# Transaction Link Implementation Guide

# Spectrum

## Release 6.1

**Rockwell**

Rockwell Semiconductor Systems, Inc.
Electronic Commerce Division
300 Bauman Court
Wood Dale, IL 60191-9807

Rockwell Electronic Commerce Ltd.
Bouverie Square
252 Upper Third Street
Central Milton Keynes
Buckinghamshire MK9 1 DZ
United Kingdom

Rockwell Electronic Commerce Division Australia
Level 18
124 Walker Street
North Sydney
New South Wales, Australia 2060
Telephone: 61 299591888

# *Contents*

# 5     Call    Progress    Programming   ....................... 5-1

# 6     Call    Routing    Programming   .......................6-1

# *Appendices*

# 1

# *Overview and Spectrum Configuration*

## Purpose of this Manual

This manual provides detailed information about the message handling capabilities of each Spectrum Integrated Call Center System Transaction Link feature and the Transaction Link system configuration requirements.

This manual could be used by:

- Application Programmers, to learn the message requirements of Transaction Link.
- Spectrum ACD System Administrators, to learn the system configuration requirements of Transaction Link.

More information is available in the Spectrum Transaction Link Application Guide, which contains a high level description of Spectrum's Transaction Link features to show how they can expand and improve call center operations.

*Note:* This manual has been updated for Spectrum release 6.1. Revision bars, similar to the one to the left of this note, denote material that is new or has changed from Spectrum 6.0.

# Transaction Link Overview

Transaction Link is a part of Spectrum's Call Processing subsystem. Transaction Link allows many agent actions that are normally done on the console to be activated by the host. For example, an agent can use a host terminal to sign-in. sign-out, initiate a call, transfer a call. and clear a call. The host can also use Transaction Link features without agent intervention to automate call routing and provide customer data on a host terminal to match an incoming call (screen synchronization).

Each of the Transaction Link features is controlled by conversations which take place between the Spectrum ACD and the host using a communications data link. These conversations consist of messages, built from common message elements, which are usually initiated by the host and sent to Spectrum. Spectrum typically responds with a message that the command completed successfully or failed due to a specific error. A Transaction Link feature may require one or more message-response conversations between the host and Spectrum.

Spectrum may also provide some unsolicited messages to the host. such as Call Arrival and Position Status Change, which would then allow the host to start a feature such as call routing. call transfer. workstation status synchronization, or screen synchronization.

When a host operation such as screen synchronization is designed. the operation may need to use several Transaction Link features to complete a series of conversations. Although Transaction Link has been developed to automate a clear set of host operations. it is possible to automate other host operations using the provided Transaction Link features.

If errors occur during operations. error messages are sent between the host and ACD. Error messages may be either a general error message containing a specific error code, or a feature-specific error message.

## Summary of Messages by Feature

Table I-I shows the messages that pass from the host to Spectrum for each feature.

Table 1 -1. Transaction Link Messages (Host to ACD)

| Message Name | Feature |
|---|---|
| Clear Connection | Position Outdial |
| Feature Access | Position Status Management |
| Get Caller Number | Call Routing |
| Make Call | Position Outdial |
| Make Predictive Call | System Controlled Outdial |
| New Party Transfer | Position Outdial |
| Route Select | Call Routing |
| Host Initiated Route | Call Routing |
| Transfer Call | Position Outdial |
| Hold Call | Host Controlled Hold Programming |
| Retrieve Call | Host Controlled Hold Programming |

Table 1-2 shows the messages that pass from Spectrum to the host for each feature.

Table 1-2. Transaction Link Messages (ACD to Host)

| Message Name | Feature |
|---|---|
| Call Allocated and Routed | System Controlled Outdial |
| Call Arrival | Call Progress Indication |
| Call Cleared | Position Outdial |
| Call Dialed | Position Outdial |
| Call Established | Call Progress indication |
| Caller Number | Call Routing |
| Call Failed | Position Outdial |
| Call Not Transferred | Position Outdial |
| Call Progress Failure | System Controlled Outdial |
| Call Transferred | Position Outdial |
| Connection Not Cleared | Position Outdial |
| Device Dropped | Position Outdial |
| General Error | General |
| Host Route Failed | Call Routing |
| Negative Response | Position Status Management |
| New Party Transfer Failed | Position Outdial |
| No Caller Number | Call Routing |
| Position Status Change | Position Status Management |
| Position Status Response | Position Status Management |
| Route Used | Call Routing |
| Subscriber Information | Call Routing |
| Call Held | Host Controlled Hold Programming |
| Call Not Held | Host Controlled Hold Programming |
| Call Retrieved | Host Controlled Hold Programming |
| Call Not Retrieved | Host Controlled Hold Programming |
| Call Status | Call Routing |
| Host Initiated Route Used | Call Routing |
| Host Initiated Route Failed | Call Routing |

# Summary of Call Model and Call ID

A call is a switching function involving at least one party which begins with seizure of the originating party. During some phase of the call. including set-up and release, there may be only one party. In many operations, a call can pass through several different parties before it is finally cleared from the Spectrum. Examples of these operations are transfer and conference. The Transaction Link should maintain these calls as long as they are still in the Spectrum.

To allow reference to a call over the Transaction Link, a Call Identification (Call ID) is allocated to each call hy the Spectrum when it first creates the call. For example, a Spectrum creates a call and assigns a Call ID to that call in response to the Make Call request from the host. This Call ID will then he sent over to the host for any further reference. For an incoming call, a Spectrum creates a call ID and informs the host about the call.

A graphical representation of the call model is shown in Figure I-l. In this model. the Call ID of a call represents both parties connected to the call. Any one party on the call can he identified as a connection. For example, a connection could be the party D1 of the Call ID Cl.

```
                    Call_ID = Cl


   D1  ───────────────────────────────────  D2
     -                                        -
           one connection       the other connection


           D1 and D2 are the parties in call Cl
```
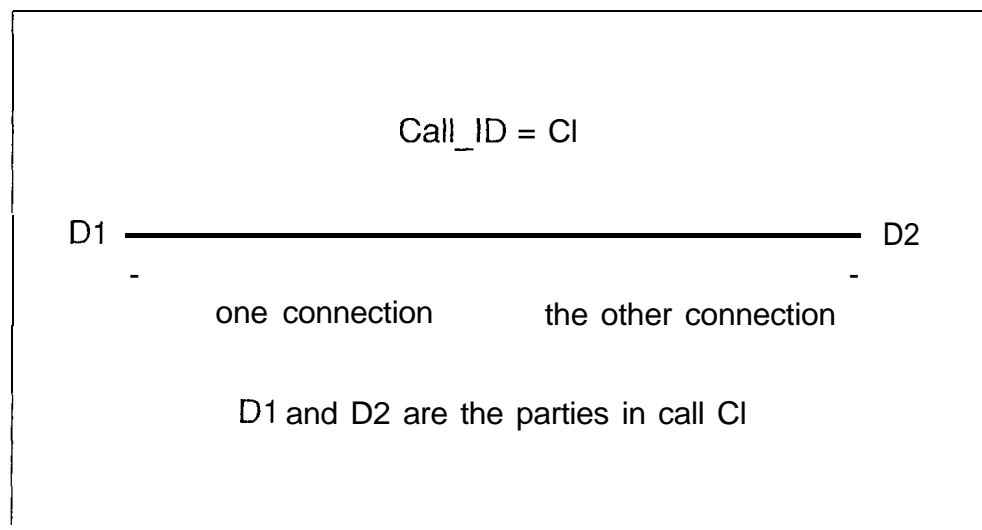
Figure I-l. Call Model and Call ID Example

Some considerations for conferences: A "conference" means 3 or more parties (agents. callers, etc.) who are logically connected to the conference controller. Note that for a conference. this model implies one Call ID per connection which become logically tied together by the conference-controlling party.

# Summary of SpectraView Console States

The SpectraView agent consoles progress through a series of states as the agent signs in and then begins performing call handling tasks. The basic conditions that determine a console state are listed below in their hierarchy, starting with the highest:

■ Busy

■ Call Work

■ Available

■ Unavailable

■ Signed-out

Figure 1-2 shows the transitions that take place when an agent performs the following actions:

■ Signs-in: Agent is in Unavailable and Idle state.

■ Makes a call: Agent is in Unavailable and Busy state.

■ Requests to go Available: Agent is in Available and Busy state.

■ Requests to enter Call Work: Agent is in Available and Busy and CW state.

■ Cancels the request to enter CW: Agent is in Available and Busy state.

■ Cancels the requests to go Available: Agent is in Unavailable and Busy state.

■ Requests to go Available: Agent is in Available and Busy state.

■ Requests to enter Call Work: Agent is in Available and Busy and CW state.

■ Call released: Agent is in Call Work and Available state.

■ Exits Call Work: Agent is in Available state.

■ Call Received: Agent is in Available and Busy state (when the agent answers an application call offered).
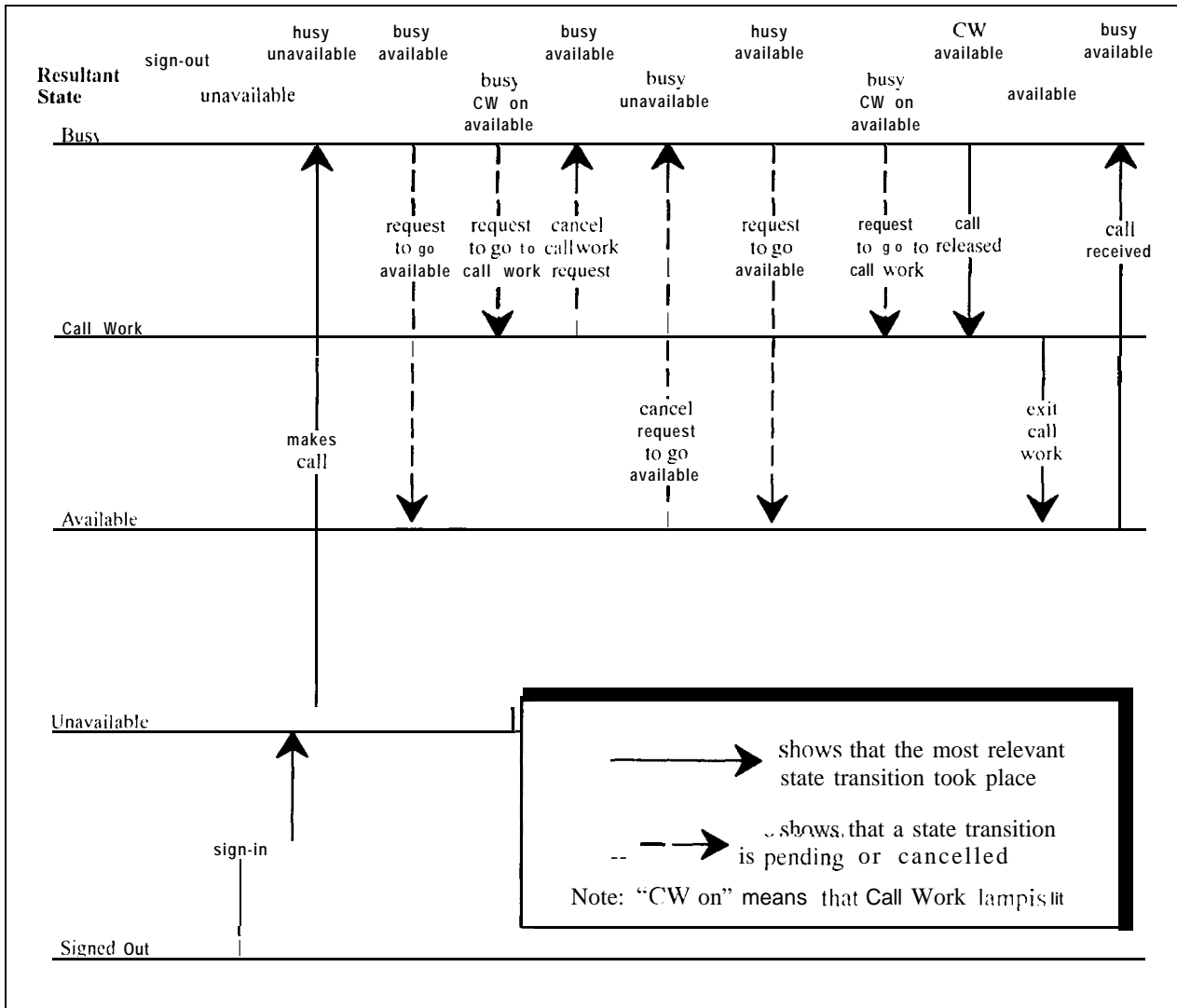
Figure I-2.  Console  State  Hierarchy

The Position Status Management feature provides the messages used to set or query a position, as follows.

The unsolicited **Position Status Change message** reports the following staff activities to the host:

- Position  Signed-in
- Position  Signed-out
- Position  Went  Available
- Position  Went  Unavailable
- Position  Went  into  Call  Work
- Agent  Group  Assignment  Change

The **Position Status Response message is sent as** a response to the Feature Access Set or Query message from the host. For an agent position, the response message reports the following agent states to the host:

- Signed-out
- Unavailable and Idle
- Unavailable and Busy
- Call Work Available
- Call Work Unavailable
- Available and Idle
- Available and Busy
- Available Busy and pending Call Work
- Unavailable Busy and pending Call Work

For the supervisor. the following states are indicated to the host:

- Signed-out
- Unavailable and Idle
- Unavailable and Busy

The **Feature Access Set message** sets the following agent actions:

- Sign-in
- Sign-out
- Call Work On
- Call Work Off
- Go Available
- Go Unavailable

# Console and Workstation Addressing

In the Spectrum, the agent's phone number is that directory number that has been associated with the agent's sign-in number, via an ENT-STAFF (enter staff) command. The agent's phone number is then assigned to the ISDN agent console after the agent signs-in at that position.

The Logical Workstation Number (LWN) is used to identify the physical console or VRU of interest. Spectrum maps this number to a specific physical console or VRU. An ENT-DEV (enter device) command must have been performed earlier. so that the Logical Workstation Number has been associated with an OE (office equipment) identifier. i.e.. a Service Profile Identifier (SPID) in the case of consoles, or a port identifier in the case of VRUs.

In the Transaction Link feature. the LWN is used to sign in agents and supervisors. Once a device is signed in (available in the case of a VRU). the LWN can be used by the host to perform call control for the specific device. It is also provided to the host in all messages related to that position.

Each console is set up with a valid SPID number identifying the physical location of the device. This physical location is the port number.

The Position DN is the console's associated phone number. When an agent signs-in from the console. the agent's DN is assigned to that console. If a console has no agent signed-in. there is no Position DN assigned to it and cannot he called. This position DN assignment allows an agent to move to a different console without any reconfiguration of the Spectrum. Directory numbers are also assigned to VRUs and applications.

# Configuring Spectrum for Transaction Link

The Transaction Link Feature Group is controlled by the Call Processing Software Subsystem. It makes use of either the X.25 data link. which is provided by the PDI (I or II) card. or the native TCP/IP interface provided by the PDIIII card. to connect to up to three hosts. All outgoing messages will be sent to all three hosts. Each host/logical link group can have up to two physical links.

Within each logical link group. the logical links must be of the same type. either X.25 or LAN. Separate groups can be of different types (for example. one host may connect with X.25. while another connect via Ethernet LAN). The logical link groups are represented by the network service field ID (NSUID) specified when the data port is entered into the system.

The multiple logical link groups are transparent to call processing (if any logical link groups are operating. the transaction link is considered available). Responses to a host request are returned to all hosts.

To access Transaction Link features, Spectrum must have Class of Service (COS). Serial Data Port (SDP). and Device parameters provisioned,

All the parameters associated with Transaction Link are provisionable with TL1 commands. TL1 commands are entered either from a maintenance terminal or an ICS workstation.

# Setting HOSTFLAG for Class of Service and

To access Transaction Link features, a specific Class of Service (COS) or should be provisioned to include the Host Transaction Link Flag. This will allow all agents. supervisors, trunks and VRUs assigned to the Class of Service to access Transaction Link features. The Host Transaction Link Flag appears in these commands as an optional Data Parameter, HOSTFLAG.

When **this flag is turned on for** a Class **of Service** (COS) it means that host requests. regarding entities whose COS has the HOSTFLAG on, will be honored. Events occurring at such entities will be reported to the host, e.g., Call Established. Calls made to such entities from entities whose HOSTFLAG is off are reported to the host.

**When this flag is turned off for a Class of Service (COS)** it means that host requests, regarding entities whose COS have the HOSTFLAG off, will be rejected. Events occurring at such entities will not be reported to the host with the exception of Call Cleared and Call Transferred.

A Call Cleared message is sent based upon the following condition: If the host has been informed of the call. the Spectrum will always send a Call Cleared message. The only valid ways of initially representing a call to the host is via one of the following:

- Call Established
- **call** Arrival
- Call Dialed

A Call Transferred message will not be provided to the host unless the host was provided an initial representation of the call via one of the above messages.

## TL1 commands used to provision and review Class of Service

| Command | Description |
|---------|-------------|
| ED-COS | Edit class of service |
| ENT-COS | Enter class of service |
| RTRV-COS | Retrieve class of service |

## Assigning LWN to Device

Each device (console or VRU) used with Transaction Link can be provisioned to include a Logical Workstation Number (LWN). The Logical Workstation Number is needed to associate a host-meaningful numbering scheme with the physical agent consoles (or VRUs), for which Spectrum has its own numbering scheme (e.g. SPID, PORT). Only one Logical Workstation Number may be assigned to a single console or VRU. A single LWN may not be assigned to more than one console or VRU. The valid range of LWNs is 1 to 65535.

### TL1 commands used to provision and review devices

| Command | Description |
|---|---|
| **ED-DEV** | Edit device |
| ENT-DEV | Enter device |
| RTRV-DEV | Retrieve device |

## Sending Messages with Routing Telescripts

The transmission of Call Arrival, Subscriber Information, and Call Status messages are definable by the user as part of the Telescripts.

Routing Telescripts can be set up to simply inform the host of Call Arrival (using the INFORM HOST message). to inform the host of Call Arrival and request host routing (using the REQUEST HOST message), or to not inform the host of Call Arrival.

Application telescripts can be set up to inform the host of subscriber information (using the INFORM HOST ON SI message) or to request host routing (using REQUEST HOST ON SI).

Telescripts may also he set up to inform the host of current call status (using the INFORM HOST CALL STATUS message).

# 2

# Communication Requirements

## Overview

The Transaction Link Features are controlled by conversations that take place over communication links between the Rockwell ACD and a host system. The Rockwell ACD provides two options for these communication links: X.25 and TCP/IP. Refer to X.25 Protocol on page 2-3 and TCP/IP Interface section on page 2-8 for the operational details of these options.

The Rockwell ACD can be configured with a single logical link to each host system. Each logical link is made up of one or two "physical" links. These "physical" links can be either X.25 data links or TCP/IP connections. However, "physical" link types cannot be mixed within a given logical link. That is, a logical link **cannot be** configured as one X.75 data link and one TCP/IP connection. Intermixing type would compromise the reliability of the Transaction Link interface. The performance of the two protocol stacks and the throughput capabilities are sufficiently different to warrant such a restriction.

Six transaction links can be put on a single PDI III card.

Setup for the Transaction Link communication links consists of three configuration steps:

1. Configuration of the appropriate PDI card, if one is not already configured and available for supporting this feature, via the equipment (EQPT) commands:

    a.  PDI or PDI II card for X.25

    b.  PDI III card for TCP/IP

2. Configuration of the appropriate Serial Data Port (SDP) on the PDI card via the SDP commands:

    a. DEVTYPE=X25PVC for X.25

    b. DEVTYPE=TLLAN for TCP/IP

*Note:*   *Refer to the Rockwell PrismLink (LAN) Installation document for details on setting up the LAN.*

3. Configuration of the maximum number of Make Predictive Dial Call request per second that the Rockwell ACD should accept before throttling the system. This step is only required if the Rockwell ACD is going to be used as part of a Predictive Dialing application.

# Physical Link Selection

The Transaction Link communication interface can be comprised of one or two physical links between the Rockwell ACD and a host system. Two physical links are used to provide load sharing and redundancy. If two physical links are utilized, the Rockwell ACD will load share the outbound messages between the two physical links. If one of the two links fails, all message traffic will be diverted to the remaining link. Message loss can be expected initially on link failures.

The manner in which the load sharing will be accomplished is as follows:

- All initial error responses are sent to the host on the same link on which the request was received. (Note: Call Progress Failure is not considered an initial error response.)
- The Position Status Change message will be load shared based upon the Position message element.
- The Position Status Response message will be transmitted on the same physical link on which the request was received.
- The remaining messages are load shared based upon the Call ID.

# X.25 Protocol

## System Configuration

- Spectrum will normally operate as a DTE. Only procedures pertaining to a DTE are supported, except that DCE addressing for Layer 2 (for example-command frames contain address A (0x03) and response frames contain address B (0x01)) may be activated when the SDP is so optioned for DCE.

- Spectrum will only support the Single Link Procedure (SLP) at Layer 2.

- Spectrum will only support Permanent Virtual Circuit service. Only procedures and packet types pertaining to PVCs are supported. Not all packet types pertaining to PVCs are implemented.

- The Logical Group Number is always equal to 0. Logical channel number 0 is reserved for X.25 control packets and may not be used by the applications. Logical channel 1 is used for the Transaction Link application.

## Layer 2

The following values for the Layer 2 system parameters are used as the default values.

Table 2- 1. X.25 Protocol, Layer 2

| Parameter | Value |
|---|---|
| Maximum Number of Bits in an I Frame (N1) | The maximum number of bits in an information frame is 1080 bits (135 octets). This Information frame size takes into consideration a 128 octet data packet and modulo 8 sequence numbering at Layer 2 and Layer 3. |
| Numbering of Information Frames | The sequence numbering of information frames is modulo 8. |
| Window Description | The default window size is 7. Sequence errors result in the execution of either the Reject (REJ) procedure (send sequence number errors) or the Frame Reject (FRMR) procedure (receive sequence number errors). |
| Timer T1- Frame Acknowledgement Timer | Supported.<br>Timer Value: 3 seconds<br>Timeout Procedure: Initiate the frame retransmission procedure up to the retransmission count, then initiate the data link establishment procedure. If the data link establishment procedure fails, inform layer 3 and start the Data Link Establishment timer. |
| Timer T2 - Response Delay Timer | Not supported. |
| Timer T3 - Disconnect (Idle Channel) Timer | Not supported. |
| Timer T4 - No Activity Timer | Supported.<br>Timer Value: 20 seconds.<br>Retransmission Count: N/A<br>Timeout Procedure: Initiate the transmission of a status inquiry frame (RR/NR). |
| Timer TDLE - Data Link Establishment Timer | Supported.<br>Timer Value: 180 seconds<br>Retransmission Count: N/A<br>Timeout Procedure: Initiate the data link establishment procedure on any data links that are supposed to be In Service but are in a disconnected state. |

# Layer 3

The following values for the Layer 3 system parameters are used as the default values.

Table 2-2. X.25 Protocol, Layer 3

| Parameter | Value |
|---|---|
| Maximum User Data Field Length of Data Packet | The maximum User Data Field Length is 128 octets. |
| Maximum Length of Network Service Data Unit (Message) | The maximum NSDU (Message) length is 1024 octets. |
| Numbering of Data Packets | The sequence numbering of data packets is modulo 8. |
| Window Description | The default window size is 7. Sequence errors result in the virtual circuit being reset. |
| Timer T10 - Restart Indication Response Timer | Not supported. |
| Timer T11 - Incoming Call Response Timer | Not supported. |
| Timer T13 - Clear Indication Response Timer | Not supported. |
| Timer T20 - Restart Request Response Timer | Supported. Timer Value: 180 seconds Retransmission Count: 1 Timeout Procedure: Inform "layer 4", go to the Out of Service - Data Link Established state and start the Network Connection Restart Timer. |
| Timer T21 - Call Request Response Timer | Not supported. |
| Timer T22 - Reset Request Response Timer | Supported. Timer Value: 180 seconds. Retransmission Count: 1 Timeout Procedure: Inform "layer 4" and initiate the restart procedure on the network connection to which the virtual circuit belongs. |
| Timer T23 - Clear Request Response Timer | Not supported. |
| -Timer T24 - Window Status Transmission Timer | Supported. Timer Value: 60 seconds. Retransmission Count: N/A Timeout procedure: initiate the transmission of a window status packet (RR/RNR). |
| Timer T25 - Window Rotation Timer | Not supported. |
| Timer T26 - Interrupt Response Timer | Not supported. |
| Timer T27 - Reject Response Timer | Not supported. |

| Parameter | Value |
|---|---|
| Timer T28 - Registration Request Response Timer | No+ supported. |
| Timer TNCR - Network Connection Restart Timer | Supported.<br>Timer Value: 60 seconds<br>Retransmission Count: N/A<br>Timeout Procedure: Initiate the restart procedure on any network connection that is in an Out of Service - Data Link Established state. |

## Packet Layer Operation Options

Table 2-3. X.25 Protocol, Packet Layer Operation Options

| Parameter | Value |
|---|---|
| Delivery Confirmation Bit (D-Bit) | The delivery confirmation bit is not supported. The D-bit of all transmitted data packets will be set to zero. Receipt of data packets with the D-bit set to 1 will result in the virtual circuit being reset. |
| Qualifier Bit (Q-Bit) | The setting of the qualifier bit is not supported. The Q-bit of all transmitted Data packets will be set to zero. Receipt of Data packets with the Q-bit set to 1 will result in the virtual circuit being reset. |
| More Data Bit (M-Bit) | The more data bit is supported. The M-bit will be set to 1 in all but the last data packet in a complete sequence. The M-bit will be set to zero in the last data packet in a complete sequence. Receipt of a non-full data packet with the M-bit set to 1 will result in the recombination of the data packets into a single message which is then delivered to "layer 4." |
| Out of Sequence Data Packets | Receipt of a Data packet with a send sequence number that is out of sequence regardless of whether or not the send sequence number is within the window will result in the virtual circuit being reset. |
| Recovery from Receipt of Erroneous Data Packets | The Reject procedure is not supported. Therefore, the receipt of erroneous data packets results in the virtual circuit being reset. |

# Packet Types

Receipt of any unimplemented packet types will result in the virtual circuit on which the packet was received being reset.

Table 2-4. X.25 Packet Types

| Parameter | Value |
|---|---|
| Call Request | Not implemented. |
| Incoming Call | Not implemented. |
| Call Accepted | Not implemented. |
| Call Connected | Not implemented. |
| Clear Request | Not implemented. |
| Clear Confirmation | Not implemented. |
| Data | Implemented. |
| Interrupt | Not implemented. |
| Interrupt Confirmation | Not implemented. |
| Receive Ready | Implemented. |
| Receive Not Ready | Implemented. Spectrum will not generate this packet, but will accept it. |
| Reject | Not implemented. |
| Reset Request | Implemented. The cause field in a transmitted packet of this types is set to 0. The diagnostic field in a transmitted packet of this type must be supplied, even if it only contains the "No additional information" code. The cause field and diagnostic field in a received packet of this type do not affect the action taken by Spectrum upon receipt of this packet type. |
| Reset Indication | Implemented. Spectrum will not generate this packet, but will accept it. The cause field and diagnostic field in a received packet of this type do not affect the action taken by Spectrum upon receipt of this packet type. |
| Reset Confirmation | Implemented. |
| Restart Request | Implemented. The cause field in a transmitted packet of this type is set to 0. The diagnostic field in a transmitted packet of this type must be supplied, even if it only contains the "No additional information" code. The cause field and diagnostic field in a received packet of this type to not affect the action taken by Spectrum upon receipt of this packet type. |
| Restart Indication | Implemented. |
| Restart Confirmation | Implemented. |
| Diagnostic | Not implemented. |
| Registration Request | Not implemented. |
| Registration Confirmation | Not implemented. |

# Recovery Strategies

**Data Link Failure**    Failure of a data link at layer 2 refers to the inability to transmit data across the DTE/DCE interface, including when the data link is disconnected by either side of this interface. Upon failure of the data link. all acknowledged but transmitted frames are discarded, all frames awaiting transmission are discarded. layer 3 is informed that the data link is Out Of Order and the data link establishment procedure is initiated. All data delivery requests for that data link will be rerouted to a second physical link if present. If no second link is available all messages will be discarded until the data link has been restored.

**Data Link Restoral**    Upon data link restoral, layer 3 is informed that the data link has been re-established.

**Network Connection Failure**    Failure of a network interface connection at layer 3 refers to the inability to transmit across the DTE/DCE interface, including when the underlying data link is Out Of Order and when the "peer entity" is not responding to a restart request. Upon failure of the network connection, all unacknowledged but transmitted data are discarded, all data awaiting transmission are discarded, all data awaiting recombination are discarded and layer 4 is informed that the network connection is Out Of Order. If the network connection failure is caused by the failure of the underlying data link. the network connection is marked as being in an Out Of Service - Data Link Established state and the restart procedure is initiated on the network connection. All data requests for virtual circuits on a failed network connection will be discarded until the network connection has been restored.

**Network Connection Restoral**    Upon indication from layer 2 that the underlying data link has been re-established, the restart procedure will be initiated on the network connection which utilizes the restored data link.

# TCP/IP Host Interface Specification

The Transaction Link on the LAN feature is supported by a 10BaseT Ethernet LAN interface using TCP/IP via the PDI III card. Since TCP/IP is stream oriented. a session layer protocol sitting between the TCP/IP layers and the application layer must be implemented. The main purpose of this protocol is to impose a structure on the TCP/IP stream so that the application layer messages can be extracted from this stream. This session layer will be responsible for establishing and maintaining connections (sessions). verifying the integrity of the session, and delivering the application layer messages.

## Session Establishment

All sessions are initiated by the client system (for example, host system). The Spectrum acts as the agent or server system. A session is initiated by the client by establishing a socket connection to the SDP configured to provide the Transaction Link on the LAN capability. The client uses the Internet Address associated with the LAN SDP (port 2) of the PDI III card to which it is attempting to connect. The port address to which to connect is calculated by multiplying the card-relative port number of the SDP configured for this feature by 2 and adding 3.100 to it. For example, if SDP A-08-16-05 is configured with a TLLAN device type, the port address to which to connect is ((05 * 2) + 3100) = 3110.

Six transaction links can be put on a single PDI III card

## LAN Packet Format

Individual application layer messages will be encapsulated in a LAN packet to inipose a structure on the TCP/IP stream. The contents of the LAN packet will be in big-endian format. The format of this packet is:

Table 2-5. LAN Packet Format

| **Byte** | 1 | 2 | 3 | 4 | **5..N** |
|----------|----------|----------------|------------------|------------------|------|
| Usage | Checksum | Packet Type | MSB of Length | LSB of Length | Data |

1. Checksum – This is a checksum of the other three bytes of the LAN packet header. The checksum is calculated by adding together the least three significant bytes of the LAN Packet header and taking the two's complement of this sum. This arithmetic should be done using unsigned character variables. This checksum must be calculated and included in the LAN Packet header of all transmitted messages.

2. Packet Type – This defines the type of packet this is. There are only two values:

    a. 0 – Data Packet – Data segment contains an application layer message.

    b. 255 – Keep Alive Packet – Data segment contains a keep alive message. (Note: This packet type is not implemented at this time.)

3. MSB of Length – This is the most significant byte of the length of the data being communicated. This length does not include the length of the LAN packet header.

*4.* LSB of Length – This is the least significant byte 'of the length of the data being communicated. This length does not include the length of the LAN packet header.

5. Data – This is the application layer message being communicated over the TCP/IP connection. For this feature, this is the Spectrum Transaction Link message.

The checksum contained in the LAN packet header will be used to ensure connection integrity. The receiver of a LAN packet sums the four bytes of the LAN packet header. If the sum does not equal zero, the client and agent have gotten out of sync somehow. If this condition occurs, the connection should be dropped by the side that detects the error. It will be the responsibility of the client system (for example, host system) to re-establish the connection to recover from this condition.

## Session Termination

A session can be terminated by either the client system or the agent (Spectrum) simply by closing the socket being used to communicate. The Spectrum will only do this if the SDP or the PDI III card is taken out of service.

## Abnormal Terminations

If the connection between the client system and the Spectrum is terminated. the client system is responsible for re-establishing the connection. It is recommended that the client system wait at least 1.5 seconds before attempting to re-establish the connection.

# Message Validation Order

Request and response messages are sent between Spectrum and the host in records containing various fields of information required to process the request/response. The messages are defined throughout this document.

Typically, messages are initiated by the host and request Spectrum to perform an action. Spectrum then responds with a message that the action completed or failed. Spectrum will also generate unsolicited messages to the host, such as informing the host that a call has arrived. Each feature has a common conversation flow consisting of several messages and responses that begins when an initial message is sent from either the host or Spectrum.

When a message is received by Spectrum from the host. the message validation order is as follows:

■ The message type is verified. The message type identifies the request/response. which in turn identifies the remaining fields of the record.

■ The message length is verified for the given message type. If a variable-length message is indicated, then the length must be between the minimum and maximum possible lengths.

▪ All of the remaining elements of the message are verified: i.e.. all mandatory elements must be present, and all elements must be in proper order.

■ If an invalid condition is detected from one of the above checks, a General Error message is generated with the appropriate error code set. Otherwise, an attempt is made to perform the required actions for the request/response.

■ If required for this message, the validity of the recipient's ability to handle the message is verified. If the recipient is unable to handle the request, or a bad field is detected during run time. the appropriate message-specific response is sent.

# Message Transmission Order of Bits and Bytes

The purpose of this section is to show the correlation between the paper notation used in this document for messages, and the transmission order of bits and bytes. The purpose is not to imply any particular presentation of digits.

Below is a diagram containing the typical format of a message. All messages will contain the message type as a minimum. The message type identifies a message. The remaining portion of the message will contain any data that is required to process the message. In the message below, Message Type. Message Element 1. and Message Element 2 are sent. (The message type convention M = Mandatory. 0 = Optional is followed throughout this manual.)

Table 2-6. Message Transmission Order of Bits and Bytes

| Message Element | Type |
|---|---|
| Message Type | M |
| Message Element 1 | M |
| Message Element 2 | M |

Messages are sent using the following transmission order: from the least significant bit (bit 0, shown at the far right in section 10) to the most significant bit (bit 7, shown at the far left) of a byte, from the least significant byte (shown at the top of the table) to the most significant byte (shown at the bottom of the table) of the message. For example. the data is sent in the following order for the table above with the Message Type Bit 0 sent first and Bit 7 sent last: Message Type Number. Message Element 1, and Message Element 2. See the Message Element descriptions in section 10 for actual bit numbering.

Multi-byte message fields within a message element will be transmitted most significant byte first. If the host machine is Intel-based or a DEC machine. it may be necessary to swap the bytes of such message fields. as these machines typically store the least significant byte in a lower byte address than the most significant byte.

:: :: ::

**2**

# 3

# *Position Status Programming*

## Overview

This section describes the message conversations, message formats, and error responses used by the Position Status Management Feature.

## Feature Description

The Position Status Management Feature allows the host to query and set agent console status. For example. the host can check whether the agent is signed in. signed out. available or unavailable. The host can also control these functions (set them) through a host application.

This feature also allows the dynamic re-configuration of agent assignment from the host. The agent group and agent information group assignments may be controlled by a supervisor or automatically by the host application itself. In this manner, agents can be shifted around to handle various campaigns or to take advantage of changing traffic patterns. This increases the flexibility of work assignment. optimize services as system load changes. and contributes to overall call center efficiency.

The Position Status Management feature also sends an unsolicited message to tell the host of any change in the agent's status and agent group assignment. Knowing the status of agents. the host can manage the staff to handle the dynamic application requirements. This message is also sent to the host when an agent's primary and/or secondary agent group assignment is changed.

The three application messages defined for this feature are listed in Table 3-1.

Table 3-1. Position Status Management Messages

| Message Name | Source | Description |
|---|---|---|
| Feature Access | Host | A host sends this message to set or query the status of a position. Setting the status of a position is a way of emulating an agent or supervisor activity, e.g., agent sign-in, or going unavailable. |
| Position Status Response | ACD | An ACD sends this message as a successful response to a query or set Feature Access message. Status, such as signed-in or signed-out, is reported. Agent Group assignment is conditionally reported based upon COS. |
| Position Status Change | ACD | This message is used to indicate to the HOST a basic change in an agent's or supervisor's state, e.g., agent went available; it is unsolicited. Agent Group assignment is conditionally reported based upon COS. |
| Negative Response | ACD | This message is sent as an unsuccessful response to a query or set feature access message. The message contains an error code indicating why the feature access function could not be completed. |

# Feature Example

Figure 3-1 shows how the Position Status Management feature can be used to manage the agent's activity.
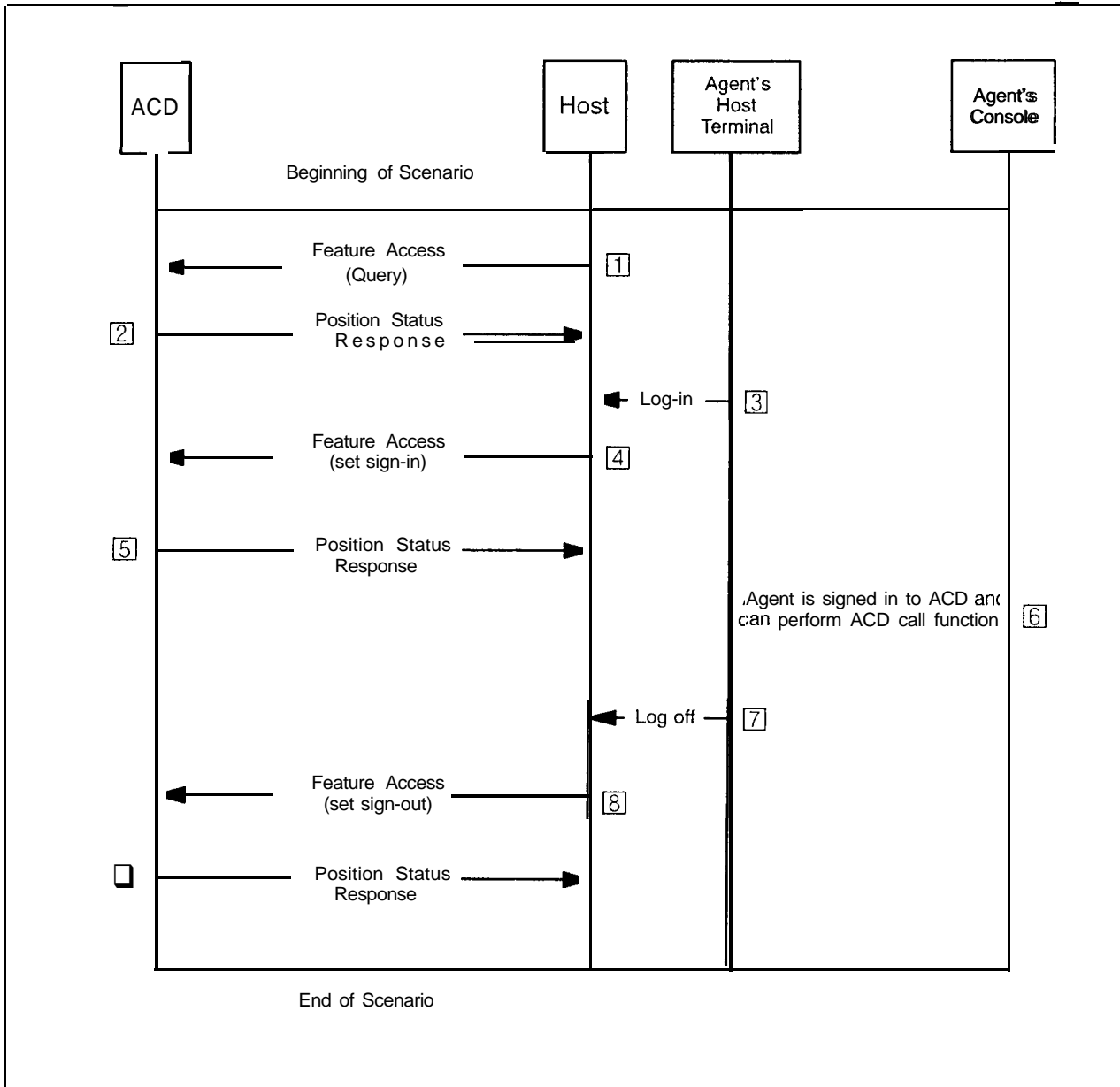


Figure 3-I. Position Status Management Feature Example (see description of steps)

## Example Steps

1. The host computer queries the position status with the Feature Access (Query) message.

2. The Spectrum ACD sends the Position Status Response message to allow the host to synchronize its data base with Spectrum.

3. An agent logs in to the host to start a Spectrum call session.

4. The host sends a Feature Access (set) request to the Spectrum ACD to sign-in the agent.

5. The Spectrum ACD informs the host that the agent is signed-in with a Position Status Response message.

6. The agent performs inbound or outbound calls assigned by the host application.

7. At the end of this session, the agent logs off the host.

8. The host automatically requests the Spectrum ACD to sign out the agent.

9. The Spectrum ACD informs the host the agent is signed-out with a Position Status Response message.

# Feature Access (Set) Message

## Message Description

The Feature Access (Set) message provides a mechanism for the host to change the current position status of an agent or supervisor.

These features can be invoked by a keystroke from a position's host terminal. The host application can also invoke these features automatically after the agent or supervisor signs-in to or signs-out from the host. It eliminates the duplication of sign-in and sign-out actions normally required on the ACD console and host terminal. This Transaction Link message also allows a supervisor or host application to reassign the agent to a different agent group and information group for various applications and changing traffic patterns. This reassignment lasts until another reassignment is performed for this agent, using either Transaction Link or Spectrum's TLI commands. It should be noted that additional response time may occur when performing configuration changes.

The ACD will acknowledge that a request to query a position's status was processed successfully with a Position Status Response message. The ACD will reject. with a Negative Response message, the request to set a position's status if the message is not able to be handled.

For a list of the values of all the activities (Feature field in the message) that can be set in the Feature Access (Set) message. see the Message Element definition for Feature.

In this message, the Logical Workstation Number is used in the sign-in functions to establish the association between a agent's/supervisor's ACD console and host terminal.

The length of this message depends on the position activities invoked. The Sign-in number field is only required for Agent sign-in and supervisor sign-in activities. For any other activity, this field must be omitted.

The Agent's supervisor Sign-In Number, Agent's Information Group (s), Agent Group (Primary), and Agent Group (Secondary) fields are valid only for agent sign-in activity. For any other activity. these fields must be omitted. If the fields are omitted. the agent will be assigned to default assignments. Otherwise, these assignments will override the default assignments (set with the ENT-STAFF command).

The functions provided by the Feature Access (Set) message are:

**Sign-in**
This function requests the ACD to sign in for the agent or supervisor. The agent could be optionally assigned to primary and secondary agent groups and information group, or to a different supervisor.

If the request is to sign-in an agent to a previously signed-in console. the attempt is denied. The currently signed-in agent must sign out before an agent can sign in to that position.

The Logical Workstation Number and Sign-In Number must be present.

**Sign-out**

This function requests the ACD to sign out an agent or supervisor from a position.

The sign-out activity may only be executed when the agent is in the unavailable state. Once validity is determined. the ACD will then sign-out the agent with the same results as if the agent had signed-out via the agent console.

When an agent signs out on the console as opposed to the host terminal. an unsolicited Position Status Change (signed-out) message will also be sent to the host.

**Set Agent Available**

This is a request from the host to the ACD to make the agent available to receive ACD application calls and display an indication of the available status on the console. If the agent is in a valid state to be made available, the agent is made available with the same results as if the agent had performed this function at the ACD agent console. An indication of the agent's availability status change is displayed on the agent's console and provided to the host.

If the agent goes available by pressing the Available key on the console, an unsolicited Position Status Change Message is sent to the host.

**Set Agent Unavailable**

This is a request from the host to the ACD to make the agent unavailable to receive application calls and display the Unavailable status indicator on the agent console.

If the agent goes Unavailable by pressing the Available key on the console. an unsolicited Position Status Change Message is sent to the host.

**Set Agent Call Work On**

This is a request from the host to the ACD to place the agent into a call work state.

If the agent enters the call work state by pressing the Call Work key on the console, an unsolicited Position Status Change Message is sent to the host.

**Set Agent Call Work Off**

This is a request from the host to the ACD to remove the agent from the call work state.

If the agent exits the call work state by pressing the call work key on the console, an unsolicited Position Status Change message is sent to the host.

# Message Format

Table 3-2. Feature Access (Set) Message Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 0 | 0 | M |
| Tag | 2d | M |
| Set-Query Flag (Note 1) | 2b | M |
| Logical Workstation Number (Note 2,3) | 1f | 0 |
| Position (Note 2,5) | 25 | O |
| Feature | 34 | M |
| Sign-In Number (Note 3) | 2c | O |
| Sign-Out Reason (Note 8) | 35 | O |
| Sign-h Number (Note 4) | 2c | O |
| Agent's Information Group (Note 6) | 06 | O |
| Agent's Information Group (Note 6) | 06 | O |
| Agent's Information Group (Note 6) | 06 | O |
| Agent's Information Group (Note 6) | 06 | O |
| Agent's Information Group (Note 6) | 06 | O |
| Agent's Information Group (Note 6) | 06 | O |
| Agent's Information Group (Note 6) | 06 | O |
| Agent's Information Group (Note 6) | 06 | 0 |
| Agent Group (Notes 6,7) | 05 | O |
| Agent Group (Notes 6,7) | 05 | O |

(M = Mandatory: O = Optional)

Note 1 -Value is set to "set."

Note 2 — Of the desired agent or supervisor. At least one or both of the Logical Workstation Number and Position message elements must be present. If both are present LWN is used and Position is ignored.

Note 3 — Must be present for a sign-in attempt

Note 4 — The agent's supervisor's sign-in number ("Supervisor ID").

Note 5 — Ignored on sign-in; its Party Type is ignored.

Note 6 — Defaults to current assignment if absent: these replace the current agent info groups in order, i.e., the second agent info group in the message replaces the agent's current second agent information group assignment.

Note 7 — If two Agent Group elements are present, one must be the primary agent group, and one must be the secondary. (See the Message Element definition for Agent Group.)

Note 8 — Not valid to be present when the Feature value is not SignOut, or when the sign-out is for a supervisor or an agent without the sign-out reason option.

# Negative Response Message

## Message Description

The Negative Response message indicates to the host that the Feature Access request did not succeed. This message also indicates the error condition to the host.

## Message Format

Table 3-3. Negative Response Message Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 128 | 80 | M |
| Tag | 2d | M |
| Agent State | 07 | M |
| Logical Workstation Number (Notes 2, 4) | 1f | 0 |
| Position (Notes 3, 4) | 25 | O |
| Feature (Note 4) | 34 | O |
| Error Code | 19 | M |

Note 1 -This is of the requesting message. Not sent if in response to a Feature Access message.

Note 2 — If a LWN had been associated with the position, the Logical Workstation Number element shall be present in the message.

Note 3 — If the position information is available this element will be sent.

Note 4 — Only present in response to a Feature Access (Set).

## Negative Response Error Codes

Depending on the Feature value requested and the current state of the indicated console, the initial check on the validity of the Feature Access (Set) request may or may not succeed. These dependencies are specified in the following state tables (Table 3-4 and Table 3-5).

A "No(x)" value means that for the given Current State and Feature value, a Negative Response message will be returned with Negative Response Error Code = x. If a Negative Response message is not sent, the symbol shown in the table shows the agent state after the request is processed.

Table 3-4. Current State vs. Feature Value and Result for Agents

| Current State | Feature Value | | | | | |
|---|---|---|---|---|---|---|
| | SignOut | SignIn | Go Unavailable | Go Available | CallWork On | CallWork Off |
| Signed-out (SO) | No(25) | UI* | No(2) | No(2) | No(2) | No(2) |
| Unavailable and Idle (UI) | SO | No(20) | UI | AI | c w u | UI |
| Unavailable and Busy (UB) | No(2) | No(20) | UB | AB | UBCW | UB |
| Call Work Unavailable (CWU) | No(2) | No(20) | CWU | CWA | CWU | UI |
| Call Work Available (CWA) | No(2) | No(20) | CWU | CWA | CWA | AI |
| Available and Idle (AI) | No(2) | No(20) | UI | AI | CWA | AI |
| Available and Busy (AB) | No(2) | No(20) | UB | AB | ABCW | AB |
| AB and CW (ABCW) | No(2) | No(20) | UBCW | ABCW | ABCW | AB |
| UB and CW (UBCW) | No(2) | No(20) | UBCW | ABCW | UBCW | UB |

"This transition is valid only if sign-in number is present in the message (error code 17 otherwise).

Table 3-5. Current State vs. Feature Value and Result for Supervisors

| Current State | Feature Value | | | | | |
|---|---|---|---|---|---|---|
| | SignOut | SignIn | Go Unavailable | Go Available | CallWork On | CallWork Off |
| Signed-out (SO) | No(25) | UI | No(2) | No(2) | No(2) | No(2) |
| Unavailable and Idle (UI) | SO | No(20) | UI | No(26) | No(26) | UI |
| Unavailable and Busy (UB) | No(2) | No(20) | UB | No(26) | No(26) | UB |

Appendix B provides the error codes which may be returned to the host in a Negative Response message. In these cases. there is no change in the agent state.

# Feature Access (Query) Message

## Message Description

The Feature Access (Query) message is a Feature Access message containing a Set-Query Flag value indicating query. A host sends this message to retrieve the status of a position. The statuses that can be returned are listed in the Agent State message element definition.

This message provides a mechanism for a host to query the sign-in state and availability of agent or supervisor and agent group assignments of an agent. It could be invoked by the host to synchronize the data base initially after the application link is established between the host and the ACD.

A Logical Workstation Number or a Agent's or Supervisor's DN must be present. If both are present, then the ACD uses the Logical Workstation Number value and ignores the Agent's or Supervisor's DN value.

This message is not valid for VRUs.

## Message Format

Table 3-6. Feature Access (Query) Message Format

| Message Element | Hex | Type |
| --- | --- | --- |
| Message Type = 0 | 0 | M |
| Tag | 2d | M |
| Set-Query Flag (Note 1) | 2b | M |
| Logical Workstation Number (Note 2) | 1f | O |
| Position (Note 2) | 25 | O |

Note 1 -Value is set to query.

Note 2 — Of the desired agent or supervisor; at least one or both of the Logical Workstation Number and Position message elements must be present.

Note that this instance of the Feature Access message lacks the optional fields usually included when the Set-Query flag = set.

## Responses

The ACD will respond to the host with a Position Status Response message if the request message is valid. The Position Status Response message will indicate the status of the agent or supervisor and. if the HOSTAGNTCFG parameter is set to Y for the agent's Class of Service, the primary and secondary agent group assignment of the agent. If the query is invalid in some way. a Negative Response message will be sent to indicate this failure.

# Position Status Response Message

## Message Description

An ACD sends the Position Status Response message as a response to successful requests to query or set. The statuses reported are listed in the Agent State message element definition.

## Message Format

Table 3-7. Position Status Response Message Format

| Message Element | Hex | W e |
|---|---|---|
| Message Type = 129 | 81 | M |
| Tag | 2d | M |
| Agent State | 07 | M |
| Logical Workstation Number (Note 1) | 1f | O |
| Position (Note 2) | 25 | O |
| Agent Group (Note 3) | 05 | O |
| Agent Group (Note 3) | 05 | O |

Note 1 — If an LWN had been associated with the position, the Logical Workstation Number element shall be present in the message.

Note 2 — If the position information is available this element will be sent.

Note 3 — The Agent Group MEs shall only be present in the message if the agent configuration information is enabled for the agent's Class of Service assignment. One Agent Group ME will be present for the agent's primary agent group assignment followed by one for the agent's secondary agent group assignment.

# Position Status Change Message

## Message Description

The Position Status Change message is used to indicate to the host a change in position status due to some activity by an agent. supervisor, Spectrum option. or hardware or software maintenance operation. The activities that can occur are listed in the Activity message element definition.

Because this is an unsolicited message, no response is required from the host.

*Note:* *This message is sent when state or "substate" changes occur. For example, if the agent is Available & Busy, and presses Call Work, this message is sent indicating "Agent Went into Call Work, " but then when the call leaves the position, no Position Status Change Message is sent to the host.*

*This message is also sent when an agent's primary and/or secondary agent group assignment is changed via the ED-STAFF command when the agent configuration information is enabled for the agent's Class of Ser-vice assignment.*

## Message Format

Table 3-8. Position Status Change Message Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 130 | 82 | M |
| Activity | 04 | M |
| Logical Workstation Number (Note 1) | 1f | O |
| Position | 25 | M |
| Agent Group (Note 2) | 05 | 0 |
| Agent Group (Note 2) | 05 | O |

Note 1 — Present if available, i.e., if provisioned via ENT-DEV command.

Note 2 — The Agent Group MEs shall only be present in the message if the Activity ME indicates an agent configuration change and the agent configuration informatoin is enabled for the agent's Class of Service assignment. One Agent Group ME will be present for the agent's primary agent group assignment followed by one for the agent's secondary agent group assignment.

# *4*

# *Position Outdial Programming*

## Overview

This section describes the message conversations, message formats, and error responses used by the Position Outdial Feature.

## Feature Description

The Position Outdial Feature allows the host to initiate calls, clear calls, and transfer call. By allowing the agent to control these functions through the host application, the agent's job is simplified.

The host application can use this feature to provide agent controlled automated outdial. For example, the agent could accept a host's call list and then carry out an outdial campaign. For each call the agent views a screen for an account, triggers the outdial through a terminal keystroke, detects voice answer. and conducts the necessary interaction. Other call handling functions such as Clear Connection. and Transfer Call can also be performed from the host terminal (using fixed or soft keys assigned by the host application). These features can greatly contribute to increased agent productivity.

The Transaction Link messages for this feature are listed in Table 4-l.

Table 4-I. Position Outdial Feature Messages

| Message Name | Source | Description |
|---|---|---|
| Make Call | Host | The Make Call Message requests the ACD to dial the specified number for the position. The ACD response to this request could be Call Dialed or Call Failed. |
| Call Dialed | A C D | The Call Dialed message indicates to the host that the ACD has dialed the host-initiated call to the specified number. It is sent after end of dial (e.g., after SETUP has been transmitted on an ISDN trunk, or after all digits have been outpulsed on an analog trunk). The Call ID created for this call by the ACD will be returned to host for reference throughout the call. |
| Call Failed | ACD | This messages indicates to the host that the ACD failed to dial the call as requested. This message also indicates the error condition. This message is a response to the Make Call initiated from the host for the position. |
| Clear Connection | Host | The Clear Connection message releases the call from the specified party's side. The party from which the call is to be released must be in a valid state for that party to release, or the ACD will reject the request. |
| Call Cleared | ACD | The Call Cleared message indicates to the host that the call has been cleared and the Call ID has been released. It is sent to the host whenever an incoming call, (system or position) outdialed call, or position call is released from the ACD, due to one of the parties releasing. or to a previous Clear Connection request, or for any other reason. This message indicates the reason the call was cleared. |
| Device Dropped | ACD | The Device Dropped message indicates to the host that the specified position has been disconnected from a call. The Call ID has not been released. |
| Connection Not Cleared | ACD | The Connection Not Cleared message indicates to the host that the specific connection was not disconnected because of an error. This message also indicates the error condition to the host. |
| New Party Transfer | Host | The message requests the ACD to transfer an active trunk call from one position to another position, application, or off-net number, which is not yet connected to the call. This message could be caused by an agent that currently has an active call to be transferred initiating the transfer request by a key stroke on the host terminal, or by a host program. |
| Transfer Call | Host | This message requests the ACD to transfer a call from one position to another position, or application, or off-net number. It is subject to the same restrictions as apply to the use of the Transfer key at the agent's console. |
| Call Transferred | ACD | The Call Transferred message indicates to the host that a call has been transferred from one position to another position, or application, or off-net number. The ACD sends this message in response to a Transfer Call or New Party Transfer request from the host, or unsolicited in the case of a console-initiated transfer. |
| Call Not Transferred | ACD | The Call Not Transferred message indicates to the host that a call was not transferred from one position to another position, or application, or off-net number. The ACD sends this message in response to a Transfer Call Request from the host. Any calls associated with the requesting position remain in their previous state. |
| New Party Transfer Failed | ACD | This message indicates to the host that the New Party Transfer request failed, after initial validity checks passed. The ACD sends this in response to a New Party Transfer request from the host. The active call associated with the requesting position remains active. |

# Feature Example

Figure 4-I shows a typical agent-controlled automated outdial application.
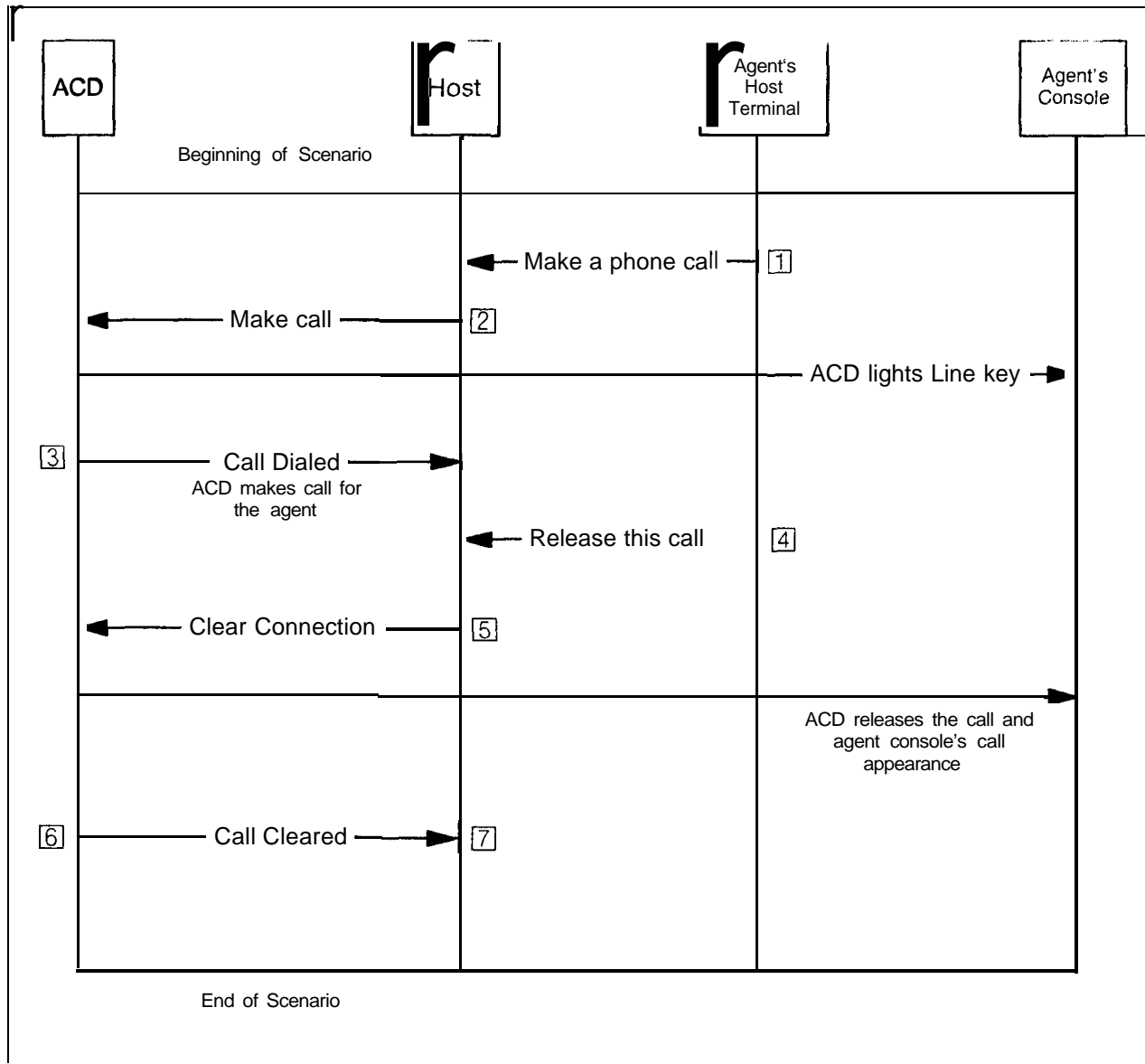


Figure 4-1. Position Outdial Feature Example (see description of steps)

1. An agent views the customer information on the host screen and then makes the call by pressing a key from the host terminal.

2. The host sends the digits to be dialed to the ACD with a Make Call message.

3. After the ACD verified the received Make Call message. the ACD dials the number and connects the specified agent to the call. A Call Dialed message is then sent to host. If the ACD failed to dial the digits. a Call Failed message is returned to the host to indicate the error condition: the host can then take appropriate action.

   The agent monitors for call progress tones and answer. When the call is answered, the agent then performs the necessary call handling functions (e.g.. telemarketing, bill collection, etc.). If the call is not answered or busy, the agent can release the call by pressing a key at the host terminal.

4. After the agent handles the call. the agent can release the call by pressing a key assigned by the host application.

5. The host sends the ACD a Clear Connection message.

6. When the received Clear Connection message is verified by the ACD. the call will be cleared and the Call ID released. The ACD will then send the host a Call Cleared message. If the call cannot be cleared, the ACD will send the host a Connection Not Cleared message and keep the call connected.

7. The host knows the previous call activity is completed. and can prepare the agent for the next customer call.

In the previous application, the agent may transfer the call to another agent from the host application. This can be accomplished with the Make Call followed by Transfer Call or New Party Transfer request from host. If a conference call is established from the agent console, a specific party can be released from the call with the Clear Connection request message.

# Make Call Message

## Message Description

The Make Call message requests the ACD to dial the specified number for the position (agent. supervisor, or VRU). The ACD creates a Call ID and returns it to the host for reference throughout the call. The ACD will dial the number only if the position is currently in a state from which the position could initiate an outcall.

This service request can be invoked by an agent with a keystroke from agent's host terminal. The host sends the request to the ACD and waits for a response from the ACD. It can also be invoked by a host program.

A Logical Workstation Number or a Position element (agent. VRU, or supervisor) must be present. If neither is present. a General Error message with the appropriate Error Type is returned to the host. If both are present, the ACD uses the Logical Workstation Number value and ignores the Position value.

**Caution to host programmer:** The Target Party Number must match the Spectrum ACD's dialing plan.

## Message Format

Table 4-2. Make Call Message Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 3 | 03 | M |
| Tag | 2d | M |
| Originating Logical Workstation Number (Note 1) | 37 | O |
| Originating Position (Note 1) | 38 | O |
| Target Party Number (Note 2) | 2f | O |
| Target Party LWN (Note 2) | 2e | O |

(M = andatory; 0 = Optional)

Note 1 — The LWN and/or the Position elements must appear in the message

Note 2 — The Target Party number or Target Party LWN must be specified. Both elements in the same message is not allowed.

## Responses

If the information in the message is correct. resources can be allocated for the operation. and the (calling) position is in a valid state, a Call ID is allocated and the system attempts to make the call. If the attempt succeeds, a Call Dialed message is sent to the host for acknowledgement. If the dial attempt fails, a Call Failed message will be sent to the host to indicate the reason for failure.

# Call Dialed Message

## Message Description

The Call Dialed message indicates to the host that the ACD has dialed the call to the specified number. The ACD will return the Call ID of the call to the host for reference throughout the call.

This message is a response to a Make Call initiated from the host for the position, or to a Make Predictive Call initiated from the host for the application.

## Message Format

Table 4-3. Call Dialed Message Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 135 | 87 | M |
| Call ID | 0d | M |
| Originating Logical Workstation Number (Note 1) | 37 | O |
| Originating Position (Note 5) | 38 | 0 |
| Originating Trunk Port ID (Note 2) | 3d | **0** |
| Application Request Number (Note 3) | Ob | 0 |
| Pacing Information (Note 4) | 23 | O |
| Application Pacing Information (Note 4) | 36 | O |

Note 1 — If the Originating Position is supplied and a LWN had been associated with the device, then the Originating Logical Workstation Number element shall be present in the message.

Note 2 — This should appear if this call was the result of a Make Predictive Call request from the host; it identifies the trunk used to make the outcall.

Note 3 -This should appear if this call was the result of a Make Predictive Call request from the host, and if that request contained an Application Request Number.

Note 4 -This should appear if this call was the result of a Make Predictive Call request from the host.

Note 5 — This should appear if call originator has a Directory Number

# Call Failed Message

## Message Description

The Call Failed message indicates to the host that the ACD failed to dial the call as requested. This message also indicates the error conditions.

This message is a response to the Make Call from the host for the position, or to a Make Predictive Call initiated from the host for the application.

## Message Format

Table 4-4. Call Failed Message Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 136 | 88 | M |
| Logical Workstation Number (Note 1) | 1f | O |
| Position (Note 2) | 25 | 0 |
| Error Code | 19 | M |
| Application Request Number (Note 3) | Ob | 0 |
| Pacing Information (Note 4) | 23 | O |
| Application Pacing Information (Note 4) | 36 | 0 |

Note 1 — This should appear if position is provided and the device the position is occupying has a defined LWN.

Note 2 — The calling party's Position.

Note 3 — Must be present if present in the preceding host request, e.g., a Make Predictive Call request.

Note 4 -This should appear if this call was the result of a Make Predictive Call request from the host.

# Clear  Connection  Message

## Message Description

The Clear Connection message releases the call from the specified party's (agent. supervisor, VRU, or trunk port) side. The message will be treated as though the specified party was attempting to release. The release will obey all release rules associated with that party.

The specified party must be in a valid state in which that party is allowed to release the call, otherwise the ACD will reject the request.

This message request can be made when an agent presses a key at the agent's host terminal. The host sends the request to the ACD and waits for a response **from** the ACD. The request can also be made by the host application.

## Message Format

Table 4-5. Clear  Connection  Message  Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 2 | 02 | M |
| Tag | 2d | M |
| Call ID | 0d | M |
| Logical Workstation Number (Note 1) | 1f | O |
| Position (Note 1) | 25 | O |
| Trunk Port ID (Notes 1,2) | 24 | O |

Note 1 -At least one of Logical Workstation Number or Position or Port ID must be in this message.
Note 2 -Trunk Port ID is only valid when attempting to direct the Clear Connection at a trunk.

## Responses

The ACD verifies the record and sends either a Call Cleared or Connection Not Cleared message back to the host.

Assuming the request is valid, the ACD releases the call and then notifies the host with a Device Dropped message (indicating the call is still active but has been removed from the position) or a Call Cleared message (indicating the call has been cleared).

# Call Cleared Message

## Message Description

The Call Cleared message is sent for every call which has been represented to the host via either a Call Arrival, Call Established, or Call Dialed message. This message informs the host that the agent which was connected to the call ID is now disconnected from the call. In addition, it informs the host that the call ID has been released and is no longer valid.

If no Call ID is being freed up because of an agent leaving a call. then a Device Dropped message is sent instead of a Call Cleared message. For example, when a call has been offered to an agent and the agent releases during zip/flash. the application call is then requeued. In this case, a Device Dropped message is sent and the call ID is not released.

## Message Format

Table 4-6. Call Cleared Message Format

| Message Element | Hex | Type |
|-----------------|-----|------|
| Message Type = 131 | 83 | M |
| Call ID | 0d | M |
| Completion Reason | 14 | M |

# Device Dropped Message

## Message Description

The Device Dropped message indicates to the host that the specified position (device) has been disconnected from a call. The call still exists in the ACD.

This message is sent to the host in two cases:

1. In response to a previous Clear Connection request. and

2. Unsolicited, when a party is released from the call while the call is still in the ACD.

This message is not sent when a party is transferring a call. If the Call ID is released because this device has dropped the call. a Call Cleared message will be sent. and not a Device Dropped message.

## Message Format

Table 4-7. Device Dropped Message Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 133 | 85 | M |
| Call ID | Od | M |
| Logical Workstation Number (Note 1) | 1f | O |
| Position | 25 | M |
| Trunk Port ID (Note 2) | 24 | 0 |
| Trunk Group Number (Note 2) | 31 | O |

Note 1 — The system administrator may not have associated a LWN with the particular agent whose connection was dropped. If the system administrator has made such an association, then the LWN Message Element must appear.

Note 2 — Either the position element will be populated or the Trunk Port ID and Trunk Group Number elements will be populated.

# Connection Not Cleared Message

## Message Description

The Connection Not Cleared message is sent to host in response to a previous Clear Connection request, to indicate to the host that the specified connection was not disconnected from a call because of error. This message also indicates the error condition to the host.

## Message Format

Table 4-8. Connection Not Cleared Message Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 134 | 86 | M |
| Call ID | Od | M |
| Logical Workstation Number (Note 1) | 1f | O |
| Position (Note 2) | 25 | O |
| Trunk Port ID (Note 2) | 24 | O |
| Error Code | 19 | M |

Note 1 — If Position is being sent and an LWN had been associated with the position, then the Logical Workstation Number shall be present in the message.

Note 2 — If the element appeared in the original Clear Connection request, then the element shall appear in this message. The Position and Trunk Port ii, are mutually exclusive.

# New Party Transfer Message

## Message Description

The New Party Transfer message from the host requests that the ACD transfer an active (established, not ringing) call from one position to another position. application, or off-net number. Queuing is allowed for the transferred call. An agent that currently has an active (not on hold) call to be transferred could initiate the transfer request by a keystroke on the host terminal. This feature automates the transferring of a call for an agent. The request may be sent to the ACD for any active **trunk** call in the system, including incoming and outgoing calls.

After the message is received and validated, the agent, supervisor, or VRU will he released from the call. An indication of the released call should be displayed on the agent's console that handled the call. Then, after a host-provided timer expires (which may be of zero length), the call is dropped into the appropriate queue for the designated target. This is not analogous to pressing the Transfer key on the agent console: that can transfer a held party. Implementation of this message may cause the party to be connected briefly to silence.

*Note:* *It is possible that the Target Party provided could cause the ACD to perform intercept treatment on the call when executing the transfer. The intercept treatment is based upon the ACD configuration.*

## Message Format

Table 4-9. New Party Transfer Message Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 5 | 05 | M |
| Tag | 2d | M |
| Call ID | 0d | M |
| Logical Workstation Number (Note 2) | 1f | O |
| Position (Note 1,2) | 25 | O |
| Target Party Number (Note 3) | 2f | O |
| Target Party LWN (Note 3) | 2e | 0 |
| Transfer Indicator | 30 | M |

Note 1 — Position requesting transfer

Note 2 — At least one of the LWN and Position elements must appear.

Note 3 — The message will contain one of the two possible Target Party Identifiers

# Responses

The ACD verifies the record and sends a Call Transferred or a New Party Transfer Failed message back to the host.

Assuming the record passes verification. then the ACD will attempt the transfer.

The Call Transferred message indicates to the host that the New Party Transfer request was successful.

The New Party Transfer Failed message is an indication to the host that the New Party Transfer request failed.

# Transfer Call Message

## Message Description

The Transfer Call message from the host requests that the ACD transfer a call (or calls) from one console position to another position, application. or off-net number. An agent that currently has two calls to be transferred (follow console transfer rules) could initiate the transfer request by a key stroke on the host terminal. This feature automates the transferring of such calls for an agent. The request may be sent to the ACD for any agent that has at least two calls (incoming, outgoing. or position calls).

After the message is received and validated, the agent is released from the calls to be transferred and the two parties are connected.

Table 4-10 through Table 4-13 show how different types of transfers are represented to the host.

Table 4-l 0. Console Initiated Blind Transfer

| Message | Party | CID1 | Party | Event |
|---|---|---|---|---|
| CALL ESTABLISHED | P1 | CID1 | P2 | Parties P1 and P2 are connected and the call is identified by CID1. |
| CALL TRANSFERRED | P1 | CID1 | DD1 | Patty P1 is blind transferring its party (P2) associated with CID1 to the unanswered call to Dialed Digits (DD1). P2 is now waiting for call progression on the DD1 call. |
| CALL ESTABLISHED | P2 | CID1 | P3 | The party dialed by DD1 (P3) has answered the call. P2 and P3 are now connected on a call and the call is identified by CID1. |
| CALL CLEARED | | CID1 | | The call associated with CID1 is no longer connected, the call id CID1 is no longer valid, and the parties connected on the call (P2 and P3) are no longer connected to the call. |

Table 4-I 1. Console Initiated Conference Then Transfer (P2 is Trunk)

| Message | Party | CID1 | Party | Event |
|---|---|---|---|---|
| CALL ESTABLISHED | P1 | CID1 | P2 | Parties PI and P2 are connected and the call is identified by CID1. |
| CALL ESTABLISHED | P1 | CID2 | P3 | Parties PI and P3 are connected and the call is identified by CID2. |
| CALL TRANSFERRED | P1 | CID1 | P3 | Party PI is transferring its party associated with CID1 to P3 (P2 and P3 are now connected). |
| CALL CLEARED | | CID2 | | The call associated with CID2 is no longer connected and the call id CID2 is no longer valid. |
| CALL CLEARED | | CID1 | | The call associated with CID1 is no longer connected (P2 or P3 hang up), the call id CID1 is no longer valid, and the parties (P2 and P3) connected to the call are no longer connected to the call. |

Table 4-12. Console Initiated Conference Then Transfer (P3 is Trunk)

| Message | Party | CID1 | Party | Event |
|---|---|---|---|---|
| CALL ESTABLISHED | P1 | CID1 | P2 | Parties PI and P2 and connected and the call is identified by CID1. |
| CALL ESTABLISHED | P1 | CID2 | P3 | Parties PI and P3 are connected and the call is identified by CID2. |
| CALL TRANSFERRED | P1 | CID2 | P2 | Party P1 is transferring its party associated with CID2 to P2 (P3 and P2 are now connected). PI is no longer connected. |
| CALL CLEARED | | CID1 | | The call associated with CID1 is no longer connected and the call id CID1 is no longer valid. |
| CALL CLEARED | | CID2 | | The call associated with CID2 is no longer connected (P2 or P3 hang up), the call id CID2 is no longer valid, and the parties (P2 and P3) connected on the call are no longer connected to the call. |

Table 4-13. Console Initiated Conference Then Transfer
(P3 is supervisor who will barge in)

| Message | Party | CID1 | Party | Event |
|---|---|---|---|---|
| CALL ESTABLISHED | P1 | CID1 | P2 | Parties P1 and P2 and connected and the call is identified by CID1. |
| CALL ESTABLISHED | P1 | CID2 | P3 | Parties P1 and P3 are connected and the call is Identified by CID2. |
| CALL TRANSFERRED | P1 | CID1 | P3 | Party P1 is transferring its party associated with CID1 to P3 (P2 and P3 are now connected). |
| CALL CLEARED | | CID2 | | The call associated with CID2 is no longer connected and the call id CID2 is no longer valid. |
| CALL CLEARED | | CID1 | | The call associated with CID1 is no longer connected (P2 or P3 hang up), the call id CID1 is no longer valid, and the parties (P2 and P3) connected on the call are no longer connected to the call. |

## Call Transfer Scenarios

The following call scenarios show how the Transaction Link performs call transfers. Specifically, these scenarios show how the Spectrum ACD generates a Call ID and how the ACD and host exchange messages while handling calls. All call scenarios assume that all devices have the Transaction Link option enabled.

**Scenario Conventions**

The following conventions are used within the call transfer scenarios.

- Shadow boxes indicate a generic event (or sequence of events) that could be initiated by the ACD console or the host computer terminal. Exceptions to this are Inbound Calls, Toggle Hold State, and Call Conferencing, which are strictly ACD functions: and New Party Transfer. which is strictly a host computer function.

- Circled IDs indicate the parties involved in the call.

- Lines between the circled IDs are labeled with the Call ID.

- Solid lines indicate "active" (voice path) calls.

- Dashed lines indicate "held" calls.

- Dotted lines indicate "m-e-answer" (ringing) calls.

- The messages passed across the Transaction Link are listed on the right side of the diagram and include the minimum data required in the message. Messages enclosed in braces {} are present on the interface only if the host computer is initiating an action.

**Scenario: Agent
Simple Conference
Transfer**

**In** Figure 4-2, Agent Al receives an inbound call and conference transfers the call to
agent A2.

1. An inbound call Cl is received at the switch from Trunk T1. The host computer is
   notified with a Call Arrival message. Since the vector indicates that no host
   computer intervention is required, the call is immediately routed to Agent Al.

2. When Agent Al answers the call, the ACD will send a Call Established message to
   the host computer.

3. Agent Al, using the Spectrum console, places the Trunk call T1 on hold. No
   message is sent to the host computer.

4. Agent Al initiates a position call to Agent A2. If the position call is initiated by the
   Agent at the host terminal, the host computer will send a Make Call message to the
   ACD and the ACD will respond with a Call Dialed message when an idle line has
   been allocated and the requested digits dialed. Regardless of where the position call
   is initiated, when Agent A2 answers the call. the Call Established message for call
   C2 is sent to the host computer.

5. Agent Al causes Agent A2 and Trunk T1 to be conferenced by pressing either T1's
   line key or the conference key on the console. No message is sent to the host
   computer.

6. Agent Al transfers the Trunk call to Agent A2. If the transfer was initiated at the
   host terminal, the host computer will send a Transfer Call message to the ACD.
   For both the host and Console-initiated transfers, the host computer is informed of
   the transfer with a Call Transferred message, indicating that Call Cl is now
   associated with Agent A2 rather than Agent Al. Since Agent Al is no longer
   connected to Agent A2, the Call C2 is eliminated and a Call Cleared message is
   sent to the host computer.

| Event | Message(s) |
|-------|------------|
| T1 Inbound | Call Arrival (CI, CalldPty, TrunkGrp) |

(T1)- - - CI - - -►(A1)

| A1 Answer | Call Established (CI, AI, T1, TrunkGrp) |

@  -  C  l  -  @

| A1 Hold T1 | (no messages) |

(T1)— -CI-    _ AI

| AI Dial A2 / A2 Answer | {Make Call (Tagl, AI, A2) / Call Dialed (C2, AI)} / Call Established (C2, A2, AI) |

(T1) — C1 — (A1)
(A2) — C2

| A1 Conference T1 and A2 | (no messages) |

(T1) — C1 — (A1)
(A2) — C2

| AI Transfer | {Transfer Call (Tag2, AI)) / Call Transferred (CI, AI, A2) / CallCleared (C2, Rsn) |

(T1)
|
C1      (AI)
|
(A2)
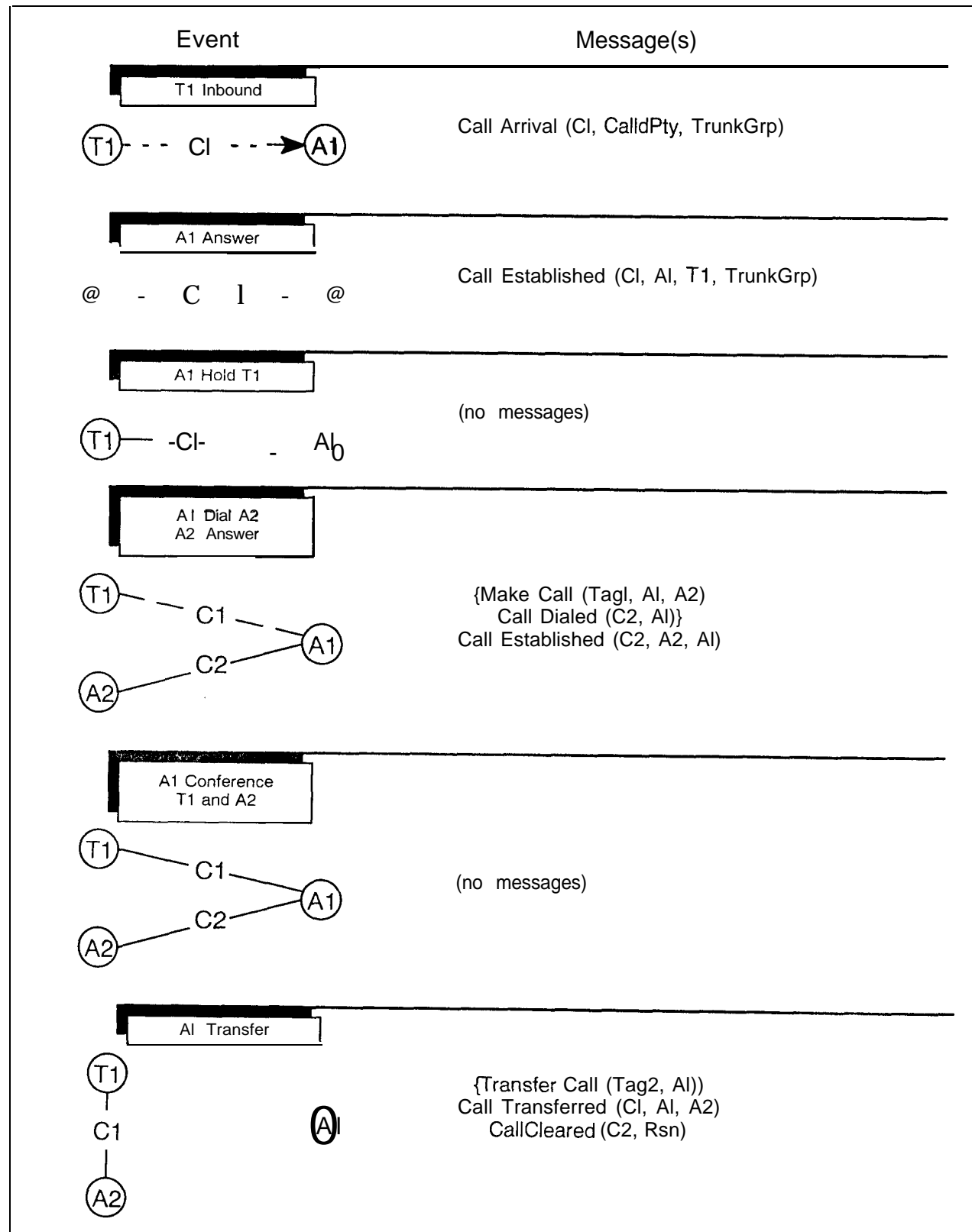
Figure 4-2. Agent Simple Transfer (Agent Transfers Trunk to Another Agent)

**Scenario: Agent Complex Conference Transfer**

**In** Figure 4-3, Agent Al conference transfers a position call while maintaining a call on hold.

1. Initially, Agent Al has a conference with Trunk T1 (Call C3) and Agent A2 (Call C4).

2. Agent Al places T1 and then A2 on hold, using the console. No message is sent to the host computer.

3. Agent Al initiates a position call to Agent A3. If the position call is initiated by the Agent at the host terminn!. the host computer will send a Make Call message to the ACD and the ACD will respond with a Call Dialed message using Call ID 5. Regardless of where the position call is initiated, when Agent A3 answers the call the Call Established. message for call C5 is sent to the host computer.

4. Agent Al takes Agent A2 off hold using the console.

5. Agent Al transfers Agents A2 and A3 together. For both the host and Console initiated transfers, the host computer is informed of the Transfer with a Call Transferred message, indicating that Call C5 is now associated with Agent A2 rather than Agent Al. Since Agent Al is no longer connected to Agent A2. the Call C4 is eliminated and a Call Cleared message is sent to the host computer. Agent Al maintains its held call C3 with Trunk T1 after the transfer.

| Event | Message(s) |
|---|---|
| IC:A1 Conf w/ T1 and A2 | |

T1 — C3 — A1
A2 — C4

(no messages)

| Al Hold T1 Al Hold A2 | |

T1 — C3 — A1
A2 — C4

(no messages)

| Al Dial A3 A3 Answer | |

T1 — C3 — A1
A2 — C4 — A1
A3 — C5

{Make Call (Tagl, Al, A3)
Call Dialed (C5, Al)}
Call Established (C5, A3, Al)

| A1 Line A2 | |

T1 — C3 — A1
A2 — C4 — A1
C5
A3

(no messages)

| Al Transfer | |

T1 — C3 — A1
A2
C5
A3

{Transfer Call (Tag4, Al)}
Call Transferred (C5, Al, A2)
Call Cleared (C4, Rsn)
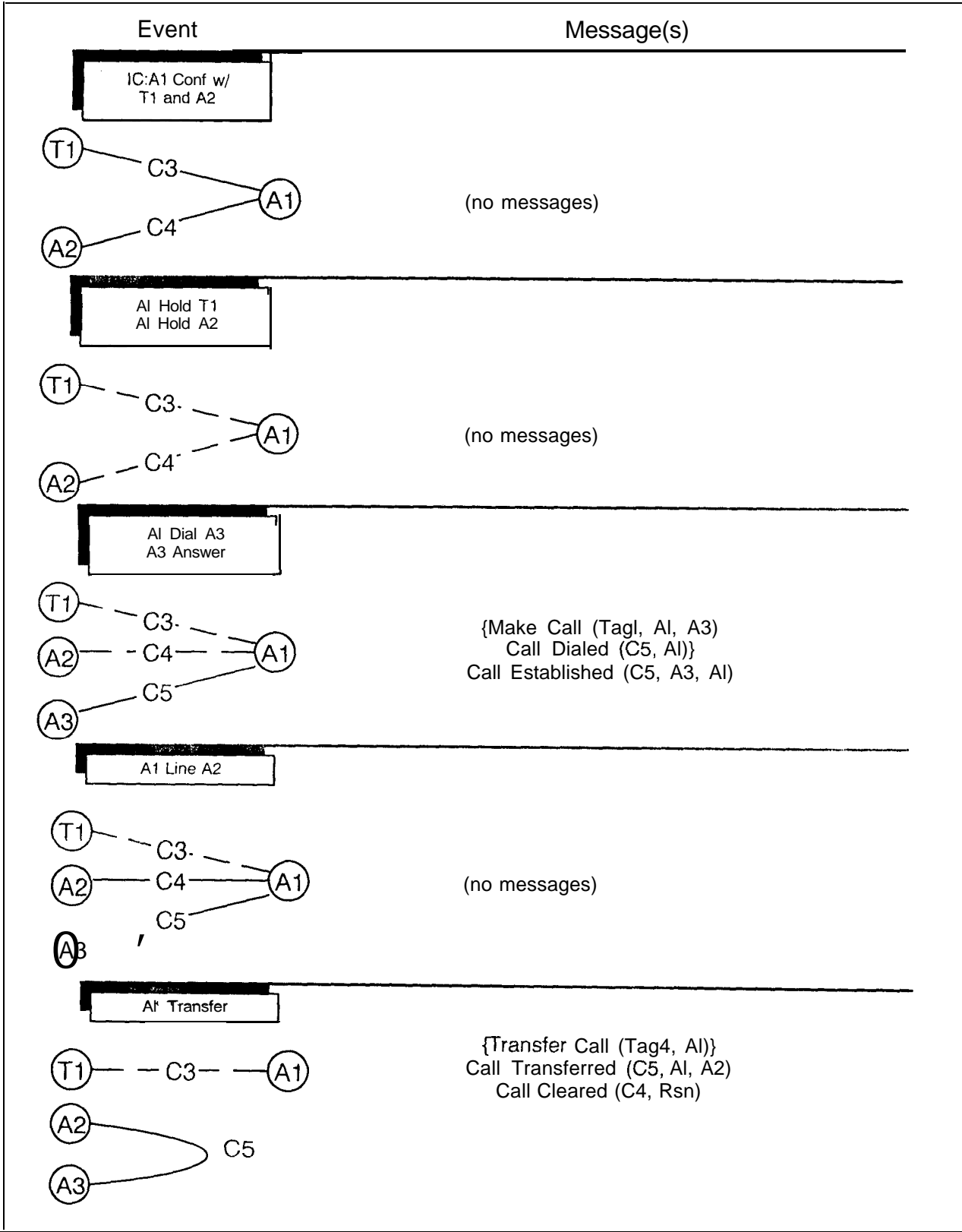
Figure 4-3. Agent Complex Conference Transfer

**Scenario: Agent Transfer Conference to Barged-h Supervisor**

In Figure 4-4. an agent transfers a conference to the barged-in supervisor.

1. Initially, Agent Al is in conference with inbound Trunk T1 (Call C8) and outbound Trunk T2 (Call C7).

2. Due to an Agent request, Supervisor S1 barges-in to the conference. The host computer is informed of the new connection with a Call Established message for Call C9.

3. Agent Al transfers the conference to the barged-in supervisor. If this transfer is initiated from the host terminal, a Transfer Call message is sent from the host computer. Regardless of where the transfer is initiated, a Call Transferred message is sent to the host computer for both call C7 and C8 to indicate the calls are now connected to Supervisor S1. A Call Cleared message for Call C9 is sent to the host computer since Agent Al is no longer connected to Supervisor S1.
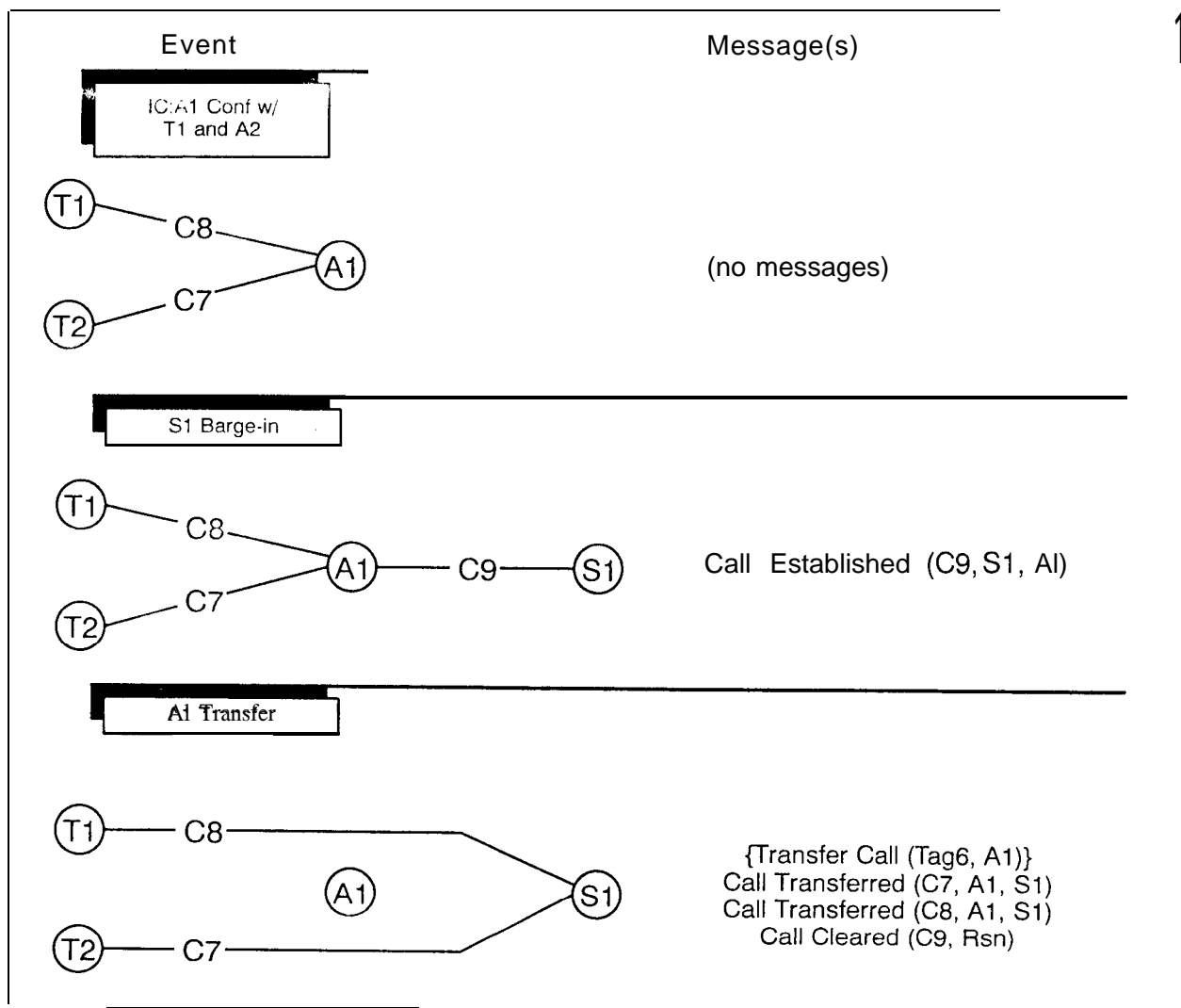


Figure 4-4. Agent Transfer Conference to Barged-In Supervisor

**Scenario: Agent
Complex Active
Blind Transfer**

**In** Figure 4-5, Agent Al blind-transfers an active position call while maintaining a call on hold.

1. Initially, Agent Al has T1 and T2 on simultaneous hold.

2. Agent Al dials Agent A2. If the call is initiated at the host terminal, a Make Call message is sent from the host computer. and a Call Dialed for call C12 is returned when the dialing is complete. If the dial is initiated at the Console, the Agent presses an idle line key and dials the desired digits: no message is sent to the host.

3. Since Agent Al only wants to transfer Trunk T2 to Agent A2. Agent Al takes Trunk T2 off hold by pressing its line key. No message is sent to the host.

4. Before Agent A2 answers the call from Al. Agent Al transfers the call to Agent A2. If the transfer is initiated from the host terminal. a Transfer Call message is sent from the host computer; otherwise, Agent Al simply presses the Transfer console key. In either case, the Call Transferred message is sent to the host computer to indicate that Call C11 is now connected with Agent A2.

   Agent Al remains connected to Trunk T1(C10).

   If and only if the call to Agent A2 (C12) was initiated by the host computer, and a Call Dialed message was sent, a Call Cleared message for Call Cl2 must be sent to the host computer to indicate the connection between Al and A2 no longer exists.

5. When Agent A2 answers the transferred call (Cl 1). a Call Established message is sent to the host computer.

| Event | Message(s) |
|---|---|

**IC:A1 Conf w/ T1 and T2/HOLD**

(no messages)

T1 -- C10 -- A1
T2 -- C11

**A1 Dials A2**

{(Make Call (Tag8, AI, A2)
Call Dialed (C12, AI)}

T1 -- C10 -- A1
T2 -- C11
A2 -- C12

**T2 Off Hold**

(no messages)

T1 -- C10 -- A1
T2 -- C11
A2 -- C12

**AI Blind Transfer to A2**

(Transfer Call (Tag7, AI)}
Call Transferred (CI 1, AI, A2)
{Call Cleared (C12, Rsn)}

T1 -- C10 -- A1
T2
A2 -- C11

**A2 Answer**

Call Established (CI 1, T2, A2, TrunkGrp)

T1 -- C10 -- A1
T2
A2 -- C11
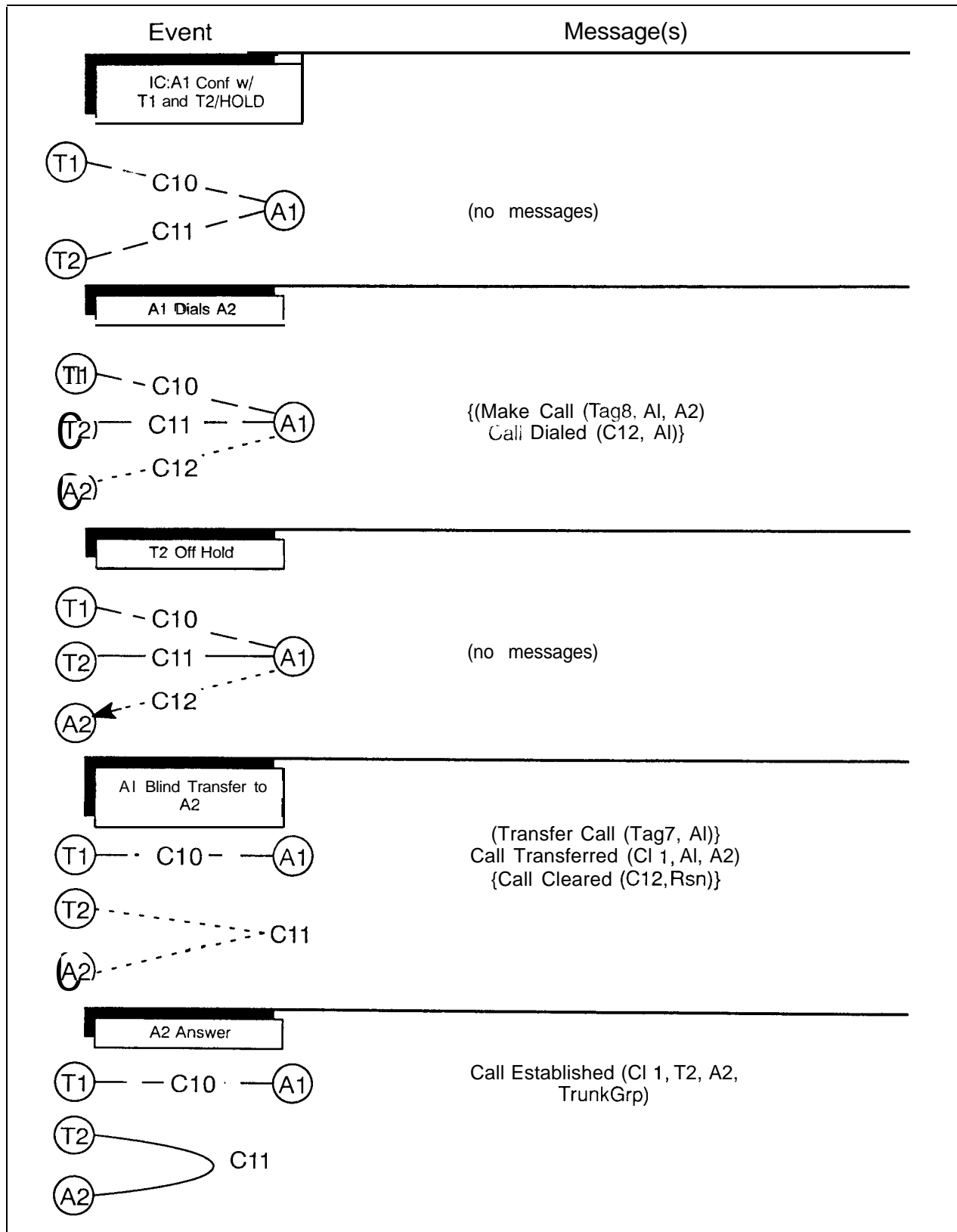
Figure 4-5. Agent Complex Active Blind Transfer

**Scenario: Agent Delayed New Party Transfer**

In Figure 4-6, the host computer requests Agent Al to perform a 10 second delayed new party transfer to agent A2.

1. Initially, Agent T1 has Trunk T1 on hold (Call C13) and Trunk T2 active (Call C14).

2. The host computer sends a New Party Transfer message for call Cl4 to the ACD, specifying a 10 second delay in the transfer request. Agent Al immediately disconnects from call C14. The host computer is informed with the Call Transferred message, indicating call Cl4 is now associated with Agent A2.

   Agent AI maintains the connection with Trunk T1 (Call C13 - hold).

3. The Trunk T2 will delay for 10 seconds, and then dial the target of the transfer (Agent A2). No message is sent to the host.

4. When Agent A2 answers the Call C14, a Call Established message is sent to the host computer to indicate that the delay transferred call has been answered.

| Event | Message(s) |
|---|---|
| IC: Al Hold T1<br>Al Conn'd to T2 | |



(no messages)

| IC: Al Hold T1<br>Al Conn'd to T2 | |



{New Party Transfer (Tag9, C14, Al, A2, 10)
Call Transferred (C14, Al, A2)}

Call Cl 4 Call ID is
maintained by T2

- - - - - - - - - - - - - - - - - - - - - - - - - - -  10 second delay



| A2 Answer | |



Call Established (C14, T2, A2, Trunk Grp)
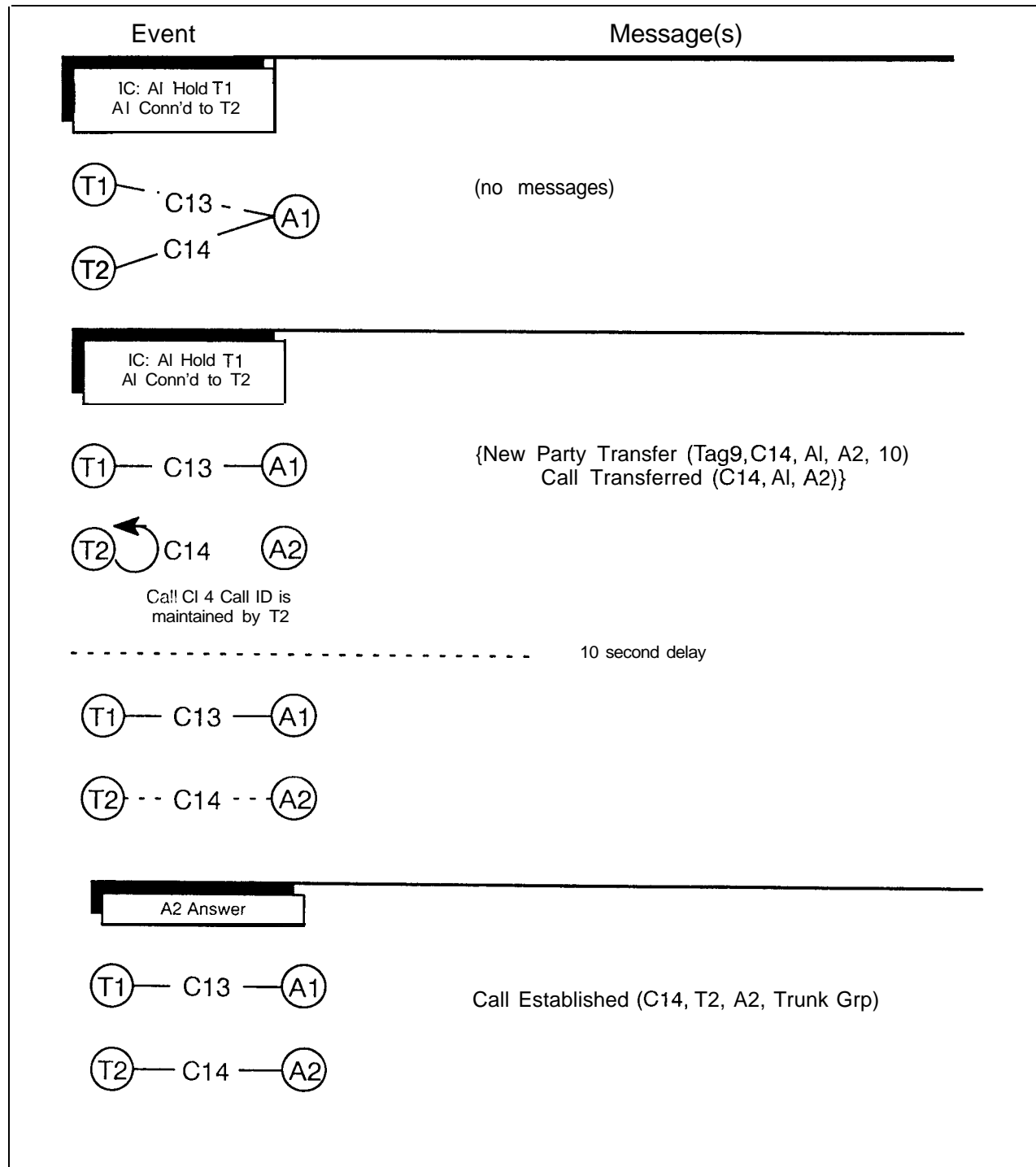
Figure 4-6. Agent Delayed New Party Transfer

## Message Format

Table 4-14. Transfer Call Message Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 4 | 04 | M |
| Tag | 2d | M |
| Logical Workstation Number (Notes 1, 2) | 1f | 0 |
| Position (Notes 1,2) | 25 | O |

Note 1 — At least one of the LWN and Position elements must appear

Note 2 — Console/Position requesting transfer.

## Responses

The ACD verifies the record and sends a Call Transferred or Call Not Transferred message back to the host.

Assuming the request is valid. the ACD will attempt the transfer.

The Call Transferred message indicates to the host that the Transfer Call request was successful.

The Call Not Transferred message is an indication to the host that the Transfer Call request failed.

# Call Transferred Message

## Message Description

The Call Transferred message indicates to the host that a call has been transferred from one position to another position, i.e., it is sent when the call leaves the original console, or the VRU.

This message also implies that the ACD released the position that requested the transfer from the call. With this information, the host can prepare to transfer the host application screen from one position to another (the destination) position in synchronization with the ACD. It can also be used to manage the agent's available and unavailable slates.

## Message Format

Table 4-l 5. Call Transferred Message Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 137 | 89 | M |
| Call ID | 0d | M |
| Logical Workstation Number (Notes 1,2) | lf | O |
| Position (Note 1) | 25 | M |
| Target Party Number (Note 3) | 2f | O |
| Target Party LWN (Note 2) | 2e | 0 |
| Target Trunk Port ID (Note 3) | 46 | O |

Note 1 — Of party requesting the transfer.

Note 2 -Appears in this message if the information is available.

Note 3 — Target Party Number and Target Trunk Port ID are mutually exclusive

# Call Not Transferred Message

## Message Description

The Call Not Transferred message indicates to the host that a call transfer failed and nothing was done. The ACD sends this message in response to a Transfer Call request from the host.

## Message Format

Table 4-l 6. Call Not Transferred Message Format

| Message   Element | Hex | Type |
|---|---|---|
| Message Type = 138 | 8A | M |
| Logical Workstation Number (Note 1) | 1f | O |
| Position | 25 | O |
| Error Code | 19 | M |

Note 1 — Of the party that requested the transfer; appears in this message if it is defined for the associated   device.

# New Party Transfer Failed Message

## Message Description

The New Party Transfer Failed message indicates to the host that a New Party Transfer request was attempted but failed, and nothing was done. The ACD sends this message in response to a New Party Transfer request from the host.

## Message Format

Table 4-17. New Party Transfer Failed Message Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 139 | 8B | M |
| Call ID | 0d | M |
| Logical Workstation Number (Notes 1, 2) | 1f | O |
| Position (Note 2) | 25 | O |
| Error Code | 19 | M |

Note 1 — Appears in this message if it is defined for the device

Note 2 — Of the party that is requesting the transfer.

:: :: ::

4

# 5

# *Call Progress Programming*

## Overview

This section describes the message conversations. message formats, and error responses used by the Call Progress Indication Feature.

## Feature Description

The Call Progress Indications feature provides the host information to automatically determine who the inbound caller is (such as telephone number), why they are calling (such as service, ordering). or where they are calling from (area code). before connecting the call to an agent. The host can then use this data to perform such actions as synchronizing the host terminal with the inbound call, and routing the call to different agent groups.

This feature is accomplished by capturing and interpreting network-derived information (DNIS or ANI) and network-related information (trunk group) at the Spectrum ACD and sending it over the Transaction Link to the host. Because the Spectrum ACD immediately sends this type of information across the Transaction Link to the host Database. the host can display customer data on the host terminal at the same time the call is presented to the agent (screen synchronization).

Implementation of the Call Progress Indication feature consists of the following unsolicited messages to the host.

■ **Call Arrival message:** Provides the network-generated DNIS and ANI information to the host via Transaction Link for performing matches to customer specific information. Knowing the particular type of service required. the host can then route the call to a specific agent or application.

■ **Call Established message:** Allows the host to provide the appropriate host terminal screen to an agent, based on the source of the call. When an agent. supervisor. or VRU is connected to a call. a Call Established message is sent to the host. This message contains all the necessary information about the call and caller. With this information, the host database can correlate established/disconnect records for a given call and provide the agent with an appropriate terminal screen based on the source of the call.

Indication of call disconnection may be sent to the host for those calls known to the host via a previous Call Arrival or Call Established message. This is indicated with the Call Cleared message of the Position Outdial feature. With this information. the host can prepare the agent to handle the next call (if any).

Table 5-1. Call Progress Feature Messages

| Message Name | Source | Description |
|---|---|---|
| Call Arrival | ACD | This message provides the host with an inbound call arrival indication. (The ACD will provide the incoming call's ANI, DNIS number and trunk group number. This message may also be used to request host routing selection of application or agent). |
| Call Established | ACD | This message indicates to the host that a call has been answered by an agent, supervisor, external VRU, or a non-predictive external called party. For an incoming call, this message will be sent to the host just before the zip tone and flash announcement. |

# Feature Example

The following figure shows an inbound call application with this feature. This example also uses the Route Select and Route Used messages from the Call Routing feature and the Call Cleared message from the Position Outdial feature.
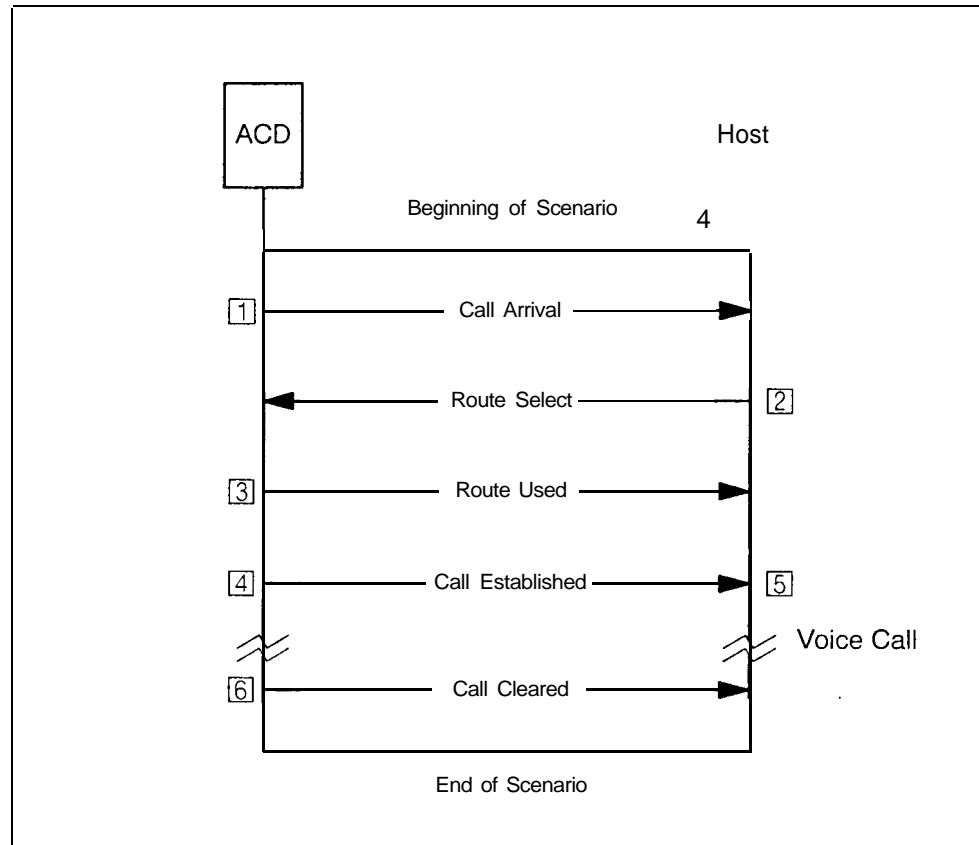


Figure 5-1. Call Progress Indication Feature Example

## Example Steps

1. A call arrives at the ACD from the network. The switch collects information from the network.

2. The host finds related database information, and determines which ACD application should handle the call.

3. ACD validates the request and routes the call to the indicated application.

4. The ACD application applies any treatment to the call. and routes it to an agent; agent answers.

5. Host displays call information on the answering agent's host terminal.

6. Caller hangs up. ACD tears down call.

# Call Arrival Message

## Message Description

The Call Arrival message provides the host with an inbound call arrival indication. It is stimulated by the REQUEST HOST ARRIVAL and INFORM HOST ARRIVAL telescript steps. With this message the ACD will provide (if collected) the incoming call ANI. the DNIS number. or called party number, io request host routing. or to merely inform the host. The host database application can verify a caller's ANI and provide the ACD an instruction to route the call to an appropriate agent, application or VRU. In some applications. it might take too long to prepare the agent's screen due to the database processing when the Call Established message is received. With the Call Arrival indication. the host can query the database and prepare the screen, so the host can present the agent's screen as soon as it receives the Call Established message.

The messages received from the ACD allow the host to provide a visual indication of the call type on the agent's CRT screen.

## Message Format

Table 5-2. Call Arrival Message Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 140 | ac | M |
| Call ID | 0d | M |
| Calling Party Number (Note 1) | 13 | 0 |
| Called Party Number (Note 1) | 0f | O |
| Inter-Exchange Carrier Code | 1e | O |
| Trunk Group Number | 31 | M |
| Instruction Needed (Notes 2,3) | 1d | 0 |
| Previous Call Information | 26 | 0 |
| Previous Position | 27 | 0 |

(M = Mandatory, 0 = Optional)

Note 1 -- This element will appear if and only if the network delivered the information.

Note 2 -Absence implies no instruction needed. If the REQUEST HOST ARRIVAL telescript step is stimulating transmission of this message, then the Instruction Needed value is Yes. If the INFORM HOST ARRIVAL vector step is stimulating transmission of this message, then the Instruction Needed value is No.

Note 3 — Care must be taken when performing host Routing of ISDN calls. Calls must be routed within network-defined limits. The maximum recommended time for the switch to wait for a host route is 4 seconds.

All other optional elements shall appear if the information they convey is available.

# Call Established Message

## Message Description

The information provided in this message allows the host to provide an application screen on the agent's CRT automatically. This can improve the agent's efficiency by avoiding database searches.

The statistics in the last 2 message elements reflect the call just established

## Message Format

Table 5-3. Call Established Message Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 141 | 8D | M |
| Call ID | Od | M |
| Terminating Logical Workstation Number (Note 1) | 3a | 0 |
| Terminating Position | 3b | 0 |
| Terminating Trunk Port ID | 3c | O |
| Terminating Trunk Group Number | 3f | O |
| Previous Logical Workstation Number (Note 1) | 39 | O |
| Previous Position (Note 2) | 27 | 0 |
| Previous Trunk Port ID | 40 | 0 |
| Previous-Trunk Group Number | 41 | O |
| Originating Logical Workstation Number (Note 1) | 37 | O |
| Originating Position | 38 | O |
| Originating Trunk Port ID | 3d | O |
| Originating Trunk Group Number | 3e | O |
| Calling Party Number (No; 3) | 13 | O |
| DNIS Number (Note 4) | 17 | O |
| Application Request Number (Note 5) | Ob | 0 |
| Pacing Information (Note 6) | 23 | O |
| Application Pacing Information (Note 7) | 36 | 0 |

Table S-4 provides the format for the Call Established message given the different types of calls in the system.

Table 5-4. Call Established Format Matrix

| | Incall Trunk To Position | Incall Position To Position | Outcall Position To Trunk | Predictive Outcall To Position | Incall Trunk To Trunk | Blind Trunk To Trunk Transfer | Host NPT To Position | Host NPT To Trunk |
|---|---|---|---|---|---|---|---|---|
| Message Type | P | P | P | P | P | P | P | P |
| Call ID | P | P | P | P | P | P | P | P |
| Terminating LWN | C | C | N | C | N | N | C | N |
| Terminating Position | P | P | N | P | N | N | P | N |
| Terminating Trunk Port ID | N | N | P | N | P | P | N | P |
| Terminating Trunk Group Number | N | N | P | N | P | P | N | P |
| Previous Position | C | C | C | C | C | P | P | P |
| Previous LWN | C | C | C | C | C | C | C | C |
| Originating LWN | N | C | C | N | N | N | N | N |
| Originating Position | N | P | P | N | N | N | N | N |
| Originating Trunk Port ID | P | N | N | P | P | P | P | P |
| Originating Trunk Group Number | P | N | N | P | P | P | P | P |
| Calling Party Number | C | N | N | N | C | C | C | C |
| DNIS Number | C | N | N | N | C | C | C | C |
| Application Request Number | N | N | N | P | N | N | N | N |
| Pacing Information | C | C | N | C | N | N | C | N |
| Application Pacing Information | C | C | N | C | C | N | C | N |

(P = Present in message, C = Conditionally present in message, N = Not present in message)

Note 1 — If an LWN is associated with the Positions (Terminating, Previous, and Originating), the associated Logical Workstation Number element will be present in the message when the given position is present.

Note 2 — If there was a position that was last connected to the call (as indicated by a previous Call Established), the Previous Position element will be present in the message.

Note 3 — If ANI/SID has been provided by the network for the call, the Calling Party Number element will be present in the message.

Note 4 — If there is a DNIS number associated with the call, the DNIS Number element will be present in the message.

Note 5 — If there is a Application Request Number associated with the call, the Application Request Number element will be present in the message

Note 6 — If the call is an application call being presented, the Pacing Information will be present in the message. If no agent group is associated with this call (e.g., the call was directly routed to the agent, or a supervisor is answering the call), no Pacing Information will be included.

Note 7 — If the call is an application call being presented, the Application Pacing Information will be present in the message. If no application is associated with this call (e.g., the call was directly routed to the agent), no Application Pacing Information will be included. (A call is no longer associated with the application when the application telescript performs a ROUTE action.)

# 6

# *Call Routing Programming*

## Overview

This section describes the message conversations, message formats. and error responses used by the Call Routing Feature.

## Feature Description

The Call Routing feature allows the host to route inbound calls based on the caller identification information provided by the network. or based on the account information collected from the subscriber. For example, the host could route a caller to a collection agent. an agent that was previously involved with the caller, or an agent with particular language skills.

The Call Routing feature is driven by the network-provided data collected by the Call Progress Indication feature by account information collected by the Subscriber Information message, or by call status collected by the call status message.

## Routing Based on Network Data

The Call Progress Indication feature provides the DNIS digits and ANI/SID digits of the incoming call. If the ANI/SID digits aren't available at call arrival time. the host can request the ACD to request these digits from the network. and return them to the host.

If the host wants to change the call's routing based on the network information. the host sends a Route Select message to the ACD requesting the call to be routed to an application or a position. The host can also disconnect the call (see Position Outdial feature). The ACD's routing telescripts can be written to provide call arrival indications or subscriber information for certain types of calls, so that the host is allowed to route only certain types of calls: and those on a call-by-call basis. If the ACD does not receive the host routing within a specified time (specified in the Routing Telescript), the ACD will route the call with the default routing as defined in the associated telescript.

# Routing Based on Subscriber Information

The Subscriber Information feature provides the calling party's account information. This feature allows up to 20 digits at a time to be collected by an application tclescript and then transmitted to the host via message(s). This can occur multiple times within a telescript. The host is informed of the subscriber information and can then provide a terminal screen display of customer data in synchronization with the switch providing a voice connection to the agent. Depending on the telescript executed. the host is either just informed of the subscriber information or is allowed to route based on that information.

The application telescript steps that distinguish between these two actions are:

■   INFORM HOST [ON] SI [IN]DIGIT|DIGITS_A|DIGITS_B[FOR 'host-info']
■   REQUEST HOST [INSTRUCTION] [ON] SI [IN] DIGIT|DIGITS_A|
     DIGITS_B [FOR 'host_info'][time_out]

Both of these steps may be executed in the same telescript and may appear multiple times.

The INFORM HOST ON telescript step works similar to the INFORM HOST ON ARRIVAL telescript step. The telescript initiates a message to be sent to the host with information and does not wait for a response from the host.

The REQUEST HOST ON SI step works similar to the REQUEST HOST ON ARRIVAL telescript step. The telescript initiates a message to be sent to the host and waits for the routing instructions. The host may route the call to an agent. supervisor, application or VRU via the ROUTE SELECT message. If host routing is not received within a specified time period. the REQUEST HOST ON SI telescript step fails and the telescript will continue executing the telescript step.

The host-info element within the telescript steps is an optional string that can be used by the host to associated digits collected by a particular telescript step with certain data. For example, if the REQUEST HOST step contained [FOR 'ACCOUNT'] the ASCII text 'ACCOUNT' would be passed to the host with subscriber information. The host may then associate 'ACCOUNT' with an account number. The host will then know what type of digits that it is receiving. Note that the use of this field will require that the host knows the different types of 'host-info' that are specified within the application telescript steps.

The length of time the telescript waits for host routing is specified in the telescript step. During this time. the telescript should allow an announcement or music to be played to the caller.

Note that the REQUEST HOST and INFORM HOST telescript steps may be executed on agent, supervisor, and trunk ports. The steps will be ignored if they are executed on a VRU port.

The Call Routing feature consists of the application messages listed in Table 6-1.

Table 6-l. Call Routing Feature Messages

| Message Name | Source | Description |
|---|---|---|
| Route Select | Host | This message provides the ACD a route for a call. This can be in response to a previous request via a Call Arrival message. This allows the host to determine where each call is to be routed based on database information. |
| Route Used | ACD | This message indicates to the host that a call has been routed per the host-provided route. The ACD sends this message in response to the Route Select message. |
| Host Route Failed | ACD | This message is sent in response to the Route Select message. This message indicates to the host that the the Route Select request was invalid. This indicates the call has been routed using switch default routing or the data within the Route Select was invalid. |
| Get Caller Number | Host | This message requests the ACD to ask the network for a caller-related number. This is in response to a previous indication of the arrival of a call (e.g., an ISDN call) via a Call Arrival message. This feature allows the host to determine where each call is to routed based on database information. |
| Caller Number | ACD | This message conveys to the host any caller-related information that was collected after the ISDN call reached the Spectrum. Examples of such information are Calling Party Number (SID) or Billing Number (ANI). This information has been collected from the network by the ACD. The ACD sends this record in response to the Get Caller Number message. |
| No Caller Number | ACD | The No Caller Number Message indicates to the host that no caller-related information could be collected for the call that recently arrived at the Spectrum. The ACD sends this record in response to the Get Caller Number message. |
| Subscriber Information | ACD | This message provide the subscriber information digits collected from the caller. |
| Call Status | ACD | This message conveys to the host various information abort the current state. This message is sent when the "INFORM HOST CALL STATUS" telescript step is executed. |

**6**

# Feature Example: Call Routing using Network Information

Figure 6-l shows that the Call Routing and Call Progress Indication features are used to establish a call. In this example, the Position Outdial feature is also employed to clear the call.
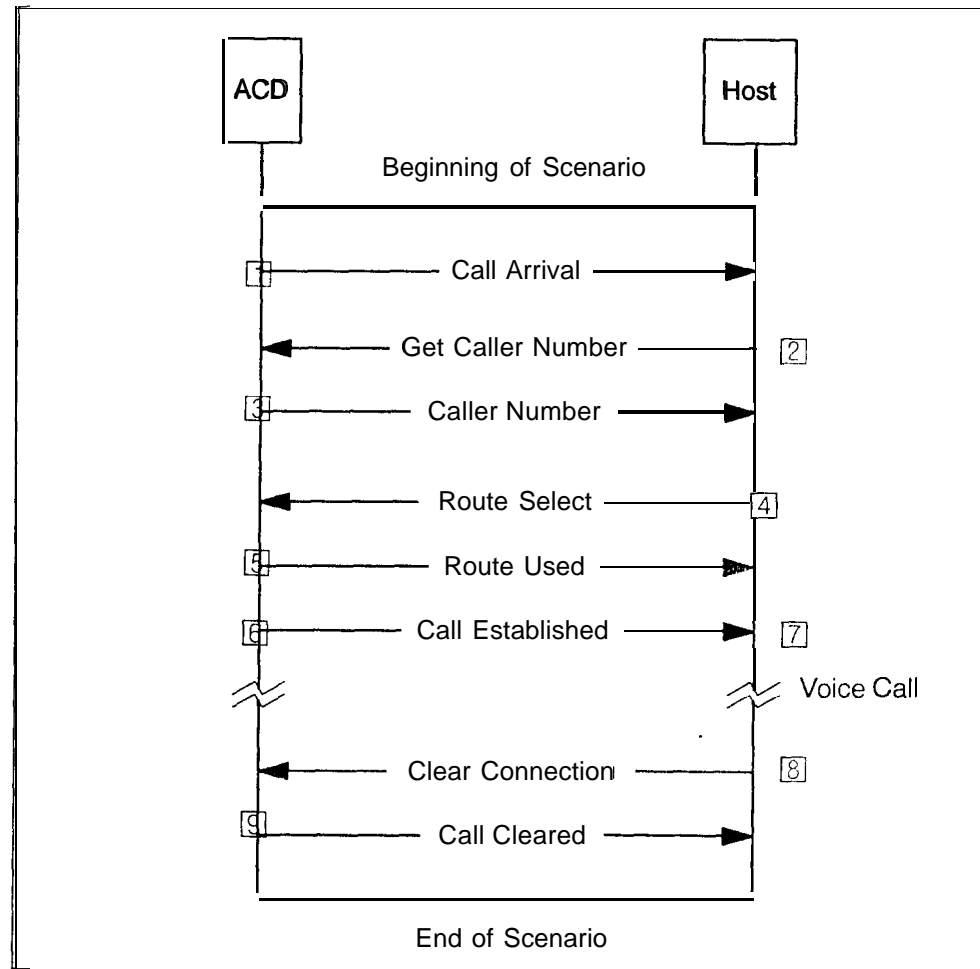


Figure 6-1. Call Routing Feature Example

1. An incoming call arrives at the ACD on an incoming trunk. The ACD sends the Call Arrival-message to inform the host of the call's DNIS and ANI digits and waits for the host to provide instruction to route the call.

2. The host notes that a Billing Number (ANI) has not been included. Because it needs this number to route the call. the host sends a Get Caller Number message to the ACD.

3. The ACD gets the ANI from the network. and returns it in a Caller Number message to the host.

4. The host application matches the caller's DNIS and/or ANI digits and then requests the ACD to route the call to the caller's account representative with a Route Select message.

5. If the call can be routed as requested, the ACD routes the call and sends a Route Used message to the host.

6. When the call is connected to the specified agent, the ACD sends a Call Established message to the host.

7. Based on the caller's information, the host provides the answering agent with a terminal screen showing the customer's account information.

8. The agent releases the call from the host terminal. A Clear Connection message is then sent to the ACD.

9. The ACD releases the call and sends a Call Cleared message to the host.

# Feature Example: Host Routing on Subscriber Information

Figure 6-2 shows an inbound call application using this feature. Table 6-2 shows the routing telescript for this example. and Table 6-3 shows the application telescript.
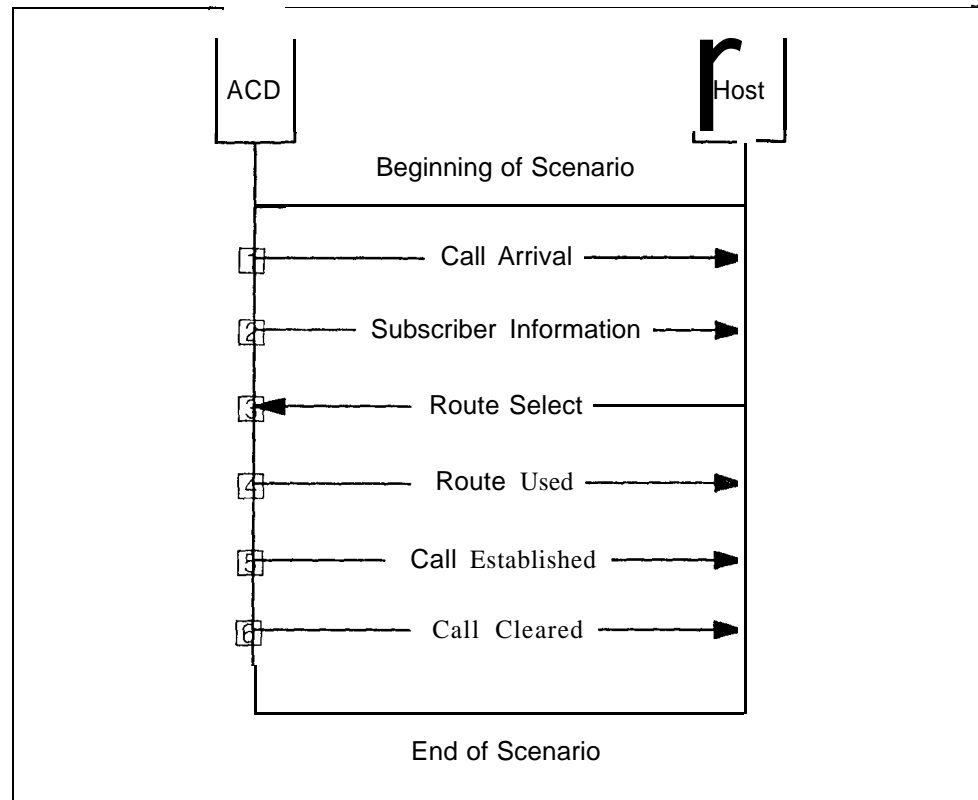


Figure 6-2. Host Routing on Subscriber Information Feature Example

I. An incoming call arrives at the ACD and the host is informed of the call along with any network information that was provided (e.g. ANI, DNIS). The incoming call gets routed to an application.

2. The application telescript prompts the subscriber to enter the 14-digit access code. After collecting the digits, music is played to the subscriber and the host is sent the SUBSCRIBER INFORMATION message requesting that the host route the call.

3. The host routes the call according to it's database lookup.

4. The ACD acknowledges the route and route the call as indicated by the host.

5. The call is answered and the indication is sent to the host,

6. Some time later the transaction is completed and the caller disconnects. The ACD informs the host that the call is complete.

Table 6-2. Example Routing Telescript

| # | Telescript Step |
|---|---|
| 1 | RETRIEVE NETWORK INFORMATION |
| 2 | INFORM HOST ON ARRIVAL |
| 3 | ROUTE TRANSLATION |

Table 6-3. Example Application Telescript

| # | Telescript Step |
|---|---|
| 1 | PLAY ANNOUNCEMENT 22 |
| 2 | ACQUIRE COLLECTOR DTMF 20 SECONDS |
| 3 | IF RESULT EQ FAILURE GOTO 9 |
| 4 | COLLECT 14 IN DIGITS_A |
| 5 | START MUSIC 1 |
| 6 | REQUEST HOST ON SI IN DIGITS-A 10 SECONDS |
| 7 | IF RESULT EQ FAILURE GOT0 10 |
| 8 | ROUTE TRANSLATION |
| 9 | PLAY ANNOUNCEMENT 1 |
| 10 | QUEUE AGENT 1 |
| 11 | DELAY FOREVER |

# Feature Example: Default Routing on Subscriber Information

Figure 6-3 shows an inbound call application using this feature. This example shows call routing if the host does not respond to subscriber information. The same telescripts are used for this example as the previous example: Table 6-2 shows the routing telescript for this example, and Table 6-3 shows the application telescript.
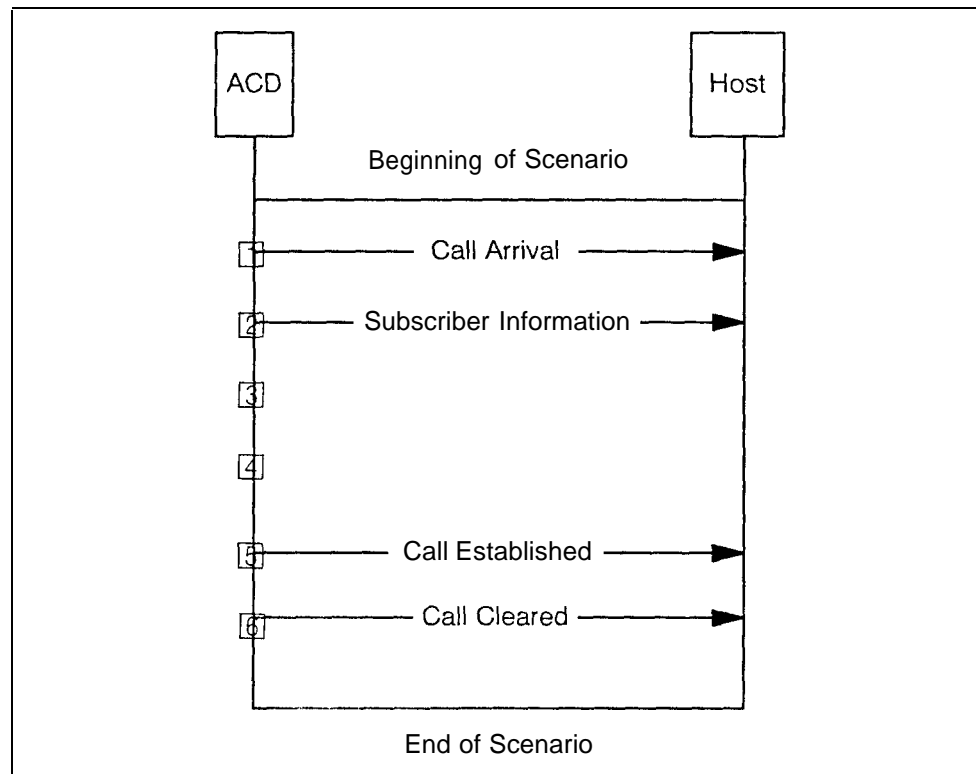


Figure 6-3. Default Routing on Subscriber Information Feature Example

1. An incoming call arrives at the ACD and the host is informed of the call along with any network information that was provided (e.g. ANI, DNIS). The incoming call gets routed to an application.

2. The application telescript prompts the subscriber to enter the 14-digit access code. After collecting the digits. music is played to the subscriber and the host is sent the SUBSCRIBER INFORMATION message requesting that the host route the call.

3. The host does not provide a route.

4. The ACD times out while waiting for host routing. Music is disconnected from the subscriber and the call is routed based on default routing. Note that no indication is given to the host.

5. The call is answered at the ACD and the indication is sent to the host.

6. Some time later the transaction is completed and the caller disconnects. The ACD informs the host that the call is complete.

Note that it is possible for the ACD to timeout while waiting for host routing. and route the call to an application that sends another subscriber information message to the host. At that point the host may route the call based on either the first or second subscriber information message thaf it received.

# Feature Example: Host Routing on Arrival and Subscriber Information

Figure 6-4 shows an inbound call application using this feature. Table 6-2 shows the routing telescript for this example. and Table 6-3 shows the application telescript.
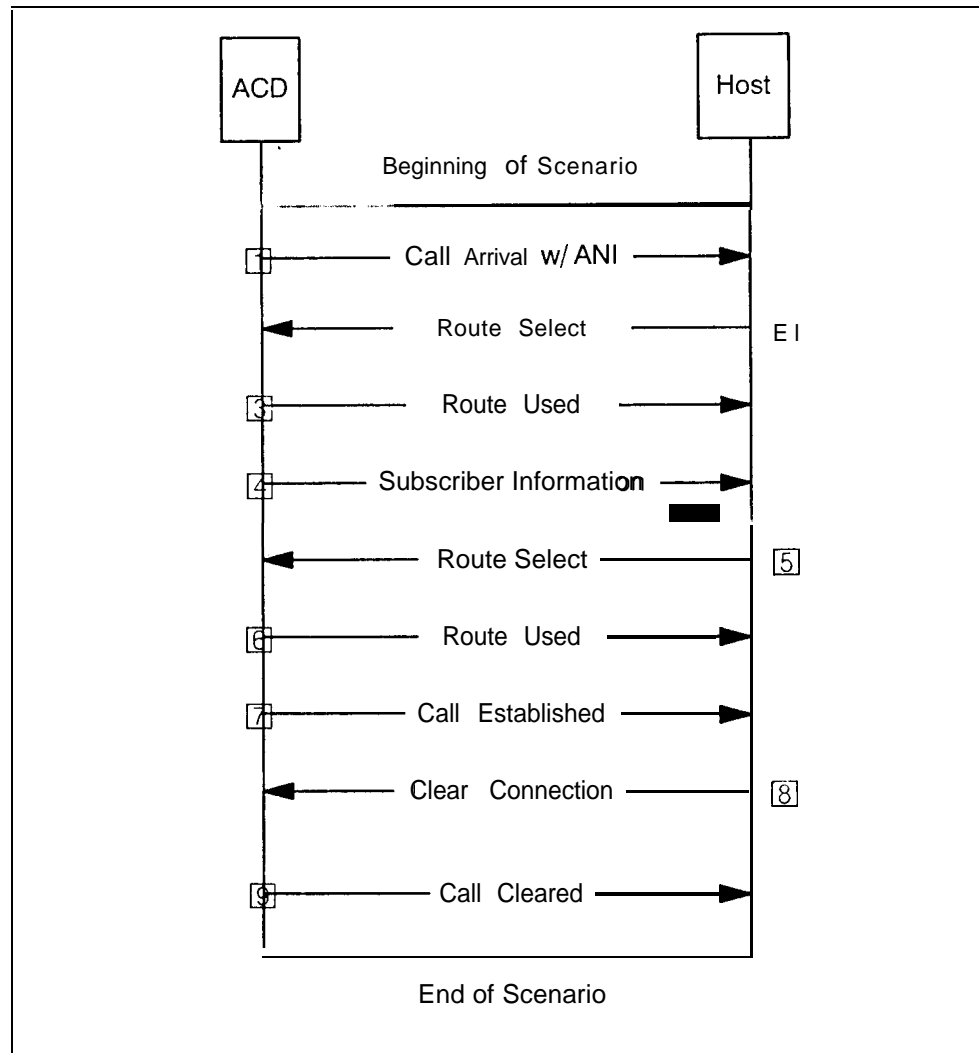


Figure 6-4. Host Routing on Arrival and on Subscriber
information Feature Example

1. An incoming call arrives at the ACD and the host is informed of the call along with any network information that was provided (e.g. ANI, DNIS). In this example. ANI was passed and the host matches the ANI with Company XYZ which holds numerous accounts.

2. The host directs the ACD to route the call to an application that will query thr subscriber for their account number.

3. The ACD routes the call to the application and acknowledges the route.

4. The application telescript prompts the subscriber to enter the 20-digit account code. After collecting the digits, the host is sent the SUBSCRIBER INFORMATION message requesting that the host route the call.

5. The host routes the call according to it's database lookup.

6. The ACD acknowledges the route and route the call as indicated by the host.

7. The call is answered and the indication is sent to the host.

S. Some time later the transaction is completed and the agent wraps up the call via a key press on the host terminal. This causes the host to request the ACD to clear the connection.

9. The ACD clears the call and send the positive indication to the host

Table 6-4. Example Routing Telescript

| # | lelescript Step |
|---|---|
| 1 | RETRIEVE NETWORK INFORMATION |
| 2 | REQUEST HOST INSTRUCTION ON ARRIVAL 2 SECONDS |
| 3 | IF RESULT EQ FAILURE GOT0 5 |
| 4 | ROUTE TRANSLATION |
| 5 | ROUTE APPLICATION 1 |

Table 6-5. Example Application Telescript

| # | Telescript Step |
|---|---|
| 1 | /PLAY ANNOUNCEMENT 22 |
| 2 | ACQUIRE COLLECTOR DTMF 20 SECONDS |
| 3 | IF RESULT EQ FAILURE GOT0 8 |
| 4 | COLLECT 20 INDIGITS_A |
| 6 | REQUEST HOST ON SI IN DIGITS-A 2 SECONDS |
| 7 | IF RESULT EQ FAILURE GOT0 9 |
| 8 | ROUTE TRANSLATION |
| 9 | PLAY ANNOUNCEMENT 1 |
| 10 | QUEUE AGENT 1 |
| 11 | DELAY FOREVER |

# Call Status Message

Table 6-6. Call Status Message

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 154 | 9A | M |
| Call ID | 0d | M |
| Telescript Information | 4b | M |
| Called Party Number | 0f | O |
| Calling Party Number | 13 | 0 |
| Queued Agent Groups (1 to 10 Groups) (Note 1) | 4a | 0 |
| Overflow Information | 4c | O |
| Position (Note 2) | 25 | 0 |
| Logical Workstation Number (LWN) | 1f | O |
| Trunk Port ID (Note 3) | 24 | O |
| Trunk Group Number (Note 3) | 31 | O |
| Previous Position (Note 4) | 27 | O |
| Previous Call Information (Note 5) | 26 | 0 |
| Conference Call ID (Note 6) | 0c | O |
| On-Hold Call IDs (Note 7) | 4d | 0 |
| Barged-In Call IDs (Note 8) | 4e | 0 |
| Telescript Digit Variable (Note 9) | 4f | O |
| Host Information | lc | O |

(M = Mandatory  O = Optional)

Note 1 -This element will be included if one or more agent groups are queued. This is a list of up to 10 agent group IDs.

Note 2 -These elements will be included if the call is originated by a console or VRU interface. The LWN is given only when one is assigned to a position.

Note 3 -These elements will be included if the call is originated by a trunk interface.

Note 4 - This element will be included if there was a position that was last connected to the call (as indicated by a previous Call Established). A position may be either a console or VRU.

Note 5 — This element will be included if the call is an Overflow-in.

Note 6 — This element will be included if there is another active line that is currently in conference with the call.

Note 7 — This element will be included if there are any other active lines that are cn hold.

Note 8 -This element will be included if there is a barge-in on this call.

Note 9 — This element will be included if the telescript step specifies one of the digit variables to be passed.

Note 10 — This element will be included if the telescript step specifies an Alpha/Numeric character string to be passed.

# Example: Call Status Message

Figure 6-5 shows the transaction link event which occurs each time the step is executed regardless of which telescript type is running.
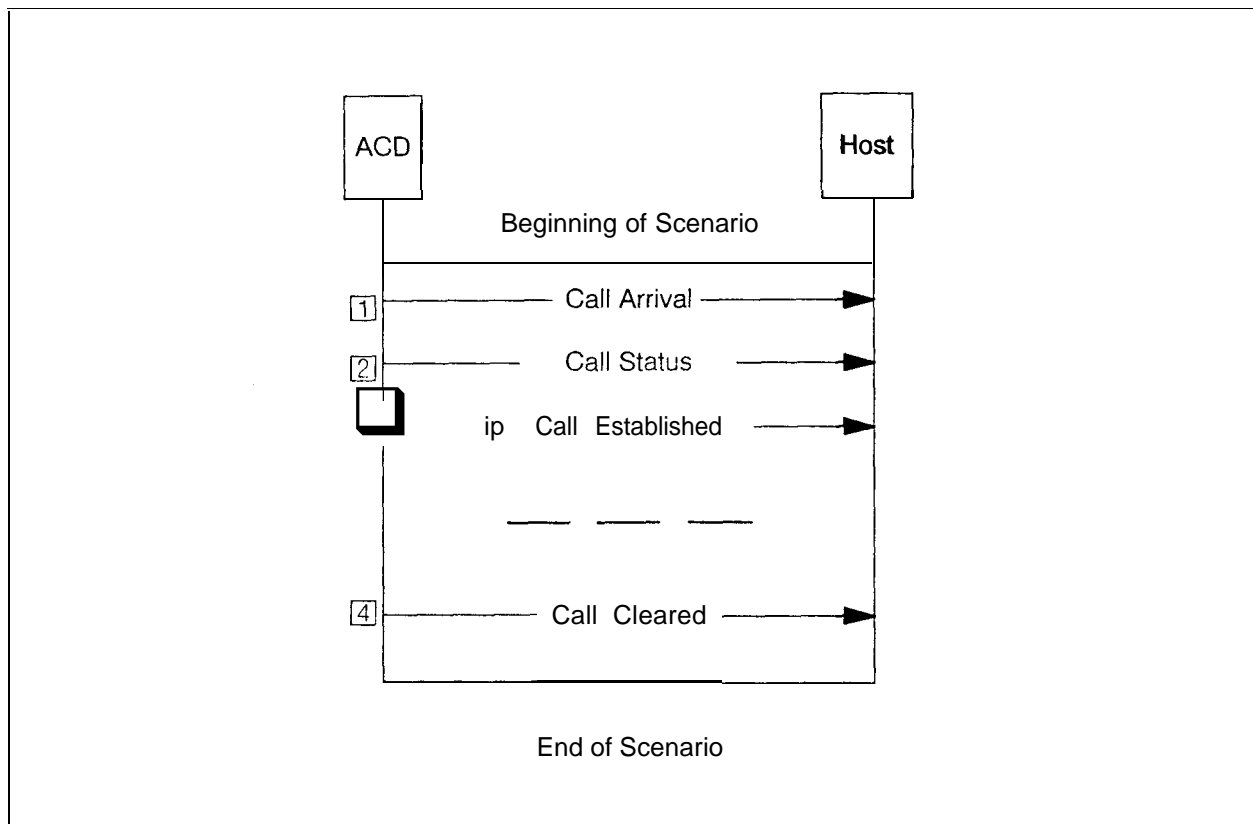


Figure 6-5. Call Status Message

1. An incoming call arrives at the ACD and the host is informed of the call along with any network information that was provided (for example ANI or DNIS). The telescript step INFORM HOST ON CALL ARRIVAL is executed. Then the incoming call gets routed to an application.

2. The application telescript may initiate an overflow out request, then check if the request was accepted by using the IF step. If the result was SUCCESS, goto the step INFORM HOST CALL STATUS. This will inform the host of the pending overflow. along with any other information that would apply to this scenario.

3. The call is answered at the ACD and the indication is sent to the host.

4. Some time later the transaction is completed and the caller is disconnected. The ACD informs the host the call is completed.

# Subscriber Information Message

## Message Description

This message is sent to the host as a result of either the REQUEST HOST SI or INFORM HOST SI telescript steps. Account information and/or host information is included as specified in the application telescript step.

## Message Format

Table 6-7. Subscriber Information Select Message Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 145 | 91 | M |
| Call ID | 0d | M |
| Originating Logical Workstation Number (Note 1) | 37 | O |
| Originating Position (Note 2,4) | 38 | O |
| Originating Trunk Port ID (Note 3,4) | 3d | O |
| Account Information | 03 | O |
| Host Information (Note 5) | 1c | O |
| Instruction Needed (Note 6) | 1d | O |

(M = Mandatory, 0 = Optional)

Note 1 — If a LWN has been associated wit the Originating Position's device, then the Originating Logical Workstation Number element shall be present in the message.

Note 2 -This should appear ii call originator has a Directory Number.

Note 3 — This should appear if the call originator is an outside caller. This identifies the trunk port used for the incoming call.

Note 4 — Either the Position or Trunk Port ID must appear in this message.

Note 5 — Host information will be supplied if it was specified in the REQUEST HOST SI or INFORM HOST SI application telescript step which supplied this message.

Note 6 — Absence implies no instruction needed.

# Route Select Message

## Message Description

This message allows the host to specify where each call is to be routed (usually based on customer database information). and override the call priority (for queuing) or intercept class that the ACD would otherwise assign to the call. An ACD sends a Call Arrival message to the host with calling party and called DNIS and waits for a host routing instruction. The host sends a Route Select message to inform the ACD of the route. The host should provide the ACD with a Route Select message before the timeout (specified in telescript step) expires. Queuing is allowed with the routing operation.

If the Route Select Message was not received before the timeout expired. the call would be routed based on the ACD default routing algorithm. No message will be sent to host to indicate this event.

If the Route Select message is received after the timeout expired. a host Route Failed message with Error Code will he sent to the host to indicate this error condition.

If the Route Select message is received before the timeout expired. but the ACD's attempt to route the call fails, a host Route Failed message with Error Code will also be sent to the host.

A Route Used message is sent from the ACD to the host to indicate the call was routed as requested in the Route Select message.

## Message Format

Table 6-8. Route Select Message Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 6 | 06 | M |
| Call ID | Od | M |
| Originating Logical Workstation Number (Note 1) | 37 | O |
| Originating Position (Note 1) | 38 | 0 |
| Originating Trunk Port ID (Note 1) | 3d | 0 |
| Routing Attributes | 2a | 0 |
| Origin Announcement ID | 22 | O |
| Logical Workstation Number (Note 2) | If | O |
| Destination DN (Note 2) | 15 | O |
| Application ID (Note 2) | Oa | 0 |
| Target Party Number (Note 2) | 2f | O |

(M = Mandatory, 0 = Optional)

Note 1 — If this Route Select is in response to a Subscriber Information message, then these elements shall contain the same information that was sent in the Subscriber Information message.

Note 2 — No more than one of Logical Workstation Number, Destination DN, Application ID, or Target Party Number may appear.

# Route Used Message

## Message Description

The ACD sends this message in response to the routing request of the Route Select message sent by the host. The Route Used message indicates to the host that a call has been routed per the Route Select request from the host.

After the call is routed, it may be queued to agent groups. When the call is answered by an agent, a Call Established message will be sent from ACD to host. The host can then send the appropriate screen to the answering agent's terminal (screen synchronization).

## Message Format

Table 6-9. Route Used Message Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 142 | 8E | M |
| Call ID | 0d | M |

# Host Route Failed Message

## Message Description

This message is sent in response to the Route Select message. This message indicates to the host that the Route Select request was invalid. This indicates that the call has been routed via switch default routing. or the data within the Route Select was invalid.

## Message Format

Table 6-10. Host Route Failed Message Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 149 | **95** | M |
| Call ID | Od | M |
| Error Code | 19 | M |

# Get Caller Number Message

## Message Description

A Get Caller Number message tells the ACD to get a caller-related number from the network for the call. This feature allows the host. on a call-by-call basis, to determine whether it needs an additional caller-related number (e.g.. Station ID) before making a routing decision. This occurs after the ACD has sent a Call Arrival message to the host.

When the ACD is unable to get the requested number from the network, a No Caller Number message will be sent to host to indicate this error condition.

A Caller Number message is sent from the ACD to HOST to indicate that additional caller-related information was retrieved from the network as requested.

## Message Format

Table 6-11. Get Caller Number Message

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 7 | 07 | M |
| Tag | 2d | M |
| Call ID | 0d | M |
| Caller Number Identification | 11 | M |

## Responses

The ACD verifies the record and sends a Caller Number or a No Caller Number message back to the host.

# Caller Number Message

## Message Description

The Caller Number message indicates to the host that additional caller-related information has been obtained in response to a Get Caller Number request.

## Message Format

Table 6-12. Caller Number Message Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 143 | 8F | M |
| Call ID | Od | M |
| Caller Number | 10 | M |

# No Caller Number Message

## Message Description

The No Caller Number message indicates to the host that the ACD was unable to retrieve additional caller-related information from the network for the indicated call. The ACD sends this message in response to the host's Get Caller Number message. An error code is also returned to the host with this message.

## Message Format

Table 6-13. No Caller Number Message Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 144 | 90 | M |
| Call ID | 0d | M |
| Error Code | 19 | M |

# Host Initiated Route Message

This feature allows the Transaction Link to accept a Host Initiated Route message from the host any time between receiving a new Call ID and receiving the Call Established message. However, if the Spectrum is in the process of rerouting the call or the call is in the process of being answered, the Host Initiated Route message will be denied.

Such instances would include:

1. The execution of the following telescript steps at the time the Host Initiated Route message i.d. received:

   ■ Divert

   ■ Hookflash

   ■ Route

   ■ Send

2. If this is an inbound call in a Hookflash state. A trunk may be placed in this state via the execution of the Hookflash telescript step. This hookflash will place the far end on hold.

3. If this is an Overflow-in that has not been accepted yet.

When the Spectrum receives the Host Initiated Route message and is in the proper state to process this request, the Spectrum performs the following operations:

■ Stop playing any/all tones and announcements.

■ Release all acquired resources.

■ Dequeue all queued agent groups, or in the case this is a Position Call. dequeue from the Position Call Queue.

■ Release any initiated Overflow-out calls.

If the calls is executing a telescript and is rerouted due to a Host Initiated Route, the reports will log the Application as routed-out and the vector step study will be logged as a disconnect.

The Spectrum will respond to the Host's Host Initiated Route with either of the following messages: Host Initiated Route Used or Host Initiated Route Failed. If the Host Initiated Route message is supplied the optional TAG element. the Spectrum response message will include the TAG message element. The same error codes are used for Host Initiated Route Failed message as the Host Route Failed message. New values will be added to the existing error codes to cover the additional error conditions.

# Host Initiated Route Examples

### Successful Host initiated Route

The following diagram shows the transaction link events which occur when a Host Initiated Routing message is received after the Spectrum has sent a 'Call Arrival" message.

```
       ┌─────┐                                    ┌──────┐
       │ ACD │                                    │ Host │
       └─────┘                                    └──────┘
                   Beginning of Scenario

  [1]  ├──────────── Call  Arrival ────────────▶│
  [2]  │◀─────────── Host  Initiated Route ──────┤
  [3]  ├──────────── Host Initiated Route Used ─▶│
  [4]  ├──────────── Call  Established ─────────▶│
             -         -         -
   B   ├──────────── Call  Cleared ────────────▶│

                   End of Scenario
```

Figure 6-6. Successful Host initiated Route

1. An incoming call arrives at the ACD. The telescript step "INFORM HOST ON ARRIVAL" is executed and the host is informed of the call along with any network information that was provided (example: ANI, DNIS). Then the incoming call uses the default route to an application.

2. The Call Center Host may decide to reroute the call for whatever reason. and send the Host Initiated Route message to the Spectrum.

3. The Spectrum is in a proper state to receive a Host Initiated Route message. Once the routing information is validated the Spectrum performs the following: release all resources. dequeue all agent groups. release any initiated overflow out request. The Spectrum then reroutes the call to the specified destination, and then notifies the host of the successful routing.

4. The call is answered at the ACD and the indication is sent to the host.

5. Some time later the transaction is completed and the caller is disconnected. The ACD informs the host the call is cleared.

## Unsuccessful Host Initiated Route

The following diagram shows the transaction link events which occur when a Host Initiated Routing message is received while the ACD is in one of the following:

■ Currently processing a prior routing instruction.

■ Incoming call is in a Hookflash State.

■ ACD is Out-dialing digits.

■ This is an Overflow-in call that has not been accepted yet.

■ The specified destination is not valid.
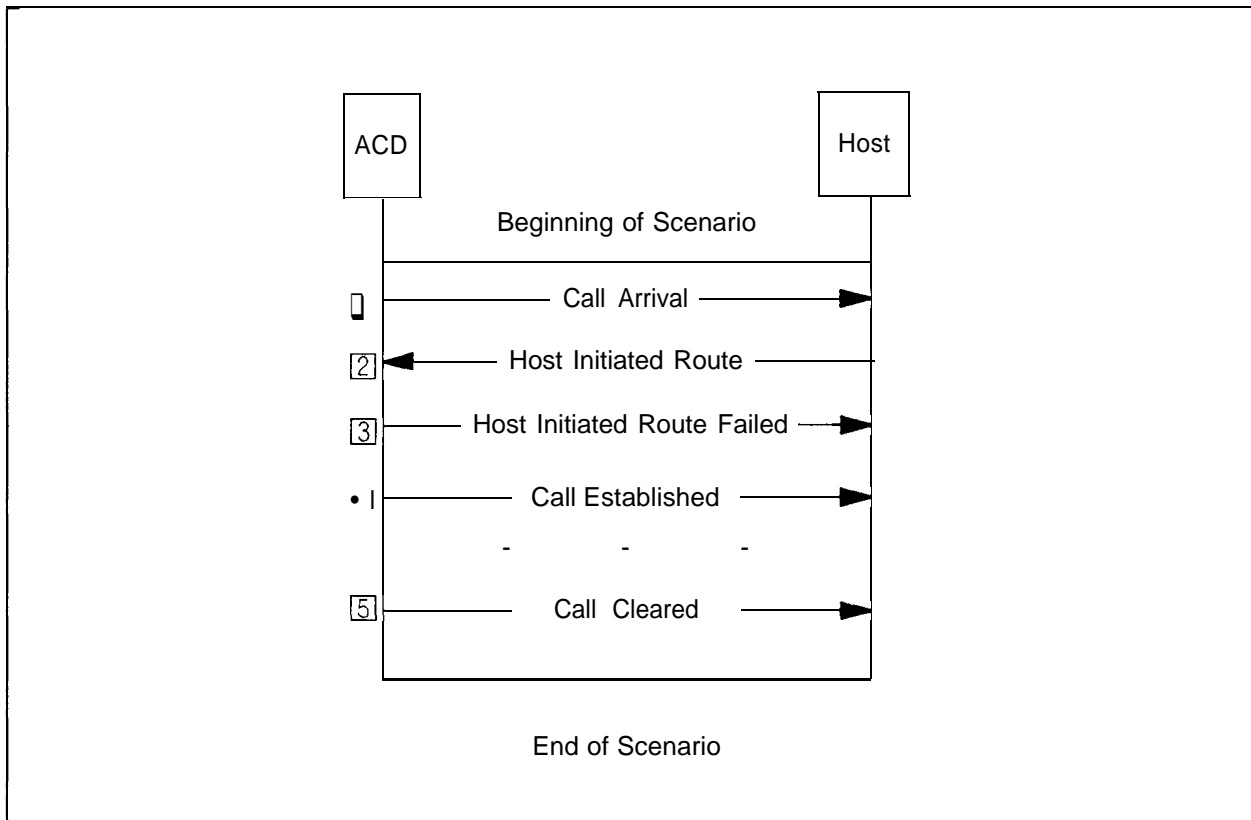
Figure 6-7. Unsuccessful Host Initiated Route

1. An incoming call arrives at the ACD. The telescript step INFORM HOST ON ARRIVAL is executed and the host is informed of the call along with any network information that was provided (example: ANI. DNIS). Then the incoming call uses the default route to an application.

3. The Call Center Host may decide to reroute the call for whatever reason, and send the Host Initiated Route message to the Spectrum.

3. Since the Spectrum is not in a proper state to receive a Host Initiated Route message or the routing information is not valid, the ACD notifies the host of the route failure and continues to perform the default route.

4. The call is answered at the ACD and the indication is sent to the host.

5. Some time later the transaction is completed and the caller is disconnected. The ACD informs the host the call is cleared.

### Successful Host Initiated Route Durina Request Host

Since the Host Initiated Route message is asynchronous to the telescript, a window
exists where the host may send a Host Initiated Route message at the same time the
ACD sends a Subscriber Information (with instruction needed) message. The following
diagram shows the transaction link events when this condition occurs and the Host
Initiated Route message has valid routing information.



Figure 6-8. Successful Host Initiated Route during Request Host

1. An incoming call arrives at the ACD. The telescript step INFORM HOST ON
   ARRIVAL is executed and the host is informed of the call along with any network
   information that was provided (example: ANI, DNIS). Then the incoming call uses
   the default route to an application.

2. The APPL telescript executes the REQUEST HOST SI step and the ACD sends the
   Subscriber Information (with instruction needed) message to the host.

3. The Call Center Host may decide to reroute the call for whatever reason, and send
   the Host Initiated Route message to the Spectrum.

4. The ACD is waiting for a response to the Subscriber Information message. but
   receives the Host Initiated Route instead. The Host Initiated Route message has
   precedence over the Routing Select. The ACD will immediately route to the
   destination specified by the Host Initiated Route.

5. The host is waiting for the result of the Host Initiated Route, but receives the
   Subscriber Information instead. The host should continue waiting for the result of
   the Host Initiated Route. The host has the option of having the information
   received in the Subscriber Information message, but should not send Route Select
   message in response to the Subscriber Information (with instruction needed)
   message.

6. The call is routed to the specified destination and the host is notified.

7. The call is answered at the ACD and the indication is sent to the host.

8. Some time later the transaction is completed and the caller is disconnected. The ACD informs the host the call is cleared.

### Unsuccessful Host Initiated Route Durina Reauest Host

Since the Host Initiated Route message is asynchronous to the telescript, a window exists where the host may send a Host lnitiated Route message at the same time the ACD sends a Subscriber Information (with instruction needed) message. The following diagram shows the transaction link events when this condition occurs and the Host Initiated Route message has invalid routing information.
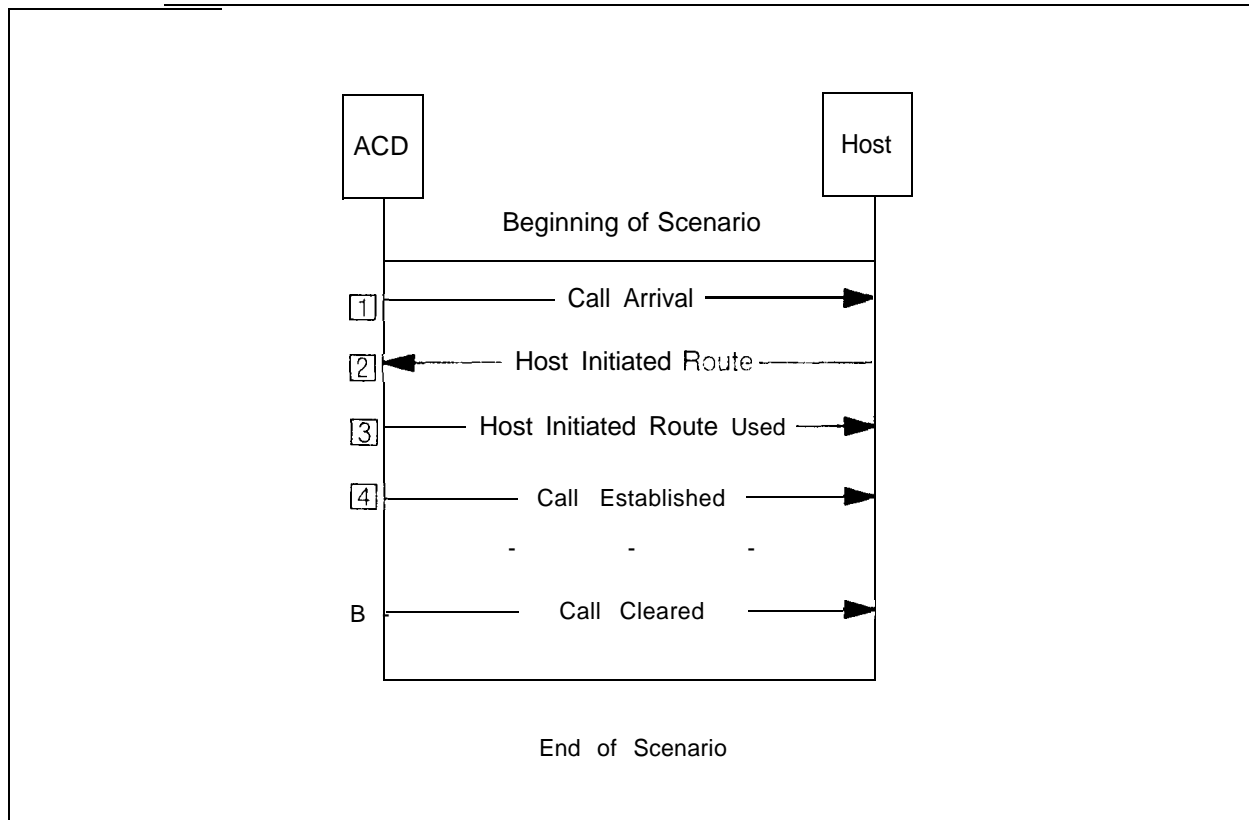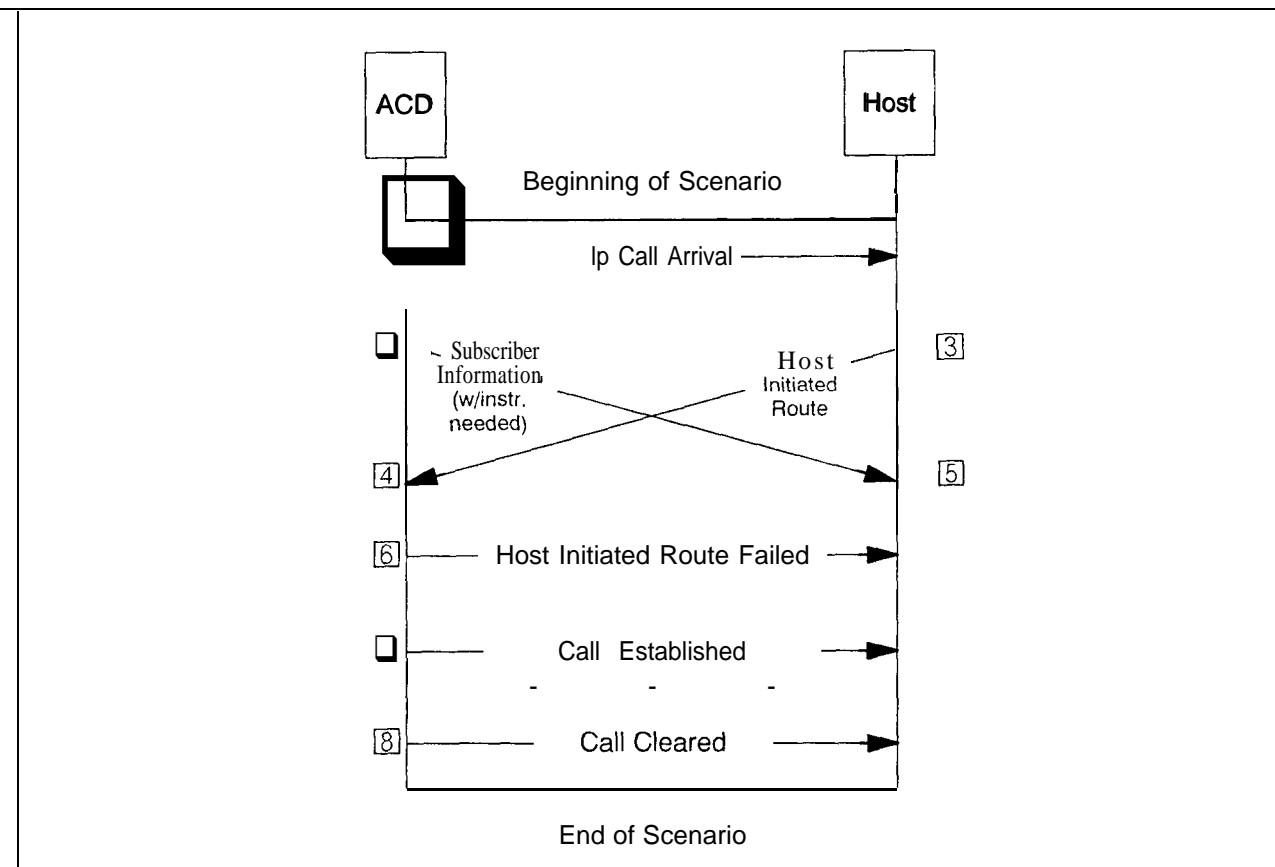


Figure 6-9. Unsuccessful Host Initiated Route during REQUEST HOST

1. An incoming call arrives at the ACD. The telescript step INFORM HOST ON ARRIVAL is executed an the host is informed of the call along with any network information that was provided (example: ANI.DNIS). Then the incoming call uses the default route to an application.

2. The APPL telescript executes the REQUEST HOST SI step and the ACD sends the Subscriber Information (with instruction needed) message to the host.

3. The Call Center Host may decide to reroute the call for whatever reason, and send the Host Initiated Route message to the Spectrum.

4. The ACD is **waiting for a response** to the SUBSCRIBER INFORMATION message, but receives the Host Initiated Route instead. The ACD attempts to route to the destination specified by the Host Initiated Route, but was not successful. The telescript step REQUEST HOST SI is terminated, and the telescript processing continues.

5. The host is waiting for the result of the Host Initiated Route. hut receives the Subscriber Information instead. The host has the option of saving the information received in the Subscriber Information message but should not send a Route Select message in response to the Subscriber Information (with instruction needed) message.

6. The call fails to route to the specified destination and the host is notified of the route failure.

7. The call remains in the default route of a application and is eventually answered at the ACD and the indication is sent to the host.

8. Some time later the transaction is completed and the caller is disconnected. The ACD informs the host the call is cleared.

### Host Initiated Route Durina Call Established

Since the Host Initiated Route message is asynchronous to the telescript, a window exists where the host may send a Host Initiated Route message at the same time the ACD sends a Call Established message. The following diagram shows the transaction link events when this condition occurs.
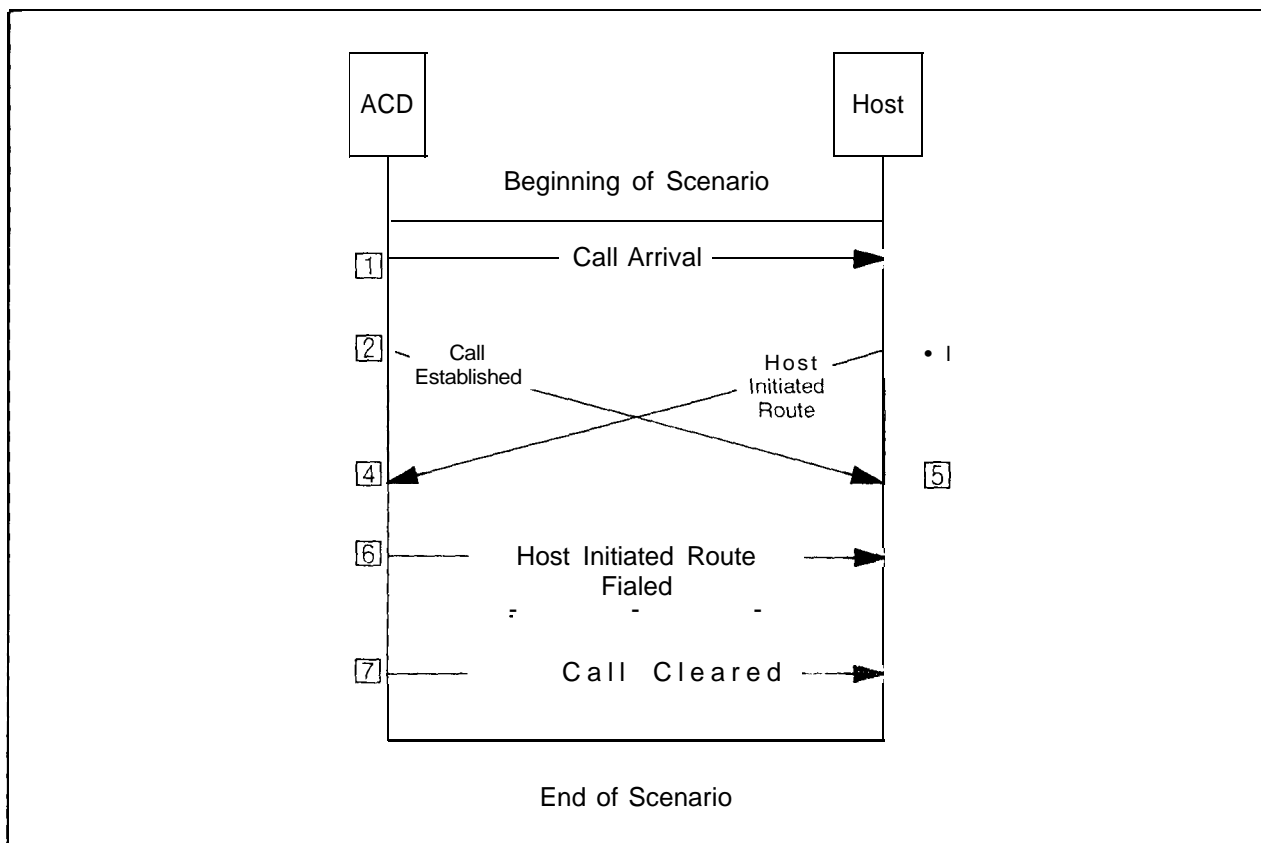


Figure 6- 10. Host Initiated Route During Call Established

1. An incoming call arrives at the ACD. The telescript step INFORM HOST ON ARRIVAL is executed and the host is informed of the call along with any network information that was provided (example: ANI, DNIS). Then the incoming call uses the default route to an application.

2. The call is answered at the ACD and the indication is sent to the host.

3. The Call Center Host may decide to reroute the call for whatever reason, and send the Host Initiated Route message to the Spectrum.

4. The call has been answered at the ACD and can no longer be rerouted. The ACD notifies the host of the routing failure.

5. Some time later the transaction is completed and the caller is disconnected. The ACD informs the host the call is cleared.

### Host Initiated Route Durina Network Query

The following diagram shows the transaction link events which occur when a Host Initiated Route message is received after the Spectrum has sent a Call Arrival message.
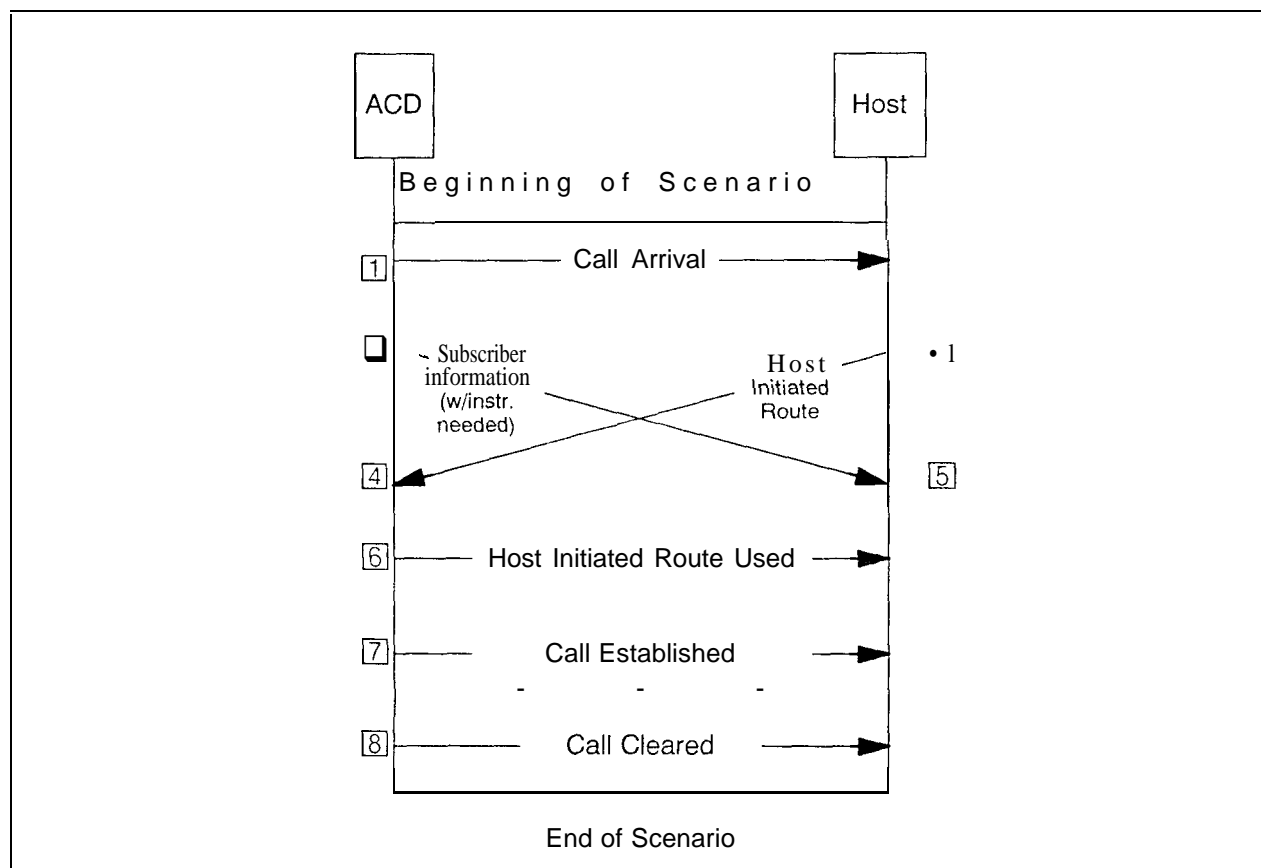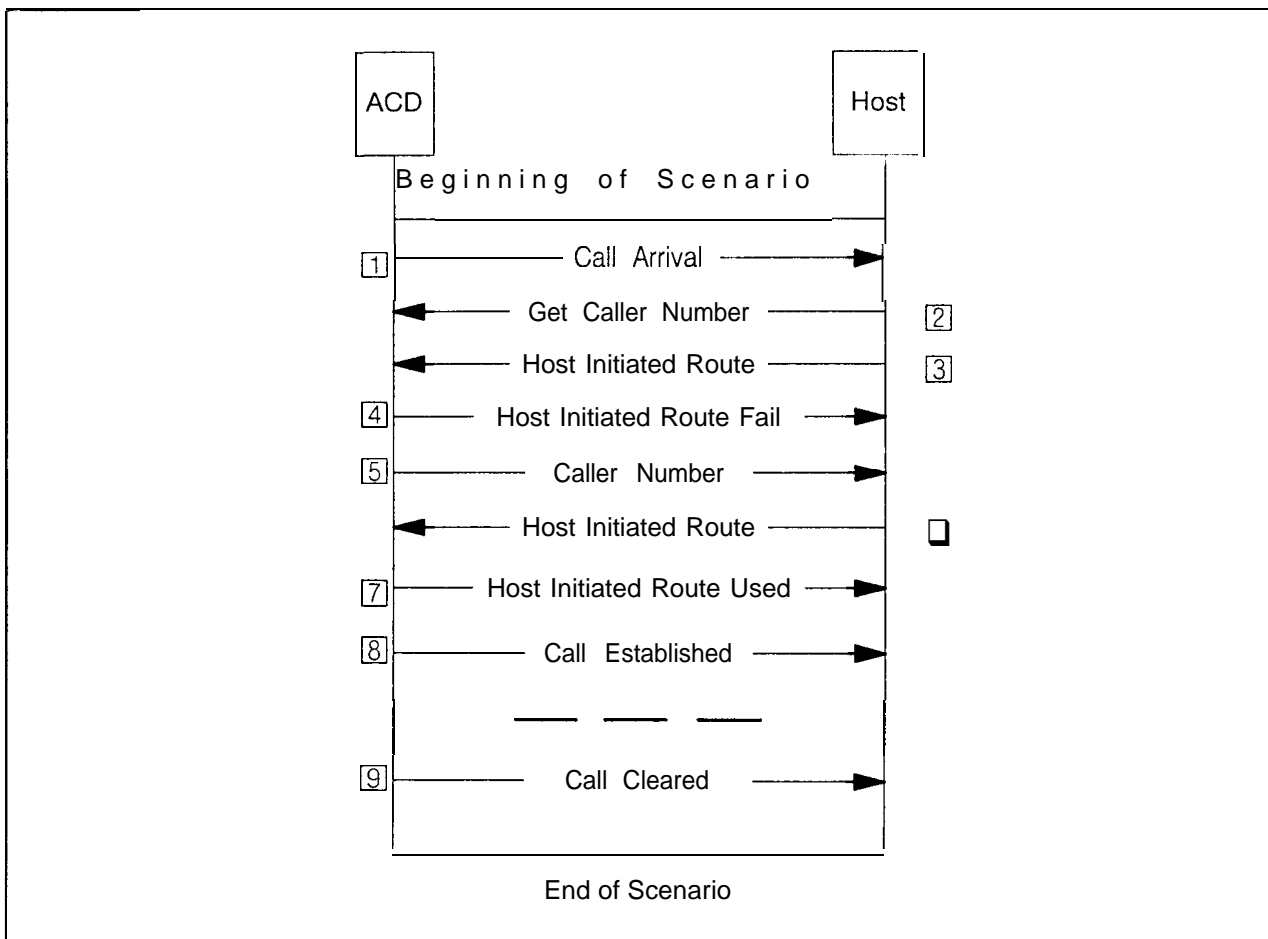


Figure 6-I 1. Host initiated Route During Network Query

1. An incoming call arrives at the ACD. The telescript step INFORM HOST ON ARRIVAL is executed and the host is informed of the call along with any network information that was provided (example: ANI, DNIS).

2. The Host requires more information, and requests the caller's number. This causes the ACD to perform network query.

3. The Host decides to reroute the call before it receives the Caller Number, and sends the Host Initiated Route message to the Spectrum.

4. The ACD denies the routing request due to the pending network query.

5. The ACD receives the information from the network and forwards it to the HOST.

6. The Call Center Host decides to try to reroute the call again. and send the Host Initiated Route message to the Spectrum.

7. The Spectrum is in a proper state to receive a Host Initiated Route message. Once the routine information is validating the Spectrum reroutes the call to the specified destination. and then notifies the host of the successful routing.

8. The call is answered at the ACD and the indication is sent to the host.

9. Some time later the transaction is completed and the caller is disconnected. The ACD informs the host the call is cleared.

# Message Format

Table 6-14. Host initiated Route Message Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 12 | **OC** | M |
| Call ID | 0d | M |
| Originating Logical Workstation Number (Note 1) | 37 | O |
| Originating Position (Note 1) | **38** | O |
| Originating Trunk Port ID (Note 1) | 3d | 0 |
| Routing Attributes | 2a | O |
| Origin Announcement ID | 22 | O |
| Logical Workstation Number (Note 2) | 1f | O |
| Destination DN (Note 2) | 15 | O |
| Application ID (Note 2) | 0a | O |
| Target Party Number (Note 2) | 2f | O |
| TAG | 2d | O |

(M = Mandatory, 0 = Optional)

Note 1 — If this Host Initiated Route message is sent after receiving a Subscriber information message. then one of these elements may be included in this message.

Note 2 — No more than one of these message elements may appear in this message.

Table 6-15. Host Initiated Route Used Message Format

| Message Element | H e x | Type |
|---|---|---|
| Message Type = 155 | 9B | M |
| Call ID | 0d | M |
| TAG | 2d | O |

Table 6-l 6. Host Initiated Route Failed Message Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 156 | 9C | M |
| Call ID | 0d | M |
| Error  Code | 19 | M |
| TAG | 2d | O |

6

:: :: ::

# 7

# *Outdial* Programming

## Overview

This section describes the message conversations, message formats. and error responses used by the System Controlled Outdial feature.

## Feature Description

The System Controlled Outdial feature provides fully automated dialing (predictive dialing), eliminating the need for agents to listen to the call status (ringback. busy, answer, etc.). Calls that have reached a particular point of progression. e.g.. voice answer, are routed to agents, announcements, or an application. This can result in a higher customer contact rate, which means increased productivity.

As stated above, the answered calls may be routed to an application. This application can queue the calls to agents, play announcements, or route the call to an outgoing trunk. For calls in the United Kingdom, the switch will prevent any call connections from the Public Network to another Public Network trunk. If a call is routed by an application to another trunk, it is recommended that this action be performed by the telescript only if the allocation and detection method indicates to route when the target answers. This will prevent the situation of having two trunks in the ringing condition.

The call progress and agent available information from the ACD allows the host application to control pacing dynamically and increase the effectiveness of the telemarketing campaign.

The Maximum Make Predictive Call Requests per Second (MAXPCRPS) parameter in the SYS-CNFG command specifies a limit on the number of Make Predictive Dial Call requests per second the Spectrum **will accept before throttling the** Host. This limit is applied independently to each configured Transaction Link interface. Thus. if two interfaces are configured. the aggregate maximum is twice the value of this parameter.

If the number of Make Predictive Call requests received per second is greater than the value of this parameter on any given Transaction Link interface, the Spectrum will respond with a Call Failed Transaction Link message. This message will contain the Application Request Number extracted from the Make Predictive Call message and an indication that the necessary resources for making the call are not available.

The value of this parameter is changeable only by the Rockwell account.

Notice that the Make Predictive Call message requires the calling device to be an application.

For **Transaction Link originated calls** in the United Kingdom. a check must be made for each System Controlled Outdial call which may be queued to an agent group for an indefinite length of time. to verify that there is at least one agent signed into that queue, or that there is a reasonable expectation that the call will be handled by an agent via an alerting mechanism. In addition, calls shall not be routed off the switch onto the private network without an assurance that the call will be properly handled by the remote destination. Such a call shall be originated only if indefinitely long queuing to an unstaffed agent group does not result. Refer to the UK *User Supplement* (RD-51E0003-6) for details.

For calls originated in the United Kingdom. if a stored program host computer directs the Spectrum to automatically dial a sequence of calls into the Public Switched Network by using the Predictive Dial command over the Transaction Link, and if recorded or synthesized speech or sounds other than live speech are (or could be) transmitted to the called party. then the host computer shall:

a.   initiate such calls only to persons who have consented in writing to receive them: and

b.   shall maintain, or secure that there is maintained, a record giving the particulars of the persons who have given their consent.

The following table lists the Transaction Link messages for this feature.

Table 7- 1. System Controlled Outdial Feature Messages

| Message Name | Source | Description |
|---|---|---|
| Make Predictive Call | Host | Request for origination of a call from the switch and route to a specified application upon a specified point in progression. |
| Call Allocated and Routed | ACD | Indicates the system outdial call has been dialed and reached the point in progression indicated by the Allocation field, and is routed to the application. |
| Call Progress Failure | ACD | Indicates a Make Predictive Call has failed after End of Dial and before the Allocation Progression Point has been reached. |

# Feature Examples

## Successful Make Predictive Call Example

Figure 7-l shows a successful System Controlled Outdial. Transaction Link messages are used to provide this feature as explained in the following steps.
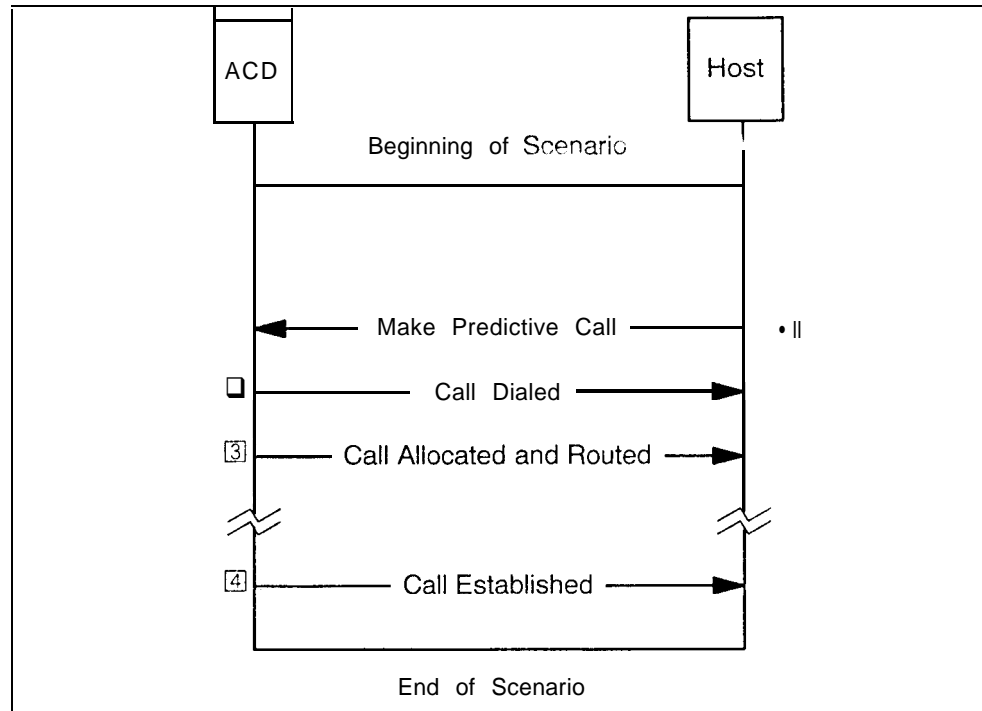
Figure 7-l. Successful Make Predictive Call Example (see description of steps)

1. System Controlled Outdial is initiated by call generation/pacing software in the host. The host uses the Transaction Link to send a Make Predictive Call message containing a (e.g., 10-digit off-net) number to be dialed to the ACD.

2. The number is routed and automatically dialed. A Call Dialed message indicates to the host the end of dial. If the call cannot be dialed for any reason. a Call Failed is sent to the host to indicate the error condition.

3. The ACD uses tone and answer detection hardware to monitor for call progress and answer. **If the desired progression point is detected, the ACD routes the call to the application and sends a Call Allocated and Routed message to the host.**

4. In this example. the system outdialed call reaches the desired progression point and is routed to an application. The call is then connected to an available agent and the switch provides the host with a Call Established message. The host can provide customer and telemarketing information on the agent's host terminal screen. If the called party releases the call before being connected to an agent. a Call Cleared record will be sent to the host.

5. The call can be released from the host terminal with a Clear Connection request.

# Make Predictive Call Failure Example

Figure 7-2 shows an unsuccessful System Controlled Outdial. Transaction Link messages are used to provide this feature as explained in the following steps.
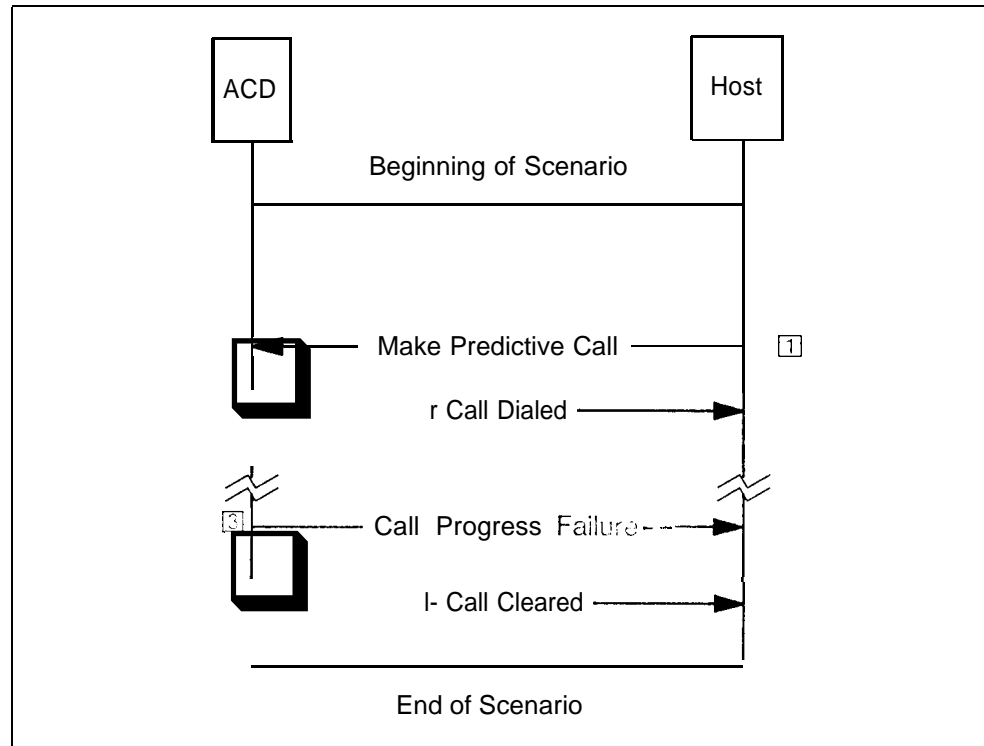


Figure 7-2. Make Predictive Call Failure Example (see description of steps)

1. System Controlled Outdial is initiated by call generation/pacing software in the host. The host uses the Transaction Link to send a Make Predictive Call message containing a number (e.g.. IO-digit off-net) to be dialed to the ACD.

2. The number is routed and automatically dialed. A Call Dialed message indicates the end of dial to the host. If the call cannot be dialed for any reason. a Call Failed is sent to host to indicate the error condition.

3. The ACD uses tone and answer detection hardware to monitor for call progress and answer. If a network tone indicating call failure or a timeout **occurs.** the ACD sends a Call Progress Failure message to the host indicating that the call cannot be completed. The host then determines when and if to reattempt the call.

4. The ACD sends a Call Cleared message to the host.

# Host No Route Tri Tone Calls
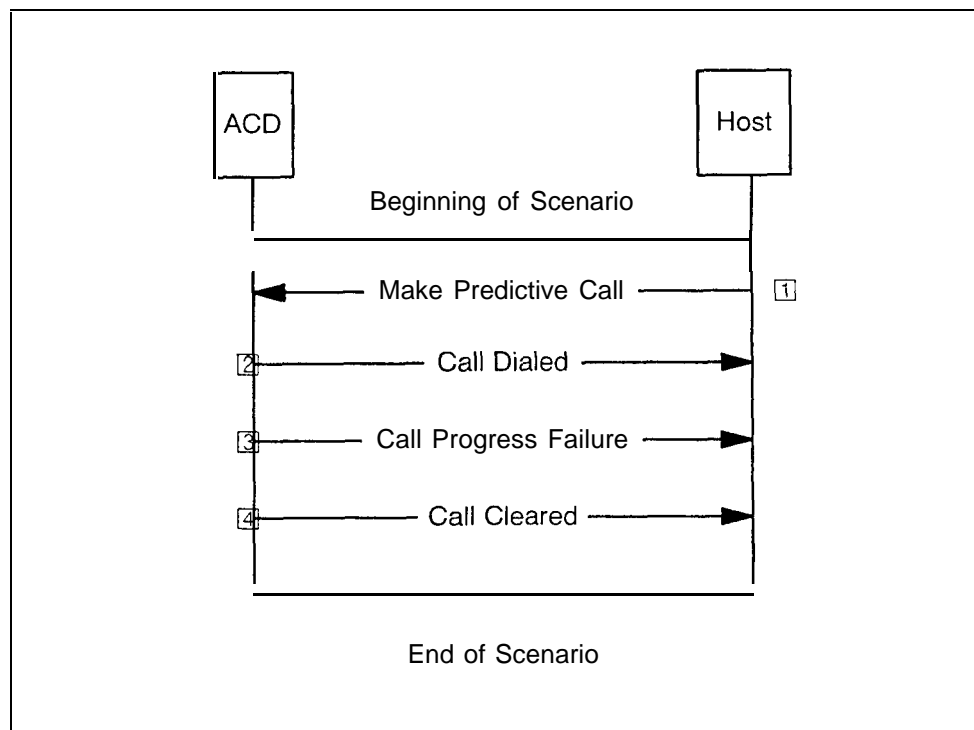


Figure 7-3. Host No Route Tri Tone Calls

1. The host computer sends the ACD a Make Predictive Call message. In order to acquire an answer detector and listen for type of answer. the allocation is set to call established and the detection method is set to Answer Detector, without answering machine detection or answer detector, with answering machine detection.

   The Route Tri Tone message element is set to zero (do not route tri tone calls).

2. The ACD successfully dials the make predictive call request and informs the host with a Call Dialed message.

3. The ACD detects tri tone on the line and sends the host a call progress failure message with error code 23.

4. The ACD sends a call cleared message to the host.

# Host Route Tri Tone Calls
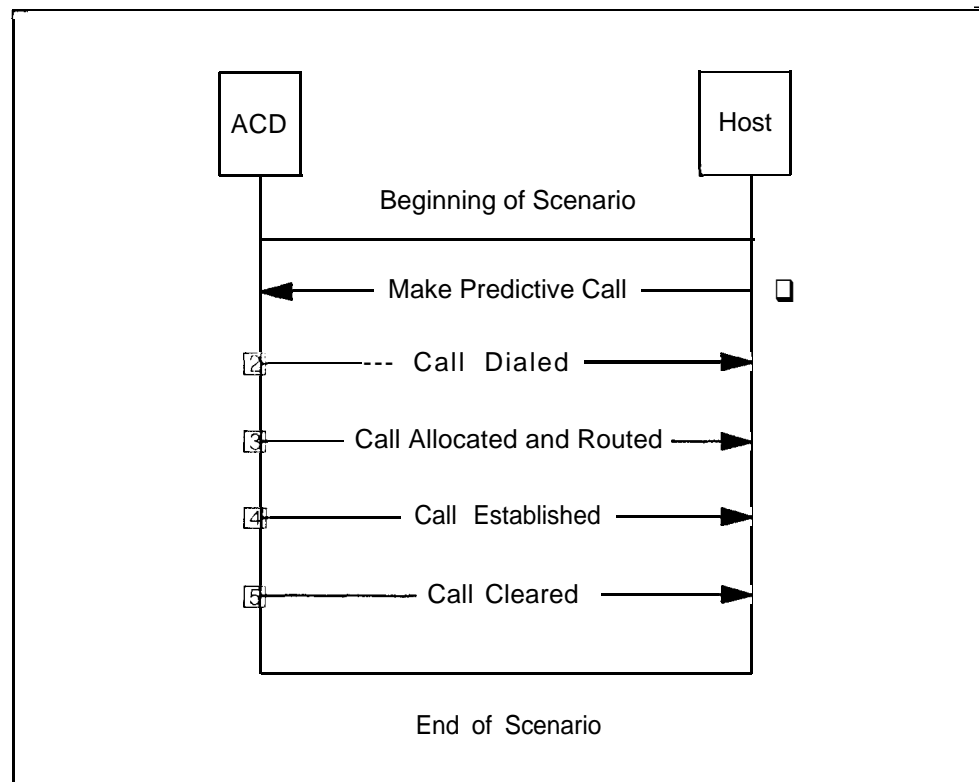


Figure *7-4.* Host Route Tri Tone Calls

1. The host computer sends the ACD a Make Predictive Call message. In order to acquire an answer detector and listen for type of answer, the allocation is set to call established and the detection method is set to Answer Detector, without answering machine detection or answer detector, with answering machine detection.

   — The Route Tri Tone message element is set to one (route tri tone calls).

2. The ACD successfully dials the make predictive call request and informs the host with a Call Dialed message.

3. The ACD detects tri tone on the line and sends the host a call allocated and routed message. The type of answer message element is set to tri tone answered.

4. The call is answered at the ACD and the call established is sent to the host. The agent gathers information from the recorded message.

5. The agent releases the call.

# Routing of Answering Machine Detection to an Agent Group
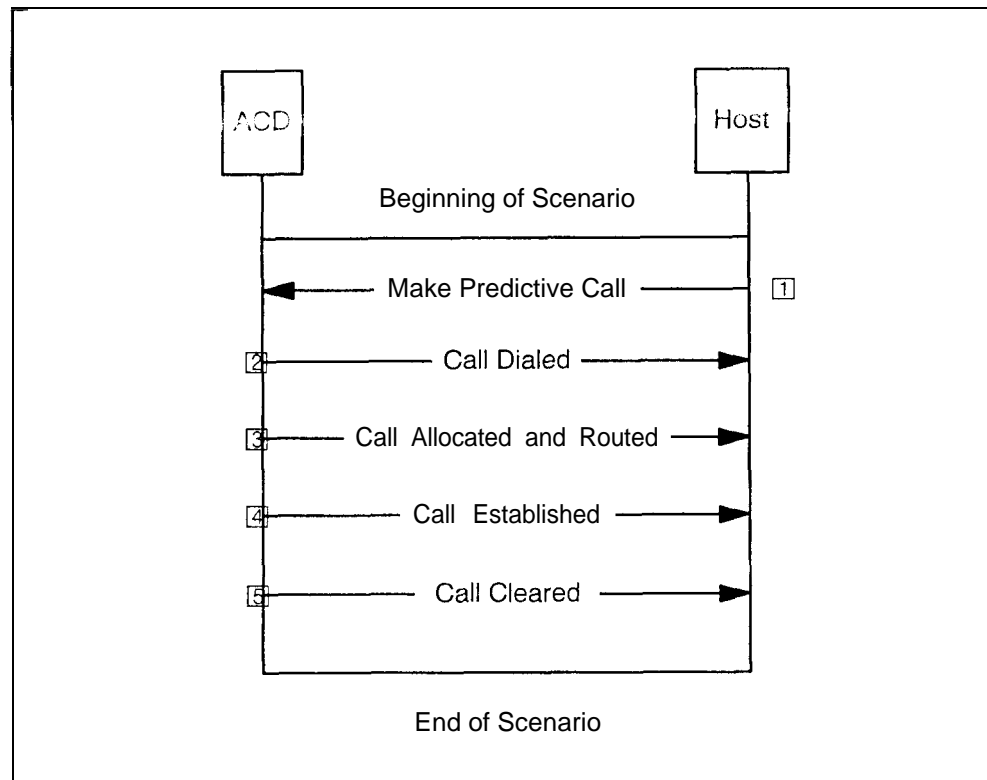


Figure 7-5. Routing of Answering Machine Detection to an Agent Group

1. The host computer sends the ACD a Make Predictive Call message.

   — In order to acquire an answer detector and listen for type of answer. the allocation is set to call established. and the detection method is set to Answer Detector, with answering machine detection.

   — The application ID message element is set to 10. Application 10 is defined in the Spectrum to queue to agent group 1 and delay forever.

   — The answering machine application ID message element is set to 20. Application 20 is defined to queue to agent group 2 and delay forever.

2. The ACD successfully dials the make predictive call request and informs the host with a Call Dialed message.

3. The ACD detects answering machine on the line and sends the host a call allocated and routed message. The type of answer message element is set to answering machine answered.

4. The call is answered at the ACD by an agent in agent group 2 and the call established is sent to the host. The agent leaves a message on the answering machine.

5. The agent releases the call.

# Routing of Answering Machine Detection to an Announcement
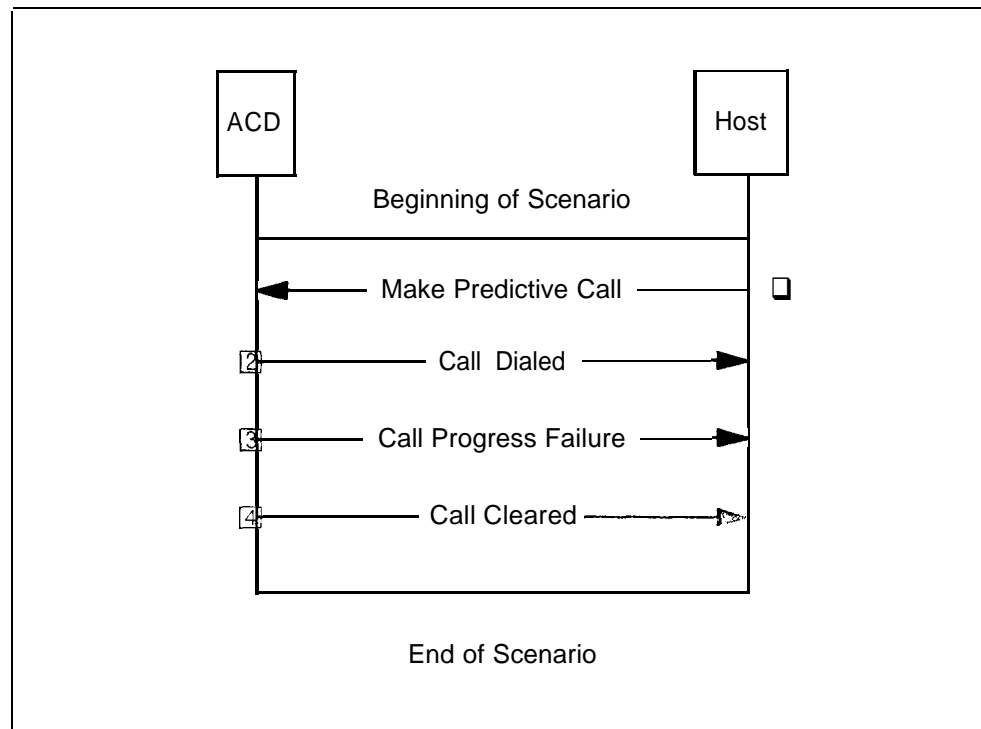


Figure 7-6. Routing of Answering Machine Detection to an Announcement

1. The host computer sends the ACD a Make Predictive Call message.

   --- In order to acquire an answer detector and listen for type of answer. the allocation is set to call established and the detection method is set to Answer Detector, with answering machine detection.

   -- The application ID message element is set to 10. Application 10 is defined in the Spectrum to queue to agent group 1 and delay forever.

   — The answering machine application ID message element is set to 20. Application 20 is defined to delay 5 seconds. play an announcement. and release.

2. The ACD successfully dials the make predictive call request and informs the host with a Call Dialed message.

3. The ACD detects answering machine on the line and sends the host a call allocated and routed message. The type of answer message element is set to answering machine answered.

4. Application 20 is executed and a message is left on the customer's answering machine. Note that it is not possible to determine exactly how long to delay before the announcement is played. The release step in the application is executed and a call cleared message is sent to the host.

# Make Predictive Call Message

## Message Description

This message requests origination of a call from the switch and routing to a specified application upon a specified point in progression. This request is accepted regardless of any trunk group's or Class of Service's HOSTFLAG value.

Note that the Make Predictive Call message contains the Message for Agent Console message element. This element is displayed at the agent console just prior to, or at the same time as the call is connected. It is displayed for at least 2 seconds. The console treats this information as Call Information. This means. for example, that once it has been removed from the display the agent can recall this message by use of the Call Info soft key (assuming the call is still at the console).

It should be noted that if the Application Telescript indicated by the Application ID or Calling Device Identifier has any FLASH steps, these will cause replacement of the host-provided message.

# Message Format

Table 7-2. Make Predictive Call Message Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 9 | 09 | M |
| Tag | 2d | M |
| Calling Device Identifier (Notes 1,2) | 12 | O |
| Application ID (Note 1) | 0a | O |
| Application Request Number | 0b | M |
| Call Type | 0e | M |
| Allocation | 08 | M |
| Detection Method (Note 3) | 16 | M |
| Ring Timeout (Note 4) | 29 | O |
| Target Party Number | 2f | M |
| Message for Agent Console | 20 | O |
| Route Tri Tone Calls | 47 | O |
| Answer Machine Detected Calling Device Identifier (Note 5, 6) | 48 | O |
| Answer Machine Detected Application ID (Note 5) | 49 | O |

(M = Mandatory, 0 = Optional)

Note 1— One and only one of these two optional elements must appear.

Note 2 — This must contain the DN of the Application that will receive the call, assuming it reaches the point of Allocation.

Note 3 — The Detection Method is ignored if Allocation = Call_Delivered.

Note 4 — Ignored (if present) if Allocation=Call_Delivered; if absent and Allocation=Call_Established, the switch will start a default timer of 60 seconds

For note 3 and note 4, be aware that if Detection Method = 0 and host did not provide a Ring timeout, the default timeout is 60 seconds.

Note 5 — Only one of these two optional elements may appear

Note 6 -- This must contain the DN of the Application that will receive the call, assuming it reaches the point of Allocation.

# Responses

The ACD verifies the record and sends a Call Dialed or a Call Failed message. If a Call Dialed message is sent. the ACD will then send either a Call Allocated and Routed message or a Call Progress Fail message followed by a Call Cleared message. If a Call Allocated and Routed message was sent. the ACD will either send a Call Established or a Call Cleared message.

# Call Allocated and Routed Message

## Message Description

This message is sent by the ACD when the call has been outdialed. has reached the point in progression indicated by the Allocation field (of the Make Predictive Call message). and has been routed to the application.

Note that if more than one agent group is queued to in the application telescript (with the QUEUE step). the Pacing Information conveyed is only for the first agent group.

If the Allocation value in the Make Predictive Call message was Call_Delivered, then Type of Answer is not part of the Call Allocated and Routed Message sent to the host.

## Message Format

Table 7-3. Call Allocated and Routed Message

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 147 | l3 | M |
| Calling Device Identifier (Notes 1,2) | l2 | rO |
| Application ID (Note 1) | 0a | 0 |
| Call ID | 0d | M |
| Type of Answer (Note 3) | 32 | 0 |
| Pacing Information (Note 4) | 23 | 0 |
| Application Pacing Information | 36 | M |

Note 1 -Whichever of these elements was in the Make Predictive Call, shall be in this message

Note 2 — This is the DN of the Application that received the call.

Note 3 — This must be present if the original request's Allocation value was Call_Established.

Note 4 — Present if the destination application performs a queue to an agent group

# Call Progress Failure Message

## Message Description

This message indicates that a Make Predictive Call request has failed after End of Dial and before the Allocation Progression Point has been reached.

## Message Format

Table 7-4. Call Progress Failure Message

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 148 | 94 | M |
| Calling Device Identifier (Notes 1,2) | 12 | O |
| Application ID (Note 1) | 0a | O |
| Call ID | 0d | M |
| Error Code | 19 | M |
| Pacing Information (Note 3) | 23 | O |
| Application Pacing Information | 36 | M |

Note 1 — Whichever of these elements was in the Make Predictive Call, shall be in this message

Note 2 — This is the DN of the application that would have received the call.

Note 3 — Present if the destination application performs a queue to an agent group

# Fine Tuning of System Controlled Outdial

Use the following guidelines when fine tuning the system-controlled outdial feature.

- An agent should not wait to hear from the called person when the call is connected, because the person might have answered the call with a hello and is waiting for the calling person's identity.

- Minimize the zip tone duration from 1 sec to 250 mSec using the ED-SYSCNFG command.

- If agent personal announcements are used. ensure that the personal announcement does not have any silence recorded before the announcement. Silence at the beginning of a personal announcement creates a delay before the called person hears the agent's voice.

- If a trunk problem is noticed intermittently, verify the trunk attenuation (using the ED-T1 command) because one trunk may be causing it. The DSP port attenuation also needs to be checked because this could also affect the db level.

- Verify that the application vector handling the call does not add any delay.

# 8

# Host Controlled Hold Programming

## Overview

This section describes the message conversations, message formats, and error responses used by the Host Controlled Hold feature.

## Feature Description

An agent can place calls on hold and take calls off hold using a host terminal such as a mainframe terminal.

An agent can perform the following functions at a host terminal:

- **Hold Call:** Place a single call on **hold (with** the Hold Call message).
- **Retrieve Call:** Take a single call off hold (with the Retrieve Call message).

Using new and existing Transaction Link messages, an agent can perform the following functions at a host terminal:

- **Alternate Call:** Place an existing active call on hold and then retrieves a previously held call. (This uses two messages from the host. The host sends the Hold Call message for the active call. then a Retrieve Call message for a previously held call.)

- **Conference Call:** Create a conference call between an existing active party and an existing held party. (This is accomplished by sending the Retrieve Call message for the held call while having one call already active at the device. If two calls are on hold, the host may send a Retrieve Call message for both calls, thus establishing the conference when the second call is taken off hold.)

- **Reconnect Call:** Clear an existing active call and then retrieves a previously held call. (This uses two messages from the host. The host sends a Clear Connection message, then a Retrieve Call message.)

This feature allows the host to place a call on and off hold for a console.

Be aware of the following:

- The Host Controlled Hold feature is not available for VRU devices.

- The agent will be able to place calls on hold and take calls off hold using the host terminal and the SpectraView console. Spectrum is also able to place calls on hold and take calls off hold without agent control. The host needs to realize that when agent-initiated holds ("explicit" holds) and Spectrum-initiated holds ("implicit" holds) occur. the host must remain synchronized with Spectrum. If the host does lose synchronization, it is easily reattained by sending either a hold or retrieve request. If the call is already in the requested state. a positive response will be given to the host and no further action is needed from Spectrum.

The following table lists the Transaction Link messages for this feature.

Table 8-1. Host Controlled Hold Feature Messages

| Message Name | Source | Description |
|---|---|---|
| Hold Call | Host | Request call hold |
| Call Held | ACD | Indicates call hold is successful |
| Call Not Held | ACD | Indicates call hold is not successful |
| Retrieve Call | Host | Request call taken off hold |
| Call Retrieved | ACD | Indicates call taken off hold is successful |
| Call Not Retrieved | ACD | Indicates call taken off hold is not successful |

# Feature Examples

## Example: Host Controlled Hold and Retrieve

Figure 8-1 shows a successful host controlled hold and retrieve. Transaction Link messages are used to provide this feature as explained in the following steps.
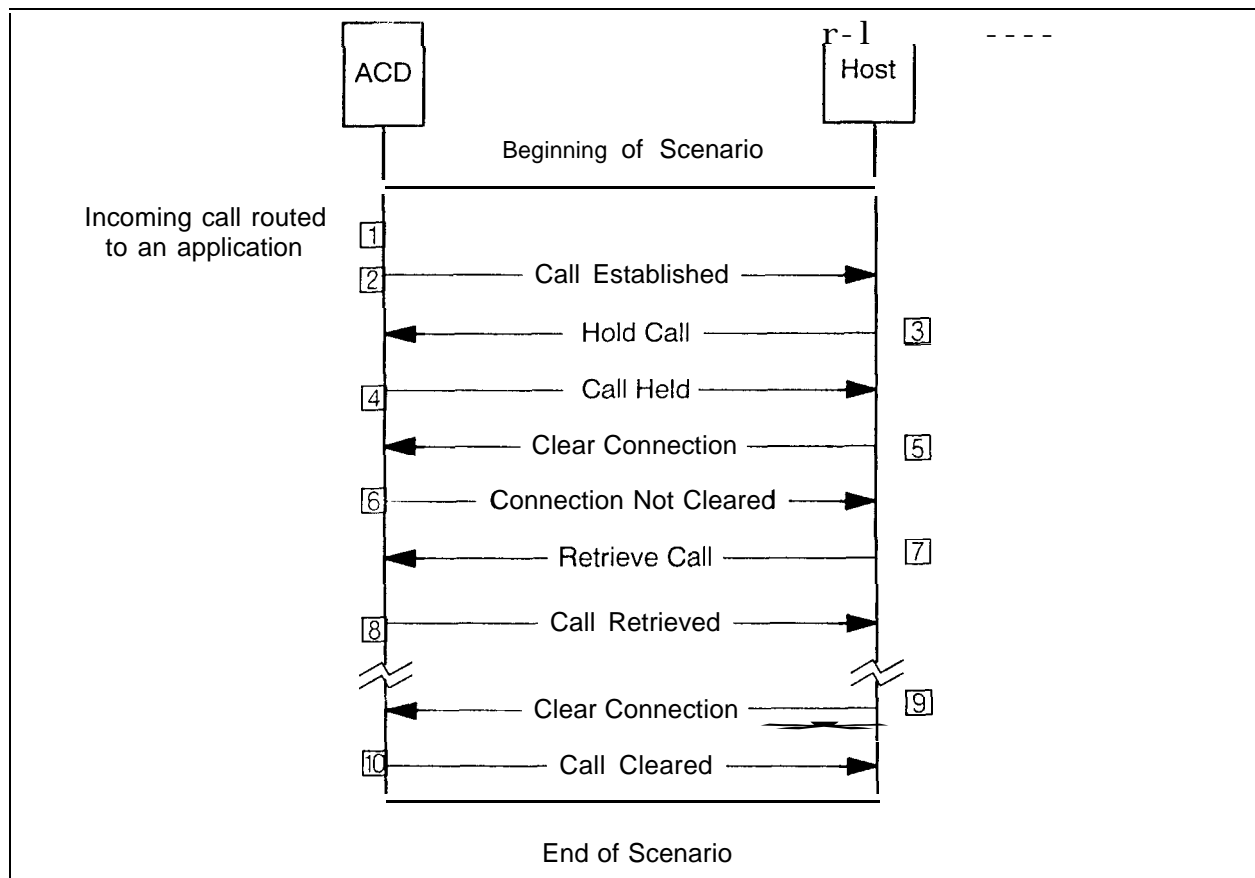


Figure 8-l. Successful Host Controlled Hold and Retrieve

1. A call arrives at the ACD. The routing telescript does not contains a step to inform the host of the call arrival. The incoming call gets routed to an application.

2. The application telescript queues the call to an agent group and an agent answers the call.

3. The agent presses a defined key on the host terminal to place the call on hold. The host sends the Hold Call message for that call and agent to the ACD.

4. The ACD places the call on hold and positively responds to the host with the Call Held message.

5. The agent then mistakenly presses the release key on the Host terminal. This causes the host to send the ACD a request to clear the connection.

6. On receipt of the Clear Connection message, the ACD determines the request is invalid for the call since the call is on hold. A negative indication is given to the host and the call remains on hold.

7. The agent now takes the call off hold by pressing the associated key on the hold terminal. The host sends the Retrieve Call message to the ACD for that call.

8. The ACD takes the call off hold and responds to the host with the Call Retrieved message.

9. Some time later. the agent releases the call from the host terminal.

10. On receipt of the Clear Connection request, the ACD disconnects the call and gives a positive response to the host.

# Example: Host Controlled Retrieve Resulting in Conference

Figure S-2 shows a successful host-controlled retrieve from hold, resulting in a conference. Transaction Link messages are used to provide this feature as explained in the following steps.
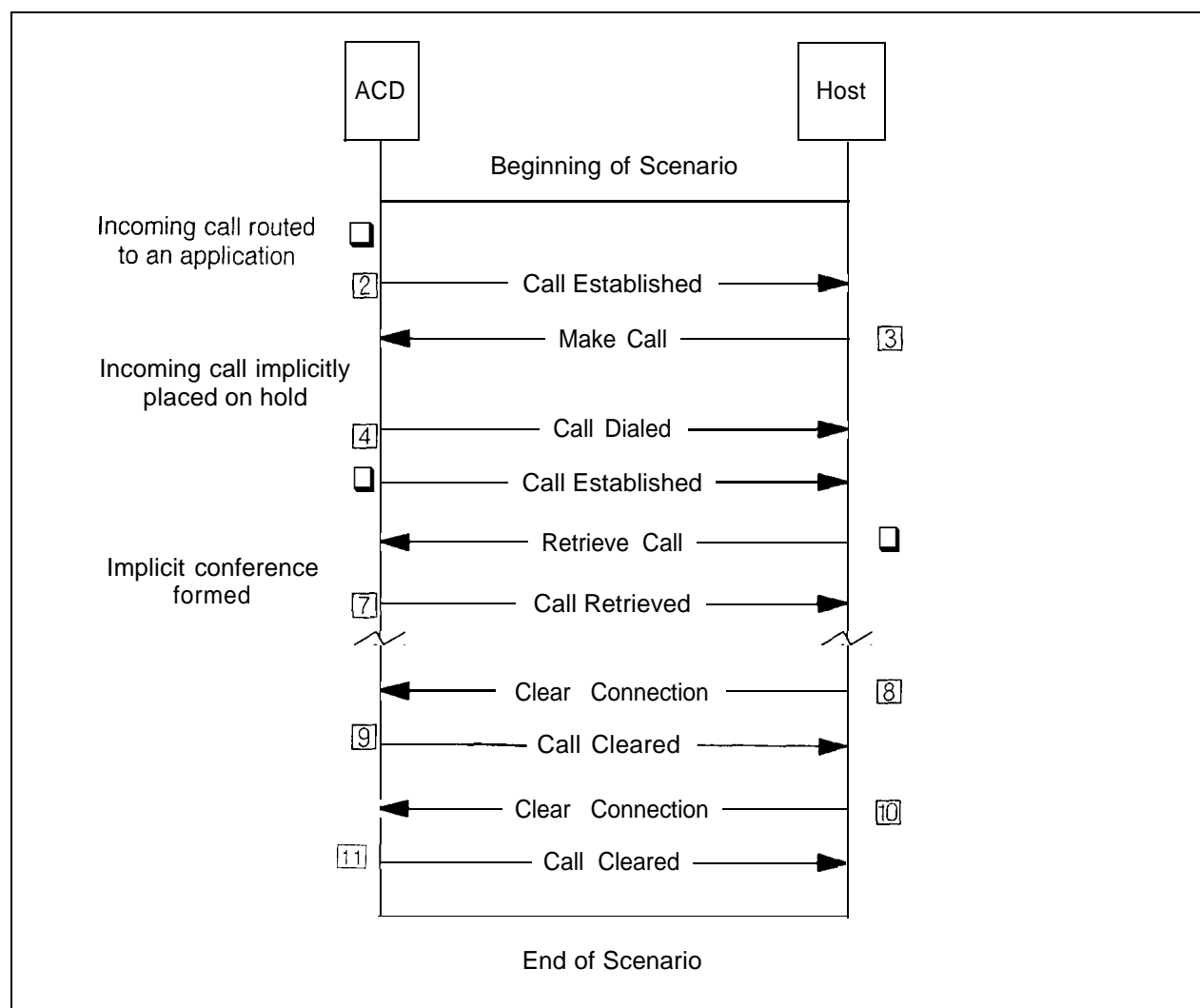


Figure 8-2. Successful Host Controlled Retrieve Resulting in Conference

1. A call arrives at the ACD. The routing telescript does not contain a step to inform the host of the call arrival. The incoming call gets routed to an application.

2. The application telescript queues the call to an agent group and an agent answers the call.

3. The agent presses a defined key on the host terminal to dial a new call. The host sends the Make Call message to initiate an outdial.

4. The ACD implicitly places the initial incall on hold and then outdials the call and gives the indication to the host that the call has been dialed. No indication is given to the host that the first call has been placed on hold.

5. The ACD informs the host when the outdialed call is answerd at the destination.

6. The agent knows the first call has been implicitly placed on hold in accordance with console operation. The agent wishes to form a conference. so the agent presses the key on the host terminal to take the held call off hold. The host sends the Retrieve Call message.

7. The ACD takes the call off hold and responds to the host with the Call Retrieved message. Because a conference has been established, this message contains an indication that this action formed a conference.

8. Some time later. the agent releases the calls from the host terminal.

9. On receipt of each Clear Connection request, disconnects the specified call and gives positive responses to the host (steps 10, 11).

# Example: Host Initiated Blind Transfer, First Call on Hold

*Figure 8-3* shows a successful Host Initiated Blind Transfer with the first call on hold. Transaction Link messages are used to provide this feature as explained in the following steps.
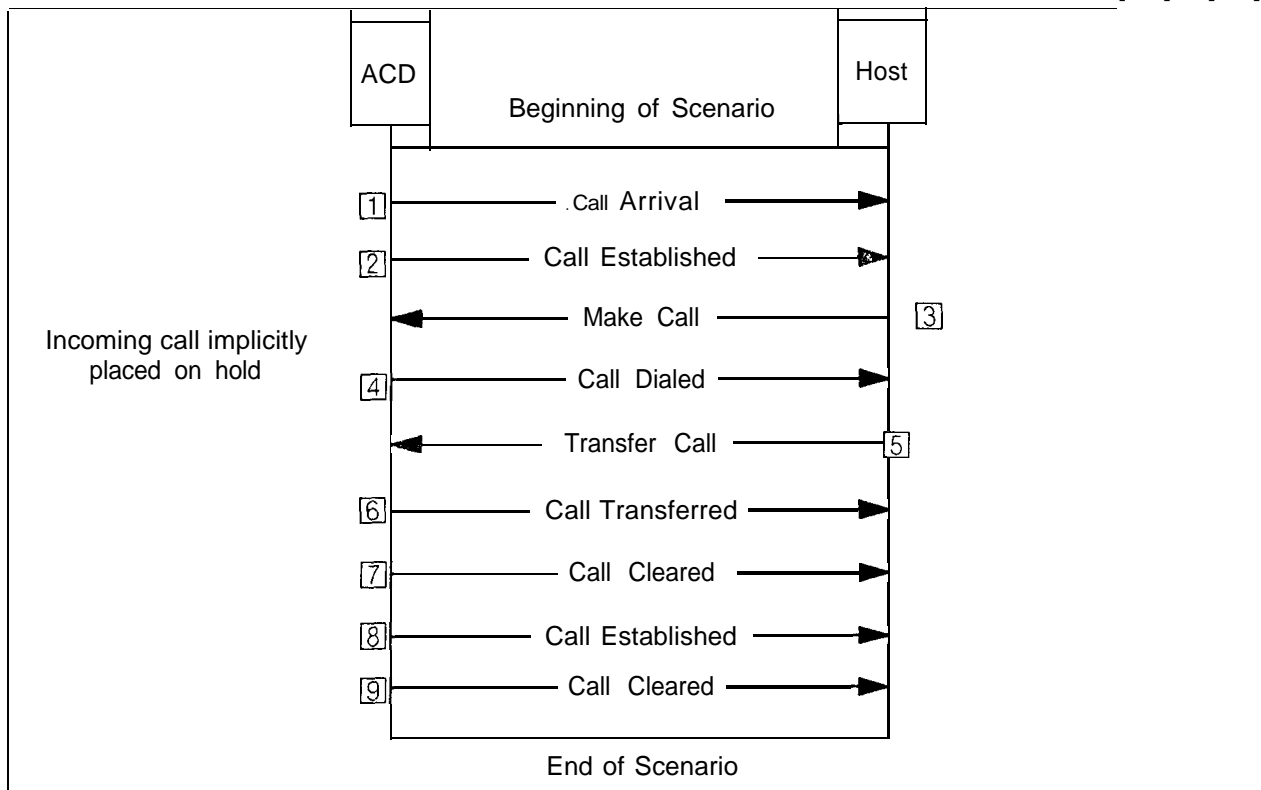


Figure 8-3. Successful Host Initiated Blind Transfer, First Call on Hold

There are no additional messages in this example. It is provided for comparison with the example of Figure 8-4 which shows the host requesting the initial call to be taken off hold before the transfer. In both examples, the end result is the same.

1. A call arrives at the ACD. The routing telescript does not contains a step to inform the host of the call arrival. The incoming call gets routed to an application.

2. The application telescript queues the call to an agent group and an agent answers the call.

3. The agent presses a defined key on the host terminal to dial a new call. The host sends the Make Call message to initiate an outdial.

4. The ACD implicitly places the initial incall on hold and then outdials the call and gives the indication to the host that the call has been dialed. No indication is given to the host that the first call has been placed on hold.

5. The ACD blind transfers the call from the host terminal.

6. The incoming call is transferred together with the ringing outdialed call. This results in the incoming call being implicitly taken off hold. The ACD responds to the host that the call has transferred successfully.

7. The outdialed party answers and the call establishment is sent to the host.

8. Some time later. the call disconnects (steps 8 and 9 in Figure S-3) and the indication is sent to the host.

# Example: Host Initiated Blind Transfer, First Call Conferenced with Ringing Party

Figure 8-4 shows a successful Host Initiated Blind Transfer with the first call conferenced with the outdialed ringing party. Transaction Link messages are used to provide this feature as explained in the following steps.

```
                    ACD                            Host

                          Beginning of Scenario

              [1] ────────── Call Arrival ──────────►

              [2] ────────── Call Established ──────►

                  ◄───────── Make Call ─────────────  [3]

Incoming call implicitly
  placed on hold

              [4] ────────── Call Dialed ───────────►

                  ◄───────── Retrieve Call ─────────  [5]

              ☐ ──────────── Call Retrieved ─────────►

              4 ──────────── Transfer Call ──────────  [7]

              [8] ────────── Call Transferred ───────►

              [9] ────────── Call Cleared ───────────►

              [10]───────── Call Established ─────────►

              [11]───────── Call Cleared ─────────────►

                          End of Scenario
```
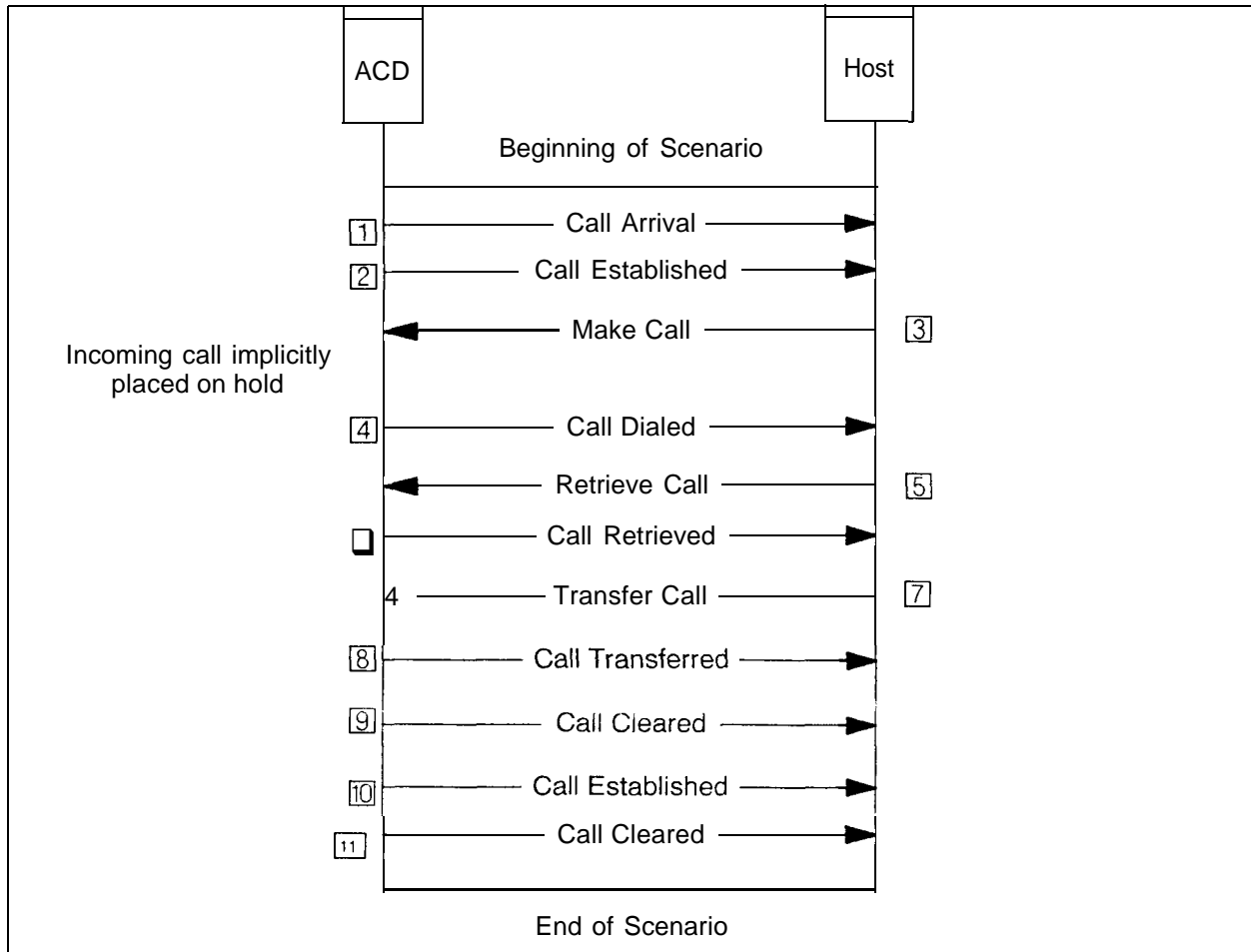
Figure 8-4. Successful Host Initiated Blind Transfer, First Call Conferenced

1. A call arrives at the ACD. The routing telescript contains a step to inform the host of the call arrival. The incoming call gets routed to an application.

2. The application telescript queues the call to an agent group and an agent answers the call.

3. The agent presses a defined key on the host terminal to dial a new call. The host sends the Make Call message to initiate an outdial.

4. The ACD implicitly places the initial incall on hold and then outdials the call and gives the indication to the host that the call has been dialed. No indication is given to the host that the first call has been placed on hold.

5. The agent takes the inital call off hold by pressing the applicable key on the host terminal. The host send the Retrieve Call message.

6. The ACD takes the incoming call off hold and a conference is formed between the incoming call and the ringing outdialed call. The host is informed of this conference in the Call Retrieved message.

7. The agent blind transfers the call from the host terminal.

8. The initial incoming call is transferred together with the ringing outdialed call. The ACD responds to the host that the call has transferred successfully.

9. The outdialed party answers and the call establishment is sent to the host.

J0. Some time later. the call disconnects and indication is sent to the host.

# Hold Call Message

Table 8-2.  Hold  Call  Message  Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 10 | A | M |
| Tag | 2d | M |
| Call ID | Od | M |
| Logical Workstation Number (Note 1) | 1f | 0 |
| Position (Note 1) | 25 | O |

(M = Mandatory, 0 = Optional)

Note 1 -The LWN and/or the Position elements must appear in the message.

# Call Held Message

Table 8-3.  Call  Held  Message  Format

| Message Element | Hex | W  e |
|---|---|---|
| Message Type = 150 | 96 | M |
| Call ID | Od | M |
| Logical Workstation Number (Note 1) | 1f | 0 |
| Position | 25 | M |

(M = Mandatory, 0 = Optional)

Note 1 — This should appear if the position has a defined LWN

# Call Not Held Message

Table 8-4. Call Not Held Message Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 151 | 97 | M |
| Call ID | 0d | M |
| Logical Workstation Number (Note 1) | 1f | O |
| Position | 25 | O |
| Error Code | 19 | M |

(M = Mandatory, 0 = Optional)

Note 1 -This should appear if position is provided and the position has a defined LWN.

# Retrieve Call Message

Table 8-5. Retrieve Call Message Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 1i | B | M |
| Tag | 2d | M |
| Call ID | 0d | M |
| Logical Workstatibn Number (Note 1) | 1f | O |
| Position (Note 1) | 25 | O |

(M = Mandatory, 0 = Optional)

Note 1 — The LWN and/or the Position elements must appear in the message

# Call Retrieved Message

Table 8-6. Call Retrieved Message Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 152 | 98 | M |
| Call    ID | 0d | M |
| Logical Workstation Number (Note 1) | 1f | O |
| Position | 25 | M |
| Conferenced Call's Call ID (Note 2) | oc | 0 |

(M = Mandatory, 0 = Optional)

Note 1 -This should appear if the position has a defined LWN

Note 2 — This field will only be provided if an implicit conference is formed as a result of the requested call being taken off hold. This field identifies the other call in the now-established conference.

# Call Not Retrieved Message

Table 8-7. Call Not Retrieved Message Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 153 | 99 | M |
| Call ID | 0d | M |
| Logical Workstation Number (Note 1) | 1f | O |
| Position | 25 | O |
| Error Code | 19 | M |

(M = Mandatory, 0 = Optional)

Note 1 -This should appear if position is provided and the position has a defined LWN.

# 9

# *General Error Messages Programming*

## Overview

This section describes the General Error message conversations which can be sent from the ACD to the host, and the format of the General Error message.

## Feature Description

General messages that are not specific to any particular feature may be sent to the host. There is one General Error message defined.

The General Error message indicates to the host that a general error has been encountered by the ACD. This error could be an unrecognizable record type value. invalid record format. or invalid value received.

# General Error Message

The General Error message is a fixed-length data packet with the following format.

Table 9-1. General Error Message Format

| Message Element | Hex | Type |
|---|---|---|
| Message Type = 127 | 7F | M |
| Message Type (Note 1) | | M |
| Tag (Note **2)** | 2d | O |
| Error Type | 1a | M |
| Error Value (Note 3) | 1b | O |

(M = Mandatory, 0 = Optional)

Note 1 — This is the value of the Message Type from the received message.

Note 2 — This appears if and only if the received message contained a Tag message element

Note 3 — 7 he Error Value element is included only for specific Error Types. See the definition of the Error Type message element.

# 10

# *Message Elements*

## Overview

This section describes the message elements that make up each message.

Table 1 O-l. Message Element Identifier Codes

| Message Element | Identifier | | Page |
| --- | --- | --- | --- |
| | Decimal | Hex | |
| Account Information | 3 | 03 | 10-4 |
| Activity | 4 | 04 | 1 o-5 |
| Agent Group | 5 | 05 | 1 O-6 |
| Agent Information Group | 6 | 06 | 1 o-7 |
| Agent State | 7 | 07 | 10-8 |
| Allocation | 8 | 08 | 10-9 |
| Application ID | 10 | Oa | 10-10 |
| Application Request Number | 11 | Ob | 10-11 |
| Conference Call's Call ID | 12 | oc --- | 10-19 |
| Call ID | 13 | Od | 10-12 |
| Call Type | 14 | Oe | 10-13 |
| Called Party Number | 15 | Of | 10-14 |
| Caller Number | 16 | 10 | 10-15 |
| Caller Number Identifier | 17 | 11 | 10-16 |
| Calling Device Identifier | 18 | 12 | 10-16 |
| Calling Party Number | 19 | 13 | 10-17 |
| Completion Reason | 20 | 14 | 10-18 |
| Destination DN | 21 | 15 | 10-19 |
| Detection Method | 22 | 16 | 1 O-20 |

| Message Element | Identifier | | Page |
| --- | --- | --- | --- |
| | Decimal | Hex | |
| DNIS Number | 23 | 17 | 10-21 |
| Error Code | 25 | 19 | 10-21 |
| Error Type | 26 | l a | 1 o-22 |
| Error Value | 27 | 1b | 1 O-23 |
| Host Information | 28 | l c | 1 O-24 |
| instruction Needed | 29 | l d | 1 o-25 |
| IEC Code | 30 | l e | 1 O-24 |
| Logical Workstation Number | 31 | l f | 1 o-25 |
| Message for Agent Console | 32 | 20 | 1 O-26 |
| Origin Announcement ID | 34 | 22 | 1o-29 |
| Pacing Information | 35 | 23 | 1 o-33 |
| Trunk Port ID | 36 | 24 | 1o-51 |
| Position | 37 | 25 | 1 o-35 |
| Previous Call information | 38 | 26 | 1 O-36 |
| Previous Position | 39 | 27 | 1 o-37 |
| Ring Timeout | 41 | 29 | 1 o-39 |
| Routing Attributes | 42 | 2a | 1 O-40 |
| Set-Query Flag | 43 | 2b | 1 o-41 |
| Sign-in Number | 44 | 2c | 1 o-41 |
| Tag | 45 | 2d | 1 o-43 |
| Target Party Logical Workstation Number | 46 | 2e | 1o-43 |
| Target Party Number | 47 | 2f | 10-44 |
| Transfer Indicator | 48 | 30 | 1 O-50 |
| Trunk Group Number | 49 | 31 | 1 O-50 |
| Type of Answer | 50 | 32 | 1 o-51 |
| Feature | 52 | 34 | 1 O-23 |
| Sign-Out Reason | 53 | 35 | 1 O-42 |
| Application Pacing Information | 54 | 36 | 10-11 |
| Originating Logical Workstation Number | 55 | 37 | 1 o-29 |
| Originating Position | 56 | 38 | 1 O-30 |
| Previous Logical Workstation Number | 57 | 39 | 1 O-36 |
| Terminating Logical Workstation Number | 58 | 3a | 1 o-47 |
| Terminating Position | 59 | 3b | 10-48 |
| Terminating Trunk Port ID | 60 | 3c | 1 o-49 |
| Originating Trunk Port ID | 61 | 3d | 10-31 |
| Originating Trunk Group Number | 62 | 3e | 10-31 |
| Terminating Trunk Group Number | 63 | 3f | 1 o-49 |

| Message Element | Identifier | | Page |
|---|---|---|---|
| | Decimal | Hex | |
| Previous Trunk Port ID | 64 | 40 | 1 O-38 |
| Previous Trunk Group Number | 65 | 41 | 1 o-37 |
| Target Trunk Port ID | 70 | 46 | 1 o-44 |
| Route Tri Tone Calls | 71 | 47 | 1 o-39 |
| Answer Machine Detected Calling Device Identifier | 72 | 48 | 10-10 |
| Answer Machine Detected Application ID | 73 | 49 | 1 o-9 |
| Queued Agent Groups | 74 | 4A | 1 O-38 |
| Telescript Information | 75 | 4B | 1 O-46 |
| Overflow Information | 76 | 4 c | 1 O-32 |
| On-Hold Call ID | 77 | 4D | 1 O-28 |
| Barged-In Call ID | 78 | 4E | 10-12 |
| Telescript Digit Variable | 79 | 4F | 1 o-45 |

# Account Information

The purpose of this message element is to indicate the subscriber information of the caller.

| Byte | MS | | | Bits | | | | LS |
|------|-----|---|---|---|---|---|---|-----|
|      | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=3 | | | | | | | |
| 1 | Length | | | | | | | |
| 2 | Number Digits (ASCII) | | | | | | | |

In Release **3** the maximum length of this message element is 22 bytes allowing for 20 digits of account information.

# Activity

The purpose of this message element is to indicate the agent/supervisor-related activity that just occurred.

| | MS | | | Bits | | | | LS |
|---|---|---|---|---|---|---|---|---|
| **Byte** | **7** | 6 | 5 | 4 | 3 | 2 | 1 | **0** |
| **0** | Identifier=4 | | | | | | | |
| **1** | Length=1 | | | | | | | |
| 2 | Activity (HEX) | | | | | | | |

### Activity (byte 2):

| | M S | | Bits | | | | | L S |
|---|---|---|---|---|---|---|---|---|
| **Value** | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **0** |
| Agent Signed-in | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Agent Signed-out | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Supervisor Signed-in | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Supervisor Signed-out | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Agent Went Available (Available lit) | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| Agent Went Unavailable (Available went dark) | 0 | 0 | 0 | 0 . | 0 | 1 | 1 | 0 |
| Agent Went Into Call Work (Call Work lit) | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| Agent Went out of Call Work (Call Work went dark) | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Agent Group Configuration Change | **0** | **0** | **0** | **0** | **1** | **0** | **0** | **1** |

Ail other values are reserved.

# Agent Group

This message element identifies an Agent Group. It could be a primary or secondary agent group.

The following messages will appear if there are 255 or fewer Agent Groups defined in the system parameter table.

| W e | MS | | | Bits | | | | LS |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier5 | | | | | | | |
| 1 | Length=2 | | | | | | | |
| 2 | Precedence | | | | | | | |
| 3 | Agent Group (HEX) | | | | | | | |

The following messages will appear if there are more than 255 Agent Groups defined in the system parameter table.

| Byte | MS | | | Bits | | | | LS |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | identifier=5 | | | | | | | |
| 1 | Length=3 | | | | | | | |
| 2 | Precedence | | | | | | | |
| 3 | Agent Group Number (MSB, HEX) | | | | | | | |
| 4 | Agent Group Number (LSB, HEX) | | | | | | | |

**Precedence (byte 3):**

| | M S | Bits | | | | | | L S |
|---|---|---|---|---|---|---|---|---|
| Value | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| Primary | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Secondary | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |

Allother values are reserved.

The values of Agent Group will range from 1 to maximum, where maximum is dependent upon the system configuration.

The total fixed length of this message element is either 4 or 5 bytes.

# Agent Information Group

This message element identifies an agent's information group assignment.

| Byte | MS | Bits | | | | | | LS |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=6 | | | | | | | |
| 1 | Length=1 | | | | | | | |
| 2 | Agent Information Group (HEX) | | | | | | | |

The values of Agent Information Group will range from 1 to maximum, where maximum is dependent upon the system configuration.

The total fixed length of this message element is 3 bytes.

# Agent State

This message element identifies the current state of an agent or supervisor's console.

| Byte | MS Bits | | | | | | | LS |
|------|---|---|---|---|---|---|---|---|
|      | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | identifier=7 | | | | | | | |
| 1 | Length=1 | | | | | | | |
| 2 | Agent State (HEX) | | | | | | | |

**Agent State (byte 2):**

| Value | MS 7 | 6 | 5 | 4 | Bits 3 | 2 | 1 | LS 0 |
|-------|---|---|---|---|---|---|---|---|
| Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Signed-out | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Unavailable and idle | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Unavailable and Busy | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Call Work, Available key dark (CWU) | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Call Work, Available key lit (CWA) | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| Available and Idle | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| Available and Busy | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| Unavailable and Busy, Call Work key lit (UBCW) | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Available and Busy, Call Work key lit (ABCW) | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |

All other values are reserved.

# Allocation

This message element indicates the point, in the progression of the predictive call being made. at which the call is to be allocated to the application.

| Byte | MS | | | Bits | | | | LS |
|------|----|----|----|------|----|----|----|----|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=8 | | | | | | | |
| 1 | Length=1 | | | | | | | |
| 2 | Allocation (HEX) | | | | | | | |

Allocation **(byte 2):**

| | M S | | Bits | | | | | L S |
|---|---|---|---|---|---|---|---|---|
| Value | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| Call delivered (not busy and call may be answered) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Call Established (answer detected — See Detection Method element) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |

# Answer Machine Detected Application ID

This element contains the numeric identifier of the application to route to if answer machine has been detected.

| Byte | MS | | | Bits | | | | LS |
|------|----|----|----|------|----|----|----|----|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=70 | | | | | | | |
| 1 | Length=2 | | | | | | | |
| 2 | Application ID (MSB, HEX) | | | | | | | |
| 3 | Application ID (LSB, HEX) | | | | | | | |

Valid Answer machine detected Application ID values are l-128. The total fixed length of this message element is 4 bytes.

# Answer Machine Detected Calling Device Identifier

This element indicates for whom the call is being originated if answer machine has been detected.

| Byte | MS | | | Bits | | | | LS |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=72 | | | | | | | |
| 1 | Length | | | | | | | |
| 2,etc. | Number Digits (ASCII) | | | | | | | |

This is an Application Directory Number, and the maximum total length of this message length is 7 bytes.

# Application ID

This element contains the numeric identifier of an application in the ACD.

| Byte | MS | | | Bits | | | | LS |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=10 | | | | | | | |
| 1 | Length=2 | | | | | | | |
| 2 | Application ID (MSB, HEX) | | | | | | | |
| 3 | Application ID (LSB, HEX) | | | | | | | |

The total fixed length of the message element is 4 bytes.

# Application Pacing Information

| Byte | MS 7 | 6 | 5 | Bits 4 | 3 | 2 | 1 | LS 0 |
|------|------|---|---|--------|---|---|---|------|
| 0 | Identifier=54 | | | | | | | |
| 1 | Length=4 | | | | | | | |
| 2 | Application ID (MSB, HEX) | | | | | | | |
| 3 | Application ID (LSB, HEX) | | | | | | | |
| 4 | Application Queue Length (MSB, HEX) | | | | | | | |
| 5 | Application Queue Length (LSB, HEX) | | | | | | | |

Application Queue Length is the current number of calls in the application's queue. In other words, it is all calls that have been offered to that application that haven't been presented to a VRU or agent, abandoned, or transferred (e.g., to another application). This length is equal to Agent Group Queue Length if and only if there is a one-to-one relationship between agent group and application. and all calls received by the application are queued to the agent group.

The maximum length of this message element is 6 bytes.

# Application Request Number

This element contains the number created by the host, at the time the request for a predictive call is made.

| Byte | MS 7 | 6 | 5 | Bits 4 | 3 | 2 | 1 | LS 0 |
|------|------|---|---|--------|---|---|---|------|
| 0 | Identifier=11 | | | | | | | |
| 1 | Length | | | | | | | |
| 2, etc. | Application Request Number (HEX) | | | | | | | |

Valid Application Request Number values are I-65535.

The maximum length of this message element is 4 bytes.

# Barged-h Call ID

This element identifies the barge-in call ID identified with the given call.

| Byte | MS | | | Bits | | | | LS |
|------|---|---|---|---|---|---|---|---|
| | **7** | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=78 | | | | | | | |
| 1 | Length=4 | | | | | | | |
| 2 | Call ID (MSB, HEX) | | | | | | | |
| 3 | Call ID (HEX) | | | | | | | |
| 4 | Call ID (HEX) | | | | | | | |
| 5 | Call ID (LSB, HEX) | | | | | | | |

# Call ID

This element contains the call identification (ID), which uniquely identifies a call. It is created by the ACD when an incoming call arrives, or when agent/system outdial calls are created. It will be contained in all messages relating to the call sent between the ACD and host. The host can use this field to track the progress of a call.

| Byte | MS | | | Bits | | | | LS |
|------|---|---|---|---|---|---|---|---|
| | **7** | **6** | **5** | **4** | **3** | **' 2** | **1** | **0** |
| **0** | Identifier=1 3 | | | | | | | |
| **1** | Length=4 | | | | | | | |
| **2** | Call ID (MSB, HEX) | | | | | | | |
| 3 | Call ID | | | | | | | |
| **4** | Call ID | | | | | | | |
| 5 | Call ID (LSB, HEX) | | | | | | | |

The total fixed length of this message element is 6 bytes. Valid values are greater than zero.

# Call Type

This element indicates the type of the call that is being made.

| Byte | MS | | | Bits | | | | LS |
|---|---|---|---|---|---|---|---|---|
| | **7** | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=1 4 | | | | | | | |
| 1 | Length=1 | | | | | | | |
| 2, etc. | Call Type (HEX) | | | | | | | |

### Call Type (byte 2):

| | M S | | | Bits | | | | L S |
|---|---|---|---|---|---|---|---|---|
| Value | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| Voice | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

# Called Party Number

This element identifies the called party, or the DNIS digits. A full US national number would be NPA, exchange, and extension of the called party. DNIS is a 1- to 7-digit number representing a called 800 number.

| Byte | MS Bits | | | | | | | LS |
|------|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=1 5 | | | | | | | |
| 1 | **Length** | | | | | | | |
| 2 | Type of Number (HEX) | | | | | | | |
| 3 | Numbering Plan ID (HEX) | | | | | | | |
| 4. etc. | Number Diaits (ASCII) | | | | | | | |

## Type of Number (byte 2):

| Value | MS Bits LS | | | | | | | |
|-------|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| International number | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| National number | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Local (directory) number | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| DNIS number | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Private Network Number | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |

All other values are reserved.

## Numbering Plan ID (byte 3):

| Value | MS Bits LS | | | | | | | |
|-------|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ISDN/telephony numbering plan | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Private numbering plan | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

All other values are reserved

# Caller Number

This element contains the caller-related number. It contains up to 18 digits.

| | MS | | | **Bits** | | | | LS |
|---|---|---|---|---|---|---|---|---|
| **Byte** | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **0** |
| **0** | Identifier=1 6 | | | | | | | |
| 1 | Length | | | | | | | |
| **2** | Number Type (HEX) | | | | | | | |
| 3, etc. | Number Digits (ASCII) | | | | | | | |

## Number Type (byte 2):

| | M S | | **Bits** | | | | | L S |
|---|---|---|---|---|---|---|---|---|
| **Value** | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **0** |
| Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ANI (Billing Number) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| SID (Calling Party Number) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

All other values are reserved.

The maximum length of this message element is 21 bytes.

# Caller Number Identifier

The purpose of this element is to identify the type of caller-related number that is desired.

| Byte | M S 7 | 6 | 5 | Bits 4 | 3 | 2 | 1 | LS 0 |
|---|---|---|---|---|---|---|---|---|
| 0 | Identifier=1 7 | | | | | | | |
| 1 | Length=1 | | | | | | | |
| 2 | Caller Number Identifier (HEX) | | | | | | | |

**Caller Number Identifier (byte 2):**

| Value | M S 7 | 6 | 5 | Bits 4 | 3 | 2 | 1 | L S 0 |
|---|---|---|---|---|---|---|---|---|
| Billing Number (ANI) Only | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Calling Party Number (Station ID) Only | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Billing Number (ANI) Preferred | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Calling Party Number (Station ID) Preferred | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |

All other values are reserved.

# Calling Device Identifier

This element indicates for whom the call is being originated.

| Byte | MS 7 | 6 | 5 | Bits 4 | 3 | 2 | 1 | LS 0 |
|---|---|---|---|---|---|---|---|---|
| 0 | Identifier=1 8 | | | | | | | |
| 1 | Length | | | | | | | |
| 2, etc. | Number Digits (ASCII) | | | | | | | |

This is an Application Directory Number, and the maximum length of this message element is 7 bytes.

# Calling Party Number

**This element identifies the calling party. A full US national number would be NPA. exchange, and extension of the calling party.**

| Byte | MS 7 | 6 | 5 | Bits 4 | 3 | 2 | 1 | LS 0 |
|------|------|---|---|--------|---|---|---|------|
| **0** | Identifier=1 9 | | | | | | | |
| 1 | Length | | | | | | | |
| 2 | Number Identifier (HEX) | | | | | | | |
| **3** | Type of Number (HEX) | | | | | | | |
| 4 | Numbering Plan ID (HEX) | | | | | | | |
| 5, etc. | Number Digits (ASCII) | | | | | | | |

## Number Identifier (byte 2):

| Value | MS 7 | 6 | 5 | 4 | 3 | 2 | 1 | LS 0 |
|-------|------|---|---|---|---|---|---|------|
| Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Billing Number (ANI) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Calling Party Number (Station ID) | 0 | 0 | 0 | 0.0 | | 0 | | 10 |

**All other values are reserved.**

## Type of Number (byte 3)

| Value | MS 7 | 6 | 5 | 4 | 3 | 2 | 1 | LS 0 |
|-------|------|---|---|---|---|---|---|------|
| Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| International Number | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| National Number | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Local (directory) Number | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |

**All other values are reserved.**

**The maximum length of this message element is 21 bytes.**

**10**

# Completion Reason

This element indicates why the call has ended.

| Byte | MS 7 | 6 | 5 | 4 | 3 | 2 | 1 | LS 0 |
|------|------|---|---|---|---|---|---|------|
| 0 | Identifier=20 | | | | | | | |
| 1 | Length=1 | | | | | | | |
| 2 | Completion Reason (HEX) | | | | | | | |

### Completion Reason fbvte 2):

| Value | MS 7 | 6 | 5 | 4 | 3 | 2 | 1 | LS 0 |
|-------|------|---|---|---|---|---|---|------|
| Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Agent release | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Subscriber release | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| VRU release | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Host request | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Call by call rejection | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| Other | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| Switch release | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| Transfer back to network | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |

# Conferenced Call's Call ID

This element contains the call identification (ID) of the call that was conferenced as a result of the requested call being taken off hold.

| Byte | MS | | | Bits | | | | LS |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=12 | | | | | | | |
| 1 | Length=4 | | | | | | | |
| 2 | Call ID (MSB, HEX) | | | | | | | |
| 3 | Call ID | | | | | | | |
| 4 | Call ID | | | | | | | |
| 5 | Call ID (LSB, HEX) | | | | | | | |

The total fixed length of this message element is 6 bytes. Valid values are greater than zero.

# Destination DN

This element contains the directory number of a position or application to which a call is to be routed. The valid values are 00001-99999.

| Byte | MS | | | Bits | | | | LS |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=21 | | | | | | | |
| 1 | Length | | | | | | | |
| 2, etc. | Number Digits (ASCII) | | | | | | | |

In Release 2 the maximum length of this message element is 7 bytes.

# Detection Method

This element indicates the kind of answer detection to be used on an outbound call.

| Byte | M S | | Bits | | | | | LS |
|---|---|---|---|---|---|---|---|---|
| | **7** | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=22 | | | | | | | |
| 1 | Length=1 | | | | | | | |
| 2 | Detection Method (HEX) | | | | | | | |

### Detection Method (byte 2):

| Value | M S 7 | 6 | 5 | Bits 4 | 3 | 2 | 1 | L S 0 |
|---|---|---|---|---|---|---|---|---|
| Answer Detector (i.e. rely on signaled answer) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (voice) Answer Detector, without Answering Machine detection | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| (voice) Answer Detector, with Answering Machine detection | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| (voice) Answer Detector, without Answering Machine detection but accept either voice answer or signaled answer | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| (voice) Answer Detector, with Answering machine detection, must obtain both voice answer and signaled answer | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

# DNIS Number

This element contains a DNIS number. In Release 2. it may consist of 1 to 7 digits.

| Byte | MS | | | Bits | | | | LS |
|------|----|----|----|----|----|----|----|----|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=23 | | | | | | | |
| 1 | Length | | | | | | | |
| 2, etc. | Number Digits (ASCII) | | | | | | | |

The maximum length of this message element is 9 bytes.

# Error Code

This element contains a value which, for a given message type, indicates the failure reason of a host request. Detailed descriptions of the error codes for Negative Response messages can be found in Appendix B.

| Byte | MS | | | Bits | | | | LW |
|------|----|----|----|----|----|----|----|----|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=25 | | | | | | | |
| 1 | Length=1 | | | | | | | |
| 2 | Error Code (HEX) | | | | | | | |

The total fixed length of this message element is 3 bytes.

**10**

# Error Type

The purpose of this element is to identify the reason why a host or ACD message could not be decoded properly.

| Byte | MS 7 | 6 | 5 | 4 | Bits 3 | 2 | 1 | LS 0 |
|---|---|---|---|---|---|---|---|---|
| 0 | Identifier=26 | | | | | | | |
| 1 | Length=1 | | | | | | | |
| 2 | Error Type (HEX) | | | | | | | |

### Error Type (byte 2):

| Value | MS 7 | 6 | 5 | Bits 4 | 3 | 2 | 1 | LS 0 |
|---|---|---|---|---|---|---|---|---|
| Invalid Message Type | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Message Type not valid at this time (Message Type contained in Error Value) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Invalid message element identifier (found message element's ID in Error Value) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Invalid order of message elements (first out-of-order message element's ID in Error Value) | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Invalid value* within a message element (message element's ID in Error Value) | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| Missing mandatory message element (expected message element's ID in Error Value)" | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| Indicated Length of last message element is greater than the number of bytes actually delivered | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| Indicated Length of last message element is less than the number of remaining unprocessed bytes | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Other invalid format | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |

All other values are reserved.

* Value is outside a list of valid values defined in this document.

** Includes case where one of two optional elements is required, but neither appear — Error Value contains ID of first message element (the element closer to Message Type)

*** Error Value contains ID of first message element past what the ACD parsed and accepted.

# Error  Value

This element contains a value which is additional information regarding the error in. or associated with, the host request. Its meaning is dependent on the value in the Error Code, or in the Error Type (in the General Error message case).

See the individual messages for further definition of Error Values. (Detailed descriptions of the error codes can be found in Appendix B.)

| Byte | MS | | | Bits | | | | LS |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=27 | | | | | | | |
| 1 | Length=1 | | | | | | | |
| 2 | Error  Value  (HEX) | | | | | | | |

The total fixed length of this message element is 3 bytes.

# Feature

The purpose of this element is to identify the desired "feature" value to he set.

| Byte | MS | | | Bits | 3 | | | LS |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | | 2 | 1 | 0 |
| 0 | Identifier=52 | | | | | | | |
| 1 | Length=1 | | | | | | | |
| 2 | Feature  Value  (HEX) | | | | | | | |

**Feature Value (bvte 2):**

| | M S | | | Bits | | | | L S |
|---|---|---|---|---|---|---|---|---|
| Value | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| SignIn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| SignOut | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| GoAvailable | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Go Unavailable | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| CallWorkOn | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| CallWorkOff | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |

All other values are reserved.

# Host Information

This element contains the host information contained in the application telescript.

| Byte | MS Bits | | | | | | | LS |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=28 | | | | | | | |
| 1 | Length | | | | | | | |
| 2, etc. | Host Information (ASCII) | | | | | | | |

The maximum length of this message element is 12 bytes allowing for 10 characters of host information.

# IEC Code

This element contains a X-digit number that uniquely identifies an Inter-Exchange Carrier. The Carrier Identification is indicated hy XXX in the Carrier access code. The same code is applied to an individual carrier throughout the area served by the North American Numbering Plan.

| Byte | MS Bits | | | | | | | LS |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=30 | | | | | | | |
| 1 | Length=3 | | | | | | | |
| 2 | IEC Code (MSB, ASCII) | | | | | | | |
| 3 | IEC Code | | | | | | | |
| 4 | IEC Code (LSB, ASCII) | | | | | | | |

The total fixed length of this message element is 5 bytes.

# Instruction Needed

This element contains an indication of whether the switch is requesting further instruction from the host. If yes, the switch waits for a message back from the host until timeout.

| Byte | MS | | | Bits | | | | LS |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=29 | | | | | | | |
| 1 | Length=1 | | | | | | | |
| 2 | Instruction Needed (HEX) | | | | | | | |

| | MS Bits LS |
|---|---|
| **Value** | 7 6 5 4 3 2 1 0 |
| No instruction needed | 0 0 0 0 0 0 0 0 |
| Yes, instruction needed | 0 0 0 0 0 0 0 1 |

# Logical Workstation Number

This element provides a unique identifier. other than the physical port id on the switch, by which the **user** can refer to the agent console, supervisor console, or VRU.

| Byte | MS | | | Bits | | | | LS |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=31 | | | | | | | |
| 1 | Length=2 | | | | | | | |
| 2 | Logical Workstation Number (MSB, HEX) | | | | | | | |
| 3 | Logical Workstation Number (LSB, HEX) | | | | | | | |

Values can range from l-65535. The total fixed length of this message element is 4 bytes.

# Message for Agent Console

This element contains ASCII characters that will appear on the agent console.

| Byte | MS | Bits | | | | | | LS |
|---|---|---|---|---|---|---|---|---|
| | **7** | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| **0** | Identifier=32 | | | | | | | |
| 1 | Length | | | | | | | |
| 2, etc. | Message for Agent Console (ASCII) | | | | | | | |

The message will appear on the console in the same order as it appears in the field. Characters are displayed starting at the leftmost position of the top line of the console display, until there are no more characters to be displayed, or until the last character position available (27th position of top line) of the display has been filled.

If the message exceeds the remaining display area of the console. the ACD will truncate the trailing characters. This allows maximum control over the appearance of the message on the console.

The display area of the console is two lines of 40 characters. The area available for display of this host-provided message is the leftmost 27 characters of the top line of the console display.

The maximum length of this message element is 29 bytes.

# Message Type

This element uniquely identifies the interface messages. It is the first part of every message.

| Byte | MS | | | Bits | | | | LS |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Message Type (HEX) | | | | | | | |

| Record Name | Decimal Value | Hex Value |
|---|---|---|
| Feature Access | 0 | 0 |
| (reserved) | 1 | 1 |
| Clear Connection | 2 | 2 |
| Make Call | 3 | 3 |
| Transfer Call | 4 | 4 |
| New Party Transfer | 5 | 5 |
| Route Select | 6 | 6 |
| Get Caller Number | 7 | 7 |
| Make Predictive Call | 9 | 9 |
| Hold Call | 10 | A |
| Retrieve Call | 11 | B |
| Host Initiated Route | 12 | C |
| General Error | 127 | 7F |
| Negative Response | 128 | 80 |
| Position Status Response | 129 | 81 |
| Position Status Change | 130 | 82 |
| Call Cleared | 131 | 83 |
| (reserved) | 132 | 84 |
| Device Dropped | 133 | 85 |
| Connection Not Cleared | 134 | 86 |
| Call Dialed | 135 | 87 |
| Call Failed | 136 | 88 |
| Call Transferred | 137 | 89 |
| Call Not Transferred | 138 | 8A |
| New Party Transfer Failed | 139 | 8B |
| Call Arrival | 140 | 8C |
| Call Established | 141 | 8D |
| Route Used | 142 | 8E |
| Caller Number | 143 | 8F |

| Record Name | Decimal Value | Hex Value |
|---|---|---|
| **No** Caller Number | 144 | 90 |
| Subscriber Information | 145 | 91 |
| Call Allocated and Routed | 147 | 93 |
| Call Progress Failure | 148 | 94 |
| Host Route Failed | 149 | 95 |
| Call Held Message | 150 | 96 |
| Call Not Held Message | 151 | 97 |
| Call Retrieved | 152 | 98 |
| Call Not Retrieved | 153 | 99 |
| Call Status | 154 | 9A |
| Host Initiated Route Used | 155 | 9B |
| Host Initiated Route Failed | 156 | 9C |

# On-Hold Call ID

The purpose of this element is to identify any on hold call associated with the given call.

| Byte | MS 7 | 6 | 5 | Bits 4 | 3 | 2 | 1 | LS 0 |
|---|---|---|---|---|---|---|---|---|
| 0 | Identifier=77 ||||||||
| 1 | Length=4 or 8 ||||||||
| 2 | Call ID [1] (MSB, HEX) ||||||||
| 3 | Call ID [1] (HEX) ||||||||
| 4 | Call ID [1] (HEX) ||||||||
| 5 | Call ID [1] (LSB, HEX) ||||||||
| 6 | Call ID [2] (MSB, HEX) ||||||||
| 7 | Call ID [2] (HEX) ||||||||
| 8 | Call ID [2] (HEX) ||||||||
| 9 | Call ID [2] (LSB, HEX) ||||||||

# Origin Announcement ID

This element contains a number that specifies the announcement that will provide the origin of the caller to the answering agent. This is the same as the ORGANN data parameter in the ED/ENT/RTRV-RTCL commands.

| Byte | MS | | | Bits | | | | LS |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=34 | | | | | | | |
| 1 | Length | | | | | | | |
| 2, etc. | Origin Announcement ID (HEX) | | | | | | | |

The maximum length of this message element is 4 bytes

# Originating Logical Workstation Number

This element provides a unique identifier, other than the physical port id on the switch, by which the user can refer to the **originating** agent console, supervisor console. or VRU.

| Byte | MS | | | Bits | | | | LS |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=55 | | | | | | | |
| 1 | Length=2 | | | | | | | |
| 2 | Logical Workstation Number (MSB, HEX) | | | | | | | |
| 3 | Logical Workstation Number (LSB, HEX) | | | | | | | |

Values can range from 1-65535; and the total fixed length of this message element is 4 bytes.

# Originating Position

This element identifies the originating position (ACD party) of a call, specifically its Type and its Directory Number.

*Note:* *The Party Type will not he cross-verified with the Directory Number by the ACD at this time. The message is routed to the destination based upon the Directory Number.*

| Byte | MS | | | Bits | | | | LS |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | identifier=56 | | | | | | | |
| 1 | Length | | | | | | | |
| 2 | Party Type (HEX) | | | | | | | |
| 3. etc. | Number Diaits (Note 1)(ASCII) | | | | | | | |

**Party Type (byte 2):**

| | M S | | Bits | | | | | L S |
|---|---|---|---|---|---|---|---|---|
| Value | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Agent | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| External VRU | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Supervisor | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Other | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

All other values are reserved.

*Note:* *Note 1 -This is the Directory Number (DN) of the position. This positiott DN includes any valid directory number assigned to a agent, supervisor, or VRU. The agent or supervisor's DN is valid only when that person is signed-in.*

The maximum length of this message element is 8 bytes.

# Originating Trunk Group Number

The purpose of this element is to identify the trunk group that the call was received on.

| Byte | MS | | | Bits | | | | LS |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=62 | | | | | | | |
| 1 | Length=2 | | | | | | | |
| 2 | Trunk Group Number (MSB, HEX) | | | | | | | |
| 3 | Trunk Group Number (LSB, HEX) | | | | | | | |

The total fixed length of this message element is 4 bytes.

# Originating Trunk Port ID

This element contains the originating trunk's physical association with the ACD.

| Byte | MS | | | Bits | | | | LS |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=61 | | | | | | | |
| 1 | Length=2 | | | | | | | |
| 2 | Port ID (MSB, HEX) | | | | | | | |
| 3 | Port ID (LSB, HEX) | | | | | | | |

The length of Port ID is 2 bytes. The total fixed length of this message element is 4 bytes.

# Overflow Information

The purpose of the element is to identify if the current call has received any overflow treatment.

| Byte | MS | | | Bits | | | | LS |
|------|-----|---|---|---|---|---|---|-----|
| | , | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| **0** | Identifier=76 | | | | | | | |
| **1** | Length=1 | | | | | | | |
| 2 | Overflow Bit Map (HEX) | | | | | | | |

## Overflow information:

| | MS | | | Bits | | | | L S |
|------|-----|---|---|---|---|---|---|-----|
| **Value** | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| Overflow Out Request | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Overflow Out Answered | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Overflow In Request | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Overflow In Accept | 0 | 0 | 0 | 0 | 10 | | 0 | 0 |

# Pacing Information

This element contains data typically needed by a pacing algorithm on the host.

The following messages will appear if there are 255 or fewer Agent Groups or Agent Information Groups defined in the system parameter table.

| Byte | MS | Bits | | | | | | LS |
|------|----|----|---|---|---|---|---|----|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=35 | | | | | | | |
| 1 | Length=8 | | | | | | | |
| 2 | Agent Group | | | | | | | |
| 3 | Group Queue Delay (MSB, HEX) | | | | | | | |
| 4 | Group Queue Delay (LSB, HEX) | | | | | | | |
| 5 | Group Queue Length (HEX) | | | | | | | |
| 6 | Number Primary Agents (MSB, HEX) | | | | | | | |
| 7 | Number Primary Agents (LSB, HEX) | | | | | | | |
| 8 | Number Available Primary Agents (MSB, HEX) | | | | | | | |
| 9 | Number Available Primary Agents (LSB, HEX) | | | | | | | |

The following messages will appear if there are more than 255 Agent Groups or Agent Information Groups defined in the system parameter table.

| Byte | MS | Bits | | | | | | LS |
|------|----|----|---|---|---|---|---|----|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | identifier=35 | | | | | | | |
| 1 | Length=9 | | | | | | | |
| 2 | Agent Group Number (MSB, HEX) | | | | | | | |
| 3 | Agent Group Number (LSB, HEX) | | | | | | | |
| 4 | Group Queue Delay (MSB, HEX) | | | | | | | |
| 5 | Group Queue Delay (LSB, HEX) | | | | | | | |
| 6 | Group Queue Length (HEX) | | | | | | | |
| 7 | Number Primary Agents (MSB, HEX) | | | | | | | |
| 8 | Number Primary Agents (LSB, HEX) | | | | | | | |
| 9 | Number Available Primary Agents (MSB, HEX) | | | | | | | |
| 10 | Number Available Primary Agents (LSB, HEX) | | | | | | | |

Agent Group is the number of the agent group whose group Queue statistics follow. Note that. when this element is contained in a Call Established message, the group identified may not be the primary agent group for the staff who answered the call — this could happen if the call is answered by an agent for which the identified agent group is his/her secondary agent group.

Group Queue Delay is the current longest delay in seconds for the agent group queue.

Group Queue Length is the current number of calls in the agent group's queue not yet offered to a call servicer (e.g. agent, VRU). Note that calls ringing at a controlled call connection agent or in the middle of zip and flash are not included in this count.

Number Primary Agents is the number of agents whose primary agent group is the group identified in byte *2.* It excludes agents who are not signed in. For VRUs, this number represents the number of entered VRUs (using ENT-DEV) that are also in-service.

Number Available Primary Agents is the number of such agents who are available, up to and including the event indicated by the message containing this field. For VRUs, this number represents the number of entered (via ENT-DEV) VRUs that are in-service and idle.

The total fixed length of this message element is either 9 or 10 bytes.

# Position

This element identifies one position (ACD party) of a call, specifically its Type and its Directory Number.

*Note:* *The Party Type will not be cross-verified with the Directory Number by the ACD at this time. The message is routed to the destination based upon the Directory Number:*

| Byte | MS Bits | | | | | | | LS |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=37 | | | | | | | |
| l | Length | | | | | | | |
| 2 | Party Type (HEX) | | | | | | | |
| 3, etc. | Number Digits (Note 1) (ASCII) | | | | | | | |

## Party Type (byte 2):

| Value | M S 7 | 6 | Bits 5 | 4 | 3 | 2 | 1 | L S 0 |
|---|---|---|---|---|---|---|---|---|
| Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Agent | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| External VRU | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Supervisor | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Other | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

All other values are reserved.

*Note:* *This is the Directory Number (DN) of the position. This position DN includes any valid directory number assigned to a agent, super-visor; or VRU. The agent or supervisor's DN is valid only when that person is signed-in.*

The maximum length of this message element is 8 bytes.

# Previous Call Information

This element contains the call identification (ID) associated with this call when it was in the previous switch from which it was overflowed. It also contains the previous Switch ID — the ID of the ACD that handled the call before it overflowed to the current ACD.

| Byte | MS | | | Bits | | | | LS |
|------|----|----|----|----|----|----|----|----|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=38 | | | | | | | |
| 1 | Length=5 | | | | | | | |
| 2 | Previous Call ID (MSB, HEX) | | | | | | | |
| 3 | Previous Call ID | | | | | | | |
| 4 | Previous Call ID | | | | | | | |
| 5 | Previous Call ID (LSB, HEX) | | | | | | | |
| 6 | Previous Switch ID (HEX) | | | | | | | |

The total fixed length of this message clement is 7 bytes.

# Previous Logical Workstation Number

This element provides a unique identifier, other than the physical port id on the switch. by which the user can refer to the **previous** agent console, supervisor console, or VRU.

This element uniquely identifies the previous agent console. supervisor console, or VRU, i.e., a number by which the user can refer to the console.. other than the physical port id on the switch.

| Byte | MS | | | Bits | | | | LS |
|------|----|----|----|----|----|----|----|----|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=57 | | | | | | | |
| 1 | Length=2 | | | | | | | |
| 2 | Logical Workstation Number (MSB, HEX) | | | | | | | |
| 3 | Logical Workstation Number **(LSB, HEX)** | | | | | | | |

The total fixed length of this message element is 4 bytes.

# Previous Position

This element indicates the Directory Number of the position last connected to the call.

| Byte | MS Bits | | | | | | | LS |
|---|---|---|---|---|---|---|---|---|
| 0 | Identifier=39 | | | | | | | |
| 1 | Length | | | | | | | |
| 2 | Party Type (Note 1) (HEX) | | | | | | | |
| 3, etc. | Number Digits (Note 2) (ASCII) | | | | | | | |

Note 1 -The Party Type value would be unknown (see Position message element encodings) for an overflow call with a previous connection in the original switch.

Note 2 — See "Note 1" for Position message element.

The maximum length of this message element is 8 bytes.

# Previous Trunk Group Number

The purpose of this element is to identify the trunk group that the call was received on previous to overflow.

| Byte | MS Bits | | | | | | | LS |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=65 | | | | | | | |
| 1 | Length=2 | | | | | | | |
| 2 | Trunk Group Number (MSB, HEX) | | | | | | | |
| 3 | Trunk Group Number (LSB, HEX) | | | | | | | |

The total fixed length of this message element is 4 bytes.

# Previous Trunk Port ID

This element contains the previous trunk's physical association with the ACD.

| Byte | MS | | | Bits | | | | LS |
|------|----|---|---|---|---|---|---|----|
| | **7** | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=64 | | | | | | | |
| 1 | Length=2 | | | | | | | |
| 2 | Port ID (MSB, HEX) | | | | | | | |
| 3 | Port ID (LSB, HEX) | | | | | | | |

The total fixed length of this message element is 4 bytes.

# Queued Agent Groups

This element identifies all the agent groups that are queued for a given call.

The following messages will appear if' there are 2.55 or fewer Agent Groups defined in the system parameter table.

| Byte | MS | | | Bits | | | | LS |
|------|----|---|---|---|---|---|---|----|
| | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **0** |
| **0** | Identifier=74 | | | | | | | |
| 1 | Length=1 to 10 (See Note) | | | | | | | |
| 2 | Agent Group Number [1] | | | | | | | |
| … | … … … | | | | | | | |
| **3** | Agent Group Number [10] | | | | | | | |

The following messages will appear if there are more than 255 Agent Groups defined in the system parameter table.

| Byte | MS | | | Bits | | | | LS |
|------|----|---|---|---|---|---|---|----|
| | **7** | **6** | **5** | **4** | **3** | **2** | 1 | **0** |
| **0** | Identifier=74 | | | | | | | |
| 1 | Length=2 to 20 (See Note) | | | | | | | |
| 2 | Agent Group Number [1] (MSB, HEX) | | | | | | | |
| 3 | Agent Group Number [1] (LSB, HEX) | | | | | | | |
| … | . . … . . | | | | | | | |
| 20 | Agent Group Number [10] (MSB, HEX) | | | | | | | |
| 21 | Agent Group Number [10] (LSB, HEX) | | | | | | | |

Note: If the parameter MAXAGRP of the ED-SYS command is set to less than 256, the size of "Agent Group Number" is one character. Otherwise. the size of "Agent Group Number" is two characters.

# Ring Timeout

This element indicates how long (in seconds) the ACD should allow an outcall to remain in the ringing state before considering it an unsuccessful attempt.

| Byte | MS | | | Bits | | | | LS |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=41 | | | | | | | |
| 1 | Length=1 | | | | | | | |
| 2 | Ring Timeout (HEX) | | | | | | | |

The expected maximum **value** is 255 seconds.

The total fixed length of this message element is 3 bytes.

# Route Tri Tone Calls

This element indicates whether or not tri tone calls should be routed.

| Byte | MS | | | Bits | | | | LS |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=71 | | | | | | | |
| 1 | Length=1 | | | | | | | |
| 2 | Route Tri Tone calls (HEX) | | | | | | | |

0 = No Route; 1 = Route

# Routing Attributes

| Byte | MS Bits | | | | | | | LS |
|------|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | **1** | **0** |
| 0 | identifier=42 | | | | | | | |
| 1 | Length=2 | | | | | | | |
| 2 | Call Priority (HEX) | | | | | | | |
| 3 | Intercept Class (HEX) | | | | | | | |

This element specifies the attributes to be attached to the call while in the ACD.

The Call Priority determines whether or not the call can preempt any other calls in the queue. This is the same priority that an application vector can manipulate through the CHANGE PRIORITY vector step, and the CALLPRIO data parameter in the ED/ENT/RTRV-TRKGRP commands. The Call Priority range is I-16: if it is 0 (zero) it is ignored.

The Intercept Class identifies what sort of intercept treatment. if needed, may be given to the call. The Intercept Class range is l-32: if it is 0 (zero) it is ignored.

# Set-Query Flag

This element indicates whether or not a particular feature is being set or queried.

| Byte | MS | | | Bits | | | | LS |
|------|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=43 | | | | | | | |
| 1 | Length=1 | | | | | | | |
| 2 | Set Query Flag (HEX) | | | | | | | |

### Set Query Flaq (byte 2):

| Value | MS | | Bits | | | | | LS |
|-------|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 3 | 1 | 0 |
| Set | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Query | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |

All other values are reserved.

# Sign-In Number

Thr purpose of this element is to uniquely identify one agent ("staff ID") or supervisor ("supervisor ID") with a number.

| Byte | MS | | | Bits | | | | LS |
|------|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=44 | | | | | | | |
| 1 | Length | | | | | | | |
| 2, etc. | Number Digits (ASCII) | | | | | | | |

Sign-In Number is 4-9 digits.

The maximum length of this message element is 11 bytes.

# Sign-Out Reason

The purpose of this element is to identify the reason an agent is signing out, or being signed out, using the host.

| Byte | MS | | | Bits | | | | LS |
|------|----|----|----|----|----|----|----|----|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=53 | | | | | | | |
| 1 | Length=1 | | | | | | | |
| 2 | Reason (HEX) | | | | | | | |

### Reason (byte 2):

| Value | M S 7 | 6 | 5 | 4 | 3 | 2 | 1 | L S 0 |
|-------|-------|---|---|---|---|---|---|-------|
| Break (agent going on break) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Lunch (agent is going to lunch) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| End Duty (agent has reached end of duty period) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Personal (agent is signing out for personal reasons) | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Meeting (agent is going to a meeting) | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| Training (e.g. agent is going to a training session) | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |

All other values are reserved. Note that the reason "Console Terminal" is not possible over the Transaction Link, because this, by definition, means a signout from a Spectrum supervisor terminal.

The total fixed length of this message element is 3 bytes.

# Tag

This element identifies which instance of a request message from the host that the ACD is responding.

| Byte | MS 7 | 6 | 5 | Bits 4 | 3 | 2 | 1 | LS 0 |
|------|------|---|---|--------|---|---|---|------|
| 0 | Identifier=45 | | | | | | | |
| 1 | Length | | | | | | | |
| 2, etc. | Tag (HEX) | | | | | | | |

The
Spectrum shall support Tag values of up to 4 bytes in length.

The maximum length of this message element is 6 bytes.

Valid values are greater than zero.

# Target Party Logical Workstation Number

This element provides a unique identifier, other than the physical port id on the switch, by which the user can refer to the target party agent console. supervisor console. or VRU.

Values can range from I-65535. The total fixed length of this message element is 4 bytes.

| Byte | MS 7 | 6 | 5 | Bits 4 | 3 | 2 | 1 | LS 0 |
|------|------|---|---|--------|---|---|---|------|
| 0 | Identifier=46 | | | | | | | |
| 1 | Length=2 | | | | | | | |
| 2 | Logical Workstation Number (MSB, HEX) | | | | | | | |
| 3 | Logical Workstation Number (LSB, HEX) | | | | | | | |

# Target Party Number

This contains a sequence of digits to be outdialed. The number could be "off-net" (public Zone 1 number), "on-net" (private network number). or international. It must conform to the switch's dialing plan.

| Byte | MS | | | Bits | | | | LS |
|---|---|---|---|---|---|---|---|---|
| | **7** | 6 | 5 | 4 | 3 | 2 | **1** | 0 |
| 0 | Identifier=47 | | | | | | | |
| 1 | Length | | | | | | | |
| 2, etc. | Number Digits (ASCII) | | | | | | | |

The expected maximum number of digits is 17. The maximum length of this message element is 19 bytes.

# Target Trunk Port ID

This element contains the target trunk's physical association with the ACD.

| **Byte** | MS | | | Bits | | | | LS |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | **4** | **3** | **2** | **1** | **0** |
| 0 | Identifier=70 | | | | | | | |
| 1 | Length=2 | | | | | | | |
| 2 | Port ID (MSB, HEX) | | | | | | | |
| 3 | Port ID (LSB. HEX) | | | | | | | |

The length of Port ID is 2 bytes. The total fixed length of this message element is 4 bytes.

# Telescript Digit Variable

This element contains digits which may have been collected by a telescript step.

| Byte | MS | | | Bits | | | | LS |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 6 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=79 | | | | | | | |
| 1 | Length=2 to 21 | | | | | | | |
| 2 | Digit Variable Type | | | | | | | |
| 3 | Num Digits (ASCII) | | | | | | | |

Digit Variable Type:

|  |  |
|---|---|
| DIGIT | 1 |
| DIGITS-A | 2 |
| DIGITS-B | 3 |
| DIGIT STRONG | 4 |

# Telescript Information

This element contains the application ID and telescript information for a given call.

| Byte | MS 7 | 6 | 5 | Bits 4 | 3 | 2 | 1 | LS 0 |
|------|------|---|---|--------|---|---|---|------|
| 0 | Identifier=75 | | | | | | | |
| 1 | Length=6 | | | | | | | |
| 2 | Application ID (MSB, HEX) | | | | | | | |
| 3 | Application ID (LSB, HEX) | | | | | | | |
| 4 | Telescript Type | | | | | | | |
| 5 | Telescript ID (MSB, HEX) | | | | | | | |
| 6 | Telescript ID (LSB, HEX) | | | | | | | |
| 7 | Telescript Step | | | | | | | |

**Telescript** Type:

| Value | MS 7 | 6 | 5 | Bits 4 | 3 | 2 | 1 | LS 0 |
|-------|------|---|---|--------|---|---|---|------|
| Route Telescript | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Application/Feature | Telescript | | | | 0 0 0 0 0 0 1 0 | | | |
| Intercept Telescript | 0 | 0 | 0 | 0 | 0 | 0 | 1 1 | |

# Terminating Logical Workstation Number

This element provides a unique identifier, other than the physical port id on the switch, by which the user can refer to the **terminating** agent console, supervisor console, or VRU.

| Byte | MS | | | Bits | | | LS | |
|------|-----|---|---|------|---|---|-----|---|
| | , | 6 | 5 | 4 | 3 | 2 | **1** | 0 |
| 0 | Identifier=58 | | | | | | | |
| 1 | Length=2 | | | | | | | |
| 2 | Logical Workstation Number (MSB, HEX) | | | | | | | |
| 3 | Logical Workstation Number (LSB,HEX) | | | | | | | |

Values can range from l-65535. The total fixed length of this message element is 4 bytes.

# Terminating Position

This element identifies the terminating position (ACD party) of a call, specifically its Type and its Directory Number.

| Byte | MS | | | Bits | | | i | s |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | Identifier=59 | | | | | | | |
| 1 | Length | | | | | | | |
| 2 | Party Type (HEX) | | | | | | | |
| 3, etc. | Number Digits (Note 1, ASCII) | | | | | | | |

Note 1 — This is the Directory Number (DN) of the position. This position DN includes any valid directory number assigned to a agent, supervisor, or VRU. The agent or supervisor's DN is valid only when that person is signed-in. The valid values range **from** 00001-99999.

**Party Type (byte 2):**

| Value | MS | | Bits | | | | | LS |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Agent | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| External **VRU** | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Supervisor | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Other | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

All other values are reserved,

The maximum length of this message element is 8 bytes.

# Terminating Trunk Group Number

The purpose of this element is to identify the trunk group that the call went out on.

| Byte | MS 7 | 6 | 5 | Bits 4 | 3 | 2 | 1 | LS 0 |
|------|------|---|---|--------|---|---|---|------|
| 0 | Identifier=63 | | | | | | | |
| 1 | Length=2 | | | | | | | |
| 2 | Trunk Group Number (MSB, HEX) | | | | | | | |
| 3 | Trunk Group Number (LSB, HEX) | | | | | | | |

The total fixed length of this message element is 4 bytes.

# Terminating Trunk Port ID

This element contains the terminating trunk's physical association with the ACD.

| Byte | MS 7 | 6 | 5 | Bits 4 | 3 | 2 | 1 | LS 0 |
|------|------|---|---|--------|---|---|---|------|
| 0 | Identifier=60 | | | | | | | |
| | Length=2 | | | | | | | |
| 2 | Port ID (MSB, HEX) | | | | | | | |
| 3 | Port ID (LSB, HEX) | | | | | | | |

The length of Port ID is 2 bytes. The total fixed length of this message element is 4 bytes.

# Transfer Indicator

This element indicates when a call is to be transferred. After the Delay Timeout number of seconds elapses, a call is transferred to the associated "target."

| Byte | MS 7 | 6 | 5 | Bits 4 | 3 | 2 | 1 | LS 0 |
|------|------|---|---|--------|---|---|---|------|
| 0 | Identifier=48 | | | | | | | |
| 1 | Length=1 | | | | | | | |
| 2 | Delay Timeout (HEX) | | | | | | | |

# Trunk Group Number

The purpose of this element is to identify the trunk group that the call was received on.

| Byte | MS 7 | 6 | 5 | Bits 4 | 3 | 2 | 1 | LS 0 |
|------|------|---|---|--------|---|---|---|------|
| O | Identifier=49 | | | | | | | |
| 1 | Length=2 | | | | | | | |
| 2 | Trunk Group Number (MSB, HEX) | | | | | | | |
| 3 | Trunk Group Number (LSB, HEX) | | | | | | | |

The total fixed length of this message element is 4 bytes.

# Trunk Port ID

This element contains the Trunk's physical association with the ACD.

| Byte | MS 7 | 6 | 5 | Bits 4 | 3 | 2 | 1 | LS 0 |
|---|---|---|---|---|---|---|---|---|
| 0 | identifier=36 | | | | | | | |
| 1 | Length=2 | | | | | | | |
| 2 | Port ID (MSB, HEX) | | | | | | | |
| 3 | Port ID (LSB, HEX) | | | | | | | |

The total fixed length of this message element is 4 bytes.

# Type of Answer

The purpose of this document is to identify the type of answer detected.

| Byte | MS 7 | 6 | 5 | Bits 4 | 3 | 2 | 1 | LS 0 |
|---|---|---|---|---|---|---|---|---|
| 0 | Identifier=50 | | | | | | | |
| 1 | Length=1 | | | | | | | |
| 2 | Type of Answer (HEX) | | | | | | | |

Type of Answer:

- 1 = Signaled answer
- 2 = Tri Tone answer
- 3 = Answering machine answer
- 4 = Voice answer

:: :: ::

# *A*

# *Message-Specific Error Codes*

This appendix lists the possible error codes that may be sent in the following messages:

- Connection Not Cleared (page A-l)
- Call Failed (page A-4 )
- New Party Transfer Failed (page A-7)
- Call Not Transferred (page A-9)
- Host Route Failed (page A-11)
- No Caller Number (page A-14)
- Call Progress Failure (page A-15)
- Call Not Held (page A-17)
- Call Not Retrieved (page A-IS)

Table A-l. Connection Not Cleared Error

| Error Code Value | Error Code Description | Agent Console Status | Possible Conditions Causing the Error | Possible Actions to Take to Correct the Error |
|---|---|---|---|---|
| 1 | Not used. | | | |
| 2 | The party to be released has a call on hold. | No change. | The agent or supervisor to be released has a call on hold. (A party being held is free to release himself.) | Remove the call from hold and then reinitiate the termination request. |
| 3 | A barged-in supervisor cannot be cleared by an agent. | No change. | The connection identified is a supervisor barged-in to the agent identified in the message. | The supervisor must end his/her barge-in before reinitiating the request, or the supervisor must request clearing of this connection. |

| Error Code Value | Error Code Description | Agent Console Status | Possible Conditions Causing the Error | Possible Actions to Take to Correct the Error |
|---|---|---|---|---|
| 4 | The indicated console is in a menu mode. | No change in console status. | The Clear Connection message indicated (with the LWN or Position element) a console that is currently in a menu mode, e.g. in the Enter Transaction Code menu. | Get out of the menu mode and resend request. |
| 5 | Headset unplugged from indicated console. | No change in console status. | The Clear Connection message indicated (via LWN or Position element) a console, but no headset is plugged in, thus preventing release. | Plug the headset in and resend request. |
| 6 | Attempted to release during zip/flash. | No changes. | The Clear Connection message was received during zip and flash for an agent that is not allowed to release during zip and flash. | Edit switch provisioning if release during zip and flash is desired. |
| 7 | The Position DN is Invalid. | No change in console status. | This indicates that the position may have been dropped from the system, or the agent has been signed out. | Inform supervisor. |
| 8 | The Call ID is invalid. | No change in console status. | This indicates that the server (agent or VRU) is not associated with the call, or the distant end may have released the call. | Check the active Call ID and reinitiate the request. |
| 9 | The Logical Workstation Number is invalid. | No change in console status. | The LWN may have never been entered into the system, or never associated with the Position DN. | Inform supervisor and/or Host Database Administrator. |
|  | Not used. |  |  |  |

| Error Code Value | Error Code Description | Agent Console Status | Possible Conditions Causing the Error | Possible Actions to Take to Correct the Error |
|---|---|---|---|---|
| 11 | The Port ID is invalid. | No change in console status. | The host program and/or data tables are corrupted. Port is not defined on the switch or is not the port of a trunk. | Inform supervisor and/or Host Database Administrator. |
| 12 | Invalid state. | No change in console status. | The Clear Connection message may have been generated due to an inadvertent key depression, or the distant end may have released before the message was processed. | No action required. |

App A

Table A-2. Call Failed Errors

| Error Code Value | Error Code Description | Agent Console Status | Possible Conditions Causing the Error | Possible Actions to Take to Correct the Error |
|---|---|---|---|---|
| 1 | The off-net number could not be dialed at this time. | The Line key indicator that was lit due to the make call request is extinguished. | Due to some kind of routing failure, the call could not be completed at this time. Any failure due to lack of some resource (besides trunks), e.g., registers or senders, would fall into this category. Any failure due to recovery also falls into this category. | Reinitiate the make call request at a later time. |
| 2 | The agent's Routing Privilege Level is invalid. | The Line key indicator that was lit due to the make call request is extinguished. | The agent's Routing Privilege Level is too low to initiate the call. | Inform supervisor. |
| 3 | An All Trunks Busy (ATB) condition was encountered. | The Line key indicator that was lit due to the make call request is extinguished. | When trying to route the call, and ATB condition was encountered. | Reinitiate the particular make call request at a later time. |
| 4 | The call was terminated during routing. | The Line key indicator that was lit due to the make call request is extinguished. | This indicates the agent released the call before end of dial was reached. The Release key was pressed before the call was completed. | No corrective action is necessary. |
| 5 | No available Line keys. | All Line keys on the console are in use. | No change | One of the existing calls at the console must be released, either by agent, host, or caller. |
| 6 | The Logical Workstation Number is invalid. | No change in console status. | The LWN may have never been entered into the system, or never associated with the Position DN. | inform supervisor and/or Host Database Administrator. |
| 7 | The Position DN is linvalid. | No change in console status. | The console has been dropped from the ACD system or the agent/supervisor's assigned directory number has been changed. The VRU has been dropped (from the ACD system or its assigned directory number has changed. | Inform supervisor and/or Host Database Administrator and or Switch Database Administrator. |

| Error Code Value | Error Code Description | Agent Console Status | Possible Conditions Causing the Error | Possible Actions to Take to Correct the Error |
|---|---|---|---|---|
| 8 | Not used. | | | |
| 9 | Not used | | | |
| 10 | No available pseudo ports. | Not applicable | The host computer is sending too many dial requests per second. | Contact Spectrum Technical Support. |
| 11 | Maximum number of calls/second was exceeded. | No change in console status. | The host sent a Make Predictive Call and the maximum number of such requests per second exceeded the MAXMPCRS threshold in the System Parameters. | Inform Host Administrator to lower call rate or inform Switch Database Administrator. |
| 12 | The VRU's or staff person's COS disallows outdial. | The Line key indicator that was lit due to the make call request is extinguished. | The VRU or staff person (agent or supervisor) has a Class of Service that does not permit call origination, or does not permit origination of an off-net call. | Inform supervisor. |
| 13 | The Target Party identifier is invalid. | Not applicable. | The Target Party identifier in the request is invalid, as determined by the ACD's routing algorithm. This means the Target Party LWN is not defined or has not party signed in at the LWN. Or, in a Make Predictive call, is in a Position or Application directory number. Or, in a Make Call, is a Position with no one signed in. | Check the off-net number being dialed and reinitiate the dial request. |
| 14 | The position is not in a valid state to initiate a dial request. | No change in console status. | The agent may be in (the process of completing an outcall, or in a menu mode, or is unplugged, or the console has some temporary internal blockage. The VRU has not active calls, or, the VRU is on hold at an agent's console. | Once the outcall or other function is completed, the agent may reinitiate the make call request. |

**App A**

| Error Code Value | Error Code Description | Agent Console Status | Possible Conditions Causing the Error | Possible Actions to Take to Correct the Error |
|---|---|---|---|---|
| **15** | Transaction Link not activated for the indicated agent or supervisor. | No change in console status. | The agent or supervisor indicated by the LWN or position indicated in the message has a COS with the HOSTFLAG turned off. | Change the agent's COS, or turn on the HOSTFLAG for that agent's current COS. |
| 16 | Not used. | | | |
| 17 | No answer detector, or other necessary resources are available for the call. | No change in console status. | All Digital Signal Processors (DSPs) are currently in use, or none have been installed in the system; insufficient system resources. | Verify the system has DSPs installed and/or reinitiate the dial request. |
| 18 | Invalid Calling Device or Application ID was provided by host. | No change in console status. | The host sent a Make Predictive Call but the application identified by the host is not valid on the switch. | Inform Switch Database Administrator or the Host Database Administrator. |

Table A-3. New Party Transfer Failed Errors

| Error Code Value | Error Code Description | Agent Console Status | Possible Conditions Causing the Error | Possible Actions to Take to Correct the Error |
|---|---|---|---|---|
| 1 | The destination agent is not signed in. | No change. | The destination agent or supervisor (indicated by the Target Party or LWN) is not signed in. The destination VRU is not in service. The host has lost track of the status of the desired position, or is indicating the wrong position. | Sign in the desired position and/or inform the Host Database administrator. Check the status of the VRUs. |
| 2 | Not used. | | | |
| 3 | The call to be transferred is not a trunk call. | Any line keys lit because of this attempt are extinguished. | The call to be transferred (indicated by the Call ID) is a position call, or some call other than than an incoming or outgoing trunk call. The host is using the wrong Call ID, or should be using the Transfer Call message instead. | Inform Host database Administrator. |
| 4 | There is a supervisor barged in at the requesting console. | No change. | The host has lost track of the status of the requesting agent or is indicating the wrong position or Logical Workstation Number. | Inform Host database Administrator or wait until supervisor is no longer barged in. |
| 5 | Blind transfer of an emergency call is prohibited. | No change. | The Agent or Supervisor has designated the call an emergency call, and as such it cannot be blind transferred — i.e. it cannot be left all by itself in the ringing state. | Do a conference transfer (Make Call & Transfer Call), or turn off emergency recording. |
| 6 | The Call ID is invalid. | No change. | This indicates that the agent is not associated with the call or the distant end may have released. | Check the logic of the host program. |
| 7 | The Logical Workstation Number is invalid. | No change. | The LWN may have never been entered into the system, or never associated with the position DN. | Inform supervisor and/or Host Database Administrator, and/or Switch Database Admrnistrator. |

| Error Code Value | Error Code Description | Agent Console Status | Possible Conditions Causing the Error | Possible Actions to Take to Correct the Error |
|---|---|---|---|---|
| 8 | The requesting position's DN is invalid. | No change. | The agent or VRU may have been dropped from the system, or the agent's or VRU's DN may been been changed. | Inform supervisor and/or Host Database Administrator, and/or Switch Database Administrator. |
| - 4 - | The Target Identifier (Number or LWN) is invalid. | No change. | The destination agent may have been dropped from the system or its DN may have been changed. The target application may have been dropped from the system or its DN changed. The specified off-net number may be invalid. The LWN is invalid or not signed into. | Inform supervisor and/or Host Database Administrator, and/or Switch Database Administrator. |
| 10 | The position is not in a valid state to initiate a call transfer. | No change. | The agent may be in the process of completing an outcall, or, the call is on hold, or in a menu mode, or is unplugged, or during zip and flash; the VRU may be on hold at an agent's console. | Once the outcall or other function is completed, the agent may reinitiate the transfer request. |
| 11 | Transaction Link not activated for indicated agent or supervisor. | No change. | The agent or supervisor indicated by the LWN in the request message has a Class of Service with the HOSTFLAG turned off. | Change the agents COS, or turn on the HOSTFLAG for that agent's current COS. |

Table A-4. Call Not Transferred Errors

| Error Code Value | Error Code Description | Agent Console Status | Possible Conditions Causing the Error | Possible Actions to Take to Correct the Error |
|---|---|---|---|---|
| 1 | The target parties have a supervisor barged in. | No change. | It cannot be transferred because the target parties both have a barged in supervisor. | Wait until supervisor(s) leaves the target party. |
| 2 | The target party is not present. | No change. | The target party is not currently connected to the requesting console. The host has lost track of the status of the desired party, or is indicating the wrong agent, or should be using the New Party Transfer message. | Inform Host Database Administrator. |
| 3 | Not used. | | | |
| 4 | Transfer is not allowed. | No change. | Trunk group to trunk group restriction is turned on, and both the call to be transferred and the target party are trunk calls; trunk group to trunk group restriction is turned off, but one of the calls involved in the transfer is a call on a trunk that does not have disconnect signalling. | Inform supervisor. |
| 5 | No last held call. | No change. | The console requesting the transfer has one active and two held calls, but these were put on hold simultaneously, so there is no unambiguous indication of which to transfer. | Initiate an implicit conference by pressing the Line key of the held party to be transferred and then re-initiate the transfer call request, or, place the active call (target party) on hold and retrieve the held party to be transferred and then re-initiate the transfer call request. |

| Error Code Value | Error Code Description | Agent Console Status | Possible Conditions Causing the Error | Possible Actions to Take to Correct the Error |
|---|---|---|---|---|
| 6 | Both parties to be transferred together have emergency status. | No change. | Both parties to be transferred together either have an emergency declared on them or have declared an emergency, thus it is not appropriate to transfer them together. | Wait until one party loses its emergency status, or, refrain from sending Transfer Call requests in such situations. |
| 7 | The Logical Workstation Number is invalid. | No change. | The LWN may have never been entered into the system, or never associated with the Position DN. | inform supervisor and/or Host Database Administrator and/or Switch Database Administrator. |
| 8 | The requesting position's DN is invalid. | No change. | The agent may have been dropped from the system, or the agent's DN may have been changed. | Inform supervisor and/or Host Database Administrator and/or Switch Database Administrator. |
| 9 | Transaction Link is not activated for indicated agent or supervisor. | No change. | The agent or supervisor indicated by the LWN or Position in the request message has a Class of Service with the HOSTFLAG turned off. | Change the agent's COS, or turn on the HOSTFLAG for that agent's current COS. |
| 10 | The position is not in a valid state to initiate a transfer request. | No change. | (The agent may be in the process of completing the outcall, or there are no calls or only one call at the console, or the console is in a menu mode, or the agent is unplugged. | Once the agent has completed the outcall, or got at least two parties connected to his/her console, or is plugged in and not in a menu mode, the agent may reinitiate the transfer request. |
| 1 | The agent has not signed-in. | No change. | The agent has not yet signed-in to the console. | Sign-in and re-initiate the transfer request. |
| 12 | The Position or the LWN is not associated with an ACD console. | No change. | The Addressed position, indicated by Logical Workstation Number or Position Directory number in the message, may identify a VRU, or the host's table of LWNs or DNs has been corrupted. | Inform Switch Database Administrator or Host Database Administrator. |

Table A-5. Host Route Failed Error Codes

| Error Code Value | Error Code Description | Possible Conditions Causing the Error | Possible Actions to Take to Correct the Error |
|---|---|---|---|
| 1 | The Call ID is invalid. | No call in the system has the specified call ID; the incoming call may have been dropped. | No action. |
| 2 | The Host Route is invalid. | The host may have tried to route the agent before the agent signs in or to an invalid directory number. | Verify the database between the host and ACD. |
| 3 | Call in invalid state. | The call is not in a valid state to be routed, e.g., the Route Select message was received after the timeout specified on the REQUEST HOST INSTRUCTION vector step in the Routing Vector, or, the Route Select message was received but no host routing was ever requested, or, the call is not at a Routing Vector. | Improve responsiveness of host program; ensure host is properly tracking the state of the calls; increase any relevant ACD timeout values. |
| 4 | The Destination DN is invalid. | Host sent an invalid destination directory number. | Resynchronize host's database with ACDs, to reflect proper numbering plan. |
| 5 | The Call Priority is out of range. | The Call Priority in the route request is out of range. | Check the call priority being requested and update the host's database. |
| 6 | The Intercept Class is out of range. | The Intercept Class in the route request is out of range. | Check the Intercept Class being requested, and update hnst's database. |
| 7 | The Logical Workstation Number is invalid. | The LWN mav have never been entered-into the system, or never associated with the destination DN. | Inform supervisor and/or Host Database Administrator and/or Switch Database Administrator. |
| a | The Origin Announcement ID is out of range. | The Origin Announcement ID in the route request is out of range. | Check the Origin Announcement ID number being requested, and update the Host's database. |
| 9 | The Application ID is invalid. | Host sent an Application ID that is out of range, or for which there is no defined Application. | Ensure host's database reflect proper ACD Application ID numbers. |
| 10 | The host specified more than one destination. | The host's Route Select contained more than one destination; it should contain no more than one destination, | Re-examine logic of host application program. |
| 11 | The host attempted to route an overflow in call to a port before an ACCEPT was sent | | |

| Error Code Value | Error Code Description | Possible Conditions Causing the Error | Possible Actions to Take to Correct the Error |
|---|---|---|---|
| 12 | The Originating Logical Workstation Number is invalid. | The LWN may never have been entered into the system or never associated with the Originating Position. | Inform Supervisor and/or Host Database Administrator and/or Switch Database Administrator. |
| 13 | The Originating Position's DN is invalid. | The agent may have been dropped from the system or the agent's DN may have been changed. | Inform Supervisor and/or Host Database Administrator and/or Switch Database Administrator. |
| 14 | The position or the LWN is not associated with an ACD console. | The addressed position indicated by Logical Workstation Number or Position Directory Number in the message may identify a VRU, or the host's table of LWNs or DNs has been corrupted. | Inform Host Database Administrator and/or Switch Database Administrator. |
| 15 | An invalid routing attempt was made. | A ROUTE TRANSLATION was attempted on digits sent from the host due to a routing request from the switch. | Inform Supervisor and/or Host Database Administrator and/or Switch Database Administrator. |
| 16 | A request to perform a Network Transfer was ignored. | A SEND was performed to the network but the network did not release the trunk in the specified interval. | Inform Supervisor and/or Host Database Administrator and/or Swith Database Administrator. |
| 17 | A request to perform an action has failed because of lack of resources. | A request for routing failed due to not having acquired a DTMF Sender. | Inform Supervisor and/or Host Database Administrator and/or Swith Database Administrator. |
| 18 | The target party number is invalid. | Host sent an invalid target party number. | Resynchronize host database with the ACD database to reflect proper numbering plan. |
| 19 | Prior Route Pending. (See note) | The ACD is currently processing a prior routing instruction. This instruction may have been a telescript step DIVERT or ROUTE, or a prior HOST INITIATED ROUTE message. | Host may need to throttle the HOST INITIATED ROUTE messages, or retry sending the HOST INITIATED ROUTE messages when the telescript steps DIVERT or ROUTE are NOT being executed. |
| 20 | Call is in a Hookflash State. (See note) | The telescript step Hookflash has placed the trunk on hold. | Retry sending HOST INITIATED ROUTE messages when the trunk is NOT on hold. |
| 21 | The ACD is busy sending digits. (See note) | The telescript step SEND has caused the ACD to out-dial digits. | Retry sending HOST INITIATED ROUTE messages when the ACD has completed out-dialling digits. |
| 22 | RESERVED | RESERVED | RESERVED |

App A

| Error Code Value | Error Code Description | Possible Conditions Causing the Error | Possible Actions to Take to Correct the Error |
|---|---|---|---|
| 23 | Call Established Pending. (See note) | The ACD is in the process of answering the call. | If the host sends a HOST INITIATED ROUTE at the same time the ACD is answering the call, the HOST INITIATED ROUTE will fail. The host will receive the HOST INITIATED ROUTE FAILED message and the Call Established message. But the order of the two messages may vary depending on if the Call Established message was sent prior to the ACD processing the HOST INITIATED ROUTE. |
| -24 | Terminating Port Error. (See note) | The port processing the HOST INITIATED ROUTE message is a terminating port. Example: a trunk used to place an out-bound call on a terminating port. A terminating port may not be rerouted. | This port may have had an in-bound call release and then was acquired to place an out-bound call. |
| 25 | No call to reroute. (See note) | There is no call associated to the specified call ID. | A call associated to the specified call ID may have released and the host may not have processed the CALL CLEARED message yet. |
| 26 | Transaction link not activated for indicated port. | Port has a Class of Service with the Hostflag turned off. | Turn on the Hostflag for the indicated Class of Service. |

*Note:   These error codes will only exist in the HOST INITIATED ROUTE*
*FAILED message*

Table A-6. No Caller Number Error Codes

| Error Code Value | Error Code Description | Agent Console Status | Possible Conditions Causing the Error | Possible Actions to Take to Correct the Error |
|---|---|---|---|---|
| 1 | The Call ID is invalid. | No change in console status. | This indicates that the incoming call has been dropped from the system. | No action. |
| 2 | The network failed to respond to request. | No change in console status. | The ACD's connection to the network may be broken, or the network may be overloaded, or the network doesn't have this facility and thus ignores the request. | Verify the integrity of the ACD's connection to the network; retry. |
| 3 | The network rejected the request. | No change in console status. | The network may not have the facility of responding with the caller data requested, or the "user" (the ACD) may not have subscribed to this particular facility. | Verify the network facilities available to the ACD. |
| 4 | The trunk associated with this call does not support any kind of network querying after the initial call set-up. | No change in console status. | This would typically occur if the incoming trunk was not ISDN. | Verify the host's model of what trunks are being used to deliver incoming calls to the ACD. |
| 5 | Request received in an invalid state. | No change in console status. | The switch received the Get Caller Number message from the host after the call had already been routed. | Inform supervisor and/or Host Database Administrator. |
| 6 | Transaction Link not activated for indicated trunk. | No change in console status. | The trunk indicated via the Call ID in the request message belongs to a Trunk Group with the HOSTFLAG turned off. | Inform supervisor and/or Host Database Administrator. |

Table A-7. Call Progress Failure Error Codes

| Error Code Value | Error Code Description | Possible Conditions Causing the Error | Possible Actions to Take to Correct the Error |
|---|---|---|---|
| 1 | The call was terminated due to a system recovery. | The call was terminated due to a hardware fault or software exception, such as a switch over to the standby side (if a duplex configuration). | Reinitiate the dial request at a later time. |
| 2 | The trunk was released due to system problem. | A system resource failure was encountered or a needed card rn the Network or Network termination Subsystems was Out of Service. | Verify system health, and reinitiate the dial request at a later time. |
| 3 | The trunk was released due to distant end. | An incorrect response was received from the distant end, e.g., got signaled answer but then called party hung up before voice answer detected; got answer but caller when on-hook before routed to application vector. | Reinitiate the dial request at a later time. |
| 4 | Busy tone was detected. | Answer detector detected busy tone on the line. | Reinitiate the dial request at a later time. |
| 5 | Reorder tone was detected. | The answer detector detected reorder tone on the line. | Check the off-net number being dialed and reinitiate the dial request. |
| 6 | Ring timeout has occurred. | Audible ring was detected on the line, but no answer was detected after a predetermined (Ring Timeout) amount of ume, or, no ring was actually detected (because Detection method was 0) and no signaled answer was received within Ring Timeout (if present in Make Predictive Call message) seconds, or within default 60 seconds (if Ring Timeout absent). The call is released. | Reinitiate the dial request at a later time. |
| 7 | Not used. | | |
| 8 | Not used. | | |
| 9 | Not used. | | |
| 10 | Not used. | | |
| 11 | Not used. | | |
| 12 | Not used. | | |

| Error Code Value | Error Code Description | Possible Conditions Causing the Error | Possible Actions to Take tc Correct the Error |
|---|---|---|---|
| 13 | Trunk No Activity detected. | The call has been outpulsed on an inband signalling trunk, but the ACD has timed out waiting for ringback tone from the network. | Reinitiate the dial request at some later time, verify phone number with the Host database Administrator, or verify health of trunk being used with the telephone company. |
| 14 | Not used. | | |
| 15 | The answer detector has become inoperable during the call | A hardware problem with the answer detector has occurred during the call. | Check the answer detector's health (DSP) and/or reinitiate the dial request. |
| 16 | Not used. | | |
| 17 | Not used. | | |
| 18 | Not used. | | |
| 19 | Not used. | | |
| 20 | The application's DN is invalid. | Host sent an invalid application directory number. The call reached its point of allocation, but then was disconnected. | Update host to reflect current ACD numbering plan. |
| -21 | The application's DN is valid, but not associated with an application. | Host's list of application directory numbers is inaccurate. The call reached its point of allocation, but then was disconnected. | Update host to reflect current ACD numbering plan. |
| 22 | The Application ID is invalid. | Host sent an Application ID that is out of range, or for which there is no defined application. The call reached its point of allocation, but then was disconnected. | Resynchronize host's database with ACD's, to reflec proper ACD Application ID numbering. |
| 23 | Not used. | | |
| 24 | A SIT was detected. | A Special Information Tone SIT was detected on the line; it was not possible to determine which particular SIT was present. | Check the validity of the off-net number being dialed, and reinitiate the dial request at some later time. |
| 25 | Answering machine detected. | An answering machine was detected on the line. | Regenerate the Make Predictive Call request at a time when human answer is more likely. |
| 26 | Trunk released due to distant end before answer. | The call was disconnected due to some response/event, e.g. some T1 failure, from the distant end before signaled answer. | Check health of trunk connection to network, and reinitiate the dial request at a later time. |

Table A-8. Call Not Held Errors

| Error Code Value | Error Code Description | Possible Conditions Causing the Error | Possible Actions to Take to Correct the Error |
|---|---|---|---|
| 1 | The Call ID is invalid. | The call ID is not associated with the specified LWN/position or the call ID is not active in the switch. | Inform Switch Database Administrator or Host Database Administrator. |
| 2 | The Position or the LWN is not associated with an ACD console. | The addressed position, indicated by Logical Workstation Number, or Position Directory Number in the message, may identify a VRU, or the host's table of LWNs or DNs has been corrupted. | Inform Switch Database Administrator or Host Database Administrator. |
| 3 | The Logical Workstation Number is invalid. | The LWN may have never been entered into the system, or never associated with the Position DN. | Inform supervisor and/or Host Database Administrator and/or Switch Database Administrator. |
| 4 | Transaction Link not activated for indicated device. | The staff indicated by the LWN or position in the request message has a Class of Service with the HOSTFLAG turned off. | Change the staff's COS, or turn on the HOSTFLAG for that staff's current COS. |
| 5 | The device is in an invalid state. | Some possible examples include: zip/flash is being played to position; the request may have been attempting to place a barged-in supervisor on hold; the device may be in menu mode; or the device is unplugged. | Once the device is in a valid state, the host may reinitiate the hold request. |

Table A-S. Call Not Retrieved Errors

| Error Code Value | Error Code Description | Possible Conditions Causing the Error | Possible Actions to Take to Correct the Error |
|---|---|---|---|
| 1 | The Call ID is invalid. | The call ID is not associated with the specified LWN/position or the call ID is not active in the switch. | Inform Switch Database Administrator or Host Database Administrator. |
| 2 | The Position or the LWN is not associated with an ACD console. | The addressed position, indicated by Logical Workstation Number, or Position Directory Number in the message, may identify a VRU, or the host's table of LWNs or DNs has been corrupted. | Inform Switch Database Administrator or Host Database Administrator. |
| 3 | The Logical Workstation Number is invalid. | The LWN may have never been entered into the system, or never associated with the Position DN. | Inform supervisor and/or Host Database Administrator and/or Switch Database Administrator. |
| 4 | Transaction Link not activated for indicated device. | The staff indicated by the LWN or position in the request message has a Class of Service with the HOSTFLAG turned off. | Change the staff's COS, or turn on the HOSTFLAG for that staff's current COS. |
| 5 | The device is in an invalid state. | Some possible examples include: zip/flash is being played to position; the request may have been attempting to place a barged-in supervisor on hold; the device may be in menu mode; or the device is unplugged. | Once the device is in a valid state, the host may reinitiate the hold request. |

# B

# Negative Response Error Codes

## Overview

This appendix lists the error codes that may he sent in Negative Response error messages indicating the reason why the Feature Access function could not be completed.

Table B-l. Error Codes for Negative Response to Feature Access

| Error Code Value | Error Code Description Causing the Error | Possible Conditions Causing the Error | Possible Actions to Take to Correct the Error |
|---|---|---|---|
| 1 | The Logical Workstation Number is invalid. | The Logical Workstation may have been dropped from the ACD system, or the Logical Workstation Number has been changed at the ACD. | Change Logical Workstation Number connection or inform supervisor or Host Database Administrator. |
| 2 | The console is not in a valid condition to allow the activity specified in the request. | The agent' or supervisor was in an invalid state to initiate the action. | Wait until the console is in a valid condition and reinitiate the sign-in attempt. |
| 3 | Invalid sign-in number. | The agent attempted to sign in with a sign-in number that had an invalid number of digits or was not valid on the ACD system. | Either reattempt to sign in to verify that the error was not encountered from entering the wrong number or contact the supervisor. |
| 4 | The agent's sign-in number is already active at another console. | The agent forgot to sign-out at another position or another agent is signed-in at the requested sign-in number. | Either sign-out from the other position or inform the supervisor of the sign-in number duplication. |
| 5 | The agent's or supervisor's position is out of service. | The desired console has been removed from service. | Inform supervisor and/or Host Database administrator. |
| 6 | Not used. | | |
| 7 | Not used. | | |

| Error Code Value | Error Code Description | Possible Conditions Causing the Error | Possible Actions to Take to Correct the Error |
|---|---|---|---|
| 8 | The position is vacant. | This indicates the headset is not plugged into the console. | Piug the headset into the console and attempt to sign-in |
| 9 | Not used. | | |
| 10 | The agent's information group is invalid. | The information group in the sign-in request is not within the valid range of information groups as defined in the ACD. | Inform supervisor and/or Host Database Administrator. |
| 11 | The agent's supervisor's sign-in number is invalid. | The supervisor sign-in number specified in the agent's sign-in request is invalid. | inform supervisor and/or Host Database Administrator. |
| 12 | The agent's agent group number is invalid. | The agent's supervisor's DN specified in the sign-in request is invalid. | Inform supervisor and/or Host Database Administrator. |
| 13 | Not used. | | |
| 14 | Not used. | | |
| 15 | Not used. | | |
| 16 | A supervisor is currently barged in to the agent's console. | The requested change (e.g. SignIn or SignOut) cannot be done since a supervisor is barged in the agent's console. | Inform supervisor and/or wait to change the agent's status until the supervisor leaves the barge-in. |
| 17 | Not used. | | |
| 18 | Not used. | | |
| 19 | Not used. | | |
| 20 | The position already has an agent or supervisor signed-in. | A sign-in request was received for a console that has a (different or same) agent signed-in. | Inform supervisor and/or Database Administrator. |
| 21 | Not used. | | |
| 22 | Not used. | | |
| 23 | Not used. | | |
| 24 | Not used. | | |
| 25 | The console position is already signed-out. | The supervisor's console has already been signed-out. | Inform master supervisor. |
| 26 | The supervisor's position cannot be set to Available and/or Call Work state(s). | The supervisor's console only be signed-out, or signed-in and unavailable. | Inform master supervisor. |
| 27 | The agent's or supervisor's directory number is invalid. | The agent or supervisor may have been dropped from the system, or the directory number was never entered. | Inform supervisor or master supervisor, and/or Database Administrator. |
| 28 | Two Primary or two secondary agent groups were specified in the message. | The type of one of the agent groups in the message is misrepresented in the host database. | Inform Host Database Administrator. |
| 29 | Not used. | | |
| 30 | Not used. | | |
| 31 | Not used. | | |

| Error Code Value | Error Code Description | Possible Conditions Causing the Error | Possible Actions to Take to Correct the Error |
|---|---|---|---|
| 32 | Not used. | | |
| 33 | Not used. | | |
| 34 | The supervisor signing-in cannot sign in to agent group(s). | The signed-in number was a supervisor's, not an agent's; Agent Group(s) have been wrongly attached to the Feature Access (Set) message, or the Sign-In Number was wrong. | inform Switch and/or Host Database Administrator. |
| 35 | Not used. | | |
| 36 | Not used. | | |
| 37 | The position is in a menu. | The console is currently in a menu, e.g., the CUSTOMIZE MENU, such that the requested change cannot be made. | Inform supervisor and/or wait until the console has exited the menu. |
| 38 | Transaction Link not activated for indicated agent or supervisor. | The agent or supervisor indicated by the LWN or Position in the request message has a class of service with the HOSTFLAG turned off. | Change the agent's COS, or turn on the HOSTFLAG for the agent's current COS. |
| 39 | The LWN or Position DN is associated with a VRU; Feature Access is for access to agent or supervisor consoles, not VRU. | The host's table of LWNs or Position DNs may have been corrupted: the LWN or Position DN had been associated with an agent or supervisor's console, but now is associated with a VRU. | Fix the host's tables, or have Switch Database Administrator reassociate the LWN or Position DN with the desired console or agent/supervisor, respectively. |
| 40 | Sign-out reason received for agent no! provisioned on switch with that option. | The agent is not provisioned for sign-out reasons and the host sent a sign-out request which contained a reason. | Edit the switch's provisioning for the agent if sign-out with reason is desired. |

■■ ■■ ■■

*Notes*

Rockwell Education Services

# *Index*

# E

End User Software License Agreement, 1

Error Code, message element, IO-21

Error Type, message element, 10-22

Error Value, message element, 10-23

Examples
  host no route tri tone calls, 7-5
  host route tri tone calls, 7-6
  make predictive call failure, 7-4
  routing of answering machine detection to an
      agent group, 7-7
  routing of answering machine detection to an
      announcement, 7-8
  successful make predictive call, 7-3

# F

Feature
  examples, 7-3
  message element, 10-23

# G

General Error Message, 9-2

General Messages feature, overview, 9-I

# H

Host Controlled Hold Feature, messages
  call held, 8-8
  call not held, 8-9
  call not retrieved, 8-10
  call retrieved, 8-9
  call status message, 6-11
  hold call, 8-8
  retrieve call, 8-9

Host Information, message element, 10-24

Mast Initiated Route Message
  examples, 6-20
  messages, 6-19

Host No Route Tri Tone Calls example, 7-5

Host Route Tri Tone Calls example, 7-6

# I

IEC Code, message element, 10-24

Instruction Needed, message element, 10-25

# L

License Agreement, 1

Logical Workstation Number, message element,
    10-25

Logical Workstation Number (LWN), assigning to
    device, 1-10

# M

Make Predictive Call example
  failure, 7-4
  successful, 7-3

Message Elements
  account information, 10-4
  activity, 10-5
  agent group, 10-6
  agent information group, 10-7
  agent state, 10-8
  allocation, 10-9
  application ID, 10-10
  application pacing information, 10-11
  application request number, 10-1 1
  barged-in call ID, 10-12
  call ID, 10-12
  call type, 10-13
  called party number, 10-14
  caller number, 10-15
  caller number identifier, 10-16
  calling device identifier, 10-16
  calling party number, 10-17
  completion reason, 10-18
  conferenced call's call ID, 10-19
  destination DN, 10-19
  detection method, 10-20
  DNIS number, 10-21
  error code, 10-21
  error type, IO-22
  error value, 1 O-23
  feature, 10-23
  host information, 10-24
  IEC code, 10-24
  instruction needed, 10-25
  logical workstation number, 10-25
  message for agent console, 10-26
  message type, 10-27
  on-hold call ID, 10-28
  origin announcement ID, 10-29