single uppercase letter, and then the remainder of the number.

12.4.1.31 Generic Digits DID

Identifier: #013F

Generic Digits Type	Generic Digits Count
location identification number	0 to 15

Table 105: Generic Digits DID Supported Values

12.4.1.32 Handoff DID

Identifier: #010F

Handoff Status	Automated System ID
resource failure	AABS
handoff checks failed	AABS
subsequent handoff allowed	AABS
subsequent handoff not allowed	AABS

Table 106: Handoff DID Supported Values

Handoff is a feature that allows the operator to hand the call off to an automated billing service for billing validation acceptance from collect and third parties. The operator collects the billing information, then hands the call off to the automated system to obtain billing acceptance. A successful handoff is indicated by the AMA Status DID.

The Handoff DID indicates failures to hand off the call. The Handoff DID also indicates whether or not the call can be handed off again on recalls.

12.4.1.33 Intelligent Network DID

Identifier: #013E

Intelligent Network Status
connected
released

Table 107: Intelligent Network DID Supported Values

12.4.1.34 InterLATA Carrier Alternate Billing DID

Identifier: #0110

Manual Validation Status
no manual validation required
manual validation required

Table 108: InterLATA Carrier Alternate Billing DID Supported Values

This DID is sent in association with TOPS InterLATA Carrier Service (TICS). TICS provides the ability for the telco operator to provide operator services on behalf of a carrier. One aspect of this service is alternate billing. This DID is sent to inform the operator whether manual validation is required for an alternate billing number.

12.4.1.35 InterLATA Carrier Information DID

Identifier: #0111

Type of Service Provided	Carrier Service Status	Carrier Number Status	Carrier Name	Carrier Number Count
nil	nil	none	nil	0
nil	nil	invalid	nil	1 to 4
nil	valid	nil	nil	0
transfer only	valid	valid	ASCII characters	1 to 4
transfer only	valid	invalid for this call only	ASCII characters	1 to 4
transfer only	invalid	none	nil	0
complete operator services	valid	valid	ASCII characters	1 to 4
complete operator services	valid	invalid for this call only	ASCII characters	1 to 4

Table 109: InterLATA Carrier Information DID Supported Values

This DID identifies the carrier number and name associated with the call. It also provides information as to whether or not the carrier can complete the call. If this DID is not sent, assume no carrier is associated with the call and transfer to carrier does not apply.

The carrier number must be datafilled in the DMS table TOPEACAR. If the carrier number is not found there, then it is considered invalid. In this case, there is no carrier name. A carrier name of

nil is represented as eight spaces. Otherwise, carrier names consist of a mixture of uppercase letters, digits, and spaces.

If the carrier number is found in table TOPEACAR, then further checks are made to determine if the carrier can complete the call. These checks are as follows:

- **Table OCCINFO:** Information as to the type of traffic that the carrier can handle is provided in this table. Such checks as interstate, intrastate and international call handling are made. LATA Equal Access Service (LEAS) is a feature that allows non-equal access end offices to offer equal access through an access tandem. Most of the checks done in the end office are performed in the tandem. When this tandem is also a TOPS office, these checks can affect the operator's handling of the call.
- **Carrier 0+ calls:** With TOPS InterLATA Carrier Service (TICS), a carrier may choose to handle 1+ dialed calls only. 0+ callers tend to request services other than call completion (such as credit recording). The carrier can choose to exclude this traffic.

Without TICS, the call is being transferred to a carrier's operator services center. For the same reasons as above, the carrier may choose to exclude this traffic.

- **Terminating Point Screening:** When TICS is in use, the telco operator is performing operator service on behalf of a carrier. Carriers tie into the telco's network through points of presence. Originating points of presence are controlled through datafill in TOPEACAR and CLS-VSCRC. If the carrier is in the table, then it has an originating point of presence. Terminating point of presence is determined through the DMS table TOPEATRM. This allows the operator switch to determine if the carrier can complete the call prior to releasing it to the carrier network.

12.4.1.36 InterLATA Carrier Rating DID

Identifier: #0112

Call Rating Status	Real Time Rating Status
downstream	nil
real time	ratable
real time	not ratable

Table 110: InterLATA Carrier Supported Values

12.4.1.37 Language DID

Identifier: #0125

Port	Language Status	Language
calling	none	nil
calling	valid	0 to 99
called	none	nil
called	valid	0 to 99

Table 111: Language DID Supported Values

Language selection by the operator only occurs prior to handoff to AABS. The languages are selected using the Outtrunk ActID. The selected language(s) inform the AABS system of what language should be used to prompt the subscribers, and what language the operator should speak on subsequent reconnects.

The parallel datafill in the position for language name should be equivalent to the data found in Table TOPSLANG.

Since outtrunk entries in Table OGTMPKEY are validated at datafill time, it is not possible for an operator to select an invalid language. Therefore this DID will never be sent with a combination of values indicating an invalid language.

12.4.1.38 LATA Restriction DID

Identifier: #0114

LATA Restriction
no restrictions
non-conforming end office
all interlata is restricted

Table 112: LATA Restriction DID Supported Values

LATA restrictions can be indicated to the TOPS switch by digits which accompany the ANI spill during signaling or by table datafill in the TOPS switch (for example, datafill in Table DNPIC).

Operators processing carrier calls from nonconforming end offices usually do not accept a request to change the carrier. Subscribers who do not have a choice in the end office should not have a choice at the operator. If the call is made from an equal access end office, then no restrictions apply unless the subscriber is prohibited from making any interLATA calls. This information is transmitted from the equal access end office through the signaling.

12.4.1.39 LIDB Response DID

Identifier: #0115

LIDB Response
not automatically accepted
automatically accepted

Table 113: LIDB Response DID Supported Values**12.4.1.40 Loop State DID**

Identifier: #0116

Loop Number	Loop Status	Notify Pending Status
1 to 2	idle	nil
1 to 2	active	nil
1 to 2	active	no notify pending
1 to 2	temporary hold	nil
1 to 2	temporary hold	notify pending
1 to 2	permanent hold	nil

Table 114: Loop State DID Supported Values

“Notify pending” means a notify has come due on a call which is held at an operator position. The operator should access the held loop and notify the subscribers appropriately.

12.4.1.41 LRN Information DID

Identifier: #0136

LNP Party	LRN Status
calling	directory number not ported
calling	directory number ported
calling	unknown
called	directory number not ported
called	directory number ported
called	unknown
special	directory number not ported
special	directory number ported
special	unknown

Table 115: LRN Information DID Supported Values

LRN fields contain formatting information in the digit stream. A nil BCD digit (#F) is included in the stream wherever a separator character should be. The LRN count includes these separators in addition to the actual digits.

The LRN Count field will contain a value of 12 for an LRN Status of directory number ported, or a value of 0 for any other LRN Status. The LRN for directory number ported will consist of 10 digits and 2 separators.

12.4.1.42 Network Action DID

Identifier: #0118

Port	Network Action Status	Network Action
calling	valid	release party
calling	valid	ring party
calling	valid	collect coins
calling	valid	return coins
calling	valid	trunk offering start
calling	valid	trunk offering end
calling	invalid	ring party
calling	invalid	collect coins
calling	invalid	return coins
called	valid	release party
called	valid	ring party
called	invalid	ring party
called	valid	trunk offering start
called	valid	trunk offering end

Table 116: Network Action DID Supported Values

This DID acknowledges that an operator request for a network action has been processed. Once the operator has received this acknowledgment, it is no longer necessary for the position to continue to display the indication.

12.4.1.43 No Action DID

Identifier: #0113

No Action Reason
0 to 65534

Table 117: No Action DID Supported Values

The following table reflects a mapping of the integer values to the respective reasons. This mapping should be used as the basis for a table in the position used for display purposes.

Num	No Action Reason	No Action Reason Description
0	Nil No Action Reason	Nil value for the No Action DID. This no action reason should never be sent.
1	AMA Verify in Progress	No action is taken because billing verification is in progress.
2	DN Type Not Domestic	No action is taken because the directory number type is not domestic.
3	Nil DN Connect Type	No action is taken because the requested action requires directory number connection information (e.g. connect or do not connect to the directory number).
4	Non Nil DN Connect Type	No action is taken because a nil value for directory number connection is required (e.g. neither connect or do not connect to the directory number is valid).
5	Release Back Keyed	No action is taken because the calling party is not connected.
6	Back Party Connected With ANI	No action is taken because the calling number is connected with ANI and can not be changed.
7	No DN Provided	No action is taken because no directory number has been provided.
8	Change Of Connected DN	No action is taken because changing the connected directory number is not allowed.
9	Removal of Valid Called DN	No action is taken because removing the valid called directory number is not allowed.
10	Removal Of Valid Calling DN	No action is taken because removing the valid calling directory number is not allowed.

Table 118: No Action Reason List

Num	No Action Reason	No Action Reason Description
11	Change Of Valid Calling DN	No action is taken because changing the valid calling directory number is not allowed.
12	Invalid For This Service	No action is taken because the requested action is invalid for the service of the call (e.g. TA, DA, or QMS).
13	Call Already Interrupted	No action is taken because the call is already interrupted (e.g. busy line verification or barge in).
14	Not a BLV Connection	No action is taken because the connection is not a busy line verification connection.
15	Overwriting Forward Connection	No action is taken because changing the forward directory number is not allowed.
16	Invalid Country Code	No action is taken because an invalid country code is entered.
17	Invalid For This Numbering Plan	No action is taken because the requested action is invalid for the numbering plan of the call (e.g. North American or open numbering).
18	Invalid Call Type	No action is taken because the call type (e.g 0+, 0-, 1+, intercept, 411, or delay) is invalid for the requested action.
19	Billing Number Too Large	No action is taken because the entered billing number has too many digits.
20	Carrier Not Present	No action is taken because a carrier number is not associated with the call.
21	Invalid Charge Request Info	No action is taken because the charge request information is invalid.
22	Time Less Than Initial	No action is taken because the notify period requested is less than the initial period of the coin call.
23	Invalid For Inwards Call	No action is taken because the requested action is invalid for an inwards call.
24	Xfr IC Not Allowed	No action is taken because the request to transfer the call to an interlata carrier is not allowed.
25	No Back Party	No action is taken because the back party is not connected.

Table 118: No Action Reason List

Num	No Action Reason	No Action Reason Description
26	No Forward Party	No action is taken because the forward party is not connected.
27	Forward Party Present	No action is taken because the forward party is connected.
28	Tone Repeat Failed	No action is taken because the tone repeat failed for zip tone.
29	Third Number In Forward Port	No action is taken because the third number is connected to the forward port.
30	Cancel Timing Failed	No action is taken because the attempt to cancel timing failed.
31	No More Handoffs Allowed	No action is taken because the number of permitted handoffs to AABS is exceeded.
32	Handoff Not Allowed On Delay Call	No action is taken because handoff to AABS is not allowed for delay calls.
33	Handoff Not Allowed On Free Call	No action is taken because handoff to AABS is not allowed for free calls.
34	Handoff Not Allowed On This Call	No action is taken because handoff to AABS is not allowed for this call.
35	AABS Resource Failure	No action is taken because of an AABS resource failure.
36	Invalid Automated System ID	No action is taken because the automated system ID associated with the call is invalid.
37	Alternate Party Already Exists	No action is taken because the alternate party already exists.
38	Outpulsing Failed	No action is taken because the attempt to outpulse the number failed.
39	Release Back Invalid	No action is taken because the attempt to release the calling party is invalid.
40	Function Invalid For Called	No action is taken because the requested action is not valid for the called party.
41	Invalid Position Number	No action is taken because the entered position number is invalid.
42	Invalid Position State	No action is taken because the position state (e.g. busy or available) is invalid for the requested action.

Table 118: No Action Reason List

Num	No Action Reason	No Action Reason Description
43	Invalid Position Type	No action is taken because the position type (e.g. OPP-compatible position or TOPS MP) is invalid for the requested action.
44	Missing Position Number	No action is taken because the position number is missing.
45	Marking Is Firm	No action is taken because the station class (e.g coin, restricted, or hotel) can not be changed since it was determined through signalling.
46	Mark As Coin Invalid	No action is taken because the attempt to mark the call as coin is invalid.
47	ATC Trunk Origination	No action is taken because the originating trunk type is access tandem to carrier.
48	Call At Position	No action is taken because there is a call at position.
49	Call Cancelled	No action is taken because the call is cancelled.
50	Call Not Billable	No action is taken because the call is not billable.
51	Carrier Number Too Large	No action is taken because the entered carrier number has too many digits.
52	Disallowed On Recall	No action is taken because the requested action is invalid for recalls.
53	Gen AMA Disallowed	No action is taken because the generation of a billing record is not allowed at this time.
54	Gen AMA Failure	No action is taken because the billing record generation failed.
55	Interlata Restricted	No action is taken because connection to an interlata number is not allowed.
56	Invalid Feedback Type	No action is taken because the request for operator statistics failed.
57	Invalid Operator Action	No action is taken because the requested operator action is invalid for the current call characteristics.
58	Invalid Operator Number	No action is taken because the entered operator number is invalid.

Table 118: No Action Reason List

Num	No Action Reason	No Action Reason Description
59	Invalid Operator Type	No action is taken because the operator type (e.g. general operator, service assistant, or in-charge) is invalid for the requested action.
60	Invalid Service Selection	No action is taken because the selected service (e.g. TA, DA, or QMS) is invalid for the call.
61	Invalid Team Number	No action is taken because the team number is invalid.
62	Login In Progress	No action is taken because login to the position is in progress.
63	Logout In Progress	No action is taken because logout from the position is in progress.
64	Invalid Monitor Type	No action is taken because the monitor type is invalid.
65	No Service Selection	No action is taken because no service (e.g. TA, DA, or QMS) is selected.
66	OOO Call	No action is taken because the call is an OOO call (Overseas Operator Center).
67	Operator Already Monitored	No action is taken because the requested operator is already being monitored.
68	Operator Not Logged On	No action is taken because the operator is not logged on.
69	BLV In Progress	No action is taken because busy line verification is in progress.
70	Outpulse To Requested DN Invalid	No action is taken because outpulsing to the requested directory assistance number is not permitted.
71	Overwriting Forward Connection	No action is taken because changing the forward directory number is not allowed.
72	Special Verify In Progress	No action is taken because special number verification is in progress.
73	Not A Coin Call	No action is taken because the call is not a coin call.
74	Class Charge Disallowed	No action is taken because the selected class charge is not allowed.
75	Only Auto Collect Allowed	No action is taken because the only allowed billing is auto collect.

Table 118: No Action Reason List

Num	No Action Reason	No Action Reason Description
76	PCB And Dial Rate Invalid	No action is taken because person call back and dial rate are incompatible.
77	PCB And Orig Type Invalid	No action is taken because person call back and the call origination type are incompatible.
78	Invalid Billing For Time And Charges	No action is taken because the selected billing is not allowed for a time and charges call.
79	Class Charge In PCB	No action is taken because person call back has been keyed and the resultant class charge is incompatible with the requested action.
80	No Manual Rating Allowed	No action is taken because manual rating of the call is not allowed.
81	Special Verify In Forward Port	No action is taken because the special verification number is connected to the forward port.
82	Invalid DN Type	No action is taken because the directory number type is invalid (e.g. not domestic or foreign).
83	Invalid Charge Adjust Info	No action is taken because invalid charge adjust information has been entered.
84	Start Timing Failed	No action is taken because the attempt to start timing failed.
85	Position Release Disallowed	No action is taken because the attempt to release the call from the position is not allowed at this time.
86	Invalid Call State For Cancel Timing	No action is taken because the call state (e.g. call setup, notify, recall, or overtime) is invalid for the request to cancel timing.
87	Invalid Billing For Cancel Timing	No action is taken because the attempt to cancel timing is not allowed due to the billing of the call.
88	Invalid AMA Status	No action is taken because the billing status of the call (e.g. unspecified, start timing, cancel timing, or cancel call) is invalid.
89	Invalid Loop State	No action is taken because the loop state (e.g active, idle, temporary hold, or permanent hold) is invalid for the requested action.
90	Invalid Loop Number	No action is taken because the loop number is invalid.
91	Loop is Idle	No action is taken because the loop state is idle.

Table 118: No Action Reason List

Num	No Action Reason	No Action Reason Description
92	Loop Is Perm Held	No action is taken because the loop state is permanent hold.
93	Loop Is Temp Held	No action is taken because the loop state is temporary hold.
94	Loop Is Already Held	No action is taken because the loop is already on hold.
95	Loop Already Accessed	No action is taken because the loop is already in use.
96	Monitor Type Invalid	No action is taken because the monitor type is invalid.
97	Changing Type	No action is taken because the request to change the type (e.g. domestic, local, overseas, or requested DA number) of the directory number is not allowed.
98	Password Disallowed	No action is taken because the password function for operator logon is not enabled.
99	Operator Number Range Failure	No action is taken because the DMS has not allocated data store needed for the operator password.
100	Invalid Outtrunk Index	No action is taken due to an invalid outtrunk index.
101	Invalid For Asst/IC	No action is taken because the requested action is invalid for an assistant or in-charge operator position.
102	Call ID Mismatch	No action is taken because the call ID in the ActID does not match the call ID for the call at the position.
103	Cannot Serve CAMA	No action is taken because the position is not allowed to serve CAMA calls.
104	No CAMA Calls	No action is taken because the request to serve a CAMA call is not accepted (e.g. no CAMA calls in queue or no CAMA queue present).
105	No Idle Loop	No action is taken since there is not an available loop.
106	Invalid Service Number	No action is taken since an invalid service number for service number routing is entered.
107	Invalid Reference Code	No action is taken since an invalid reference code for service number routing is entered.
108	Invalid Character Received	No action is taken because an invalid character is received.
109	Timing Already Started	No action is taken because timing is already started.

Table 118: No Action Reason List

Num	No Action Reason	No Action Reason Description
110	Invalid Dial Rate Status	No action is taken because the dial rate status is invalid.
111	Invalid Person Call Back Status	No action is taken because the person call back status is invalid.
112	Invalid Network Action	No action is taken because the network action is invalid.
113	Invalid Port Status	No action is taken because the port status is invalid.
114	Block Calling In Effect	No action is taken because caller id blocking is in effect.
115	Calling Number Is Not Present	No action is taken because the calling number is not present.
116	Invalid Billing For Block Calling	No action is taken because the billing is invalid for caller id blocking.
117	Fixed Duration Not Allowed	No action is taken because fixed duration is not allowed.
118	Invalid Fixed Duration Status	No action is taken because the fixed duration status is invalid.
119	Not Allowed With Fixed Duration	No action is taken because the requested action is incompatible with fixed duration.
120	Invalid Foreign Assistance Type	No action is taken because the foreign assistance type is invalid.
121	Invalid Text Start Position	No action is taken because the text start position is invalid.
122	Invalid Text Action	No action is taken because the requested text action is invalid.
123	Invalid DACC Directory Number	No action is taken because the DA call completion number is invalid.
124	Invalid For Non-QMS Position	No action is taken because the position is not datafilled as QMS.
125	Muted Notify Not Allowed	No action is taken because muted notify is not allowed.
126	Invalid For Prepay Coin	No action is taken because the requested action is invalid for prepay coin.
127	Invalid Ticket Number Action	No action is taken because the requested ticket number action is invalid.

Table 118: No Action Reason List

Num	No Action Reason	No Action Reason Description
128	Invalid Foreign Calling Card	No action is taken because the entered foreign calling card is invalid.
129	Invalid Trunk Type for TBI	No action is taken because the requested toll break-in action (trunk offering start or trunk offering end) is only valid on R2 trunks.
130	TBI Active On Other Port	No action is taken because the requested toll break-in action (trunk offering start or trunk offering end) is invalid since toll break-in is active on the other port.
131	Invalid TBI State	No action is taken due to the invalid TBI state of the call. This can be a result of attempting start or stop TBI on a line that is not busy, or this can be a result of keying a sequence of TBI commands in an invalid order.
132	Database Verification In Progress	No action is taken because verification to an external database is in progress.
133	Invalid for Externally Rated Call	No action is taken because the requested action is invalid for an externally rated call.
134	Invalid for Country Direct	No action is taken because the requested action is invalid for a Country Direct call.
135	OSSAIN inactive	No action is taken because OSSAIN is inactive.
136	Invalid Billing for OSSAIN	No action is taken because billing is invalid for OSSAIN.
137	Connection In Progress	No action is taken because connection to an OSSAIN node is in progress.
138	Invalid CT4Q for Transfer to OSSAIN	No action is taken because the CT4Q of the call is invalid for transfer to OSSAIN.
139	Call Cannot Transfer to OSSAIN	No action is taken because the call cannot transfer to OSSAIN.
140	Operator Assistance Failed	No action is taken because the switch could not obtain a resource necessary for operator assistance.
141	Operator Assistance Disallowed	No action is taken because operator assistance is disallowed given the current call state.
142	Disallowed During Assistance	No action is taken because the attempted function is not supported during operator assistance.

Table 118: No Action Reason List

Num	No Action Reason	No Action Reason Description
143	Restricted Action	No action is taken because operator datafill or optionality control prohibits the operator from exercising the requested functionality.
144	Invalid Assistance Request Type	No action is taken because the assistance request type is invalid.
145	Queue Full	No action is taken because the request would need to be queued, but the queue is full.
146	Invalid Pos/Opr Number	No action is taken because the requested position or operator number is invalid.
147	Invalid Query List Type	No action is taken because the requested query list type is invalid.
148	Operator Not Accepting Calls	No action is taken because the requested operator is not accepting calls.
149	Operator is Monitoring	No action is taken because the requested operator is monitoring.
150	Not A NA NP Number	No action is taken because the number is not a North American Numbering Plan number.
151	Invalid for NP	No action is taken because the action requested is invalid for number portability calls.
152	Estimate of Charges Calculation Failure	No action is taken because the estimated charge calculation failed.
153	PIN Size too Large	No action is taken because the PIN size is larger than the card number.
154	Voice Setup Failed	No action is taken because voice setup for a position using VoIP failed.

Table 118: No Action Reason List**12.4.1.44 Notify DID**

Identifier: #0119

Notify Status	Notify Minutes	Notify Connection	Notify Recall Count
valid	1 to 59	two-way	0 to 9999
valid	1 to 59	two-way	nil

Table 119: Notify DID Supported Values

Notify Status	Notify Minutes	Notify Connection	Notify Recall Count
valid	1 to 59	one-way	0 to 9999
valid	1 to 59	one-way	nil
invalid	nil	nil	nil
none	nil	nil	nil

Table 119: Notify DID Supported Values**12.4.1.45 OLNS Information DID**

Identifier: #0135

OLNS Restriction Display Index	OLNS Equipment Display Index
0 to 99	0 to 99
0 to 99	nil
nil	0 to 99
nil	nil

Table 120: OLNS Information DID Supported Values

The OLNS (Originating Line Number Screening) Information DID provides OLNS information to the position and is sent at call presentation for all OLNS calls which contain display index information. The OLNS Restriction Display Index is a numeric index which is associated with the OLNS TA or DA billing restriction parameters. The OLNS Equipment Display Index is a numeric index which is associated with the service/equipment parameter. The TA and DA billing restriction parameters and the service/equipment parameter are included in the OLNS response message which is sent from the OLNS database to the DMS.

12.4.1.46 Open Information Access DID

Identifier: #011A

OIA Information Type
0 to 100

Table 121: Open Information Access DID Supported Values

12.4.1.47 OSSAIN Information DID

Identifier: #0132

OSSAIN Function ID	OSSAIN Control List ID	OSSAIN Failed Function ID	OSSAIN Switch ID	Service Node Handoff Count
0 to 1022	0 to 4094	nil	nil	nil
0 to 1022	0 to 4094	0 to 1022	nil	nil
0 to 1022	0 to 4094	nil	0 to 65534	nil
0 to 1022	0 to 4094	0 to 1022	0 to 65534	nil
0 to 1022	0 to 4094	nil	nil	0 to 10
0 to 1022	0 to 4094	0 to 1022	nil	0 to 10
0 to 1022	0 to 4094	nil	0 to 65534	0 to 10
0 to 1022	0 to 4094	0 to 1022	0 to 65534	0 to 10

Table 122: OSSAIN Information DID Supported Values

The OSSAIN Information DID provides OSSAIN information to the position and is sent at call presentation for OSSAIN calls. The OSSAIN Function ID is a numeric index for a named function which is provided by a service node, TOPS operator, or automated system. Only OSSAIN function IDs for a TOPS operator are currently supported by TOPS with the OSSAIN Information DID. The OSSAIN Control List ID is a numeric index to a list which contains a sequence of functions. TOPS currently supports control lists which contain one function element.

The OSSAIN Failed Function ID is populated when the call was originally destined for a service node and the call is redirected to an operator due to the unavailability of a session to the service node. Calls may fail to obtain a session to the SN for several reasons which include: queue overflow, queue deflection, function blocking, and calls that fail to send a Session Begin message to the service node.

The OSSAIN Switch ID specifies the ID of the OSSAIN TOPS switch in the OSSAIN Centralization network (OSAC) which is in control of the call. If the switch ID is not datafilled such as in a standalone network, a nil value will be sent.

The Service Node Handoff Count specifies the remaining number of operator to service node handoffs allowed for the current call.

12.4.1.48 OSSAIN Trigger DID

Identifier: #0134

OSSAIN Trigger Profile Status	OSSAIN Trigger Profile Index	OSSAIN No Answer Timer	OSSAIN Notification Timer	OSSAIN Notification Timer Type
valid	0 to 2046	1 to 120 or nil	1 to 5999999	relative time
valid	0 to 2046	1 to 120 or nil	1 to 5999999	conversation time
valid	0 to 2046	1 to 120 or nil	nil	nil
valid	2047	nil	nil	nil
invalid	nil	nil	nil	nil

Table 123: OSSAIN Trigger DID Supported Values

The OSSAIN Trigger DID provides OSSAIN trigger information for the call, where triggers are events that cause a call to be redirected to a service node or an operator. This DID is sent at call presentation for OSSAIN calls and in response to the OSSAIN Trigger ActID. The OSSAIN Trigger Profile Status specifies the validity of the OSSAIN Trigger Profile Index, and the OSSAIN Trigger Profile Index is numeric index for a set of triggers. Trigger Profile Index 2047 has special meaning for the TOPS application in that it maps to the nil trigger list, a trigger list which contains no triggers.

12.4.1.49 Pass Through DID

Identifier: #013B

Data Reason	Data Start Position	Data Count
data included-not final data included-final	0, 25, 50, 75	0 to 25
data accepted data not accepted	nil	0

Table 124: Pass Through DID Supported Values

The pass through data in this DID was received from an attached service node via an OAP Pass Through Inform. If the Data Reason is data included- not final or data included- final, data is included in the DID. If the Data Reason is data accepted or data not accepted, the DID is sent as an acknowledgement and no data is included. Note that data acknowledgement does not imply data

validation or attempted validation.

12.4.1.50 Person Call Back DID

Identifier: #011B

Person Call Back Status
none
valid
invalid

Table 125: Person Call Back DID Supported Values

This DID specifies the interaction of person call back with the call. Person call back is used in the following scenario. Subscriber A originates a person-to-person call to subscriber B, but subscriber B is not available. Later, subscriber B calls the operator to return the subscriber A's call. Person call back is applied so the call is charged as if subscriber A originated the person-to-person call. The second call must have a class charge handling of person.

If this DID is not sent, the initial person call back status is none.

12.4.1.51 Port Status DID

Identifier: #011C

Loop Number	Port	Port Status	Port Voice Status
1 to 2	calling	on-hook	nil
1 to 2	calling	off-hook	connected
1 to 2	calling	off-hook	split
1 to 2	calling	requesting operator	nil
1 to 2	calling	not connected	nil
1 to 2	calling	busy	nil
1 to 2	calling	congested	nil
1 to 2	called	on-hook	nil
1 to 2	called	off-hook	connected
1 to 2	called	off-hook	split
1 to 2	called	busy	nil
1 to 2	called	congested	nil

Table 126: Port Status DID Supported Values

Loop Number	Port	Port Status	Port Voice Status
1 to 2	called	not connected	nil
1 to 2	operator	off-hook	connected
1 to 2	operator	off-hook	split

Table 126: Port Status DID Supported Values

One of the uses of this DID is to inform the operator of the status of the voice path between the operator, the calling party, and the called party.

The operator can put the calling or called party ‘on hold’ by requesting an action of ‘split the voice connection to the party’. This action cuts off the voice path between the operator and the split party, so that the calling or called party can neither hear nor be heard. The operator might request this when talking to an assistant or while verifying collect or person-to-person billing. The voice path is reconnected when the operator requests the ‘join’ action. The voice path is also reconnected when the operator floats the call.

Also, the operator can split from the call by requesting an action of ‘split the voice connection to the operator’. Split operator is a special case where the operator connection is one way, so that the operator may hear the other parties on the call but may not address them.

On call presentation, the port status information of the attached subscribers is specified. For the operator ports, the voice path of the operator is always in a joined state unless otherwise indicated by the sending of this DID.

12.4.1.52 Position Information DID

Identifier: #012E

Position Information
end of call details

Table 127: Position Information DID Supported Values

This DID will be sent to the general operator whenever a Call Origination DID is sent. The Call Origination DID will provide initial call details. Additional DIDs may or may not be sent. When all call details have been transmitted, this DID will be dispatched with the Position Information field indicating ‘end of call details.’

12.4.1.53 Rate Step DID

Identifier: #011D

Rate Step Status	Rate Step Origin	Rate Step
none	nil	nil
valid	manually entered by the operator	0 to 999
valid	automatically calculated by real time rating	0 to 999
invalid	manually entered by the operator	0 to 999
required but missing	nil	nil

Table 128: Rate Step DID Supported Values

12.4.1.54 Service Billing DID

Identifier: #011E

Service Billing Status
billing complete
billing incomplete

Table 129: Service Billing DID Supported Values

This DID may be sent in response to a generate AMA or position release action request. The generate AMA keying action is sent by the operator for each request of a multiple request service call. A billing complete/incomplete indication is returned to the operator for each generate AMA request. For the position release action, a billing incomplete indication is returned to the operator if billing is not satisfied. Otherwise, the call is released from the position.

12.4.1.55 Service Call ID DID

Identifier: #011F

Service Type	Service Switch ID	Service Call ID
0 to 62	0 to 99	0 to 3070
0 to 62	nil	0 to 3070
0 to 62	nil	nil

Table 130: Service Call ID DID Supported Values

Some service vendors do not require the Service Switch ID, in which case the field will contain a nil value.

12.4.1.56 Service Options DID

Identifier: #0120

Service Options Set
call completion allowed
multiple requests allowed
multiple requests and call completion allowed

Table 131: Service Options DID Supported Values

12.4.1.57 Service Provider DID

Identifier: #013C

Service Provider Class	Service Provider Type
calling	account owner
calling	billing service provider
called	account owner
called	billing service provider
special	account owner
special	billing service provider

Table 132: Service Provider DID Supported Values

The first 4 characters of the Service Provider Identifier will be any combination of uppercase characters and/or numbers and the last 2 characters will always be spaces.

All service provider status values can be sent for each supported combination of service provider class and type.

12.4.1.58 Service Voice Response DID

Identifier: #0121

Voice Response Status
voice quote imposed

Table 133: Service Voice Response DID Supported Values

Voice Response Status
operator handling imposed

Table 133: Service Voice Response DID Supported Values**12.4.1.59 System Status DID**

Identifier: #013D

System Status
system not busy
system busy

Table 134: System Status DID Supported Values**12.4.1.60 Station Class DID**

Identifier: #0122

Port	Station Class	Restriction Status	Restriction Number	Overtime Type	Restricted Billing Code
calling	station	billing restrictions apply	0 to 99	nil	0 to 99
calling	station	no billing restrictions apply	nil	nil	nil
calling	prepay coin CDF	billing restrictions apply	0 to 99	nil	0 to 99
calling	prepay coin CDF	billing restrictions apply	0 to 99	postpay overtime	0 to 99
calling	prepay coin CDF	billing restrictions apply	0 to 99	prepay overtime	0 to 99
calling	prepay coin CDF	no billing restrictions apply	nil	nil	nil
calling	prepay coin CDF	no billing restrictions apply	nil	postpay overtime	nil
calling	prepay coin CDF	no billing restrictions apply	nil	prepay overtime	nil
calling	prepay coin CCF	billing restrictions apply	0 to 99	nil	0 to 99
calling	prepay coin CCF	billing restrictions apply	0 to 99	postpay overtime	0 to 99
calling	prepay coin CCF	billing restrictions apply	0 to 99	prepay overtime	0 to 99
calling	prepay coin CCF	no billing restrictions apply	nil	nil	nil
calling	prepay coin CCF	no billing restrictions apply	nil	postpay overtime	nil
calling	prepay coin CCF	no billing restrictions apply	nil	prepay overtime	nil
calling	postpay coin	billing restrictions apply	0 to 99	nil	0 to 99

Table 135: Station Class DID Supported Values

Port	Station Class	Restriction Status	Restriction Number	Overtime Type	Restricted Billing Code
calling	postpay coin	billing restrictions apply	0 to 99	postpay overtime	0 to 99
calling	postpay coin	billing restrictions apply	0 to 99	prepay overtime	0 to 99
calling	postpay coin	no billing restrictions apply	nil	nil	nil
calling	postpay coin	no billing restrictions apply	nil	postpay overtime	nil
calling	postpay coin	no billing restrictions apply	nil	prepay overtime	nil
calling	hotel/motel	no billing restrictions apply	nil	nil	nil
calling	hotel/motel no-charge	no billing restrictions apply	nil	nil	nil
calling	institution	no billing restrictions apply	nil	nil	nil
called	station	not applicable	nil	nil	nil
called	prepay coin CDF	not applicable	nil	nil	nil
called	hotel/motel	not applicable	nil	nil	nil

Table 135: Station Class DID Supported Values

The Restriction Number field uses parallel datafill in the position to provide text displays. There are two tables in the DMS that the position should parallel: RESTBIL and DARSTBIL. The display fields in each of these tables should appear in the corresponding table in the position. The determination as to which position table to index on a call is made by the service of the call.

12.4.1.61 Text DID

Identifier: #0117

Text Type	Text Status	Text Action	Text Start Position	Text Count
hotel guest name	none	clear to end of field, confirm text and confirm all	0	0
hotel guest name	valid	clear to end of field, confirm text and confirm all	0	0 to 4
hotel guest name	invalid	clear to end of field, confirm text and confirm all	0	0 to 4

Table 136: Text DID Supported Values

Text Type	Text Status	Text Action	Text Start Position	Text Count
calling name	none	clear to end of field, confirm text and confirm all	0	0
calling name	valid	confirm text and confirm all, optional clear to end	0 to 31	0 to 25
calling name	invalid	confirm text and confirm all, optional clear to end	0 to 31	0 to 25
called name	none	clear to end of field, confirm text and confirm all	0	0
called name	valid	confirm text and confirm all, optional clear to end	0 to 31	0 to 25
called name	invalid	confirm text and confirm all, optional clear to end	0 to 31	0 to 25
hotel room	none	clear to end of field, confirm text and confirm all	0	0
hotel room	valid	clear to end of field, confirm text and confirm all	0	0 to 6
hotel room	invalid	clear to end of field, confirm text and confirm all	0	0 to 6
hotel room	required but missing	clear to end of field, confirm text and confirm all	0	0
memo	none	clear to end of field, confirm text and confirm all	0	0

Table 136: Text DID Supported Values

Text Type	Text Status	Text Action	Text Start Position	Text Count
memo	valid	confirm text and confirm all, optional clear to end	0 to 63	0 to 25
authorization number	none	clear to end of field, confirm text and confirm all	0	0
authorization number	valid	clear to end of field, confirm text and confirm all	0	0 to 6
authorization number	invalid	clear to end of field, confirm text and confirm all	0	0 to 6
authorization number	required but missing	clear to end of field, confirm text and confirm all	0	0
OLNS alphanumeric string	valid	clear to end of field, confirm text and confirm all	0	1 to 8

Table 136: Text DID Supported Values

TOPS supports the following text characters in the Text field:

a b c d e f g h i j k l m n o p q r s t u v w x y z

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

0 1 2 3 4 5 6 7 8 9

<space> ! " # \$ % & ' () * + , - . / : ; < = > ? @ [\] ^ _ `

However the Text Type of hotel guest name only supports uppercase alpha characters, and hotel room and password only support uppercase alphas and/or numerics.

With Text Types of memo, calling name or called name, if the Text Action 'confirm all' bit is set then the DMS is sending the entire text string. The final message has the 'clear to end of field' bit set, and any preceding messages have that bit cleared. For Text Types of calling or called name, a Text DID is not sent to the position until a Text ActID is received with both the confirm text and confirm all bits set.

This DID is sent on calls originated from a hotel or motel where the hotel or motel guest is paying for the call. The room number is required for inclusion on a HOBIC record. A HOBIC record is a record produced in the hotel or motel itself or in a HOBIC center. A HOBIC center is a place where

records for several hotels are collected. The room number is used by the hotel to properly bill the hotel or motel guest.

When the Text Type is hotel room or authorization number, up to six characters can be supplied. Numerics are treated as one character each, and the upper case alphas are treated as two characters each. For example, (123456, W1212, WW12, WWW) are acceptable combinations (in any order or combination desired), however (WWWW, WWW1, WW123) are unacceptable combinations since they exceed the six character limitation.

Most of this data is entered by the operator. The text is optionally recorded on the AMA billing record.

When the Text Type is OLNS alphanumeric string, up to eight characters are supported. This text is not originated by the operator but is sent to the DMS by the OLNS database. If more than eight characters are sent to the DMS, the string is truncated and the first eight characters are supplied to the position.

12.4.1.61.1 Text Echoing

TOPS in the DMS supports a text echoing mechanism. A position (or position simulator) may send a Text ActID and have a Text DID echoed back with the same contents in the Text field. This can be done with or without a call at the position, and does not affect any call which may be at the position.

A possible use of this tool is to load system components (LANs, positions, etc.) with high message rates to test capacity. Its purpose is not to exercise any OPP protocol or TOPS call processing capabilities, but merely to provide a method to get an innocuous echo of a message from the switch.

For a discussion of the Text ActID field values required to activate this tool, see the Text ActID discussion in this section.

The OPP header sent with the echoed text in the Text DID is composed at the negotiated BCS level (see auditing and backward compatibility discussions for call and non-call scenarios). The field values in the Text DID are as follows when text echoing is being performed. The values in the Text field bytes are exactly those sent in the Text ActID Text field and may range in value from 0 to 255.

Text Type	Text Status	Text Action	Text Start Position	Text Count
nil	nil	clear to end of field, confirm text and confirm all	0	(same as the, value in the ActID, or 25, whichever is less)

Table 137: Text DID Values when Echo Testing

12.4.1.62 Ticket Number DID

Identifier: #012F

Ticket Number Status	Transit Code	Day	Ticket Number Digits
none	nil	nil	nil
valid	nil	1 to 31	000001 to 999999
valid	3 characters	1 to 31	000001 to 999999
invalid	3 characters or nil	1 to 31 or nil	000000 to 999999 or nil

Table 138: Ticket Number DID Supported Values

The transit code characters are all uppercase letters.

12.4.1.63 Time and Charges DID

Identifier: #0123

Time and Charges Status
no time and charges
time and charges
do not print time and charges to device
print time and charges to device

Table 139: Time and Charges DID Supported Values

This DID conveys two pieces of information concerning time and charges. The first is at call setup at an operator position. This DID indicates whether or not the call should receive time and charges upon disconnect. The second is after disconnect. If the billed party has not remained on the line, the operator marks the call to produce a record on a printer or at an off site location. A time and charges operator monitors this printer and attempts to contact the billed party to quote the time and charges.

Usually the billed party remains on the line and an operator is attached. The operator quotes the information to the billed party and releases the call.

If this DID is not sent, the initial state for call is no time and charges and do not print time and charges to device.

12.4.1.64 Transfer to Operator DID

Identifier: #0126

Transfer to Operator Status
no transfer
transfer

Table 140: Transfer to Operator DID Supported Values

If this DID is not sent, the initial transfer to operator status is no transfer.

12.4.1.65 Trouble Code DID

Identifier: #0124

Trouble Code Status	Trouble Code
none	nil
valid	0 to 99
invalid	0 to 99

Table 141: Trouble Code DID Supported Values

Trouble reports indicate such problems as garbled voice or network problems. Telco personnel may then address the problem.

When the operator requests a trouble code greater than the maximum allowed value of 99, the Trouble Code DID will be returned with a Trouble Code Status of invalid and a Trouble Code of 99.

When the operator requests a trouble code in the valid range, but the trouble code is not defined in the switch, the Trouble Code DID will be returned with a Trouble Code Status of 'invalid' and a Trouble Code reflecting the operator's request.

12.4.2 Call DID Information

This section gives a mapping showing which call DIDs can be sent to which types of operators (i.e., general operators, assistants or in-charge operators). The shaded blocks indicate the DID can be sent to that type of operator. The operator type is communicated to the position in the Service Logon DID.

DID	Oper	Asst	IC
Alternate Route (#012C)			
AMA Status (#0100)			
Attached Intelligent Network (#013E)			
Automated Services (#0102)			
Automatic Coin Toll Service (#0101)			
Booked Call Database Action (#0128)			
Booked Call Database Class (#012A)			
Booked Call Database Number (#0129)			
Call Arrival Tone DID (#0140)			
Call Origination (#0103)			
Call Queue (#0104)			
Call Service (#0105)			
Call Type For Queueing (#0127)			
Calling Card (#0106)			
Charge Adjust (#0107)			
Charge Status (#0108)			
Charges (#0109)			
Class Charge (#010A)			
Country Name (#0131)			
Data (#0133)			
Database Query (#0130)			
Dial Rate (#010B)			
Directory Number (#010C)			
Elapsed Time (#010D)			
Fixed Duration (#012B)			
Foreign Assistance (#012D)			

Table 142: Call DID to Operator Type Mapping

DID	Oper	Asst	IC
Foreign Calling Card (#010E)			
Generic Digits (#013F)			
Handoff (#010F)			
InterLATA Carrier Alternate Billing (#0110)			
InterLATA Carrier Information (#0111)			
InterLATA Carrier Rating (#0112)			
Language (#0125)			
LATA Restriction (#0114)			
LIDB Response (#0115)			
Loop State (#0116)			
Network Action (#0118)			
No Action (#0113)			
Notify (#0119)			
OLNS Information (#0135)			
Open Information Access (#011A)			
OSSAIN Information (#0132)			
OSSAIN Trigger (#0134)			
Person Call Back (#011B)			
Port Status (#011C)			
Position Information (#012E)			
Rate Step (#011D)			
Service Billing (#011E)			
Service Call ID (#011F)			
Service Options (#0120)			
Service Voice Response (#0121)			
Station Class (#0122)			
Text (#0117)			

Table 142: Call DID to Operator Type Mapping

DID	Oper	Asst	IC
Ticket Number (#012F)			
Time and Charges (#0123)			
Transfer to Operator (#0126)			
Trouble Code (#0124)			

Table 142: Call DID to Operator Type Mapping

Note concerning monitor: A service assistant or in-charge (SA/IC) operator who is monitoring a general operator will receive any and all of the DIDs that the general operator position may receive. The 'Asst' and 'IC' entries in the table above only apply when the SA/IC is not monitoring.

Note concerning booked call database: The booked call database allows call information to be stored in a database. The call information can be retrieved or can recall to a position at a later time. This allows the operator to view booked call data or place the call using the stored information. Service assistant or in-charge (SA/IC) operator positions can use various booked call database functions, and in the use of the booked call database, the SA/IC position can receive any DID that the general operator position may receive.

Note concerning call state: The call state is communicated to the position through the defined set of call DIDs. The position should not display special call characteristics unless indicated through DID information. Standard calls are billable (not free) with two way connections to all call parties. Examples of non-standard call characteristics include time and charges in effect, alternate billing, person billing instead of station, and call cancellation.

12.5 Non-Call Data Identifiers

12.5.1 Non-Call DID Supported Values

This section describes the Non-Call DIDs as they apply to the TOPS application. Although these DIDs are non-call related, they are not confined to the Non-Call Update message only. A non-call DID can be found in a Call Begin, Call Update, Call Suspend, Call Resume, Call End or Non-Call Update message.

12.5.1.1 Active Queue DID

Identifier: #0318

Sequence Number	Final Status	First Queue Number	Active Queues
0	final	0	any combination of the first four queues (bits 0-3)
0	not final	0	none
1	final	128	none

Table 143: Active Queue DID Supported Values

When a position is using the TOPS ACD call queueing system, four queues are supported. Queues 0 through 3 are referred to as the general, transfer 1, transfer 2 and directory assistance queues, respectively. As a result, in the Active Queues field, only bits 0 through 3 are populated. Bits 4 through 127 will always be set to '0' which indicates queues 4 through 127 are not active.

This DID is sent to the in-charge position so the queue header displays can be updated. For example, this DID would be sent if the force manager used the FADS device to deactivate the XFR2 queue. Since it is no longer necessary to display statistics on the in-charge position which are related to the XFR2 queue, the XFR2 queue header display could be erased.

The final two combinations are sent when the in-charge is in a traffic office using the Queue Management System (QMS). In a QMS team, by-queue information is not sent to the in-charge position, so the Active Queue DID does not indicate which queues are being used. The QMS Management Information System (QMS MIS) should be used to view queue information.

12.5.1.2 Ancillary Operator Information DID

Identifier: #0300

Ancillary Operator Information Type	Ancillary Operator Information Count
complex/unit	1

Table 144: Ancillary Operator information DID Supported Values

This DID is sent during the logon process to positions that are providing Directory Assistance/Intercept service using the IBM database. IBM DA requires a complex/unit number as part of the logon to their DAS. The Ancillary Operator Information field is a byte that should be interpreted as follows:

7	4	3	0
Complex		Unit	

where Complex is 0 to 14 and Unit is 0 to 14.

12.5.1.3 Attached Operator DID

Identifier: #0301

Loop Number	Attached Operator Status	Position Number	Operator Number	Service Node Number	Session Pool Number
1 or 2	none	nil	nil	nil	nil
2	directed	0 to 9999	0 to 9997 or nil	nil	nil
1	general	0 to 9999	0 to 9997 or nil	nil	nil
1	released	nil	0 to 9997	nil	nil
nil	none	nil	nil	nil	nil
nil	directed	0 to 9999	0 to 9997	nil	nil
nil	general	0 to 9999	0 to 9997	nil	nil
nil	general	nil	nil	0 to 767	0 to 3071
nil	released	nil	0 to 9997	nil	nil
nil	released	nil	nil	0 to 767	0 to 3071
nil	queued	nil	nil	nil	nil

Table 145: Attached Operator DID Supported Values

When a Service Assistant/In-Charge (SA/IC) operator is providing assistance to a general operator, information concerning the general operator is displayed on the SA/IC's screen. Included in this information are the position number (floor plan number) and operator number of the general operator. The SA/IC can have two assistance calls at once (one on each loop), so the loop number is specified when this DID is sent to a position where an SA or IC is logged in.

This DID is not sent to general operators who are receiving assistance from SA/ICs. However, it is sent to general operators who are providing assistance, and also to general operators who are receiving assistance from other general operators. When an operator makes an assistance request and no SA/IC is involved, TOPS sends attached operator information to both the requesting and the requested operators. And when no SA/IC is involved, an assistance call must always be the active call, so the loop number is irrelevant and is set to nil.

When the Attached Operator Status is none, the position should clear all attached operator information if the Loop Number is nil, or it should clear all attached operator information for the specified loop if the Loop Number is non-nil. Note that the DMS internally clears all call-related attached operator information at the end of a call, and it does not necessarily send the position an Attached Operator DID at call end to explicitly inform it that the information has been cleared.

An Attached Operator Status of directed or general indicates that the operator receiving the DID is connected to another operator or service node, either as a result of a directed assistance request or as a result of a general assistance request. Again, as long as no SA/IC is involved, the DID is sent to both operators when they are connected.

An Attached Operator Status of released indicates that the specified operator or service node is no longer attached to the call. Either the specified operator or service node requested assistance and then released the request to queue, or the specified operator or service node was connected and then dropped out.

An Attached Operator Status of queued means the operator receiving the DID has requested that another operator be attached to the call, and has been placed in queue.

A nil Position Number or Operator Number, together with an Attached Operator Status other than none, indicates that TOPS does not have the information. For example, the operator number would be nil if the attached operator were logged into a Single Purpose SA/IC position, which does not have logon capability, and the position number would be nil if the attached operator had released the call to queue and might no longer be logged in at all.

12.5.1.4 Audible Tone DID

Identifier: #0302

Audible Tone
begin tone
end tone

Table 146: Audible Tone DID Supported Values

TOPS sends the Audible Tone DID only positions that are datafilled in the DMS as SA or IC. The purpose of the DID is to let the SA/IC operator know when an event is occurring that requires immediate attention, and again when no such events are occurring. Although events do occur that require a general operator's immediate attention, TOPS does not suggest to a general operator's position when or whether it should sound an audible tone. Positions can determine from the Oper-

ator Capabilities field of the Service Logon DID whether an operator is an SA, an IC, or a general operator.

Events that require the SA/IC's immediate attention include:

- A call arrives for assistance (Audible Tone field is begin tone).
- The SA/IC accesses the assistance call, or the requesting operator cancels the request (Audible Tone field is end tone).
- Various team and office conditions. Some are documented elsewhere with the DIDs that accompany the conditions. However, much of that documentation applies only to TOPS ACD SA/ICs.

12.5.1.5 Audit DID

Identifier: #0303

BCS Number
35 to 254

Table 147: Audit DID Supported Values

The DMS audits positions with traditional TMS-based connectivity to the DMS based on the value of the office parameter AUDIT_INTERVAL. This parameter is found in Table OFCSTD, and it is usually set to 15 minutes. The DMS will only audit TOPS positions which are in a position busy or idle state. An idle state means the position is available but no calls are attached. The DMS will not audit positions which have calls attached.

The DMS audits resources whenever the audit interval expires. For TOPS positions, a flag is set when the audit is sent. When the reply is received, the flag is reset. If the audit interval expires a second time and the flag is still set, the DMS concludes that the position did not respond to the first audit. The DMS will perform maintenance on the position and possibly take it out of service.

The Audit DID is not sent to positions that have IP voice and data connectivity to the DMS, because auditing is done through maintenance messaging for these positions.

12.5.1.6 Broadcast Message DID

Identifier: #0304

Sequence Number	Final Status	Broadcast Message Count
0	final	0
0	final	1 to 27

Table 148: Broadcast Message DID Supported Values

Sequence Number	Final Status	Broadcast Message Count
0	not final	27
1	final	1 to 27
1	not final	27
2	final	1 to 10

Table 148: Broadcast Message DID Supported Values

The TOPS broadcast message is limited to 64 printable ASCII characters. Letters are only in uppercase.

A broadcast message can be up to 64 characters in length. This DID can accommodate 27 characters, so it will be sent more than once for broadcast messages of greater than 27 characters. In subsequent DIDs for the same broadcast message, the characters in the DID should be appended to the previous string of characters.

When a Broadcast Message DID is sent with a sequence number of 0, the current broadcast message no longer applies, and a new message may be arriving. Further, if a Broadcast Message DID is sent with a sequence of 0, a count of 0, and a status of 'final', the current broadcast message no longer applies, and there is not a new broadcast message. This means the supervisor operator has cancelled the current broadcast message.

12.5.1.7 Calls Deflected by Queue DID

Identifier: #0315

Sequence Number	Final Status	First Queue Number	Status by Queue
0	final	0	none
0	final	0	any combination of the first four queues (bits 0-3)
0	not final	0	none
0	not final	0	any combination of the first 128 queues bits (0-127)
1	final	128	none
1	final	128	any combination of queues 128 thru 254 (bits 0-126)

Table 149: Calls Deflected by Queue DID Supported Values

When a position is using the TOPS ACD call queueing system, four queues are supported. Queues

0 through 3 are referred to as the general, transfer 1, transfer 2 and directory assistance queues, respectively. As a result, in the Status by Queue field, only bits 0 through 3 are populated. Bits 4 through 127 will always be set to '0' which indicates the queue is not deflecting. The first two entries in the table above apply to positions using TOPS ACD.

When a position is using QMS, up to 254 user definable queues are supported. The last four entries in the table above apply to positions using QMS.

A call which is waiting for an operator is placed in a specific queue depending on the characteristics of the call. When a queue is full (as determined by office defined thresholds), calls will no longer be placed in that queue. Instead, the calls will be deflected which means the subscriber will hear an announcement saying, for example, "All circuits are busy...".

The SA/IC positions for each team whose calls are being deflected will receive this DID. The Status by Queue field will show in which queue deflection is occurring, and the SA/IC position may update its Calls Deflected displays using the contents of this field. If calls are being deflected in any queue, and there is only one team in the office, the Audible Tone DID will be sent to start the audible tone.

When the Calls Deflected condition subsides for a queue, the Calls Deflected by Queue DID will be sent to the SA/IC positions to update the Calls Deflected screen displays and audible tone.

12.5.1.8 Calls Waiting DID

Identifier: #0305

Calls Waiting Status
no calls waiting
calls waiting

Table 150: Calls Waiting DID Supported Values

12.5.1.9 Calls Waiting by Queue DID

Identifier: #0316

Sequence Number	Final Status	First Queue Number	Status by Queue
0	final	0	none
0	final	0	any combination of the first four queues (bits 0-3)
0	not final	0	none

Table 151: Calls Waiting by Queue DID Supported Values

Sequence Number	Final Status	First Queue Number	Status by Queue
0	not final	0	any combination of the first 128 queues bits (0-127)
1	final	128	none
1	final	128	any combination of queues 128 thru 254 (bits 0-126)

Table 151: Calls Waiting by Queue DID Supported Values

When a position is using the TOPS ACD call queueing system, four queues are supported. Queues 0 through 3 are referred to as the general, transfer 1, transfer 2 and directory assistance queues, respectively. As a result, in the Status by Queue field, only bits 0 through 3 are populated. Bits 4 through 127 will always be set to '0' which indicates the queue does not have calls waiting above a threshold value. The first two entries in the table above apply to positions using TOPS ACD.

When a position is using QMS, up to 254 user definable queues are supported. The last four entries in the table above apply to positions using QMS.

A call which is waiting for an operator is placed in a specific queue depending on the characteristics of the call. Usually, when a call is in queue for an operator, the subscriber will hear ringing.

The SA/IC positions for each team in which calls are waiting will receive this DID. The Status by Queue field will show in which queue calls are waiting, and the SA/IC position may update its Calls Waiting displays using the contents of this field.

When the Calls Waiting condition subsides for a queue, the Calls Waiting by Queue DID will be sent to the SA/IC positions to update the Calls Waiting screen displays.

12.5.1.10 Controlled Traffic DID

Identifier: #0306

Controlled Traffic Status	Threshold Value
threshold percentage not exceeded	25
threshold percentage exceeded	25

Table 152: Controlled Traffic DID Supported Values

This DID may be sent in conjunction with the Audible Tone DID.

12.5.1.11 Logon Denied DID

Identifier: #0307incompatible queue profile

Logon Denial Reason	Operator Number
incompatible service profile	0 to 9997
incompatible queue profile	0 to 9997
invalid operator number	0 to 9997 or nil
operator already logged on	0 to 9997 or nil
invalid password	0 to 9997

Table 153: Logon Denied DID Supported Values

A logon denial reason of ‘incompatible service profile’ is returned in two circumstances. For operators using TOPS ACD, the intersection of datafilled service sets for the position and the operator is nil. For QMS operators, a service in the operator profile is not found in the position profile.

A logon denial reason of ‘incompatible queue profile’ is returned only for TOPS ACD operators when the intersection of datafilled queue sets for the position and the operator is nil.

A logon denial reason of ‘invalid operator number’ is returned when the operator number is either not datafilled or out of range. The operator must retry the logon with a valid operator number.

‘Operator already logged on’ indicates one of two situations:

- The operator number entered is already in use at another position. In this case, the Operator Number field contains the entered operator number.
- Another operator number is already in use at this position. In this case, the Operator Number field contains the operator number currently in use at this position.

‘Invalid password’ indicates the password entered is not known to the DMS. The operator must key in a valid password to successfully logon.

12.5.1.12 Logon Success DID

Identifier: #0308

Service Profile	Operator Number
one or more services (at least one bit set)	0 to 9997
none	0 to 9997

Table 154: Logon Success DID Supported Values

When a position is using the TOPS ACD call queueing system, up to three services may be provided by the position (Toll and Assist, Directory Assistance, and/or Intercept). As a result, in the

Service Profile field, only bits 0 through 2 respectively are populated. Bits 3 through 62 will always be set to '0' which indicates the service is not provided.

When a position is using QMS, up to 63 services may be provided by the position.

If this DID is sent to the position, logon was successful and calls will be given to the position once it transitions to an appropriate state. For general operators using TOPS ACD, at least one service profile bit is set. For all other types of operators, it is possible for this DID to be sent with no service profile bits set - this allows operators to verbally communicate with subscribers despite not having service-specific information, rather than having the switch queue and/or deflect these calls.

12.5.1.13 Monitor DID

Identifier: #0309

Monitor Status	Monitored Operator's Service Profile	Operator Number	Position Number
monitor begin	any combination of services 0 thru 62 (bits 0-62)	0 to 9997	0 to 9999
monitor begin	any combination of services 0 thru 62 (bits 0-62)	nil	0 to 9999
monitor end	none	nil	nil

Table 155: Monitor DID Supported Values

When a position is using the TOPS ACD call queueing system, up to three services may be provided by the position (Toll and Assist, Directory Assistance, and/or Intercept). As a result, in the Monitored Operator's Service Profile field, only bits 0 through 2 are populated. Bits 3 through 62 will always be set to '0' which indicates the service is not provided.

When a position is using QMS, up to 63 user definable services are supported.

Upon initiation of the monitoring session, the Monitor DID is sent to the monitoring position with Monitor Status "monitor begin."

Usually termination of a monitoring session results from a request from the monitoring position. However, TOPS may sometimes choose to terminate a monitoring session on its own. In either case, when TOPS terminates a monitoring session, it sends the Monitor DID to the monitoring position with Monitor Status "monitor end."

Please refer to "Monitor Considerations" on page 714 for additional important information.

12.5.1.14 Office Condition DID

Identifier: #031A

Office Condition Type	Condition Status
operator services suspended	condition begin or condition end
no time and charges devices	condition begin or condition end

Table 156: Office Condition DID Supported Values

This DID is sent to general operators with the statistics and query capability (refer to Operator Capabilities field of Service Logon DID) when one of the conditions in the Office Condition Type field arises or subsides. Note that IC operators receive similar information in the Operator Services Suspended DID and the Team Status DID.

The “operator services suspended” condition is rare but extremely serious. It means TOPS is routing all operator calls to treatment. The “no time and charges devices” condition is somewhat less rare, and somewhat less serious, but would probably be considered an emergency. When none of these devices are available, operators need to be warned to keep up with time and charges information manually.

It would be appropriate for the position to use some special means to bring these conditions to the operator’s attention.

12.5.1.15 Operator Administration DID

Identifier: #030A

Administration Set
none
controlled traffic
study data system
controlled traffic and study data system

Table 157: Operator Administration DID Supported Values

12.5.1.16 Operator Feedback DID

Identifier: #030B

Operator Position Seizures Status	Operator Position Seizures	Operator Average Work Time Status	Operator Average Work Time	System Average Work Time Status	System Average Work Time
position seizures not present	nil	average work time not present	nil	system average work time not present	nil
position seizures present	0 to 65534	average work time present	0 to 65534	system average work time not present	nil
position seizures present	0 to 65534	average work time present	0 to 65534	system average work time present	0 to 65534

Table 158: Operator Feedback DID Supported Values**12.5.1.17 Operator Management DID**

Identifier: #030C

Management Status	Position Number
no page	nil
page	0 to 9999
no monitor	nil
monitor	nil

Table 159: Operator Management DID Supported Values**12.5.1.18 Operator Queue Profile DID**

Identifier: #0319

Sequence Number	Final Status	First Queue Number	Queue Profile
0	final	0	any combination of the first four queues (bits 0-3)

Table 160: Operator Queue Profile DID Supported Values

This DID is generally sent as a part of login. When a position is using the TOPS ACD call queueing system, four queues are supported. Queues 0 through 3 are referred to as the general, transfer 1, transfer 2 and directory assistance queues, respectively. As a result, in the Queue Profile field, only bits 0 through 3 are populated. Bits 4 through 127 will always be set to '0' which indicates queues 4 through 127 are not active. If no queues are in the operator's profile, logon is denied and this DID is not sent.

When a position is using QMS, queues are not sent; therefore QMS positions do not receive this DID,

12.5.1.19 Operator Services Suspension DID

Identifier: #030D

Services Suspension Status
services are not suspended
services are suspended

Table 161: Operator Services Suspension DID Supported Values

This DID is sent to in-charge positions when the switch enters or leaves the operator services suspended mode. This DID may be sent in conjunction with the Audible Tone DID.

12.5.1.20 Paging DID

Identifier: #030E

Paging Status	Paging Type	Paged Party
none	nil	nil
valid	position	0 to 9999
valid	operator	0 to 9997
invalid	position	0 to 9999

Table 162: Paging DID Supported Values

Paging Status	Paging Type	Paged Party
invalid	operator	0 to 9997 or nil

Table 162: Paging DID Supported Values

A page is a means by which an operator can request a response from another operator. The page is answered when the paged operator requests paged assistance from or places a directed assistance request to the operator who initiated the page (see Attached Operator ActID).

This DID is related to the Operator Management DID, which is sent to the paged operator when a page is initiated. Please refer to the description of the Operator Management DID found earlier in this section for more information.

If the Paging Status field contains the value 'none', then the page has been cleared, most likely because it was answered or because the paging operator cancelled the page.

12.5.1.21 Password DID

Identifier: #030F

Password Status
password required
invalid attempt at changing the password
valid password change

Table 163: Password DID Supported Values

The password can only be changed when the position state is position busy.

12.5.1.22 Position Data DID

Identifier: #0310

Class of Data	Queue Mark	Type of Data	Number of Positions
system	nil	data for occupied positions	0 to 9999
system	nil	data for positions in a make busy state	0 to 9999
system	nil	data for positions in an out of service state	0 to 9999
system	nil	data for positions with controlled traffic operators	0 to 9999

Table 164: Position Data DID Supported Values

Class of Data	Queue Mark	Type of Data	Number of Positions
system	nil	data for positions in an unoccupied state with a call in progress	0 to 9999
system	nil	data for positions in an unoccupied state with a call terminated	0 to 9999
system	nil	data for positions with a loop accessed but no call in progress	0 to 9999
queue	1 to 3	data for occupied positions	0 to 9999
queue	1 to 3	data for positions in a make busy state	0 to 9999

Table 164: Position Data DID Supported Values

The in-charge operator, and also general operators with statistic and query capability (see Service Logon DID), may be sent assorted data concerning the operators in the team. The data consists of counts of general operators who are in various states. The DMS scans the general operator positions every ten seconds, and uses this DID to report any changes.

The data includes counts of:

- Occupied positions
- Made Busy positions
- Out of Service positions
- Controlled Traffic positions
- Unoccupied positions with a call in progress
- Unoccupied positions with a call disconnected
- Positions which have an accessed loop with no call in progress

Below is a description of what each count means.

Occupied: A general operator position is said to be occupied when its position state is anything other than 'position unoccupied' or 'position unoccupied pending' (remember that TOPS does not support 'administrative mode' or 'training mode' position states). For TOPS ACD teams, the counts are divided into a total per team and a count of occupied positions serving each of the three transfer queues. The total per team is independent of the login status of the general operator: whenever an appropriate position state change occurs, this count is updated. The count per transfer queue is updated after an operator completes login. The counts updated are the queues in the operator's combined queue profile- that is, the intersection of the queues the operator can serve and the queues the position can serve. So if an operator can serve queue 1 and queue 2 but not queue 3, then upon login completion the occupied position counts for queue 1 and queue 2 will be incremented.

When a position state changes to 'position unoccupied' or 'position unoccupied pending' from neither of these two, the counts will be decremented. If another operator comes to the same position and changes the position state from 'position unoccupied' or 'position unoccupied pending' to neither of these two, the total count will be incremented along with the transfer queue counts for the previous operator. When the new operator completes login, the transfer counts will be updated to reflect the new operator's combined queue profile.

By-queue position states are not sent for QMS teams. The QMS MIS system may be used if this information is desired.

Made Busy: A general operator position is said to be made busy when the definition of an occupied position is met, but the operator has not made the position available to receive traffic. For TOPS ACD teams, the counts are divided into a total per team and a count of made busy positions serving each of the three transfer queues. The total per team is independent of the login status of the general operator: each position that is occupied but unavailable to receive calls is counted. The count per transfer queue is updated after an operator completes login. The counts updated are the queues in the operator's combined queue profile. So if an operator can serve queue 1 and queue 2 but not queue 3, then upon login completion the made busy counts for queue 1 and queue 2 will be incremented. When the operators makes the position available for receiving calls, the counts will be decremented. Any time the operator moves to an unavailable state, the counts will be incremented.

When a position state changes to 'position unoccupied' or 'position unoccupied pending' from neither of these two, the counts will be decremented. If another operator comes to the same position and changes the position state from 'position unoccupied' or 'position unoccupied pending' to neither of these two, the total count will be incremented along with the transfer queue counts for the previous operator. When the new operator completes login, the transfer counts will be updated to reflect the new operator's combined queue profile.

By-queue position states are not sent for QMS teams. The QMS MIS system may be used if this information is desired.

Out of Service: A position is out of service when it is datafilled in Table TOPSPOS, but the voice or data links to the position are not available due to system problems or ongoing maintenance. When a general operator position goes out of service, the out of service count is incremented.

Controlled Traffic: Controlled traffic was described in the section concerning the Controlled Traffic DID.

Unoccupied Positions, Call In Progress: If a position changes to the 'position unoccupied pending' state, a count for that operator's team will be incremented. After the same or another operator changes the position state to 'position occupied' or the call is released, the count will be decremented.

Unoccupied Positions, Call Disconnected: If a position changes to the 'position unoccupied pending' state, and the subscribers connected to the position go on hook, this count will be incremented. At the same time, the UCP count will be decremented, because the position has gone from UCP to UCD. Someone should go to the position and release the call, unless the sanity timer is in

effect, in which case the call will be released automatically. After the call is released, the count will be decremented.

Accessed Loop with No Call: If a general operator initiates a delay call, this count will be incremented. General operators sometimes access a loop with no call to prevent further calls from arriving. A valid case for initiating a delay call would be to call the police or ambulance when the subscribers on the operator's other loop need assistance. When the delay call is disconnected, or when another party is connected to the delay call, this count will be decremented.

This DID can be sent several times every ten seconds, if several statistics change. The DID contains only one count at a time. The Type of Data field identifies which count is being sent, and the Number of Positions field contains the number of positions in that particular state.

It is important to inform the operator receiving this DID when there are no occupied positions in the team or in any queue. This data is considered more important than when there are no controlled traffic positions or no made busy positions, for example. The position design may wish to highlight these occurrences.

12.5.1.23 Position State DID

Identifier: #0311

Position State
position occupied
position unoccupied
position unoccupied pending
position busy
position busy pending
calls withheld
calls withheld pending
accept all calls
accept limited calls only
forced maintenance
forced maintenance pending

Table 165: Position State DID Supported Values

12.5.1.24 Query DID

Identifier: #0312

Query List Type	Sequence Number	Final Status	Number of Available Assistants	Number of Assistants Connected to Operators	Position/Operator Count	Position/Operator Number
none	0	final	nil	nil	0	nil
assistants	0 to 85	not final	0 to 127	0 to 127	0 to 12	0 to 9999
assistants	0 to 85	final	0 to 127	0 to 127	0 to 12	0 to 9999
positions in a make busy state	0 to 85	not final	nil	nil	0 to 12	0 to 9999
positions in a make busy state	0 to 85	final	nil	nil	0 to 12	0 to 9999
positions in an out of services state	0 to 85	not final	nil	nil	0 to 12	0 to 9999
positions in an out of services state	0 to 85	final	nil	nil	0 to 12	0 to 9999
positions in an unoccupied state with a call in progress	0 to 85	not final	nil	nil	0 to 12	0 to 9999
positions in an unoccupied state with a call in progress	0 to 85	final	nil	nil	0 to 12	0 to 9999
positions in an unoccupied state with a call terminated	0 to 85	not final	nil	nil	0 to 12	0 to 9999
positions in an unoccupied state with a call terminated	0 to 85	final	nil	nil	0 to 12	0 to 9999
positions with a loop accessed with no call in progress	0 to 85	not final	nil	nil	0 to 12	0 to 9999
positions with a loop accessed with no call in progress	0 to 85	final	nil	nil	0 to 12	0 to 9999
operators with controlled traffic	0 to 85	not final	nil	nil	0 to 12	0 to 9997
operators with controlled traffic	0 to 85	final	nil	nil	0 to 12	0 to 9997
operators with study registers assigned	0 to 85	not final	nil	nil	0 to 12	0 to 9997
operators with study registers assigned	0 to 85	final	nil	nil	0 to 12	0 to 9997

Table 166: Query DID Supported Values

This DID is sent to an operator who has queried some team statistic. The Query List Type field is the type of operator query that was made and is being answered. The Query List Type will be “assistants” or “operators with study registers assigned” only if the operator receiving this DID is an IC (indicated by the Operator Capabilities field of the Service Logon DID). The other Query List Types are sent both to ICs and to general operators who have the statistics and query capability.

The final fields in the DID contain the position or operator numbers of each position or operator in the team that is in the queried mode. If there are more than 12 in the queried mode, another DID will be sent containing the next group of up to 12 positions or operators.

The maximum number of operator positions in a TOPS switch is 1023. This is also the maximum number of positions which can be in any given state. Therefore the list of positions or operators sent in response to a single query will not have more than 1023 members. The position may further

reduce its memory requirements by displaying substantially fewer than 1023 position/operator numbers in response to a single query. The actual number displayed is determined by position man-machine interface (HMI).

When the Query List Type is “assistants,” the DID tells the number of available SAs and the number of SAs who are connected to operators. Also the final fields in the DID contain the position number of each position in the team that is connected to an SA. The DMS does not provide a list of position numbers for available assistants.

This DID is also sent in response to queries of the operator numbers of operators who are assigned to controlled traffic or study registers. Depending on the number of general operators assigned to controlled traffic or study registers in the team, it is possible for this DID to be sent several times in response to one query.

Finally this DID may be sent when an operator queries the position numbers of the positions in particular states. Depending on the number of positions in the various states in the team, it is possible for this DID to be sent several times in response to one query. Note: Only the position numbers of general operators are sent in response to a position state query. SA/IC position numbers are not sent.

The various states were described in more detail in the discussion of the Position Data DID. The states that can be queried are:

- **Made Busy:** Position state is something other than ‘position unoccupied’ or ‘position unoccupied pending’, but the operator is not available to receive calls.
- **Out of Service:** The voice or data links to the operator position are unavailable due to system problems or ongoing maintenance.
- **Unoccupied, Call in Progress:** An operator has initiated logoff from the DMS with a call at position.
- **Unoccupied, Disconnected Call:** The calling and called parties involved with an unoccupied call in progress have gone on hook.
- **Loop Accessed, No Call in Progress:** An operator has initiated a delay call, and no other party is connected and off-hook.

12.5.1.25 Queue Status DID

Identifier: #031C

Queueing Condition Type	Condition Status	Queue Number
calls waiting or calls deflecting or calls queued with no serving agent	condition begin or condition end	NIL
calls alerting, calls overflowing	condition begin or condition end	0 to 254, NIL

Table 167: Queue Status DID Supported Values

QMS supports up to 254 user-definable call queues. A call that is waiting for an operator is placed in a specific queue depending on the characteristics of the call.

TOPS scans its queue status data structures approximately every 10 seconds, and if it detects that a QMS queue status condition has begun or ended, it sends this DID to general operators who have the queue status and query capability (as indicated by the Service Logon DID).

A condition is said to begin if it did not apply to any QMS call queue in the previous 10-second interval, and now it applies to one or more queues. A condition is said to end if previously it applied to one or more queues, and now it applies to none. So, for example, the position is not notified when the condition previously applied to one queue and now applies to a different queue.

When the Queueing Condition Type is set to calls alerting or calls overflowing and the Queue Number field is NIL, this DID indicates a general calls alerting or calls overflowing condition. Alternatively, when this DID is sent with a non-NIL Queue Number it indicates that a specific calls alerting queue has calls or is overflowing.

The Query Queue Status by Queue ActID may be used if the operator wants to know which queues are affected by a condition. A common sequence of related identifiers might be:

- First TOPS detects a queue status condition and sends an operator the Queue Status DID.
- The operator, wanting to know what queues are affected, sends a Query Queue Status by Queue ActID.
- TOPS responds with a Queue Status by Queue DID.

The beginning of a calls deflecting or calls queued with no serving agent condition would probably be considered an emergency.

12.5.1.26 Queue Status by Queue DID

Identifier: #031B

Sequence Number	Final Status	Queueing Condition Type	First Queue Number	Status by Queue
0	not final	calls waiting or calls deflecting or calls queued with no serving agent or calls alerting	0	any combination of queues 0 thru 127 (bits 0-127), including all zeros
1	final	calls waiting or calls deflecting or calls queued with no serving agent or calls alerting	128	any combination of queues 128 thru 254 (bits 0-126), including all zeros

Table 168: Queue Status by Queue DID Supported Values

TOPS sends this DID only to general operators who have the queue status and query capability, as indicated by the Service Logon DID, and only in response to a query by the operator. The query is sent in the Queue Status Query ActID.

A common sequence of related identifiers might be:

- First TOPS detects a queue status condition and sends an operator the Queue Status DID.
- The operator, wanting to know what queues are affected, sends a Query Queue Status by Queue ActID.
- TOPS responds with a Queue Status by Queue DID.

12.5.1.27 Service Logon DID

Identifier: #0313

Service Profile	Operator Capabilities	Operator Number	Call Queueing System
any combination of services 0 thru 2 (bits 0-2)	general call handling [General operator, TOPS ACD]	0 to 9997	0
any combination of services 0 thru 62 (bits 0-62)	page, monitor, assistance [Assistant operator, also called SA]	0 to 9997	0 or 1
any combination of services 0 thru 62 (bits 0-62)	page, monitor, stats and query, assistance [IC operator]	0 to 9997	0 or 1
any combination of services 0 thru 62 (bits 0-62)	any combination of capabilities that does not include assistance [General operator, QMS. May or may not have special capabilities.]	0 to 9997	1

Table 169: Service Logon DID Supported Values

TOPS supports two values for the Call Queueing System field:

0 = TOPS ACD

1 = Queue Management System (QMS)

When a position is using the TOPS ACD call queueing system, up to three services may be provided by the position (Toll and Assist, Directory Assistance, and/or Intercept). As a result, in the Service Profile field, only bits 0 through 2 may be populated. Bits 3 through 62 will always be set to '0' which indicates the service is not provided. When a position is using QMS, up to 63 services may be provided by the position. In either case, at least one bit in the Service Profile field will be set.

The Operator Capabilities field is used to communicate the operator type (general, SA—also called ASST, or IC) to the position. The significance of the operator type is that TOPS supports different identifiers for different operator types. For details, refer to Table 72: “ActID to Operator Type Mapping” on page 622, Table 142: “Call DID to Operator Type Mapping” on page 683, and Table 173: “Non-Call DID to Operator Type Mapping” on page 710.

As shown in Table 169, the Operator Capabilities field is fixed for general operators who use the TOPS ACD call queueing system (row 1 of the table), for Service Assistant (SA) operators (row 2), and for In-change (IC) operators (row 3). On the other hand, general operators who use the QMS call queueing system can have various combinations of capabilities, but with the restriction

that they never have the assistance capability. This restriction guarantees that the Operator Capabilities field can always be used to distinguish general operators from SA and IC operators.

Table 170 provides the TOPS interpretations of the different operator capabilities, for a general QMS operator. Again, for other kinds of operators, TOPS simply puts a fixed value in the Operator Capabilities field.

<u>Capability</u>	<u>Meaning</u>
general call handling	The operator can receive calls from QMS call queues. (These QMS call queues may be used for subscriber calls, assistance requests from other operators, controlled traffic, or some combination.)
page	The operator can initiate a page to another operator. Refer to the Paging DID and the Operator Management DID for descriptions of paging.
monitor	The operator can monitor another operator. For information about monitoring, refer to the Monitor DID and “Monitor Considerations” on page 714.
statistics and query	The DMS will send the operator information about the state of the switch and about the operator’s team. The operator can query to learn more about this information.
assistance	The DMS views the operator as an SA or IC.
transfer to queue already served	The operator can transfer a call even if the transfer routes the call to a queue served by the transferring operator (in which case the transferred call may come back to the operator who transferred it).
queue status and query	The DMS will send the operator warnings about QMS call queue conditions. For example, the operator will be informed when calls are waiting too long in a queue. The operator can query to learn more about this information.

Table 170: Meaning of QMS General Operator Capabilities

12.5.1.28 System Time DID

Identifier: #0314

Year	Month	Day	Hour	Minutes	Seconds
0 to 99	1 to 12	1 to 31	0 to 23	0 to 59	0 to 59

Table 171: System Time DID Supported Values

This DID is sent in response to a system time query. The position is responsible for the system time indication. The DMS will not send a DID indicating the system time is no longer applicable.

12.5.1.29 Team Status DID

Identifier: #0317

Team Monitor Status	Team Study Register Status	Team Time and Charge Device Status	Team Assistant Position Status	Team Assistance Queue Status	Number of Requests in Queue	Team Serving Agent Queueing Status
assistant in team is not monitoring or assistant in team is monitoring	study registers are available or study registers are not available	time and charge device is available or time and charge device is not available	assistant position available or no assistant position available	no assistance requests in queue	nil	nil or no calls in unserved queue or calls in unserved queue
assistant in team is not monitoring or assistant in team is monitoring	study registers are available or study registers are not available	time and charge device is available or time and charge device is not available	assistant position available or no assistant position available	assistance requests in queue or assistance request queue full	1 to 16	nil or no calls in unserved queue or calls in unserved queue
nil	nil	nil	assistant position available or no assistant position available	nil	nil	nil or no calls in unserved queue or calls in unserved queue
nil	nil	nil	nil	assistance requests in queue	1 to 16	nil
nil	nil	nil	nil	no assistance requests in queue	nil	nil

Table 172: Team Status DID Supported Values

This DID is sent to the operator to update various team statuses displayed on the screen. Statuses displayed include:

- **Team Monitor Status:** Whether or not a Service Assistant operator is monitoring a general operator in the SA/IC's team.
- **Team Study Register Status:** Study registers are used to monitor performance of general operators by accumulating data concerning each operator's position seizures and average work time over different call classes defined by the operating company. Position seizures (PS) are the number of calls which arrive at the general operator's position. Average work time (AWT) is the average time it takes until the operator releases the call. At any time, the in-charge operator can request a printout of PS and AWT by call class per operator. Study registers can be used to check the performance of all operators in an IC's team.

There is data store associated with each study register and, as a result, there is a limit on the number of study registers which may be assigned. Currently up to 900 general operators may be assigned to study registers in a team. If the TOPS switch contains more than 900 general operators, and 900 operators have been assigned to study registers, there are no more study registers left. At this time this DID will be sent to the IC screen to indicate to the IC operator that no more study registers may be assigned.

- **Team Time and Charge Device Status:** Whether or not the team's time and charge device is available.
- **Team Assistant Position Status:** This informs the SA/IC operators of the availability of SA/IC operators to answer calls from general operators. To be considered available, SA/ICs must be in an 'accept all calls' state. If there are no SA/ICs in this state, then calls from general operators will go into queue.
- **Team Assistance Queue Status:** Whether or not general assistance requests are in queue for SA/IC operators. If the team's queue is full, this will be indicated. Additionally, the number of requests in queue will be sent in this DID.
- **Team Serving Agent Queueing Status:** Whether or not there are subscriber calls in queues for which no serving agents (such as operator positions) have been defined. The calls will remain in queue until serving agents are made available to handle the calls. This field will be populated only when the Queue Management System (QMS) is in use.

Note that a subset of this information is sent to the Service Assistant (SA) operator. The SA operator receives only the Team Assistant Position Status and Team Serving Agent Queueing Status information in this DID. The rest of the fields are nil.

In addition, this DID is used to update the number of calls in an alerting queue. When used for this purpose, all fields are unused except Team Assistance Queue Status and Number of Requests in Queue. If the number of calls in an alerting queue is 16 or greater, the Number of Requests in Queue field is populated with 16.

12.5.2 Non-Call DID Information

This section gives a mapping showing which non-call DIDs can be sent to which types of operators (i.e., general operators, assistants or in-charge operators). The shaded blocks indicate the DID can be sent to that type of operator. The operator type is communicated to the position in the Service Logon DID.

DID	Oper	Asst	IC
Active Queue (#0318)			
Ancillary Operator Information (#0300)			
Attached Operator (#0301)			
Audible Tone (#0302)			
Audit (#0303)			
Broadcast Message (#0304)			
Calls Deflected by Queue (#0315)			
Calls Waiting (#0305)			
Calls Waiting by Queue (#0316)			
Controlled Traffic (#0306)			
Logon Denied (#0307)			
Logon Success (#0308)			
Monitor (#0309)			
Office Condition (#031A)			
Operator Administration (#030A)			
Operator Feedback (#030B)			
Operator Management (#030C)			
Operator Queue Profile (#0319)			
Operator Services Suspension (#030D)			
Paging (#030E)			
Password (#030F)			
Position Data (#0310)			

Table 173: Non-Call DID to Operator Type Mapping

DID	Oper	Asst	IC
Position State (#0311)			
Query (#0312)			
Queue Status (#031C)			
Queue Status by Queue (#031B)			
Service Logon (#0313)			
System Time (#0314)			
Team Status (#0317)			

Table 173: Non-Call DID to Operator Type Mapping

Note concerning monitor: A service assistant or in-charge (SA/IC) operator who is monitoring a general operator will receive any and all of the DIDs that the general operator position may receive. The 'Asst' and 'IC' entries in the table above only apply when the SA/IC is not monitoring.

12.6 Position DID Processing Information

The call DIDs inform the position of data which is pertinent during the course of any given call, and the non-call DIDs inform the position of events, conditions, or state transitions which occur outside the realm of any given call. The position design may wish to use this information to divide position data store between call data and non-call data. The call data would be initialized once a Call Begin message is received, and set back to nil values when a Call End for the same call is received. The non-call data would be initialized once a Position State of occupied is received, and set back to nil values when a Position State of unoccupied is received. The position may wish to use the contents of its call and non-call data to determine what information should be displayed on the screen at any given time. Note also that when call data or non-call data is set back to nil values (as described above), the position is responsible for clearing the corresponding displays. For example if calls waiting is displayed when a position logs out, the display should be cleared by the position.

Some exceptions to this strategy are listed below.

- **Loop State DID:** This call DID contains a Loop Number field and can be sent to update the loop state information for any loop on the position. When the position receives a Call Begin message it should initialize the loop state data for the loop number specified in the message header. When the position receives a Call End message it should nil out the loop state data for the loop number specified in the message header. Loop state data for other loops should not be affected.
- **Port Status DID:** This call DID contains a Loop Number field and can be sent to update the port status information for any loop on the position. When the position receives a Call Begin message it should initialize the port status data for the loop number specified in the message header. When the position receives a Call End message it should nil out the port status data for the loop number specified in the message header. Port status data for other loops should not be affected.

12.6.1 Multiple Loop Considerations

The position design may choose to define blocks of call data for each loop available to the position. These blocks would be identical in every respect except they would apply to different loops on the position. This method would provide ready access to a call's information, even when the call is in a suspended state and another call is being processed by the operator. The drawback is that this method may consume more data store than desired.

As a result, the DMS does not require the position to maintain duplicate call data for each loop. When a Call Begin or Call Resume message is sent to the position, it will contain enough DIDs for the position to reinitialize all pertinent call data, thereby allowing the operator to continue processing the call. If all the necessary DIDs cannot fit in the initial Call Begin or Call Resume message, then subsequent Call Update messages will be transmitted until sufficient data has been sent to the position. For general operators, the final Call Update message will contain the Position Information DID with a field value of 'end of call details.' The service assistant and in-charge operators do not receive the Position Information DID.

The following table shows how the position may handle the call data during a normal call processing period. When initializing or nilling out the call data area, keep in mind the exceptions discussed

above.

Operator Action	DMS Action	Message Type	Position Action
Make available for call processing	Present call on loop 1	Call Begin on loop 1	Initialize common call data area
Float call	Release call from position	Call End on loop 1	Nil out common call data area
Wait for new call	Present call on loop 1	Call Begin for loop 1	Initialize common call data area
Request hold loop action	Hold call on loop 1	Call Update for loop 1	Update common call data area
Request access loop action for loop 2	Activate call on loop 2	Call Begin for loop 2	Initialize common data area
Request release of call on loop 2	Release call on loop 2 from position	Call End for loop 2	Nil out common call data area.
	Reconnect call on loop 1	Call Resume for loop 1	Initialize common call data area
Request hold loop action after setting up permanent hold	Permanent hold call on loop 1	Call Suspend for loop 1	Update or nil out common call data area. (see below)
Wait for new call	Attach new call on loop 2	Call Begin for loop 2	Initialize common call data area
Request access loop action on loop 1	Place call on loop 2 on hold and connect call on loop 1	Call Resume for loop 1	Initialize common call data area
Request release of call on loop 1	Release call on loop 1 from position	Call End for loop 1	Nil out common call data area
	Reconnect call on loop 2	Call Resume for loop 2	Initialize common call data area
Request release of call on loop 2	Release call from position	Call End	Nil out common call data area

Table 174: Position Data Processing

Note concerning Permanent Hold: The operator can request a call at position be suspended using a series of action requests. This is known as placing the call on permanent hold. When the DMS

puts the call in this state, it sends a Call Suspend message to the position. Once the call is suspended, new calls can be attached to the position on other loops. However, there is still a call attached to the position on the original loop, although it is in a suspended state. The position design may decide how to indicate to the operator that the call has been suspended and new calls may be presented. Once the operator is finished processing other calls, he or she can return to the suspended call by reaccessing the permanent held loop. At this time a Call Resume message will be sent to the position with all pertinent details of the call.

12.6.2 Monitor Considerations

Operators with monitoring capability (as communicated to the position in the Service Logon DID) can **monitor** positions of general operators to observe the quality of service the monitored operator is providing. During a monitoring session, a one-way voice connection is established so the monitoring operator can hear the conversation between the monitored operator and the subscribers. Also, the monitoring operator receives all of the DIDs that the monitored operator receives.

When a monitor is initiated, the monitoring position will receive a Call Begin message containing the Monitor DID. The monitoring position should save the call ID, loop ID, and switch ID from the header of the Call Begin message containing the Monitor DID. This information will be used later to distinguish messages that apply specifically to the monitoring position from those that are being mirrored from the monitored position.

Messages that apply only to the monitoring position will have the call ID and switch ID from the header of the Call Begin message that contained the Monitor DID. Messages that are being mirrored from the monitored position will not.

Most of the DIDs sent to a monitoring position are mirrored from the monitored position. However, a team or office condition that would normally generate a DID for the monitoring (but not the monitored) position may arise during the monitoring session. When this happens, TOPS may choose to send the DID during the monitoring session.

Termination of a monitoring session normally occurs because of a request by the monitoring position. If the monitoring position sends an ActID requesting monitor end, the ActID message header should contain the call ID, loop ID, and switch ID that were present in the monitor session's Call Begin message.

The DMS may also terminate a monitoring session without a request from the monitoring position. For example, this occurs when the monitored operator logs out, and it sometimes occurs when an IC is monitoring and some office or team condition arises that requires the IC's attention.

When a monitoring session is terminated, regardless of why it is terminated, TOPS sends a Call End message with a Monitor DID. The call ID, loop ID, and switch ID will be the same as in the monitor session's Call Begin message. At this time the monitoring position may want to clear out any data that was sent during the course of the monitor. This includes position state data, queue status warnings, and indications of alarm conditions. After terminating the monitor, if the operator who was monitoring is datafilled to receive information about position states, queue status, and office alarms, TOPS will send DIDs to refresh the information.

TOPS does not permit a monitoring position to be monitored.

Note concerning audit: If the position being monitored is audited, the Audit DID will be sent to the monitoring position as well as the monitored position. The monitoring position should ignore Audit DIDs intended for the monitored position, and not reply with an Audit ActID. Once a Monitor DID with Monitor Status “monitor end” has been received, the position that was monitoring should respond to audits in the normal manner.

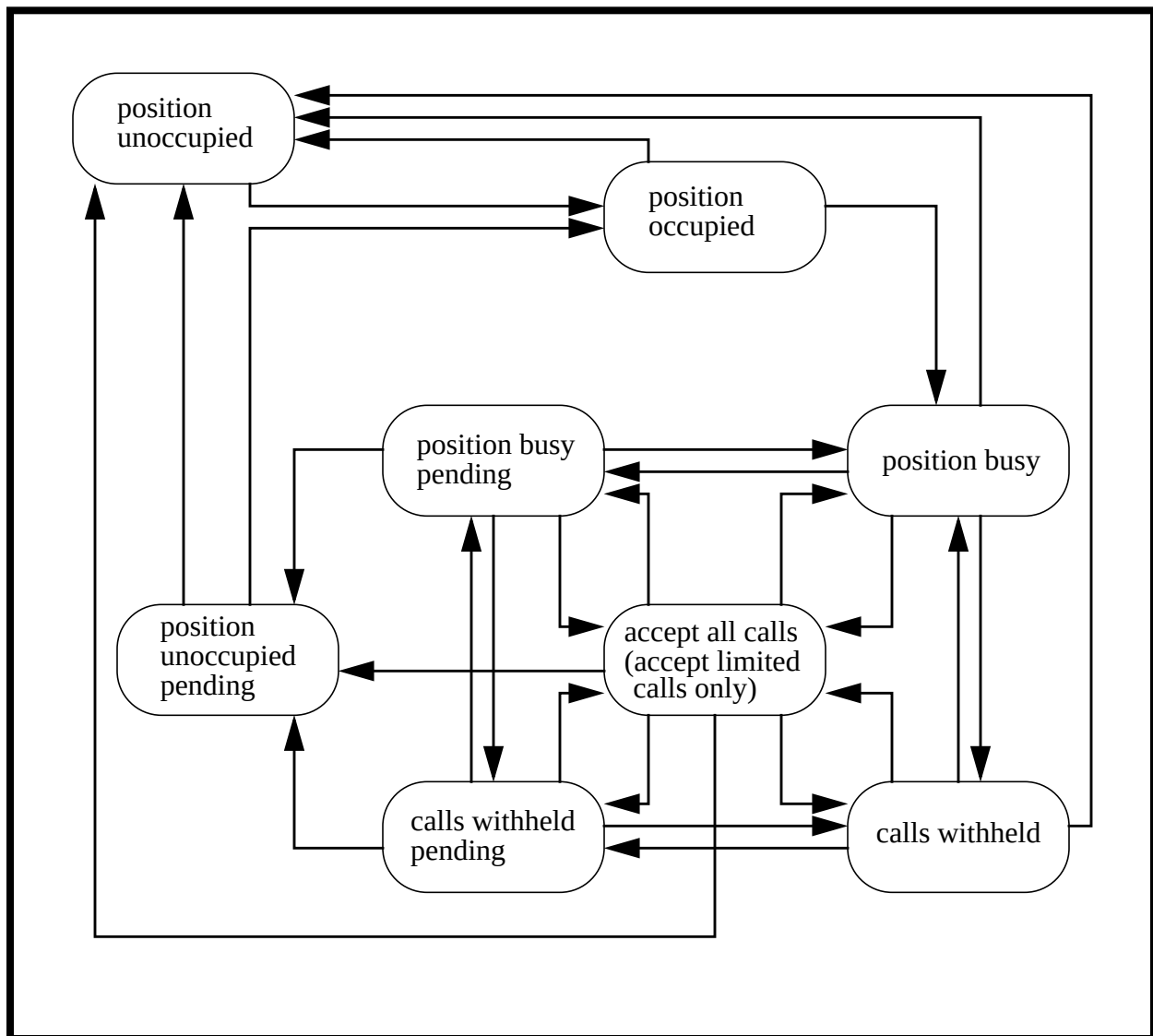
Note concerning state transitions: A monitoring position may receive DIDs indicating a change of position state. Within the DMS, the position state changes apply only to the monitored position, and the monitoring position remains in the same state throughout the monitor. The monitoring position may choose to follow the screens of the monitored position through state transitions. However, the monitoring position should always provide the monitoring operator with a method for ending monitor. When monitor is terminated, the DMS will send (among other information) a Position State DID telling the position that was monitoring what its actual state is. At this time the monitoring position’s screen can be updated as appropriate for the indicated position state.

12.7 Position States

The following state diagram illustrates how state transitions are managed within the DMS by the TOPS application. Not shown are the forced maintenance and forced maintenance pending states. A position may be put into either of these two states from any other state upon performance of a maintenance action.

Currently, TOPS does not support the administrative mode and training mode states. They are also not shown below.

In-Charge positions may be placed into the accept limited calls only state. With regard to allowable state transitions, this state behaves exactly as the accept all calls state. Additionally, the In-Charge position may ‘toggle’ between the accept limited calls only and accept all calls states.



12.7.1 Position State Transitions

Initially, when a position is returned to service its state is position unoccupied. From the occupied state the operator may enter an operator number and commence with DMS logon. When logon has successfully completed, the position state changes from occupied to position busy. It is from the position busy state that the services and queues applicable to the operator's session, as provided in the logon success DID, should be indicated to the operator.

The operator may now request to accept all calls in which case the position state is updated to accept calls. The operator will now receive calls while in this state.

An in-charge operator is the only operator that can reside in the accept limited calls only state. This indicates the in-charge operator is only receiving calls specifically directed to that operator. When in this state, the in-charge operator does not serve general assistance requests.

If there are no calls at the operator position and the position state is accept calls, the operator may request position busy or calls withheld, in which case the position state becomes position busy or calls withheld, respectively. The operator may then initiate DMS logoff by requesting a position state of position unoccupied.

Similarly, if there are no calls at the operator position when the position state is accept calls, the operator may directly initiate DMS logoff by requesting a position state of position unoccupied.

If there is a call at position and the operator keys to withhold calls, the position state becomes calls withheld pending. When the operator releases the call the position state then reverts to calls withheld.

Similarly, if there is a call at position and the operator requests position busy, the position state becomes position busy pending. When the operator releases the call the position state reverts to position busy.

If the operator initiates a delay call while the position state is position busy or withhold calls, the state changes to position busy pending or withhold calls pending, respectively.

The forced maintenance states may be sent when the position is put into a maintenance state of manual busy, system busy, or peripheral maintenance (PM) busy.

12.8 Real Time Information

This section contains a table showing several TOPS operator actions. When the operator requests a specific action, the position composes an Action Identifier (ActID) and sends it to the DMS. The DMS processes the request and in most cases sends Data Identifiers (DIDs) back to the position indicating the results of the action request. The table contains an entry showing the amount of DMS Central Processing Unit (CPU) real time used to process each of the action requests (ActIDs).

The actual switch real time consumption may differ from the figures listed below. OPP real time consumption is dependent upon call scenario, switch datafill, and the implementation of the operator terminal application. These factors may cause different DIDs or DID field values to be sent to the position. When call types, datafill, and implementation vary, the DIDs sent to the position will vary, and the real time used to process the ActIDs may be different from the times shown in this section.

The timings in this section can be combined with the call scenario timings present in the OPP feature documentation to approximate real time impact based on the position's ActID strategy. If a position sends in a particular ActID upon every call arrival, the time required to process that ActID can be combined with the full call scenario from the feature documentation to provide a real time estimate for calls processed by that position.

These timings were performed on a Supernode MC68030 DMS-100/200 in a standalone (S/A) configuration. Each table entry in this section contains the following information:

- **Operator Action:** The action requested by the operator.
- **ActID:** The Action Identifier sent from the position to the DMS to request the particular operator action.
- **Real Time:** The time in milliseconds required by the DMS CPU to receive and interpret the ActID, update position and/or call data, compose DID(s), and send the DID(s) back to the position.

Operator Action	ActID	Real Time (milliseconds)
Start timing for call	AMA Status	2.6
Cancel timing for call	AMA Status	4.3
Cancel the call	AMA Status	2.2
Undo a previous cancel call	AMA Status	2.2
Mark call for AABS handoff	AMA Status	2.5

Table 175: Real Time for Specific Operator Actions

Operator Action	ActID	Real Time (milliseconds)
Request assistance	Attached Operator	4.9
Respond to the DMS audit	Audit	1.2
Store a database call	Booked Call Database	6.6
Retrieve a database call using the serial number	Booked Call Database	12.4
Enter a database class	Booked Call Database	2.2
Block caller ID outpulsing	Caller ID Blocking	2.4
Unblock caller ID outpulsing	Caller ID Blocking	2.4
Enter a calling card number	Calling Card	2.8
Enter an interLATA carrier number for a carrier served by the telco	Carrier Number	3.3
Enter an interLATA carrier number for a carrier not served by the telco	Carrier Number	6.4
Perform a charge adjust for one minute without specifying time of day	Charge Adjust	2.9
Perform an occurrence charge adjust where time of day is included	Charge Adjust	2.9
Mark a call as nonchargeable	Charge Status	2.2
Class charge a call as Station Paid	Class Charge	2.5
Class charge a call as Person Collect	Class Charge	2.5
Bill a call as if it had been dialed directly	Dial Rate	2.2
Undo a previous Dial Rate	Dial Rate	2.2
Enter a 10 digit called number	Directory Number	7.6
Enter an 8 digit foreign called number	Directory Number	13.0
Enter a 7 digit calling number	Directory Number	5.3
Enter a requested number	Directory Number	2.3
Enter a 7 digit called number for busy line verification purposes	Directory Number	8.4
Apply a fixed duration to a call	Fixed Duration	2.0

Table 175: Real Time for Specific Operator Actions

Operator Action	ActID	Real Time (milliseconds)
Undo fixed duration for a call	Fixed Duration	2.0
Request foreign directory assistance	Foreign Assistance	2.5
Enter a foreign calling card number	Foreign Calling Card	3.4
Initiate a delay call	Loop Action	8.0
Float a call	Loop Action	8.0
Hold a call	Loop Action	3.0
Request a CAMA call with one in queue	Loop Action	9.6
Request a CAMA call with none in queue	Loop Action	4.6
Mark a call to be transferred to an inter-LATA carrier not served by the telco	Miscellaneous	6.3
Mark a call to be transferred to an inter-LATA carrier not served by the telco	Miscellaneous	2.3
Request a zip tone repeat	Miscellaneous	1.7
Request Call Details (varies with amount of call information present)	Miscellaneous	6.0 to 10.0
Request the current time	Miscellaneous	2.1
Stop the sonalert at a supervisor position	Miscellaneous	2.1
Verify the special number	Miscellaneous	6.4
Barge in to a busy line	Miscellaneous	2.1
Mark a call for transfer to another operator	Miscellaneous	2.0
Undo a transfer to interLATA carrier	Miscellaneous	2.3
Mark for recall to operator	Miscellaneous	2.0
Select an alternate international route	Miscellaneous	3.3
Release the calling party	Network Action	5.0
Release the called party	Network Action	3.2
Ring the calling party (on a coin phone)	Network Action	3.4
Collect the coins in the hopper in a coin phone	Network Action	3.4

Table 175: Real Time for Specific Operator Actions

Operator Action	ActID	Real Time (milliseconds)
Return coins to the party on a coin phone	Network Action	3.5
Request a notify period of 3 minutes	Notify	2.1
Request operator statistics	Operator Feedback	5.5
Reset the operator statistics	Operator Feedback	5.5
Request logon	Operator Number	1.9
Page a general operator by operator number	Operator Number	2.7
Monitor a general operator by operator number	Operator Number	8.3
End a page by operator number	Operator Number	2.6
End a monitor by operator number on IC position (statistics must be redrawn)	Operator Number	23.7
Speed dial an outgoing trunk	Outtrunk	6.4
Request a language for AABS handoff	Outtrunk	2.4
Transfer a call to another queue	Outtrunk	2.3
Enter an overcollect amount of 25 cents	Over Collect	2.1
Mark a call as Person Call Back	Person Call Back	2.4
Undo a Person Call Back	Person Call Back	2.4
Mark the calling port as a coin phone	Port Function	2.3
Mark the calling port as a hotel phone	Port Function	2.3
Split the calling voice path	Port Function	2.4
Split the called voice path	Port Function	2.4
Outpulse the called number	Port Function	6.8
Page a general operator by position number	Position Number	2.7
Monitor a general operator by position number	Position Number	8.9
End a page by position number	Position Number	2.6

Table 175: Real Time for Specific Operator Actions

Operator Action	ActID	Real Time (milliseconds)
End a monitor by position number on IC position (statistics must be redrawn)	Position Number	22.1
Request 'position occupied' state	Position State	3.1
Initiate logoff from the DMS	Position State	3.9
Request to end the call processing session (go position busy)	Position State	2.5
Make the position available for call processing	Position State	4.3
Query made busy positions in the team	Query	2.6
Query unoccupied positions with a call in progress in a team	Query	2.6
Choose a rate step	Rate Step	2.4
Generate an AMA record	Service	15.9
Switch from DA to TA service	Service	16.8
Inform DMS of which services have been logged onto by the position	Service Logon	5.7
Access a service number	Service Number	2.5
Enter a 10 digit third number	Special Number	2.7
Enter memo text (20 characters)	Text	3.1
Enter a hotel room number (3 digits)	Text	2.4
Enter a hotel guest name (4 characters)	Text	2.6
Enter a calling party name (8 characters)	Text	2.6
Enter a called party name (8 characters)	Text	2.6
Enter a password (4 characters)	Text	2.6
Mark a call for time and charges recall	Time and Charges	2.2
Send the time and charges information to a device	Time and Charges	2.2
Enter a trouble code	Trouble Code	2.5

Table 175: Real Time for Specific Operator Actions

Chapter 13: Revisions

13.1 Revisions

This section describes the changes in the OPP document. Each time a new release of the document is issued, a new subsection is added here to list the changes for that release. Within each subsection, changes are organized by document section.

13.1.1 Issue 1.1

13.1.1.1 Non-Call Data Identifier Description

- **Monitor DID:** Two fields are added at the end of the DID. The Operator Number field (2 bytes - range 0 to 65534) indicates the monitored operator's operator number, and the Position Number field (2 bytes - range 0 to 65534) indicates the monitored operator's position number.

13.1.1.2 Field Definitions

- **Carrier Name:** The range was modified to indicate that this field may contain 8 alphanumeric characters or spaces in ASCII format.

13.1.1.3 TOPS Description

- **Under ActID Supported Values,** a statement concerning upper case alpha characters was removed.
- **Directory Number ActID:** A statement was added to indicate that the Directory Number Count field should contain a value ranging from 0 to 23.
- **Rate Step ActID:** A combination was added to the table to indicate that a nil Rate Step value may be sent to the DMS.
- **Service Logon ActID:** References to 62 QMS services were changed to 63.
- **Text ActID:** The combination for Text Type of 'memo' was modified to show a range of '0 to 25' for the Text Count field. Also, a paragraph was added to describe the allowable combinations of upper case alphas and numerics when the Text Type is hotel room.
- **Call Origination DID:** The combination with the Reason for Operator field value of 'accessing loop' was modified to show a range of '0 to 62' for the Service Type field.
- **Call Service DID:** Combinations were added indicating valid service status, service type of '0 to 62', and screen types of 'billing screen' and 'service screen'. Text was added indicating when these new combinations are sent to the position.
- **Call Type for Queueing DID:** The combination showing a nil value was removed.
- **Calling Card DID:** A statement was added to indicate that the Calling Card Count field contains a value ranging from 0 to 23.
- **Directory Number DID:** A statement was added to indicate that the Directory Number Count field contains a value ranging from 0 to 23. Two combinations with values of 'called', 'domestic', 'screening restrictions', 'local and carrier' and 'requested', 'none', 'nil', 'none' were removed.
- **Foreign Calling Card DID:** A statement was added to indicate that only upper case alpha and numeric characters are sent in the Foreign Calling Card Number field.
- **InterLATA Carrier Information DID:** A statement was added to indicate that a nil carrier name is represented as eight ASCII spaces, and that non-nil carrier names consist of a mixture of upper case alphas, numerics and spaces.

- Loop State DID: A combination was removed from the table to indicate that a Loop Status of 'permanent hold' with a Notify Pending Status of 'notify pending' is not sent.
- No Action DID: Two new entries were added to the list of No Action reasons.
- Text DID: Combinations were added to the table to indicate what is sent for Text Types of 'calling name' and 'called name'. Also the Text Count field range for the combination indicating a valid memo was modified to read '0 to 25'. A paragraph was added to describe the allowable combinations of upper cas alphas and numerics when the Text Type is hotel room
- Broadcast Message DID: A statement was added to indicate that alpha characters are only in upper case.
- Logon Denied DID: Combinations in the table were modified to indicate that a nil operator number is not sent with logon denial reasons of 'incompatible service profile, 'incompatible queue profile' or 'invalid password'. Additionally, most of the text was rewritten to better explain when and why this DID is sent.
- Logon Success DID: References to 62 QMS services were changed to 63. Also, the text was rewritten to better explain when and why this DID is sent.
- Monitor DID: Combinations in the table were modified to show ranges for two new fields, operator number and position number. References to 62 QMS services were changed to 63. Appropriate text was also modified.
- Operator Queue Profile DID: A combination indicating no bits set in the queue profile field was removed. Appropriate text was also modified.
- Paging DID: A combination was modified that a nil paged party value is not sent with a paging status of 'invalid' and a paging type of 'position'.
- Query DID: In the table, each occurrence of '0 to 254' in the sequence number field was changed to '0 to 85'. Additionally, a paragraph was added to explain combinations dealing with a query list type of 'assistants'.
- Service Logon DID: References to 62 QMS services were changed to 63.
- A new subsection was added titled 'Real Time Information'. This subsection contains approximate DMS real time data for various operator actions using OPP.
- Call Origination, Call Service, and Position Information DIDs: The appearances of these DIDs have been clarified. The Call Origination DID is sent to the general operator position in the Call Begin and Call Resume messages. The Call Service DID is sent to the service assistant/in-charge (SA/IC) position in Call Begin and Call Resume messages. The general operator position receives the Position Information DID to indicate all call details have been transmitted. The SA/IC position does not receive the Position Information DID.

13.1.2 Issue 1.2

13.1.2.1 Field Definitions

- Query List Type: The definition of the 'none' value was changed to indicate that the operator has not requested any query information.

13.1.2.2 TMS Description

- This entire chapter was rewritten to clarify the interface of the TMS to OPP positions and position gateways. A subsection was added to indicate that position design and other factors affect system performance, and to roughly indicate TMS capacity. Maintenance message flow examples were added. Other corrections and clarifications were made.

13.1.2.3 TOPS Description

- A new subsection was added to explain how Action Requests are ignored for a short period (one second) at the beginning of each call.
- Foreign Calling Card ActID: A comment was added which states that the position should only send upper case alphas to the DMS in this ActID.
- Text ActID: A subsection was added to discuss the text echoing test tool.
- Call Origination DID: A description of the Call Type for Queueing field's relationship to the DMS table CT4QNAMS was added.
- Call Queue DID: The ranges for the Queue Mark field were changed to read '0 to 3' and the text modified to explain that this DID is only sent to positions using the TOPS ACD Call Queueing System.
- Call Type For Queueing DID: The range of the Call Type For Queueing field has been expanded to include the Nil value.
- Calling Card DID: The table of combinations for this DID was altered significantly to accurately reflect what the DMS sends.
- Charge Adjust DID: The combination with 'invalid' Change Adjust Status, 'number of occurrences' Charge Adjust Indicator and '0 to 99' Charge Adjust Amount was changed to show a Charge Adjust Amount range of '0 to 9999'.
- Directory Number DID: A combination was added with DN Status of Connected, Alternate Exists, DN type of Domestic, and a Routing Indicator of Vacant Code.
- Call DID Information: The table was modified to show that the Call Service DID is sent to assistant and in-charge operators, as well as general operators, and the table was modified to show that the Alternate Route, Booked Call Database Action, Booked Call Database Class, Booked Call Database Number, Elapsed Time, and Foreign Assistance DIDs are not sent to assistant and in-charge operators. Also, a note concerning the booked call database was added which indicates when the feature is in use, any of the DIDs which are generally sent to the general position can be sent to the SA/IC.

- Ancillary Operator Information DID: The table and text were modified to show that complex values of 0 to 14 and unit values of 0 to 14 are permitted.
- Attached Operator DID: All non-nil operator number ranges were changed to read '0 to 9997'. A new combination was added to indicate a 'general' request type on loop 1 with position number of '0 to 9999' and a nil operator number.
- Logon Success DID, Monitor DID, and Service Logon DID: The word 'respectively' was added to indicate that for TOPS ACD, Toll and Assist service is represented by bit 0, Directory Assistance by bit 1, and Intercept by bit 2, in the related service set fields.
- Logon Success DID: The operator number range for all combinations was changed to read '0 to 9997'.
- Monitor DID: The operator number range for the monitor status of 'monitor begin' was changed to read '0 to 9997'. A new combination was added to indicate 'monitor begin' with a nil operator number and a position number of '0 to 9999'.
- Position Data DID: The combinations relating to 'queue' class of data were changed to indicate a range in the queue mark field of '1 to 3'. A note was added to indicate that by-queue information is not sent to QMS positions.
- Query DID: A field was added to the table indicating valid position/operator ranges for all combinations. The combinations relating to assistants were changed to show a range of '0 to 127' for both the number of available assistants and the number of assistants connected to operators.
- Service Logon DID: The operator number range for all combinations was changed to read '0 to 9997'.
- Text DID: A subsection was added to discuss the text echoing test tool.

13.1.3 Issue 2.0

13.1.3.1 Call Data Identifier Description

- Calling Card DID: Value 9 Carrier Restricted was added to the Calling Card Status field of the Calling Card DID.

13.1.3.2 Field Definitions

- Calling Card Status: Value 9 has been added for carrier restricted calling cards.

13.1.3.3 TMS Description

- Discussion of redundant datalink utilization was changed to reflect a strong recommendation for the use of load-sharing, redundant datalinks. The method for selecting primary and secondary datalinks for PVCs was clarified. A warning was added to indicate that failure to use load-sharing, redundant datalink may derate the number of positions supported by a TMS.

13.1.3.4 TOPS Description

- Calling Card DID: New combinations were added to include 'domestic' calling card type for 'carrier restricted' status and CCITT calling card type for 'carrier restricted' status. Also a combination was added to show a 'valid' domestic calling card with a calling card pin status of 'none'.
- InterLATA Carrier Information DID: A combination was added to show type of service of 'transfer only', 'valid' carrier service status and carrier number status of 'invalid for this call only'.
- Arrows were added to the state diagram in the Position States section which indicate that it is valid for a position to move from the calls withheld state to the calls withheld pending state and from the position busy state to the position busy pending state.

13.1.4 Issue 2.1

13.1.4.1 TOPS Description

- Call DID Information: In this table, the Foreign Assistance DID was updated to show that it is sent to assistant and in-charge operators as well as general operators.
- Carrier Number ActID: The Carrier Number Count field was updated from 0-3 to 0-4 to allow operator to key in 4 digit carrier numbers.
- InterLATA Carrier Information DID: The Carrier Number Count field was updated from 1-3 to 1-4 to handle 4 digit carrier numbers.

13.1.5 Issue 3.0

13.1.5.1 Data Format

Notes were added to the description of ASCII and BCD field types to indicate that nil values (#FF and #F respectively) may appear in those field types.

13.1.5.2 Action Identifier Description

- Network Action ActID: The Port field range was expanded to include a value for operator.
- Notify ActID: A new field was added, called Notify Connection, to indicate whether the operator would like a one-way or two-way connection when the notify expires and the call recalls.
- Port Function ActID: The Port field range was expanded to include a value for operator.
- Text ActID: The Text Type field range was expanded to include two new values for ticket number and authorization number.

13.1.5.3 Call Data Identifier Description

- Calling Card DID: A new field was added, called the Calling Card Service Denial Indicator, to better describe why a calling card is invalid.
- Charges DID: The Charges Amount field was expanded from 2 bytes to 4 bytes. Since the low order bytes come first in the field, this is a backward compatible change.
- Language DID: The Port field range was expanded to include a value for operator.
- Network Action DID: The Port field range was expanded to include a value for operator.
- Notify DID: Two new fields were added, Notify Connection and Notify Recall Count, to indicate the type of connection to be set up when the call recalls and how many notify recalls have occurred on this call.
- Port Status DID: The Port field range was expanded to include a value for operator.
- Station Class DID: A new field was added, called the Overtime Type, to describe when charges should be collected for an overtime period. Also, the Port field range was expanded to include a value for operator. Additionally, the Station Class field range was expanded to include a value for institution.
- Text DID: The Text Type field range was expanded to include two new values for ticket number and authorization number.

13.1.5.4 Field Definitions

- Calling Card Service Denial Indicator was added to describe why a calling card is invalid.
- Charges Amount was changed to show the new size of 4 bytes.
- Notify Connection was added to indicate the type of connection between the operator and the switch on a notify recall.

- Notify Recall Count was added to indicated the number of notify recalls that have occurred on this call.
- Overtime Type was added to describe when charges should be collected for an overtime period.
- Port was expanded to include a value for operator.
- Port Function was altered to remove specific language in the split voice to port description.
- Station Class was expanded to include a value for institution.
- Text Type was expanded to include new values for ticket number and authorization number.

13.1.5.5 TOPS Description

- Notify ActID: The new Notify Connection field was added with a nil value for the nil notify minutes combination. The non-nil notify minutes combination was duplicated to indicate that each type of notify connection is supported.
- Port Function ActID: Two new combinations were added to indicate split operator and join operator. Description was added to indicate the one-way nature of the split operator connection.
- Text ActID: Two new combinations were added for the new text type values of ticket number and authorization number, each indicating all bits set for text action and a text start position of 0. The text count for ticket number is 0 to 11 and for authorization number is 0 to 6.
- Calling Card DID: The new CC Service Denial Indicator field was added with a nil value for all existing combinations having a CC status other than invalid. For invalid calling cards, new combinations were added for each of the values of the new field. Also, the formatting discussion for domestic calling cards was altered to indicate that nil BCD values in the calling card field are to be interpreted as separators.
- Charges DID: The combination for valid amount due and valid total amount were update to show a new charges amount range of 0 to 655,340,000.
- Directory Number DID: The formatting discussion was altered to indicate that nil BCD values in the directory number field are to be interpreted as separators.
- Foreign Calling Card DID: The formatting discussion was altered to indicate that nil byte values in the foreign calling card field are to be interpreted as separators.
- Notify DID: The two new fields, Notify Connection and Notify Recall Count, were added. The valid notify status combination was duplicated to indicate that each type of notify connection is supported and that the notify recall count could be 0 to 254. Nil values were indicated for the new fields in all the other combinations.
- Port Status DID: Two new combinations were added to indicate split operator and join operator. The description was expanded to indicate the one-way nature of the split operator connection.
- Station Class DID: The new Overtime Type field was added with a nil value for all existing combinations having a station class value other than postpay coin or prepay coin. For coin calls, new combinations were added for each of the values of the new field. Also, a new combination

for calling port and the new station class value of institution was added with no billing restrictions and nil overtime type.

- Text DID: Three new combinations were added for the new text type value of ticket number indicating all bits set for text action and text start position values of 0. The text count is 0 for a text status of none, 11 for valid, and 0 to 11 for invalid. Four new combinations were added for the new text type value of authorization number indicating all bits set for text action and text start position values of 0. The text count is 0 for a text status of none or required but missing, and 0 to 6 for valid or invalid.

13.1.6 Issue 3.1

13.1.6.1 Action Identifier Description

- Text ActID: The ticket number text type was removed in favor of a new ActID.
- Ticket Number ActID: This is a new ActID that is used to manipulate a ticket number associated with a call.

13.1.6.2 Call Data Identifier Description

- Calling Card DID: The range of the Carrier Name field was corrected to indicate 8 alphanumeric or spaces, to match the range description in the Field Definitions section.
- Notify DID: The Notify Recall Count field was expanded to be a full word in size.
- Text DID: The ticket number text type was removed in favor of a new DID.
- Ticket Number DID: This a new DID that is used to reflect information about a ticket number associated with a call.

13.1.6.3 Field Definitions

- The entire section was purged of references to the term 'headset'. Discussions involving headsets were reworded to indicate specific position states.
- Calling Card Service Denial Indicator: The descriptions of each value were altered to more accurately reflect their meanings.
- Notify Recall Count: The Notify Recall Count field was expanded to be a full word in size.
- Position State: A number of the descriptions for position state values were modified to delete references to headsets and make them more accurate.
- Text Type: The ticket number value was removed in favor of using new identifiers.
- Ticket Number Action: This new field has three values of clear ticket number, enter ticket number and generate ticket number.
- Ticket Number Digits: This new field is 6 BCD digits associated with a ticket number.
- Ticket Number Status: This new field has three values of none, valid and invalid.
- Transit Code: This new field is 3 ASCII characters associated with a ticket number.

13.1.6.4 TOPS Description

- The entire section was purged of references to the term 'headset'. Discussions involving headsets were reworded to indicate specific position states.
- Foreign Calling Card ActID: The description was altered to indicate that only one uppercase alpha character is supported.
- Text ActID: The calling name and called name combinations were altered to reflect a total possible text string length of 32 characters. The combination for ticket number was removed.

- Ticket Number ActID: This new section was added showing combinations for the new ActID.
- ActID Information: The table was modified to add the new Ticket Number ActID and show that the new ActID is valid for all position types.
- Calling Card DID: The upper bound of the calling card number count field was changed to 27 to allow for up to 4 separators.
- Directory Number DID: The upper bound of the directory number count field was changed to 27 to allow for up to 4 separators. Formatting discussion was altered to indicate that no separators are sent for foreign directory numbers.
- Foreign Assistance DID: The combinations with status values of city code required were modified to show country code count values of 1 to 3. The combinations with status values of invalid were modified to show country code count values of 0 to 3, and the related discussion was appropriately edited. A formatting note was added to the discussion.
- Foreign Calling Card DID: The formatting rules discussion was altered to remove references to separators in the digit stream and to note the inherent format of foreign calling card numbers.
- Notify DID: Combinations showing a non-nil notify recall count value were altered to indicate a range of 0 to 9999.
- Station Class DID: Combinations were added to show a nil overtime type for each combination of other field values relating to coin calls.
- Text DID: The calling name and called name combinations were altered to reflect a total possible text string length of 32 characters. The combinations for ticket number were removed.
- Ticket Number DID: This new section was added showing combinations for the new DID.
- Position State DID: The discussion of state transitions was moved to a new subsection under the Position States section, called Position State Transitions.
- DID Information: The table was modified to add the new Ticket Number DID and show that the new DID is valid for all position types.
- Position States: A new subsection called Position State Transitions was added and the discussion of state transitions was moved here from the Position State DID.

13.1.7 Issue 3.2

13.1.7.1 TMS Description

- In the “Recovery of a Position from System Busy Condition” flow, the first message was corrected to show a value of #03 for the Request Class and a value of #05 for the Request Type.

13.1.7.2 Examples

- The examples in this chapter were updated for the current OPP protocol release.

13.1.7.3 TOPS Description

- Text ActID: The set of text actions for valid calling and called name text types was revised to consist of confirm text and confirm all optionally with clear to end of field.
- AMA Status DID: The initial AMA status for calls of AMA unspecified is indicated.
- Dial Rate DID: The initial dial rate status for calls of no dial rate is indicated.
- Fixed Duration DID: The initial fixed duration status for calls of no fixed duration is indicated.
- InterLATA Carrier Information DID: The initial carrier status of calls of no associated carrier is indicated.
- No Action DID: Four new no action reasons were added: 125-128.
- Notify DID: Additional DID combinations were documented with valid notify status and nil notify recall count.
- Person Call Back DID: The initial person call back status of none is indicated.
- Text DID: Changes were made for text types of calling and called names. The text count for the calling and called names with text status of valid or invalid was corrected to show a range of 0 to 25 instead of 1 to 25. The set of text actions for valid calling and called name text types was revised to consist of confirm text and confirm all optionally with clear to end of field. In addition, for the text types of calling or called name, a Text DID is not sent to the position until a Text ActID is received with both the confirm text and confirm all bits set.
- Time and Charges DID: The initial time and charge statuses of no time and charges and no print time and charges is indicated.
- Transfer to Operator DID: The initial transfer to operator status of no transfer is indicated.

13.1.8 Issue 3.3

13.1.8.1 Field Definitions

- Foreign Assistance Number: The definition of the foreign assistance number is expanded to include the called number for which assistance is sought.

13.1.8.2 TOPS Description

- Foreign Assistance DID: The range of the foreign assistance number count is increased to 1 to 27 for valid foreign assistance numbers and 0 to 27 for invalid foreign assistance numbers.
- No Action DID: The No Action Reason List is expanded to include a No Action Reason Description for each entry.

13.1.9 Issue 4.0

13.1.9.1 Message Format

- Switch/Loop ID: The description of the Switch/Loop ID field in the header is updated to reflect the changed Switch ID and Loop ID ranges.

13.1.9.2 Action Identifier Description

- AMA Status ActID: The new value of rating verification is added to the AMA Status field.
- Loop Action ActID: The range of the Loop Number field is changed from 0-6 to 0-2.
- Network Action ActID: New values of trunk offering start and trunk offering end are added to the Network Action field.

13.1.9.3 Call Data Identifier Description

- AMA Status DID: The new value of rating verification is added to the AMA Status field.
- Directory Number DID: The toll break in value of the Directory Number Type field is documented as unused.
- Loop State DID: The range of the Loop Number field is changed from 0-6 to 0-2.
- Network Action DID: New values of trunk offering start and trunk offering end are added to the Network Action field.
- Port Status DID: The range of the Loop Number field is changed from 0-6 to 0-2, and new values of busy and congested are added to the Port Status field.
- Real Time Rating DID: This new DID is documented.
- Service Call ID DID: The range of the Switch ID field is changed from 0-30 to 0-62.

13.1.9.4 Non-Call Data Identifier Description

- Attached Operator DID: The range of the Loop Number field is changed from 0-6 to 0-2

13.1.9.5 Field Definitions

- AMA Status: The new value of Rating Verification is described.
- Loop Number: The range of the Loop Number field is changed from 0-6 to 0-2.
- Network Action: New values of trunk offering start and trunk offering end are described.
- Port Status: New values of busy and congested are described.
- Real Time Rating Query Status: This new field is defined.
- Switch ID: The range of the Switch ID field is changed from 0-30 to 0-62.

13.1.9.6 TOPS Description

- OPP Header: The range of the Switch ID in the table of OPP Header Supported Values is up-

dated from 0-15 to 0-31.

- **Backward Compatibility in OC:** The impact of the increased number switches which can be supported in an OC network is discussed.
- **Network Action ActID:** New combinations which use the network actions of trunk offering start and trunk offering end are added to the table of Network Action ActID Supported Values.
- **AMA Status DID:** A new combination which uses the AMA status value of rating verification is added to the AMA Status DID Supported Value table. The use of the AMA status values of unspecified and rating verification for real time rating is described.
- **Network Action DID:** New combinations which use the network actions of trunk offering start and trunk offering end are added to the table of Network Action ActID Supported Values.
- **No Action DID:** Four new No Action Reasons are added: 129-132.
- **Port Status DID:** New combinations which use the port status of busy and congested are added to the table of Port Status DID Supported Values.
- **Real Time Rating DID:** The use of the DID is described, and the supported values are given.
- **Service Call ID DID:** The range of the Switch ID in the table of Service Call ID DID Supported Values is updated from 0-15 to 0-31.
- **Call DID Information:** The operator position types which support the new Real Time Rating DID are indicated in the Call DID to Operator Type Mapping table.

13.1.10 Issue 4.1

13.1.10.1 Call Data Identifier Description

- AMA Status DID: Value 8 is changed from real time rating verification to database verification.
- Database Query DID: This new DID is documented.
- Real Time Rating DID: This DID is replaced by the more generic Database Query DID.

13.1.10.2 Field Definitions

- Alternate Route Status: The definition of the invalid value has been clarified.
- AMA Status: Value 8 is changed from real time rating verification to database verification.
- Database Query Status: This new field is documented.
- Database Query Type: This new field is documented.
- Real Time Rating Query Status: This field is replaced by the more generic Database Query Status field.

13.1.10.3 TOPS Description

- AMA Status : The real time rating verification value is replaced by the more generic database verification value.
- Database Query DID: The supported TOPS values of this DID are described.
- No Action DID: No Action Reasons 131 and 132 are updated.
- Real Time Rating DID: This DID is replaced by the more generic Database Query DID.
- Call DID Information: The operator position types which support the new Database Query DID are indicated in the Call DID to Operator Type Mapping table. The Real Time Rating DID is removed from this table.

13.1.11 Issue 4.2

13.1.11.1 TOPS Description

- **OPP Body:** The new section OPP Body is added and describes the TOPS use of the OPP message body.
- **Position States:** An unsupported transition from the Position States figure (position occupied to position unoccupied pending) was removed.
- **Position State Transitions:** The text accompanying the unsupported state transition was removed.

13.1.12 Issue 5.0

13.1.12.1 Action Identifier Description

- Attached Operator ActID: This new ActID is documented.
- Calling Card ActID: The new Calling Card Validation field is added.
- Data ActID: This new ActID is documented.
- OSSAIN Information ActID: This new ActID is documented.
- OSSAIN Trigger ActID: This new ActID is documented.

13.1.12.2 Call Data Identifier Description

- Call Origination DID: The Call Arrival Status field is added to the DID description, and the new Call Arrival Status field values 11-14 are documented.
- Calling Card DID: The new Calling Card Type of unknown is documented.
- Country Name DID: This new DID is documented.
- Directory Number DID: The new Directory Number Class CLI is documented.
- OSSAIN Information DID: This new DID is documented.
- OSSAIN Trigger DID: This new DID is documented.

13.1.12.3 Field Definitions

- Attached Operator Function: This new field is described.
- Call Arrival Status: New values 11-14 are added.
- Calling Card Type: New value unknown is added.
- Calling Card Validation: This new field is described.
- Country Name Index: This new field is described.
- Data: This new field is described.
- Data Count: This new field is described.
- Data Reason: This new field is described.
- Data Start Position: This new field is described.
- Data Type: This new field is described.
- Directory Number Class: The new Directory Number Class CLI is documented.
- OSSAIN Control List ID: This new field is described.
- OSSAIN Function ID: This new field is described.

- OSSAIN Trigger Profile Index: This new field is described.
- OSSAIN Trigger Profile Status: This new field is described.

13.1.12.4 TOPS Description

- Attached Operator ActID: This new ActID is described.
- Calling Card ActID: The new Calling Card Validation field is described and is documented in the table of Calling Card ActID Supported Values.
- Data ActID: This new ActID is described.
- OSSAIN Information ActID: This new ActID is not supported by TOPS.
- OSSAIN Trigger ActID: This new ActID is described.
- Outtrunk ActID: The relationship between the Outtrunk ActID and the new Attached Operator ActID is discussed.
- ActID Information: The operator types which support the new Data and OSSAIN Trigger ActIDs are indicated in the ActID to Operator Type Mapping Table, and the set of supported operator types for the Attached Operator ActID is expanded. Also, a note concerning CSE operators is added.
- Call Origination DID: The new Call Origination type of Country Direct is documented.
- Calling Card DID: Combinations which use the new value of the Calling Card Type are added to the Calling Card DID Supported Values table. Also, formatting of the unknown calling card type is discussed.
- Country Name DID: This new DID is described.
- Data DID: This new DID is described.
- Directory Number DID: New combinations which use the Directory Number Class of CLI are added to the table of Directory Number DID Supported Values.
- Elapsed Time DID: The new combination of: Notify Time, Invalid, Nil, Nil is documented.
- No Action DID: Three new No Action Reasons are added: 133-135.
- OSSAIN Information DID: This new DID is described.
- OSSAIN Trigger DID: This new DID is described.
- Port Status DID: The description of the Port Status DID is expanded to include the new attached operator port, and combinations which use attached operator port are added to the Port Status DID Supported Values table.
- Call DID Information: The operator types which support the new Country Direct, Data, OSSAIN Information, and OSSAIN Trigger DIDs are indicated in the Call DID to Operator Type Mapping table. Also, a note concerning CSE operators is added.
- Non-Call DID Information. The set of supported operator types for the Attached Operator DID

is expanded in the Non-Call DID Supported Values table. Also, a note concerning CSE operators is added.

13.1.13 Issue 5.1

13.1.13.1 Action Identifier Description

- Attached Operator ActID: The Attached Operator Function field is renamed to the Assistance Request Type field. The values within the field are also renamed.
- OSSAIN Trigger ActID: Two new fields in this ActID are documented.

13.1.13.2 Call Data Identifier Description.

- OSSAIN Trigger DID: Two new fields in this DID are documented.

13.1.13.3 Field Definitions

- Attached Operator Function: This field is renamed to the Assistance Request Type field. The values within the field are also renamed.
- Assistance Request Type: The Attached Operator Function field is renamed to the Assistance Request Type field. The values within the field are also renamed.
- OSSAIN No Answer Timer: This new field is documented.
- OSSAIN Notification Timer: This new field is documented.

13.1.13.4 TOPS Description

- Attached Operator ActID; The attached Operator Function field is renamed to the Assistance Request Type field. The values within the field are also renamed.
- OSSAIN Trigger ActID: Two new fields in this ActID are documented.
- No Action DID: Seven new No Action Reasons are added: 136-142.
- OSSAIN Trigger DID: Two new fields in this DID are documented.

13.1.14 Issue 5.2

13.1.14.1 Non-Call Data Identifier Description

- Attached Operator DID: Added additional information to the description of this DID.

13.1.14.2 Action Identifier Description

- Attached Operator ActID: Renamed the Operator Number field to Position Number field.

13.1.14.3 Call Data Identifier Description

- Calling Card DID: Added new field Calling Card Billing Determination.

13.1.14.4 Field Definition

- Calling Card Billing Determination: New field is documented

13.1.14.5 TOPS Description

- Attached Operator ActID: Change column heading from Operator Number to Position Number.
- Calling Card DID: Added new column for field Billing Determination.
- Data DID: Changed Data DID combinations for Data types.

13.1.14.6 TMS Description

- Section 8.7.6.2, RTS of a Position: Noted that a position can be RTS'ed any time, not just during restarts.

13.1.15 Issue 5.3

13.1.15.1 Call Data Identifier Description

- Calling Card DID: Field Calling Card Billing Determination was improperly named in previous issue. Renaming this field to Calling Card Determination.

13.1.15.2 Field Definition

- Calling Card Billing Determination: Field renamed to Calling Card Determination.

13.1.15.3 TOPS Description

- Calling Card DID: Renamed column Billing Determination to Determination.

13.1.16 Issue 6.0

In addition to the changes listed below, various sentences throughout the document that implied the DMS sends “screen updates” or “displays” to a position were removed or reworded. The DMS sends *information* to the position, and the position decides whether to update a screen or otherwise “display” the information. Not all of these erroneous descriptions were removed, but this is a start.

13.1.16.1 Action Identifier Description

- Attached Operator ActID: Documented changes to the Assistance Request Type field in this ActID. Changed Position Number field to Position/Operator Number Field. Expanded description to better tell what the ActID can be used for.
- Operator Number ActID: Updated description to cover all uses of the ActID, and to omit detailed explanation of Monitor Type field.
- Outtrunk ActID: Eliminated TOPS-specific information from the description. *Note: this ActID can no longer be used for assistance requests. The Attached Operator ActID must now be used for assistance requests.*
- Position Number ActID: Updated description to cover all uses of the ActID, and to omit detailed explanation of Monitor Type field.
- Query ActID: Generalized description to include all operator types.
- Query Queue Status by Queue ActID: Created new Query Queue Status by Queue ActID.

13.1.16.2 Call Data Identifier Description

- Calling Card DID: A new Calling Card Status of no mutual honoring agreement is added.
- OLNS Information DID: This new DID is documented.
- Text DID: A new Text type of OLNS alphanumeric string is added.

13.1.16.3 Non-Call Data Identifier Description

- Attached Operator DID: Renamed Request Type field to Attached Operator Status. Added new value “queued” to the (newly-renamed) Attached Operator Status field. Clarified that this DID may be sent to an operator who has requested assistance (not just to the operator who is providing assistance).
- Audible Tone DID: Eliminated implications that the DMS always sends this DID when a condition needs to be brought to the operator’s attention, and that the position must sound a tone when it receives this DID.
- Calls Deflected by Queue DID: Renamed Calls Deflected Status by Queue field to Status by Queue, so it can be shared by multiple identifiers.
- Calls Waiting by Queue DID: Renamed Calls Waiting Status by Queue field to Status by Queue.
- Monitor DID: Eliminated assumption that only SA/IC operators can monitor.

- Office Condition DID: Created new Office Condition DID.
- Operator Management DID: Clarified description; eliminated assumption that only supervisors can issue pages.
- Paging DID: Updated description to eliminate assumption that only supervisors can page.
- Position Data DID: Generalized description to include all operator types.
- Query DID: Added additional information to description. (This information was removed from definition of the Position/Operator Number field.)
- Queue Status DID: Created new Queue Status DID.
- Queue Status by Queue DID: Created new Queue Status by Queue DID.
- Service Logon DID: Added new value “queue status and query” for the Operator Capabilities field in this DID. Also updated the description to eliminate implication that this DID is sent only if the position needs to logon to a service vendor. (It is always sent during logon. This is a documentation correction, not a functional change.)

13.1.16.4 Field Definition

- Assistance Request Type: Renamed existing value “directed assistance” to “directed assistance by position.” Added new value “directed assistance by operator” to the range. Clarified meanings of the different request types.
- Attached Operator Status: Created new Attached Operator Status field. Refer to Request Type field, below.
- Audible Tone: Updated field description to acknowledge that the position, not the DMS, controls whether or not an audible tone is sounded.
- Calling Card Status: Added new value “no mutual honoring agreement” to the range.
- Calls Deflected Status by Queue: Renamed this field to Status by Queue.
- Calls Waiting Status by Queue: Renamed this field to Status by Queue.
- Condition Status: Created new Condition Status field.
- First Queue Number: Updated text to refer to related fields by their new names.
- Management Status: Eliminated assumption that only supervisors can page.
- Monitor Status: Eliminated assumption that only supervisors can monitor.
- Monitor Type: Eliminated assumption that only supervisors can monitor.
- Office Condition Type: Created new Office Condition Type field.
- OLNS Equipment Display Index: Documented this new field.
- OLNS Restriction Display Index: Documented this new field.
- Operator Capabilities: Added new value “queue status and query” to the range.

- Operator Number Type: Eliminated assumption that only supervisors can page.
- Outtrunk Data: Modified example to show nil Outtrunk Data.
- Paged Party: Eliminated assumption that only supervisory operators can page.
- Position Number Type: Eliminated assumption that only supervisors can page and monitor.
- Position/Operator Number: Reworded description of this field to be more generic.
- Queueing Condition Type: Created new Queueing Condition Type field.
- Request Type: Renamed this field to Attached Operator Status. Added new value “queued” to the range. Rewrote description and definition to better describe the field and its values.
- Status by Queue: Created new Status by Queue field. It is a generalization of, and replaces, the Calls Deflected Status by Queue field and the Calls Waiting Status by Queue field.
- Text Type: Added new value “OLNS alphanumeric string” to the range.
- Type of Data: Eliminated assumption that this DID can only be sent to supervisors. Modified description of value 6.

13.1.16.5 Protocol Assumptions

- Removed sections on monitoring. (The information is now in the TOPS Description section.)
- Outtrunk Keys: Replaced assistance example with Spanish example, since the Outtrunk ActID is no longer supported for assistance requests.

13.1.16.6 TOPS Description

- Attached Operator ActID: Added row for Assistance Request Type “directed assistance by operator” to table of supported values. Corrected error on supported range of position numbers. Clarified the explanation of how TOPS interprets this ActID.
- Operator Number ActID: Changed to say the Operator Number must be nil when requesting to end page or monitor. This is not a TOPS change; it just makes the documentation consistent with existing DMS functionality. Also added a statement that an operator can have both an incoming and an outgoing page active at the same time. This *is* a TOPS change.
- Outtrunk ActID: Modified to say that *this ActID can no longer be used for requesting assistance*. Rewrote TOPS usage description to give QMS as much emphasis as TOPS ACD.
- Position Number ActID: Modified to say the Position Number must be nil when requesting to end page or monitor. This is not a TOPS change; it just makes the documentation consistent with existing DMS functionality. Also added a statement that an operator can have both an incoming and an outgoing page active at the same time. This *is* a TOPS change.
- Query ActID: Indicated that TOPS now supports this ActID from general operators with the statistics and query capability, as well as from ICs.
- Query Queue Status by Queue ActID: Described TOPS usage of this new ActID.

- Attached Operator DID: Consolidated some existing rows in the table of supported values, and added some new rows that are supported when the assisting operator is a general operator. Rewrote the description to cover both the case where an SA/IC is involved and the case where only general operators are involved.
- Audible Tone DID: Rewrote TOPS usage description to omit inappropriate level of detail, some of which was obsolete, and to make it clear that this DID is not sent to general operators. Added a note that most of the Audible Tone documentation in other sections applies only to TOPS ACD SA/IC operators.
- Calling Card DID: Added new combinations using the new calling card status value to the Calling Card DID Supported Values table.
- Calls Deflected by Queue DID: Modified text to reflect renaming of Calls Deflected Status by Queue field, to Status by Queue.
- Calls Waiting by Queue DID: Modified text to reflect renaming of Calls Waiting Status by Queue field, to Status by Queue.
- Monitor DID: Eliminated assumption that only SA/IC can monitor. Documented new TOPS functionality: monitor session is terminated when monitored operator logs out, and TOPS may send traffic and office condition information to a monitor.
- No Action DID: Added one new no action reason: 143.
- Office Condition DID: Described TOPS usage of this new DID.
- OLNS Information DID: Documented this new DID.
- Paging DID: Modified to eliminate the assumption that only SA/IC operators can issue pages, and to eliminate redundant explanation. Also noted that paged assistance is a way to answer a page.
- Position Data DID: Modified text to say that this DID can be sent to both IC operators and general operators. Clarified the differences in use of this DID with TOPS ACD and QMS. Updated the definition of Accessed Loop with No Call.
- Query DID: Clarified usage description. Indicated that TOPS now sends this DID to general operators with the statistics and query capability, not just to IC operators.
- Queue Status DID: Described TOPS usage of this new DID.
- Queue Status by Queue DID: Described TOPS usage of this new DID.
- Service Logon DID: Modified table of supported values to reflect changes in the values that TOPS will send. Explained the Operator Capabilities field and its new use with different operator types and different queueing systems.
- Text DID: Added new combinations using the new text type value to the Text Type DID Supported Values table.
- ActID Information: Modified the table to add the new Query Queue Status by Queue ActID

and to show that the Position Number ActID and the Query ActID may now be sent by a general operator. Clarified the text above the table.

- Call DID Information: Clarified text above the table. Added entry in table for new OLNS Information DID.
- Non-Call DID Information: Modified the table to show the new Office Condition, Queue Status, and Queue Status by Queue DIDs; also to show that the Monitor, Paging, Position Data, and Query DIDs can now be sent to general operators. Clarified text above the table.
- Backward Compatibility in OC: Updated OC compatibility rule. The functionality has not changed with this release; rather, the documentation is updated to reflect functionality that has been the same for several releases now.
- Consolidated information about monitoring in “Monitor Considerations” on page 714. Changed text that said only SA/ICs could monitor, since general operators with the monitor capability can now monitor. Noted some changed functionality in how TOPS handles monitoring.

13.1.17 Issue 6.1

13.1.17.1 Call Data Identifier Description

- Service Call ID DID: Renamed Switch ID field to Service Switch ID and expanded its range.
- Service Call ID DID: Expanded range of Service Call ID field.

13.1.17.2 Field Definition

- Service Switch ID: Created new Service Switch ID field. Refer to Switch ID field below.
- Switch ID: Renamed to Service Switch ID and expanded its range.
- Service Call ID: Expanded its range.

13.1.17.3 Protocol Assumptions

- Added section on OLNS Restricted Billing.
- Added section on OLNS Equipment Display.
- Removed section on Number Formatting.

13.1.17.4 TOPS Description

- No Action DID: Added new no action reasons: 144-149.
- Service Call ID DID: Modified table to reflect new range and name for old Switch ID field.
- Service Call ID DID: Modified table to reflect new range of Service Call ID field.
- Attached Operator DID: Clarified that all call-related attached operator information should be cleared at the end of a call.
- OLNS Information DID: Modified table to reflect another possible combination of values: nil/nil.

13.1.18 Issue 7.0

13.1.18.1 Action Identifier Description

- Alternate Date ActID: This new ActID is documented.
- Alternate Time ActID: This new ActID is documented.
- Estimate Duration ActID: This new ActID is documented.
- LNP Request ActID: This new ActID is documented.
- Loop Action ActID: The release to operator value is added to the loop action field.
- Miscellaneous ActID: The estimate charges value is added to the miscellaneous action request field.
- OSSAIN Trigger ActID: The OSSAIN notification timer field is extended from 2 bytes to 4 bytes, and the OSSAIN notification timer type field is added.
- Pass Through ActID: This new ActID is documented.

13.1.18.2 Call Data Identifier Description

- Alternate Date DID: This new DID is documented.
- Alternate Time DID: This new DID is documented.
- Charges DID: The estimate amount value is added to the charges type field.
- Database Query DID: The local number portability value is added to the database query type field, the none value of the database query status field is renamed to query not in progress, and the real time rating value of the database query type field is renamed to real time rating system.
- Directory Number DID: The unenforced screening restrictions value is added to the directory number status field, and the screening restrictions value of the directory number status field is renamed to enforced screening restrictions.
- Estimate Charges DID: This new DID is documented.
- Estimate Duration DID: This new DID is documented.
- LRN Information DID: This new DID is documented.
- OSSAIN Trigger DID: The OSSAIN notification timer field is extended from 2 bytes to 4 bytes, and the OSSAIN notification timer type field is added.
- Pass Through DID: This new DID is documented.
- Service Provider DID: This new DID is documented.

13.1.18.3 Non-Call Data Identifier Description

- Attached Operator DID: The service node number and session pool number fields are added, and the description is updated to include service nodes.

13.1.18.4 Field Definitions

- Alternate Date Status: This new field is described.
- Alternate Day: This new field is described.
- Alternate Hour: This new field is described.
- Alternate Minute: This new field is described.
- Alternate Month: This new field is described.
- Alternate Time Status: This new field is described.
- Charges Type: The new estimate amount value is described.
- Database Query Status: The none value is renamed to query not in progress.
- Database Query Type: The new local number portability value is described, and the rating value is renamed to real time rating system.
- Directory Number Status: The new unenforced screening restrictions value is described, and the screening restrictions value is renamed to enforced screening restrictions.
- Estimate Duration: This new field is described.
- Estimate Duration Status: This new field is described.
- Initial Period Amount: This new field is described.
- Initial Period Minutes: This new field is described.
- LNP Party: This new field is described.
- Loop Action: The new release to operator value is described.
- LRN: This new field is described.
- LRN Count: This new field is described.
- LRN Status: This new field is described.
- Miscellaneous Action Request: The new estimate charges value is described.
- OSSAIN Notification Timer: The field is extended from 2 bytes to 4 bytes.
- OSSAIN Notification Timer Type: This new field is described.
- Pass Through Data: This new field is described.
- Pass Through Data Count: This new field is described.
- Service Node Number: This new field is described.
- Service Provider Class: This new field is described.
- Service Provider Type: This new field is described.

- Service Provider Identifier: This new field is described.
- Service Provider Display: This new field is described.
- Session Pool Number: This new field is described.
- Subsequent Period Amount: This new field is described.
- Subsequent Period Minutes: This new field is described.

13.1.18.5 TOPS Description

- Alternate Date ActID: This new ActID is described.
- Alternate Time ActID: This new ActID is described.
- Estimate Duration ActID: This new ActID is described.
- Loop Action ActID: The release to operator loop action is added as a supported value.
- LNP Request ActID: This new ActID is described.
- Miscellaneous ActID: The estimate charge miscellaneous action request is added.
- OSSAIN Trigger ActID: The maximum supported OSSAIN notification timer is increased from 3600 to 5999999, and the OSSAIN notification timer type field is added.
- Pass Through ActID: This new ActID is described.
- Alternate Date DID: This new DID is described.
- Alternate Time DID: This new DID is described.
- Charges DID: The estimate amount charges type is added as a supported value.
- Data DID: The supported values are updated for proper use of the data reason.
- Database Query DID: The local number portability database query type is added as a supported value, other values are renamed, and a note is added about database query completion.
- Directory Number DID: The unenforced screening restrictions DN status is added as a supported value, and the screening restrictions DN status is renamed to enforced screening restrictions.
- Estimate Charges DID: This new DID is described.
- Estimate Duration DID: This new DID is described.
- LRN Information DID: This new DID is described.
- OSSAIN Trigger DID: The maximum supported OSSAIN notification timer is increased from 3600 to 5999999, and the OSSAIN notification timer type field is added.
- Pass Through DID: This new DID is described.
- Service Provider DID: This new DID is described.
- Attached Operator DID: The service node number and session pool number fields are added.

13.1.19 Issue 7.1**13.1.19.1 Call Data Identifier Description**

- System Status DID: This new DID is documented.

13.1.19.2 Field Definitions

- System Status: This new field is described.

13.1.19.3 TOPS Description

- System Status DID: This new DID is described.

13.1.20 Issue 8.0

13.1.20.1 TOPS Description

- Data ActId: The data count for the OSSAIN custom AMA data type is corrected.
- Calling Card DID: The PIN status for the unknown calling card type is corrected.
- Directory Number DID: New combinations are added for the called DN class. A routing indicator of carrier is allowed with a DN type of service. A DN status of enforced screening restrictions is allowed with a DN type of foreign.

13.1.21 Issue 9.0

13.1.21.1 Protocol Description

- Auditing: A new table is added to describe the relationship between OPP versions and DMS software releases.

13.1.21.2 Action Identifier Description

- Calling Card ActID: The personal identification number maximum size is expanded from 4 to 254.
- Miscellaneous ActID: The miscellaneous action request field is updated to include the new value, deny release link trunking.
- Service Provider ActID: This new ActID is documented.

13.1.21.3 Call Data Identifier Description

- Calling Card DID: The personal identification number maximum size is expanded from 4 to 254.
- Directory Number DID: The routing indicator field is renamed to DN flags. In addition, a new bit was added to DN flags to indicate SPID processing.
- OSSAIN Information DID: A new field, OSSAIN Failed Function ID, is documented.
- Service Provider DID: A new value, special, is added to the service provider class field. The service provider type field is also expanded to include the billing service provider value. A new service provider status field is added to the DID, which includes the none, invalid, and valid field values.

13.1.21.4 Field Definitions

- Miscellaneous Action Request: Expanded to include the new value, deny release link trunking.
- OSSAIN Failed Function ID: This new field is documented.
- Personal Identification Number Size: This field's maximum range is expanded from 4 to 254.
- Routing Indicator: This field is renamed to DN Flags, and a new value, service provider processing has been added.
- Service Provider Class: This field is extended to include the new value, special.
- Service Provider Type: This field is extended to include the new value, billing service provider.
- Service Provider Status: This new field is documented.

13.1.21.5 TMS Description

- Table 1: TMS X.25 Parameter Sets is updated to remove the incorrect time units on the Level 2 -N2 parameter. The Level 3 - Number of PVCs parameter is updated to include the range of values, rather than just the minimum.

13.1.21.6 TOPS Descriptions

- Calling Card ActID: The supported values table is expanded to include the PIN size field.
- Miscellaneous ActID: The supported values table is updated to include the new value, deny release link trunking.
- Service Provider ActID: This new ActID is described.
- Table 68: ActID to Operator Type Mapping is updated to include the Service Provider ActID.
- Calling Card DID: The table of supported values is updated to include the PIN size range for unknown calling cards.
- Directory Number DID: A brief description of the new SPID processing bit has been added. In addition, the table of supported values is updated for the new bit.
- No Action DID: Added new no action reasons: 150-153.
- OSSAIN Information DID: The table of supported values is updated to include the new OS-SAIN Failed Function ID field. A brief description of this field is also added.
- Service Provider DID: The supported values table is updated to show the new fields and field values. The Service Provider Identifier field format is also further refined.

13.1.22 Issue 10.0

No OPP changes were introduced in TOP10.

13.1.23 Issue 11.0

13.1.23.1 Action Identifier Description

- Automated Services ActID: This new ActID is documented.
- Pass Through ActID: Two new fields, Data Reason and Data Start Position, are documented.

13.1.23.2 Call Data Identifier Description

- Automated Services DID: A new field, Automation Status, is documented.
- Call Origination DID: A new field, Trunk Group ID, is documented.
- Calling Card DID: A new value, RAO, is added to the Calling Card Type field.
- Intelligent Network DID: This new DID is documented.
- OSSAIN Information DID: A new field, OSSAIN Switch ID, is documented.
- Pass Through DID: Two new fields, Data Reason and Data Start Position, are documented.
- Station Class DID: Two new values, prepay coin CCF and hotel/motel no-charge, are added to the Station Class field. In addition, field value prepay coin is renamed prepay coin CDF. A new field, Restricted Billing Code, is documented.

13.1.23.3 Field Definitions

- Automation Status: This new field is documented.
- Calling Card Type: This field is extended to include the new value, RAO.
- Data Reason: The field description text is updated to be more generic.
- Data Start Position: The field description text is updated to be more generic.
- Intelligent Network Status: This new field is documented.
- OSSAIN Switch ID: This new field is documented.
- Station Class: This field is extended to include two new values, prepay coin CCF and hotel/motel no-charge. Existing value prepay coin is renamed prepay coin CDF.
- Trunk Group ID: This new field is documented.

13.1.23.4 TOPS Descriptions

- Automated Services ActID: This new ActID is described.
- Pass Through ActID: The table of supported values is expanded to include two new fields, Data Reason and Data Start Position.
- Automated Services DID: The table of supported values is expanded to include the Automation Status field.
- Call Origination DID: The table of supported values is expanded to include the Trunk Group

ID field. In addition, the Trunk Group Display range is increased from 31 to 254.

- Calling Card DID: The supported values table is expanded to include the new Calling Card Type field value, RAO.
- Intelligent Network DID: This new DID is described.
- OSSAIN Information DID: The supported values table is expanded to include the new OSSAIN Switch ID field.
- Pass Through DID: The table of supported values is expanded to include two new fields, Data Reason and Data Start Position.
- Station Class DID: The supported values table is expanded to include the new field values for Station Class.

13.1.24 Issue 12.0

13.1.24.1 Action Identifier Description

- OSSAIN Information ActID: The ActID identifier, #0227, has been changed to #0230 in order to avoid conflict with the Query Queue Status by Queue ActID which already uses this identifier. The OSSAIN Information ActID is currently unsupported by TOPS.
- Query Queue Status by Queue ActID: Two new values, calls alerting and calls overflowing, are added to the Queueing Condition Type field.
- Service Node Handoff ActID: This new ActID is documented.

13.1.24.2 Call Data Identifier Description

- OSSAIN Information DID: A new field, Service Node Handoff Count, is documented.

13.1.24.3 Non-Call Data Identifier Description

- Queue Status DID: Two new values, calls alerting and calls overflowing, are added to the Queueing Condition Type field. A new field, Queue Number, is documented.
- Queue Status by Queue DID: Two new values, calls alerting and calls overflowing, are added to the Queueing Condition Type field.

13.1.24.4 Field Definitions

- Queueing Condition Type: This field is extended to include two new values, calls alerting and calls overflowing.
- Queue Number: This new field is documented.
- Service Node Handoff Count: This new field is documented.

13.1.24.5 TOPS Descriptions

- Query Queue Status by Queue ActID: The table of supported values is expanded to include the new Queueing Condition Type value, calls alerting. The calls overflowing Queueing Condition Type is not supported by this ActID.
- Service Node Handoff ActID: This new ActID is documented.
- Call Origination DID: Two new call origination types, in networking and special lrn, are documented.
- OSSAIN Information DID: The supported values table is expanded to include the new Service Node Handoff Count field.
- Queue Status DID: The table of supported values is expanded to include the new Queueing Condition Type values, calls alerting and calls overflowing. The new Queue Number field is also documented. The description is updated to include conditions in which the calls alerting, calls overflowing and Queue Number field are used.
- Queue Status by Queue DID: The table of supported values is expanded to include the new

Queueing Condition Type value, calls alerting. The calls overflowing Queueing Condition Type is not supported by this DID.

- Team Status DID: In addition to providing team status information, this DID has been enhanced to also update the number of calls in an alerting queue. The table of supported values and description is updated to reflect this.

13.1.25 Issue 13.0**13.1.25.1 Action Identifier Description**

- Call Type For Queueing ActID: This new ActID is documented.

13.1.25.2 TOPS Descriptions

- Call Type For Queueing ActID: This new ActID is documented.
- Call Type For Queueing DID: The description is updated to reference the new Call Type For Queueing ActID.

13.1.26 Issue 14.0

13.1.26.1 Call Data Identifier Description

- Generic Digits DID: This new DID is documented.

13.1.26.2 Field Definitions

- Generic Digits: This new field is documented.
- Generic Digits Count: This new field is documented.
- Generic Digits Type: This new field is documented.

13.1.26.3 TOPS Descriptions

- Generic Digits DID: This new DID is documented.

13.1.27 Issue 15.0

13.1.27.1 Protocol Description

- Information is added about positions with IP voice and data connectivity to the DMS. This new information has no impact on position vendors whose positions have traditional TMS-based connectivity to the DMS.

13.1.27.2 Message Format

- Mention is added of optional encryption of OPP message bodies. This functionality applies only to positions with IP voice and data connectivity to the DMS..

13.1.27.3 Action Identifier Description

- Call Cleared ActID: This new ActID is documented. It should be sent only by positions that have IP voice and data connectivity to the DMS.

13.1.27.4 Call Data Identifier Description

- Call Arrival Tone DID: This new DID is documented. It is sent only to positions that have IP voice and data connectivity to the DMS.

13.1.27.5 Field Definitions

- Call Arrival Tone Info. This new field is documented. It is used only with positions that have IP voice and data connectivity to the DMS.
- PARS Tone Duration. This new field is documented. It is used only with positions that have IP voice and data connectivity to the DMS.

13.1.27.6 IP Position Description

- This new section, similar to the existing for for positions with DMS connectivity through the TMS, describes positions with IP connectivity. <So far this section is just a place holder.>

13.1.27.7 Protocol Assumptions

- Information was added about assumptions specific to positions that have IP connectivity to the DMS. (So far this section is just a place holder.>

13.1.27.8 TOPS Description

- An obsolete statement which said the TOPS Description referred specifically to the product available in the US and Canadian markets was removed.
- The introductory sections are modified to take into account that some positions may have IP voice and data connectivity to the DMS.
- Audit ActID and Audit DID: A note is added that these identifiers are only exchanged with positions that have traditional TMS-based connectivity to the DMS, not with positions that have IP voice and data connectivity.

-
- Call Cleared ActID: This new ActID is documented. It should be sent only by positions that have IP voice and data connectivity to the DMS.
 - Call Arrival Tone DID: This new DID is documented. It is sent only to positions that have IP voice and data connectivity to the DMS.
 - No Action DID: A new value is documented for the No Action Reason field. This value is sent only to positions with IP voice connectivity to the DMS.

A

Account ID Size 122, 226, 638
ActID Byte Count 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 64, 65, 68, 69, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 102, 103, 104, 227
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Action Request (call) 9
Action Request (non-call) 23
Action Request Header Field Contents 19
Active Queue DID 184, 686, 710
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ADAS Status 110, 230, 627
Administration Set 204, 231, 695
Alternate Date ActID 50, 598
Alternate Date DID 106, 625
Alternate Date Status 106, 232, 625
Alternate Day 50, 106, 233, 598, 625
Alternate Hour 51, 108, 234, 598, 626
Alternate Minute 51, 108, 235, 598, 626
Alternate Month 50, 106, 236, 598, 625
Alternate Route 556
Alternate Route DID 107, 625, 683
Alternate Route Number 107, 237, 556, 625
Alternate Route Status 107, 238, 625
Alternate Time ActID 51, 598
Alternate Time DID 108, 625
Alternate Time Status 108, 239, 626
AMA Status 52, 109, 240, 599, 626
AMA Status ActID 52, 598, 622
AMA Status DID 109, 626, 683
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Ancillary Operator Information Count 186, 242, 686
Ancillary Operator Information DID 186, 686, 710
Ancillary Operator Information Type 186, 244, 686
ANI Status 117, 245, 632
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ASCII Fields 34
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Attached Operator ActID 53, 599, 622
Attached Operator DID 187, 687, 710
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Automated Services DID 110, 627, 683

Automated System ID 52, 109, 144, 249, 599, 626, 652

Automatic Coin Toll Service DID 111, 628, 683

Automation Status 55, 110, 250, 600, 627

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BCS Number 41, 54, 190, 251, 600, 689

Billing Data 65, 128, 252, 604, 643

Billing Status 128, 253, 643

Binary Fields 34

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Booked Call Database Action DID 112, 628, 683

Booked Call Database Action Number 56, 254

Booked Call Database Action Number Count 56, 255, 601

Booked Call Database Action Request 56, 256, 601

Booked Call Database Action Status 112, 257, 628

Booked Call Database Action Type 112, 258, 628

Booked Call Database Class 555

Booked Call Database Class DID 113, 629, 683

Booked Call Database Class Number 113, 259, 555, 629

Booked Call Database Class Status 113, 260, 629

Booked Call Database Number 114, 261

Booked Call Database Number Count 114, 262, 629

Booked Call Database Number DID 114, 629, 683

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